PRELIMINARY ENGINEERING REPORT
APPENDICES

Florida Department of Transportation

District 6

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From West of SW 137th Avenue to East of SW 127th Avenue

Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

June 21, 2024

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by FHWA and FDOT.

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PRELIMINARY ENGINEERING REPORT APPENDICES
(FINAL DRAFT)

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Project Development & Environment Study
From West of SW 137th Avenue to East of SW 127th Avenue
Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

June 21, 2024

APPENDICES

Appendix A – Project-Level Context Classification and Target Speed Memo

Appendix B – Project Traffic Analysis Report

Appendix C – Conceptual Drainage Report

Appendix D – Location Hydraulic Report

Appendix E – Bridge Hydraulic Report

Appendix F – Preliminary Geotechnical Report for Roadways

Appendix G – Preliminary Geotechnical Report for Bridge Widening/Replacement

Appendix H – Utility Assessment Package

Appendix I – Bridge Analysis Report

Appendix J – SFWMD Coordination

Appendix K – Traffic Analysis and Safety Methodology Memorandum

Appendix L – Preliminary Conceptual Design Plans

Appendix M – Right of Way Impacts

Appendix N – Value Engineering Study Report

Appendix O – Advance Notification Package

Appendix P – Public Involvement Plan

Appendix Q – Elected Official/Agency and Public Kick-Off Meeting Reports

Appendix R – Affected Parties Consultation Meetings

Appendix S – Alternatives Public Workshop Report

Appendix T – Preferred Alternative Preliminary Conceptual Design Plans

Appendix U – Typical Section Package

Appendix V – Design Variation Memorandum

Appendix W – Long Range Estimates

Appendix A – Project-Level Context Classification and Target Speed Memo

MEMORANDUM

To:	Kenneth Jeffries - FDOT District 6
From:	Jessica Josselyn and Spencer Maddox, PE – Kittelson & Associates, Inc.
Date:	April 22, 2024
Subject:	FM# 445804-1-22-01 SR 994 / SW 200th Street / Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Project Development & Environmental (PD&E) Study Project-level Context Classification (PLCC), Future Context Classification, and Target Speed Review

City/Town:	Unincorporated	County:	Miami-Dade
Road Name:	SW 200th Street / Quail Roost Drive	State Road Number:	994
Section Number:	87091000		
Begin Mile Point:	4.00	End Mile Point:	4.075

Per your request, we have completed our Project-level and Future Context Classification review for the above-mentioned project. The Planning Office is conducting Context Classification reviews as projects are conducted. The purpose of these reviews is to re-evaluate at a more granular level the original systemwide Context Classification (CC) assignments. On PD&E projects, the Future Context Classification is also reviewed as land use patterns and Context Classification can change by the time the project is implemented. Below is a summary of our findings:

Begin Mile Post: 4.000 (west of SW 137th Avenue)
End Mile Post: 4.075 (SW 137th Avenue)
Original Systemwide Classification: ▪ *C2 – Rural*
Project-level Context Classification (PLCC) Recommendation: ▪ ***C2 – Rural***
Future Context Classification Recommendation: ▪ ***C2 – Rural***

Begin Mile Post: 4.075 (SW 137th Avenue)
End Mile Post: 4.960 (SW 128th Avenue)
Original Systemwide Classification: ▪ *C3R – Suburban Residential*
Project-level Context Classification (PLCC) Recommendation ▪ ***C3R – Suburban Residential***
Future Context Classification Recommendation: ▪ ***C3R – Suburban Residential***

Begin Mile Post: 4.960 (SW 128th Avenue)
End Mile Post: 5.162 (east of SW 127th Avenue)
Original Systemwide Classification: ▪ *C3R – Suburban Residential*
Project-level Context Classification (PLCC) Recommendation: ▪ ***C3C – Suburban Commercial***
Future Context Classification Recommendation: ▪ ***C3C – Suburban Commercial***

Project-level and Future Context Classification Review

To determine the Future Context Classification, the following documents were reviewed:

- Miami-Dade County Comprehensive Development Plan
- Miami-Dade County Transit Development Plan
- Miami-Dade County Transportation Planning Organization Smart Plan

Justification for the Project-level and Future Context Classification recommendations is provided below:

***C2 – Rural* – SR 994 from west of SW 137th Avenue to SW 137th Avenue**

- Distinguishing characteristics are consistent with C2 – Rural:
  - Primarily sparsely settled agricultural land uses with some single-family residential. Existing land use is depicted in **Figure 1**.

- Primary and secondary measures are consistent with C2 – Rural, including:
    - Intersection density less than 20 per square mile.
- Future Land Use and Development
    - This roadway segment has an agricultural future land use and is outside the Miami-Dade County Urban Development Boundary. Transit is not planned for this segment. Future land use is depicted in **Figure 2**.

***C3R – Suburban Residential* – SR 994 from SW 137th Avenue to SW 128th Avenue**

- Distinguishing characteristics are consistent with C3R – Suburban Residential, including:
    - Mostly residential land uses and a disconnected roadway network. Existing land use is depicted in **Figure 1**.
- Primary and secondary measures are consistent with C3R – Suburban Residential, including:
    - Walled off single family residential land uses.
    - Intersections less than 100 intersections per square mile.
    - No fronting uses.
    - Transit is not present.
- Future Land Use and Development
    - This roadway segment has a residential future land use. Transit is not planned for this segment. Future land use is depicted in **Figure 2**.

C3C – Suburban Commercial – SR 994 from SW 128th Avenue to east of SW 127th Avenue

- Distinguishing characteristics are consistent with C3C – Suburban Commercial, including:
    - Primarily commercial land uses and a disconnected roadway network.
- Primary and secondary measures are consistent with C3C – Suburban Commercial, including:
    - Primarily commercial land uses with a large building footprint.
    - Intersections less than 100 intersections per square mile.
    - Block perimeter greater than 2,500 feet.
    - Block length greater than 500 feet.
    - Parking primarily in the front and in the side.
- Future Land Use and Development
    - This roadway segment has a primarily commercial future land use with some residential. Transit is not planned for this segment. Future land use is depicted in **Figure 2**.

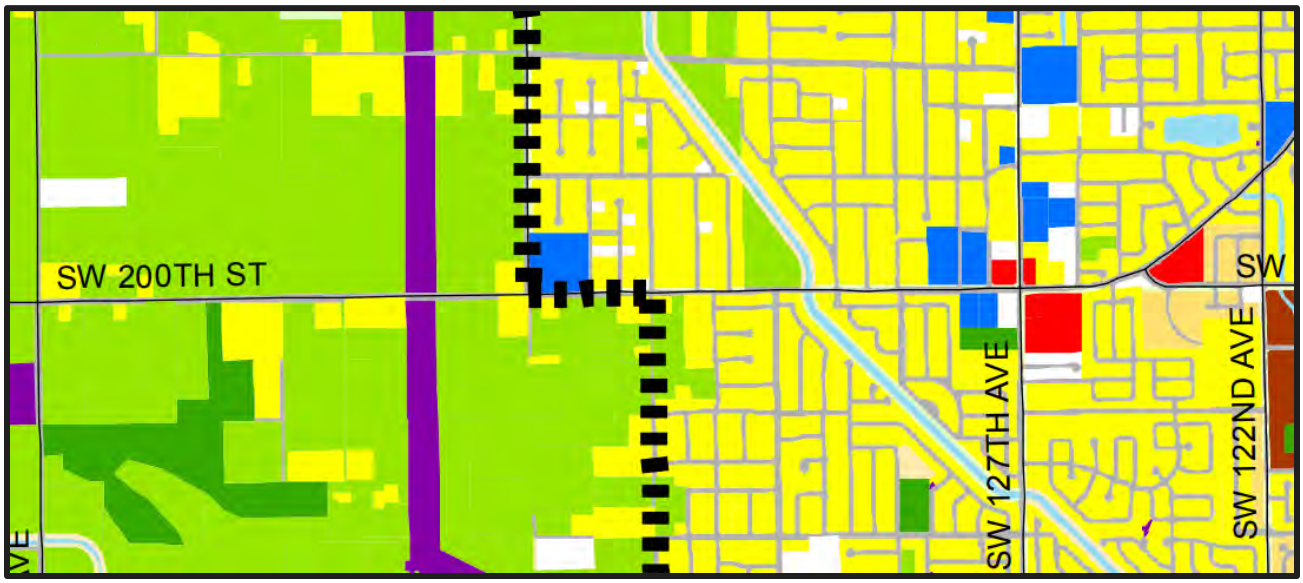


Figure 1. Miami-Dade County Existing Land Use

Figure 2. Miami-Dade County Future Land Use (2030)

Target Speed Review

FDM Requirements and Guidance

Per the Florida Design Manual (FDM) 205.1.1, "it is considered best practice to provide initial Target Speed values as a part of the Context Classification determination." The Planning Office is conducting initial Target Speed evaluations as a part of the RRR candidate process to inform the RRR Scope and incorporate any recommended speed management measures.

When setting the Target Speed, FDM 201.5.1 (provided in Appendix A) states "the Target Speed must:

- Be within the range of Design Speeds for the context classification (see Table 201.5.1);
- Reflect the needs of safety, quality of life, and economic development of the corridor; and
- Be established by a team that includes, but is not limited to, Design, Traffic Operations, Safety, Planning, and Program Management offices."

Additionally, FDM 201.5.1 provides the following guidance when determining the Target Speed:

- "In C2T through C6, consider starting with target speeds on the lower end of the range with justification provided for higher speeds…See the FDOT Context Classification Guide for more information about determining appropriate target speed."

The FDOT Context Classification Guide (excerpt provided in Appendix B), provides the steps to determine the target speed.

1. Determine *FDM* Consistency
2. Identify Starting Point for Target Speed
3. Identify Project Needs
    a. Who are the intended users? Are pedestrians, bicyclists, and transit riders traveling along or across the roadway?
    b. What are potential safety challenges? Are safety needs identified on the Safety Needs List Dashboard? Does crash data identify bicycle or pedestrian crashes? What is the frequency, severity, and key crash patterns of auto crashes?
    c. Are there special population groups using the corridor (lower income, 0-car households, aging population, school age children)?
    d. What is the level of community support? Has the community requested lower speeds?
    e. What is the transportation role of the roadway in the network? Is it used to access destinations? What is the density of driveways, side streets, and signals?
4. Review Potential Countermeasures
5. Document Target Speed

PLEMO Target Speed Review and Recommendations

The Planning Office has conducted a Target Speed review of the corridor consistent with the FDM and the FDOT Context Classification Guide. The results of the Target Speed Review are presented below:

1. **Determine FDM Consistency**
    a. The allowable design speed range per the FDM is the following:
        i. C2 – (55-70 mph); Note the existing posted speed is 40 mph, and the existing design speed is 40 mph. The PD&E Study assumes a 40 mph posted and design speed.
        ii. C3R & C3C – (35-55 mph); Note the existing posted speed is 40 mph, and the existing design speed is 40 mph. The PD&E Study assumes a 40 mph posted and design speed.
2. **Identify Starting Point for Target Speed**
    a. Per the ***FDOT Context Classification Guide***, the starting point for target speed in C2 is the high end of the target speed range (70 mph), and a decrease should be justified. The starting point for target speed C3R and C3C is the low end of the target speed range (35 mph), and an increase should be justified.
3. **Identify Project Needs**
    a. Who are the intended users? Are pedestrians, bicyclists, and transit riders traveling along or across the roadway?
        i. The corridor serves a mix of modes including vehicles, pedestrians, and bicyclists. There are currently no on street bicycle facilities and the sidewalks are not continuous. There is an existing RRFB trail crossing east of the bridge.
    b. What are potential safety challenges? Are safety needs identified on the Safety Needs List Dashboard? Does crash data identify bicycle or pedestrian crashes? What is the frequency, severity, and key crash patterns of auto crashes?
        i. From the Crash Analysis, the corridor is a high crash segment with 3 high crash spots. From 2015 – 2021, one pedestrian crash and one bicycle crash occurred. Three fatalities (two left-turns and one angle) occurred from 2015 – 2021. The highest frequency of crash types were rear-end crashes followed by angle and left-turn crashes.
    c. Are there special population groups using the corridor (lower income, 0-car households, aging population, school age children)?
        i. Based on a review of the FHWA's Transportation Disadvantage Census Tracts, the corridor is located in Historically Disadvantaged Census Tracts.
    d. What is the level of community support? Has the community requested lower speeds?
        i. During the Community Outreach, one resident noted existing speeding and noise concerns, especially at night, along the corridor. The resident was also concerned that the alternatives could expose properties to run-off road crashes.
    e. What is the transportation role of the roadway in the network? Is it used to access destinations? What is the density of driveways, side streets, and signals?
        i. SR 994 connects east west traffic in southern Miami-Dade County. The existing traffic signal spacing is approximately 1.00 mile. The PD&E proposes a signal at SW 134th Avenue and the signal spacing would be 0.25 to 0.75 miles.

4. **Review Potential Countermeasures:**

Potential countermeasures are identified in FDM Table 202.3.1 by Context Classification and Target Speed. Proposed speed management strategies were included in the RRR Draft Scoping Report and RRR Safety Review and summarized below:

<u>Existing Speed Management Strategies along Corridor</u>

- RRFB Trail Crossing
  - The RRFB Trail Crossing preferred alternative is an underpass in the PD&E

<u>Proposed Speed Management Strategies along Corridor</u>

- Raised medians

Additional Speed Management countermeasures to consider will be provided as an ERC comment.

Document Target Speed

Given the bicycle and pedestrian activity crash history, the context classification, and guidance from the FDM and FDOT Context Classification Guide, a Target Speed of 40-mph is recommended for the entire SR 994 segment which is consistent with the PD&E Design and Posted Speed.

- The recommended Target Speed is outside the range for the C2 segment; however, this segment is approaching a signalized intersection at SW 137th Avenue, and it is recommended to transition any speed changes prior to SW 137th Avenue.

<u>Conclusion</u>

The Planning Office is conducting Context Classification reviews as projects are conducted. The purpose of these reviews is to re-evaluate at a more granular level the original systemwide Context Classification (CC) assignments. On PD&E projects, the Future Context Classification is also reviewed as land use patterns and Context Classification can change by the time the project is implemented. Our review concluded that the Project-level Context Classification (PLCC) and Future Context Classification for SR 994 / SW 200th Street / Quail Roost Drive is the following:

C2 – Rural from west of SW 137th Avenue to SW 137th Avenue, consistent with the original systemwide context classification.

C3R – Suburban Residential from SW 137th Avenue to SW 128th Avenue, consistent with the original systemwide context classification.

C3C – Suburban Commercial from SW 128th Avenue to east of SW 128th Avenue, which is recommended to change from the original systemwide context classification of C3R – Suburban Residential.

The Planning Office is also conducting Target Speed reviews for PD&E Studies. The Target Speed review concluded that given the bicycle and pedestrian activity crash history, the context classification, and guidance from the FDM and FDOT Context Classification Guide, a Target Speed of 40-mph is recommended for the SR 994 corridor from west of SW 137th Avenue to east of SW 128th Avenue.

Appendix A
FDM 201.5.1 Design Speed Selection

Speed must consider many factors. The AASHTO publication, ***A Policy on Geometric Design of Highways and Streets***, has a thorough discussion on Design Speed.

There are three categories of Design Speed:

High Speed: Design Speeds 50 mph and greater.

Low Speed: Design Speeds of 45 mph and less.

Very Low Speed: Design Speeds 35 mph and less.

201.5.1 Design Speed Selection

Design Speed should be selected early in the design process and should reflect the Target Speed (see below). Select a context-appropriate Design Speed to attain a desired degree of safety, mobility, and efficiency. Where the initial recommended Target Speed value is not feasible to attain in a single project, the Target Speed should be as close to the initial Target Speed values as can be achieved within the constraints of the project. Adjust both the Design Speed and Target Speed as appropriate to achieve a single value appropriate to the project. Select Design Speeds in increments of 5 mph.

Target Speed is the highest speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multi-modal activity generated by adjacent land uses, to provide both mobility for motor vehicles and a supportive environment for pedestrians, bicyclists, and public transit users. Determine appropriate Target Speed for all non-limited access projects where a Design Speed is also required. The Target Speed must:

- Be within the range of Design Speeds for the context classification (see ***Table 201.5.1***),
- Reflect the needs of safety, quality of life, and economic development of the corridor, and
- Be established by a team that includes, but is not limited to, Design, Traffic Operations, Safety, Planning, and Program Management offices.

It is expected that initial Target Speed values may be modified during project scoping to achieve the Target Speed as additional information is gathered and project scoping decisions are made. See the ***FDOT Context Classification Guide*** for more information about determining appropriate Target Speed.

In general, the Target Speed for C1 and C2 roadways should be on the higher end of the Design Speed range, with justification provided for lower speeds. In C2T through C6,

consider starting with Target Speeds on the lower end of the range with justification provided for higher speeds.

It is considered a best practice to provide initial Target Speed values as part of the Context Classification determination. These initial values can be an effective starting point for the establishment of the Target Speed. For RRR projects where the initial Target Speed value is below the existing Design Speed or Posted Speed Limit, see ***FDM 202*** for Speed Management techniques to better align the Design Speed with Target Speed. In many cases, the Design Speed and the initial Target Speed values may both need to be changed to arrive at a Target Speed appropriate for the project.

*Commentary: The 85th-percentile observed speed is a starting point when traffic engineers conduct a speed study for setting speed limits (see the **FDOT Speed Zoning Manual** for more information, if desired.). The 85th percentile speed should be considered when selecting the Target Speed, but the Target Speed does not have to match the 85th-percentile speed.*

In many cases, speed management is required because the existing 85th-percentile speed is too high for current conditions, so setting Target Speed equal to the existing 85th-percentile speed would fail to accomplish the speed management objectives. The primary value of knowing the existing 85th percentile speed is to understand the potential magnitude of speed management interventions that may be required to achieve a selected Target Speed. Large speed reductions of more than 10 mph, for instance, may need to be approached incrementally over several projects, rather than achieved at once on a single project.

The District Design Engineer (DDE) and the District Traffic Operations Engineer (DTOE) jointly approve the selected Design and Posted Speeds. This approval is a declaration that the Posted Speed will not exceed the selected Design Speed. This is to be documented on the Typical Section Package as described in ***FDM 120.2.3***.

Table 201.5.1 provides an allowable range of mainline Design Speeds on the State Highway System. ***Table 201.5.2*** provides the minimum Design Speeds allowed on ramps.

Modification for Non-Conventional Projects:
See RFP for Design Speed and Target Speed.

Table 201.5.1 Design Speed

Limited Access Facilities (Interstates, Freeways, and Expressways)		
Area	**Allowable Range (mph)**	**SIS Minimum (mph)**
Rural and Urban	70	70
Urbanized	50-70	60
Arterials and Collectors		
Context Classification	**Allowable Range (mph)**	**SIS Minimum (mph)**
C1 Natural	55-70	65
C2 Rural	55-70	65
C2T Rural Town	25-45	40
C3 Suburban	35-55	50
C4 Urban General	25-45	45
C5 Urban Center	25-35	-
C6 Urban Core	25-30	-

Notes:

(1) SIS Minimum Design Speed may be reduced to 35 mph for C2T Context Classification when appropriate design elements are included to support the 35-mph speed, such as on-street parking.

(2) SIS Minimum Design Speed may be reduced to 45 mph for curbed roadways within C3 Context Classification.

(3) For SIS facilities on the State Highway System, a selected Design Speed less than the SIS Minimum Design Speed requires a Design Variation as outlined in ***SIS Procedure (Topic No. 525-030-260)***.

(4) For SIS facilities not on the State Highway System, a selected Design Speed less than the SIS Minimum Design Speed may be approved by the District Design Engineer following a review by the District Planning (Intermodal Systems Development) Manager.

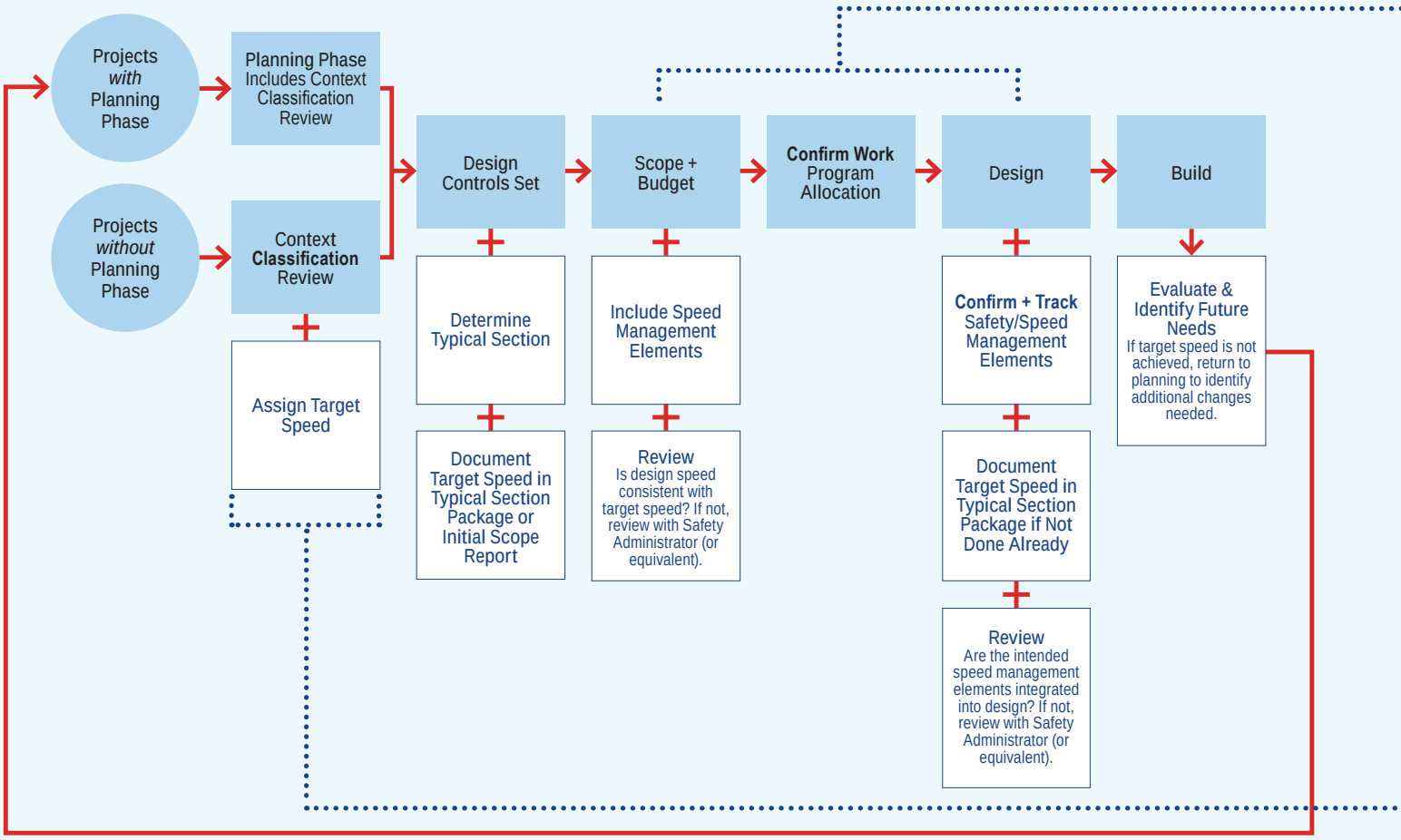
(5) SIS minimum Design Speed may be reduced to 30 mph for C2T, C3, and C4 for facilities with a transit route.

Appendix B
Context Classification Guide Target Speed Guidance

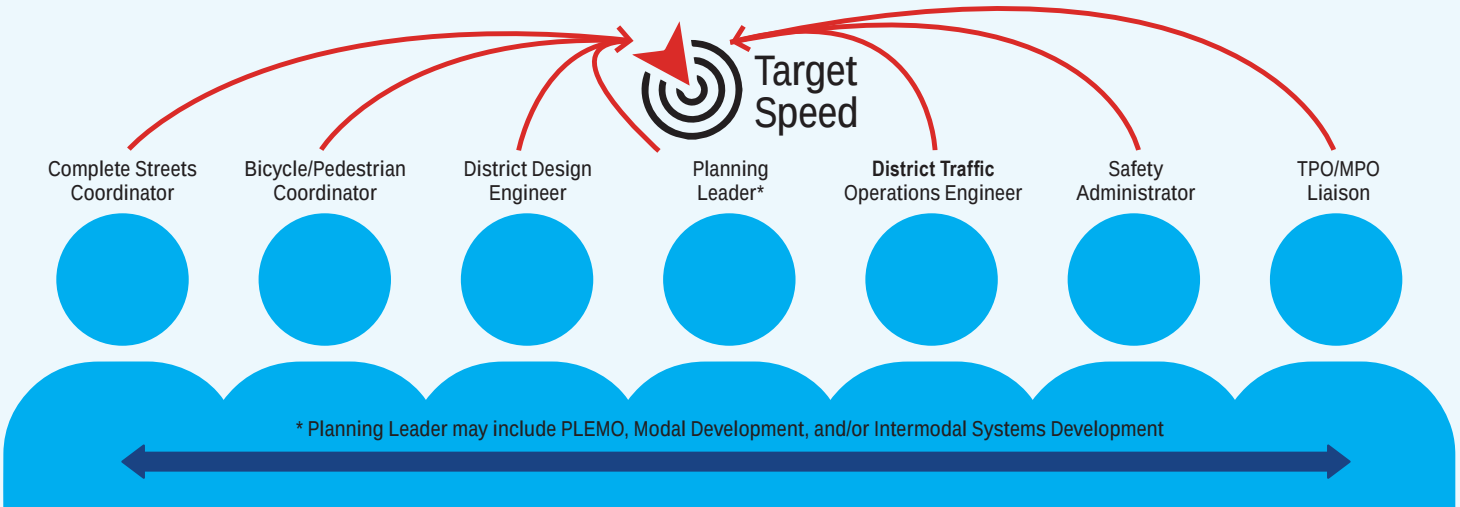
DETERMINING THE TARGET SPEED

The target speed must be identi ed early in the development process to inform and in uence the selection and establishment of the design speed. Each District should de ne its own process for setting target speeds, including the individuals responsible. **Figure 19** shows an example process that identi es target speeds during the planning phase of the project and at the same time that the context classi cation is determined. Many datapoints used to de ne context classi cation also aid in determining target speed. **Districts should develop and adjust the process as needed to meet their unique needs, maintaining the key element of identifying and documenting target speed early in the process and prior to scope development.**

FIGURE 19 EXAMPLE PROCESS TO DETERMINE TARGET SPEED



The target speed should be identi ed by a multidisciplinary group of engineers and planners. This group can work together to set the target speed and make sure the elements identi ed to achieve the target speed are carried through scoping, design, and implementation.



Include design elements to achieve the target speed in project scopes to limit changes after scoping. During design, scoped safety and speed management elements should be tracked for inclusion in the nal project design. If elements are removed, they should be discussed with the District Safety Administrator or equivalent.

Within the design speed range, use the steps below to assign a target speed. The rst two steps can be used to determine an initial target speed and may serve as a reasonable stopping point. Steps 3 through 5 help re ne the target speed and arrive at a target speed that is more likely to be achieved based on project constraints.

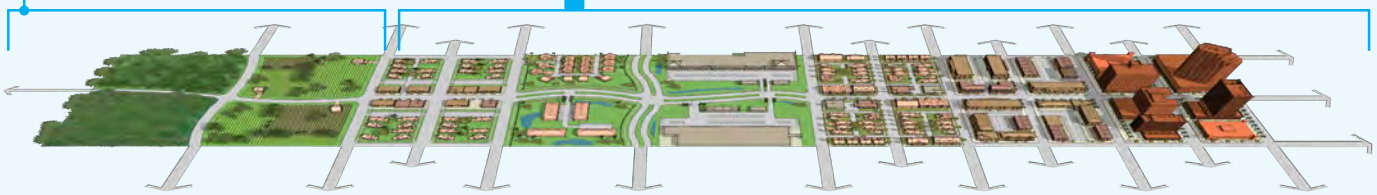
STEPS TO DETERMINING TARGET SPEED

1. **DETERMINE *FDM* CONSISTENCY:** Identify context classi cation, current design and posted speed, SIS designation, and ***FDM*** design speed range

2. **IDENTIFY STARTING POINT FOR TARGET SPEED:**

In C1 and C2, start at the high end of the design speed range and **justify reduction**.

In C2T, C3R, C3C, C4, C5, and C6 start at the low end of the design speed range and **justify increase**.



3. **IDENTIFY PROJECT NEEDS:** Re ne the target speed using the following questions:

   a. Who are the intended users? Are pedestrians, bicyclists, and transit riders traveling along or across the roadway?

   b. What are potential safety challenges? Are safety needs identi ed on the Safety Needs List Dashboard? Does crash data identify bicycle or pedestrian crashes? What is the frequency, severity, and key crash patterns of auto crashes?

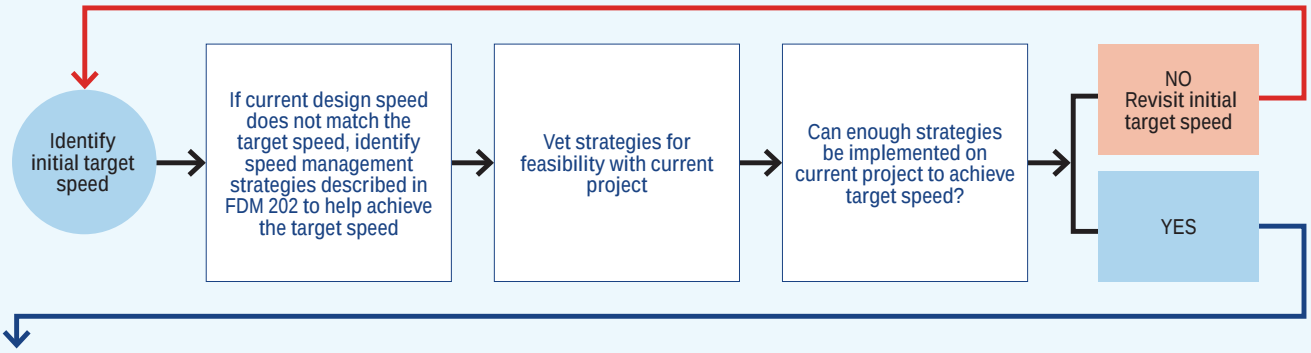
   c. Are there special population groups using the corridor (lower income, 0-car households, aging population, school age children)?

   d. What is the level of community support? Has the community requested lower speeds?

   e. What is the transportation role of the roadway in the network? Is it used to access destinations? What is the density of driveways, side streets, and signals?

Under a safe system approach, the absence of crashes does not mean the current posted speed is appropriate. Characteristics such as conflict points and separation of users can inform potential safety challenges. The FDM allows design flexibility to support the safe system approach and proactive safety efforts.

4. **REVIEW POTENTIAL COUNTERMEASURES:**



5. **DOCUMENT TARGET SPEED:** If the initial recommended target speed value is not feasible to attain in a single project, the target speed should be as close to the initial target speed values as can be achieved within the constraints of the project.

Appendix B – Project Traffic Analysis Report

PROJECT TRAFFIC ANALYSIS REPORT

Florida Department of Transportation

District 6

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From West of SW 137th Avenue to East of SW 127th Avenue

Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

June 2024

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

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Project Development & Environment Study
From West of SW 137th Avenue to East of SW 127th Avenue
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Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

June 2024

SR 994/SW 200th Street/Quail Roost Dr.
From West of SW 137th Avenue
to East of SW 127th Avenue

Financial Project ID: 445804-1-22-01

Project Traffic Analysis Report
(FINAL DRAFT)

Prepared for:

Florida Department of Transportation

District Six

Raul Quintela, PE
FDOT Project Manager

Prepared By:

Choice Engineering Consultants
Gannett Fleming, Inc.

June 14, 2024

TABLE OF CONTENTS

LIST OF FIGURES iv
LIST OF TABLES v
EXECUTIVE SUMMARY vii
1.0 INTRODUCTION 1
1.1 PROJECT DESCRIPTION 1
1.2 RELEVANT STUDIES & PROJECTS 1
1.3 AREA OF INFLUENCE 3
1.4 PURPOSE OF THE PROJECT TRAFFIC ANALYSIS REPORT 3
2.0 PURPOSE AND NEED FOR THE PROJECT 4
2.1 PURPOSE & NEED 4
2.1.1 Capacity/Transportation Demand 4
2.1.2 Safety 5
2.1.3 Modal Interrelationships 5
2.1.4 Evacuation Routes and Emergency Services 6
3.0 EXISTING CONDITIONS 7
3.1 ROADWAY CONDITIONS 7
3.2 DATA COLLECTION 9
3.3 SEVENTY-TWO (72)-HOUR BI-DIRECTIONAL MACHINE COUNTS 9
3.4 SIX (6)-HOUR INTERSECTION TURNING MOVEMENT COUNTS (TMCS) 11
3.5 FIELD OBSERVATIONS SUMMARY 17
3.6 TRAFFIC FACTORS 24
3.7 EXISTING CONDITIONS ANALYSIS 25
3.7.1 Arterial Analysis Results 27
3.7.2 Intersection Analysis Results 28
3.7.3 Safety Analysis 33
4.0 RRFB MIDBLOCK CROSSING REVIEW 48
5.0 SIGNAL WARRANT ANALYSIS 51
5.1 SR 994 AT SW 134TH AVENUE 52
5.2 SR 994 AT SW 132nd AVENUE 56
6.0 INTERSECTION CONTROL EVALUATION 58
6.1 SR 994 AT SW 137th AVENUE 58

6.2 SR 994 AT SW 134th AVENUE 59
7.0 FUTURE TRAFFIC CONDITIONS 62
7.1 SCENARIOS 62
7.2 FUTURE TRAFFIC PROJECTION METHODOLOGY 64
7.2.1 SERPM Background 64
7.2.2 Study Traffic Forecast Development 65
7.2.3 Land Use & Socioeconomic Data Review 66
7.2.4 Roadway Characteristics and Network Review 70
7.2.5 Base Year Validation & 2021 Traffic Counts Check 70
7.3 FUTURE YEAR TRAFFIC FORECAST 74
7.3.1 Future Intersection Volumes 77
7.4 FUTURE OPERATIONAL ANALYSIS 91
7.4.1 Arterial Analysis Results 108
7.4.2 Intersection Analysis Results 110
8.0 FUTURE SAFETY CONDITIONS 124
8.1 FUTURE SAFETY ANALYSIS 124
8.2 SHARED-USE PATH ANALYSIS 132
9.0 ALTERNATIVE SELECTION MATRIX 135
10.0 ENHANCEMENTS TO PREFERRED ALTERNATIVE 139
11.0 CONCLUSION AND RECOMMENDATIONS 143

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APPENDICES

Appendix A – Relevant Studies & Projects

Appendix B – Data Collection

Appendix C – Signal Timing and Phasing

Appendix D – Existing Synchro Analysis Worksheets

Appendix E – Crash Summary

Appendix F – Signal Warrant Analysis for SW 134th Avenue

Appendix G – Signal Warrant Analysis for SW 132nd Avenue

Appendix H – Intersection Control Evaluation for SW 137th Avenue

Appendix I – Intersection Control Evaluation for SW 134th Avenue

Appendix J – TMTOOL Worksheets

Appendix K – Future Synchro Analysis Worksheets

Appendix L – Predictive Method for Urban & Suburban Arterials Worksheets

Appendix M – Clearinghouse CMFs

Appendix N – Refined Build 2 – Future Synchro Analysis Worksheets

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LIST OF FIGURES

Figure	Title	Page
Figure 1: Project Location Map		2
Figure 2. Existing Intersection Lane Configurations & Traffic Controls for Study Corridor		8
Figure 3. Average Daily Traffic		10
Figure 4. Existing AM & PM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor		15
Figure 5. Existing AM & PM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor		16
Figure 6. Field Observations for Study Corridor – AM		18
Figure 7. Field Observations for Study Corridor – AM		19
Figure 8. Field Observations for Study Corridor – AM		20
Figure 9. Field Observations for Study Corridor – PM		21
Figure 10. Field Observations for Study Corridor – PM		22
Figure 11. Field Observations for Study Corridor – PM Peak Hour		23
Figure 12. Collision Diagram for Study Corridor (at SW 137th Ave)		39
Figure 13. Collision Diagram for Study Corridor (SW 135th Ave to SW 134th Ct)		40
Figure 14. Collision Diagram for Study Corridor (SW 134th Ave to SW 133rd Ct)		41
Figure 15. Collision Diagram for Study Corridor (SW 133rd Ave to SW 132nd Ct)		42
Figure 16. Collision Diagram for Study Corridor (SW 132nd Ave to SW 130th Ave)		43
Figure 17. Collision Diagram for Study Corridor (SW 129th Ct to SW 129th Ave)		44
Figure 18. Collision Diagram for Study Corridor (west of SW 127th Ave)		45
Figure 19. Collision Diagram for Study Corridor (at SW 127th Ave)		46
Figure 20. Collision Diagram for Study Corridor (east of SW 127th Ave)		47
Figure 21. Guidelines for the Installation of Pedestrian Treatments		50
Figure 22. Projects and Roadways within 1-Mile Radius of Study Corridor		65
Figure 23. Existing Land Use within/near Study Corridor		68
Figure 24. Adopted 2030 & 2040 Land Use within/near Study Corridor		69
Figure 25. 2015 Base, 2025 Opening & 2045 No Build/Build Future AADTs for the Study Corridor		75
Figure 26. 2025 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		83
Figure 27. 2025 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		84
Figure 28. 2045 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		85
Figure 29. 2045 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		86
Figure 30. 2025 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		87
Figure 31. 2025 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		88
Figure 32. 2045 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor		89

Figure 33. 2045 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor.....90
Figure 34. Existing & No-Build Alternative Roadway Conditions from SW 137th Ave to SW 134th Ave96
Figure 35. Build Alternative Roadway Conditions at SW 137th Ave.....97
Figure 36. Build Alternative Roadway Conditions at SW 135th Ave & SW 134th Ct.....98
Figure 37. Build Alternative Roadway Conditions at SW 134th Ave.....99
Figure 38. Existing & No Build Alternative Roadway Conditions from SW 133rd Ct to SW 132nd Ave100
Figure 39. Build Alternative Roadway Conditions from SW 133rd Ct to SW 132nd Ave 101
Figure 40. Existing & No Build Alternative Roadway Conditions from SW 130th Ave to SW 129th Ave102
Figure 41. Build Alternative Roadway Conditions from SW 130th Ave to SW 129th Ave**Error! Bookmark not defined.**
Figure 42. Existing & No Build Alternative Roadway Conditions at SW 127th Ave 104
Figure 43. Build Alternative Roadway Conditions at SW 127th Ave.....105
Figure 44. Screen Capture of SimTraffic Simulation 120

LIST OF TABLES

Table **Title** **Page**

Table 1. Existing AM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor.....13
Table 2. Existing PM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor.....14
Table 3. FDOT Standard K Factors 24
Table 4. FDOT Recommended D Factor Ranges.....24
Table 5. Existing Operational Results AM & PM for SR 994 Arterial.....27
Table 6. Existing Operational Results AM & PM for SW 137th, 134th & 127th Avenues.....30
Table 7. Existing Operational Results for Critical Movements at Unsignalized Intersections 32
Table 8. FDOT Crash Summary (2014 to 2018) for Study Corridor 34
Table 9. Signal Four Crash Summary (2014 to Sept. 15, 2021) for Study Corridor 36
Table 10: Pedestrian & Bicyclist Counts for RRFB Midblock Crossing 49
Table 11. Summary of Signal Warrant Analysis for SW 134th Ave 54
Table 12. Summary of Signal Warrant Analysis for SW 132nd Ave 57
Table 13. Socioeconomic Data Growth 67
Table 14. Base Year Validation for the Roadways within the 1-Mile Project Radius.....71
Table 15. Year 2021 Traffic Counts & SERPM Model Volumes Comparison 73
Table 16. 2025 & 2045 AADTs & Estimated Growth Rates for the Study Corridor 76
Table 17. 2025 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor 79
Table 18. 2045 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor 80

Table 19. 2025 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor.....81
Table 20. 2045 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor.....82
Table 21. Build Alternatives 1 & 2 Traffic Volumes AM & PM Peak Hours 106
Table 22. Build Alternative 3 Traffic Volumes AM & PM Peak Hours.....107
Table 23. Existing & 2025 Arterial Operational Results AM & PM for SR 994 108
Table 24. Existing & 2045 Arterial Operational Results AM & PM for SR 994 109
Table 25. No Build & Build 1 Operational Results 2025 & 2045 AM & PM for SW 137th Ave 112
Table 26. Build 2 & 3 Operational Results 2025 & 2045 AM & PM for SW 137th Ave.....113
Table 27. No Build & Build 1 Operational Results 2025 & 2045 AM & PM for SW 134th Ave 115
Table 28. Build 2 & 3 Operational Results 2025 & 2045 AM & PM for SW 134th Ave.....116
Table 29. No Build & Build 1 Operational Results 2025 & 2045 AM & PM for SW 127th Ave 118
Table 30. Build 2 & 3 Operational Results 2025 & 2045 AM & PM for SW 127th Ave.....119
Table 31. No Build & Build 1 2025 & 2045 Operational Results for Critical Movements at Unsignalized Intersections.....122
Table 32. Build 2 & 3 2025 & 2045 Operational Results for Critical Movements at Unsignalized Intersections.....123
Table 33: 2045 Design Year Safety Analysis for No Build & Build Alternatives - Segments.....130
Table 34: 2045 Design Year Safety Analysis for No Build & Build Alternatives – Intersections.....131
Table 35: Alternatives Evaluation Matrix.....137
Table 36. Build 2 (Refined) Operational Results 2045 AM & PM for SW 137th Ave.....141
Table 37. Build 2 (Refined) Operational Results 2045 AM & PM for SW 134th Ave.....142

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to address safety, traffic operations, and capacity issues along State Road (SR) 994/SW 200th Street/Quail Roost Drive in southwest Miami-Dade County. The study area spans from just west of SW 137th Avenue to just east of SW 127th Avenue, covering approximately 1.67 miles. The project's goal is to accommodate future travel demand resulting from population and employment growth in the area. Additional objectives of this project include improving the overall safety conditions along the corridor, including emergency evacuation and response times, and enhancing mobility options and multi-modal access.

As of 2022, Miami-Dade County, the most populous county in Florida, had approximately 2.6 million residents. By 2045, the county's population is forecasted to grow by around 33% to reach 3.5 million residents. Between SW 137th Avenue and SW 127th Avenue, the corridor has experienced a 7 percent increase in Annual Average Daily Traffic (AADT) from 2015 to 2019, with traffic volumes climbing from 17,900 to 19,200 vehicles per day. This upward trend in traffic is expected to persist due to population growth and ongoing residential development within infill parcels along the study corridor, such as the Willow Trace development currently under construction.

Safety stands as a top priority for this project, aligning with the Department's Target Zero initiative. This statewide safety endeavor aims to eliminate transportation-related serious injuries and fatalities in Florida entirely. The Department's Target Zero initiative aims to address Florida's average of eight fatalities and 49 serious injuries daily on its roads, often attributed to driver behavior. This effort seeks to adapt the transportation system to better serve drivers frequently involved in accidents leading to serious injuries and fatalities.

Over the 2014-2018 five-year study period, 390 crashes were documented within the project limits. The leading crash types along the corridor were Rear-End (187 crashes), Angle (77 crashes), and Sideswipe (43 crashes). In terms of severity, 65% (254 crashes) were property damage only crashes, 35% (135 crashes) were injury crashes, and less than 1% (1 crash) was fatal. According to FDOT’s 2014–2018 High Crash Lists, several locations along the corridor were identified as high-crash spots/segments. According to the safety review, congestion/lack of capacity and lack of left-turn lanes serve as the probable causes of the safety issues within the corridor. Providing additional capacity and improving intersections along the corridor are anticipated to result in reduced crashes and safety benefits.

The purpose of this Project Traffic Analysis Report is to examine the existing traffic and safety conditions of SR 994 to predict the future operational and safety characteristics of the study corridor for the following scenarios:

- Existing Conditions 2021 for AM & PM Peak Hours
- No Build Alternative 2025 & 2045 for AM & PM Peak Hours
- Build Alternatives 2025 & 2045 for AM & PM Peak Hours
    - Build 1: Includes widening SR 994 to provide a raised median with left-turning opportunities from and onto the side streets while implementing access management enhancements. Additionally, implement several capacity improvements at the signalized intersections of SW 137th Avenue and SW 127th Avenue, and upgrade the stop-controlled intersection of SW 134th Avenue to signal control.
    - Build 2: In addition to the improvements in Build 1, this alternative widens SR 994 from two lanes to four lanes.
    - Build 3: In addition to the improvements in Build 2, this alternative implements additional access management enhancements.

Section 7.4 of this report provides detailed discussion on the Build alternatives, noting that a Transportation Systems Management (TSM) Alternative was initially considered but later discontinued from further analysis. A TSM alternative is defined by FHWA as a set of strategies that focus on operational improvements that can maintain or restore the performance of the existing transportation system before extra capacity is needed. The TSM alternative, focusing on operational improvements without increasing capacity, was excluded due to high right-of-way costs needed to achieve desired level of service D at main study intersections, as estimated in **Section 7.0**. As a result, the TSM alternative was deemed impractical due to its high cost and potential impacts on historic and environmental sites. The analysis covers AM and PM traffic for existing conditions (2021), project opening year (2025), and design year (2045). The No Build Alternative serves as a baseline for comparing traffic patterns and potential improvements associated with the proposed Build Alternatives, all of which include signal timing optimization discussed in detail in **Section 7.1**. The following main projects were included in the alternatives, which are expected to be completed by 2025:

- *Beginning with No Build:* The south leg at the signalized intersection of SW 137th Avenue opens to traffic under Miami-Dade County Project No. 20040343. It was under construction at the beginning of this current effort, but it was approximately opened to

traffic in June 2022. An Intersection Control Evaluation (ICE) was performed for SW 137th Avenue per the guidelines presented by FDOT's Manual on Intersection Control Evaluation (January 2021) for design year 2045 traffic conditions. The purpose of ICE is to "consistently consider multiple context-sensitive control strategies when planning a new or modified intersection." The ICE process is applicable since opening the south leg introduces new vehicle movements at the intersection. Based on the level of traffic demand at this intersection, a 1-lane roundabout was dismissed as a feasible option since it has insufficient capacity for this study intersection. A 2-lane roundabout at this location was considered, but it was also dismissed since the AM and PM v/c ratios were near or above capacity (>1.0). Additionally, the 2-lane roundabout obtained a safety ranking below the intersection's roadway condition in 2045. Upon the Department's approval of the Stage 1 screening, the improvement strategies to be moved to ICE's Stage 2 are the Build 1 and 2 Alternatives.

- *Beginning with No Build:* An exclusive northbound right-turn bay is being constructed at the intersection of SW 127th Avenue under Miami-Dade County Project No. 20180004.

In addition, SW 137th Avenue will be widened by the County to a four-lane roadway by 2045. The intersection traffic control at SW 137th Avenue is to remain as signal control.

Aside from the new signal at SW 134th Avenue, no additional traffic signals are being recommended as part of the Build Alternatives based on the findings of this Project Traffic Analysis Report. A signal warrant analysis performed at the intersection of SW 132nd Avenue per the warrants presented by Chapter 4C of the Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition under this current effort confirmed that a signal is not warranted at this time. The crash pattern of westbound rear-end collisions identified by the crash analysis is expected to be addressed with the placement of a westbound left-turn lane on SR 994 at the intersection, as part of the any of the Build Alternatives.

During the design development of the Build Alternatives, improvements to pedestrian and bicycle users should be considered, such as:

- Improving the continuity and connectivity of sidewalks.
- Providing special emphasis pedestrian markings and pedestrian signals at all signalized intersections.
- Enhancing the pedestrian features at the existing Rectangular Rapid Flashing Beacon

(RRFB) midblock pedestrian crossing just east of SW 132nd Avenue, as necessary. Based on current FDOT Traffic Engineering Manual (TEM) – Chapter 5.2 guidelines, the current traffic control at this crossing concurs with FDOT TEM criteria for an hourly pedestrian/bicyclist crossing of 20 for a Saturday period (3:00 PM to 4:00 PM). However, crossing should be accompanied with following upgrades under any of the alternatives: overhead installation with a refuge island or a raised median. Both alternatives, including No Build require a traffic engineering variation per FDOT TEM Chapter 1.5 since the posted speed limit of SR 994 is 40 MPH, which exceeds the maximum allowed of 35 MPH per FDOT TEM Chapter 5.2.5.2.

From a traffic operational perspective, the following existing traffic conditions are stated for the study corridor:

- Saturated traffic conditions were observed at several key intersections along the corridor:
  - At the signalized intersection of SW 137th Avenue, southbound left-turn movements experienced congestion during both the AM and PM peak hours. It is important to note that when the existing traffic conditions were analyzed, the south leg at SW 137th Avenue was closed to traffic due to construction.
  - At the stop-controlled intersection of SW 134th Avenue, northbound left-turn movements faced saturation during both peak hours.
  - At the stop-controlled intersection of SW 132nd Avenue, the northbound right-turn movement was congested in the AM peak hour, while the westbound left-turn movement experienced congestion in the PM peak hour.
  - At the signalized intersection of SW 127th Avenue, the northbound approach encountered congestion during both peak hours due to single-lane servicing
- For the most part, the traffic activity at the minor unsignalized intersections within the study corridor was low with a few exceptions as further discussed in **Section 3.5**.
- Due to the lack of left-turn lanes on SR 994, eastbound and westbound left-turning vehicles from SR 994 onto the side streets must stop in the travel lane and block other vehicles following behind until motorists find a gap in the opposing traffic stream to complete the turn. This occurred frequently for the westbound left-turn movement at SW 132nd Avenue. Because of the proximity of SW 132nd Avenue to the RRFB midblock pedestrian crossing on SR 994, the westbound queues at SW 132nd Avenue would extend back and block the crossing whenever a vehicle intended to make a left-turn onto the side street.

- During the field reviews, pedestrian and bicyclist activity within the study corridor was low-to-moderate. Additionally, there were no transit buses observed operating along the corridor.

From a traffic safety perspective, the following existing crash conditions are stated for the study corridor:

- *SW 137th Avenue:* Rear-End crashes at the eastbound approach with 29 crashes. Main probable cause is the lack of an eastbound left-turn lane.
- *SW 134th Avenue:* Rear-End crashes at the eastbound, westbound, and northbound approaches with 7, 12, and 6 crashes, respectively. Angle crashes between the northbound approach and the eastbound and westbound approaches with 16 and 10 crashes, respectively. Main probable causes are lack of left-turn lanes on SR 994 and lack of available gaps for northbound traffic to proceed through the intersection.
- *SW 132nd Avenue:* Rear-End crashes at the westbound approach with 27 crashes. Main probable cause is the lack of a westbound left-turn lane.
- *SW 127th Avenue:* Rear-End crashes at the northbound and eastbound approaches with 12 and 9 crashes, respectively. Sideswipe crashes at the northbound approach with 11 crashes. Left-Turn crashes at the westbound approach with 11 crashes. Main probable causes are saturated traffic conditions and lack of a northbound right-turn lane.

It is worth mentioning that aside from the 2016 westbound left-turn fatal crash at SW 132nd Avenue documented by FDOT CAR Online and the 2019 angle fatal crash at SW 134th Avenue documented by Signal Four Analytics, a third fatal crash (westbound left-turn collision) has been documented by Signal Four Analysis for 2021 at SW 134th Avenue per a crash query performed on April 2024 for the study corridor. This crash had not been identified previously by Signal Four Analytics.

Based on the evaluation of the No Build and Build Alternatives, the following concluding statements are presented for the proposed project's opening and design years 2025 and 2045, respectively:

It is essential to consider the timing and type of improvements under each Build alternative to understand the operational results and the changes to traffic patterns that these actions will bring.

In other words, the benefits or decay in operations due to the implementation of the Build Alternatives are not linearly related but influenced by the modifications taking place at such time.

Build 1 includes capacity improvements at SW 137th Avenue and the opening of the south leg to traffic by the 2025 analysis year (the intersection leg actually opened in June 2022). Introduction of the south leg at SW 137th Avenue altered traffic patterns at SW 137th Avenue and SW 134th Avenue. Additionally, a County project to widen SW 137th Avenue from 2 lanes to 4 lanes is expected to be completed by 2030. While this project will improve traffic conditions by 2045, it will not affect conditions in the analysis year 2025. Starting with Build 1, the traffic control at the intersection of SW 134th Avenue will be upgraded to signal control. Additionally, capacity improvements will be implemented at the intersection of SW 127th Avenue. Under Build 2 and 3 alternatives, SR 994 is to be widened from 2 lanes to 4 lanes by FDOT. The primary difference between Build 2 and Build 3 is that Build 3 includes additional access management enhancements, which will divert traffic within the study corridor.

Traffic Operations Benefits:

- *Arterial:* With the implementation of the recommended improvements under the Build conditions, the arterial operations of the study corridor would improve to LOS D or better with increased speeds and lower travel times, as presented in **Tables 23** and **24**. Although all three Build alternatives are expected to significantly improve travel speeds during both the AM and PM peak hours in future years, Builds 2 and 3 are anticipated to provide approximately 3-5 MPH higher speeds when compared to Build 1. With regards to arterial operations, Builds 2 and 3 have similar potential benefits while both being better than Build 1.
- *SW 137th Avenue:* For the opening year 2025, operations at SW 137th Avenue are expected to show some improvement under Build 1. The overall average intersection delay per vehicle is projected to decrease from 119 to 65 seconds during the AM peak hour and from 159 to 121 seconds during the PM peak hour. Despite these improvements, the intersection level of service remains similar to No Build conditions at LOS E or worse. By 2045, further improvements in intersection operations are anticipated due to the widening of SW 137th Avenue. The overall average intersection delay per vehicle is expected to decrease from 217 to 61 seconds during the AM peak hour and from 135 to 79 seconds during the PM peak hour. However, the intersection level of service remains at E for both peak hours.

Although significant operational improvements are anticipated with both Build Alternatives 2 and 3, Build 2 is expected to experience lower vehicular delay. For the opening year 2025, the level of services for both alternatives are projected to be LOS D for the AM peak hour and LOS E for the PM peak hour. The overall average intersection delay per vehicle is 38 seconds for Build 2 and 41 seconds for Build 3 during the AM peak hour. For the PM peak hour, the overall average intersection delay per vehicle is 55 seconds for Build 2 and 65 seconds for Build 3. By year 2045, the intersection level of service improves to LOS D due to the widening of SW 137th Avenue. The overall average intersection delay per vehicle is 38 seconds for Build 2 and 40 seconds for Build 3 during the AM peak hour. For the PM peak hour, the overall average intersection delay per vehicle is 39 seconds for Build 2 and 43 seconds for Build 3.

To highlight the difference in total vehicular delays between Build 2 and Build 3, the total cumulative intersection vehicular delay for 2045 was calculated. For Build 2, the total delay is 36 hours during the AM and PM peak hours each, compared to 38 to 41 hours for Build 3 during the same periods, making Build 2 the better option at the intersection of SW 137th Avenue

- *SW 134th Avenue:* With the implementation of any of the Build alternatives, the overall intersection operation during the AM and PM peak hours is improved to LOS C or better in 2025 and 2045 (from estimated LOS F) as seen in **Tables 27** and **28**. The intersection is upgraded to signal control under the Build alternatives. The overall average intersection delay per vehicle is expected to be 10 to 33 seconds with any of the alternatives. Build 2 and 3 seem to provide better operational benefits when compared to Build 1 with an average vehicular delay of 15 seconds vs. 25 seconds during each peak hour.

- *SW 127th Avenue:* With the implementation of any of the Build alternatives, the overall intersection operation during the AM and PM peak hours is improved to LOS C or better in 2025 and 2045 (from LOS F) as seen in **Tables 29** and **30**. The overall average intersection delay per vehicle is expected to be approximately 35 to 50 seconds with any of the alternatives. Although some intersection movements are expected to operate at LOS E, the vehicular queues are moderate. The overall benefits at this intersection are similar under any of the Build alternatives since the improvements are very similar.

- *Stopped-Control Intersections:* The critical movements at the stop-controlled intersections within the study limits include making a left-turn from the side streets or mainline SR 994. This is due to the lack of left-turning lanes and gaps on SR 994 given only one travel lane in each direction. **Tables 31** and **32** present a summary of the average vehicular delay, 95th percentile queue length, and level of service for all left-turn movements at each intersection for the No Build and Build alternatives. Although there are several left-turning movements expected to operate at LOS F for No Build conditions 2025 and 2045 during the AM and PM peak hours, most of these movements experience short queues. However, the southbound left-turn at SW 130 Avenue and the northbound left-turns at SW 132nd Avenue and SW 133rd Avenue are expected to experience significant queuing by 2045 during the AM peak hour. For No Build 20245, the 95th percentile queue for these movements at SW 130th Avenue, SW 132 Avenue, and SW 133 Avenue are 363, 752, and 506 feet, respectively. The additional roadway widening for SR 994 under Build 2 and 3 is expected to facilitate turning left from these side streets experiencing significant queuing. The vehicular queues for all critical intersection movements are low-to-moderate for Builds 2 and 3 under all scenarios. Builds 2 and 3 are expected to reduce left-turn delay by approximately 50% or more when compared to Build 1. The total vehicular delay for Build 1 is projected to be 131.8 vehicular hours in 2045 for both the AM and PM peak hours, compared to 45.3 vehicular hours for Build 2 and 44.4 vehicular hours for Build 3. Build 3 has a slightly lower delay due to additional access management enhancements compared to Build 2.

Safety Benefits:

Based on the HSM and CMF methodologies crashes are expected to decrease for No Build due to the improvements at SW 137th Avenue, SW 134th Avenue, and SW 127th Avenue per other FDOT and County projects that are being completed by 2045. With the implementation of the Build Alternatives, crashes are expected to further decrease. Based on the HSM methodology, the safety benefits between the Build Alternatives are minimal (a difference of 1.7 crashes per year). The CMF application methodology presents greater safety benefits for the Build 2 and 3 Alternatives when compared to the Build 1 Alternative. Based on the CMF methodology, the four-lane roadway with a raised median option is slightly better than the two-lane roadway with a raised median alternative (with a reduction of 16.5 more crashes per year).

Installing a raised median along an undivided arterial, such as the study roadway, can bring several safety benefits, including:

- **Reduction in Head-On Collisions:** A raised median creates a physical barrier between opposing lanes of traffic, reducing the risk of head-on collisions.
- **Prevention of Left-Turn Crashes:** Raised medians can provide designated areas for left-turning vehicles, reducing the likelihood of conflicts with through traffic and decreasing left-turn crashes.
- **Improved Pedestrian Safety:** Raised medians provide pedestrians with a refuge area when crossing the street. They can cross one direction of traffic at a time, reducing exposure to moving vehicles.
- **Channelization of Traffic:** Raised medians help to guide traffic flow and discourage unsafe maneuvers such as sudden lane changes.
- **Reduced Conflict Points:** By limiting the number of conflict points where vehicles can cross paths, raised medians decrease the likelihood of crashes.
- **Speed Reduction:** Medians can be designed to visually narrow the roadway, which can encourage drivers to reduce speed, enhancing overall safety.

Additionally, safety benefits that can be achieved by widening the road from two lanes to four lanes under Build Alternatives 2 or 3, include the following:

- **Reduced Rear-End Collisions:** Additional lanes can ease congestion and reduce the likelihood of rear-end collisions caused by sudden stops or traffic slowdowns.
- **Decreased Congestion-Related Crashes:** By increasing roadway capacity, widening can help alleviate congestion, reducing the likelihood of crashes caused by congestion-related factors such as sudden lane changes or merging conflicts.
- **Reduced Sideswipe Collisions:** Additional lanes provide more space for vehicles, reducing the chance of sideswipe collisions, especially during lane changes or overtaking maneuvers.
- **Enhanced Passing Opportunities:** With more lanes available, drivers have increased opportunities to pass slower-moving vehicles safely, potentially reducing aggressive passing maneuvers and associated crashes.
- **Decreased Lane Departure Crashes:** Additional lanes provide more space for vehicles, potentially reducing the likelihood of lane departure crashes caused by drifting out of lanes due to narrow roadways.

- **Improved Traffic Flow:** Widening can smooth traffic flow, reducing stop-and-go conditions and the likelihood of crashes associated with abrupt changes in speed.

During the five-year study period, the crash analysis documented a total of 390 crashes. These crashes consisted of 48% (187) rear-end collisions, 30% (117) angle/left-turn collisions, 11% (43) sideswipe collisions, and 5% (18) lane departure collisions. Furthermore, approximately 35% of all crashes resulted in injury, while the majority (65%) resulted in property-damage only crashes. This high percentage of property-damage only crashes indicate incidents related to saturated traffic conditions along the study corridor, attributed to the presence of only one lane in each direction amidst growing traffic.

The improvements proposed under Build Alternatives 2 and 3 will specifically target these crash types to enhance the safety of the study corridor compared to Build Alternative 1.

Overall, widening a two-lane roadway to four lanes can lead to a safer and more efficient transportation corridor by reducing congestion, improving traffic flow, and providing additional space for vehicles to maneuver safely. Similarly, installing a raised median along an undivided arterial can significantly enhance safety for both motorists and pedestrians by reducing conflict points and providing physical separation between opposing traffic flows. These potential benefits are specifically associated with Build Alternatives 2 and 3, rather than Build 1.

Alternative Ranking:

Based on the overall potential operational and safety benefits of a no action alternative, No Build, and Build Alternatives 1, 2, and 3, the alternatives were ranked for operations and safety, each, as presented in **Table 35**. It is clear that a no action alternative is not desirable for the study corridor of SR 994, since it is expected to endure safety and operational deficiencies. The No Build alternative received the lowest ranking of -8 when compared to the other alternatives. Build 1 trails in second place with a ranking of +1. Based on the traffic simulation, Build 1 will experience significant queuing at some of the side streets due to the lack of roadway capacity along SR 994, which is to be provided by the latter alternatives. Build 3 follows with a ranking of +6. Lastly, Build 2 leads with a ranking of +8. Build 2 demonstrates better operational benefits for the entire corridor and at the main study intersections compared to Build 3. The operational benefits for the left-turning movements from/to the side streets at the unsignalized intersections are very similar for both build alternatives. However, other related needs, such as the amount of right-of-way for the

implementation of Build 2 or 3 should be vetted to obtain more differentiation between these two alternatives apart from the operations and safety benefits presented in this report.

Enhancements to Preferred Alternative:

Additionally, the preferred should include a sidewalk with a sidewalk level bicycle lane on each side of the study corridor. The Department is open to considering the inclusion of this multimodal amenity in the PD&E's preferred alternative. Additional details are presented in **Section 8.2**.

Lastly, although the operational and safety analyses included the opening of the south leg at the SW 137th Avenue intersection, a sensitivity analysis was conducted to refine the preferred Build 2 Alternative. This analysis aimed to determine if turning lanes could be reconsidered at the intersections of SW 137th Avenue and SW 134th Avenue, as discussed in **Section 10.0**. The results indicate that both intersections can still maintain a level of service D while implementing the following capacity modifications

At SW 137th Avenue:

- **Eastbound Approach:** Reduce from 2 left-turn lanes to 1 left-turn lane
- **Westbound Approach:** Reduce from 2 right-turn lanes to 1 right-turn lane
- **Northbound Approach:** Reduce from 2 left-turn lanes to 1 left-turn lane
- **Southbound Approach:** Remove right-turn lane to share with through lane

At SW 134th Avenue:

- **Eastbound Approach:** Remove right-turn lane to share with through lane
- **Westbound Approach:** Remove right-turn lane to share with through lane
- **Northbound Approach:** No changes
- **Southbound Approach:** No changes

Additionally, these modifications reduce the need for right-of-way acquisition.

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to address safety, traffic operations, and capacity issues along State Road (SR) 994/SW 200th Street/Quail Roost Drive in southwest Miami-Dade County. The study area spans from just west of SW 137th Avenue to just east of SW 127th Avenue, covering approximately 1.67 miles, as presented in **Figure 1**. The project aims to widen the corridor to include a raised median with turn lanes, while evaluating the benefits of maintaining the current two-lane configuration versus upgrading to a four-lane roadway. SR 994, known as Quail Roost Drive in the study area, is identified as section 87091000 on the State Highway System. The project's goal is to accommodate future travel demand resulting from population and employment growth in the area.

1.2 RELEVANT STUDIES & PROJECTS

This report references several relevant studies and projects for the study corridor, which are included in **Appendix A**.

Studies:

- *FM No. 443915-1 (2019) – FDOT Resurfacing, Restoration and Rehabilitation Safety Review (RRR) for SR 994 from west of SW 137th Avenue to west of SW 127th Avenue.*
- *FM No. 249726-4 (2017) – FDOT Intersection Qualitative Assessment and Signal Warrant Analysis and Conceptual Design Alternatives Report for SR 994 at SW 134th Avenue. This effort recommended upgrading the stop control intersection of SW 134th Avenue to signal control.*

Projects:

- *FM No. 443907-1 (2023) – FDOT Resurfacing, Restoration, and Rehabilitation Project for SR 994 from east of SW 177th Avenue/Krome Avenue to west of SW 137th Avenue. SR 994 will remain as a two-lane undivided roadway.*
- *FM No. 20040343 (2020) – Miami-Dade County Project for SW 137th Avenue Roadway Improvements. This project will open the south leg of the intersection to traffic by year 2025. South leg is currently under construction. In addition, County Project PW168 will widen SW 137th Avenue from two lanes to four lanes from US 1 to SW 184th Street by 2045 (no plans available yet).*
- *FM No. 20180004 (2020) – Miami-Dade County Project for SW 127th Avenue Roadway Improvements.*

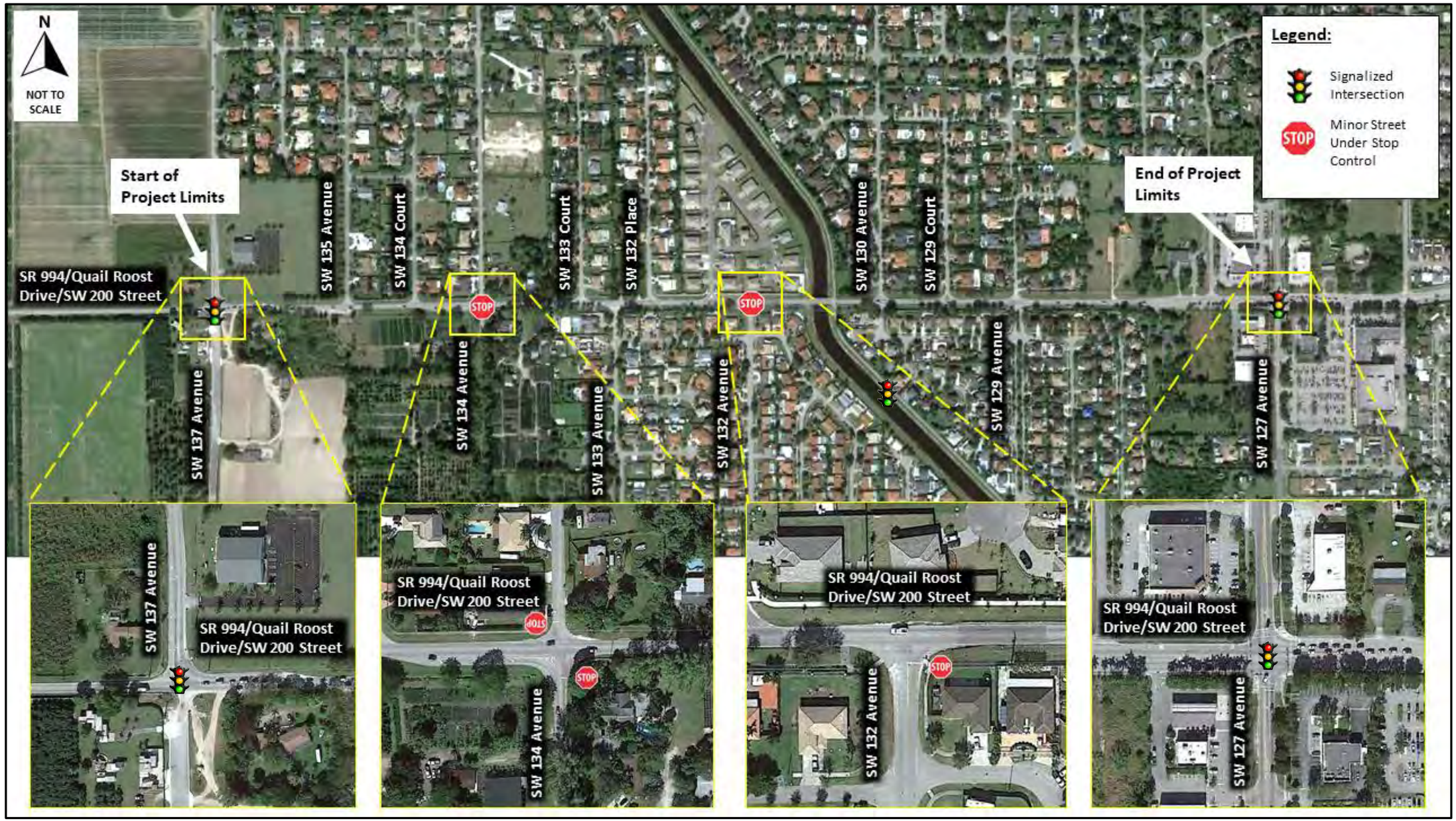

Figure 1: Project Location Map

1.3 AREA OF INFLUENCE

The area depicted in **Figure 1** includes two signalized intersections, SW 137th Avenue and SW 127th Avenue, within one mile of each other along SR 994. Between these intersections, there are 11 minor streets controlled by stop signs (SR 994 is free-flow). Additionally, there is a pedestrian midblock crossing equipped with Rectangular Rapid Flashing Beacons (RRFBs) approximately 450 feet east of SW 132nd Avenue, serving the Black Creek Trail—a pedestrian and bicycle path running from SW 176th Street to US 1. Furthermore, there is one bridge spanning the Black Creek Canal within the project limits, located approximately 300 feet east of SW 132nd Avenue, with the RRFB crossing situated on its east side.

1.4 PURPOSE OF THE PROJECT TRAFFIC ANALYSIS REPORT

The purpose of this document is to examine the existing traffic and safety conditions to predict the future operational and safety characteristics of the study corridor for the following scenarios:

- Existing Conditions 2021 for AM & PM Peak Hours
- No Build Alternative 2025 & 2045 for AM & PM Peak Hours
- Build Alternatives 2025 & 2045 for AM & PM for Peak Hours
    - Build 1: Includes widening SR 994 to provide a raised median with left-turning opportunities from and onto the side streets, while implementing access management enhancements. Additionally, implement several capacity improvements at the signalized intersections of SW 137th Avenue and SW 127th Avenue, and upgrades the stop-controlled intersection of SW 134th Avenue to signal control.
    - Build 2: In addition to the improvements in Build 1, this alternative widens SR 994 from two lanes to four lanes.
    - Build 3: In addition to the improvements in Build 2, this alternative implements additional access management enhancements.

Section 7.4 of this report provides detailed discussion on the Build alternatives, noting that a Transportation Systems Management (TSM) Alternative was initially considered but later discontinued from further analysis. A TSM alternative is defined by FHWA as a set of strategies that focus on operational improvements that can maintain or restore the performance of the existing transportation system before extra capacity is needed. The TSM alternative, focusing on operational improvements without increasing capacity, was excluded due to high right-of-way costs needed to achieve desired level of service D at main study intersections, as estimated in

Section 7.0. As a result, the TSM alternative, relabeled as Build 1, was deemed impractical due to its high cost and potential impacts on historic and environmental sites. The analysis covers AM and PM traffic for existing conditions (2021), project opening year (2025), and design year (2045). The No Build Alternative serves as a baseline for comparing traffic patterns and potential improvements associated with the proposed Build Alternatives, all of which include signal timing optimization discussed in detail in **Section 7.1**.

2.0 PURPOSE AND NEED FOR THE PROJECT

2.1 PURPOSE & NEED

This project's primary goals are to improve safety, traffic operations, and capacity constraints on SR 994 from SW 137th Avenue to SW 127th Avenue, along with the influence areas of these intersections, in unincorporated Miami-Dade County. This is necessary to accommodate projected increased in travel demand resulting from population and employment growth in the corridor. Additionally, the project seeks to achieve the following objectives: 1) overall safety conditions along the corridor, including emergency evacuation and response times, and 2) enhance mobility options and multi-modal access. These project needs are based on specific criteria discussed in subsequent sections.

2.1.1 Capacity/Transportation Demand

This project aims to enhance traffic operations along SR 994 by expanding its capacity to accommodate the projected increase in travel demand driven by population and employment growth in Miami-Dade County. As of 2022, Miami-Dade County, the most populous county in Florida, had approximately 2.6 million residents. By 2045, the county's population is forecasted to grow by around 33% to reach 3.5 million residents. Similarly, employment in the county is expected to rise from 960,000 million workers in 2021 to over 1.8 million workers by 2045. These projections are based on data from the Miami-Dade Transportation Planning Organization's 2045 Long Range Transportation Plan (LRTP).

Between SW 137th Avenue and SW 127th Avenue, the corridor has experienced a 7 percent increase in Annual Average Daily Traffic (AADT) from 2015 to 2019, with traffic volumes climbing from 17,900 to 19,200 vehicles per day. This upward trend in traffic is expected to persist due to population growth and ongoing residential development within infill parcels along the study corridor, such as the Willow Trace development currently under construction.

2.1.2 Safety

Safety stands as a top priority for this project, aligning with the Department's Target Zero initiative. This statewide safety endeavor aims to eliminate transportation-related serious injuries and fatalities in Florida entirely. The Department's Target Zero initiative aims to address Florida's average of eight fatalities and 49 serious injuries daily on its roads, often attributed to driver behavior. This effort seeks to adapt the transportation system to better serve drivers frequently involved in accidents leading to serious injuries and fatalities.

For this Project Traffic Analysis Report, a crash analysis was conducted for the study corridor from SW 137th Avenue to SW 127th Avenue, including the influence areas of these intersections. The crash data for the latest and official 5-year period (January 2014 to December 2018) at the beginning of this study effort was downloaded from the FDOT's Crash Analysis Reporting (CAR) Online and summarized for the study corridor. Over this five-year period, 390 crashes were documented within the project limits. The leading crash types along the corridor were Rear-End (187 crashes), Angle (77 crashes), and Sideswipe (43 crashes). In terms of severity, 65% (254 crashes) were property damage only crashes, 35% (135 crashes) were injury crashes, and less than 1% (1 crash) was fatal. According to FDOT's 2014–2018 High Crash Lists, several locations along the corridor were identified as high-crash spots/segments:

- Spots:
  - SR 994 at SW 137th Avenue
  - SR 994 at SW 134th Avenue
  - SR 994 at SW 132nd Avenue
  - SR 994 at SW 127th Avenue
- Segment:
  - SR 994 from SW 137th Avenue to just west of SW 127th Avenue

According to the safety review, congestion/lack of capacity and lack of left-turn lanes serve as the probable causes of the safety issues within the corridor. Providing additional capacity and improving intersections along the corridor are anticipated to result in reduced crashes and safety benefits.

2.1.3 Modal Interrelationships

There are no existing designated bicycle lanes within the project limits. Sidewalks are noncontinuous and generally located at residential subdivisions along the study corridor. The Black Creek Trail intersects the study corridor just east SW 132nd Avenue. The trail is a 17-mile-

long greenway corridor that connects the Everglades Levee (L-31N Canal) with Black Point Park and Marina in Homestead. There is a pedestrian crossing equipped with RRFBs and pavement markings to facilitate pedestrian/bicycle crossing and alert drivers of the pedestrian traffic, just east of the bridge for access to the Black Creek Trail.

Based on 2010 United States Census Data, approximately 4 percent of the housing units (192 housing units) within the study area are transit-dependent (no vehicle available); in addition, approximately 392 housing units within the study area use public transportation for work. This noted transit-dependent population has a higher propensity to walk, bike, or take transit to access essential services. The SR 994 project is anticipated to improve multi-modal connectivity and mobility options for the transit-dependent population and the overall residential population within the project area by providing continuous bicycle and pedestrian facilities along the entire corridor and improving connectivity to the Black Creek Trail. The feasibility of adding a multimodal facility on both sides of the study corridor was assessed and deemed viable for inclusion in the preferred alternative.

2.1.4 Evacuation Routes and Emergency Services

SR 994 connects directly to two Strategic Intermodal System (SIS) Highway Corridors at SR 997/Krome Avenue (west of the project limits) and SR 821/HEFT (east of the project limits). According to the Florida Division of Emergency Management, both SR 997/Krome Avenue and SR 821/HEFT are designated emergency evacuation routes. SR 997/Krome Avenue additionally provides regional connectivity to US 1, which is a major evacuation route for the Florida Keys. This SR 994 project is anticipated to enhance emergency evacuation capabilities by improving the capacity of the roadway and, thereby, increasing the number of residents that can be evacuated safely during an emergency event and enhancing access from the residential areas along the corridor to designated emergency evacuation routes. Improved traffic operations are also anticipated to decrease emergency response times for emergency response vehicles.

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3.0 EXISTING CONDITIONS

3.1 ROADWAY CONDITIONS

For the most part, the corridor of SR 994 within the study limits consists of two undivided travel lanes and unpaved shoulders on both sides of the roadway. There is, however, curb and gutter present for approximately 500 feet at the eastbound approach of the SW 127th Avenue intersection. No left-turn lanes are present along SR 994, except at the eastbound approach of SW 127th Avenue where the road widens to a four-lane roadway divided by a painted median. SR 994 has a 40 MPH posted speed limit. Throughout the corridor, sidewalks are noncontinuous and generally located at residential subdivisions along the north and south sides of SR 994. No bus stops or designated bicycle lanes are present on SR 994 within the study limits. There is a midblock pedestrian crossing controlled by RRFBs just east of SW 132nd Avenue for access to the Black Creek Trail. Special high emphasis pavement markings are provided at the crossing.

Most of the corridor in the project study limits has a functional classification of urban minor arterial and a context classification C3-R Suburban Residential. However, the section of SR 994 west of SW 137th Avenue, the westernmost 0.1-mile-long segment, has a functional classification of rural major collector and a context classification of C2-R Rural. SR 994 has an access management classification of 4 (generally undeveloped or developing with a non-restrictive median). The recommended signal spacing for a Class 4 is 2,640 feet. No spacing is recommended for full or directional median openings. **Figure 2** presents the existing lane configuration and traffic control at the study intersections within the SR 994 corridor.

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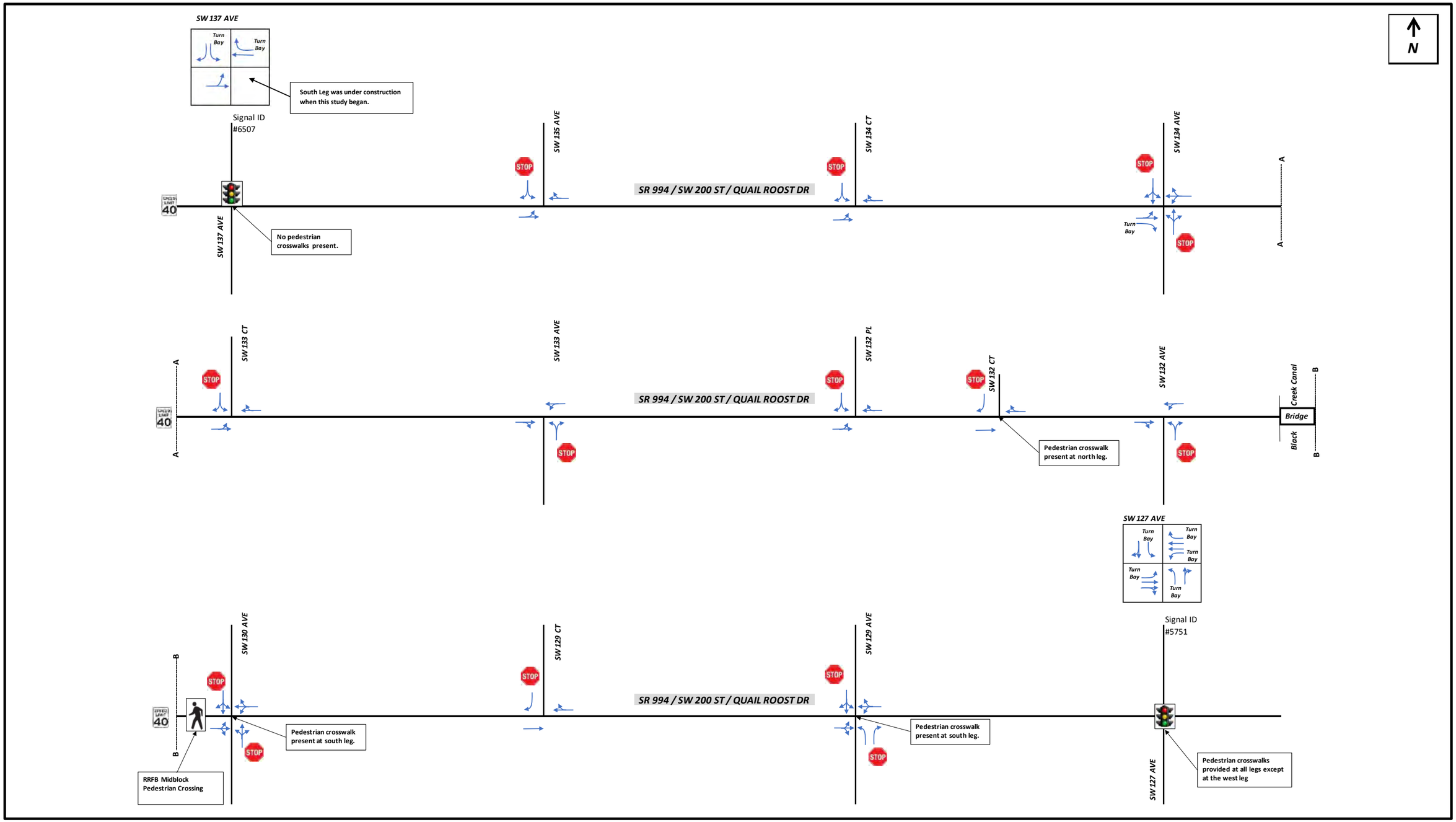

Figure 2. Existing Intersection Lane Configurations & Traffic Controls for Study Corridor

3.2 DATA COLLECTION

As part of this study, vehicular traffic data was obtained from field counts as well as existing traffic data from FDOT available sources. In addition, the data collection included a compilation of vehicular crash history (last five years of official use available) for the study corridor. This information was used in the safety analysis in compliance with applicable standards and included items such as crash type, frequency, severity, and weather, among others. Traffic data was obtained from FDOT's portable and permanent (telemetered) traffic monitoring sites. In addition, 72-hour approach and turning movement counts were collected to analyze current traffic conditions at the signalized and other applicable intersections within the study corridor.

3.3 SEVENTY-TWO (72)-HOUR BI-DIRECTIONAL MACHINE COUNTS

72-Hour bi-directional machine counts were collected on typical weekdays from Tuesday, August 31, 2021, through Thursday, September 2, 2021. Counts were verified for reasonableness against previous FDOT studies (as listed in **Section 1.2**) and FDOT Traffic Count Station No. 87-1116 (SR 994 just west of SW 127th Avenue), adjusted for seasonal variation, and corrected for vehicle axle.

72-hour data was collected at the following main locations:

- SR 994 at SW 137th Avenue
- SR 994 at SW 134th Avenue
- SR 994 at SW 132nd Avenue
- SR 994 at SW 127th Avenue

The traffic data sheets are included in **Appendix B** and the hourly distribution of the traffic volumes are presented in **Figure 3.** The peak traffic periods have been identified in the data sheets included in this appendix. The main intent was to determine the overall peak traffic period for AM and PM for the study corridor.

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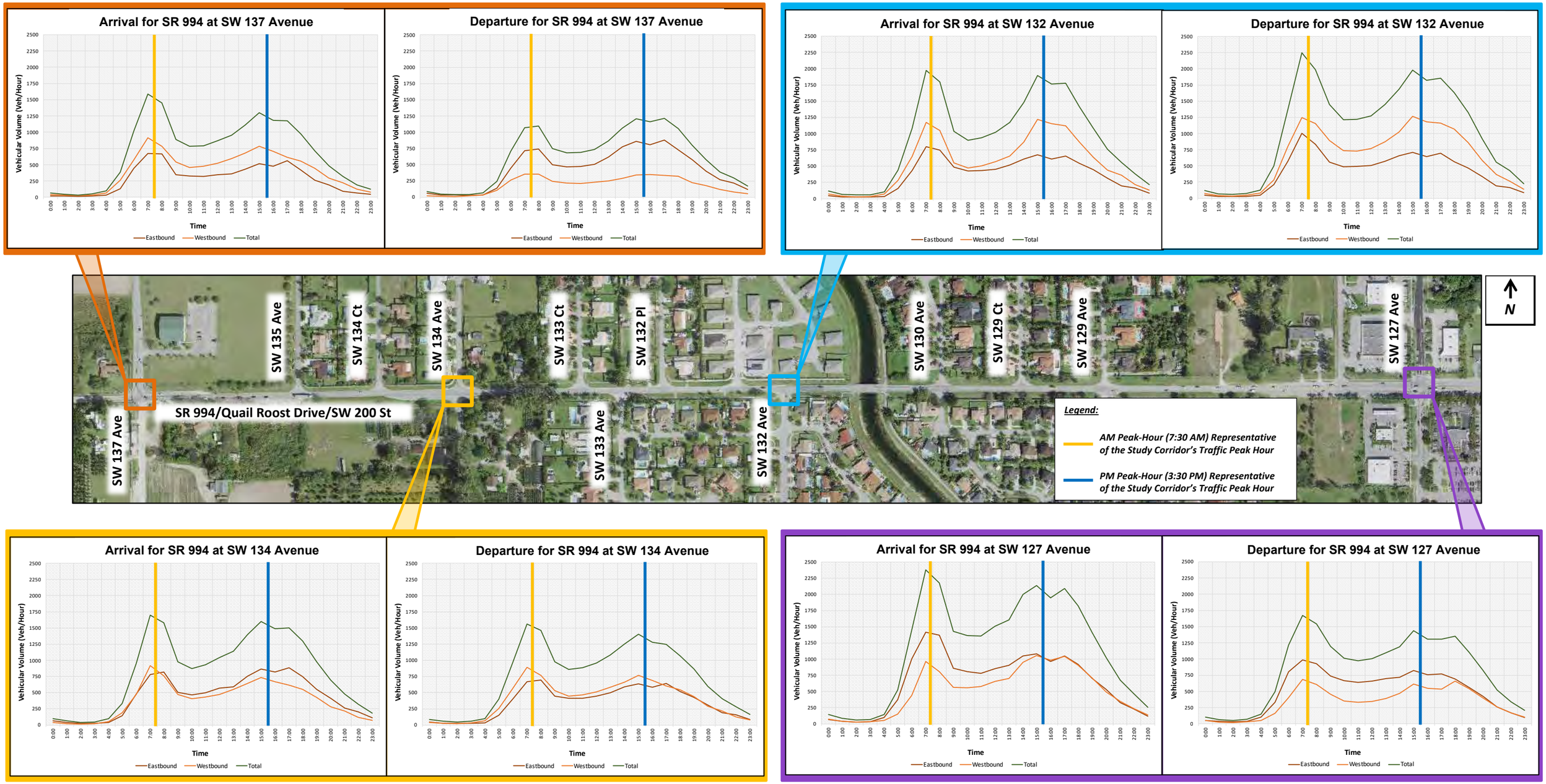

Figure 3. Average Daily Traffic

3.4 SIX (6)-HOUR INTERSECTION TURNING MOVEMENT COUNTS (TMCS)

Six-hour TMCs were collected during a typical commuting day of the week (i.e., Tuesday, Wednesday, or Thursday) from September 8, 2021, to September 14, 2021. The data was recorded in 15-minute intervals. The six-hour data collection period was selected based on a review of the daily traffic volumes for the study corridor. The overall typical AM and PM commuting peak hours were determined to be from 6:30 AM to 9:30 AM and from 3:30 PM to 6:30 PM. The collected data included pedestrian and bicycle counts, as well as heavy vehicle counts, summarized separately by movement. The pedestrian and bicycle counts were very low. The traffic data was collected for the following 12 intersections within the study corridor and is included in **Appendix B**.

1. SR 994 at SW 137th Avenue
2. SR 994 at SW 135th Avenue
3. SR 994 at SW 134th Court
4. SR 994 at SW 134th Avenue
5. SR 994 at SW 133rd Court
6. SR 994 at SW 133rd Avenue
7. SR 994 at SW 132nd Place
8. SR 994 at SW 132nd Avenue
9. SR 994 at SW 130th Avenue
10. SR 994 at SW 129th Court
11. SR 994 at SW 129th Avenue
12. SR 994 at SW 127th Avenue

Based on the TMCs collected at the study intersections, the peak hour for the AM and PM periods were determined to be from 7:30 AM to 8:30 AM and from 3:30 PM to 4:30 PM. Based on a review of the traffic data collected as part of the FDOT RRR Safety Review (completed in 2019), traffic data collected when pursuing this project (in March 2021) and FDOT daily counts 2019 and 2020 from FDOT Count Station No. 87-1116, it was determined that a 3% percent growth rate should be applied to the TMCs collected in late 2021 to account for COVID-19 traffic conditions. It is noted that the 2020 FDOT Synopsis report was from February 11, 2020, and the COVID-19 traffic impact was estimated to have started in March 2020. Subsequently, the TMCs were balanced within +/-10% based on typical industry practice with most balanced within 0% where driveway activity between intersections was less severe.

The AM and PM peak hours adjusted and balanced traffic volumes for 2021 traffic conditions for the study corridor are presented in **Tables 1** and **2** and **Figures 4** and **5**. The two locations where the volumes were not balanced within 0% include the eastbound departure side at SW 137th Avenue due to some unauthorized vehicles using the northbound approach which is under construction, and between SW 129th Avenue and SW 127th Avenue for both eastbound and westbound directions due to a few commercial driveways and a minor street serving a church.

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Table 1. Existing AM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor

Intersection Approach	Movement	2021 Existing - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	67	0	0	15	4	---	21	---	116	---	4	134
	Thru	386	762	774	650	724	715	777	822	906	918	906	891
	Right	0	---	---	111	---	13	---	12	3	---	8	47
	Appr. Total	*453*	*762*	*774*	*777*	*728*	*728*	*797*	*834*	*1026*	*918*	*918*	*1072*
Westbound	Left	2	---	---	57	---	13	---	67	0	---	19	174
	Thru	396	893	895	796	955	857	858	839	809	823	808	526
	Right	500	4	3	108	10	---	22	---	25	22	2	146
	Appr. Total	*897*	*897*	*898*	*961*	*965*	*870*	*880*	*906*	*833*	*845*	*828*	*847*
Northbound	Left	N/A	---	---	99	---	108	---	40	4	---	35	192
	Thru	N/A	---	---	36	---	---	---	---	0	---	1	197
	Right	N/A	---	---	32	---	82	---	204	0	---	62	315
	Appr. Total	*N/A*	*---*	*---*	*167*	*---*	*191*	*---*	*244*	*4*	*---*	*98*	*703*
Southbound	Left	339	11	3	46	4	---	58	---	11	---	6	93
	Thru	2	---	---	42	---	---	---	---	0	---	0	182
	Right	36	4	2	3	6	---	12	---	94	10	2	46
	Appr. Total	*377*	*15*	*5*	*92*	*10*	*---*	*70*	*---*	*105*	*10*	*8*	*321*
	Int. Total	*1727*	*1675*	*1677*	*1996*	*1704*	*1789*	*1747*	*1985*	*1968*	*1773*	*1852*	*2944*

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Table 2. Existing PM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor

Intersection Approach	Movement	2021 Existing - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	41	1	0	0	6	---	0	---	42	---	1	49
	Thru	402	849	856	648	713	711	732	696	716	727	677	630
	Right	0	---	---	210	---	8	---	55	4	---	49	89
	Appr. Total	*443*	*850*	*856*	*858*	*719*	*719*	*732*	*751*	*762*	*727*	*727*	*768*
Westbound	Left	4	---	---	65	---	30	---	174	0	---	22	246
	Thru	373	727	732	632	713	706	730	718	829	837	832	565
	Right	355	5	5	18	12	---	12	---	29	5	5	97
	Appr. Total	*732*	*732*	*737*	*715*	*725*	*735*	*743*	*892*	*858*	*843*	*859*	*908*
Northbound	Left	N/A	---	---	103	---	20	---	25	1	---	8	147
	Thru	N/A	---	---	24	---	---	---	---	0	---	0	198
	Right	N/A	---	---	40	---	22	---	66	1	---	16	169
	Appr. Total	*N/A*	*---*	*---*	*167*	*---*	*41*	*---*	*91*	*2*	*---*	*25*	*514*
Southbound	Left	489	7	2	31	6	---	19	---	10	---	4	131
	Thru	3	---	---	23	---	---	---	---	3	---	0	284
	Right	40	5	0	2	2	---	5	---	62	21	2	65
	Appr. Total	*533*	*12*	*2*	*56*	*8*	*---*	*24*	*---*	*75*	*21*	*6*	*480*
	Int. Total	*1708*	*1594*	*1595*	*1795*	*1452*	*1496*	*1499*	*1733*	*1697*	*1590*	*1617*	*2671*

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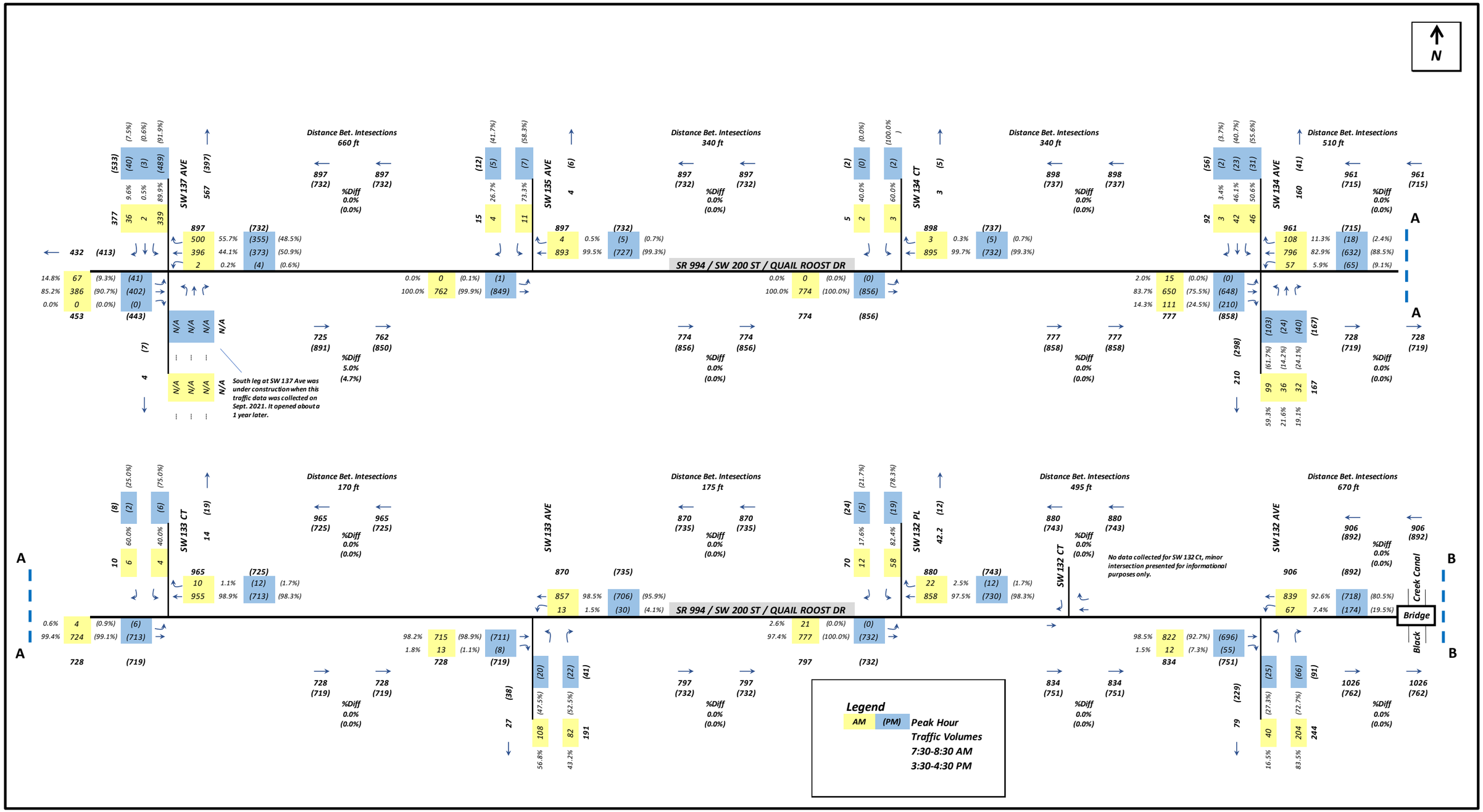


Figure 4. Existing AM & PM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor

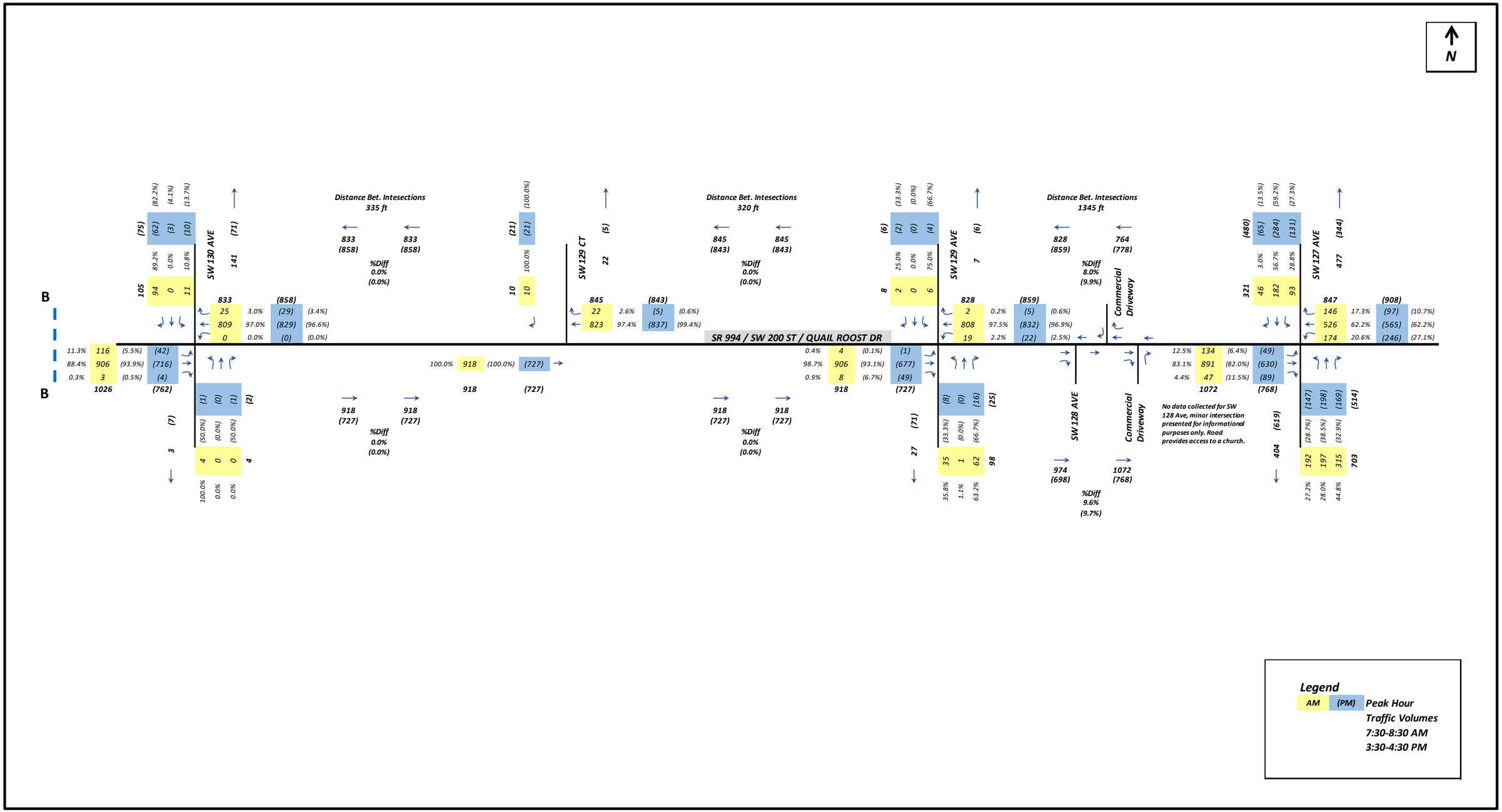


Figure 5. Existing AM & PM Peak-Hour Traffic Volumes (Balanced) for the Study Corridor

3.5 FIELD OBSERVATIONS SUMMARY

Field reviews were performed on Thursday, October 7, 2021, during the peak hours from 7:30 AM to 8:30 AM and from 3:30 PM to 4:30 PM. These times were identified based on the traffic data collection discussed in **Section 3.2**. These assessments were performed to ascertain the overall corridor and intersection specific operations, and site conditions from both traffic and safety perspectives. **Figures 6** through **11** present key observations along the study corridor. Notable observations include:

- Saturated traffic conditions were observed at several key intersections along the corridor:
  - At the signalized intersection of SW 137th Avenue, southbound left-turn movements experienced congestion during both the AM and PM peak hours. .It is worth noting that the south leg at SW 137th Avenue is currently closed to traffic due to construction.
  - At the stop-controlled intersection of SW 134th Avenue, northbound left-turn movements faced saturation during both peak hours.
  - At the stop-controlled intersection of SW 132nd Avenue, the northbound right-turn movement was congested in the AM peak hour, while the westbound left-turn movement experienced congestion in the PM peak hour.
  - At the signalized intersection of SW 127th Avenue, the northbound approach encountered congestion during both peak hours due to single-lane servicing
- For the most part, the traffic activity at the minor unsignalized intersections within the study corridor was low with a few exceptions discussed in the following figures.
- Due to the lack of left-turn lanes on SR 994, eastbound and westbound left-turning vehicles from SR 994 onto the side streets must stop in the travel lane and block other vehicles following behind until motorists find a gap in the opposing traffic stream to complete the turn. This occurred frequently for the westbound left-turn movement at SW 132nd Avenue. Because of the proximity of SW 132nd Avenue to the RRFB midblock pedestrian crossing on SR 994, the westbound queues at SW 132nd Avenue would extend back and block the crossing whenever a vehicle intended to make a left-turn onto the side street.
- During the field reviews, pedestrian and bicyclist activity within the study corridor was low-to-moderate. Additionally, there were no transit buses observed operating along the corridor.

1-Long SB approach queues at SW 137 Ave.

2-Long EB approach queues at SW 137 Ave.

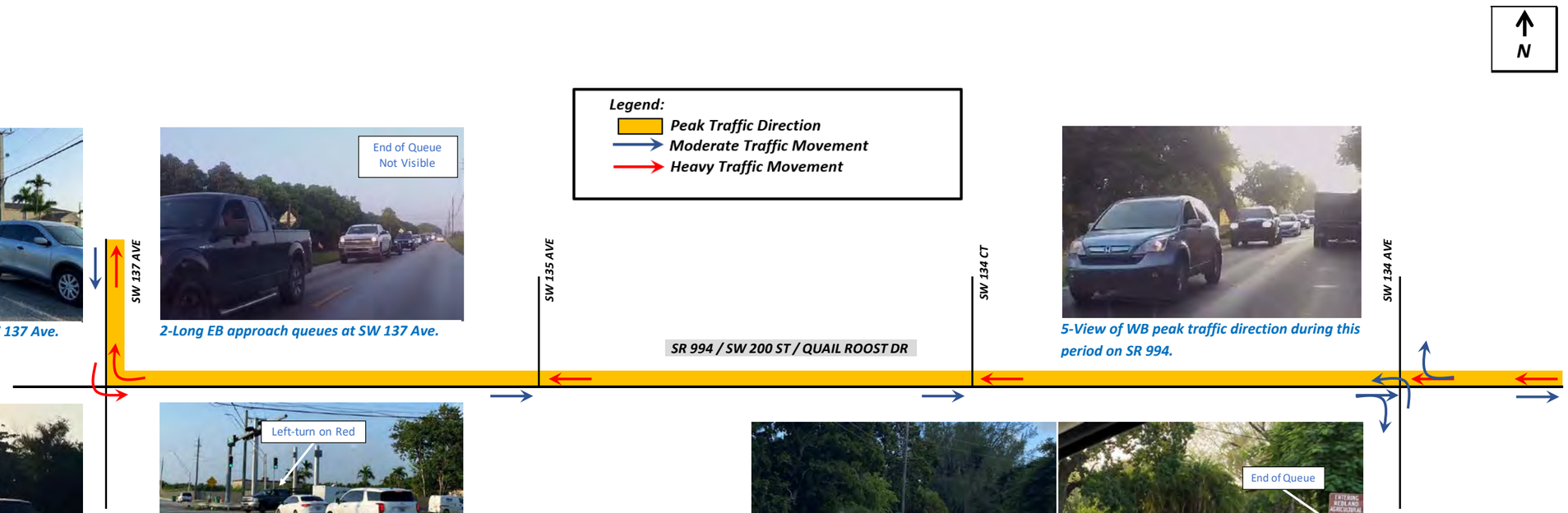
3-Moderate WB approach queues at SW 137 Ave blocking right-turn bay.

4-Vehicle making EB left-turn on red at SW 137 Ave.

5-View of WB peak traffic direction during this period on SR 994.

6-NB left-turning vehicle stopped beyond stop bar to gain better visibility of WB oncoming traffic at SW 134 Ave.

7-Long NB approach queues at SW 134 Ave.

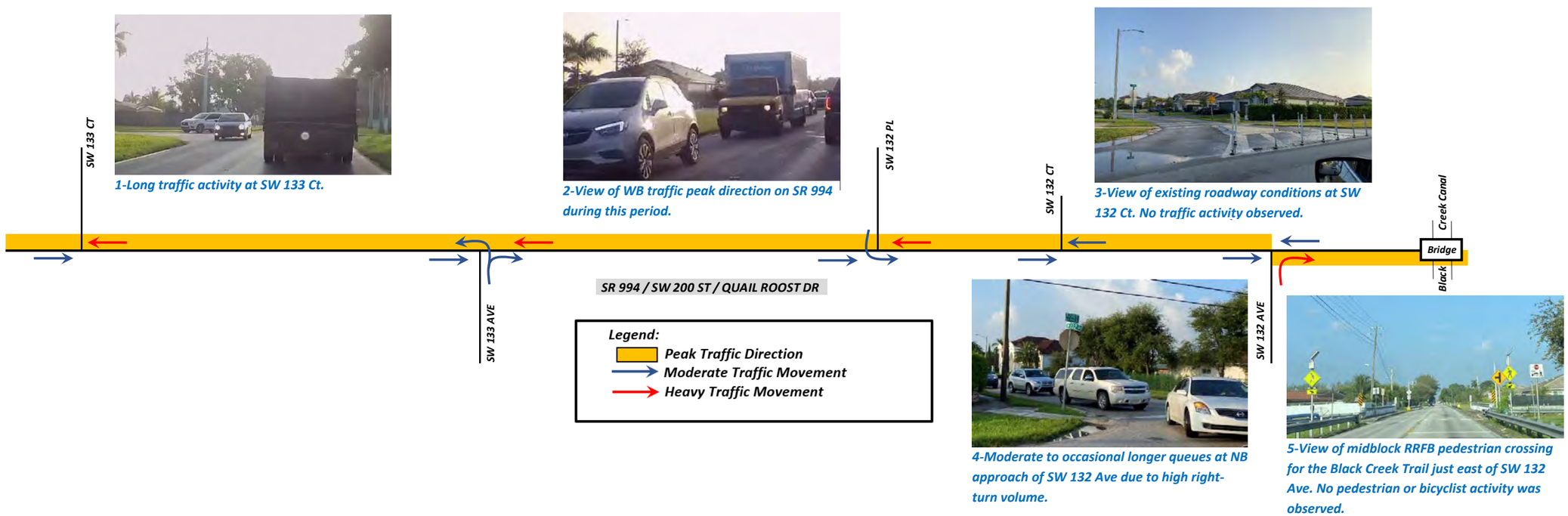


Main Observations (AM Peak Hour):

- **SW 137th Ave:** The EB approach and SB left-turn movement at SW 137th Ave experienced long queues. Not all vehicles cleared the intersection within the first available green. The EB left-turn movement is serviced with a protected/permitted left-turn phase but no turn lane. EB is a single lane approach. During the permitted left-turn phase, EB left-turning vehicles blocked EB thru traffic when waiting for a gap in the opposing WB traffic. The south leg is closed to traffic and under construction. The SB left-turn and WB right-turn movements were high. No long queues were observed for WB right-turning traffic. The SB queues prevented vehicles from reaching the SB right-turn bay at the intersection. Because the WB right-turn bay is short (135 ft), it was easily blocked by the WB thru queues which caused some WB right-turning motorists to drive on the dirt shoulder to bypass the queues in front and access the WB right-turn bay. Some motorists were observed to make the EB left-turn on red.

- **SW 134th Ave:** The NB approach experienced delay and long queues due to being under stop-controlled and lack of available gaps in the WB through traffic stream during this peak hour. WB is the peak traffic direction on SR 994.

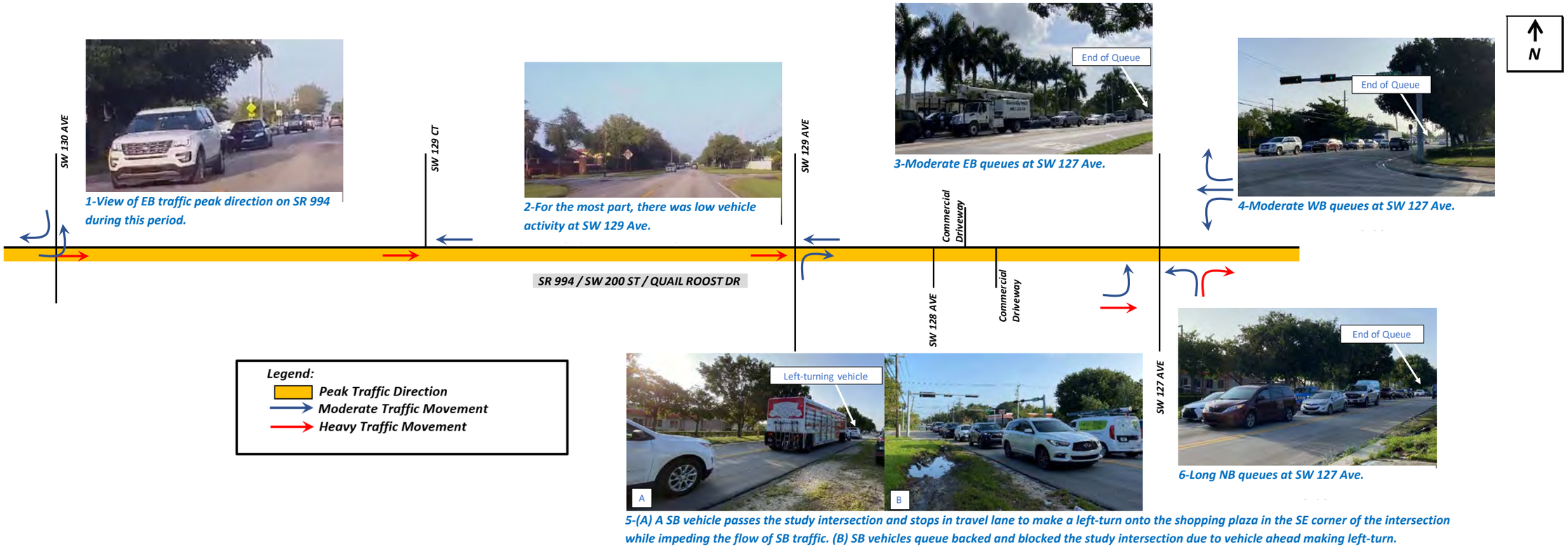
Figure 6. Field Observations for Study Corridor – AM



Main Observations (AM Peak Hour):

- *The peak traffic direction on SR 994 changes to EB at SW 132nd Ave due to the high volume of NB right-turning traffic from SW 132nd Ave.*
- *There was queue build-up at the northbound approach of this intersection due to the noticeable volume of right-turning traffic. This is a stop-controlled "T"-intersection with no exclusive right-turn lane.*
- *There is a midblock RRFB pedestrian crossing on SR 994 just east of SW 132nd Ave. The pedestrian and bicyclist crossing activity at this midblock crossing was very low.*
- *The volumes at SW 133rd Ct and SW 132 Court were low.*
- *There was some queue build-up observed on SW 133rd Ave and SW 132nd Pl. Occasionally, left-turning vehicles from the side street onto SR 994 had some difficulty in completing the left-turn due to the continuous traffic on SR 994.*

Figure 7. Field Observations for Study Corridor – AM



1-View of EB traffic peak direction on SR 994 during this period.

2-For the most part, there was low vehicle activity at SW 129 Ave.

3-Moderate EB queues at SW 127 Ave.

4-Moderate WB queues at SW 127 Ave.

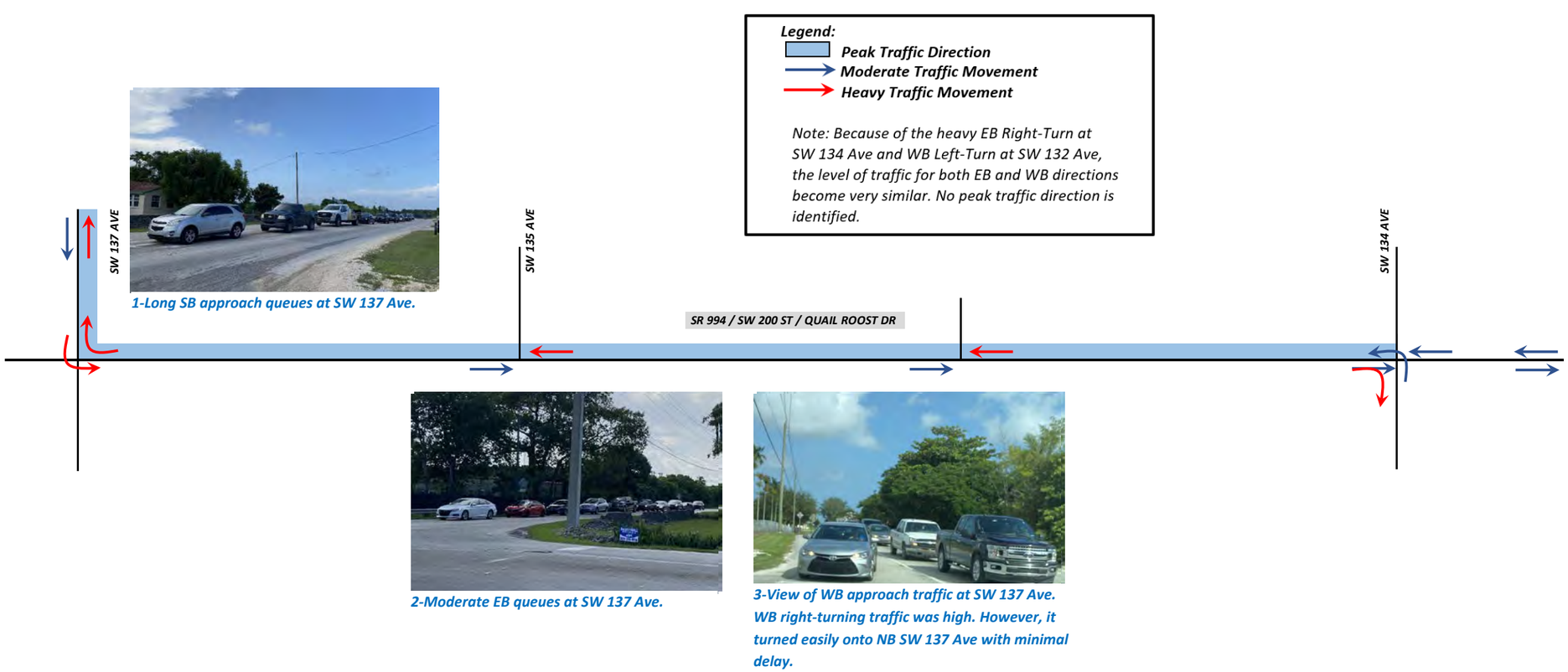
6-Long NB queues at SW 127 Ave.

5-(A) A SB vehicle passes the study intersection and stops in travel lane to make a left-turn onto the shopping plaza in the SE corner of the intersection while impeding the flow of SB traffic. (B) SB vehicles queue backed and blocked the study intersection due to vehicle ahead making left-turn.

Main Observations (AM Peak Hour):

- *The volume of turning traffic from and onto the side streets within the limits shown was low, except for some occasional SB right-turn and EB left-turn traffic at SW 130th Ave and NB right-turn traffic at SW 129th Ave.*
- ***SW 127th Ave:*** *There was a high volume of traffic at this intersection with long NB queues due to the lack of a right-turn lane and high volume of right-turners. The NB approach is serviced by a single lane. Most intersection movements experienced queue build-up. Other observations included:*
  - *Some motorists were observed to stop in traffic and make a SB left-turn across the NB queues to enter the shopping center in the SE corner of the intersection.*
  - *Consistently NB vehicles blocked the south leg crosswalk at the intersection.*
  - *Red light running was observed for SB and WB left-turning vehicles.*
  - *It was observed that WB left-turning vehicles do not yield to pedestrians crossing within the south leg crosswalk.*
  - *Pedestrian crosswalks are present at the north, south, and east legs with pedestrian signals and pushbuttons to cross SW 127th Ave. No pedestrian activity was observed.*

Figure 8. Field Observations for Study Corridor – AM



Main Observations (PM Peak Hour):

- ***SW 137th Ave:*** *The EB approach experienced queue build-up but to a lesser extent when compared to AM. The SB left-turn movement experienced long queues and excessive delay. Not all vehicles cleared the intersection within the first available green. The EB left-turn movement is serviced with a protected/permitted left-turn phase and no turn lane. During the permitted left-turn phase, EB left-turning vehicles blocked EB thru traffic when waiting for a gap in the opposing WB traffic. The SB left-turn and WB right-turn movements were high. No long queues were observed for WB right-turning traffic.*

- ***SW 134th Ave:*** *The NB approach experienced delay and queue build-up due to being under stop-controlled and occasional lack of available gaps in the SR 994 traffic stream during this peak hour. The EB right-turn volume was high but turned easily onto SB SW 134th Ave with minimal delay.*

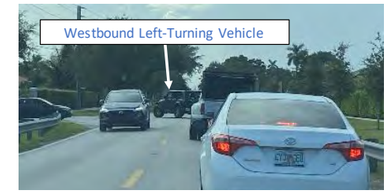
Figure 9. Field Observations for Study Corridor – PM

Legend:
- Peak Traffic Direction
- Moderate Traffic Movement
- Heavy Traffic Movement

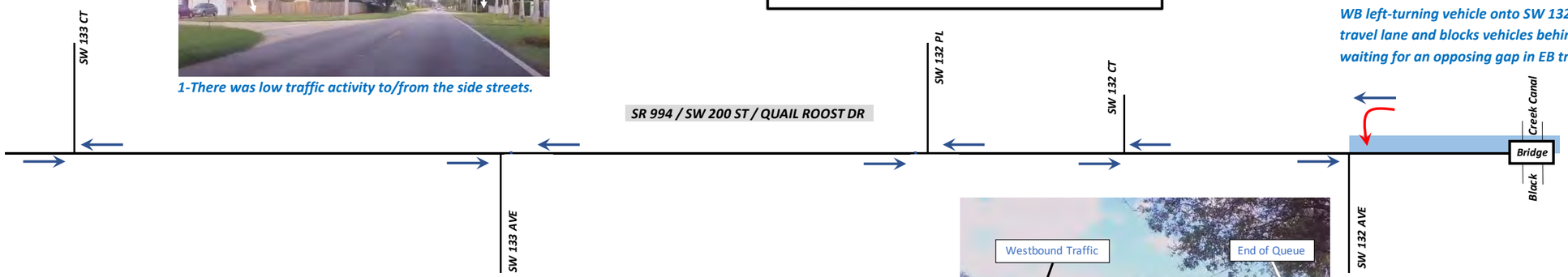
Note: Because of the heavy EB Right-Turn at SW 134 Ave and WB Left-Turn at SW 132 Ave, the level of traffic for both EB and WB directions become very similar. No peak traffic direction is identified.

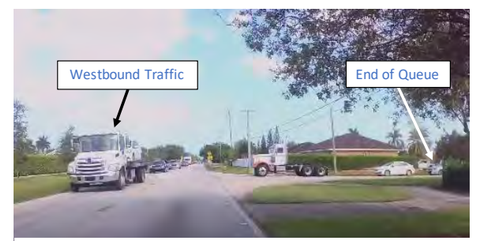
N

1-There was low traffic activity to/from the side streets.



2-Due to the lack of left-turn lanes on SR 994, a WB left-turning vehicle onto SW 132 Ave stops in travel lane and blocks vehicles behind while waiting for an opposing gap in EB traffic.





3-View of WB traffic and NB queues on SW 132 Ave.

Main Observations (PM Peak Hour):

- *The peak traffic direction on SR 994 during this period is WB, however past SW 132nd Ave both directions seemed to have similar levels of traffic. This is due to the high number of vehicles making a WB left-turn onto SB SW 132nd Ave. Due to the lack of a WB left-turn lane at SW 132nd Ave, WB left-turning vehicles must stop and wait for a gap in opposing EB traffic while blocking the thru traffic. This causes queue build-up that can extend past the RRFB midblock crossing just east of SW 132nd Ave. The pedestrian and bicyclist crossing activity at this midblock crossing was very low.*
- *The volumes at the side streets presented within these study limits were low.*

Figure 10. Field Observations for Study Corridor – PM

1-For the most part, there was low vehicular traffic activity to/from the side streets.

2-Moderate SB approach queues at SW 127 Ave.

3-Moderate WB approach queues at SW 127 Ave.

4-Moderate EB approach queues at SW 127 Ave.

5-Long NB approach queues at SW 127 Ave. Not all vehicles cleared the intersection within the first available green.

Main Observations (PM Peak Hour):

- *The volume of turning traffic from and onto the side streets within the limits shown was low, except for some occasional SB right-turn at SW 130th Ave.*
- ***SW 127th Ave:*** *Similar to the AM peak hour, there was a high volume of traffic at this intersection with long NB queues since the NB approach is serviced by a single lane. Most intersection movements experienced queue build-up. Other observations included:*
  - *Consistently NB vehicles blocked the south leg crosswalk at the intersection.*
  - *Red light running was observed for NB and WB left-turning vehicles.*
  - *No pedestrian activity was observed at the intersection during the field review.*

Figure 11. Field Observations for Study Corridor – PM Peak Hour

3.6 TRAFFIC FACTORS

The traffic factors to be used to develop volumes consist of the Standard K factors in addition to Directional (D) and Truck (T) factors obtained from the Florida Traffic Online website, nearby telemetry stations, as well as new classification counts from the data collection effort. Standard K and D factors will be used to develop future directional design hour volumes (DDHVs), as presented in **Tables 3** and **4** as obtained from the FDOT's Project Traffic Forecasting Handbook (2019). A K of 9% and a D of 56% were selected for this study which falls between the allowable ranges for an urban arterial such as SR 994. These values were used to develop future traffic volumes as discussed in **Section 7.3.1**.

Table 3. FDOT Standard K Factors

Area Type	Facility Type	K_{std}
Large Urban Areas with Core Freeways	Freeways	8.0-9.0
	Arterials	9.0
Other Urbanized Areas	Freeways	9.0
	Arterials	9.0

Table 4. FDOT Recommended D Factor Ranges

Road Type	Low D	Medium D	High D	Standard Deviation
Urban Freeways	50.4	55.8	61.2	4.11
Urban Arterials	50.8	57.9	67.1	4.60

AADT for existing conditions was determined from the collected 72-hour bi-directional counts by multiplying the Average Daily Traffic (ADT) obtained from the counts by the Seasonal Factor (SF) and Axle Correction Factor (ACF).

$$AADT = ADT \times SF \times ACF$$

The SF and ACF used are 1.01 and 0.98, respectively, since the 72-hour counts were collected in late August and early September. These values were obtained from FDOT 2020 Peak Season Factor Category Report and FDOT 2020 Weekly Axle Factor Category Report. This SF value covers any data collected from August 30 to September 5. The ACF value covers any data collected from January 1 through December 31.

The truck percentages (T factors) were calculated per each intersection movement based on the TMCs collected. The Peak Hour Factors (PHFs) for each study intersection were based on an overall intersection average.

3.7 EXISTING CONDITIONS ANALYSIS

An operational analysis of the study corridor was performed utilizing Synchro, Version 11, to evaluate the performance of existing traffic conditions for the weekday AM and PM peak hours. The operational assessment was performed in accordance with the FDOT's Traffic Analysis Handbook (2021) and consistent with the Highway Capacity Manual (HCM). The operational analysis included intersection and arterial evaluations. The results are based on the HCM 6th Edition, except the arterial analysis which is based on Synchro. In addition, the results for the signalized intersection of SW 137th Avenue are based on the HCM 2000 since latest versions (HCM 6th and 2010) do not support the current signal operation of a leading left-turning arrow for the eastbound direction without an exclusive left-turn bay. For consistency, the results for SW 137th Avenue for future conditions are also based on the HCM 2000.

Intersection geometry (lane assignments), posted speed limits, peak hour turning traffic volumes, truck percentages, PHFs, and signal timing/phase data were coded into the Synchro models. The signal timing and phasing information were obtained from the Miami-Dade County Traffic Signals & Signs Division. The timing/phasing data sheets are included in **Appendix C**. The truck percentages by intersection movement and an overall average PHF by intersection were used in the analysis.

The following guidelines as presented in the FDOT handbook were followed for the Synchro models:

- Lost time adjustment factor should be adjusted to replicate field observed queue lengths, as needed.
- Default gap acceptance factor should be checked and modified to replicate field conditions, as needed.
- All link terminals will extend at least 1,000 feet from the last node to reasonably calculate queueing in the model.
- 95th percentile queue lengths that are tagged with "#" or "m" will be assessed for the extent of queueing problems. The "#" indicates that the volume for the 95th percentile cycle exceeds capacity. The "m" indicates that volume for the 95th percentile queue is metered by an upstream signal.

The following Measures of Effectiveness (MOEs) were generated based on the HCM 6th Edition (except for SW 137th Avenue, HCM 2000 was used) and the Synchro outputs and summarized for the traffic models:

- Intersection:
  - Level of Service
  - Average Vehicle Delay (seconds/vehicle)
- Vehicle Movement:
  - Level of Service
  - Average Vehicle Delay (seconds/vehicle)
  - Volume/Capacity (v/c) Ratio (for signalized intersections only)
  - 95th Percentile Queue (feet)
- Arterial:
  - Level of Service
  - Average Vehicle Speed (miles/hour)
  - Travel Time (seconds)
  - Delay (hours)

The HCM utilizes LOS as the quantitative measure to represent the level of service at an intersection or arterial. The LOS grading criteria ranges from LOS A to LOS F, where LOS A is under-saturated/free-flow conditions and LOS F is over-saturated conditions. The Synchro output sheets are included **Appendix D**.

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3.7.1 Arterial Analysis Results

Based on 2021 traffic data, the study arterial of SR 994 is operating at LOS C or better for both eastbound and westbound directions during the AM and PM peak hours, as presented in **Table 5**. The average vehicle speed for eastbound during the AM and PM peak hours is 21-27 MPH, whereas in the westbound direction for both periods is slightly higher at 28-33 MPH. These speeds are below the 40 MPH posted speed limit of SR 994. The total arterial travel time is 5.5 minutes for eastbound and 3.5 minutes for westbound during the AM and PM peak hours.

Table 5. Existing Operational Results AM & PM for SR 994 Arterial

Dir.	Peak Hour	MOE	EXISTING	Dir.	Peak Hour	MOE	EXISTING
Eastbound	AM	LOS	C	Westbound	AM	LOS	B
		Speed (mph)	21			Speed (mph)	28
		Travel Time (min)	2.6			Travel Time (min)	1.9
	PM	LOS	C		PM	LOS	B
		Speed (mph)	27			Speed (mph)	33
		Travel Time (min)	2.0			Travel Time (min)	1.6
	Total Arterial Travel Time (min)		5.5		Total Arterial Travel Time (min)		3.5

Notes: Summarized results are based on Synchro. Units for speed are miles per hour.

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3.7.2 Intersection Analysis Results

Signalized Intersection of SW 137th Avenue:

At the beginning of this study, the south leg at the four-legged intersection of SW 137th Avenue was under construction and therefore not in operation. As presented in **Table 6**, this intersection is being serviced at LOS B during the AM peak hour. All intersection movements are operating at LOS D or better. Although the southbound left-turn movement is operating at LOS D, it is experiencing long vehicle queues and taking a few signal cycles for vehicles to complete the left-turn onto SR 994 eastbound. This movement is being serviced with a single left-turn lane under protected/permitted phasing. During the PM peak hour, the intersection operation at SW 137th Avenue degrades to LOS C due to the high volume (489 vehicles) of southbound left-turning traffic onto SR 994 eastbound. The southbound left-turn movement is operating at LOS F and over capacity. The assigned green time for this movement is not sufficient to clear the long vehicle queues. All other movements at this intersection are operating at LOS C or better during the PM peak hour.

Signalized Intersection of SW 127th Avenue:

During both the AM and PM hours, the four-legged intersection of SW 127th Avenue is operating at LOS D, as presented in **Table 6**. Most intersection movements are also being serviced at LOS D, except:

- Northbound approach for the AM and PM hours at LOS E or worse.
- Southbound through movement for the PM peak hour at LOS E.

The northbound approach experiences significant queues due to the high volume (315 vehicles) of right turns during the AM peak hour. A single northbound lane services the northbound approach with no exclusive right-turn lane. It takes several signal cycles for a vehicle joining the back of queue to clear the intersection. Although the right-turn volume decreases during the PM peak hour, the northbound through movement is being serviced at LOS E due to the single lane operation and signal progression priority of SR 994 over SW 127th Avenue. Approximately 14% more of the signal cycle is assigned to east/west over north/south. The southbound through movement experiences an increase in delay due to the slightly higher volume during the PM peak hour when compared to the earlier period.

Stop-Controlled Intersection of SW 134th Avenue:

Although the intersection of SW 134th Avenue is stop controlled for north/south, the operational results are presented separately from the rest of the stop-controlled intersections due to being upgraded to signal control in the future analysis as discussed later in this report. As presented in **Table 6**, the through movements on SR 994 are free and not under traffic control. The eastbound and westbound left-turn volumes are low and would block the single through lanes on SR 994 when turning left due to the lack of exclusive left-turn lanes. Based on the HCM methodology, the eastbound and westbound left-turns are serviced at LOS B or better. The critical movements are the northbound and southbound single lane approaches operating at LOS F with excessive delay, except for southbound during the PM peak hour.

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Table 6. Existing Operational Results AM & PM for SW 137th, 134th & 127th Avenues

AM PEAK HOUR
SR 994/QUAIL ROOST DR AT SW 137 AVE (SIGNAL CONTROL)
EXISTING

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Queue (ft)	v/c	LOS
EBLT	67	*	*	*	*	*
EBT	386	14.6	1.8	383	0.61	B
EBRT	N/A	N/A	N/A	N/A	N/A	N/A
WBLT	N/A	N/A	N/A	N/A	N/A	N/A
WBT	396	13.4	1.5	287	0.45	B
WBRT	500	13.5	1.9	135	0.45	B
NBLT	N/A	N/A	N/A	N/A	N/A	N/A
NBT	N/A	N/A	N/A	N/A	N/A	N/A
NBRT	N/A	N/A	N/A	N/A	N/A	N/A
SBLT	339	40.9	3.9	343	0.80	D
SBT	N/A	N/A	N/A	N/A	N/A	N/A
SBRT	36	24.7	0.2	<25	0.03	C
Int	**1724**	**19.4**	**9.3**			**B**

AM PEAK HOUR
SR 994/QUAIL ROOST DR AT SW 134 AVE (STOP CONTROL)
EXISTING

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	15	10.9	0.0	<25	0.03	B
EBT	650	0.2	0.0	N/A	N/A	N/A
EBRT	111	0.2	0.0	N/A	N/A	N/A
WBLT	57	9.2	0.1	<25	0.07	A
WBT	796	0.5	0.1	N/A	N/A	N/A
WBRT	108	*	*	*	*	*
NBLT	99	*	*	*	*	*
NBT	36	208.0	9.6	350	0.90	F
NBRT	32	*	*	*	*	*
SBLT	46	*	*	*	*	F
SBT	42	87.4	2.2	380	0.65	F
SBRT	3	*	*	*	*	F
Int	**1995**	**N/A**	**12.2**			****F**

AM PEAK HOUR
SR 994/QUAIL ROOST DR AT SW 127 AVE (SIGNAL CONTROL)
EXISTING

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	134	25.9	1.0	123	0.36	C
EBT	891	44.3	11.5	564	0.69	D
EBRT	47	*	*	*	*	*
WBLT	174	33.9	1.6	189	0.65	C
WBT	526	32.3	4.7	278	0.36	C
WBRT	146	25.2	1.0	39	0.20	C
NBLT	192	39.9	2.1	196	0.53	D
NBT	197	107.4	15.3	762	1.04	F
NBRT	315	*	*	*	*	*
SBLT	93	50.2	1.3	101	0.71	D
SBT	182	48.4	3.1	276	0.47	D
SBRT	46	*	*	*	*	*
Int	**2943**	**50.9**	**41.7**			**D**

PM PEAK HOUR
SR 994/QUAIL ROOST DR AT SW 137 AVE (SIGNAL CONTROL)
EXISTING

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	41	*	*	*	*	*
EBT	402	13.9	1.7	263	0.48	B
EBRT	N/A	N/A	N/A	N/A	N/A	N/A
WBLT	N/A	N/A	N/A	N/A	N/A	N/A
WBT	373	14.4	1.5	218	0.43	B
WBRT	355	12.2	1.2	44	0.26	B
NBLT	N/A	N/A	N/A	N/A	N/A	N/A
NBT	N/A	N/A	N/A	N/A	N/A	N/A
NBRT	N/A	N/A	N/A	N/A	N/A	N/A
SBLT	489	81.2	11.0	589	1.01	F
SBT	N/A	N/A	N/A	N/A	N/A	N/A
SBRT	40	26.8	0.3	<25	0.03	C
Int	**1700**	**33.3**	**15.7**			**C**

PM PEAK HOUR
SR 994/QUAIL ROOST DR AT SW 134 AVE (STOP CONTROL)
EXISTING

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	0	0.0	0.0	N/A	N/A	N/A
EBT	648	0.0	0.0	N/A	N/A	N/A
EBRT	210	0.0	0.0	N/A	N/A	N/A
WBLT	65	9.9	0.2	<25	0.10	A
WBT	632	0.9	0.2	N/A	N/A	N/A
WBRT	18	*	*	*	*	*
NBLT	103	*	*	*	*	F
NBT	24	183.6	8.5	320	0.80	F
NBRT	40	*	*	*	*	F
SBLT	31	*	*	*	*	D
SBT	23	54.3	0.8	250	0.60	D
SBRT	2	*	*	*	*	D
Int	**1796**	**N/A**	**9.7**			****F**

PM PEAK HOUR
SR 994/QUAIL ROOST DR AT SW 127 AVE (SIGNAL CONTROL)
EXISTING

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	49	24.7	0.3	52	0.15	C
EBT	630	37.5	7.5	413	0.58	D
EBRT	89	*	*	*	*	*
WBLT	246	30.2	2.1	233	0.75	C
WBT	565	27.2	4.3	292	0.38	C
WBRT	97	17.2	0.5	32	0.06	B
NBLT	147	51.2	2.1	157	0.74	D
NBT	198	72.6	7.4	468	0.88	E
NBRT	169	*	*	*	*	*
SBLT	131	49.5	1.8	140	0.70	D
SBT	284	69.2	6.7	458	0.85	E
SBRT	65	*	*	*	*	*
Int	**2670**	**44.0**	**32.6**			**D**

Notes: The following Measures of Effectiveness (MOEs) were generated based on the HCM 6th Edition (except for SW 137th Avenue, HCM 2000 was used). "v/c" indicates volume over capacity; values greater than 1 indicates over capacity. "*" indicates movement is shared. "**" LOS estimated per side street traffic operation, since no intersection delay is computed by the traffic analysis software due to main road being free flow. "N/A" indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively. Although SW 134th Avenue is not signalized, it is presented together with SW 137th Avenue and SW 127 Avenue since it would be under signal control in 2025. All other stop-controlled intersections are presented in the next table.

Stop-Controlled Intersections:

The critical movements at the stop-controlled intersections within the study limits include making a left-turn from the side street or mainline SR 994. **Table 7** presents a summary of the average vehicular delay, 95th percentile queue length, and level of service per movement at each intersection.

During the AM peak hour, the noticeable movements operating at LOS F include the southbound left-turn at SW 130th Avenue with a queue of 132 feet and the northbound left-turns at SW 132nd Avenue and SW 133rd Avenue with 308 feet and 264 feet of queue, respectively. Although there are other movements operating at LOS F during this period, these movements experience short queues.

All intersection movements at the stopped-control intersections during the PM peak hour experience short queues.

Based on a weighted average, left-turning vehicles to and from the side streets within the study corridor take approximately 1.5 minutes to execute their turn during the AM peak hour, with some locations taking longer. During the PM peak hour, this maneuver takes approximately 20 seconds on average. However, at the intersections of SW 133rd Court, SW 132nd Avenue, SW 130th Avenue, and SW 129th Avenue, the left-turning maneuver from the side street onto the SR 994 mainline takes about a minute to execute during the PM peak hour. The cumulative vehicular delay for left-turning movements at the unsignalized intersections within the study corridor is approximately 14 hours during the AM peak hour and 2 hours during the PM peak hour.

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Table 7. Existing Operational Results for Critical Movements at Unsignalized Intersections

	Intersection	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS
AM Peak Hour	SW 135 Ave	SBLT	11	45.1	0.14	~25 ft	E
		EBLT	0	0.0	0.00	~25 ft	A
	SW 134 Ct	SBLT	3	38.2	0.03	~25 ft	E
		EBLT	0	0.0	0.00	~25 ft	A
	SW 133 Ct	SBLT	4	33.7	0.04	~25 ft	D
		EBLT	4	10.3	0.01	~25 ft	B
	SW 133 Ave	NBLT	108	236.4	7.09	264	F
		WBLT	13	9.4	0.03	~25 ft	A
	SW 132 Pl	SBLT	58	108.3	1.74	88	F
		EBLT	21	10.0	0.06	~25 ft	A
	SW 132 Ave	NBLT	40	199.6	2.22	308	F
		WBLT	67	10.2	0.19	~25 ft	B
	SW 130 Ave	NBLT	4	325.6	0.36	~25 ft	F
		SBLT	11	109.4	0.33	132	F
		EBLT	116	11.0	0.35	~25 ft	B
		WBLT	0	0.0	0.00	~25 ft	A
	SW 129 Ave	NBLT	35	148.9	1.45	66	F
		SBLT	6	83.5	0.14	~25 ft	F
		EBLT	2	9.5	0.01	~25 ft	A
		WBLT	19	10.4	0.05	~25 ft	B
		Total	**522**	**98.3**	**14.25**	**N/A**	**N/A**

	Intersection	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS
PM Peak Hour	SW 135 Ave	SBLT	7	32.0	0.06	~25 ft	D
		EBLT	1	9.2	0.00	~25 ft	A
	SW 134 Ct	SBLT	2	38.7	0.02	~25 ft	E
		EBLT	0	0.0	0.00	~25 ft	A
	SW 133 Ct	SBLT	6	52.3	0.09	~25 ft	F
		EBLT	6	10.2	0.02	~25 ft	B
	SW 133 Ave	NBLT	20	33.7	0.19	~25 ft	D
		WBLT	30	9.5	0.08	~25 ft	A
	SW 132 Pl	SBLT	19	34.5	0.18	~25 ft	D
		EBLT	0	0.0	0.00	~25 ft	A
	SW 132 Ave	NBLT	25	69.7	0.48	88	F
		WBLT	174	10.6	0.51	~25 ft	B
	SW 130 Ave	NBLT	1	47.9	0.01	~25 ft	E
		SBLT	10	34.5	0.10	44	D
		EBLT	42	10.3	0.12	~25 ft	B
		WBLT	0	0.0	0.00	~25 ft	A
	SW 129 Ave	NBLT	8	65.4	0.15	~25 ft	F
		SBLT	4	46.1	0.05	~25 ft	E
		EBLT	1	9.7	0.00	~25 ft	A
		WBLT	22	9.3	0.06	~25 ft	A
		Total	**378**	**20.2**	**2.12**	**N/A**	**N/A**

Notes: LOS E and F are highlighted in orange and red, respectively.

3.7.3 Safety Analysis

The crash data for the five most recent and official years (from January 1, 2014 to December 31, 2018) at the time when the scope of services for this study was developed was downloaded from the FDOT's Crash Analysis Reporting (CAR) Online for SR 994/SW 200th Street/Quail Roost Drive (87091000) from 400 feet west of SW 137th Avenue (MP 4.000) to 645 feet east of SW 127 Avenue (MP 5.212).

The police reports for all crashes were downloaded from CAR Online to verify the crash location and update the crash data information such as crash type. Based on the crash data and police reports, crash summaries and collision diagrams were developed for the five-year study period. The crash summaries and CAR Online data for the overall study corridor, and each study intersection, are included in **Appendix E**. The collision diagrams developed are presented as **Figures 12** through **20** (at the end of this section). The overall statistics are presented first, followed by the main findings.

In addition, Signal Four Analytics was used as a supplemental source for the same five-year study period of 2014 to 2018. Signal Four Analytics is "an interactive, web-based system designed to support the crash mapping and analysis needs of the law enforcement, traffic engineering, transportation planning agencies, and research institutions in the state of Florida." The main intent for this supplemental review was to identify any additional crashes along the study corridor. Crashes that were pulled from Signal Four Analytics were compared with crashes from CAR Online and duplicates were removed. In addition, a review of the crash data from Signal Four Analytics was also conducted from January 2019 to September 15, 2021 (latest data available at the time of query), to determine whether the type of crashes identified during the 2014 to 2018 study period are prevalent in the later years and if there have been any crashes resulting in severe injury.

FDOT CAR Online *(2014 to 2018)*

Based on the crash data reviewed, a total of 390 crashes were documented along the study corridor during the referenced five-year period with 58 crashes in 2014, 67 crashes in 2015, 80 crashes in 2016, 88 crashes in 2017 and 97 crashes in 2018, as presented in **Table 8**.

- **Leading Crash Types**: The top four leading crash types along the study corridor were Rear-End with 187 crashes (48%), Angle with 77 crashes (20%), Sideswipe with 43 crashes (11%), and Left-Turn with 40 crashes (10%).

Table 8. FDOT Crash Summary (2014 to 2018) for Study Corridor

Segment/Spot with No Expected Values Available		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	27	33	38	48	41	187	37.40	47.9%
	Head On	1	1	1	0	2	5	1.00	1.3%
	Angle	10	9	21	22	15	77	15.40	19.7%
	Left Turn	8	7	9	6	10	40	8.00	10.3%
	Right Turn	3	1	1	3	4	12	2.40	3.1%
	Sideswipe	6	8	7	5	17	43	8.60	11.0%
	Backed Into	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	1	1	0.20	0.3%
	Bicycle	0	0	0	1	0	1	0.20	0.3%
	Fixed Object	1	6	3	3	5	18	3.60	4.6%
	Other Non-Collisions	1	1	0	0	0	2	0.40	0.5%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%
	Others	1	1	0	0	2	4	0.80	1.0%
	Total Crashes	**58**	**67**	**80**	**88**	**97**	**390**	**78.00**	**100.0%**
SEVERITY	PDO Crashes	35	48	55	54	62	254	50.80	65.1%
	Fatal Crashes	0	0	1	0	0	1	0.20	0.3%
	Injury Crashes	23	19	24	34	35	135	27.00	34.6%
LIGHTING CONDITIONS	Daylight	36	51	65	58	70	280	56.00	71.8%
	Dusk	0	1	0	4	3	8	1.60	2.1%
	Dawn	0	0	1	1	0	2	0.40	0.5%
	Dark	21	15	14	25	23	98	19.60	25.1%
	Unknown	1	0	0	0	1	2	0.40	0.5%
SURFACE CONDITIONS	Dry	44	52	67	78	80	321	64.20	82.3%
	Wet	13	15	13	10	16	67	13.40	17.2%
	Others	1	0	0	0	1	2	0.40	0.5%

- **Pedestrian & Bicycle Crashes**: There was 1 pedestrian crash and 1 bicycle crash documented during the study period. No crash pattern was identified for these crashes.
- **Nighttime and Wet Pavement**: Nighttime and wet/slippery pavement crashes are above the 2014-2018 Districtwide averages: 108 nighttime crashes (28%) reported, which is just below the FDOT District Six's average of 29%; 67 (17%) of the total crashes reported occurred under wet/slippery pavement conditions, which is above the FDOT District Six's average of 12%.
- **Crash Severity**: Based on crash severity, 65% (254 crashes) of all crashes resulted in property damage only crashes, 35% (135 crashes) in injury crashes, and <1% (1 crash) in a fatal crash. The fatal collision was a westbound left-turn crash that occurred at SW 132nd Avenue on Sunday, March 20, 2016, at 8:40 PM during wet pavement conditions. The crash resulted from the westbound left-turning vehicle failing to yield the right-of-way

to oncoming eastbound traffic.

- **Peak Crash Period**: Most crashes, 102 of the 390 crashes (26%), occurred between 6 PM and midnight. This is followed by the peak crash periods of 3:00 PM to 6:00 PM with 91 (23%) crashes and 6:00 AM to 9:00 AM with 85 (22%) crashes which coincide with the traffic s of the study corridor.
- **High Crash Location(s)**: A confidence level analysis was performed for the study corridor that indicates that the frequency of crashes was not abnormally high for the study period. According to the Highway Safety Improvement Program (HSIP), urban locations with a confidence level of 99.95% or higher can be considered to have an abnormally high number of crashes. The study corridor's confidence levels were calculated at 80% or less for each year of analysis. In addition, the Department's high crash lists for segments and intersections were reviewed for the crash period. The following intersections and segments are considered a high crash location:
    - Intersection SW 137th Avenue: MP 4.06 to MP 4.10,
    - Intersection SW 134th Avenue: MP 4.30 to MP 4.36,
    - Intersection SW 132nd Avenue: MP 4.58 to MP 4.59,
    - Intersection SW 127th Avenue: MP 5.05 to MP 5.10,
    - Segment from SW 137th Avenue to east of SW 129th Avenue: MP 4.075 to 4.961.

Signal Four Analytics (2014 to 2021)

Signal Four Analytics identified 97 additional crashes for the study corridor from January 1, 2014, to December 31, 2018, which corresponds to the same crash period used for FDOT CAR Online. These 97 crashes were not reported by FDOT CAR Online. The leading crash type of rear-end collisions presented by Signal Four for 2014-2018 coincides with the FDOT CAR Online findings. For the period from 2019 to 2021 (up to September 15), Signal Four documented 99 crashes in 2019, 71 crashes in 2020 and 55 crashes in 2021 as presented in **Table 9** The main findings as discussed below also mostly coincide with the FDOT CAR Online crash data findings from 2014 to 2018.

- **Leading Crash Types**: The top four leading crash types along the study corridor based on Signal Four (2019 to September 15, 2021) were Rear-End with 91 crashes (40%), Left-Turn with 50 crashes (22%), Sideswipe with 22 crashes (10%) and Other with 33 crashes (28%).
- **Pedestrian & Bicycle Crashes**: There was 1 bicycle crash documented during the three-

year study period.

- **Nighttime and Wet Pavement**: There were 56 (25%) night/dusk/dawn crashes reported during the three-year study period and 27 (12%) crashes reported to have occurred under wet/slippery pavement conditions. Nighttime crashes are lower that the FDOT District Six's average of 28%, however wet pavement crashes do meet the FDOT District Six's average of 12%.
- **Crash Severity**: Based on crash severity, 74% (167 crashes) of all crashes resulted in property damage only crashes, 25% (57 crashes) in injury crashes, and <1% (1 crash) in a fatal crash.
- **Peak Crash Period:** Most crashes occurred between 3:00 PM and midnight.

Table 9. Signal Four Crash Summary (2014 to Sept. 15, 2021) for Study Corridor

Segment/Spot with No Expected Values Available		Number of Crashes							
		Year							
		2014	2015	2016	2017	2018	2019	2020	2021
CRASH TYPE	Rear End	3	7	11	4	9	43	27	21
	Head On	0	1	0	0	0	1	1	1
	Angle	0	0	1	0	2	7	7	5
	Left Turn	1	1	5	4	7	22	15	13
	Right Turn	0	0	1	1	2	2	1	3
	Sideswipe	1	3	3	2	3	12	8	2
	Backed Into	0	0	0	0	0	0	0	0
	Pedestrian	0	1	0	0	0	0	0	0
	Bicycle	0	0	0	0	0	1	0	0
	Fixed Object	0	0	0	0	0	0	0	0
	Others	3	8	4	6	3	11	12	10
	Total Crashes	**8**	**21**	**25**	**17**	**26**	**99**	**71**	**55**
SEVERITY	PDO Crashes	6	18	25	17	25	73	50	44
	Fatal Crashes	0	0	0	0	0	1	0	0
	Injury Crashes	2	3	0	0	1	25	21	11
LIGHTING	Daylight	4	19	17	12	24	80	48	41
	Dark	4	2	8	5	2	19	23	14
	Unknown	0	0	0	0	0	0	0	0
SURFACE CONDITIONS	Dry	7	16	18	15	23	89	62	47
	Wet	0	4	7	2	3	10	9	8
	Others	1	1	0	0	0	0	0	0

Notes: Crashes presented by Signal Four from 2014 to 2018 correspond to additional crashes not reported by FDOT CAR Online data for the same study period. These are not total crashes documented by Signal Four for those years. However, crashes presented by Signal Four from 2019 to 2021 (up to September 15) are total crashes for those years.

Main Findings:

Based on the crash data and collision diagrams analyses, the following is stated:

- Most of the crashes along the study corridor occurred within the influence area of SW 127th Avenue with 142 crashes (36%), followed by SW 134th Avenue with 74 crashes (19%), and SW 137th Avenue with 62 crashes (16%).
- Except for SW 134th Avenue (where angle crashes are predominant), rear-end crashes are the leading crash type for all the study intersections along the study corridor. This pattern is primarily attributed to congestion/lack of capacity and lack of turning lanes. These crashes are mainly documented along SR 994, except at SW 127th Avenue where they are also present along the northbound and southbound intersection approaches.
- Based on the Expected Values Analysis (EVA) conducted for the intersection of SR 994 at SW 127 Avenue, the following crash types and conditions were considered abnormally high:

  At 90th Percentile
  - Wet surface conditions

  At 95th Percentile
  - Left-turn crashes
  - Sideswipe crashes
  - Injury crashes
  - Dark lighting conditions
  - Time periods of 6:00 AM to 9:00 AM and 6:00 PM to midnight

  Note: *No EVA analysis was conducted for the other main intersections of SW 137th Avenue and SW 134th Avenue since these values are not available for these types of intersections.*
- The following crash patterns were identified at the main and minor study intersections:
  - SW 137th Avenue: Rear-End crashes at the eastbound approach with 29 crashes (59% resulting in property damage only). Main probable cause is the lack of an eastbound left-turn lane.
  - SW 134th Avenue: Rear-End crashes at the eastbound, westbound, and northbound approaches with 7, 12, and 6 crashes, respectively (60% resulting in property damage only). Angle crashes between the northbound approach and the eastbound and westbound approaches with 16 and 10 crashes, respectively (65% resulting in property damage only). Main probable causes are lack of left-turn lanes on SR 994 and lack of available gaps for northbound traffic to proceed through the intersection.

- SW 132 Avenue: Rear-End crashes at the westbound approach with 27 crashes (34% resulting in property damage only). Main probable cause is the lack of a westbound left-turn lane.
- SW 130 Avenue: Rear-End crashes at the eastbound approach with 10 crashes (60% resulting in property damage only). Main probable cause is the lack of an eastbound left-turn lane.
- SW 127 Avenue: Rear-End crashes at the northbound and eastbound approaches with 12 and 9 crashes, respectively (81% resulting in property damage only). Sideswipe crashes at the northbound approach with 11 crashes (82% resulting in property damage only). Left-Turn crashes at the westbound approach with 11 crashes (46% resulting in property damage only). Main probable causes are saturated traffic conditions and lack of a northbound right-turn lane.

It is worth mentioning that aside from the 2016 westbound left-turn fatal crash at SW 132nd Avenue documented by FDOT CAR Online and the 2019 angle fatal crash at SW 134th Avenue documented by Signal Four Analytics, a third fatal crash (westbound left-turn collision) has been documented by Signal Four Analysis for 2021 at SW 134th Avenue per a crash query performed on April 2024 for the study corridor. This crash had not been identified previously by Signal Four Analytics.

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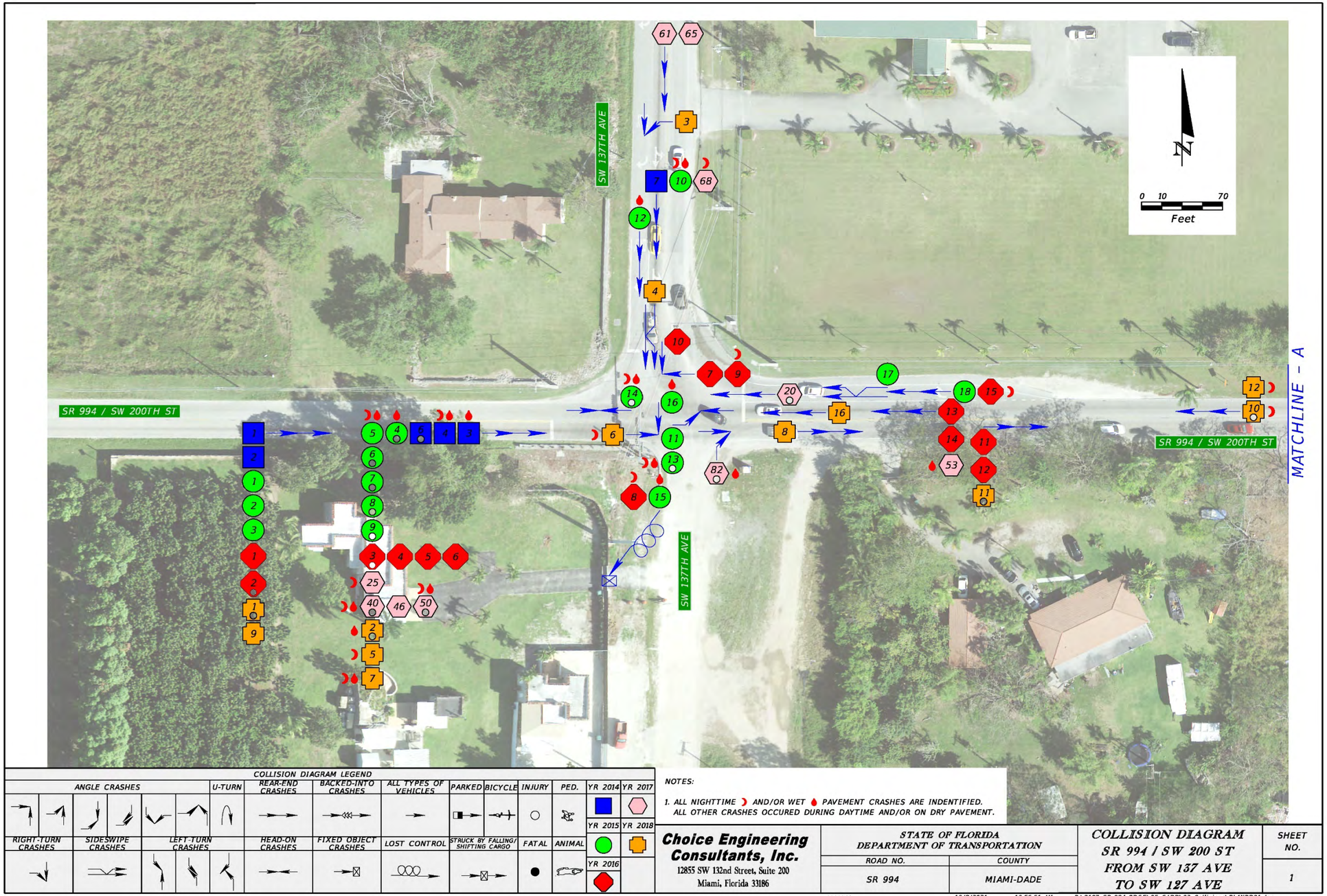


Figure 12. Collision Diagram for Study Corridor (at SW 137th Ave)

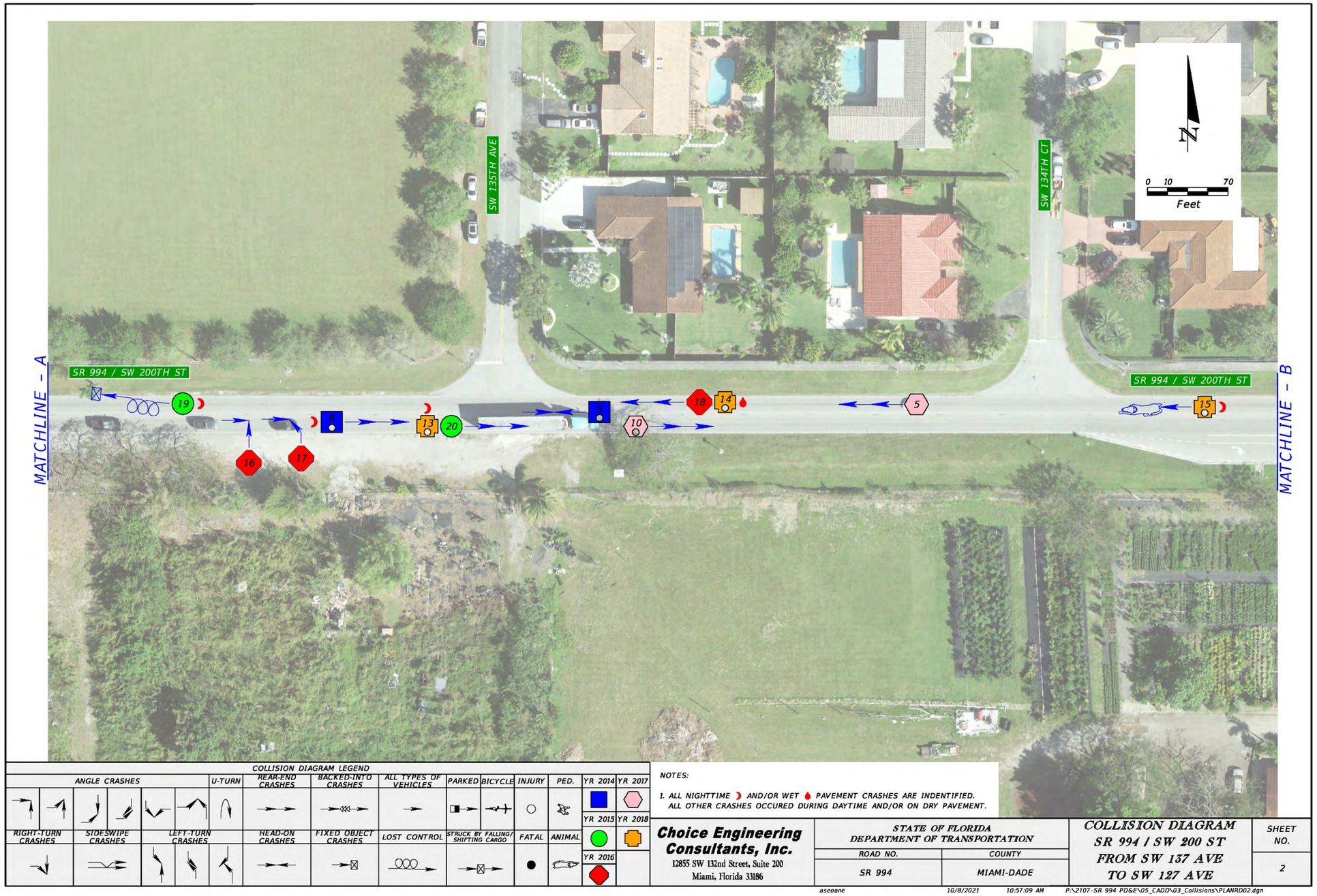


Figure 13. Collision Diagram for Study Corridor (SW 135th Ave to SW 134th Ct)

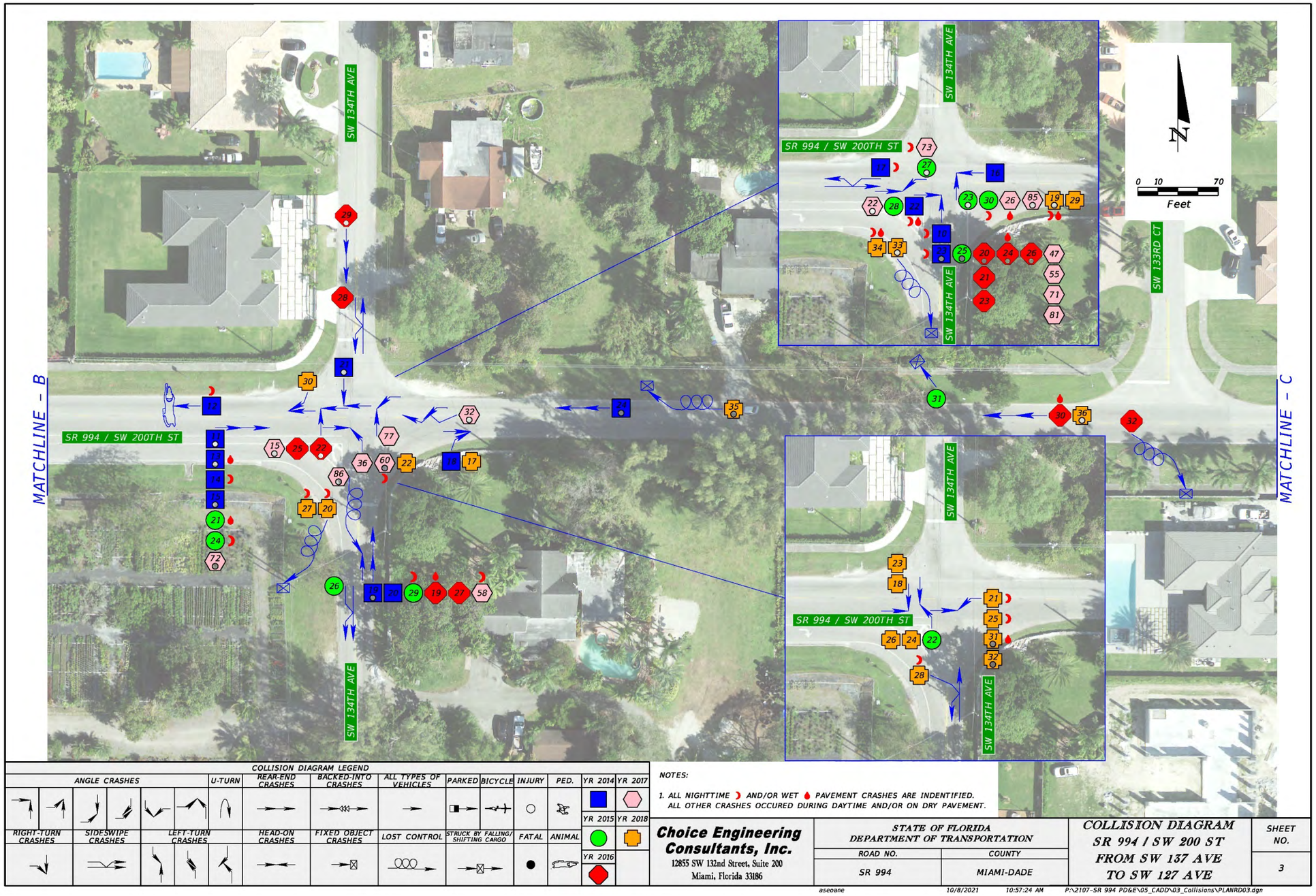


Figure 14. Collision Diagram for Study Corridor (SW 134th Ave to SW 133rd Ct)

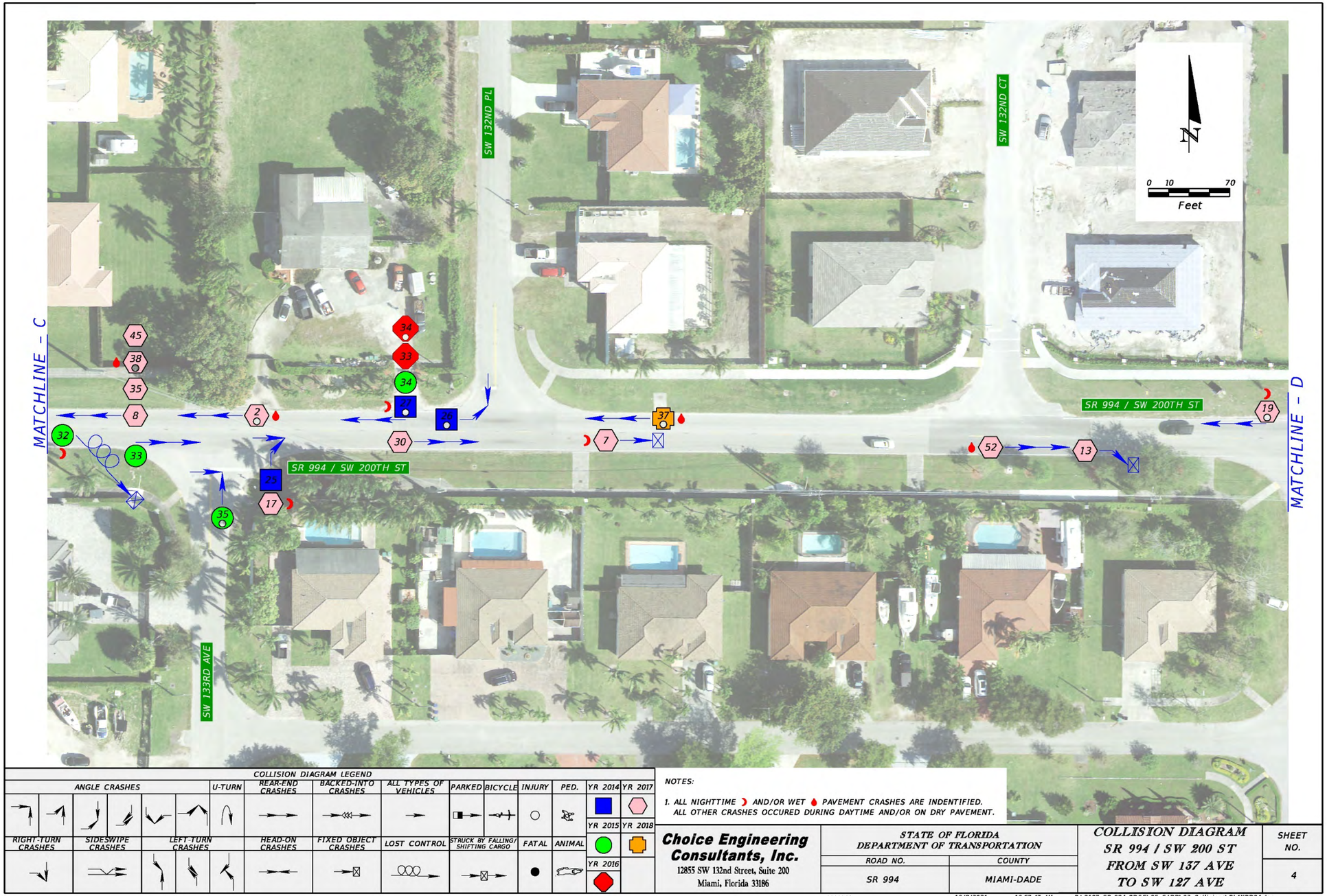


Figure 15. Collision Diagram for Study Corridor (SW 133rd Ave to SW 132nd Ct)

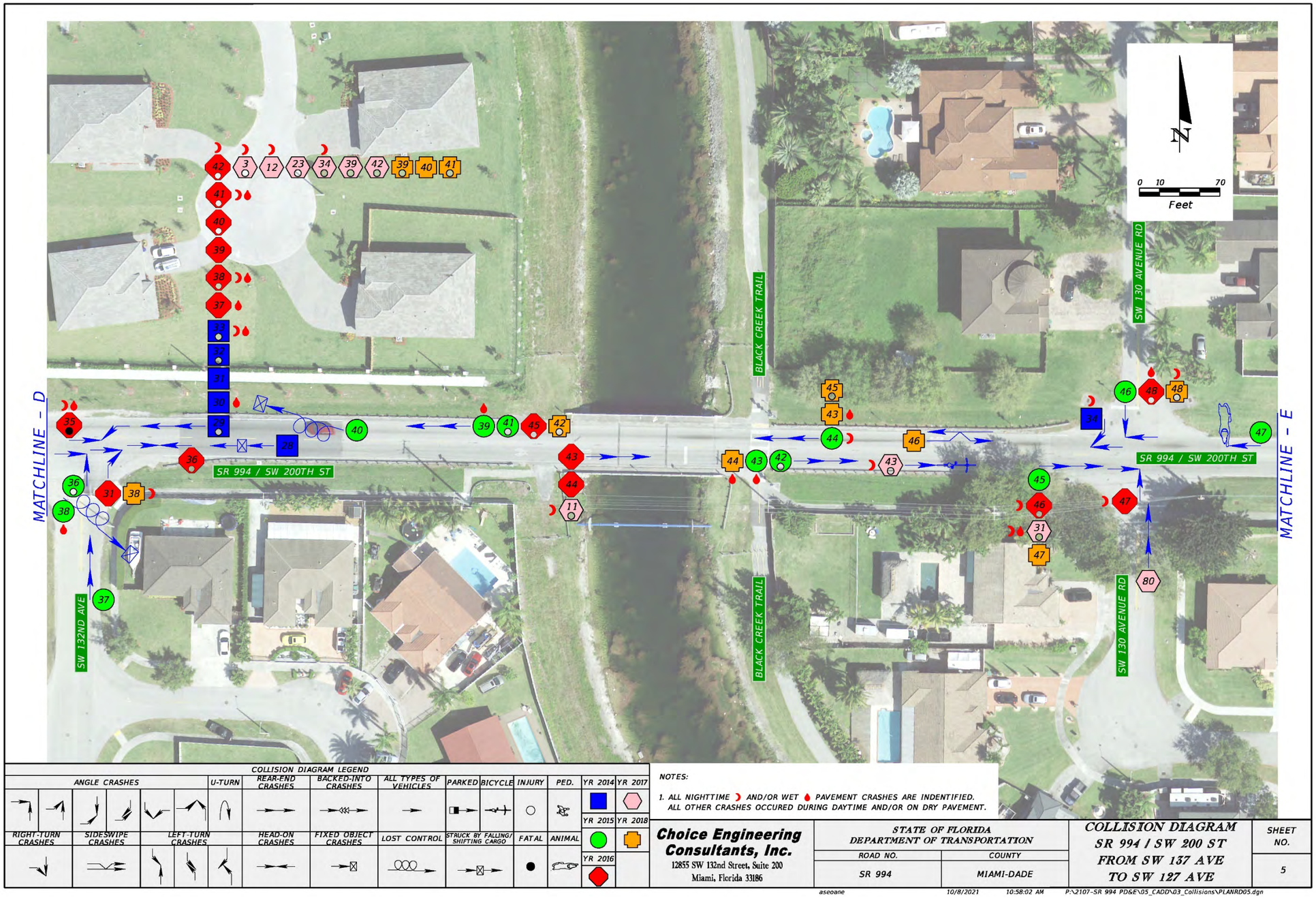


Figure 16. Collision Diagram for Study Corridor (SW 132nd Ave to SW 130th Ave)

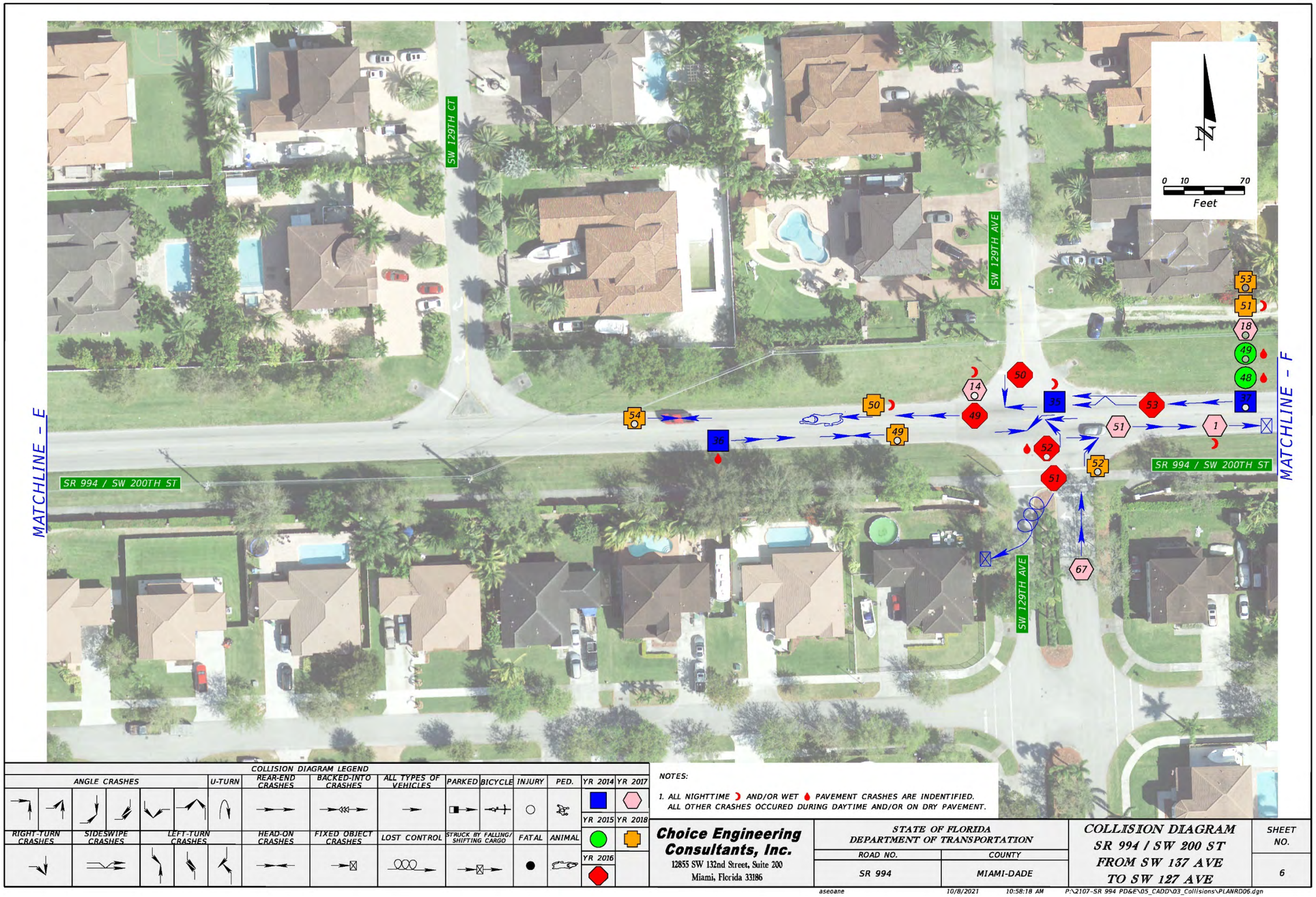


Figure 17. Collision Diagram for Study Corridor (SW 129th Ct to SW 129th Ave)

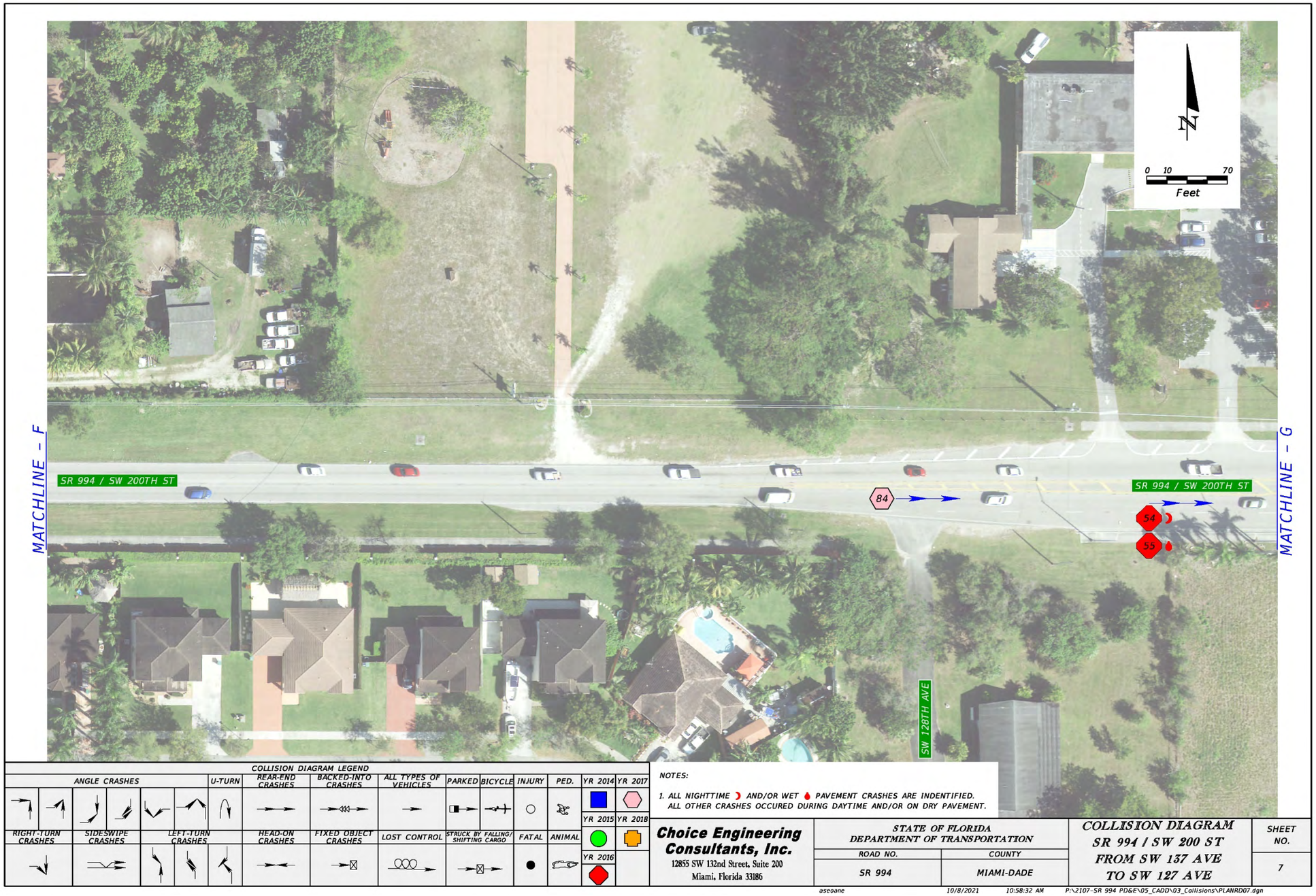


Figure 18. Collision Diagram for Study Corridor (west of SW 127th Ave)

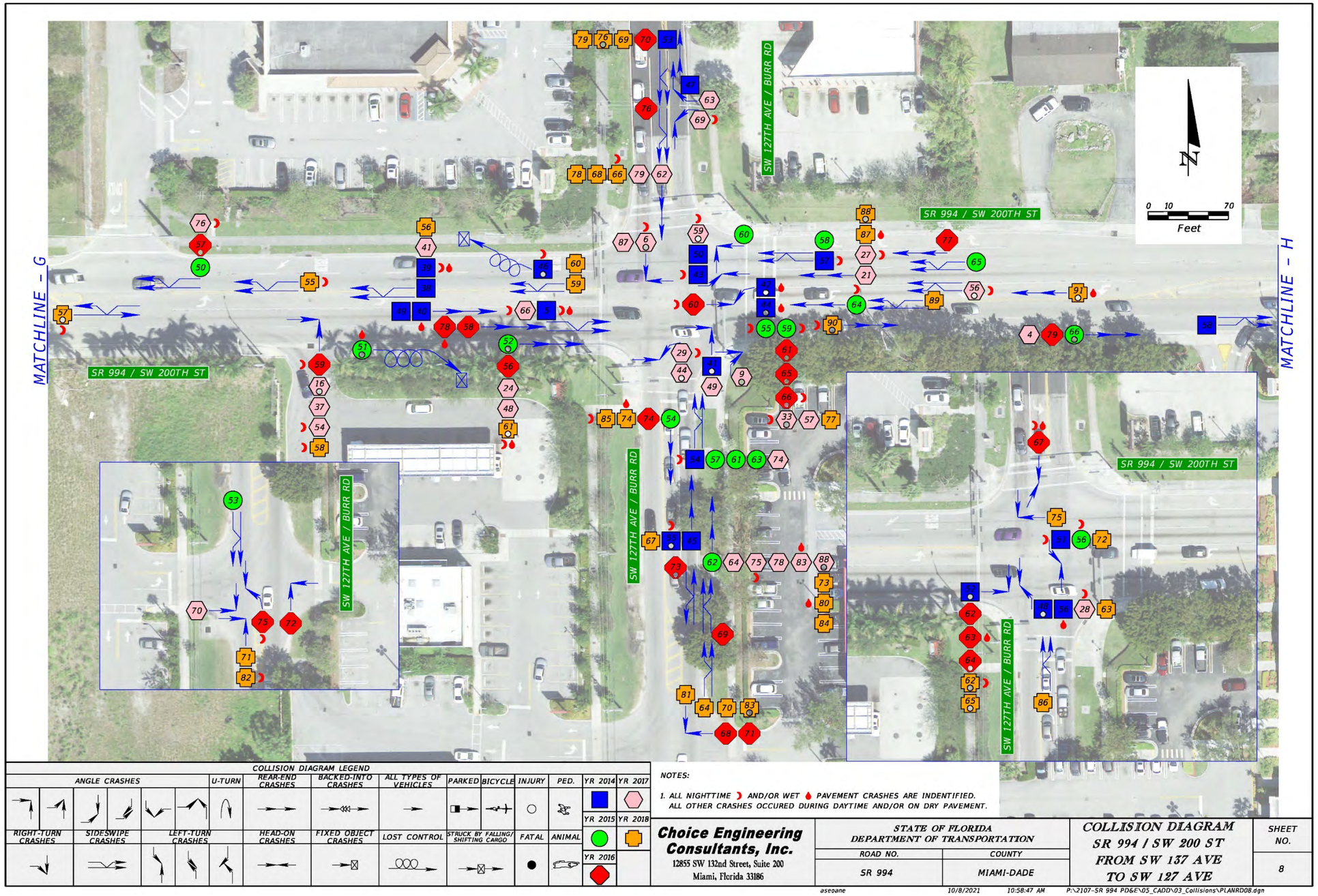


Figure 19. Collision Diagram for Study Corridor (at SW 127th Ave)

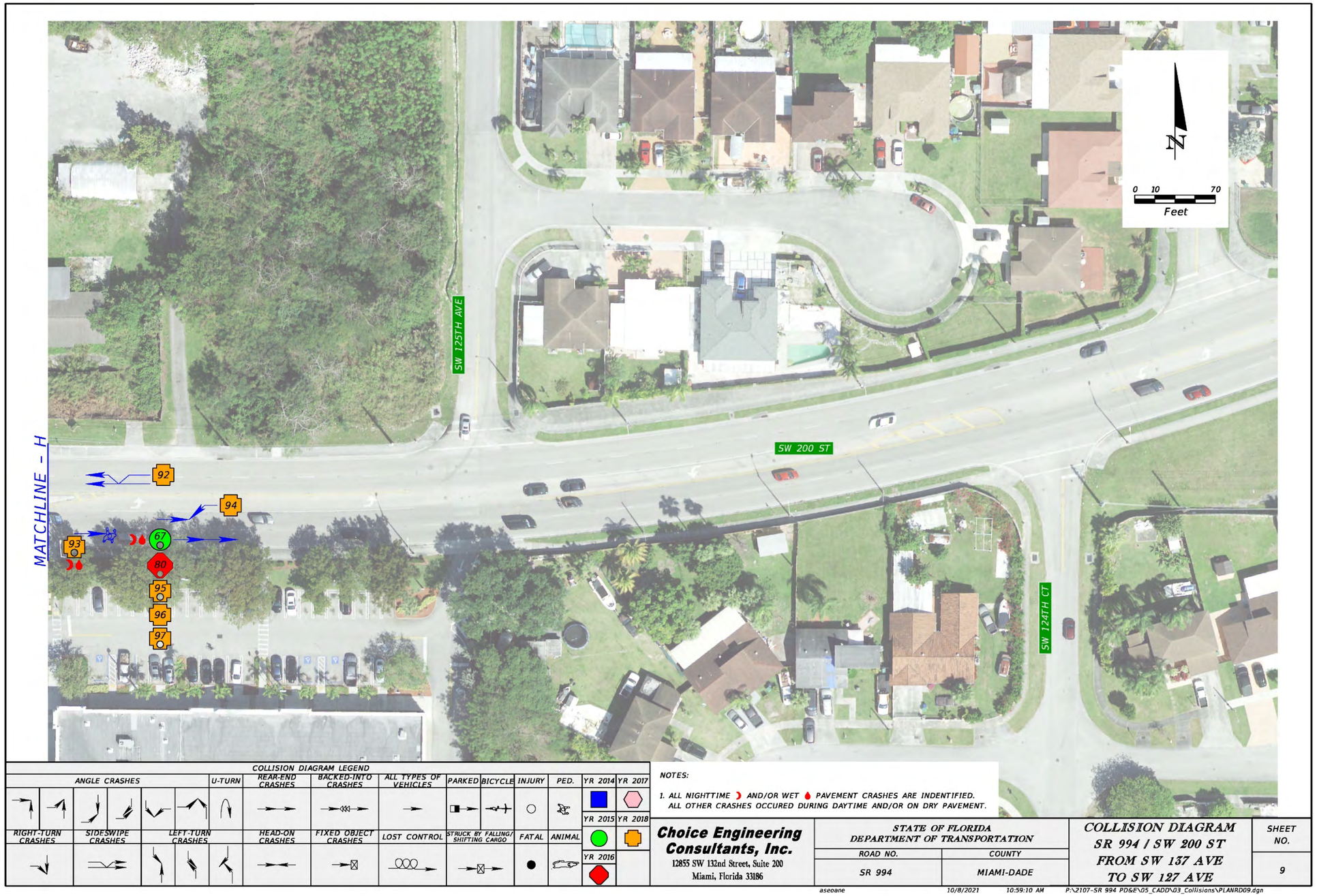


Figure 20. Collision Diagram for Study Corridor (east of SW 127th Ave)

4.0 RRFB MIDBLOCK CROSSING REVIEW

The current midblock RRFB pedestrian crossing on SR 994 east of SW 132nd Avenue was reviewed for the roadway conditions under all three build alternatives. The review was performed by following the guidelines presented in the latest edition of the FDOT's January 2023 Traffic Engineering Manual (TEM) – Chapter 5.2. According to the FDOT TEM Chapter 5.2.5.2, the following factors should be considered when evaluating a RRFB at a midblock crossing:

- Use of flashing beacons shall be limited to the roadways with the following conditions:
  - A marked special emphasis crosswalk.
  - Four (4) or fewer through lanes (both directions).
  - Posted speed limit of 35 MPH or less.
- For locations with five (5) lanes (4-through lanes with a Two-Way Left Turn Lane), a refuge island or raised median may be installed at the center of the roadway to create a two-stage crossing.
- Overhead flashing beacons and RRFB are preferred to be used for locations with four (4) lanes divided or five (5) lane roadways with a median refuge island.
- For locations that do not meet the criteria above, a variation must be submitted to the State Traffic Engineering and Operations Office for review and approval. The variation shall include the following:
  - AADT
  - Sight distance
  - Speed data
  - Supplemental information (including location description and observations)
  - Crash data

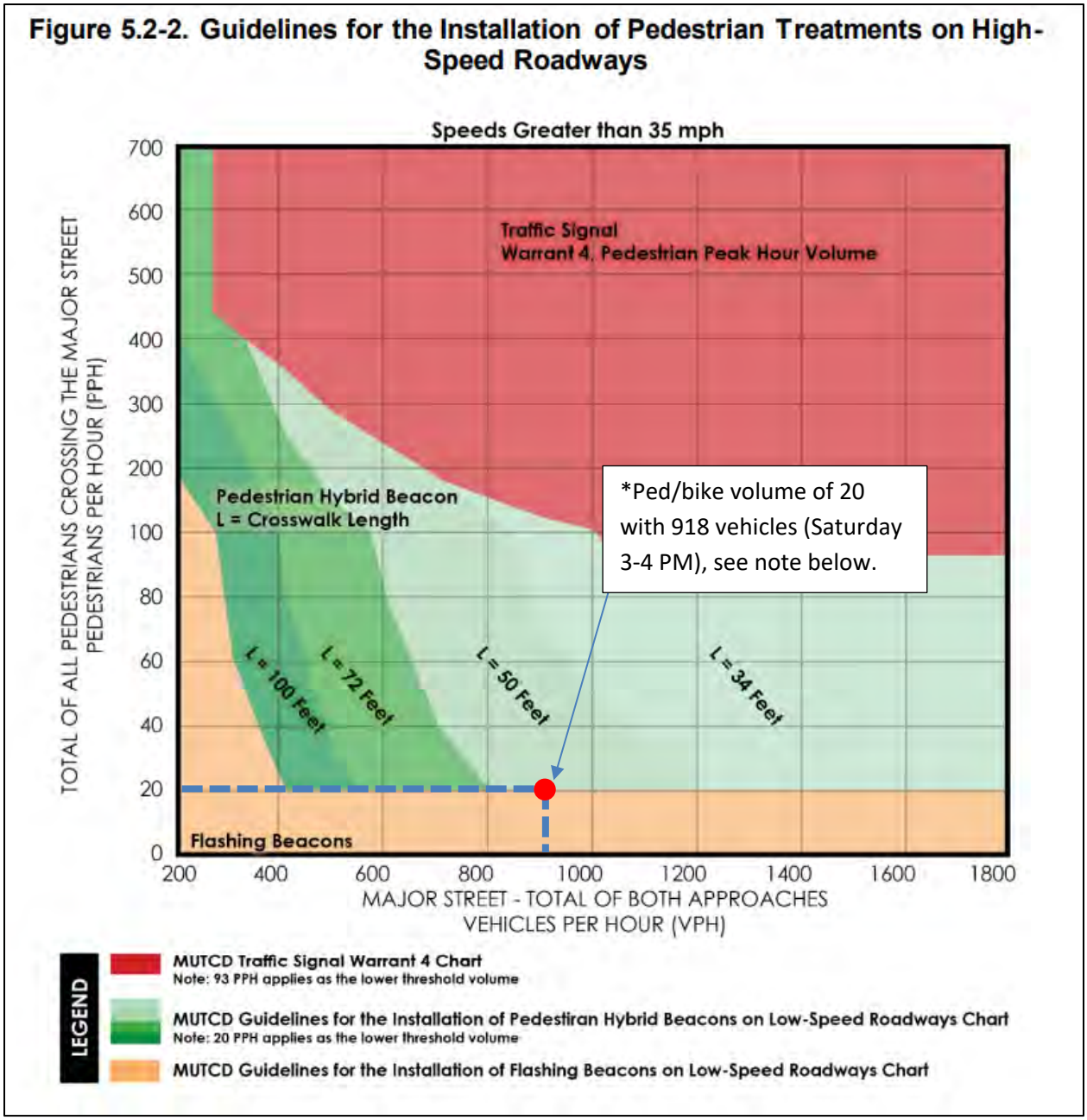
Based on the data presented in **Table 10** and guidelines in **Figure 21** (TEM Figure 5.2-2), the pedestrian midblock crossing on SR 994 east of SW 132nd Avenue concurs with the current traffic control of an RRFB per FDOT TEM criteria for an hourly pedestrian/bicyclist crossing of 20 for a Saturday period (3:00 PM to 4:00 PM). The evaluation was done using a weekday vehicular volume of 918 vehicles, since no Saturday data was collected. However, based on **Figure 22**, the vehicular criteria for a crossing of 20 includes from 200 vehicles to 1,800 vehicles, which should be within the volume range for a Saturday period on SR 994.

In conclusion, the RRFB pedestrian control is warranted based on the data collected, but it should be accompanied with following upgrades under any of the build alternatives: overhead installation with a refuge island or a raised median. This will require a traffic engineering variation per FDOT TEM Chapter 1.5 since the posted speed limit of SR 994 is 40 MPH, which exceeds the maximum allowed of 35 MPH per FDOT TEM Chapter 5.2.5.2.

Table 10: Pedestrian & Bicyclist Counts for RRFB Midblock Crossing

Period		Thursday (11/11/2021)				Saturday (11/6/2021)				SR 994 Weekday Vehicle Volume
From	To	Pedestrian	Bicyclist	Total	%	Pedestrian	Bicyclist	Total	%	
12:00 AM	1:00 AM	0	2	2	9.5%	0	0	0	0.0%	74
1:00 AM	2:00 AM	0	0	0	0.0%	0	0	0	0.0%	39
2:00 AM	3:00 AM	2	0	2	9.5%	0	0	0	0.0%	30
3:00 AM	4:00 AM	0	0	0	0.0%	0	0	0	0.0%	36
4:00 AM	5:00 AM	0	0	0	0.0%	0	0	0	0.0%	73
5:00 AM	6:00 AM	2	0	2	9.5%	0	0	0	0.0%	283
6:00 AM	7:00 AM	0	1	1	4.8%	0	2	2	1.8%	648
7:00 AM	8:00 AM	0	0	0	0.0%	2	13	15	13.5%	871
8:00 AM	9:00 AM	0	0	0	0.0%	0	1	1	0.9%	750
9:00 AM	10:00 AM	0	0	0	0.0%	1	5	6	5.4%	553
10:00 AM	11:00 AM	0	0	0	0.0%	2	8	10	9.0%	470
11:00 AM	12:00 PM	0	0	0	0.0%	1	3	4	3.6%	504
12:00 PM	1:00 PM	2	0	2	9.5%	0	8	8	7.2%	572
1:00 PM	2:00 PM	0	0	0	0.0%	2	4	6	5.4%	654
2:00 PM	3:00 PM	0	0	0	0.0%	0	2	2	1.8%	873
3:00 PM	4:00 PM	1	0	1	4.8%	3	17	20	18.0%	918
4:00 PM	5:00 PM	0	0	0	0.0%	1	9	10	9.0%	853
5:00 PM	6:00 PM	1	1	2	9.5%	0	8	8	7.2%	818
6:00 PM	7:00 PM	3	4	7	33.3%	1	9	10	9.0%	870
7:00 PM	8:00 PM	0	0	0	0.0%	0	9	9	8.1%	637
8:00 PM	9:00 PM	0	2	2	9.5%	0	0	0	0.0%	443
9:00 PM	10:00 PM	0	0	0	0.0%	0	0	0	0.0%	361
10:00 PM	11:00 PM	0	0	0	0.0%	0	0	0	0.0%	220
11:00 PM	12:00 AM	0	0	0	0.0%	0	0	0	0.0%	134
Total		***11***	***10***	***21***	***100.0%***	***13***	***98***	***111***	***100.0%***	***11684***

Note: The pedestrian and bicycle counts were conducted on Thursday, November 11, 2021, and Saturday November 6, 2021. The colors shown by the totals correspond to crossing frequencies with red being the highest and blue the lowest. The total pedestrian and bicyclist volumes observed were significantly higher on Saturday than on Thursday, with most of the activity consisting of bicyclists. On Saturday, the highest pedestrian and bicyclist volumes were observed from 7:00 AM to 8:00 AM and 3:00 PM to 4:00 PM with 15 and 20 pedestrians/bicyclists, respectively. **Table 10** also shows the weekday hourly vehicular volume for SR 944. No vehicular data was collected for Saturday.



Note: *The evaluation was done using a weekday vehicular volume of 918 vehicles, since no Saturday data was collected. However, based on this figure, the vehicular criteria for a crossing of 20 includes from 200 vehicles to 1,800 vehicles, which should be within the volume range for a Saturday period on SR 994.

Figure 21. Guidelines for the Installation of Pedestrian Treatments

5.0 SIGNAL WARRANT ANALYSIS

A summary of the Signal Warrant Analysis performed for the study intersections of SR 994 at SW 134th Avenue and at SW 132nd Avenue is presented in the following sections. The detailed analysis is included in **Appendices F** (SW 134th Avenue) and **G** (SW 132nd Avenue). The purpose of this analysis is to determine whether it is warranted to upgrade the traffic control at these intersections from stop-control to signal control per the warrants presented by Chapter 4C of the Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition. The following nine warrants were evaluated at each intersection:

- **Warrant 1 – Eight-Hour Vehicular Volume:**
    a. Condition A: Intended for application at location where a large volume intersecting traffic is the principal reason to consider installing a traffic control signal.
    b. Condition B: Intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor street suffers excessive delay or conflict in entering or crossing the major street.
    c. Combination A & B: Intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.
- **Warrant 2 – Four-Hour Vehicular Volume:** Intended to be applied where the volume of intersecting traffic is the main reason to consider installing a traffic control signal.
- **Warrant 3 – Peak-Hour Vehicular Volume:** Intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.
- **Warrant 4 – Pedestrian Volume:** Intended for application where a traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.
- **Warrant 5 – School Crossing:** Intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For purposes of this warrant, the word “school children” includes elementary through high school students.

- **Warrant 6 – Coordinated Signal System:** Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed to maintain proposed platooning of vehicles.
- **Warrant 7 – Crash Experience:** Intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.
- **Warrant 8 – Roadway Network:** Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.
- **Warrant 9 – Intersection Near a Grade Crossing:** Intended for use at a location where none of the conditions described in the other eight warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a stop or yield sign is the principal reason to consider installing a traffic control signal.

The MUTCD clearly states that these nine warrants should be viewed as guidelines, not as absolute values. Satisfaction of one or more warrants does not indicate that the traffic signal is necessary. Engineering judgement should be considered when making the final decision whether to install a signal or not. The signal warrant analysis is accompanied by performing qualitative field observations, intersection inventory, traffic data collection, crash analysis, and collision diagrams.

5.1 SR 994 AT SW 134TH AVENUE

A Signal Warrant Analysis was previously performed at the intersection of SW 134th Avenue by the Department in 2017, which concluded that the stop-controlled intersection should be upgraded to traffic signal control. The previous analysis satisfied Warrant 1 (8-hour volume), Warrant 2 (4-hour volume), and Warrant 3 (peak-hour volume). Warrant 7 (crash experience) was not satisfied and Warrants 4 (pedestrian volume), 5 (school crossing), 6 (coordinated signal system), 8 (roadway network) and 9 (grade crossing) were not applicable for the study intersection. The main intent of this current analysis is to determine whether the 2017 recommendation is still warranted. The following is the main information:

- At the study intersection, SR 994 at SW 134th Avenue intersect to form an unsignalized, four-legged intersection. Within the study area, SR 994 (major street) is a two-lane, two-way, undivided roadway that has an east-west orientation and a posted speed limit of 40 MPH. SW 134th Avenue has a north-south orientation and operates under stop-control.

SW 134th Avenue is a two-lane, two-way, undivided roadway with a posted speed limit of 35 MPH. No turn lanes are provided at the intersection, except an exclusive right-turn bay at the eastbound approach.

- Based on the field reviews, the overall level of traffic through the study intersection was relatively moderate to heavy with the peak direction of travel being westbound during both the AM and PM hours. The northbound left-turn volume was relatively moderate during both s; however, vehicles performed the left-turn movement with some delay due to the heavy vehicular volume in the westbound traffic stream. Queue build-up was noted at the northbound approach of the intersection due to the lack of gaps along SR 994 and one lane approach servicing the stopped control left, though, and right-turn movements. The eastbound right-turn was relatively moderate during the AM peak hour, and heavy during the PM peak hour.
- The current operational analysis performed for the intersection per 2021 traffic counts shows the northbound and southbound approaches operating at LOS F and experiencing excessive delay and queue build-up.
- Based on the results of the delay study conducted during a previous Intersection Qualitative Assessment (FPID No. 249726-4-31-01), the longest stopped time was experienced on the northbound approach of the intersection during the AM peak hour with an average stopped time of approximately 4 minutes and a maximum stopped time of approximately 9 minutes. Additionally, the northbound approach experienced a maximum queue of at least 16 vehicles during both the AM and PM hours.
- The current crash analysis (2014-2018) shows a pattern for angle crashes between northbound vehicles versus eastbound or westbound traffic with 16 and 10 crashes, respectively. Main probable causes are lack of left-turn lanes on SR 994 and lack of available gaps for northbound traffic to proceed through the intersection.
- Of the total nine traffic signal warrants analyzed as obtained from Chapter 4C of the MUTCD, three were determined to be applicable [Warrants 1 (8-hr Volume), 2 (4-hr Volume) and 7 (Crash Experience)], and two were satisfied at a 100% volume threshold [Warrants 1 and 2], as presented in **Table 11**.

Table 11. Summary of Signal Warrant Analysis for SW 134th Ave

Warrant	Analysis	Result
Warrant 1 - 8-hr Vehicular Volume	Warrant 1 - Condition B: Use when side street traffic experiences signicant delay. Requirement: Major Street (1 Ln)= 750 vph Minor Street (1 Ln)= 75 vph Results: SR 994 and SW 134 Ave hourly volumes from 6 AM to 8 PM meet these volume requirements.	Satisfied √
Warrant 2 - 4-hr Vehicular Volume	Use when the volume of intersecting traffic is the principal reason to consider installing a traffic signal. Requirement: Major St (1 Ln) 1100 vph or more with Minor St (1 Ln) of at least 80 vph; For Major St w/ less than 1100 vph, Minor St requirement decreases relatively. Results: SR 994 and SW 134 Ave hourly volumes from 6 AM to 8 PM meet these volume requirements.	Satisfied √
Warrant 3 - Peak-Hr Vehicular Volume	Use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. The MUTCD stipulates that this warrant must only be used for unusual cases such as office complexes, manufacturing plants, industrial complexes or other high-occupancy vehicle facilities that attract or discharge copious amounts of vehicles over a short time. Based on the surrounding land use, this warrant does not apply.	Not Applicable
Warrant 4 - Pedestrian Volume	Use when pedestrians experience excessive delay when crossing major street. Pedestrian activity is very low. This warrant does not apply.	Not Applicable
Warrant 5 - School Crossing	Use when school children are crossing the street. This warrant does not apply since no school children were documented crossing the intersection.	Not Applicable
Warrant 6 - Coordinated Signal System	Use to maintain traffic progression. This warrant does not apply since the nearest signalized intersection of SW 127 Ave is too far to maintain signal progression.	Not Applicable
Warrant 7 - Crash Experience	Although the volume and crash frequency requirements are met, this warrant is not satisfied since no improvements have been already implemented at the intersection which have failed to address crashes.	Not Satisfied x
Warrant 8 - Roadway Network	Use to encourage concentration of traffic flow and when 2 or more major routes intersect. Since SW 134 Ave is not a major route, this warrant does not apply.	Not Applicable
Warrant 9 - Intersection Near a Grade Crossing	Use when in the proximity of a grade crossing. This warrant does not apply since no grade crossings are present at the intersection.	Not Applicable

Note: Although Conditions A and B were both evaluated for Warrant 1, Condition B is the most critical and therefore presented in this table.

Recommendation: Based on a comprehensive review of the findings documented in **Appendix F**, an analysis of the MUTCD Chapter 4C Traffic Signal Warrants, and using engineering judgement, the need for a traffic signal is warranted based on vehicular volume demands, crash data, and excessive delays associated with the southbound and northbound movements. These results are comparable to those obtained in the Intersection Qualitative Assessment (FPID No. 249726-4-31-01) completed in June 2017. Therefore, it is recommended that the Department consider upgrading the stop control at the intersection of SR 994 and SW 134th Avenue to signal control. An Intersection Control Evaluation (ICE), to further evaluate the feasibility of installing a traffic signal at the study intersection, is conducted in **Section 6.1** of this report.

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5.2 SR 994 AT SW 132nd AVENUE

Based on the Signal Warrant Analysis performed at the intersection of SW 132nd Avenue during this current study effort, the following is stated:

- At the study intersection, SR 994 at SW 132nd Avenue intersect to form an unsignalized, three-legged intersection. Within the study area, SR 994 (major street) is a two-lane, two-way, undivided roadway that has an east-west orientation and a posted speed limit of 40 MPH. SW 132 Avenue has a north-south orientation and operates under stop-control. SW 132 Avenue is a two-lane, two-way, undivided roadway with a posted speed limit of 30 MPH. No turn lanes are provided at the intersection.
- Based on field reviews, the overall level of traffic through the study intersection was relatively low to moderate with the peak direction of travel being westbound during the AM and PM hours. The northbound right-turn is heavy during the AM period and moderate during the PM period. The westbound left-turn is low during the AM period but heavy during the PM period. Northbound and westbound vehicles performed the left-turn movement with some delay due to the heavy vehicular volume in the eastbound traffic stream, observed primarily during the PM peak hour.
- The current operational analysis performed for the intersection per 2021 traffic counts shows the northbound approach operating at LOS F and experiencing delay and queue build-up.
- The current crash analysis (2014-2018) shows a pattern for rear-end crashes at the westbound approach with 27 crashes. Main probable cause is the lack of a westbound left-turn lane.
- Of the total nine traffic signal warrants analyzed as obtained from Chapter 4C of the MUTCD, three were determined to be applicable [Warrants 1 (8-hr Volume), 2 (4-hr Volume) and 7 (Crash Experience)], and two were satisfied at a 100% volume threshold [Warrants 1 and 2], as presented in **Table 12**.

Recommendation: Based on a comprehensive review of the findings documented in **Appendix G**, an analysis of the MUTCD Chapter 4C Traffic Signal Warrants, and using engineering judgement, the need for a traffic signal is not warranted based on the crash data which revealed a high number of rear-end crashes and a very low number of crash types susceptible to the correction by a traffic signal control. Rear-end crashes are not mitigated with the installation of a traffic signal control and are estimated to have occurred due to the lack of a westbound left-turn lane from SR 994 onto SW 132nd Avenue.

Table 12. Summary of Signal Warrant Analysis for SW 132nd Ave

Warrant	Analysis	Result
Warrant 1 - 8-hr Vehicular Volume	Warrant 1 - Condition B: Use when side street traffic experiences signicant delay. Requirement: Major Street (1 Ln)= 750 vph Minor Street (1 Ln)= 75 vph Results: SR 994 and SW 132 Ave hourly volumes from 6 AM to 8 PM meet these volume requirements.	Satisfied √
Warrant 2 - 4-hr Vehicular Volume	Use when the volume of intersecting traffic is the principal reason to consider installing a traffic signal. Requirement: Major St (1 Ln) 1100 vph or more with Minor St (1 Ln) of at least 80 vph; For Major St w/ less than 1100 vph, Minor St requirement decreases relatively. Results: SR 994 and SW 132 Ave hourly volumes from 6 AM to 8 PM meet these volume requirements.	Satisfied √
Warrant 3 - Peak-Hr Vehicular Volume	Use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. The MUTCD stipulates that this warrant must only be used for unusual cases such as office complexes, manufacturing plants, industrial complexes or other high-occupancy vehicle facilities that attract or discharge copious amounts of vehicles over a short time. Based on the surrounding land use, this warrant does not apply.	Not Applicable
Warrant 4 - Pedestrian Volume	Use when pedestrians experience excessive delay when crossing major street. Pedestrian activity is very low. This warrant does not apply.	Not Applicable
Warrant 5 - School Crossing	Use when school children are crossing the street. This warrant does not apply since no school children were documented crossing the intersection.	Not Applicable
Warrant 6 - Coordinated Signal System	Use to maintain traffic progression. This warrant does not apply since the nearest signalized intersection of SW 127 Ave is too far to maintain signal progression.	Not Applicable
Warrant 7 - Crash Experience	Although the volume requirement is met, this warrant is not satisfied since the crash patten identified for rear-ends at the westbound approach of the intersection is no susceptible to correction by the installation of a traffic signal. These crashes can be addressed by providing a left-turn lane.	Not Satisfied x
Warrant 8 - Roadway Network	Use to encourage concentration of traffic flow and when 2 or more major routes intersect. Since SW 132 Ave is not a major route, this warrant does not apply.	Not Applicable
Warrant 9 - Intersection Near a Grade Crossing	Use when in the proximity of a grade crossing. This warrant does not apply since no grade crossings are present at the intersection.	Not Applicable

Note: Although Conditions A and B were both evaluated for Warrant 1, Condition B is the most critical and therefore presented in this table.

6.0 INTERSECTION CONTROL EVALUATION

An Intersection Control Evaluation (ICE) was performed for the study intersections of SR 994 at SW 137th Avenue and at SW 134th Avenue per the guidelines presented by FDOT's Manual on Intersection Control Evaluation (January 2021). The purpose of ICE is to "consistently consider multiple context-sensitive control strategies when planning a new or modified intersection." This is applicable for the intersection of SW 137h Avenue since the south leg is being opened to traffic and introducing new vehicle movements to the intersection. It is also applicable for the intersection of SW 134th Avenue since it is being recommended to upgrade the stop-control condition to signal control per the signal warrant analysis performed in this study effort. Indeed, the study intersection was already recommended for an upgrade to signal control in 2017 per a Department's Signal Warrant Analysis. The following sections present the main findings of the analysis.

It is noted that the ICE analysis for SW 137th Avenue and SW 134th Avenue was performed in the early stages of the Project Traffic Analysis. As a result, the alternative labeled as TSM in the ICE analysis is basically Build 1. The TSM alternative became Build 1 due to not meeting the criteria to be considered a low-cost improvement and maintain the TSM state.

6.1 SR 994 AT SW 137th AVENUE

The ICE activities consist of three stages. **Appendix H** includes the items for stage 1 (screening), which utilizes FHWA's Capacity Analysis for Planning of Junctions (CAP-X) and FHWA's Safety Performance of Intersection Control Evaluations (SPICE). The CAP-X tool intends to evaluate selected types of innovative intersection designs and the SPICE tool conducts a safety analysis. The Stage 1 Screening ICE form was completed first to identify potential control strategies to be advanced. This evaluation consisted of the traffic signal intersection layout as recommended by the County's project (widening SW 137th Avenue to a four-lane roadway), which is expected to be completed by 2045, a two-lane roundabout, and an alternative traffic signal layout as recommended by the Build Alternatives developed under this current study. These control strategies were then further developed through the CAP-X and SPICE forms.

Amongst the 2045 No-Build traffic volume alternatives, the TSM (now Build 1) alternative exhibited the top score in the CAP-X forms with v/c ratios of 0.77 and 0.67 for the AM and PM hours, respectively. Amongst the 2045 Build traffic volume alternatives, the build signalized control intersection, per SR 994 PD&E, exhibited the top score in the CAP-X forms with v/c ratios of 0.76 and 0.65 for the AM and PM hours, respectively. The 2-lane roundabout will not to be

advanced since the AM and PM v/c ratios are near or above capacity (>1.0) when analyzed using the 2045 No Build and Build traffic conditions. Additionally, the 2-lane roundabout obtained a SPICE safety ranking below the intersection's existing condition in 2045.

In conclusion, the project will not proceed to Stage 2 for a preliminary control strategy assessment. This is because there is only one recommended strategy under each scenario. They are as follows:

- SR 994 PD&E TSM Alternative (now Build 1)
- SR 994 PD&E Build Alternative (now Build 2)

The Department approved and signed the Stage 1 Screening on February 24, 2022.

6.2 SR 994 AT SW 134th AVENUE

Stage 1 Screening ICE Form

The ICE activities consist of three stages. **Appendix I** includes the items for stage 1 (screening), which utilizes FHWA's Capacity Analysis for Planning of Junctions (CAP-X) and FHWA's Safety Performance of Intersection Control Evaluations (SPICE). The CAP-X tool intends to evaluate selected types of innovative intersection designs and the SPICE tool conducts a safety analysis. The Stage 1 Screening ICE form was completed first to identify potential control strategies to be advanced. This evaluation consisted of the traffic signal intersection layout as recommended by the FDOT's Signal Warrant Analysis (upgrading intersection to signal control), one-lane and two-lane roundabouts, and an alternative traffic signal layout as recommended by the TSM (now Build 1) and Build (now Build 2) Alternatives developed under this current study. These control strategies were then further developed through the CAP-X and SPICE forms.

Amongst the 2045 No-Build traffic volume alternatives, the 2-lane roundabout exhibited the top score in the CAP-X forms with v/c ratios of 0.53 and 0.46 for the AM and PM hours, respectively. This was followed by the signalized control intersection with the TSM (now Build 1) recommendations with v/c ratios of 0.83 and 0.73 for the AM and PM hours, respectively. Similarly, amongst the 2045 Build traffic volume alternatives, the 2-lane roundabout exhibited the top score in the CAP-X forms with v/c ratios of 0.55 and 0.57 for the AM and PM hours, respectively. This was closely followed by the build signalized control intersection, per SR 994 PD&E, with v/c ratios of 0.57 and 0.58 for the AM and PM hours, respectively. In the SPICE forms, the 1-lane roundabout obtained the top score. However, this strategy is not to be advanced since

the AM and PM v/c ratios are near or above capacity (>1.0) when analyzed using the 2045 No Build and Build traffic conditions. It is also outperformed by the 2-lane roundabout.

In conclusion, the project will proceed to Stage 2 for a preliminary control strategy assessment which intends to help differentiate the remaining control strategies for the build scenario with a more detailed vetting and conceptual designs. The strategies moving to Stage 2 for the intersection of SW 134th Avenue, for the build scenario, are:

- SR 994 PD&E Build Alternative (now Build 2)
- 2-Lane Roundabout Alternative

For the TSM (now Build 1) scenario, the only recommended alternative is the PS&E TSM (now Build 1) alternative. The Department approved and signed the Stage 1 Screening on February 24, 2022.

Stage 2 Preliminary Control Strategy Assessment ICE Form

The Stage 2 Preliminary Control Strategy Assessment is intended to differentiate between the remaining control strategies identified in Stage 1 – included as **Appendix I**. This evaluation consisted of a review of the following items:

- Operational Analysis
- Safety Performance and Anticipated Safety Impacts
- Multimodal Accommodations
- Environmental, Utility, and Right-of-Way Impacts
- Conceptual Designs
- Cost Estimates

In conclusion, it is recommended to the Department that the signalized control condition be implemented at the study location of SR 994/Quail Roost Drive at SW 134th Avenue. This alternative is recommended due to the following findings:

- Based on the operational analysis performed, the roundabout is expected to experience a LOS B with an average control delay of 11 seconds per vehicle during the AM and PM peak hours. The signalized control is expected to experience a LOS C with an average control delay of 21 and 23 seconds per vehicle during the AM and PM peak hours, respectively. It is noted that although the signalized control alternative has a lower LOS

than the roundabout, the difference in average control delay per vehicle is between 10 and 12 seconds. Additionally, all volume to capacity (v/c) ratios for the signalized alternative are below capacity.

- In terms of safety performance, the signalized control alternative is anticipated to have fewer total crashes compared to the roundabout option.
- Regarding multimodal accommodations, the primary distinction between the alternatives is that the signalized control option can accommodate larger vehicles (WB-62) compared to the roundabout (WB-50).
- Based on the utility impacts, both build alternatives propose comparable results. The primary difference between the alternatives is that the roundabout impacts four additional electric poles containing overhead electric cables than the signalized control alternative.
- Considering right-of-way impacts, the signalized control option is favorable, necessitating the acquisition of approximately 278,119 square feet (SF) less land than the roundabout alternative.
- In terms of environmental impacts, both build alternatives propose comparable results and needs. The primary difference between the alternatives is that the roundabout impacts the Talbot House on the southeast quadrant due to the larger footprint which would require Section 106 coordination and an Individual Section 4f document.
- Based on the expected costs of the proposed alternatives, the signalized control is preferable with an expected cost of $1,299,628. The expected cost for the roundabout alternative is $1,931.31, which is approximately $631,693 more than the signalized control strategy.

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7.0 FUTURE TRAFFIC CONDITIONS

7.1 SCENARIOS

The following future scenarios were considered in this current study effort:

- Existing Conditions 2021 for AM & PM Peak Hours
- No Build Alternative 2025 & 2045 for AM & PM Peak Hours
- Build Alternatives 2025 & 2045 for AM & PM Peak Hours
    - Build 1: Includes widening SR 994 to provide a raised median with left-turning opportunities from and onto the side streets, while implementing access management enhancements. Additionally, implement several capacity improvements at the signalized intersections of SW 137th Avenue and SW 127th Avenue, and upgrade the stop-controlled intersection of SW 134th Avenue to signal control.
    - Build 2: In addition to the improvements in Build 1, this alternative widens SR 994 from two lanes to four lanes.
    - Build 3: In addition to the improvements in Build 2, this alternative implements additional access management enhancements.

The analysis periods will include the AM and PM peak hours for the project proposed opening year (2025) and the design year (2045). The following are descriptions of each alternative considered.

No Build Alternative

The No Build Alternative assumes no proposed improvements and serves as the baseline for comparison against the other alternatives. This alternative, however, includes any on-going construction projects and all funded and programmed improvements specified in approved development orders. These improvements were outlined in the FDOT Five-Year Work Program, Miami-Dade Transportation Planning Organization (TPO) cost feasible LRTP, Transportation Improvements Plan (TIP), the transportation element of Local Government Comprehensive Plans (LGCP), or developer-funded transportation improvements specified in approved development orders. The SERPM Cost Feasible 2045 scenario network was used without the widening of SR 994 from SW 137th Avenue to SW 127th Avenue as the No Build network. The following main projects were included in this alternative, which are expected to open to traffic by 2025:

- The south leg at the signalized intersection of SW 137th Avenue opens to traffic under

Miami-Dade County Project No. 20040343. The south leg was under construction at the beginning of this current study effort; however, it was opened to traffic approximately in June 2022.

- An exclusive northbound right-turn bay is being constructed at the intersection of SW 127th Avenue under Miami-Dade County Project No. 20180004.

In addition, SW 137th Avenue will be widened by the County to a four-lane roadway by 2045.

Build Alternatives

The Build 1 Alternative considers improvements such as signal coordination and optimization, adding a raised median, adding auxiliary lanes, adding turning lanes or extending storage bays at intersections, improving turning radii, and providing acceleration/deceleration lanes. The Build 2 Alternative includes the Build 1 improvements plus widening SR 994 from two lanes to four lanes. The Build 3 alternative includes the Build 2 improvements plus further limits possible vehicle conflicts by extending raised medians and eliminating left-turn from the side streets onto SR 994. The median design options follow the requirements presented by Florida Statute 335.199 – Transportation Projects Modifying Access to Adjacent Property. During the design development of the build alternatives, improvements to pedestrian and bicycle users were considered, such as:

- Improving the continuity and connectivity of sidewalks and bicycle paths by providing a Shared-Use Path on each side of the study corridor.
- Providing special emphasis pedestrian markings and pedestrian signals at all signalized intersections. Additionally, closing the box at the intersection of SW 137th Avenue.
- Enhancing the pedestrian features at the existing RRFB midblock pedestrian crossing just east of SW 132nd Avenue, as necessary.

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7.2 FUTURE TRAFFIC PROJECTION METHODOLOGY

7.2.1 SERPM Background

The Southeast Florida Regional Planning Model (SERPM) version 8.511 was used instead of the latest version 8.512 in the development of the travel demand forecasting for this study. The SERPM 8.512 had some issues during the model run and the model could not be completed. The differences between the SERPM 8.511 and 8.512 were checked and there were only some adjustments necessary to the TAZ and Household data for Palm Beach County. The SERPM is a travel demand model based on the Coordinated Travel Regional Activity Based Modeling Platform (CT-RAMP). This is an activity-based, time-of-day model that is capable of forecasting traffic for future years based on various highway, transit, and socioeconomic scenarios. The SERPM was used to develop the 2045 LRTP for the TPO. The 2045 horizon year scenario in this model is based on the TPO approved 2045 Cost Feasible LRTP networks, population, and employment forecasts.

For this study, a one-mile radius buffer, shown in **Figure 22**, was applied to the project section of SR 994 from west of SW 137th Avenue to east of SW 127th Avenue. The following roadways near and within the 1-mile radius buffer were included for review for this forecasting effort:

- SR 994 from Naranja Road to SW 117th Avenue
- Caribbean Blvd from SR 994 to SW 117th Avenue
- SW 184th Street from Naranja Road to SW 117th Avenue
- SW 216th Street from Naranja Road to SW 117th Avenue
- Naranja Road from SW 184th Street to SW 216th Street
- SW 137th Avenue from SW 184th Street to SW 216th Street
- SW 134th Avenue from SR 994 to SW 216th Street
- SW 127th Avenue from SW 184th Street to SW 216th Street
- SW 122nd Avenue from SW 184th Street to SW 216th Street
- SW 117th Avenue from SW 184th Street to SW 216th Street

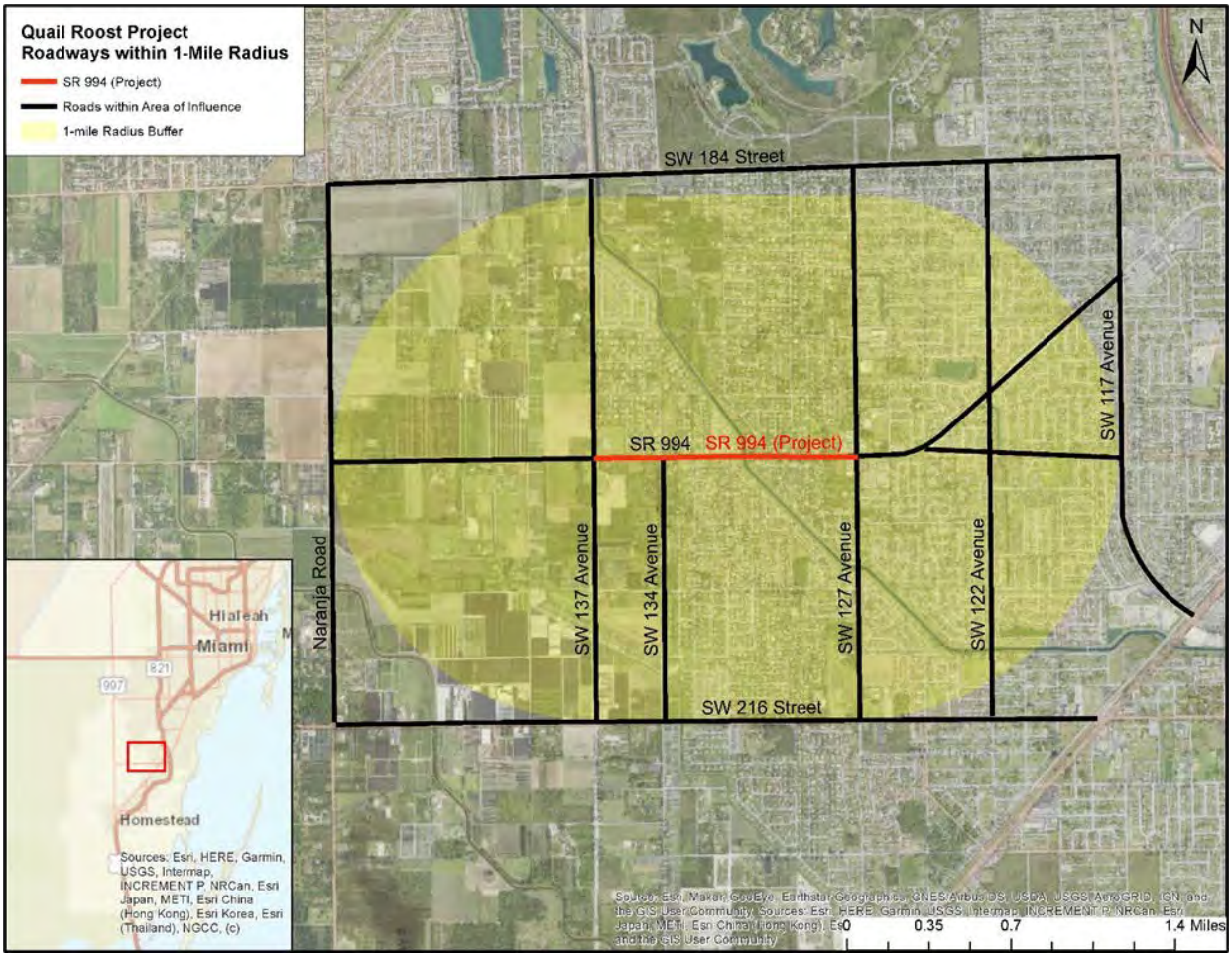

Figure 22. Projects and Roadways within 1-Mile Radius of Study Corridor

7.2.2 Study Traffic Forecast Development

The following steps were performed to develop the 2015, 2025, and 2045 AADTs for this study:

- Within the 1-mile radius of the study, the SERPM data inputs for the years 2015 and 2045 were reviewed, including both the socioeconomic data and the highway network. The zonal structure and the centroid connector loading points were also reviewed to ensure a reasonable distribution of the trips for the study area.
- The Base Year 2015 roadway volumes within the 1-mile radius of the study limits were then estimated using the SERPM. The model volumes generated were compared to traffic counts where available to evaluate the reasonableness of the model validation.
- The Design Year 2045 roadway volumes within the 1-mile radius of the study were then estimated using the SERPM and were adjusted based on the comparison between base year model volumes and counts.

- The Opening Year 2025 volumes for the roadways within the 1-mile radius of the study were developed by interpolating between the year 2015 AADT volumes and the adjusted 2045 AADT volumes.
- The same 2045 "Build" network was used for two runs; one with 2015 and one with 2045 input data, so that the interpolation of their results represents the Opening Year 2025 Build traffic with the project built.

Lastly, the 2015 and 2045 SERPM model output volumes were adjusted for reasonableness following the guidelines presented by the NCHRP Report 765 – Analytical Travel Forecasting Approaches for Project-Level Planning and Design (2014). This report is an update to NCHRP Report 255 – Highway Traffic Data for Urbanized Area Project Planning and Design and describes methods, data sources, and procedures for producing travel forecasts for highway project-level analyses. This is further discussed in **Section 7.2.5**.

7.2.3 Land Use & Socioeconomic Data Review

The existing and adopted 2030 and 2040 land uses within and near the study corridor are graphically depicted in **Figures 23** and **24**. The land use information was obtained from the Miami-Dade County Planning Department. The primary land use within the 1-mile radius of the study corridor is primarily residential with some commercial and institutional uses as well. However, west of SW 137th Avenue there is a vast part of the land use designated as agricultural. The socioeconomic data (SE data) in the SERPM was reviewed for the traffic analysis zones (TAZs) within the 1-mile radius of the study corridor for both the Base Year 2015 and the Design Year 2045 scenarios. As presented in **Table 13**, the growth rates for households, population, and total employment were calculated from the SE data within the 1-mile radius of the study corridor and were compared with the growth rates for Miami-Dade County and the model region (Miami-Dade, Broward, and Palm Beach). The average annual growth for household, population, and employment are 1.4%, 1.2%, and 2.1%, respectively, for the TAZs within the 1-mile radius of the study corridor. These growths are slightly higher when compared to the average annual growth for the Miami-Dade County and the SERPM Region, which ranges from 1.0% to 1.3%."

Table 13. Socioeconomic Data Growth

		Within Study Corridor 1-Mile Radius	Miami-Dade County	SERPM Region (Miami-Dade, Broward, Palm Beach)
Household	2015	7,411	955,425	2,283,407
	2045	10,560	1,306,716	3,027,089
	Annual Growth	1.4%	1.2%	1.1%
Population	2015	25,748	2,629,861	5,805,376
	2045	35,322	3,532,976	7,495,351
	Annual Growth	1.2%	1.1%	1.0%
Employment	2015	2,335	1,318,040	2,992,045
	2045	3,818	1,813,709	3,977,143
	Annual Growth	2.1%	1.3%	1.1%

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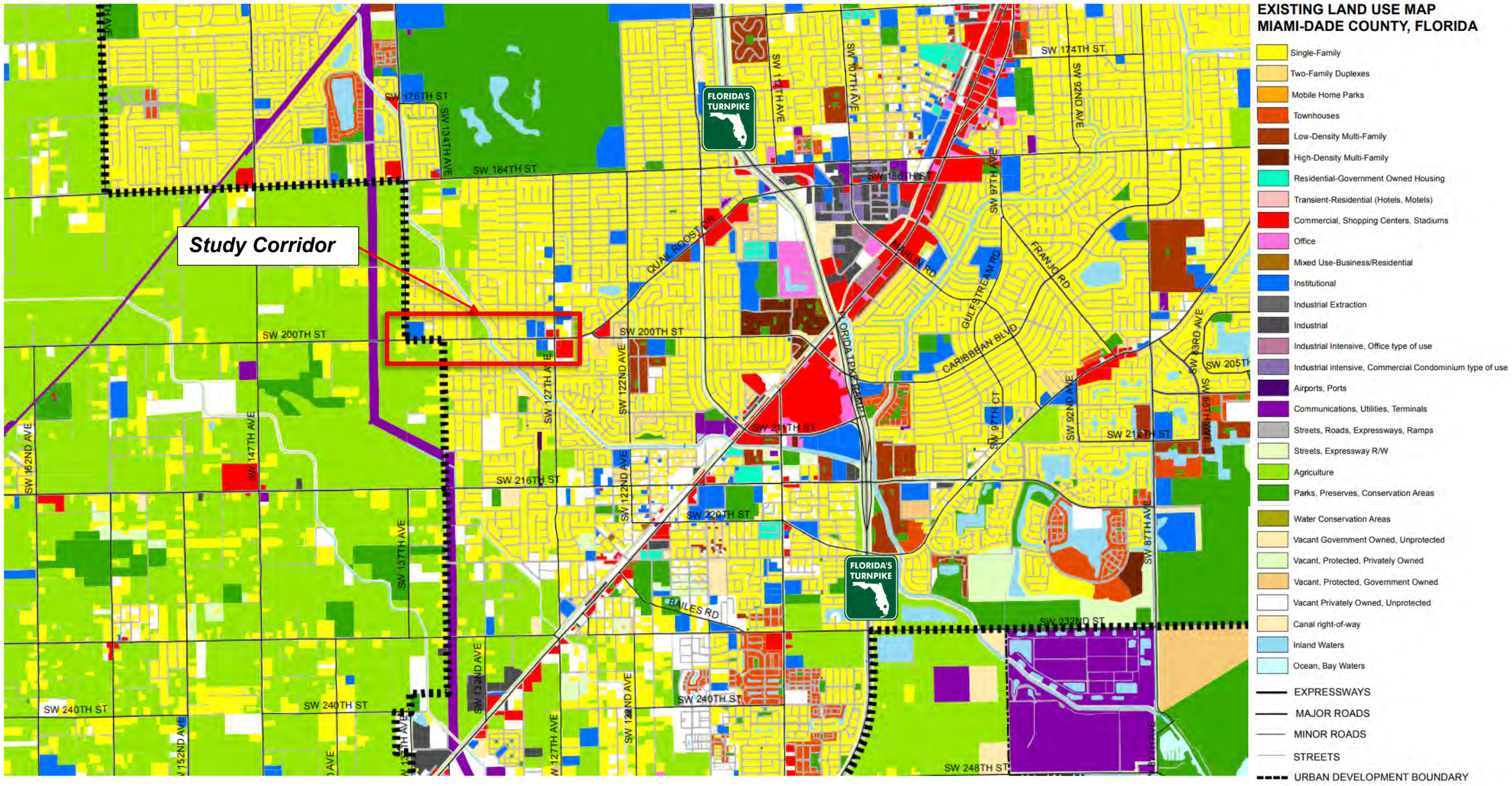

Figure 23. Existing Land Use within/near Study Corridor

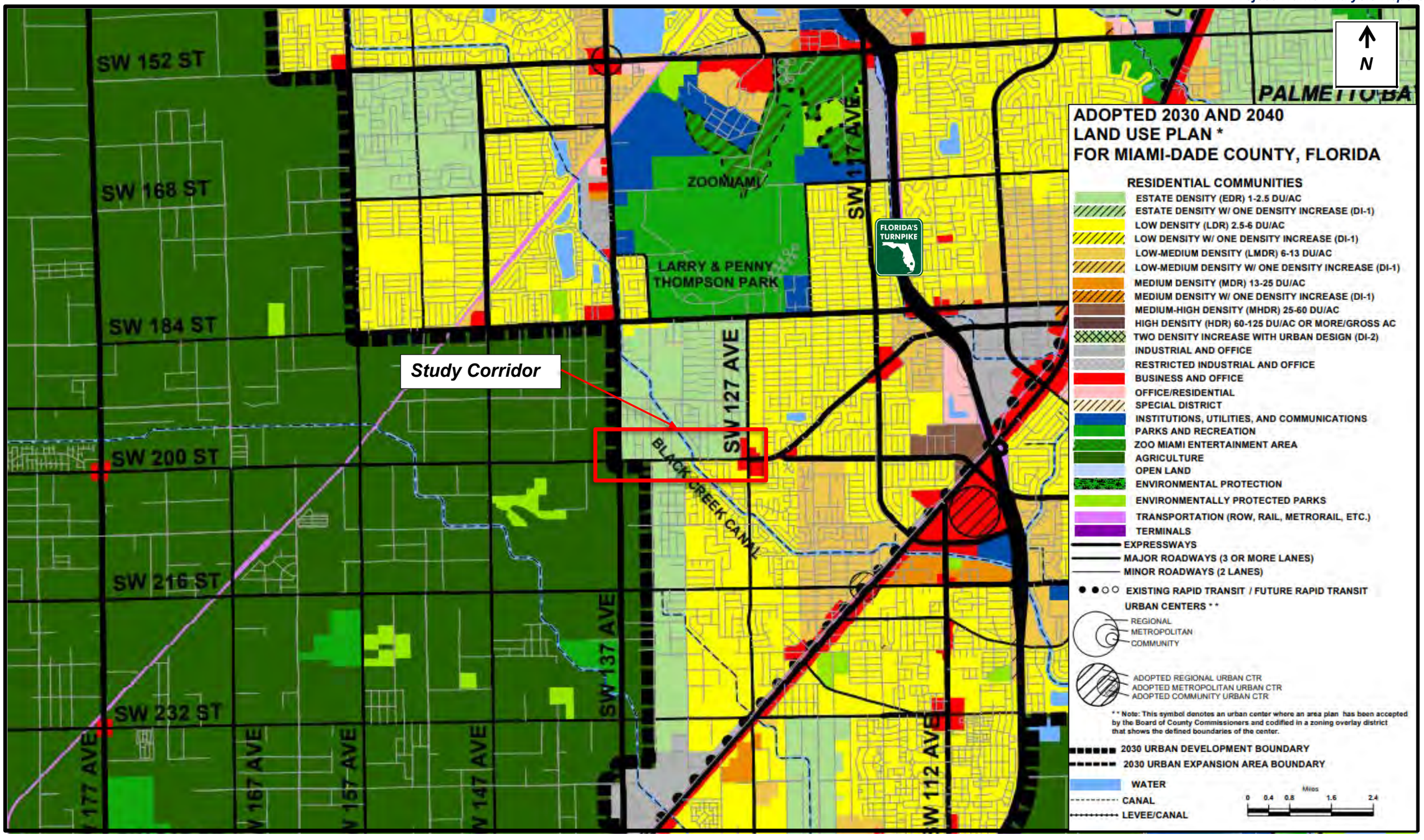

Figure 24. Adopted 2030 & 2040 Land Use within/near Study Corridor

7.2.4 Roadway Characteristics and Network Review

The characteristics for the roadways within the 1-mile radius of the project, as coded in the SERPM networks, were reviewed, and revised. The model network characteristics, including number of lanes, facility type, and posted speed limit, were compared to the FDOT Roadway Characteristics Inventory (RCI) database for consistency. The centroid connectors were then reviewed and revised to ensure that trips within the model are loaded and distributed appropriately, simulating the underlying local roadway system as much as possible. The following changes were made for all networks used for analysis:

- SR 994 from SW 137th Avenue to SR 997 – posted speed limit revised to 45 MPH.
- TAZs 4235 and 4238 – removed the centroid connectors to SW 137th Avenue.
- TAZs 4229, 4230, and 4231 – added centroid connectors to SW 137th Avenue.

The transit routes were also reviewed. There were no transit routes operating along the SR 994 corridor from west of SW 137th Avenue to east of SW 127th Avenue for both the existing year and design year networks.

7.2.5 Base Year Validation & 2021 Traffic Counts Check

The Base Year 2015 model run was evaluated for base year validation conditions within the 1-mile radius of the study corridor. Up-to-date traffic count information was obtained from the Florida Traffic Online (FTO) for comparison to the 2015 information. The 2015 model volumes for the count site links were summarized and compared to the 2015 counts of the Base Year 2015 network coding. The volume/count ratios are shown in **Table 14**. Fifty-nine percent (10 of the 17 sites) of the 2015 FDOT traffic count sites summarized in this table correlated well with the 2015 SERPM model outputs. Nevertheless, the only FDOT traffic count site within the study corridor which is west of SW 127th Avenue indicates that the 2015 SERPM volume is being underestimated by approximately 55%. Efforts were made to address this condition as discussed at the end of this section.

Table 14. Base Year Validation for the Roadways within the 1-Mile Project Radius

Roadway	Count Site	Count Site Description	2015 Traffic Count	2015 SERPM Volume	Volume/Count Ratio
SR 994	871117	1-SR 994/QUAIL ROOST DR, 200' E KROME AVE/SR 997	7,250	6,780	0.94
	999892*	2-SERPM	10,940	10,080	0.92
	871116	3-SR 994/QUAIL ROOST DR, 200' W SW 127 AVE	17,950	8,160	0.45
SW 184th St	878114	4-SW 184TH STREET, 200' WEST OF SW 147TH AVE	12,300	5,840	0.47
	878170	5-SW 184TH ST, 200' WEST OF SW 137TH AVENUE	18,100	17,340	0.96
	877009	6-SW 184TH ST .30 MILE WEST OF SW 117TH AVE	33,000	35,870	1.09
SW 216th St	998126*	7-SERPM	6,190	5,820	0.94
	878188	8-HAINLIN MILL DR, 200' WEST OF 134TH AVE	6,300	6,130	0.97
	999898*	9-SERPM	9,360	10,260	1.10
Naranja Rd	999836*	10-SERPM	13,940	19,130	1.37
	878109	11-SW 147TH AVE, 200' SOUTH OF SW 200 STREET	10,400	18,350	1.76
	878108	12-SW 147TH AVE, 200' SOUTH OF SW 216 STREET	9,000	17,630	1.96
SW 137th Ave	878336	13-SW 137TH AVE, 200' SOUTH OF SW 184TH STREET	10,200	11,550	1.13
SW 127th Ave	878121	14-SW 127TH AVE, 200' SOUTH OF SW 184TH STREET	8,400	13,050	1.55
SW 117th Ave	878218	15-SW 117TH AVE, 200' SOUTH OF 184TH STREET	18,800	16,630	0.88
	877063	16-SW 117TH AVE 200 FT SOUTH OF CARIBBEAN BLVD/200TH ST	11,200	16,930	1.51
	999758*	17-SERPM	14,650	15,860	1.08

Note: * Count was observed in SERPM, but not in the FTO database. 2015 traffic counts correlating well with the 2015 SERPM volumes are highlighted.

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Given the variability and uncertainty that may be introduced when using the single FDOT traffic count station (87-1116) available within the study corridor to adjust the 2015 SERPM base model volumes, a secondary check was performed by comparing the estimated 2021 SERPM model volumes with the collected 2021 traffic counts. The SERPM 2021 model volumes were estimated by interpolating between the Base Year 2015 and the Design Year 2045 model volumes. **Table 15** shows the comparison of the interpolated SERPM 2021 volumes to the 2021 collected counts. Thirty percent (6 of the 20 roadway directions) of the 2021 traffic count sites summarized in this table correlated well with the 2021 SERPM model volume outputs. When comparing the interpolated 2021 model assignment to the 2021 traffic count data, the model is under-assigning traffic volumes by 5% to 64% within the study corridor, depending on the location. The projections are more accurate west of SW 137th Avenue and east of SW 127th Avenue.

Nevertheless, efforts were made to review and refine the SERPM model to improve the base year model validation for the study corridor, including a detailed review of the socioeconomic data and the model network, as previously stated in **Section 7.2.4**. No major discrepancies were found. The model volumes on the parallel roadway facilities were reviewed and no unreasonable volumes were identified.

Due to the complexity of the model and the fact that new travel patterns will be part of the 2045 network due to the SW 137th Avenue extension from the study corridor to the south, as well as the availability of the 2021 counts to adjust unreasonable estimates using the NCHRP 765 method, it was decided to proceed with the model. The difference and ratio methods presented by the NCHRP 765 guidelines were used to adjust the SERPM future year volumes within reasonableness. In addition, to ensure that the future traffic turning volumes for the study corridor accurately represented future traffic conditions, the balanced volumes for all scenarios (No Build and Build for 2025 and 2045 AM and PM) were checked for reasonableness with the 2021 traffic volumes, as discussed in **Section 7.3.1**.

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Table 15. Year 2021 Traffic Counts & SERPM Model Volumes Comparison

Roadway	Location	Direction	2021 Traffic Count	2021 SERPM Volume	Volume/ Count Ratio
Study Corridor – SR 994	West of SW 137th Ave	1-EB	6,350	5,500	0.86
		2-WB	4,950	4,700	0.95
	East of SW 137th Ave	3-EB	10,250	5,300	0.52
		4-WB	9,850	5,500	0.56
	West of SW 134th Ave	5-EB	10,650	5,300	0.50
		6-WB	9,650	5,500	0.57
	East of SW 134th Ave	7-EB	8,600	3,100	0.36
		8-WB	9,150	3,600	0.39
	West of SW 127th Ave	9-EB	11,700	4,500	0.38
		10-WB	10,050	4,900	0.49
	East of SW 127th Ave	11-EB	12,000	10,500	0.88
		12-WB	12,500	10,000	0.80
SW 137th Ave	North of SR 994	13-NB	5,200	8,300	1.59
		14-SB	5,700	7,200	1.26
SW 134th Ave	South of SR 994	15-NB	3,250	2,600	0.80
		16-SB	3,900	2,800	0.71
SW 127th Ave	North of SR 994	17-NB	4,900	5,000	1.02
		18-SB	5,500	5,500	1.00
	South of SR 994	19-NB	10,600	8,000	0.75
		20-SB	7,200	7,700	1.07

Note: 2021 traffic counts correlating well with the 2021 SERPM volumes are highlighted.

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7.3 FUTURE YEAR TRAFFIC FORECAST

In this section, the project traffic volumes are shown in a stick figure format for the different years of analysis. **Figure 25** shows only the forecast adjusted volumes for the SR 994 corridor and the crossing streets which are represented in the SERPM model. These locations include SW 137th Avenue, SW 134th Avenue, and SW 127th Avenue. The growth of traffic volumes between the Design Year 2045 (both No Build Alternative and Build Alternative) and the Opening Year 2025 Build were estimated and compared to the socioeconomic growth. However, for some portions of SR 994, as well as some crossing streets, the 2025 and 2045 volumes are less than the existing counts due to a change in the travel patterns. This redistribution of traffic is caused by the opening of the south leg at the intersection of SW 137th Avenue by year 2025 and the widening of this road to a 4-lane divided by year 2045. Due to this road extension, a redistribution of traffic occurs mainly for southbound SW 137th Avenue which in year 2025 can proceed south along SW 137th Avenue without turning onto SR 994 as in year 2015. This redistribution of traffic patterns decreased some of the volumes for the SR 994 study corridor in the future years, as presented by the SERPM model outputs. In addition, the growth rates based on the two-way total volumes between the existing year and the future year on SR 994 were also double checked for reasonableness and different growth rates were calculated using the variety of methods, such as linear, exponential, and decaying exponential growth rates. Nevertheless, based on this analysis and the outlined methodology used by FDOT, the applied growth rates for the study corridor were found reasonable.

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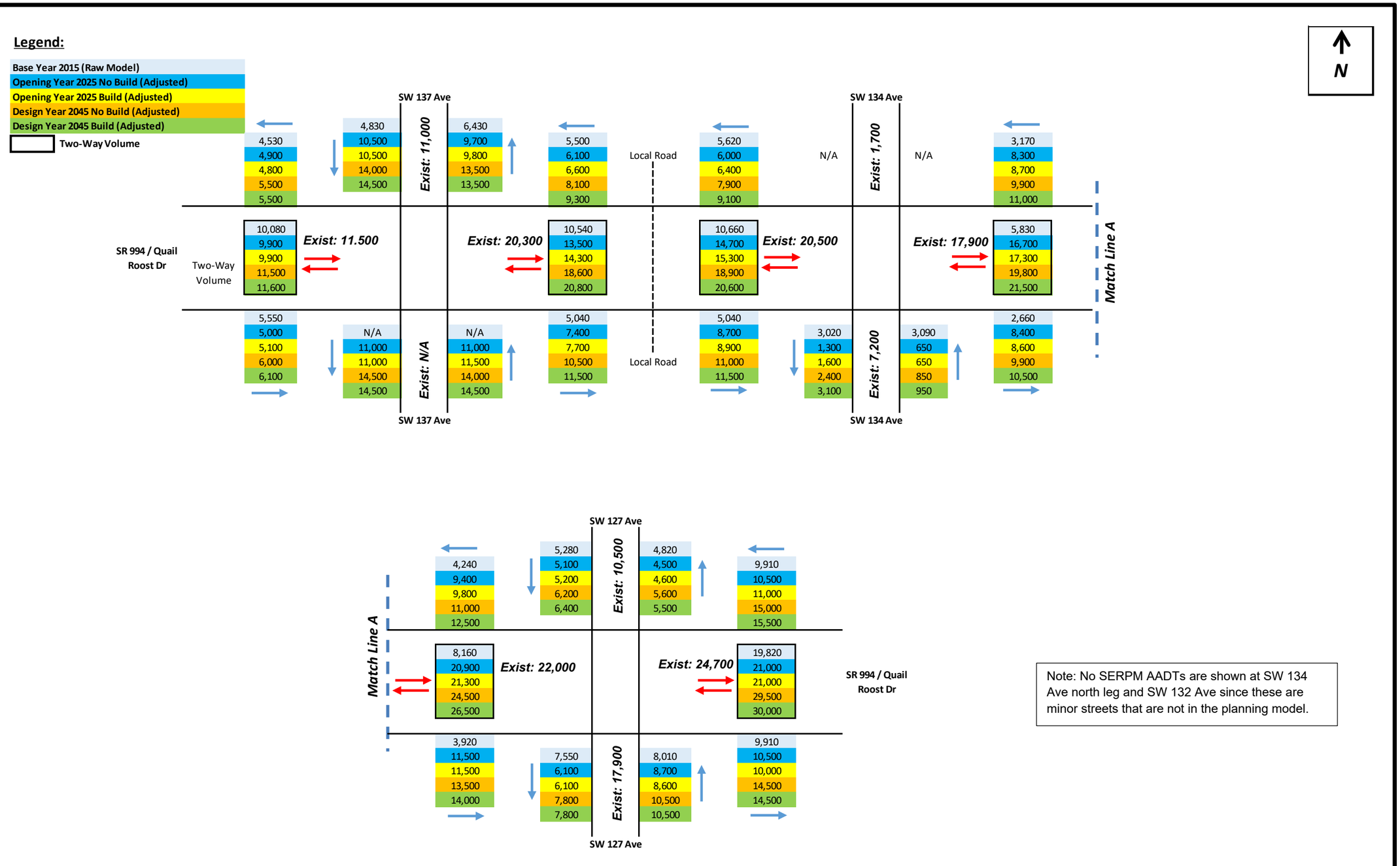

Note: No SERPM AADTs are shown at SW 134 Ave north leg and SW 132 Ave since these are minor streets that are not in the planning model.

Figure 25. 2015 Base, 2025 Opening & 2045 No Build/Build Future AADTs for the Study Corridor

Table 16 presents the adjusted AADTs and growth rates for the study corridor. On average, the growth rates in the AADTs for the study corridor are 1.4% for the No Build Alternative and 1.5% for the Build Alternative in 2045. Only one set of projected AADTs were developed for the Build Alternative. When analyzing the Build Alternatives with the raised median, the future turning movement volumes would be adjusted accordingly due to the median opening modifications necessary to implement the raised median alternative, as needed from a design perspective.

Table 16. 2025 & 2045 AADTs & Estimated Growth Rates for the Study Corridor

Location	Direction	Project Traffic Volumes				Annual Growth Rates	
		2025 No-Build	2025 Build	2045 No-Build	2045 Build	2045 No-Build	2045 Build
west of SW 137 Ave	EB	5,000	5,100	6,000	6,100	1.0%	1.0%
	WB	4,900	4,800	5,500	5,500	0.6%	0.7%
east of SW 137 Ave	EB	7,400	7,700	10,500	11,500	2.1%	2.5%
	WB	6,100	6,600	8,100	9,300	1.6%	2.0%
west of SW 134 Ave	EB	8,700	8,900	11,000	11,500	1.3%	1.5%
	WB	6,000	6,400	7,900	9,100	1.6%	2.1%
east of SW 134 Ave	EB	8,400	8,600	9,900	10,500	0.9%	1.1%
	WB	8,300	8,700	9,900	11,000	1.0%	1.3%
west of SW 127 Ave	EB	11,500	11,500	13,500	14,000	0.9%	1.1%
	WB	9,400	9,800	11,000	12,500	0.9%	1.4%
east of SW 127 Ave	EB	10,500	10,000	14,500	14,500	1.9%	2.3%
	WB	10,500	11,000	15,000	15,500	2.1%	2.0%
SW 127 Ave north of SR 994	NB	4,500	4,600	5,600	5,500	1.2%	1.0%
	SB	5,100	5,200	6,200	6,400	1.1%	1.2%
SW 127 Ave south of SR 994	NB	8,700	8,600	10,500	10,500	1.0%	1.1%
	SB	6,100	6,100	7,800	7,800	1.4%	1.4%
SW 137 Ave north of SR 994	NB	9,700	9,800	13,500	13,500	2.0%	1.9%
	SB	10,500	10,500	14,000	14,500	1.7%	1.9%
SW 137 Ave south of SR 994	NB	11,000	11,500	14,000	14,500	1.4%	1.3%
	SB	11,000	11,000	14,500	14,500	1.6%	1.6%

7.3.1 Future Intersection Volumes

The future intersection volumes were developed in accordance with the procedures outlined in the FDOT Project Traffic Forecasting Handbook (2019). For the three main intersections within the study corridor—SW 137th Avenue, SW 134th Avenue, and SW 127th Avenue—turning movement volumes were generated using TMTOOL. TMTOOL is an Excel-based tool that establishes turning movements by combining base year and projected future year AADT volumes with existing year turning movement counts and growth factors. The TMTOOL worksheets are provided in **Appendix J**.

The AADTs input into TMTOOL included any available historical AADTs, the 2021 AADTs derived from traffic counts, and the AADTs output from the SERPM model. However, no historical AADTs were available for SW 137th Avenue and SW 134th Avenue, and no SERPM AADT was available for the north leg at SW 134th Avenue since it is a minor road not identified in the SERPM model. Historical AADTs for SW 127th Avenue were available due to the FDOT Count Station on SR 994 west of the intersection.

Three growth rates were input into TMTOOL for each intersection: the historical growth rate, the historical plus model growth rate, and the base year to future year model growth rate. A historical growth rate of 1% was determined from a trend analysis using the AADTs from the FDOT Count Station. This 1% historical growth rate was deemed reasonable and therefore applied to all legs at the three main intersections. The historical plus model and base year to future year model growth rates were unique to each intersection leg and applied accordingly. The most appropriate growth rate for each intersection was selected to align better with the forecasted SERPM model AADTs, based on linear growth.

During the PD&E study, additional traffic counts were performed in 2023 at SW 137th Avenue, SW 134th Avenue, SW 132nd Avenue, and SW 127th Avenue due to the opening of the south leg at SW 137th Avenue in 2022. These counts revealed a decrease in traffic flow from southbound SW 137th Avenue to eastbound SR 994, followed by an eastbound right turn onto SW 134th Avenue. Similarly, the westbound right turn at SW 137th Avenue, primarily from SR 994 westbound, and the northbound left-turn movement from SW 134th Avenue also decreased. Traffic conditions for the rest of the study corridor remained very similar to the 2021 conditions.

Given these changes, a 1% annual growth rate was applied to the 2023 traffic counts to determine 2025 turning movement volumes for the intersections at SW 137th Avenue and SW 134th Avenue. This approach was deemed more appropriate than using the 2021 counts, as the 2023 data reflected the opening of the south leg, which led to changes in traffic patterns. These 2025 volumes were then used as the base for determining future turning movement volumes in TMTOOL for these intersections. The 2045 No-Build turning movement volumes for the AM peak hour from TMTOOL for SW 137th Avenue, SW 134th Avenue, and SW 127th Avenue were then input into Excel with the volumes for the other intersections. Since the turning movement volumes for the other intersections were from 2021 counts, an annual 1% growth rate was applied to project these volumes to 2045. This growth rate balanced the volumes throughout the study corridor reasonably. Lastly, the balanced 2025 and 2045 turning movement volumes were compared to the existing 2021 and 2023 counts to ensure any discrepancies in the forecasted volumes were addressed, including justifications for volumes that were decreasing instead of increasing.

The same process was repeated for the 2045 No-Build PM peak hour, No-Build 2025 AM and PM peak hours, and Build 2025 and 2045 AM and PM peak hours. The 2025 and 2045 AM and PM turning movement volumes for the No-Build and Build Alternatives are presented in **Tables 17** through **20** and **Figures 26** through **33**.

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Table 17. 2025 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

Intersection Approach	Movement	2025 No Build - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	70	1	2	14	4	---	20	---	113	---	2	126
	Thru	401	663	672	626	773	767	847	896	1015	1035	1028	897
	Right	93	---	---	38	---	13	---	15	3	---	5	106
	Appr. Total	***564***	***663***	***673***	***678***	***777***	***780***	***867***	***911***	***1131***	***1035***	***1035***	***1129***
Westbound	Left	201	---	---	74	---	13	---	66	1	---	16	266
	Thru	390	832	834	765	883	802	805	788	771	786	776	498
	Right	245	4	3	50	10	---	17	---	24	21	2	161
	Appr. Total	***836***	***836***	***837***	***889***	***893***	***815***	***822***	***854***	***795***	***808***	***795***	***925***
Northbound	Left	145	---	---	44	---	91	---	34	5	---	29	201
	Thru	417	---	---	18	---	---	---	---	1	---	2	219
	Right	127	---	---	105	---	100	---	235	4	---	56	356
	Appr. Total	***689***	***---***	***---***	***167***	***---***	***191***	***---***	***269***	***10***	***---***	***86***	***776***
Southbound	Left	137	11	6	46	7	---	64	---	16	---	6	104
	Thru	283	---	---	42	---	---	---	---	1	---	1	241
	Right	146	4	2	28	6	---	11	---	78	9	2	50
	Appr. Total	***566***	***15***	***9***	***116***	***13***	***---***	***74***	***---***	***95***	***9***	***9***	***395***
	Int. Total	***2655***	***1514***	***1519***	***1850***	***1683***	***1786***	***1764***	***2033***	***2032***	***1852***	***1926***	***3225***

Intersection Approach	Movement	2025 No Build - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	43	2	1	20	6	---	1	---	40	---	1	62
	Thru	418	744	750	685	800	802	835	817	880	898	843	725
	Right	87	---	---	51	---	8	---	47	4	---	54	128
	Appr. Total	***548***	***745***	***751***	***756***	***806***	***810***	***836***	***864***	***924***	***898***	***898***	***915***
Westbound	Left	162	---	---	54	---	29	---	155	1	---	19	346
	Thru	338	678	679	623	721	716	740	729	829	840	835	570
	Right	181	5	5	46	12	---	10	---	28	5	5	125
	Appr. Total	***681***	***683***	***684***	***723***	***733***	***745***	***750***	***884***	***858***	***845***	***859***	***1041***
Northbound	Left	138	---	---	35	---	17	---	21	2	---	7	164
	Thru	256	---	---	37	---	---	---	---	1	---	1	208
	Right	148	---	---	90	---	34	---	107	2	---	27	212
	Appr. Total	***542***	***---***	***---***	***162***	***---***	***51***	***---***	***129***	***4***	***---***	***35***	***584***
Southbound	Left	178	7	6	30	10	---	28	---	16	---	6	146
	Thru	501	---	---	23	---	---	---	---	3	---	1	308
	Right	139	5	1	26	2	---	5	---	53	17	2	73
	Appr. Total	***818***	***12***	***6***	***79***	***12***	***---***	***33***	***---***	***73***	***17***	***10***	***527***
	Int. Total	***2589***	***1441***	***1442***	***1720***	***1551***	***1607***	***1619***	***1876***	***1859***	***1761***	***1802***	***3067***

Table 18. 2045 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

Intersection Approach	Movement	2045 No Build - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	83	1	2	18	5	---	26	---	141	---	3	157
	Thru	450	828	840	774	956	950	1050	1111	1259	1285	1275	1112
	Right	116	---	---	56	---	16	---	18	4	---	7	132
	Appr. Total	***649***	***829***	***842***	***848***	***961***	***966***	***1076***	***1129***	***1404***	***1285***	***1285***	***1401***
Westbound	Left	377	---	---	74	---	16	---	82	1	---	21	333
	Thru	434	1062	1064	974	1104	1003	1006	985	964	983	971	622
	Right	256	5	4	63	12	---	22	---	30	27	3	201
	Appr. Total	***1067***	***1067***	***1068***	***1111***	***1116***	***1019***	***1028***	***1067***	***994***	***1010***	***994***	***1156***
Northbound	Left	181	---	---	66	---	113	---	42	6	---	36	251
	Thru	521	---	---	22	---	---	---	---	1	---	2	274
	Right	165	---	---	131	---	125	---	294	5	---	70	445
	Appr. Total	***867***	***---***	***---***	***219***	***---***	***239***	***---***	***336***	***12***	***---***	***108***	***970***
Southbound	Left	215	13	8	57	9	---	80	---	20	---	7	130
	Thru	353	---	---	42	---	---	---	---	1	---	1	301
	Right	182	5	3	28	7	---	13	---	98	11	3	62
	Appr. Total	***750***	***18***	***11***	***127***	***16***	***---***	***93***	***---***	***119***	***11***	***11***	***493***
	Int. Total	***3333***	***1915***	***1921***	***2305***	***2094***	***2224***	***2196***	***2533***	***2530***	***2306***	***2398***	***4020***

Intersection Approach	Movement	2045 No Build - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	51	2	1	25	7	---	1	---	50	---	2	77
	Thru	466	930	938	850	994	996	1037	1014	1093	1115	1047	900
	Right	109	---	---	70	---	10	---	59	5	---	66	160
	Appr. Total	***626***	***932***	***939***	***945***	***1001***	***1006***	***1038***	***1073***	***1148***	***1115***	***1115***	***1137***
Westbound	Left	218	---	---	68	---	37	---	194	1	---	24	433
	Thru	361	859	864	779	901	895	925	911	1036	1050	1044	712
	Right	286	6	6	57	15	---	12	---	35	6	6	156
	Appr. Total	***865***	***865***	***870***	***904***	***916***	***931***	***938***	***1105***	***1072***	***1057***	***1074***	***1301***
Northbound	Left	173	---	---	58	---	22	---	27	2	---	9	205
	Thru	319	---	---	46	---	---	---	---	1	---	1	260
	Right	186	---	---	113	---	43	---	134	2	---	33	265
	Appr. Total	***678***	***---***	***---***	***217***	***---***	***64***	***---***	***161***	***5***	***---***	***44***	***730***
Southbound	Left	278	9	7	38	12	---	36	---	20	---	8	183
	Thru	626	---	---	29	---	---	---	---	4	---	1	385
	Right	174	6	1	33	3	---	6	---	67	22	3	91
	Appr. Total	***1078***	***15***	***8***	***100***	***15***	***---***	***42***	***---***	***91***	***22***	***12***	***659***
	Int. Total	***3247***	***1812***	***1817***	***2166***	***1933***	***2002***	***2017***	***2338***	***2317***	***2193***	***2245***	***3827***

Table 19. 2025 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

Intersection Approach	Movement	2025 Build - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	71	---	---	20	31	---	---	---	130	---	3	143
	Thru	519	877	885	823	968	1003	1103	1085	1186	1206	1196	1043
	Right	79	---	---	42	---	17	---	18	5	---	7	120
	Appr. Total	***669***	***877***	***885***	***885***	***999***	***1020***	***1103***	***1103***	***1321***	***1206***	***1206***	***1306***
Westbound	Left	219	---	---	79	---	14	---	70	2	---	18	217
	Thru	379	837	840	765	891	811	814	800	787	805	797	560
	Right	244	5	4	53	11	---	19	---	25	23	3	131
	Appr. Total	***842***	***842***	***844***	***897***	***902***	***825***	***833***	***870***	***814***	***828***	***817***	***908***
Northbound	Left	105	---	---	51	---	91	---	34	5	---	29	168
	Thru	417	---	---	19	---	---	---	---	1	---	2	144
	Right	180	---	---	111	---	100	---	235	4	---	60	235
	Appr. Total	***702***	***---***	***---***	***181***	***---***	***191***	***---***	***269***	***10***	***---***	***91***	***547***
Southbound	Left	178	---	---	65	52	---	---	---	16	---	6	67
	Thru	283	---	---	42	---	---	---	---	1	---	1	156
	Right	97	4	2	28	6	---	11	---	78	9	2	38
	Appr. Total	***558***	***4***	***2***	***135***	***58***	***---***	***11***	***---***	***95***	***9***	***9***	***261***
	Int. Total	***2771***	***1723***	***1732***	***2098***	***1958***	***2036***	***1947***	***2241***	***2240***	***2043***	***2124***	***3022***

Intersection Approach	Movement	2025 Build - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	43	---	---	26	10	---	---	---	48	---	2	74
	Thru	535	986	990	909	1033	1052	1086	1028	1080	1098	1036	892
	Right	71	---	---	55	---	11	---	59	6	---	60	155
	Appr. Total	***649***	***986***	***990***	***990***	***1043***	***1063***	***1086***	***1087***	***1135***	***1098***	***1098***	***1121***
Westbound	Left	178	---	---	58	---	32	---	167	2	---	21	286
	Thru	327	681	686	625	729	725	752	742	854	868	864	641
	Right	180	6	6	49	13	---	11	---	29	6	5	104
	Appr. Total	***685***	***687***	***692***	***732***	***742***	***757***	***763***	***909***	***885***	***873***	***890***	***1031***
Northbound	Left	87	---	---	41	---	17	---	21	2	---	7	134
	Thru	256	---	---	39	---	---	---	---	1	---	1	138
	Right	214	---	---	96	---	34	---	107	2	---	29	140
	Appr. Total	***557***	***---***	***---***	***176***	***---***	***51***	***---***	***129***	***4***	***---***	***37***	***412***
Southbound	Left	237	---	---	38	30	---	---	---	16	---	7	94
	Thru	501	---	---	23	---	---	---	---	3	---	1	198
	Right	98	5	1	26	2	---	5	---	53	17	2	57
	Appr. Total	***836***	***5***	***1***	***87***	***32***	***---***	***5***	***---***	***73***	***17***	***10***	***349***
	Int. Total	***2727***	***1678***	***1683***	***1985***	***1818***	***1871***	***1854***	***2124***	***2096***	***1989***	***2035***	***2913***

Table 20. 2045 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

Intersection Approach	Movement	2045 Build - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	84	---	---	25	39	---	---	---	162	---	4	179
	Thru	561	1096	1107	1007	1188	1232	1360	1338	1463	1489	1477	1285
	Right	98	---	---	75	---	21	---	22	6	---	8	150
	Appr. Total	***743***	***1096***	***1107***	***1107***	***1227***	***1253***	***1360***	***1360***	***1631***	***1489***	***1489***	***1614***
Westbound	Left	278	---	---	98	---	17	---	88	2	---	22	271
	Thru	413	1069	1072	957	1114	1014	1018	999	984	1006	996	701
	Right	383	6	5	66	13	---	24	---	32	29	3	164
	Appr. Total	***1074***	***1075***	***1077***	***1121***	***1127***	***1031***	***1042***	***1087***	***1017***	***1035***	***1022***	***1135***
Northbound	Left	131	---	---	85	---	113	---	42	6	---	36	210
	Thru	521	---	---	23	---	---	---	---	1	---	0	180
	Right	243	---	---	139	---	125	---	294	5	---	75	294
	Appr. Total	***895***	***---***	***---***	***247***	***---***	***239***	***---***	***336***	***12***	***---***	***111***	***684***
Southbound	Left	292	---	---	81	65	---	---	---	20	---	8	84
	Thru	353	---	---	52	---	---	---	---	1	---	1	195
	Right	121	5	3	35	7	---	13	---	98	11	3	47
	Appr. Total	***766***	***5***	***3***	***168***	***72***	***---***	***13***	***---***	***119***	***11***	***12***	***326***
	Int. Total	***3478***	***2176***	***2187***	***2643***	***2426***	***2523***	***2415***	***2784***	***2780***	***2535***	***2634***	***3759***

Intersection Approach	Movement	2045 Build - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	51	---	---	33	13	---	---	---	60	---	2	92
	Thru	529	1232	1238	1112	1268	1292	1334	1260	1326	1348	1270	1091
	Right	88	---	---	93	---	13	---	74	8	---	76	193
	Appr. Total	***668***	***1232***	***1238***	***1238***	***1281***	***1305***	***1334***	***1334***	***1394***	***1348***	***1348***	***1376***
Westbound	Left	241	---	---	73	---	40	---	209	2	---	26	357
	Thru	347	877	883	781	912	907	940	927	1067	1084	1080	801
	Right	295	7	7	62	16	---	13	---	37	7	7	130
	Appr. Total	***883***	***884***	***890***	***916***	***928***	***947***	***954***	***1136***	***1106***	***1092***	***1112***	***1289***
Northbound	Left	109	---	---	76	---	22	---	27	2	---	9	168
	Thru	319	---	---	49	---	---	---	---	1	---	1	172
	Right	274	---	---	120	---	43	---	134	2	---	36	175
	Appr. Total	***702***	***---***	***---***	***245***	***---***	***65***	***---***	***161***	***5***	***---***	***46***	***515***
Southbound	Left	379	---	---	49	37	---	---	---	20	---	9	117
	Thru	626	---	---	29	---	---	---	---	4	---	1	247
	Right	123	6	1	33	3	---	6	---	67	22	3	71
	Appr. Total	***1128***	***6***	***1***	***111***	***40***	***---***	***6***	***---***	***91***	***22***	***13***	***436***
	Int. Total	***3381***	***2122***	***2129***	***2510***	***2249***	***2317***	***2294***	***2630***	***2597***	***2461***	***2520***	***3615***

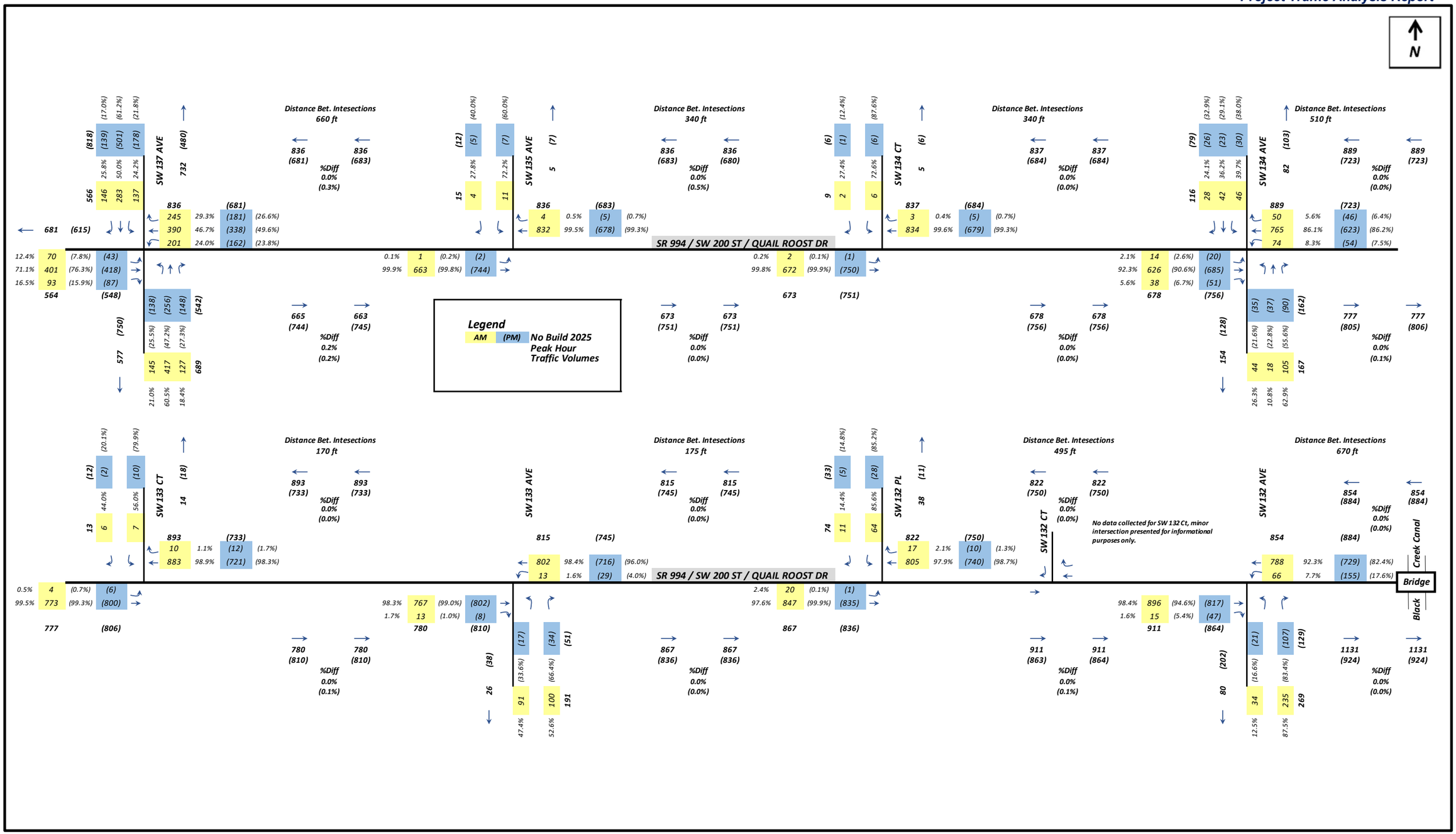


Figure 26. 2025 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

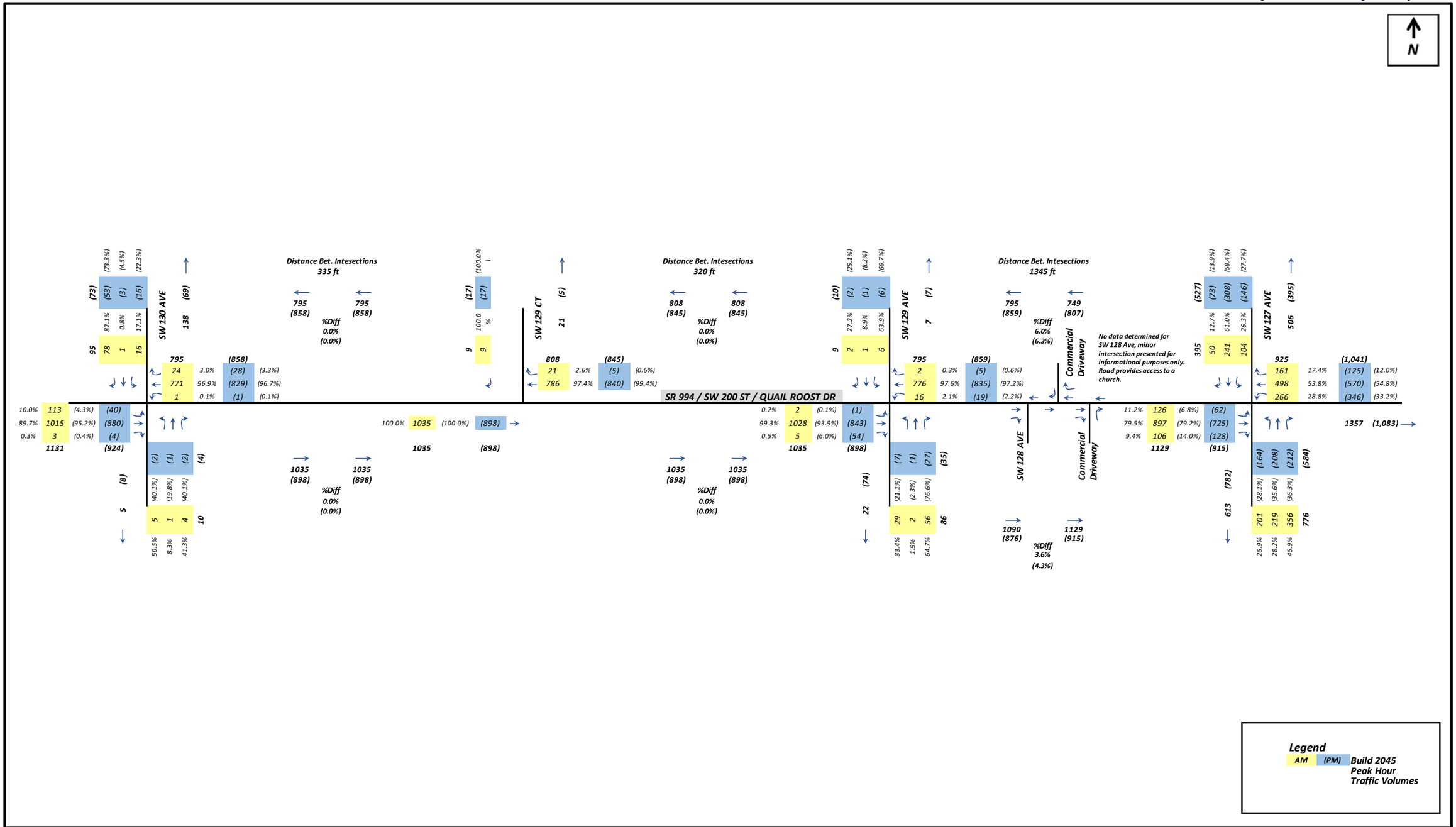


Figure 27. 2025 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

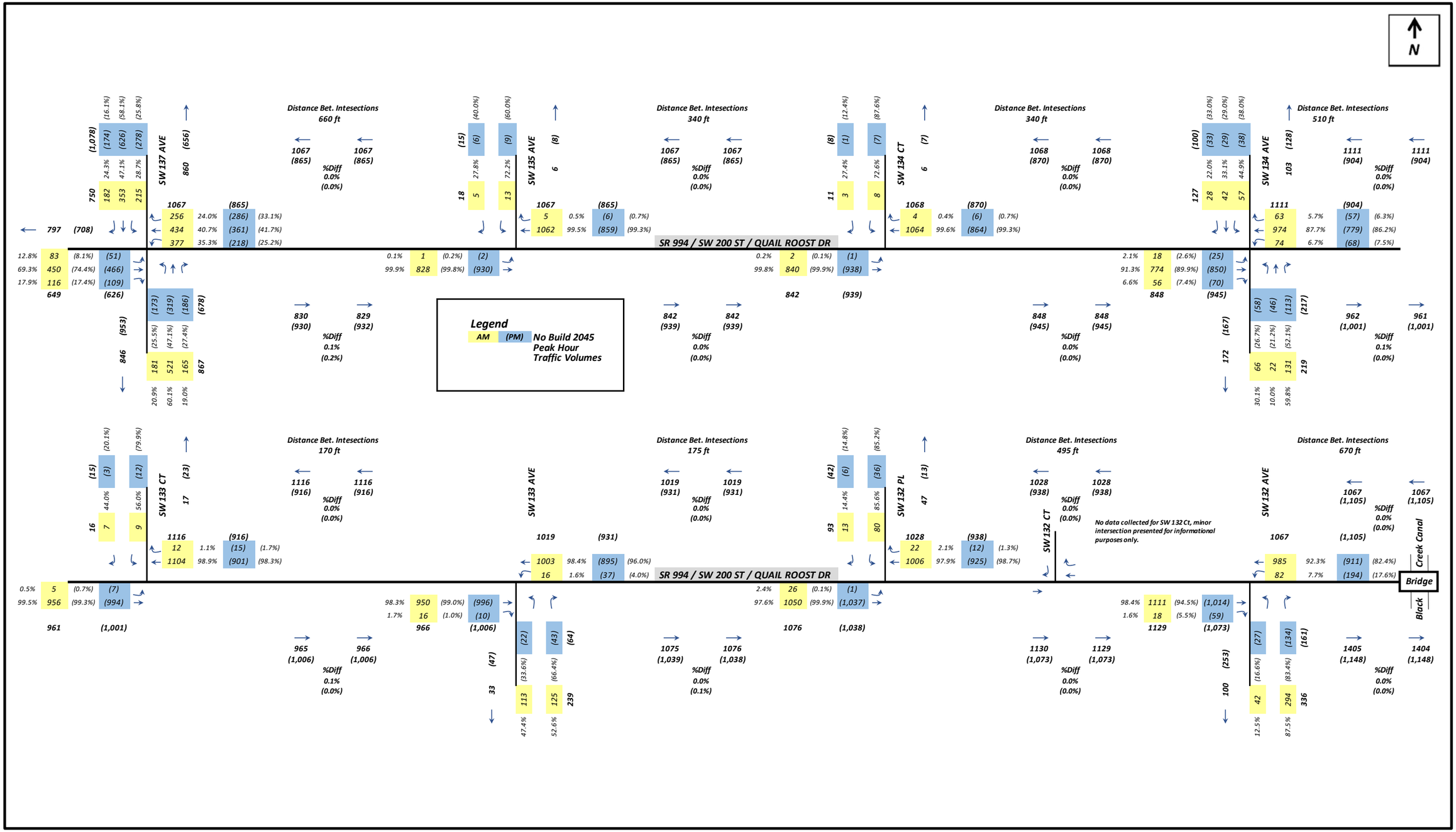


Figure 28. 2045 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

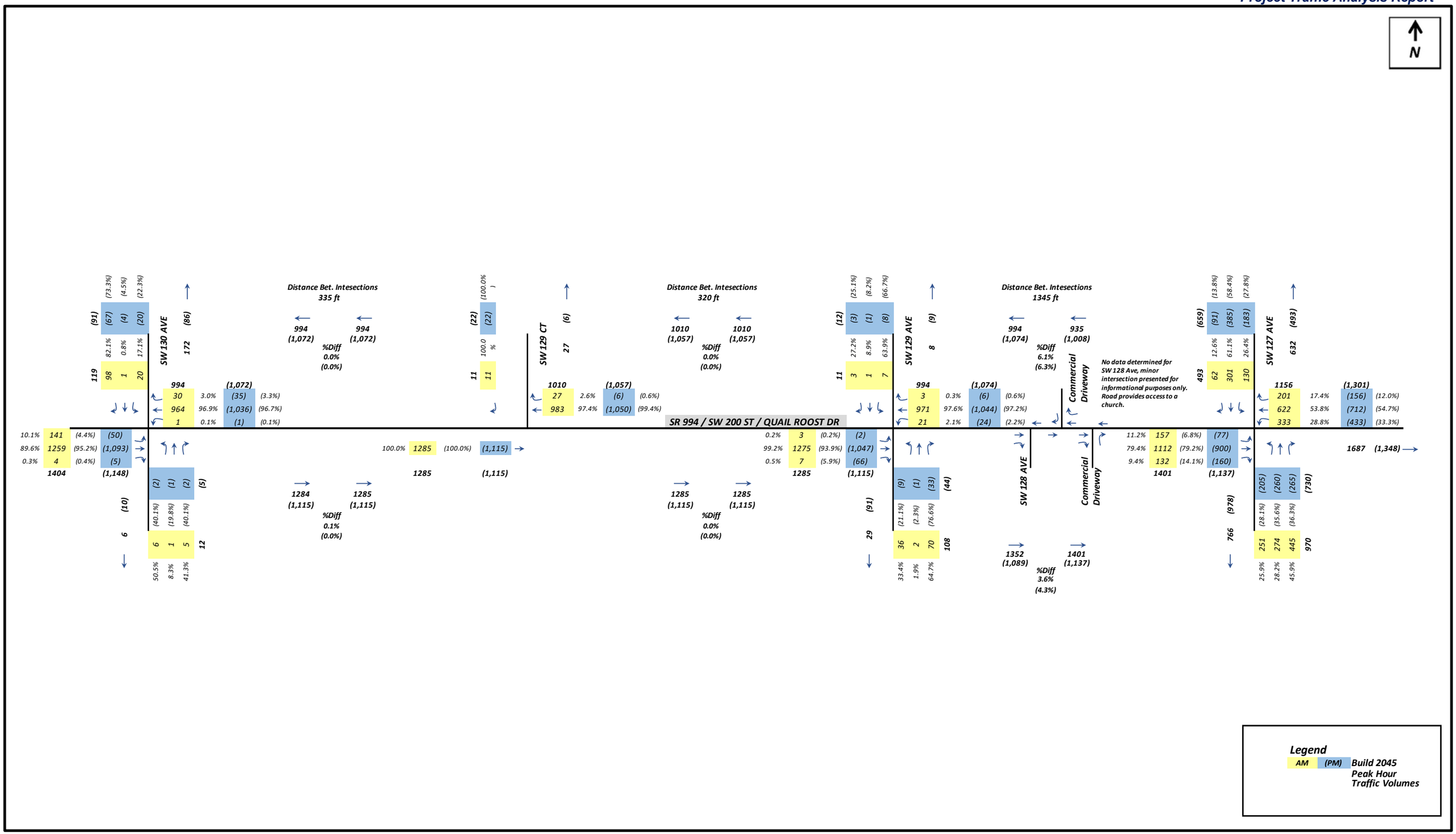


Figure 29. 2045 No Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

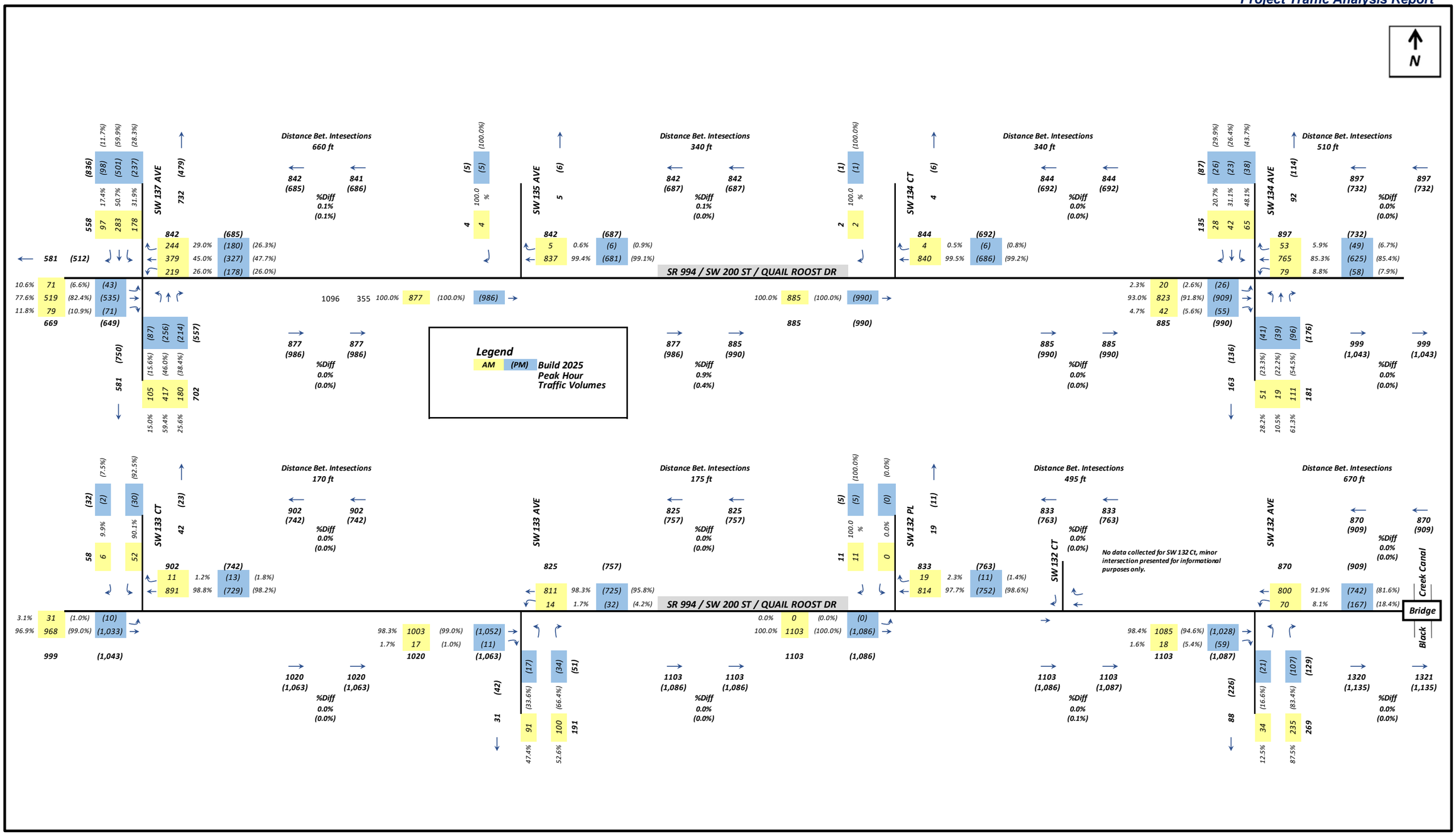


Figure 30. 2025 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

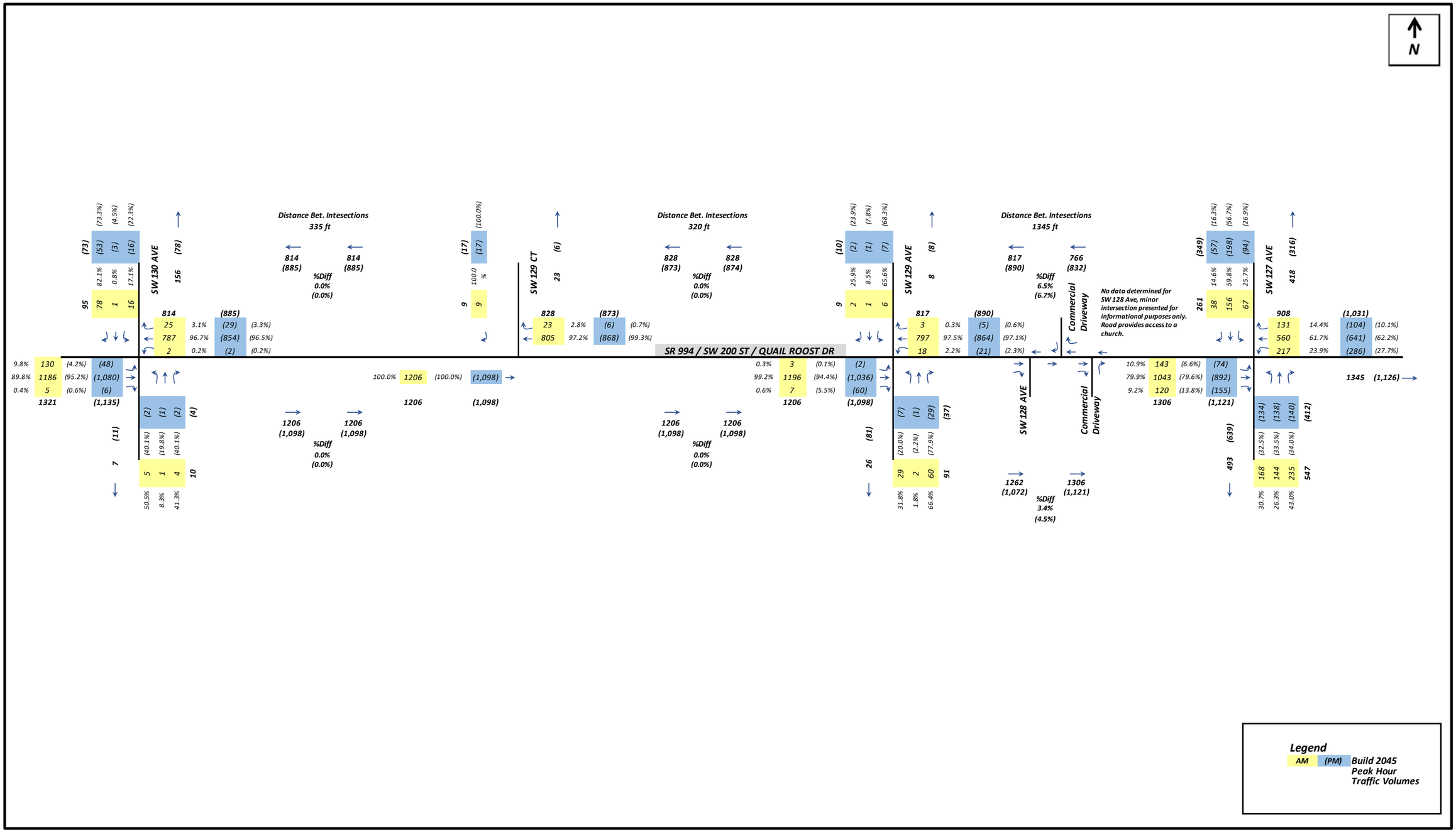


Figure 31. 2025 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

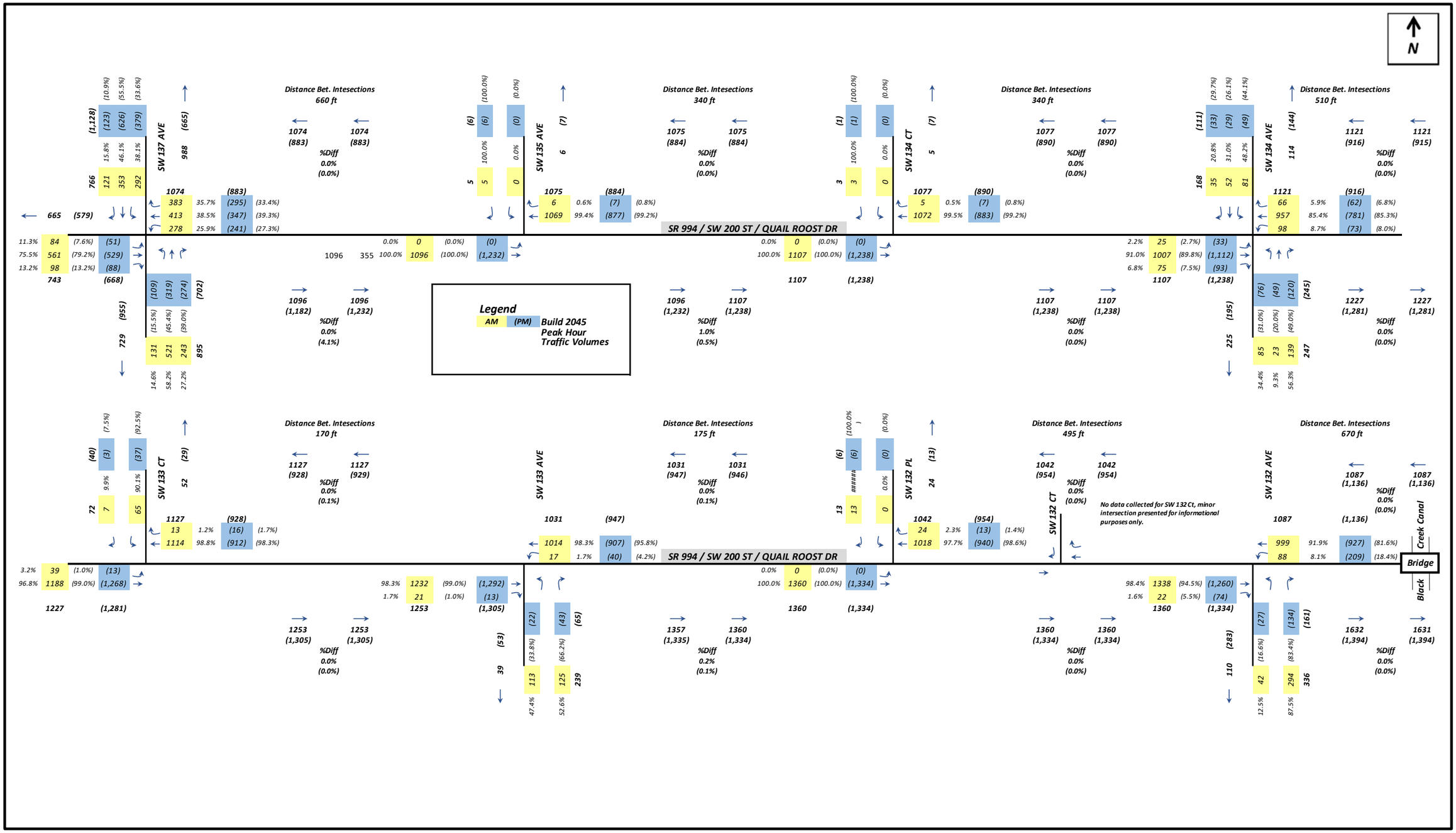


Figure 32. 2045 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

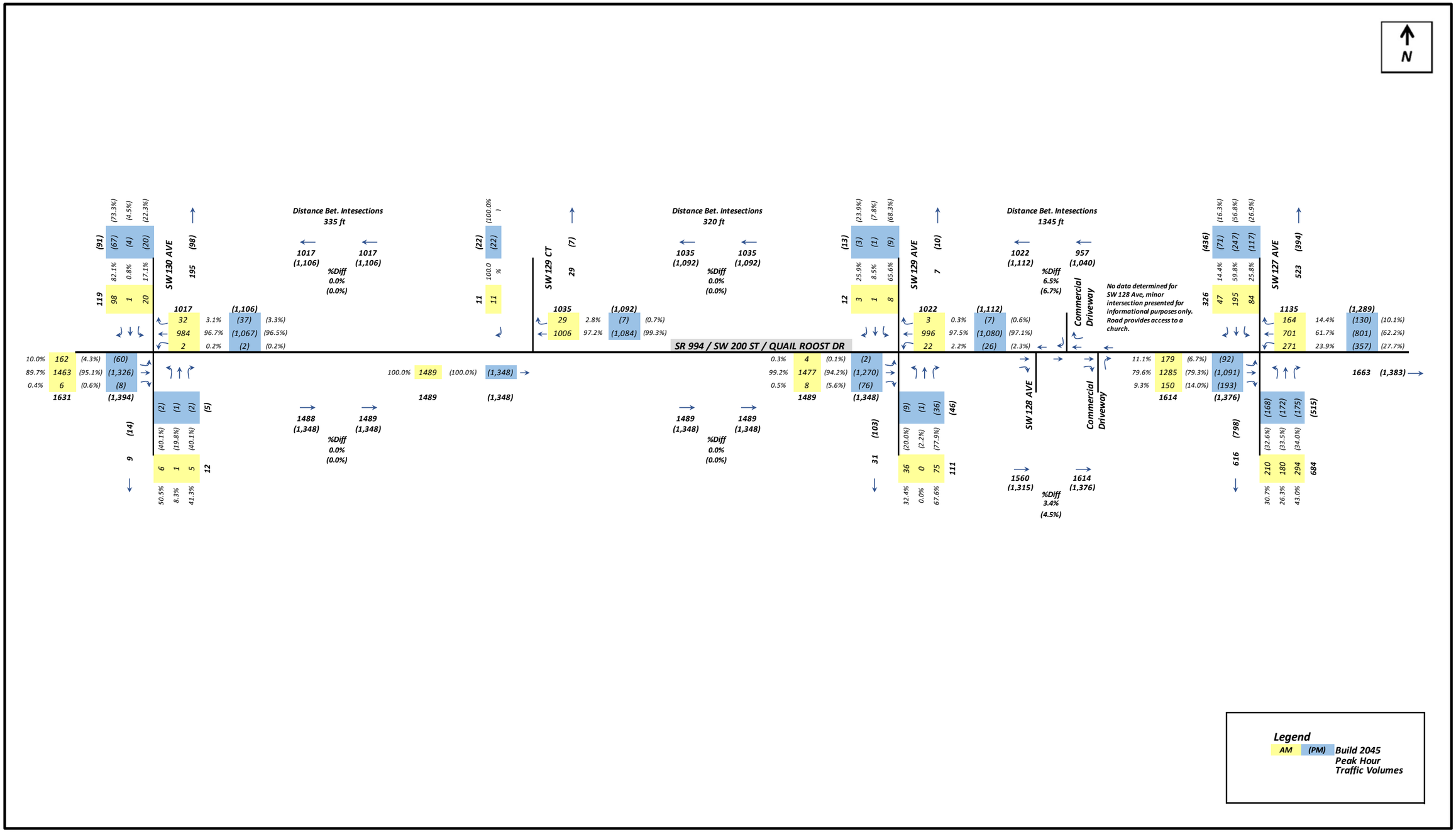


Figure 33. 2045 Build AM & PM Peak-Hour Traffic Volumes for the Study Corridor

7.4 FUTURE OPERATIONAL ANALYSIS

An operational analysis of the study corridor was performed utilizing Synchro, Version 11, to assess and compare the future traffic conditions for the Build Alternatives with the No Build Alternative for the weekday AM and PM peak hours. As done for existing traffic conditions, the operational assessment was performed in accordance with the FDOT's Traffic Analysis Handbook (2021) and consistent with HCM. The operational analysis included intersection and arterial evaluations. The results are based on the HCM 6th Edition, except the arterial analysis which is based on Synchro which mirrors the HCM 2000 reports as noted in the Synchro User Guide Chapter 15. In addition, the results for the signalized intersection of SW 137th Avenue are based on the HCM 2000 since the latest versions (HCM 6th and 2010) do not support the current signal operation of a leading left-turning arrow for the eastbound direction without an exclusive left-turn bay. For consistency, the results for SW 137th Avenue for future conditions are also based on the HCM 2000. The following future scenarios were analyzed for the project proposed opening year (2025) and the design year (2045). Per agreed traffic methodology for this study effort, no interim year was to be analyzed.

- No Build Alternative (2025 & 2045 for AM & PM), includes maintaining the existing lane configuration at the study intersections, except for the following improvements at SW 137th Avenue and SW 127th Avenue:
    - The south leg at the signalized intersection of SW 137th Avenue opens to traffic under Miami-Dade County Project No. 20040343. It opened approximately in June 2022. At the beginning of this current study effort, the south leg was closed to traffic and under construction. The northbound lane configuration includes 1 exclusive left-turn bay and 1 shared through/right-turn lane. The County project also changes the southbound approach lane configuration from one exclusive right-turn bay, one shared through/left-turn lane to 1 exclusive left-turn bay+1 shared through/right-turn lane. In addition, SW 137th Avenue will be widened from US 1 to SW 184th Street to a four-lane roadway by 2045, under Miami-Dade County Project PW168 (no FM number available yet).
    - An exclusive northbound right-turn bay will be constructed at the intersection of SW 127th Avenue under Miami-Dade County Project No. 20180004.

- Build Alternative 1 (2025 & 2045 for AM & PM): includes the same improvements under No Build plus the following:
  - Add a raised median along SR 994 with left-turning opportunities from and onto the side streets, except the following:
    - Restrict the eastbound and southbound left-turn movements at SW 132nd Place. The current volume for this movement is low-to-moderate and is expected to continue the same. This eastbound left-turn movement will be diverted 100% to SW 133rd Court. Based on the adjacent ample roadway grid network, 70% of the southbound left-turn movement will be diverted to the southbound left-turn at SW 133 Court and the remaining 30% to the southbound left-turn at SW 134th Avenue, which is now under signal controlled.
  - For SW 135th Avenue and SW 134th Court: Restrict the eastbound and southbound left-turn movements at SW 134th Court and SW 135th Avenue. The current volumes for these movements are low and are expected to continue the same. These eastbound left-turn movements will be diverted 100% to SW 134th Avenue. Based on the adjacent ample roadway grid network: 60% of the southbound left-turn movement from SW 134th Court will be diverted to the southbound left-turn at SW 134th Avenue and the remaining 40% to the southbound through at SW 134th Avenue, which are now under signal controlled; 60% of the southbound left-turn movement from SW 135th Avenue will be diverted to the westbound left-turn at SW 137th Avenue and the remaining 40% to the southbound left-turn at SW 134th Avenue.
  - For SW 137th Avenue:
    - Dual left-turn bays for the southbound, eastbound, and westbound intersection approaches.
    - Exclusive right-turn bays for the northbound and southbound intersection approaches.
    - An additional right-turn bay for the westbound approach for a total of two right-turns.
  - For SW 134th Avenue:
    - The north/south stop-controlled 4-legged intersection of SW 134th Avenue is upgraded to signal control. A signal warrant analysis completed by the FDOT in 2017 recommended upgrading this intersection to signal control.

The signal warrant analysis completed under this current study effort (refer to **Section 5.1**) confirmed that a traffic signal control is warranted at SW 134th Avenue.

- The proposed lane configuration includes providing exclusive left-turns at all intersection approaches and an exclusive right-turn at the westbound intersection approach.

- Widen SW 132nd Avenue to convert the northbound shared left-turn/right-turn lane to one exclusive left-turn lane and one exclusive right-turn lane.
- For SW 127 Avenue:
  - Additional exclusive left-turn bay for the northbound and westbound intersection approaches for a total of two left-turns.
  - Exclusive southbound right-turn bay.
- Confirmed and modified storage lengths for turn bays, as necessary based on queue build-ups.

- <u>Build Alternative 2 (2025 & 2045 for AM & PM):</u> includes the same improvements under Build 1 plus the following:
  - Widening SR 994 from two-lanes to four-lanes.
    - For the westbound direction, the additional through lane connects to the existing two-lane section just past SW 127th Avenue and continues across the SW 137th Avenue intersection to be merged further downstream.
    - For the eastbound direction, the additional through lane on SR 994 begins at SW 137th Avenue and connects to the existing two-lane section approaching SW 127th Avenue.
  - For SW 137 Avenue,
    - Add lanes on SW 137th Avenue near SR 994, merging downstream past SR 994.
    - Additional exclusive left-turn bay for the northbound intersection approaches for a total of two left-turns.
  - For SW 127 Avenue:
    - Provide an exclusive right-turn bay for the eastbound intersection approach.
    - Although dual northbound left-turns were necessary under Build1, a single exclusive northbound left-turn is necessary for Build 2.

- Confirmed and modified storage lengths for turn bays, as necessary based on queue build-ups.

- Build Alternative 3 (2025 & 2045 for AM & PM): includes the same improvements under Build 2 plus the following:
  - Restrict the southbound left-turn movement at SW 133rd Court and the northbound left-turn movement at SW 133rd Avenue. The current volumes for these movements are low and are expected to continue the same, except the northbound left-turn at SW 133rd Avenue during the AM peak hour. Nevertheless, the ample roadway grid network also allows the adequate diversion of the northbound left-turn at SW 133rd Avenue. The southbound left-turn movement will be diverted 100% to the right-turn at SW 133rd Court and then to the westbound left-turn at SW 134th Avenue, which is now under signal control. Based on the adjacent ample roadway grid network, 40% of the northbound left-turn at SW 133rd Avenue will be diverted to the northbound left-turn at SW 132nd Avenue and then to the westbound right-turn at SW 134th Avenue, 30% will be diverted to the northbound through at SW 134th Avenue, and the remaining 30% to the northbound left-turn at SW 134th Avenue and then to the westbound right-turn at SW 137th Avenue.

Figures 34 through **43** present the existing, No-Build, and Build Alternative roadway conditions for the study corridor. **Tables 21** and **22** summarize the build volumes for the intersections within the study corridor under each alternative, including diverted traffic volume. All future scenarios included optimizing the intersection splits with some cycle length changes, updating the PHFs to 0.95, and maintaining the same truck percentages as existing traffic conditions.

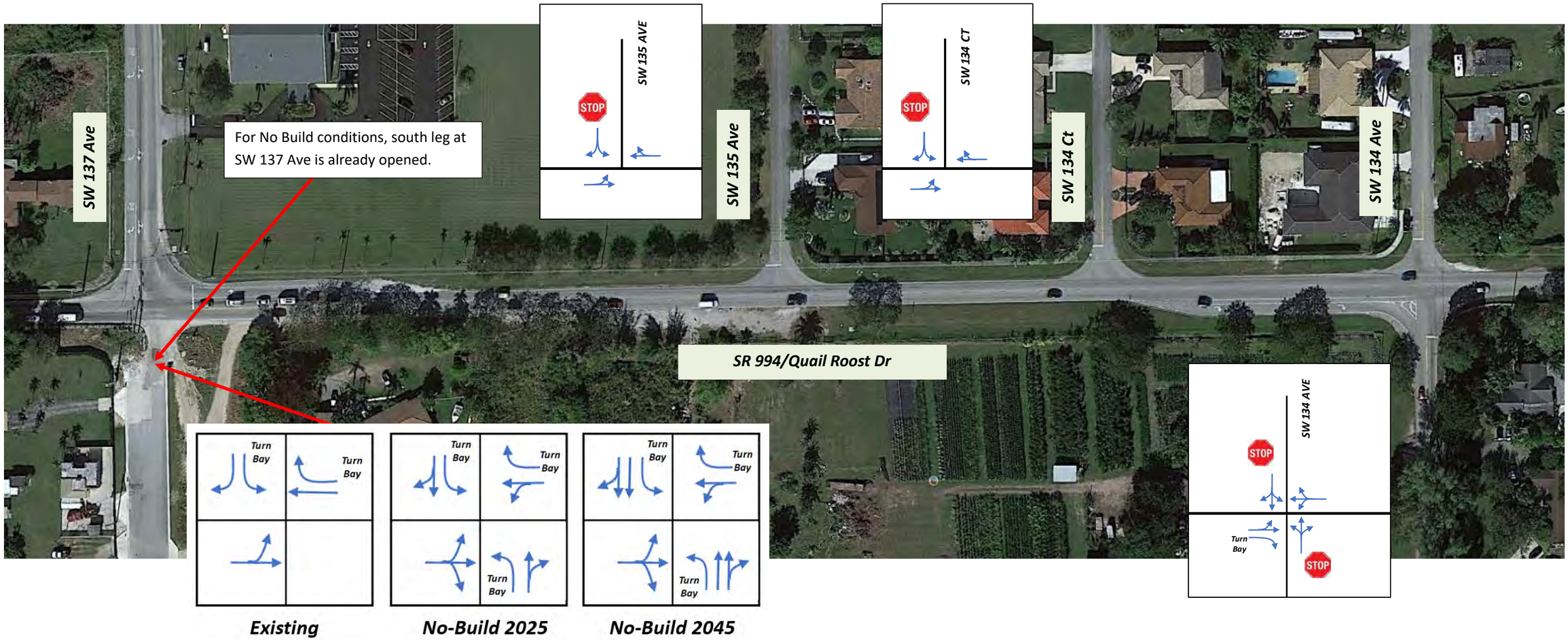
The following Measures of Effectiveness (MOEs) were generated based on the HCM 6th Edition (except for SW 137th Avenue, HCM 2000 was used) and the Synchro outputs and summarized for the traffic models:

- Intersection:
  - Level of Service
  - Average Vehicle Delay (seconds/vehicle)
- Vehicle Movement:
  - Level of Service
  - Average Vehicle Delay (seconds/vehicle)

  - Volume/Capacity (v/c) Ratio (for signalized intersections only)
  - 95th Percentile Queue (feet)
- Arterial:
  - Level of Service
  - Average Vehicle Speed (miles/hour)
  - Travel Time (seconds)
  - Delay (hours)

The HCM utilizes LOS as the quantitative measure to represent the level of service at an intersection or arterial. The LOS grading criteria ranges from LOS A to LOS F, where LOS A is under-saturated/free-flow conditions and LOS F is over-saturated conditions. The Synchro output sheets are included **Appendix K**. It is noted that the intersections of SW 137th Avenue and SW 134th Avenue are coordinated in the east/west direction, while SW 127th Avenue is coordinated in the north/south direction.

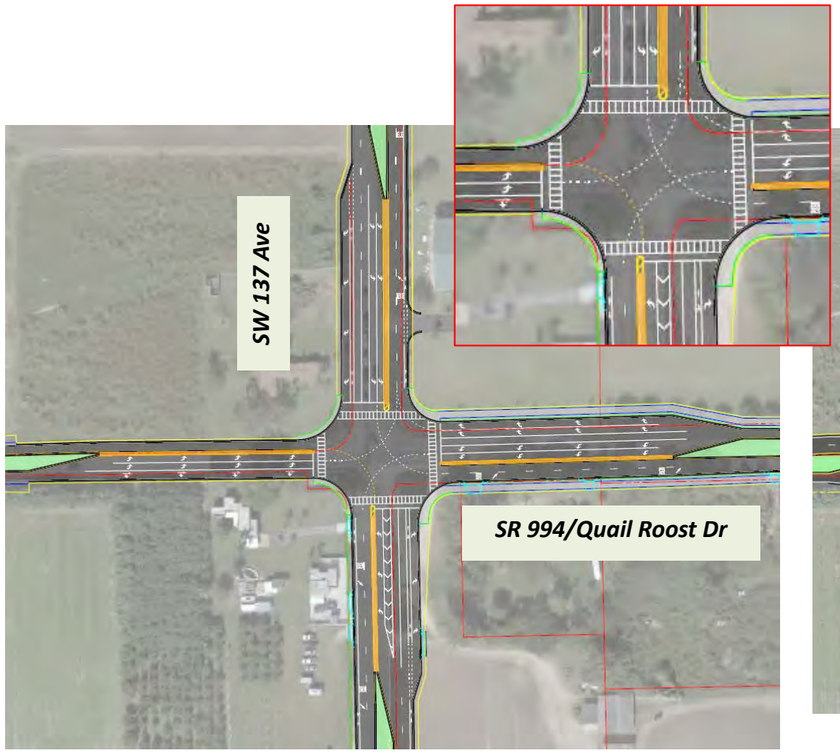
(This area was intentionally left blank.)



County opens south leg at SW 137th Ave in June 2022 and widens SW 137th Ave to 4-lanes by 2045.

Figure 34. Existing & No-Build Alternative Roadway Conditions from SW 137th Ave to SW 134th Ave

Build Alternative 1



EB Approach: Dual lefts and shared thru/right-turn lane.

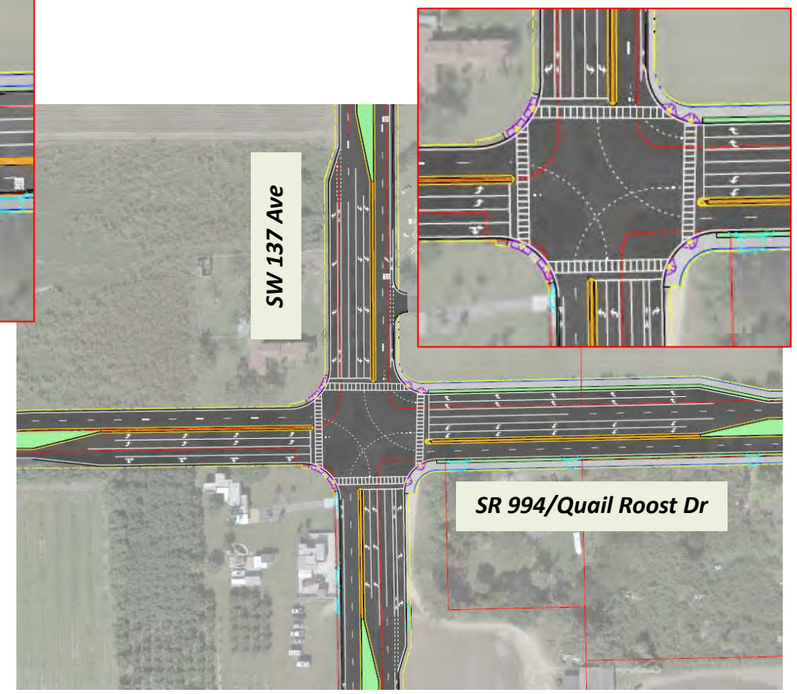
WB Approach: Dual lefts, single thru lane, and dual right-turns.

NB Approach: Single left, dual thru lanes, and single right-turn.

SB Approach: Dual lefts, dual thru lanes, and single right-turn.

Build Alternative 2

Note: Lane geometry differences with previous alternative are indicated in red. Alternatives are cumulative.



EB Approach: Dual lefts, single thru lane, and shared thru/right-turn lane.

WB Approach: Dual lefts, dual thru lanes, and dual right-turns.

NB Approach: Dual lefts, dual thru lanes, and single right-turn.

SB Approach: Dual lefts, dual thru lanes, and single right-turn.

Note: Build 2 adds an exclusive EB thru lane, an additional WB thru lane, and an additional NB left.

Build Alternative 3

N

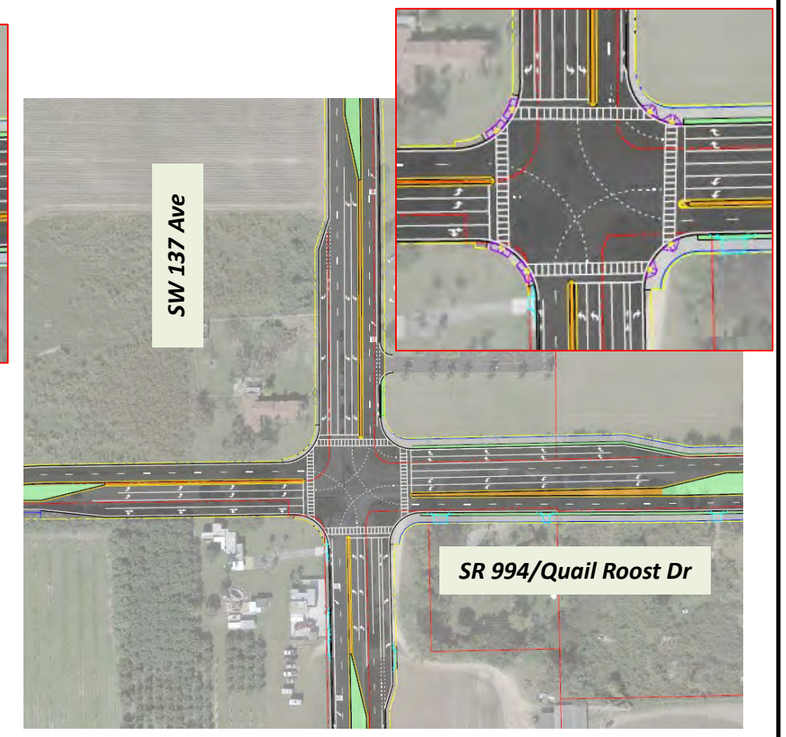
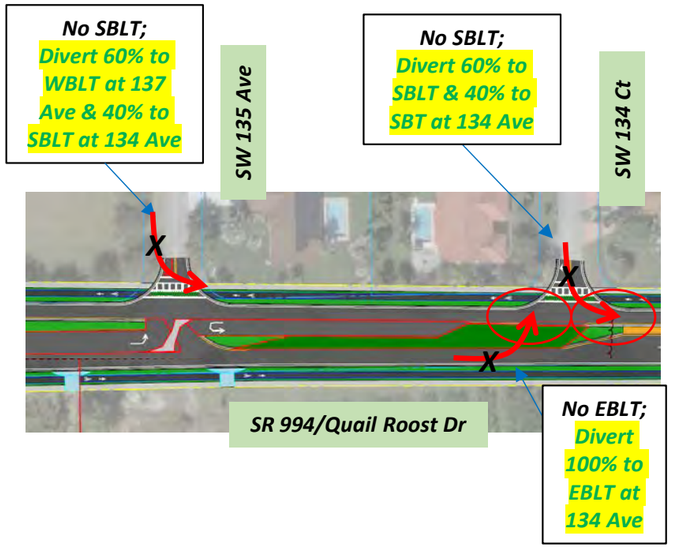


Figure 35. Build Alternative Roadway Conditions at SW 137th Ave

N

Build Alternative 1



EB Approach: Single thru lane. At SW 135 Ave, an exclusive left-turn bay.

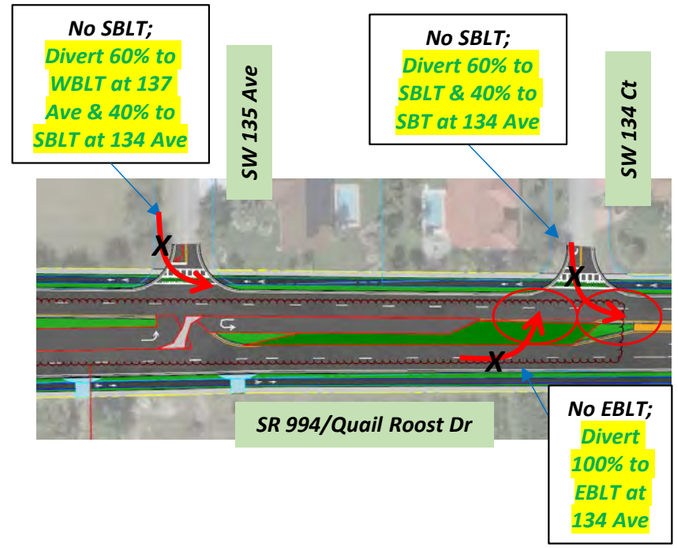
WB Approach: Single shared thru/right-turn lane.

NB Approach: N/A.

SB Approach: Exclusive right-turn lane.

Build Alternative 2

Note: Lane geometry differences with previous alternative are indicated in red.
Alternatives are cumulative.



EB Approach: Dual thru lanes. At SW 135 Ave, an exclusive left-turn bay.

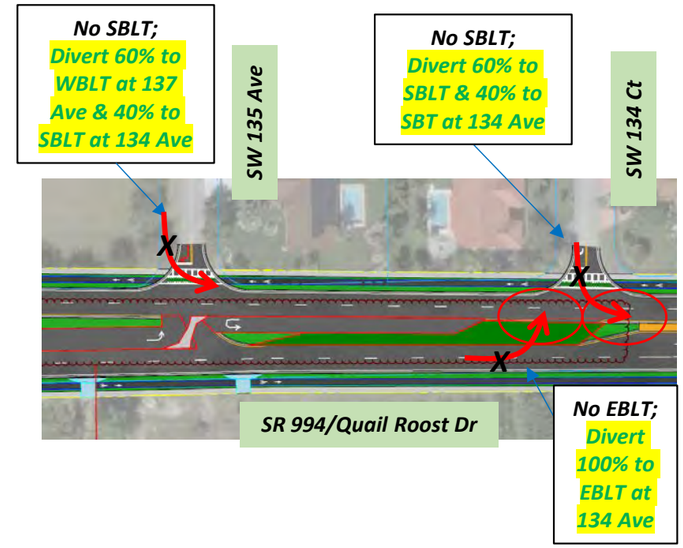
WB Approach: Exclusive thru lane and single shared thru/right-turn lane.

NB Approach: N/A.

SB Approach: Exclusive right-turn lane.

Note: Build 2 adds an additional thru lane in each direction.

Build Alternative 3

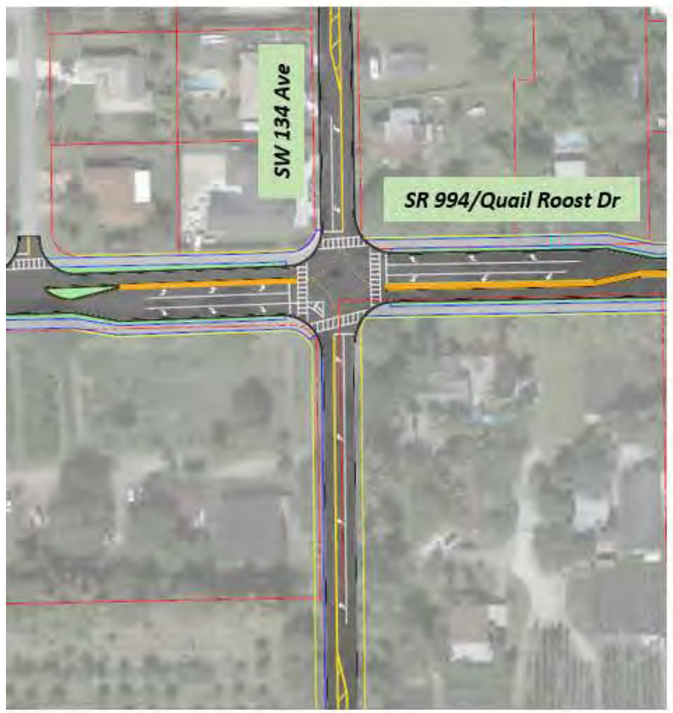


Same as Build 2.

Figure 36. Build Alternative Roadway Conditions at SW 135th Ave & SW 134th Ct

N

Build Alternative 1



EB Approach: Single left, single thru lane, and single right-turn.

WB Approach: Single left, single thru lane, and single right-turn.

NB Approach: Single left and single shared thru/right-turn lane.

SB Approach: Single left and single thru/right-turn lane.

Build Alternative 2

Note: Lane geometry differences with previous alternative are indicated in red.
Alternatives are cumulative.

EB Approach: Single left, dual thru lanes, and single right-turn.

WB Approach: Single left, dual thru lanes, and single right-turn.

NB Approach: Single left and single shared thru/right-turn lane.

SB Approach: Single left and single thru/right-turn lane.

Note: Build 2 adds an additional thru lane in each direction.

Build Alternative 3

Same as Build 2.

Figure 37. Build Alternative Roadway Conditions at SW 134th Ave

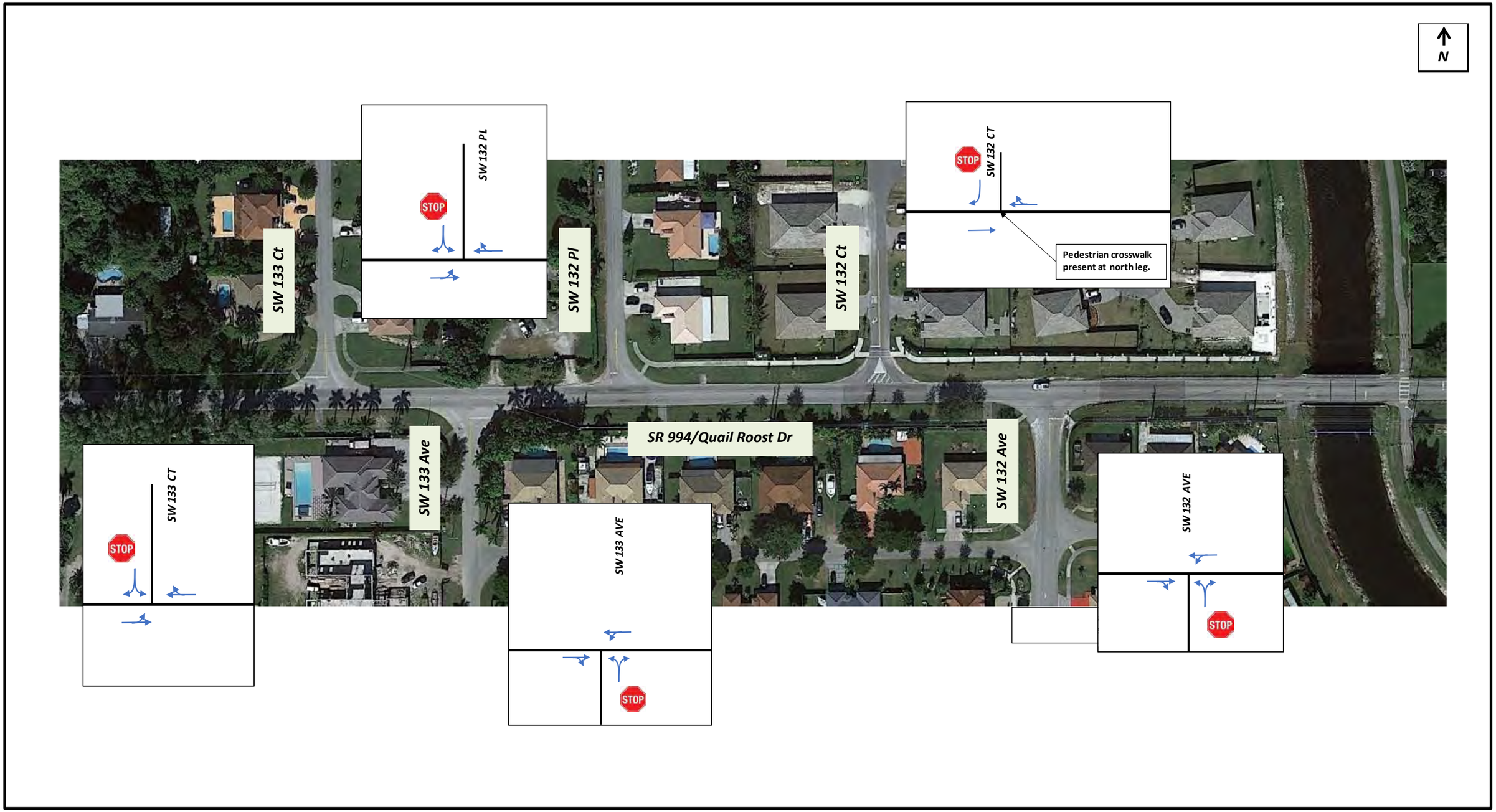
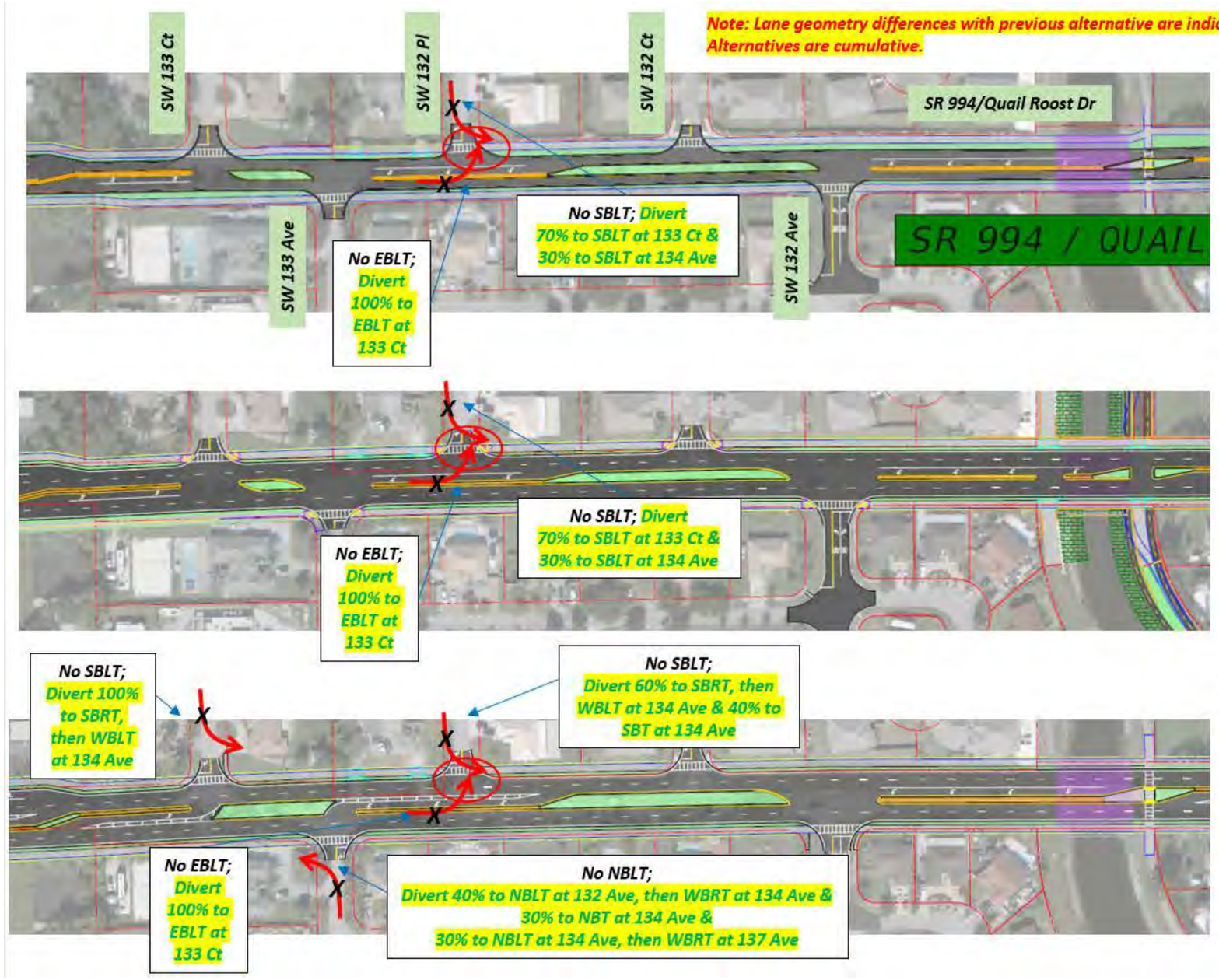


Figure 38. Existing & No Build Alternative Roadway Conditions from SW 133rd Ct to SW 132nd Ave



Build Alternative 1

EB Approach: Single shared thru/right-turn lane. At SW 133 Ct, an exclusive left-turn bay.

WB Approach: Single shared thru/right-turn lane. At SW 132 Ave and SW 133 Ave, an exclusive left-turn bay.

NB Approach: At SW 132 Ave, single right-turn lane and single left-turn lane. At SW 133 Ave, shared right/left-turn lane.

SB Approach: At SW 132 Ct and SW 132 Pl, exclusive right-turn lanes. At SW 133 Ct, shared right/left-turn lane.

Build Alternative 2

Same as Build 1.

Build Alternative 3

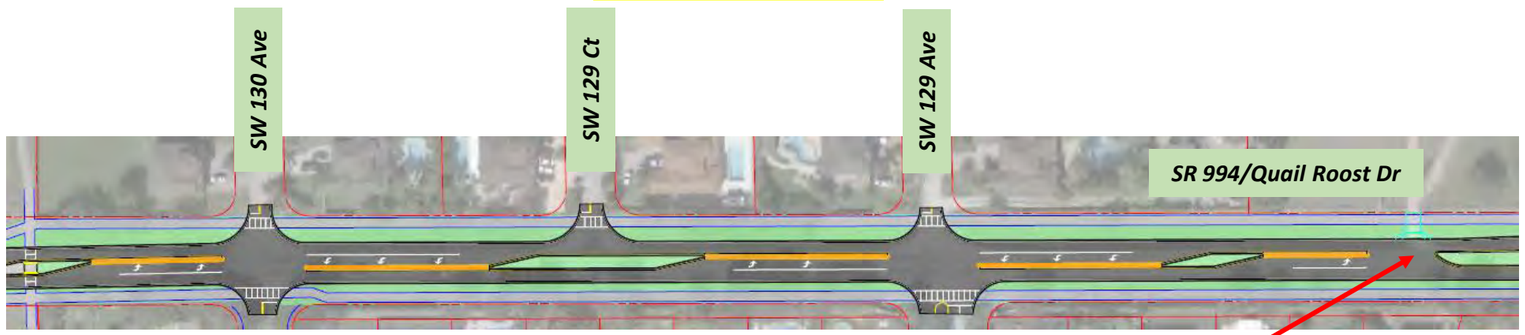
Same as Builds 1 and 2 but SBLT at SW 133 Ct and NBLT at SW 133 Ave are eliminated.

Figure 39. Build Alternative Roadway Conditions from SW 133rd Ct to SW 132nd Ave

Figure 40. Existing & No Build Alternative Roadway Conditions from SW 130th Ave to SW 129th Ave

Note: Lane geometry differences with previous alternative are indicated in red. Alternatives are cumulative.

N



Per recent FDOT coordination, this has been modified to EBLT movement only.

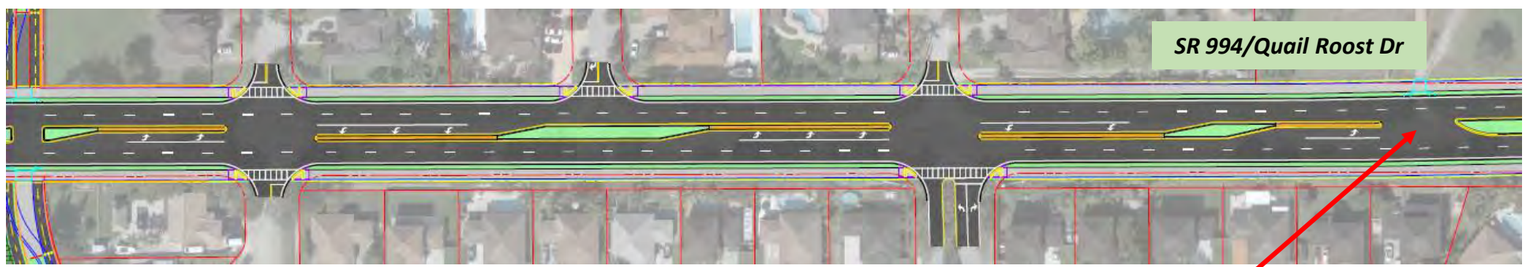
Build Alternative 1

EB Approach: Single shared thru/right-turn lane. At SW 130 Ave and SW 129 Ave, an exclusive left-turn bay.

WB Approach: Single shared thru/right-turn lane. At SW 130 Ave and SW 129 Ave, an exclusive left-turn bay.

NB Approach: At SW 129 Ave, single right-turn lane and single left-turn lane. At SW 130 Ave, shared right/left-turn lane.

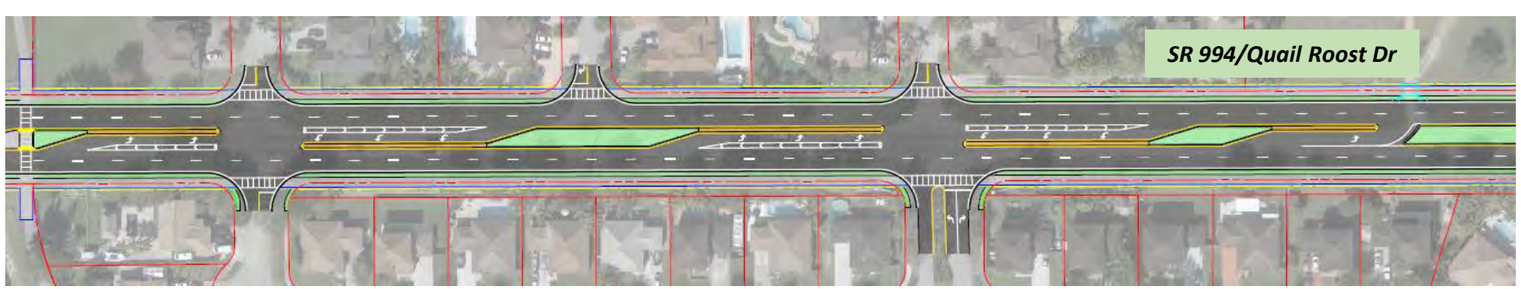
SB Approach: At SW 129 Ave and SW 130 Ave, shared right/thru/left-turn lane. At SW 129 Ct, exclusive right-turn lane.



Per recent FDOT coordination, this has been modified to EBLT movement only.

Build Alternative 2

Same as Build 1 but with an additional thru lane in each direction.



Build Alternative 3

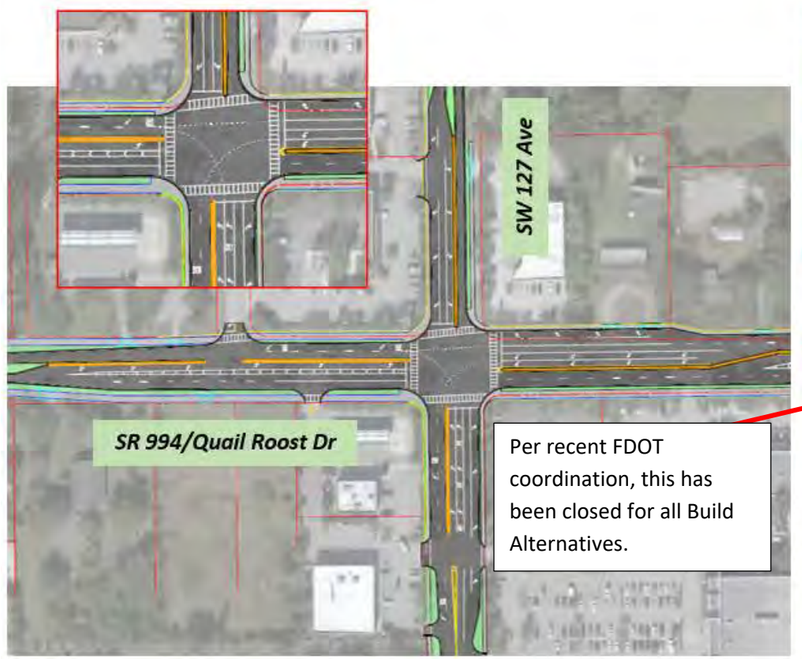
Same as Build 2.

Figure 41. Build Alternative Roadway Conditions from SW 130th Ave to SW 129th Ave

Figure 42. Existing & No Build Alternative Roadway Conditions at SW 127th Ave

N

Build Alternative 1



Per recent FDOT coordination, this has been closed for all Build Alternatives.

EB Approach: Single left, single thru lane, and single shared thru/right-turn lane.

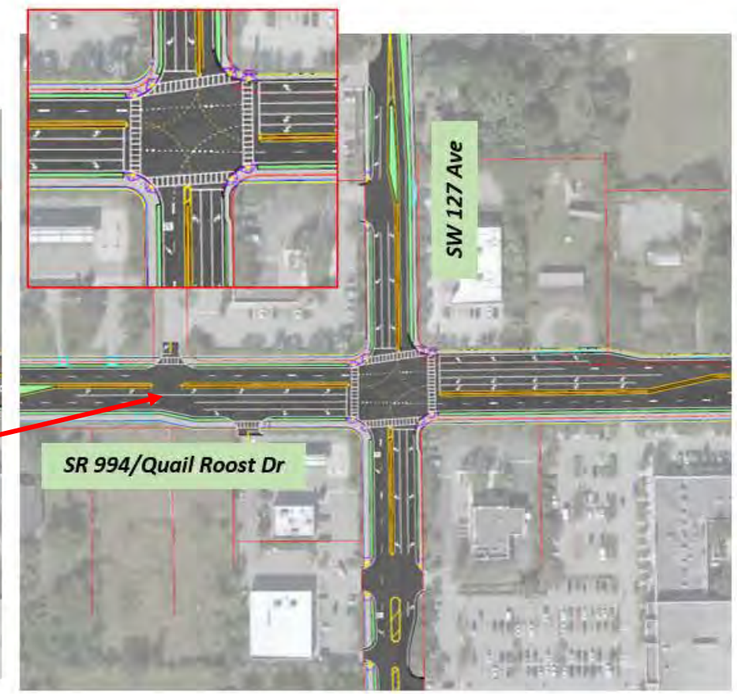
WB Approach: Dual lefts, dual thru lanes, and single right-turn.

NB Approach: Dual lefts, single thru lane, and single right-turn.

SB Approach: Single left, single thru lane, and single right-turn lane.

Build Alternative 2

Note: Lane geometry differences with previous alternative are indicated in red. Alternatives are cumulative.



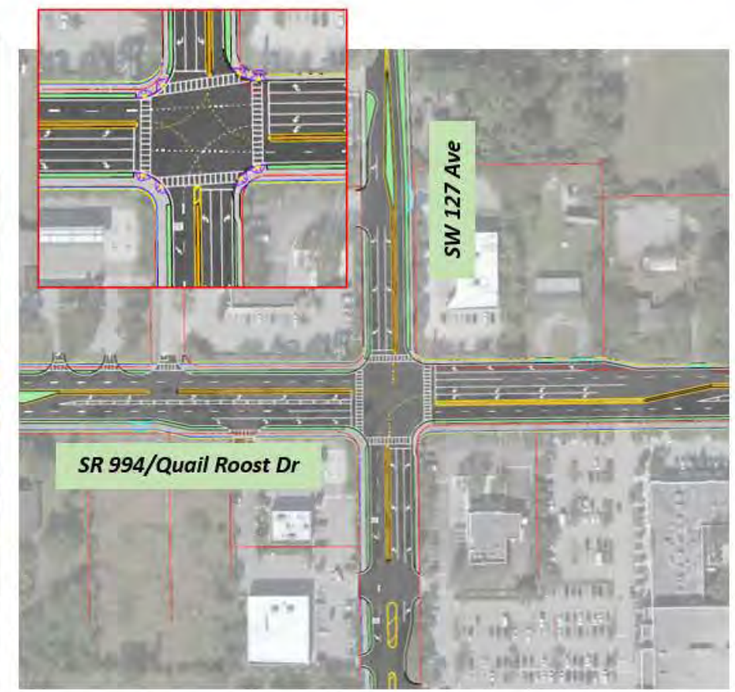
EB Approach: Single left, dual thru lanes, and single right-turn lane.

WB Approach: Dual lefts, dual thru lanes, and single right-turn.

NB Approach: Single left, single thru lane, and single right-turn.

SB Approach: Single left, single thru lane, and single right-turn lane.

Build Alternative 3



Same as Build 2.

Figure 43. Build Alternative Roadway Conditions at SW 127th Ave

Table 21. Build Alternatives 1 & 2 Traffic Volumes AM & PM Peak Hours

Intersection Approach	Movement	2045 Builds 1 & 2 - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	84	---	---	25	39	---	---	---	162	---	4	179
	Thru	561	1096	1107	1007	1188	1232	1360	1338	1463	1489	1477	1285
	Right	98	---	---	75	---	21	---	22	6	---	8	150
	Appr. Total	***743***	***1096***	***1107***	***1107***	***1227***	***1253***	***1360***	***1360***	***1631***	***1489***	***1489***	***1614***
Westbound	Left	278	---	--	98	---	17	---	88	2	---	22	271
	Thru	413	1069	1072	957	1114	1014	1018	999	984	1006	996	701
	Right	383	6	5	66	13	---	24	---	32	29	3	164
	Appr. Total	***1074***	***1075***	***1077***	***1121***	***1127***	***1031***	***1042***	***1087***	***1017***	***1035***	***1022***	***1136***
Northbound	Left	131	---	---	85	---	113	---	42	6	---	36	210
	Thru	521	---	---	23	---	---	---	---	1	---	---	180
	Right	243	---	---	139	---	125	---	294	5	---	75	294
	Appr. Total	***895***	***---***	***---***	***247***	***---***	***239***	***---***	***336***	***12***	***---***	***111***	***684***
Southbound	Left	292	--	--	81	65	---	---	---	20	---	8	84
	Thru	353	---	---	52	---	---	---	---	1	---	1	195
	Right	121	5	3	35	7	---	13	---	98	11	3	47
	Appr. Total	***766***	***5***	***3***	***168***	***72***	***---***	***13***	***---***	***119***	***11***	***12***	***326***
	Int. Total	***3478***	***2176***	***2187***	***2643***	***2426***	***2523***	***2415***	***2784***	***2780***	***2535***	***2634***	***3760***

Intersection Approach	Movement	2045 Builds 1 & 2 - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	51	---	---	33	13	---	---	---	60	---	2	92
	Thru	529	1232	1238	1112	1268	1292	1334	1260	1326	1348	1270	1091
	Right	88	---	---	93	---	13	---	74	8	---	76	193
	Appr. Total	***718***	***1232***	***1238***	***1238***	***1281***	***1305***	***1334***	***1334***	***1394***	***1348***	***1348***	***1376***
Westbound	Left	241	---	---	73	---	40	---	209	2	---	26	357
	Thru	347	877	883	781	912	907	940	927	1067	1084	1080	801
	Right	295	7	7	62	16	---	13	---	37	7	7	130
	Appr. Total	***883***	***884***	***890***	***916***	***928***	***946***	***954***	***1136***	***1106***	***1092***	***1112***	***1288***
Northbound	Left	109	---	---	76	---	22	---	27	2	---	9	168
	Thru	319	---	---	49	---	---	---	---	1	---	1	172
	Right	274	---	---	120	---	43	---	134	2	---	36	175
	Appr. Total	***702***	***---***	***---***	***245***	***---***	***64***	***---***	***161***	***5***	***---***	***46***	***515***
Southbound	Left	379	---	---	49	37	---	---	---	20	---	9	117
	Thru	626	---	---	29	---	---	---	---	4	---	1	247
	Right	123	6	1	33	3	---	6	---	67	22	3	71
	Appr. Total	***1128***	***6***	***1***	***111***	***40***	***---***	***6***	***---***	***91***	***22***	***13***	***435***
	Int. Total	***3431***	***2122***	***2129***	***2510***	***2249***	***2316***	***2294***	***2630***	***2597***	***2461***	***2520***	***3614***

Table 22. Build Alternative 3 Traffic Volumes AM & PM Peak Hours

Intersection Approach	Movement	2045 Build 3 - AM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	84	---	---	27	39	---	---	---	162	---	4	179
	Thru	560	1093	1096	994	1161	1140	1266	1243	1368	1393	1381	1189
	Right	98	---	---	75	---	21	---	22	6	---	8	150
	Appr. Total	***742***	***1093***	***1096***	***1096***	***1200***	***1161***	***1266***	***1265***	***1536***	***1393***	***1393***	***1518***
Westbound	Left	265	---	---	155	---	17	---	98	2	---	22	271
	Thru	393	1009	1004	889	1094	1107	1063	1000	994	1017	1007	701
	Right	365	6	5	66	13	---	24	---	32	29	3	164
	Appr. Total	***1023***	***1015***	***1009***	***1110***	***1107***	***1124***	***1087***	***1098***	***1028***	***1046***	***1032***	***1136***
Northbound	Left	131	---	---	85	---	---	---	87	6	---	36	210
	Thru	521	---	---	57	---	---	---	---	1	---	2	180
	Right	241	---	---	139	---	125	---	294	5	---	75	294
	Appr. Total	***893***	***---***	***---***	***281***	***---***	***125***	***---***	***381***	***12***	***---***	***113***	***684***
Southbound	Left	292	---	---	67	---	---	---	---	20	---	8	84
	Thru	377	---	---	87	---	---	---	---	1	---	1	195
	Right	121	13	11	35	16	---	61	---	98	11	3	47
	Appr. Total	***790***	***13***	***11***	***189***	***16***	***---***	***61***	***---***	***119***	***11***	***12***	***326***
	Int. Total	***3448***	***2121***	***2116***	***2676***	***2323***	***2410***	***2414***	***2744***	***2695***	***2450***	***2550***	***3664***

Intersection Approach	Movement	2045 Build 3 - PM Peak Hour Traffic Volumes											
		SW 137 AVE	SW 135 AVE	SW 134 CT	SW 134 AVE	SW 133 CT	SW 133 AVE	SW 132 PL	SW 132 AVE	SW 130 AVE	SW 129 CT	SW 129 AVE	SW 127 AVE
Eastbound	Left	51	---	---	34	13	---	---	---	60	---	2	92
	Thru	577	1229	1230	1103	1256	1243	1285	1211	1277	1299	1221	1042
	Right	88	---	---	93	---	13	---	74	8	---	76	193
	Appr. Total	***716***	***1229***	***1230***	***1230***	***1269***	***1256***	***1285***	***1285***	***1345***	***1299***	***1299***	***1327***
Westbound	Left	242	---	---	107	---	40	---	222	2	---	26	357
	Thru	346	870	870	768	921	938	949	928	1081	1098	1093	801
	Right	293	7	7	62	16	---	13	---	37	7	7	130
	Appr. Total	***881***	***877***	***877***	***937***	***937***	***978***	***962***	***1150***	***1120***	***1105***	***1126***	***1288***
Northbound	Left	109	---	---	76	---	---	---	36	2	---	9	168
	Thru	319	---	---	56	---	---	---	---	1	---	1	172
	Right	274	---	---	120	---	43	---	134	2	---	36	175
	Appr. Total	***702***	***---***	***---***	***252***	***---***	***43***	***---***	***170***	***5***	***---***	***46***	***515***
Southbound	Left	378	---	---	46	---	---	---	---	20	---	9	117
	Thru	640	---	---	46	---	---	---	---	4	---	1	247
	Right	123	11	8	33	15	---	28	---	67	22	3	71
	Appr. Total	***1141***	***11***	***8***	***125***	***15***	***---***	***28***	***---***	***91***	***22***	***13***	***435***
	Int. Total	***3440***	***2117***	***2115***	***2544***	***2221***	***2277***	***2275***	***2605***	***2561***	***2426***	***2484***	***3565***

7.4.1 Arterial Analysis Results

The study arterial for the existing conditions of SR 994 is operating at LOS C or better for both eastbound and westbound directions during the AM and PM hours as presented in **Tables 23** and **24**. The average vehicle speed for eastbound SR 994 during the AM and PM hours is 21-27 MPH, whereas in the westbound direction also for both s is slightly higher at 28-33 MPH. These speeds are lower than the 40 MPH posted speed limit for SR 994. If no improvements are implemented, the arterial operations of the study corridor for the westbound direction would degrade to LOS E for No Build conditions 2025 PM, LOS F for eastbound 2045 AM, and LOS E or worst for westbound 2045 AM and PM, as presented in **Tables 23** and **24**. The travel speeds decrease to 14 MPH or less with increased travel times. The total arterial travel time for westbound traffic under No Build conditions in 2025 PM increases from 1.6 minutes to 4.3 minutes. For eastbound traffic under No Build conditions in 2045 AM, the total arterial travel time increases from 2.6 minutes to 10.6 minutes. In 2045, for westbound traffic, the No Build conditions show an increase in total arterial travel time from 1.9 minutes to 8.5 minutes in the AM and from 1.6 minutes to 4 minutes in the PM.

Table 23. Existing & 2025 Arterial Operational Results AM & PM for SR 994

	Dir.	Peak Hour	MOE	EXISTING	NO BUILD 2025	BUILD 1 2025	BUILD 2 2025	BUILD 3 2025
2025	Eastbound	AM	LOS	C	F	C	C	C
			Speed (mph)	20	7	20	20	20
			Total Delay (hr)	18	59	17	17	17
			Travel Time (min)	3.4	9.4	4.2	4.2	4.2
		PM	LOS	C	F	D	C	C
			Speed (mph)	25	10	18	20	19
			Total Delay (hr)	10	35	18	14	14
			Travel Time (min)	2.7	7.0	4.2	3.8	3.9
	Westbound	AM	LOS	C	D	C	C	C
			Speed (mph)	22	16	20	21	20
			Total Delay (hr)	12	23	19	19	19
			Travel Time (min)	3.1	4.3	4.0	4.0	4.0
		PM	LOS	C	D	C	C	C
			Speed (mph)	28	17	19	20	20
			Total Delay (hr)	10	25	21	20	20
			Travel Time (min)	2.5	4.2	4.0	3.8	3.9
			Total Arterial Delay (hr)	50.0	142.0	75.0	70.0	70.0

Notes: Summarized results are based on Synchro.

With the implementation of the recommended improvements under the Build conditions, the arterial operations of the study corridor would improve to LOS D or better with increased speeds and lower travel times, as presented in **Tables 23** and **24**. Although all three Build alternatives are expected to significantly improve travel speeds during both the AM and PM peak hours in future years, Builds 2 and 3 are anticipated to provide approximately 3-5 MPH higher speeds when compared to Build 1.

With regards to arterial operations, Builds 2 and 3 have similar potential benefits while both being better than Build 1.

Table 24. Existing & 2045 Arterial Operational Results AM & PM for SR 994

	Dir.	Peak Hour	MOE	EXISTING	NO BUILD 2045	BUILD 1 2045	BUILD 2 2045	BUILD 3 2045
2045	Eastbound	AM	LOS	C	F	D	C	C
			Speed (mph)	20	7	18	19	19
			Total Delay (hr)	18	78	29	25	24
			Travel Time (min)	3.3	9.0	4.2	4.0	4.0
		PM	LOS	C	F	D	C	C
			Speed (mph)	25	8	16	18	18
			Total Delay (hr)	10	54	31	22	21
			Travel Time (min)	2.7	8.0	4.7	4.1	4.1
	Westbound	AM	LOS	C	D	C	C	C
			Speed (mph)	20	16	19	20	20
			Total Delay (hr)	12	36	28	25	25
			Travel Time (min)	3.1	4.3	4.0	3.8	3.9
		PM	LOS	C	D	C	C	C
			Speed (mph)	25	15	19	20	19
			Total Delay (hr)	10	58	27	27	27
			Travel Time (min)	2.5	4.6	4.1	3.9	4.0
			Total Arterial Delay (hr)	*50.0*	*226.0*	*115.0*	*99.0*	*97.0*

Notes: Summarized results are based on Synchro.

7.4.2 Intersection Analysis Results

It is essential to consider the timing and type of improvements under each Build alternative to understand the operational results and the changes to traffic patterns that these actions will bring. In other words, the benefits or decay in operations due to the implementation of the Build Alternatives are not linearly related but influenced by the modifications taking place at such time.

Build 1 includes capacity improvements at SW 137th Avenue and the opening of the south leg to traffic by the 2025 analysis year (the intersection leg actually opened in June 2022). Introduction of the south leg at SW 137th Avenue altered traffic patterns at SW 137th Avenue and SW 134th Avenue. Additionally, a County project to widen SW 137th Avenue from 2 lanes to 4 lanes is expected to be completed by 2030. While this project will improve traffic conditions by 2045, it will not affect conditions in the analysis year 2025. Starting with Build 1, the traffic control at the intersection of SW 134th Avenue will be upgraded to signal control. Additionally, capacity improvements will be implemented at the intersection of SW 127th Avenue. Under Build 2 and 3 alternatives, SR 994 is to be widened from 2 lanes to 4 lanes by FDOT. The primary difference between Build 2 and Build 3 is that Build 3 includes additional access management enhancements, which will divert traffic within the study corridor.

Signalized Intersection of SW 137th Avenue:

As previously presented in **Table 6**, this intersection is currently operating at LOS C or better with an overall average intersection delay of 33 seconds per vehicle or less during the AM and PM peak hours. At the beginning of this current study effort, the south leg at the intersection was under construction and closed to traffic. The south leg opened to traffic approximately in June 2022. Per the 2021 traffic data collected, all intersection movements are operating at LOS D or better, except the southbound left-turn movement at LOS F during the PM peak hour. The southbound left-turn movement is experiencing long vehicle queues and taking a few signal cycles for vehicles to complete the left-turn onto SR 994 eastbound during both peak hours. Additionally, the eastbound approach is experiencing long queues during the AM peak hour.

As presented in **Table 25**, with the increase in traffic expected in 2025, the level of service at this intersection under No Build conditions is expected to degrade to LOS F. Most intersection movements will operate at LOS F and experience long vehicular queues. The operations at the intersection will worsen by 2045. Signal timing improvements alone are not sufficient to mitigate the expected increase in traffic at the study intersection.

For the opening year 2025, operations at SW 137th Avenue are expected to show some improvement under Build 1. The overall average intersection delay per vehicle is projected to decrease from 119 to 65 seconds during the AM peak hour and from 159 to 121 seconds during the PM peak hour. Despite these improvements, the intersection level of service remains similar to No Build conditions at LOS E or worse. By 2045, further improvements in intersection operations are anticipated due to the widening of SW 137th Avenue. The overall average intersection delay per vehicle is expected to decrease from 217 to 61 seconds during the AM peak hour and from 135 to 79 seconds during the PM peak hour. However, the intersection level of service remains at E for both peak hours.

Although significant operational improvements are anticipated with both Build Alternatives 2 and 3, Build 2 is expected to experience lower vehicular delay. For the opening year 2025, the level of services for both alternatives are projected to be LOS D for the AM peak hour and LOS E for the PM peak hour. The overall average intersection delay per vehicle is 38 seconds for Build 2 and 41 seconds for Build 3 during the AM peak hour. For the PM peak hour, the overall average intersection delay per vehicle is 55 seconds for Build 2 and 65 seconds for Build 3. By year 2045, the intersection level of service improves to LOS D due to the widening of SW 137th Avenue. The overall average intersection delay per vehicle is 38 seconds for Build 2 and 40 seconds for Build 3 during the AM peak hour. For the PM peak hour, the overall average intersection delay per vehicle is 39 seconds for Build 2 and 43 seconds for Build 3.

To highlight the difference in total vehicular delays between Build 2 and Build 3, the total cumulative intersection vehicular delay for 2045 was calculated. For Build 2, the total delay is 36 hours during the AM and PM peak hours each, compared to 38 to 41 hours for Build 3 during the same periods, making Build 2 the better option at the intersection of SW 137th Avenue.

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Table 25. No Build & Build 1 Operational Results 2025 & 2045 AM & PM for SW 137th Ave

	NO BUILD - 2025							NO BUILD - 2045							BUILD 1 - 2025							BUILD 1 - 2045						
	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
AM Peak Hour	EBLT	70	*	*	*	*	*	EBLT	83	*	*	*	*	*	EBLT	71	56.1	1.1	53	0.44	E	EBLT	84	54.4	1.3	60	0.42	D
	EBT	401	68.3	10.7	707	1.01	E	EBT	450	398.4	71.8	736	1.80	F	EBT	519	146.5	24.3	917	1.19	F	EBT	561	151.3	27.7	1044	1.21	F
	EBRT	93	*	*	*	*	*	EBRT	116	*	*	*	*	*	EBRT	79	*	*	*	*	*	EBRT	98	*	*	*	*	*
	WBLT	201	*	*	*	*	*	WBLT	377	*	*	*	*	*	WBLT	219	53.4	3.2	127	0.60	D	WBLT	278	54.0	4.2	155	0.67	D
	WBT	390	93.5	15.3	770	1.09	F	WBT	434	345.7	77.9	830	1.69	F	WBT	379	37.8	4.0	442	0.65	D	WBT	413	35.3	4.0	515	0.66	D
	WBRT	245	15.6	1.1	93	0.24	B	WBRT	256	13.8	1.0	80	0.23	B	WBRT	244	18.5	1.3	24	0.10	B	WBRT	383	14.6	1.6	26	0.15	B
	NBLT	145	99.5	4.0	197	0.96	F	NBLT	181	71.3	3.6	222	0.88	E	NBLT	105	28.6	0.8	80	0.30	C	NBLT	131	37.8	1.4	97	0.48	D
	NBT	417	127.9	19.3	735	1.14	F	NBT	521	129.3	24.6	457	1.14	F	NBT	417	48.3	5.6	440	0.81	D	NBT	521	48.9	7.1	259	0.75	D
	NBRT	127	*	*	*	*	*	NBRT	165	*	*	*	*	*	NBRT	180	31.4	1.6	96	0.13	C	NBRT	243	39.3	2.7	65	0.16	D
	SBLT	137	137.7	5.2	207	1.07	F	SBLT	215	71.3	4.3	274	0.93	E	SBLT	178	53.6	2.7	107	0.57	D	SBLT	292	52.3	4.2	158	0.67	D
	SBT	283	271.6	32.4	677	1.47	F	SBT	353	117.2	11.5	352	1.10	F	SBT	283	61.0	4.8	358	0.89	E	SBT	353	39.5	3.9	165	0.67	D
	SBRT	146	*	*	*	*	*	SBRT	182	*	*	*	*	*	SBRT	97	26.2	0.7	30	0.07	C	SBRT	121	29.9	1.0	39	0.09	C
	Int	**2655**	**119.4**	**88.1**			F	**Int**	**3333**	**216.6**	**194.7**			F	**Int**	**2771**	**65.0**	**50.1**			E	**Int**	**3478**	**61.0**	**59.0**			E
PM Peak Hour	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
	EBLT	43	*	*	*	*	*	EBLT	51	*	*	*	*	*	EBLT	43	56.2	0.7	37	0.31	E	EBLT	51	56.1	0.8	42	0.35	E
	EBT	418	93.6	14.2	717	1.04	F	EBT	466	54.6	9.5	743	0.97	D	EBT	488	347.1	53.9	996	1.78	F	EBT	529	244.1	41.8	1049	1.53	F
	EBRT	87	*	*	*	*	*	EBRT	109	*	*	*	*	*	EBRT	71	*	*	*	*	*	EBRT	88	*	*	*	*	*
	WBLT	162	*	*	*	*	*	WBLT	218	*	*	*	*	*	WBLT	178	54.3	2.7	109	0.57	D	WBLT	241	54.8	3.7	140	0.65	D
	WBT	338	163.1	22.7	724	1.25	F	WBT	361	138.4	22.3	798	1.21	F	WBT	327	56.7	5.2	427	0.80	E	WBT	347	40.9	3.9	376	0.66	D
	WBRT	181	21.0	1.1	55	0.15	C	WBRT	286	16.4	1.3	108	0.28	B	WBRT	180	24.4	1.2	23	0.07	C	WBRT	295	16.6	1.4	22	0.12	B
	NBLT	138	133.4	5.1	204	1.07	F	NBLT	173	161.4	7.8	253	1.16	F	NBLT	87	21.3	0.5	57	0.27	C	NBLT	109	31.5	1.0	80	0.41	C
	NBT	256	37.7	4.2	389	0.69	D	NBT	319	45.2	6.3	230	0.65	D	NBT	256	26.7	1.9	233	0.37	C	NBT	319	36.1	3.2	159	0.36	D
	NBRT	148	*	*	*	*	*	NBRT	186	*	*	*	*	*	NBRT	214	23.9	1.4	53	0.14	C	NBRT	274	34.3	2.6	69	0.18	C
	SBLT	178	26.1	1.3	133	0.61	C	SBLT	278	97.3	7.5	333	1.04	F	SBLT	237	53.6	3.5	135	0.64	D	SBLT	379	52.9	5.6	199	0.74	D
	SBT	501	369.2	65.6	1000	1.71	F	SBT	626	302.5	67.2	606	1.55	F	SBT	501	134.8	18.8	705	1.18	F	SBT	626	54.4	9.5	364	0.93	D
	SBRT	139	*	*	*	*	*	SBRT	174	*	*	*	*	*	SBRT	98	18.0	0.5	26	0.07	B	SBRT	123	23.5	0.8	235	0.09	C
	Int	**2589**	**158.8**	**114.2**			F	**Int**	**3247**	**135.1**	**121.9**			F	**Int**	**2680**	**121.3**	**90.2**			F	**Int**	**3381**	**79.0**	**74.2**			E

Notes: “v/c” indicates volume over capacity; values greater than 1 indicates over capacity. “*” indicates movement is shared. “N/A” indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively.

Table 26. Build 2 & 3 Operational Results 2025 & 2045 AM & PM for SW 137th Ave

	BUILD 2 - 2025							BUILD 2 - 2045							BUILD 3 - 2025							BUILD 3 - 2045						
	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
AM Peak Hour	EBLT	71	56.1	1.1	53	0.44	E	EBLT	84	54.6	1.3	61	0.42	D	EBLT	71	56.1	1.1	53	0.44	E	EBLT	84	54.4	1.3	60	0.42	D
	EBT	519	44.1	7.3	457	0.71	D	EBT	562	36.5	6.7	405	0.64	D	EBT	518	43.3	7.2	449	0.70	D	EBT	560	36.5	6.7	423	0.64	D
	EBRT	79	*	*	*	*	*	EBRT	98	*	*	*	*	*	EBRT	79	*	*	*	*	*	EBRT	98	*	*	*	*	*
	WBLT	219	46.2	2.8	129	0.60	D	WBLT	278	44.1	3.4	135	0.67	D	WBLT	206	53.4	3.1	121	0.59	D	WBLT	265	53.5	3.9	147	0.65	D
	WBT	379	28.8	3.0	209	0.38	C	WBT	413	21.8	2.5	204	0.35	C	WBT	357	32.5	3.2	195	0.36	C	WBT	393	27.1	3.0	193	0.33	C
	WBRT	243	1.6	0.1	5	0.10	A	WBRT	383	10.6	1.1	107	0.18	B	WBRT	230	21.0	1.3	28	0.09	C	WBRT	365	14.9	1.5	27	0.14	B
	NBLT	105	54.8	1.6	73	0.45	D	NBLT	131	54.5	2.0	87	0.51	D	NBLT	105	54.8	1.6	73	0.45	D	NBLT	131	54.5	2.0	87	0.51	D
	NBT	417	39.4	4.6	370	0.72	D	NBT	521	47.9	6.9	254	0.73	D	NBT	417	39.4	4.6	370	0.72	D	NBT	521	47.4	6.9	252	0.72	D
	NBRT	181	28.2	1.4	36	0.12	C	NBRT	242	39.7	2.7	90	0.24	D	NBRT	181	28.2	1.4	45	0.12	C	NBRT	241	38.6	2.6	63	0.16	D
	SBLT	177	53.5	2.6	106	0.57	D	SBLT	292	52.8	4.3	158	0.67	D	SBLT	177	53.5	2.6	106	0.57	D	SBLT	292	52.8	4.3	158	0.67	D
	SBT	283	54.5	4.3	293	0.86	D	SBT	353	45.7	4.5	173	0.74	D	SBT	283	54.5	4.3	293	0.86	D	SBT	377	48.1	5.0	185	0.78	D
	SBRT	97	25.3	0.7	3	0.07	C	SBRT	121	32.6	1.1	20	0.09	C	SBRT	97	25.3	0.7	21	0.07	C	SBRT	121	32.3	1.1	41	0.09	C
	Int	**2770**	**38.4**	**29.6**			**D**	**Int**	**3478**	**37.7**	**36.4**			**D**	**Int**	**2721**	**41.1**	**31.1**			**D**	**Int**	**3448**	**39.9**	**38.2**			**D**
PM Peak Hour	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
	EBLT	43	56.2	0.7	53	0.31	E	EBLT	51	56.1	0.8	42	0.60	E	EBLT	43	56.2	0.7	37	0.31	E	EBLT	51	56.1	0.8	42	0.35	E
	EBT	488	70.1	10.9	457	0.94	E	EBT	529	54.8	9.4	445	0.36	D	EBT	487	94.2	14.6	407	1.03	F	EBT	527	61.2	10.5	409	0.89	E
	EBRT	71	*	*	*	*	*	EBRT	88	*	*	*	*	*	EBRT	71	*	*	*	*	*	EBRT	88	*	*	*	*	*
	WBLT	178	53.4	2.6	129	0.55	D	WBLT	242	50.7	3.4	145	0.74	D	WBLT	177	53.5	2.6	107	0.55	D	WBLT	242	54.2	3.6	139	0.64	D
	WBT	327	39.4	3.6	209	0.42	D	WBT	347	33.5	3.2	192	0.37	C	WBT	325	43.5	3.9	176	0.48	D	WBT	346	36.6	3.5	176	0.40	D
	WBRT	180	20.5	1.0	5	0.07	C	WBRT	294	1.3	0.1	3	0.18	A	WBRT	179	22.9	1.1	25	0.07	C	WBRT	293	2.5	0.2	6	0.12	A
	NBLT	87	19.6	0.5	73	0.14	B	NBLT	109	26.8	0.8	30	0.22	C	NBLT	87	54.5	1.3	62	0.39	D	NBLT	109	53.8	1.6	73	0.43	D
	NBT	256	26.8	1.9	370	0.37	C	NBT	319	32.8	2.9	141	0.37	C	NBT	256	23.8	1.7	220	0.34	C	NBT	319	31.3	2.8	146	0.30	C
	NBRT	214	24.0	1.4	36	0.14	C	NBRT	274	31.4	2.4	61	0.73	C	NBRT	214	21.5	1.3	50	0.14	C	NBRT	274	30.1	2.3	63	0.18	C
	SBLT	237	53.4	3.5	106	0.63	D	SBLT	379	51.9	5.5	195	0.80	D	SBLT	236	53.5	3.5	134	0.64	D	SBLT	378	54.2	5.7	203	0.76	D
	SBT	501	155.1	21.6	293	1.23	F	SBT	626	39.8	6.9	283	0.85	D	SBT	501	123.9	17.2	705	1.16	F	SBT	640	51.3	9.1	387	0.92	D
	SBRT	98	19.1	0.5	3	0.07	B	SBRT	123	20.8	0.7	16	0.09	C	SBRT	98	17.3	0.5	21	0.07	B	SBRT	123	22.5	0.8	39	0.09	C
	Int	**2680**	**54.9**	**48.2**			**E**	**Int**	**3381**	**38.5**	**36.1**			**D**	**Int**	**2674**	**65.3**	**48.5**			**E**	**Int**	**3390**	**43.4**	**40.9**			**D**

Notes: “v/c” indicates volume over capacity; values greater than 1 indicates over capacity. “*” indicates movement is shared. “N/A” indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively.

Stopped-Control Intersection (to be upgraded to signal control) of SW 134th Avenue:

As previously presented in **Table 6**, the through movements on SR 994 are currently free and not under traffic control. Although the eastbound and westbound left-turn volumes are low, vehicles would block the single through lanes on SR 994 when turning left due to the lack of exclusive left-turn lanes. Based on the HCM methodology, the eastbound and westbound left-turns are serviced at LOS B or better. The critical movements are the northbound and southbound single lane approaches operating under stop control at LOS F with excessive delay, except the southbound approach during the PM peak hour operating at LOS D.

As presented in **Table 27**, with the increase in traffic expected in 2025, the level of service at this intersection under No Build conditions is expected to further degrade. The service level might be rated as F due to poor traffic flow on side streets, as the HCM 6th methodology does not account for this due to east and west directions being in free flow conditions. The operations at the intersection will worsen by 2045.

With the implementation of any of the Build alternatives, the overall intersection operation during the AM and PM peak hours is improved to LOS C or better in 2025 and 2045 (from estimated LOS F) as seen in **Tables 27** and **28**. The intersection is upgraded to signal control under the Build alternatives. The overall average intersection delay per vehicle is expected to be 10 to 33 seconds with any of the alternatives. Build 2 and 3 seem to provide better operational benefits when compared to Build 1 with an average vehicular delay of 15 seconds vs. 25 seconds during each peak hour.

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Table 27. No Build & Build 1 Operational Results 2025 & 2045 AM & PM for SW 134th Ave

	NO BUILD 2025 (STOP CONTROL)							NO BUILD 2045 (STOP CONTROL)							BUILD 1 2025							BUILD 1 2045						
	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
AM Peak Hour	EBLT	14	10.3	0.0	0	0.02	B	EBLT	18	11.7	0.1	0	0.03	B	EBLT	20	12.3	0.1	22	0.06	B	EBLT	25	24.9	0.2	15	0.12	C
	EBT	626	0.0	0.0	N/A	N/A	N/A	EBT	774	0.0	0.0	N/A	N/A	N/A	EBT	823	15.9	3.6	641	0.72	B	EBT	1007	35.4	9.9	931	0.95	D
	EBRT	38	N/A	N/A	N/A	N/A	N/A	EBRT	56	N/A	N/A	N/A	N/A	N/A	EBRT	42	5.0	0.1	0	0.04	A	EBRT	75	6.8	0.1	18	0.07	A
	WBLT	74	9.2	0.2	0	0.08	A	WBLT	74	10.1	0.2	0	0.10	B	WBLT	79	12.5	0.3	37	0.24	B	WBLT	98	32.3	0.9	88	0.61	D
	WBT	765	0.0	0.0	N/A	N/A	N/A	WBT	815	0.0	0.0	N/A	N/A	N/A	WBT	765	8.2	1.7	456	0.58	A	WBT	957	14.2	3.8	735	0.76	B
	WBRT	50	N/A	N/A	N/A	N/A	N/A	WBRT	63	N/A	N/A	N/A	N/A	N/A	WBRT	53	3.9	0.1	9	0.05	A	WBRT	66	5.0	0.1	14	0.06	A
	NBLT	44	*	*	*	*	*	NBLT	66	*	*	*	*	*	NBLT	51	48.7	0.7	69	0.34	D	NBLT	85	48.4	1.1	103	0.44	D
	NBT	18	47.1	2.2	103	0.70	E	NBT	22	468.7	28.5	396	1.84	F	NBT	19	49.0	1.8	65	0.57	D	NBT	23	46.4	2.1	74	0.57	D
	NBRT	105	*	*	*	*	*	NBRT	131	*	*	*	*	*	NBRT	111	*	*	*	*	*	NBRT	139	*	*	*	*	*
	SBLT	46	*	*	*	*	*	SBLT	57	*	*	*	*	*	SBLT	65	56.6	1.0	96	0.45	E	SBLT	81	56.1	1.3	114	0.50	E
	SBT	42	77.0	2.5	106	0.76	F	SBT	42	481.3	17.0	255	1.76	F	SBT	42	59.5	1.2	82	0.63	E	SBT	52	53.8	1.3	101	0.65	D
	SBRT	28	*	*	*	*	*	SBRT	28	*	*	*	*	*	SBRT	28	*	*	*	*	*	SBRT	35	*	*	*	*	*
	Int	**1850**	**9.5**	**4.9**			****E**	**Int**	**2146**	**71.5**	**45.8**			****F**	**Int**	**2098**	**18.0**	**10.5**			**B**	**Int**	**2643**	**28.3**	**20.8**			**C**
PM Peak Hour	**Movement**	**Vol (vph)**	**Delay (sec/veh)**	**Delay (veh-hr)**	**95th % Q (ft)**	**v/c**	**LOS**	**Movement**	**Vol (vph)**	**Delay (sec/veh)**	**Delay (veh-hr)**	**95th % Q (ft)**	**v/c**	**LOS**	**Movement**	**Vol (vph)**	**Delay (sec/veh)**	**Delay (veh-hr)**	**95th % Q (ft)**	**v/c**	**LOS**	**Movement**	**Vol (vph)**	**Delay (sec/veh)**	**Delay (veh-hr)**	**95th % Q (ft)**	**v/c**	**LOS**
	EBLT	20	9.7	0.1	0	0.03	B	EBLT	25	10.5	0.1	0	0.04	B	EBLT	26	8.0	0.1	26	0.06	A	EBLT	33	14.5	0.1	33	0.11	B
	EBT	685	0.0	0.0	N/A	N/A	N/A	EBT	850	0.0	0.0	N/A	N/A	N/A	EBT	909	17.5	4.4	1036	0.78	B	EBT	959	49.0	13.1	1027	1.01	D
	EBRT	51	N/A	N/A	N/A	N/A	N/A	EBRT	70	N/A	N/A	N/A	N/A	N/A	EBRT	55	4.9	0.1	9	0.05	A	EBRT	253	5.8	0.4	31	0.09	A
	WBLT	54	9.3	0.1	0	0.06	A	WBLT	68	10.6	0.2	0	0.10	A	WBLT	58	14.1	0.2	31	0.20	B	WBLT	73	37.9	0.8	60	0.59	D
	WBT	623	0.0	0.0	N/A	N/A	N/A	WBT	779	0.0	0.0	N/A	N/A	N/A	WBT	625	5.8	1.0	344	0.46	A	WBT	781	9.1	2.0	447	0.60	A
	WBRT	46	N/A	N/A	N/A	N/A	N/A	WBRT	57	N/A	N/A	N/A	N/A	N/A	WBRT	49	3.3	0.0	8	0.04	A	WBRT	62	4.3	0.1	11	0.06	A
	NBLT	35	*	*	*	*	*	NBLT	58	*	*	*	*	*	NBLT	41	50.8	0.6	57	0.29	D	NBLT	234	48.7	3.2	97	0.44	D
	NBT	37	36.5	1.6	81	0.61	E	NBT	46	289.9	17.5	323	1.46	F	NBT	39	53.3	2.0	81	0.67	D	NBT	49	50.0	2.3	123	0.68	D
	NBRT	90	*	*	*	*	*	NBRT	113	*	*	*	*	*	NBRT	96	*	*	*	*	*	NBRT	120	*	*	*	*	*
	SBLT	30	*	*	*	*	*	SBLT	38	*	*	*	*	*	SBLT	38	58.0	0.6	66	0.33	E	SBLT	49	57.1	0.8	79	0.39	E
	SBT	23	36.5	0.8	44	0.43	E	SBT	29	227.6	6.3	158	1.16	F	SBT	23	60.8	0.8	58	0.56	E	SBT	29	57.7	1.0	67	0.56	E
	SBRT	26	*	*	*	*	*	SBRT	33	*	*	*	*	*	SBRT	26	*	*	*	*	*	SBRT	33	*	*	*	*	*
	Int	**1720**	**5.5**	**2.6**			****E**	**Int**	**2166**	**40.0**	**24.1**			****F**	**Int**	**1985**	**17.8**	**9.8**			**B**	**Int**	**2675**	**33.5**	**23.7**			**C**

Notes: "v/c" indicates volume over capacity; values greater than 1 indicates over capacity. "*" indicates movement is shared. "**" LOS estimated per intersection delay obtained from analysis since it is not determined by software. For No Build, SW 134th Avenue is under stopped control. "N/A" indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively.

Table 28. Build 2 & 3 Operational Results 2025 & 2045 AM & PM for SW 134th Ave

	BUILD 2 2025							BUILD 2 2045							BUILD 3 2025							BUILD 3 2045						
	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
AM Peak Hour	EBLT	20	8.7	0.0	29	0.05	A	EBLT	25	9.2	0.1	35	0.08	A	EBLT	22	7.7	0.0	31	0.05	A	EBLT	27	9.4	0.1	38	0.08	A
	EBT	665	11.4	2.1	418	0.41	B	EBT	1009	11.0	3.1	518	0.48	B	EBT	812	10.1	2.3	420	0.39	B	EBT	994	12.0	3.3	514	0.49	B
	EBRT	207	6.8	0.4	15	0.04	A	EBRT	73	5.1	0.1	49	0.07	A	EBRT	42	5.9	0.1	22	0.04	A	EBRT	75	5.8	0.1	59	0.07	A
	WBLT	79	7.7	0.2	39	0.19	A	WBLT	98	7.8	0.2	58	0.27	A	WBLT	124	7.0	0.2	69	0.28	A	WBLT	155	9.3	0.4	90	0.42	A
	WBT	765	6.5	1.4	164	0.32	A	WBT	957	6.3	1.7	274	0.39	A	WBT	710	5.3	1.0	182	0.29	A	WBT	889	6.6	1.6	258	0.37	A
	WBRT	53	5.0	0.1	12	0.05	A	WBRT	66	4.5	0.1	19	0.06	A	WBRT	53	4.2	0.1	11	0.05	A	WBRT	66	4.8	0.1	20	0.06	A
	NBLT	170	46.2	2.2	68	0.26	D	NBLT	85	45.5	1.1	89	0.43	D	NBLT	51	48.0	0.7	62	0.36	D	NBLT	85	45.0	1.1	87	0.46	D
	NBT	19	62.3	2.2	75	0.83	E	NBT	23	46.3	2.1	62	0.58	D	NBT	47	48.2	2.1	89	0.63	D	NBT	57	46.5	2.5	113	0.65	D
	NBRT	111	*	*	*	*	*	NBRT	139	*	*	*	*	*	NBRT	111	*	*	*	*	*	NBRT	139	*	*	*	*	*
	SBLT	65	46.9	0.8	80	0.41	D	SBLT	81	55.9	1.3	113	0.50	E	SBLT	54	56.4	0.8	82	0.40	E	SBLT	67	56.2	1.0	95	0.46	E
	SBT	42	51.8	1.0	84	0.43	D	SBT	52	56.9	1.4	100	0.63	E	SBT	70	62.5	1.7	121	0.76	E	SBT	87	59.6	2.0	145	0.77	E
	SBRT	28	*	*	*	*	*	SBRT	35	*	*	*	*	*	SBRT	28	*	*	*	*	*	SBRT	35	*	*	*	*	*
	Int	**2224**	**15.6**	**10.5**			**B**	**Int**	**2643**	**15.0**	**11.0**			**B**	**Int**	**2124**	**15.5**	**9.1**			**B**	**Int**	**2676**	**16.5**	**12.3**			**B**
PM Peak Hour	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
	EBLT	26	6.2	0.0	23	0.06	A	EBLT	33	6.9	0.1	14	0.09	A	EBLT	27	6.5	0.0	24	0.06	A	EBLT	34	7.1	0.1	32	0.09	A
	EBT	767	8.5	1.8	428	0.41	A	EBT	1112	10.1	3.1	553	0.51	B	EBT	902	8.8	2.2	405	0.41	A	EBT	1103	10.3	3.2	552	0.51	B
	EBRT	202	4.9	0.3	24	0.05	A	EBRT	93	4.6	0.1	36	0.09	A	EBRT	55	5.1	0.1	22	0.05	A	EBRT	93	4.7	0.1	35	0.09	A
	WBLT	58	5.5	0.1	31	0.14	A	WBLT	73	7.1	0.1	40	0.22	A	WBLT	85	5.8	0.1	43	0.20	A	WBLT	107	7.7	0.2	56	0.31	A
	WBT	625	4.0	0.7	133	0.24	A	WBT	781	4.9	1.1	185	0.31	A	WBT	615	4.1	0.7	133	0.24	A	WBT	768	4.9	1.0	186	0.30	A
	WBRT	49	3.3	0.0	8	0.04	A	WBRT	62	3.7	0.1	16	0.05	A	WBRT	49	3.3	0.0	8	0.04	A	WBRT	62	3.8	0.1	16	0.05	A
	NBLT	187	50.4	2.6	57	0.29	D	NBLT	76	47.4	1.0	87	0.40	D	NBLT	41	50.3	0.6	56	0.31	D	NBLT	76	47.6	1.0	86	0.43	D
	NBT	39	52.9	2.0	80	0.67	D	NBT	49	50.0	2.3	98	0.68	D	NBT	44	52.8	2.1	83	0.67	D	NBT	56	50.2	2.5	114	0.69	D
	NBRT	96	*	*	*	*	*	NBRT	120	*	*	*	*	*	NBRT	96	*	*	*	*	*	NBRT	120	*	*	*	*	*
	SBLT	38	57.5	0.6	66	0.33	E	SBLT	49	57.1	0.8	79	0.39	E	SBLT	37	57.4	0.6	64	0.32	E	SBLT	46	57.1	0.7	73	0.37	E
	SBT	23	60.5	0.8	58	0.56	E	SBT	29	58.0	1.0	67	0.57	E	SBT	36	63.3	1.1	75	0.68	E	SBT	46	60.8	1.3	93	0.69	E
	SBRT	26	*	*	*	*	*	SBRT	33	*	*	*	*	*	SBRT	26	*	*	*	*	*	SBRT	33	*	*	*	*	*
	Int	**2136**	**12.8**	**9.0**			**B**	**Int**	**2510**	**13.9**	**9.7**			**B**	**Int**	**2013**	**13.4**	**7.5**			**B**	**Int**	**2544**	**14.4**	**10.2**			**B**

Notes: Notes: “v/c” indicates volume over capacity; values greater than 1 indicates over capacity. “*” indicates movement is shared. “N/A” indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively.

Signalized Intersection of SW 127th Avenue:

As previously presented in **Table 6**, this intersection is currently operating at LOS D with an overall average intersection delay of approximately 44 to 51 seconds per vehicle during the AM and PM peak hours, respectively. The northbound approach is serviced at LOS F and experiences significant queues, due to the high volume (315 vehicles) of right turns during the AM peak hour. Although the right-turn volume decreases during the PM peak hour, the northbound through movement is being serviced at LOS E due to the single lane operation and signal progression priority of SR 994 over SW 127th Avenue. The southbound through movement experiences an increase in delay due to the slightly higher volume during the PM peak hour when compared to the earlier period.

As presented in **Table 29**, with the increase in traffic expected in 2025, the level of service at this intersection under No Build conditions is expected to be maintained at LOS D. This is possible due to the northbound right-turn to be constructed by the County and optimization of the intersection timing splits. However, the operations at the intersection will worsen by 2045 to LOS F. Further signal timing improvements alone are not sufficient to mitigate the expected increase in traffic at the study intersection.

With the implementation of any of the Build alternatives, the overall intersection operation during the AM and PM peak hours is improved to LOS C or better in 2025 and 2045 (from LOS F) as seen in **Tables 29** and **30**. The overall average intersection delay per vehicle is expected to be approximately 35 to 50 seconds with any of the alternatives. Although some intersection movements are expected to operate at LOS E, the vehicular queues are moderate. The overall benefits at this intersection are similar under any of the Build alternatives since the improvements are very similar.

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Table 29. No Build & Build 1 Operational Results 2025 & 2045 AM & PM for SW 127th Ave

	NO BUILD 2025							NO BUILD 2045							BUILD 1 2025							BUILD 1 2045						
	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
AM Peak Hour	EBLT	126	22.8	0.8	111	0.31	C	EBLT	157	29.9	1.3	126	0.44	C	EBLT	143	14.5	0.6	97	0.32	B	EBLT	179	18.9	0.9	126	0.48	B
	EBT	897	42.2	10.5	740	0.71	D	EBT	1112	113.3	35.0	974	1.08	F	EBT	1043	29.5	8.5	694	0.69	C	EBT	1285	58.7	21.0	1033	0.95	E
	EBRT	106	42.1	1.2	*	0.71	D	EBRT	132	114.7	4.2	*	1.09	F	EBRT	120	29.5	1.0	*	0.69	C	EBRT	150	60.7	2.5	*	0.96	E
	WBLT	266	42.5	3.1	353	0.87	D	WBLT	333	120.2	11.1	559	1.06	F	WBLT	217	67.2	4.1	145	0.80	E	WBLT	271	70.8	5.3	177	0.84	E
	WBT	498	25.6	3.5	252	0.31	C	WBT	622	31.4	5.4	304	0.42	C	WBT	560	17.7	2.8	240	0.31	B	WBT	701	23.9	4.7	318	0.43	C
	WBRT	161	21.3	1.0	42	0.20	C	WBRT	201	24.3	1.4	41	0.27	C	WBRT	131	13.1	0.5	33	0.15	B	WBRT	164	17.0	0.8	37	0.20	B
	NBLT	201	58.4	3.3	222	0.80	E	NBLT	251	101.5	7.1	430	0.99	F	NBLT	168	68.2	3.2	118	0.77	E	NBLT	210	67.2	3.9	142	0.80	E
	NBT	219	50.0	3.0	272	0.48	D	NBT	274	55.3	4.2	367	0.58	E	NBT	144	54.0	2.2	185	0.49	D	NBT	180	50.8	2.5	221	0.51	D
	NBRT	356	79.4	7.9	134	0.93	E	NBRT	445	145.7	18.0	328	1.14	F	NBRT	235	49.1	3.2	169	0.65	D	NBRT	294	46.0	3.8	230	0.68	D
	SBLT	104	53.7	1.6	119	0.46	D	SBLT	130	53.4	1.9	154	0.58	D	SBLT	67	48.4	0.9	83	0.32	D	SBLT	84	44.9	1.0	95	0.36	D
	SBT	241	79.6	6.4	411	0.88	E	SBT	301	130.3	13.1	648	1.07	F	SBT	156	58.9	2.6	214	0.60	E	SBT	195	57.6	3.1	262	0.63	E
	SBRT	50	*	*	*	*	*	SBRT	62	*	*	*	*	*	SBRT	38	52.6	0.6	0	0.17	D	SBRT	47	49.5	0.6	0	0.17	D
	Int	**3225**	**47.2**	**42.3**			**D**	**Int**	**4020**	**92.2**	**102.8**			**F**	**Int**	**3022**	**35.7**	**29.9**			D	**Int**	**3760**	**48.4**	**50.2**			D
PM Peak Hour	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
	EBLT	62	28.8	0.5	59	0.17	C	EBLT	77	32.4	0.7	72	0.26	C	EBLT	74	14.3	0.3	57	0.17	B	EBLT	92	18.5	0.5	75	0.27	B
	EBT	725	48.2	9.7	641	0.70	D	EBT	900	82.3	20.6	811	0.97	F	EBT	848	25.7	6.1	583	0.59	C	EBT	1091	44.5	13.5	997	0.85	D
	EBRT	128	48.2	1.7	*	0.70	D	EBRT	160	82.6	3.7	*	0.97	F	EBRT	155	25.7	1.1	*	0.59	C	EBRT	193	45.2	2.4	*	0.86	D
	WBLT	346	51.4	4.9	460	0.94	D	WBLT	433	224.7	27.0	809	1.34	F	WBLT	286	65.9	5.2	182	0.83	E	WBLT	357	60.1	6.0	219	0.86	E
	WBT	570	26.2	4.1	269	0.35	C	WBT	712	30.7	6.1	371	0.46	C	WBT	641	14.5	2.6	274	0.32	B	WBT	801	18.7	4.2	373	0.44	B
	WBRT	125	17.1	0.6	29	0.15	B	WBRT	156	23.4	1.0	41	0.21	C	WBRT	104	9.0	0.3	25	0.10	A	WBRT	130	11.0	0.4	30	0.14	B
	NBLT	164	62.8	2.9	234	0.81	E	NBLT	205	77.7	4.4	313	0.91	E	NBLT	134	69.2	2.6	99	0.74	E	NBLT	168	64.2	3.0	120	0.78	E
	NBT	208	52.9	3.1	288	0.49	D	NBT	260	46.4	3.4	324	0.50	D	NBT	138	61.7	2.4	184	0.64	E	NBT	172	55.6	2.7	216	0.65	E
	NBRT	212	56.5	3.3	71	0.60	E	NBRT	265	49.7	3.7	69	0.61	D	NBRT	140	47.1	1.8	43	0.42	D	NBRT	175	41.4	2.0	66	0.44	D
	SBLT	146	43.0	1.7	164	0.48	D	SBLT	183	66.0	3.4	201	0.74	E	SBLT	94	50.6	1.3	107	0.46	D	SBLT	117	45.7	1.5	121	0.51	D
	SBT	308	88.1	9.3	576	0.95	F	SBT	385	177.3	23.4	861	1.21	F	SBT	198	69.5	3.8	257	0.86	E	SBT	247	57.6	4.0	309	0.88	E
	SBRT	73	*	*	*	*	*	SBRT	91	*	*	*	*	*	SBRT	57	55.9	0.9	*	0.29	E	SBRT	71	52.0	1.0	0	0.29	E
	Int	**3067**	**49.2**	**41.9**			**D**	**Int**	**3827**	**91.6**	**97.3**			**F**	**Int**	**2869**	**35.6**	**28.3**			D	**Int**	**3614**	**43.3**	**41.0**			D

Notes: “v/c” indicates volume over capacity; values greater than 1 indicates over capacity. “*” indicates movement is shared. “N/A” indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively.

Table 30. Build 2 & 3 Operational Results 2025 & 2045 AM & PM for SW 127th Ave

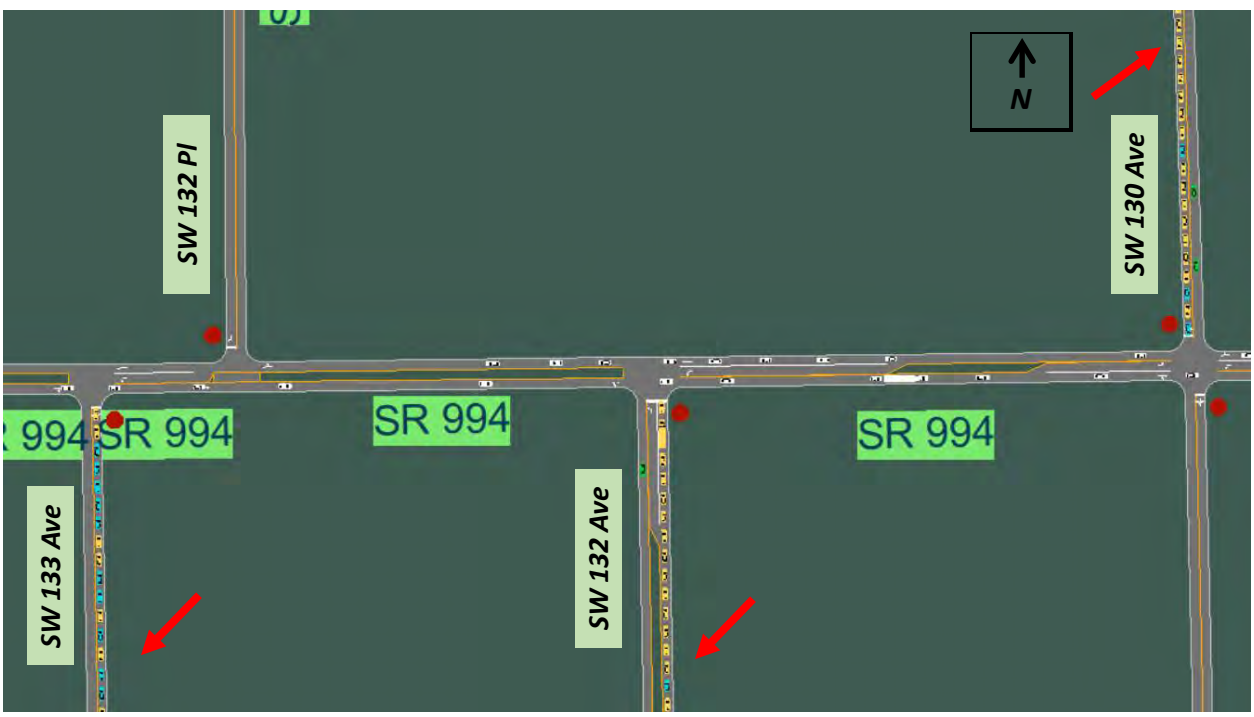
	BUILD 2 2025							BUILD 2 2045							BUILD 3 2025							BUILD 3 2045						
	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
AM Peak Hour	EBLT	143	14.5	0.6	100	0.32	B	EBLT	179	18.8	0.9	117	0.48	B	EBLT	143	14.5	0.6	100	0.32	B	EBLT	179	18.9	0.9	122	0.48	B
	EBT	1043	25.5	7.4	562	0.62	C	EBT	1284	39.9	14.2	801	0.86	D	EBT	969	24.4	6.6	507	0.58	C	EBT	1189	36.3	12.0	724	0.80	D
	EBRT	120	18.2	0.6	12	0.17	B	EBRT	150	23.6	1.0	34	0.24	C	EBRT	120	18.2	0.6	12	0.17	B	EBRT	150	23.6	1.0	35	0.24	C
	WBLT	217	68.2	4.1	146	0.81	E	WBLT	271	72.4	5.5	179	0.84	E	WBLT	217	68.2	4.1	146	0.81	E	WBLT	271	72.4	5.5	179	0.84	E
	WBT	560	17.7	2.8	240	0.31	B	WBT	701	23.7	4.6	301	0.43	C	WBT	560	17.7	2.8	240	0.31	B	WBT	701	23.8	4.6	310	0.43	C
	WBRT	131	13.0	0.5	31	0.15	B	WBRT	164	16.7	0.8	34	0.20	B	WBRT	131	13.0	0.5	31	0.15	B	WBRT	164	16.8	0.8	34	0.20	B
	NBLT	168	51.0	2.4	183	0.68	D	NBLT	210	55.0	3.2	249	0.76	D	NBLT	168	51.0	2.4	183	0.68	D	NBLT	210	53.1	3.1	228	0.76	D
	NBT	144	54.2	2.2	188	0.50	D	NBT	180	51.2	2.6	230	0.52	D	NBT	144	54.2	2.2	188	0.50	D	NBT	180	51.2	2.6	230	0.52	D
	NBRT	235	49.8	3.3	149	0.65	D	NBRT	294	47.2	3.9	246	0.69	D	NBRT	235	49.8	3.3	144	0.65	D	NBRT	294	47.2	3.9	229	0.69	D
	SBLT	67	52.2	1.0	82	0.31	D	SBLT	84	48.9	1.1	100	0.36	D	SBLT	67	52.2	1.0	82	0.31	D	SBLT	84	49.2	1.1	98	0.36	D
	SBT	156	69.5	3.0	217	0.78	E	SBT	195	71.4	3.9	268	0.80	E	SBT	156	69.5	3.0	217	0.78	E	SBT	195	73.3	4.0	268	0.82	E
	SBRT	38	57.3	0.6	0	0.22	E	SBRT	47	54.4	0.7	0	0.23	D	SBRT	38	57.3	0.6	0	0.22	E	SBRT	47	54.8	0.7	0	0.23	D
	Int	**3022**	**33.7**	**28.3**			**C**	**Int**	**3759**	**40.5**	**42.3**			**D**	**Int**	**2948**	**33.6**	**27.5**			**C**	**Int**	**3664**	**39.4**	**40.1**			**D**
PM Peak Hour	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS	Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
	EBLT	74	16.1	0.3	60	0.18	B	EBLT	92	20.8	0.5	77	0.29	C	EBLT	74	16.1	0.3	60	0.18	B	EBLT	92	20.8	0.5	77	0.29	C
	EBT	892	25.5	6.3	497	0.55	C	EBT	1091	37.7	11.4	751	0.78	D	EBT	854	25.0	5.9	470	0.53	C	EBT	1042	36.2	10.5	699	0.74	D
	EBRT	155	20.6	0.9	69	0.23	C	EBRT	193	27.4	1.5	111	0.33	C	EBRT	155	20.6	0.9	64	0.23	C	EBRT	193	27.4	1.5	106	0.33	C
	WBLT	286	71.9	5.7	182	0.85	E	WBLT	357	77.2	7.7	228	0.88	E	WBLT	286	71.9	5.7	182	0.85	E	WBLT	357	77.2	7.7	228	0.88	E
	WBT	641	16.6	3.0	284	0.34	B	WBT	801	22.5	5.0	400	0.46	C	WBT	641	16.6	3.0	284	0.34	B	WBT	801	22.5	5.0	400	0.46	C
	WBRT	104	10.5	0.3	26	0.11	B	WBRT	130	13.4	0.5	32	0.15	B	WBRT	104	10.5	0.3	26	0.11	B	WBRT	130	13.4	0.5	32	0.15	B
	NBLT	134	50.4	1.9	142	0.64	D	NBLT	168	51.4	2.4	166	0.72	D	NBLT	134	50.4	1.9	142	0.64	D	NBLT	168	51.4	2.4	166	0.72	D
	NBT	138	56.4	2.2	181	0.52	E	NBT	172	53.1	2.5	215	0.54	D	NBT	138	56.4	2.2	181	0.52	E	NBT	172	53.1	2.5	215	0.54	D
	NBRT	140	43.8	1.7	42	0.38	D	NBRT	175	38.8	1.9	49	0.40	D	NBRT	140	43.8	1.7	42	0.38	D	NBRT	175	38.8	1.9	48	0.40	D
	SBLT	94	49.4	1.3	104	0.40	D	SBLT	117	45.7	1.5	118	0.44	D	SBLT	94	49.4	1.3	104	0.40	D	SBLT	117	45.7	1.5	118	0.44	D
	SBT	198	69.5	3.8	257	0.86	E	SBT	247	70.2	4.8	309	0.88	E	SBT	198	69.5	3.8	257	0.86	E	SBT	247	70.2	4.8	309	0.88	E
	SBRT	57	55.9	0.9	0	0.29	E	SBRT	71	52.8	1.0	4	0.29	D	SBRT	57	55.9	0.9	0	0.29	E	SBRT	71	52.8	1.0	4	0.29	D
	Int	**2913**	**34.9**	**28.2**			**C**	**Int**	**3614**	**40.6**	**40.7**			**D**	**Int**	**2875**	**34.9**	**27.9**			**C**	**Int**	**3565**	**40.2**	**39.8**			**D**

Notes: "v/c" indicates volume over capacity; values greater than 1 indicates over capacity. "*" indicates movement is shared. "N/A" indicates movement does not exist or results are not calculated by Synchro. LOS E and F are highlighted in orange and red, respectively.

Stop-Controlled Intersections:

The critical movements at the stop-controlled intersections within the study limits include making a left-turn from the side streets or mainline SR 994. This is due to the lack of left-turning lanes and gaps on SR 994 given only one travel lane in each direction. **Tables 31** and **32** present a summary of the average vehicular delay, 95th percentile queue length, and level of service for all left-turn movements at each intersection for the No Build and Build alternatives. Although there are several left-turning movements expected to operate at LOS F for No Build conditions 2025 and 2045 during the AM and PM peak hours, most of these movements experience short queues. However, the southbound left-turn at SW 130 Avenue and the northbound left-turns at SW 132 Avenue and SW 133 Avenue are expected to experience significant queuing by 2045 during the AM peak hour. For No Build 20245, the 95th percentile queue for these movements at SW 130 Avenue, SW 132 Avenue, and SW 133 Avenue are 363, 752, and 506 feet, respectively. These traffic deficiencies do not improve under Build 1, as presented in the traffic simulation screen captured from SimTraffic (**Figure 44**) and summarized in **Table 31**.

Figure 44. Screen Capture of SimTraffic Simulation



The additional roadway widening for SR 994 under Build 2 and 3 is expected to facilitate turning left from these side streets experiencing significant queuing. As presented in **Table 31**, the vehicular queues for all critical intersection movements are low-to-moderate for Builds 2 and 3 under all scenarios. Builds 2 and 3 are expected to reduce left-turn delay by approximately 50%

or more when compared to Build 1. The total vehicular delay for Build 1 is projected to be 131.8 vehicular hours in 2045 for both the AM and PM peak hours, compared to 45.3 vehicular hours for Build 2 and 44.4 vehicular hours for Build 3, as summarized in **Table 31**. Build 3 has a slightly lower delay due to additional access management enhancements compared to Build 2.

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Table 31. No Build & Build 1 2025 & 2045 Operational Results for Critical Movements at Unsignalized Intersections

AM Peak Hour

	NO BUILD 2025						NO BUILD 2045						BUILD 1 2025						BUILD 1 2045					
Intersection	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS
SW 135 Ave	(1) SBLT	11	32.2	0.10	~25 ft	D	(1) SBLT	13	59.9	0.22	~25 ft	F	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A
	(2) EBLT	1	9.6	0.00	~25 ft	A	(2) EBLT	1	10.7	0.00	~25 ft	B	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A
SW 134 Ct	(3) SBLT	6	32.6	0.05	~25 ft	D	(3) SBLT	8	56.7	0.13	~25 ft	F	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A
	(4) EBLT	2	9.7	0.01	~25 ft	A	(4) EBLT	2	10.7	0.01	~25 ft	B	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A
SW 133 Ct	(5) SBLT	7	37.6	0.07	~25 ft	E	(5) SBLT	9	77.3	0.19	~25 ft	F	(5) SBLT	52	250.8	3.62	110	F	(5) SBLT	65	1180.0	21.31	205	F
	(6) EBLT	4	9.9	0.01	~25 ft	A	(6) EBLT	5	11.0	0.02	~25 ft	B	(6) EBLT	31	10.2	0.09	~25 ft	B	(6) EBLT	39	11.5	0.12	~25 ft	B
SW 133 Ave	(7) NBLT	91	208.6	5.27	253	F	(7) NBLT	113	863.0	27.09	506	F	(7) NBLT	91	449.3	11.36	348	F	(7) NBLT	113	1505.0	47.24	594	F
	(8) WBLT	13	9.7	0.04	~25 ft	A	(8) WBLT	16	10.6	0.05	~25 ft	B	(8) WBLT	14	10.8	0.04	~25 ft	B	(8) WBLT	17	12.3	0.06	~25 ft	B
SW 132 Pl	(9) SBLT	64	129.8	2.31	99	F	(9) SBLT	80	665.4	14.79	218	F	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A
	(10) EBLT	20	9.7	0.05	~25 ft	A	(10) EBLT	26	10.8	0.08	~25 ft	B	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A
SW 132 Ave	(11) NBLT	34	246.5	2.33	361	F	(11) NBLT	42	1066.5	12.44	752	F	(11) NBLT	34	206.2	1.95	224	F	(11) NBLT	42	960.0	11.20	506	F
	(12) WBLT	66	10.7	0.20	~25 ft	B	(12) WBLT	82	12.4	0.28	~25 ft	B	(12) WBLT	70	12.0	0.23	~25 ft	B	(12) WBLT	88	14.7	0.36	~25 ft	B
SW 130 Ave	(13) NBLT	5	172.1	0.24	~25 ft	F	(13) NBLT	6	2621.0	4.37	62	F	(13) NBLT	5	217.3	0.30	26	F	(13) NBLT	6	1371.0	2.29	57	F
	(14) SBLT	16	164.5	0.73	134	F	(14) SBLT	20	3542.0	19.68	363	F	(14) SBLT	16	230.1	1.02	154	F	(14) SBLT	20	1629.0	9.05	328	F
	(15) EBLT	113	10.4	0.33	~25 ft	B	(15) EBLT	141	12.1	0.47	~25 ft	B	(15) EBLT	130	10.6	0.38	~25 ft	B	(15) EBLT	162	12.6	0.57	~25 ft	B
	(16) WBLT	1	10.5	0.00	~25 ft	B	(16) WBLT	1	11.9	0.00	~25 ft	B	(16) WBLT	2	11.4	0.01	~25 ft	B	(16) WBLT	2	13.3	0.01	~25 ft	B
SW 129 Ave	(17) NBLT	29	171.9	1.38	55	F	(17) NBLT	36	826.8	8.27	112	F	(17) NBLT	29	311.0	2.51	70	F	(17) NBLT	36	1325.0	13.25	121	F
	(18) SBLT	6	105.2	0.18	~25 ft	F	(18) SBLT	7	445.6	0.87	40	F	(18) SBLT	6	172.9	0.29	~25 ft	F	(18) SBLT	8	1006.0	2.24	53	F
	(19) EBLT	2	9.4	0.01	~25 ft	A	(19) EBLT	3	10.3	0.01	~25 ft	B	(19) EBLT	3	9.5	0.01	~25 ft	A	(19) EBLT	4	10.4	0.01	~25 ft	B
	(20) WBLT	16	11.1	0.05	~25 ft	B	(20) WBLT	21	12.8	0.07	~25 ft	B	(20) WBLT	18	12.2	0.06	~25 ft	B	(20) WBLT	22	14.6	0.09	~25 ft	B
	Total	**507**	**94.8**	**13.4**	**N/A**	**N/A**	***Total***	**632**	**507.1**	**89.0**	**N/A**	**N/A**	***Total***	**501**	**157.1**	**21.9**	**N/A**	**N/A**	***Total***	**624**	**621.8**	**107.8**	**N/A**	**N/A**

PM Peak Hour

	NO BUILD 2025						NO BUILD 2045						BUILD 1 2025						BUILD 1 2045					
Intersection	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS
SW 135 Ave	(1) SBLT	7	25.4	0.05	~25 ft	D	(1) SBLT	9	42.0	0.11	~25 ft	E	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A
	(2) EBLT	2	9.0	0.01	~25 ft	A	(2) EBLT	2	9.8	0.01	~25 ft	A	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A
SW 134 Ct	(3) SBLT	6	30.8	0.05	~25 ft	D	(3) SBLT	7	52.0	0.10	~25 ft	F	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A
	(4) EBLT	1	9.0	0.00	~25 ft	A	(4) EBLT	1	9.8	0.00	~25 ft	A	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A
SW 133 Ct	(5) SBLT	10	40.5	0.11	~25 ft	E	(5) SBLT	12	75.9	0.25	~25 ft	F	(5) SBLT	30	95.0	0.79	42	F	(5) SBLT	37	375.7	3.86	97	F
	(6) EBLT	6	9.3	0.02	~25 ft	A	(6) EBLT	7	10.0	0.02	~25 ft	B	(6) EBLT	10	9.3	0.03	~25 ft	A	(6) EBLT	13	10.1	0.04	~25 ft	B
SW 133 Ave	(7) NBLT	17	30.7	0.14	~25 ft	D	(7) NBLT	22	79.4	0.49	68	F	(7) NBLT	17	49.8	0.24	37	E	(7) NBLT	22	190.5	1.16	106	F
	(8) WBLT	29	9.9	0.08	~25 ft	A	(8) WBLT	37	11.0	0.11	~25 ft	B	(8) WBLT	34	11.3	0.11	~25 ft	B	(8) WBLT	40	13.1	0.15	~25 ft	B
SW 132 Pl	(9) SBLT	28	47.3	0.37	~25 ft	E	(9) SBLT	36	129.9	1.30	64	E	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A
	(10) EBLT	1	9.3	0.00	~25 ft	A	(10) EBLT	1	10.1	0.00	~25 ft	B	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A
SW 132 Ave	(11) NBLT	21	98.6	0.58	132	F	(11) NBLT	27	1390.0	10.43	414	F	(11) NBLT	21	247.5	1.44	51	F	(11) NBLT	27	1401.0	10.51	117	F
	(12) WBLT	155	11.3	0.49	~25 ft	B	(12) WBLT	194	14.0	0.75	33	B	(12) WBLT	167	13.5	0.63	~25 ft	B	(12) WBLT	209	19.0	1.10	53	C
SW 130 Ave	(13) NBLT	2	65.2	0.04	~25 ft	F	(13) NBLT	2	203.0	0.11	~25 ft	F	(13) NBLT	2	97.6	0.05	~25 ft	F	(13) NBLT	2	315.9	0.18	~25 ft	F
	(14) SBLT	16	66.6	0.30	66	F	(14) SBLT	20	446.4	2.48	189	F	(14) SBLT	16	122.6	0.54	95	F	(14) SBLT	20	792.0	4.40	224	F
	(15) EBLT	40	10.1	0.11	~25 ft	B	(15) EBLT	50	11.4	0.16	~25 ft	B	(15) EBLT	48	10.3	0.14	~25 ft	B	(15) EBLT	60	11.8	0.20	~25 ft	B
	(16) WBLT	1	9.8	0.00	~25 ft	A	(16) WBLT	1	10.9	0.00	~25 ft	B	(16) WBLT	2	10.8	0.01	~25 ft	B	(16) WBLT	2	12.3	0.01	~25 ft	B
SW 129 Ave	(17) NBLT	7	80.3	0.16	~25 ft	F	(17) NBLT	9	231.4	0.58	~25 ft	F	(17) NBLT	7	125.1	0.24	~25 ft	F	(17) NBLT	9	436.0	1.09	35	F
	(18) SBLT	6	72.0	0.12	~25 ft	F	(18) SBLT	8	213.4	0.47	31	F	(18) SBLT	7	120.8	0.23	~25 ft	F	(18) SBLT	9	493.0	1.23	46	F
	(19) EBLT	1	9.7	0.00	~25 ft	A	(19) EBLT	2	10.7	0.01	~25 ft	B	(19) EBLT	2	9.8	0.01	~25 ft	A	(19) EBLT	2	10.8	0.01	~25 ft	B
	(20) WBLT	19	10.4	0.05	~25 ft	B	(20) WBLT	24	11.7	0.08	~25 ft	B	(20) WBLT	21	11.5	0.07	~25 ft	B	(20) WBLT	26	13.4	0.10	~25 ft	B
	Total	**375**	**25.7**	**2.7**	**N/A**	**N/A**	***Total***	**471**	**133.4**	**17.5**	**N/A**	**N/A**	***Total***	**384**	**42.4**	**4.5**	**N/A**	**N/A**	***Total***	**478**	**180.9**	**24.0**	**N/A**	**N/A**

Notes: LOS E and F are highlighted in orange and red, respectively.

Table 32. Build 2 & 3 2025 & 2045 Operational Results for Critical Movements at Unsignalized Intersections

AM Peak Hour

	BUILD 2 2025						BUILD 2 2045						BUILD 3 2025						BUILD 3 2045					
Intersection	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS
SW 135 Ave	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A
	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A
SW 134 Ct	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A
	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A
SW 133 Ct	(5) SBLT	52	98.4	1.42	25	F	(5) SBLT	65	458.9	8.29	161	F	(5) SBLT	N/A	N/A	N/A	N/A	N/A	(5) SBLT	N/A	N/A	N/A	N/A	N/A
	(6) EBLT	31	10.2	0.09	~25 ft	B	(6) EBLT	39	11.5	0.12	~25 ft	B	(6) EBLT	31	11.7	0.10	~25 ft	B	(6) EBLT	39	11.4	0.12	~25 ft	B
SW 133 Ave	(7) NBLT	91	155.0	3.92	222	F	(7) NBLT	113	419.5	13.17	264	F	(7) NBLT	N/A	N/A	N/A	N/A	N/A	(7) NBLT	N/A	N/A	N/A	N/A	N/A
	(8) WBLT	14	11.0	0.04	~25 ft	B	(8) WBLT	17	11.4	0.05	~25 ft	B	(8) WBLT	14	10.6	0.04	~25 ft	B	(8) WBLT	17	11.9	0.06	~25 ft	B
SW 132 Pl	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A
	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A
SW 132 Ave	(11) NBLT	34	106.0	1.00	48	F	(11) NBLT	42	458.1	5.34	169	F	(11) NBLT	70	184.3	3.58	112	F	(11) NBLT	87	937.3	22.65	227	F
	(12) WBLT	70	12.2	0.24	~25 ft	B	(12) WBLT	88	15.0	0.37	~25 ft	C	(12) WBLT	70	11.6	0.23	~25 ft	B	(12) WBLT	98	14.2	0.39	~25 ft	B
SW 130 Ave	(13) NBLT	5	105.1	0.15	~25 ft	F	(13) NBLT	6	431.3	0.72	42	F	(13) NBLT	5	91.0	0.13	~25 ft	F	(13) NBLT	6	343.0	0.57	40	F
	(14) SBLT	16	51.5	0.23	68	F	(14) SBLT	20	387.0	2.15	224	F	(14) SBLT	16	45.3	0.20	62	E	(14) SBLT	20	321.6	1.79	209	F
	(15) EBLT	130	10.7	0.39	~25 ft	B	(15) EBLT	162	12.7	0.57	~25 ft	B	(15) EBLT	130	10.7	0.39	~25 ft	B	(15) EBLT	162	12.8	0.58	~25 ft	B
	(16) WBLT	2	11.4	0.01	~25 ft	B	(16) WBLT	2	13.3	0.01	~25 ft	B	(16) WBLT	2	11.0	0.01	~25 ft	B	(16) WBLT	2	12.6	0.01	~25 ft	B
SW 129 Ave	(17) NBLT	29	132.7	1.07	48	F	(17) NBLT	36	564.8	5.65	66	F	(17) NBLT	29	104.6	0.84	42	F	(17) NBLT	36	428.8	4.29	92	F
	(18) SBLT	6	56.7	0.09	~25 ft	F	(18) SBLT	8	127.9	0.28	~25 ft	F	(18) SBLT	6	52.6	0.09	~25 ft	F	(18) SBLT	8	127.9	0.28	~25 ft	F
	(19) EBLT	3	9.5	0.01	~25 ft	A	(19) EBLT	4	10.4	0.01	~25 ft	B	(19) EBLT	3	9.5	0.01	~25 ft	A	(19) EBLT	4	10.5	0.01	~25 ft	B
	(20) WBLT	18	12.5	0.06	~25 ft	B	(20) WBLT	22	15.1	0.09	~25 ft	C	(20) WBLT	18	12.0	0.06	~25 ft	B	(20) WBLT	22	14.2	0.09	~25 ft	B
	Total	**501**	**62.6**	**8.7**	**N/A**	**N/A**	***Total***	**624**	**212.5**	**36.8**	**N/A**	**N/A**	***Total***	**394**	**51.8**	**5.7**	**N/A**	**N/A**	***Total***	**501**	**221.5**	**30.8**	**N/A**	**N/A**

PM Peak Hour

	BUILD 2 2025						BUILD 2 2045						BUILD 3 2025						BUILD 3 2045					
Intersection	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS	Critical Movement	Volume (vph)	Avg Delay (sec/veh)	Avg Delay (veh-hr)	95th % Q (ft)	LOS
SW 135 Ave	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A	(1) SBLT	N/A	N/A	N/A	N/A	N/A
	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A	(2) EBLT	N/A	N/A	N/A	N/A	N/A
SW 134 Ct	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A	(3) SBLT	N/A	N/A	N/A	N/A	N/A
	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A	(4) EBLT	N/A	N/A	N/A	N/A	N/A
SW 133 Ct	(5) SBLT	30	45.0	0.38	~25 ft	E	(5) SBLT	37	104.5	1.07	55	F	(5) SBLT	N/A	N/A	N/A	N/A	N/A	(5) SBLT	N/A	N/A	N/A	N/A	N/A
	(6) EBLT	10	9.3	0.03	~25 ft	A	(6) EBLT	13	10.1	0.04	~25 ft	B	(6) EBLT	10	9.3	0.03	~25 ft	A	(6) EBLT	13	10.2	0.04	~25 ft	B
SW 133 Ave	(7) NBLT	17	28.7	0.14	~25 ft	D	(7) NBLT	22	65.0	0.40	59	F	(7) NBLT	N/A	N/A	N/A	N/A	N/A	(7) NBLT	N/A	N/A	N/A	N/A	N/A
	(8) WBLT	32	11.4	0.10	~25 ft	B	(8) WBLT	40	13.4	0.15	~25 ft	B	(8) WBLT	32	13.0	0.12	~25 ft	B	(8) WBLT	40	13.0	0.14	~25 ft	B
SW 132 Pl	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A	(9) SBLT	N/A	N/A	N/A	N/A	N/A
	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A	(10) EBLT	N/A	N/A	N/A	N/A	N/A
SW 132 Ave	(11) NBLT	21	151.0	0.88	40	F	(11) NBLT	27	482.2	3.62	90	F	(11) NBLT	28	102.3	0.80	53	F	(11) NBLT	36	1030.0	10.30	117	F
	(12) WBLT	167	13.8	0.64	29	B	(12) WBLT	209	16.4	0.95	44	C	(12) WBLT	167	11.9	0.55	~25 ft	B	(12) WBLT	222	19.2	1.18	57	C
SW 130 Ave	(13) NBLT	2	57.3	0.03	~25 ft	F	(13) NBLT	3	138.5	0.12	~25 ft	F	(13) NBLT	2	53.8	0.03	~25 ft	F	(13) NBLT	3	91.0	0.08	~25 ft	F
	(14) SBLT	16	42.2	0.19	46	E	(14) SBLT	20	198.6	1.10	141	F	(14) SBLT	16	39.8	0.18	42	E	(14) SBLT	24	139.8	0.93	119	F
	(15) EBLT	48	10.4	0.14	~25 ft	B	(15) EBLT	60	11.9	0.20	~25 ft	B	(15) EBLT	48	10.4	0.14	~25 ft	B	(15) EBLT	60	12.0	0.20	~25 ft	B
	(16) WBLT	2	10.8	0.01	~25 ft	B	(16) WBLT	2	12.3	0.01	~25 ft	B	(16) WBLT	2	10.6	0.01	~25 ft	B	(16) WBLT	2	11.1	0.01	~25 ft	B
SW 129 Ave	(17) NBLT	7	67.3	0.13	~25 ft	F	(17) NBLT	9	153.2	0.38	~25 ft	F	(17) NBLT	7	62.4	0.12	~25 ft	F	(17) NBLT	9	137.5	0.34	~25 ft	F
	(18) SBLT	7	52.6	0.10	~25 ft	F	(18) SBLT	9	116.7	0.29	~25 ft	F	(18) SBLT	7	50.2	0.10	~25 ft	F	(18) SBLT	9	113.5	0.28	~25 ft	F
	(19) EBLT	2	9.8	0.01	~25 ft	A	(19) EBLT	2	10.8	0.01	~25 ft	B	(19) EBLT	2	9.8	0.01	~25 ft	A	(19) EBLT	2	10.9	0.01	~25 ft	B
	(20) WBLT	21	11.8	0.07	~25 ft	B	(20) WBLT	26	13.9	0.10	~25 ft	B	(20) WBLT	21	11.5	0.07	~25 ft	B	(20) WBLT	26	13.4	0.10	~25 ft	B
	Total	**382**	**26.7**	**2.8**	**N/A**	**N/A**	***Total***	**479**	**63.4**	**8.4**	**N/A**	**N/A**	***Total***	**342**	**22.4**	**2.1**	**N/A**	**N/A**	***Total***	**446**	**109.9**	**13.6**	**N/A**	**N/A**

Notes: LOS E and F are highlighted in orange and red, respectively.

8.0 FUTURE SAFETY CONDITIONS

8.1 FUTURE SAFETY ANALYSIS

The future safety analysis for the study corridor was completed using the predictive method exemplified in the Highway Safety Manual (HSM) 1st edition. The predictive method for urban and suburban arterials in the HSM can be used to estimate the expected average crash frequency for a series of contiguous sites (an entire urban or suburban arterial facility), or a single individual site. Each predictive model consists of a safety performance function (SPF), crash modification factors (CMFs), a calibration factor, and pedestrian and bicyclist factors. The analysis worksheets are provided in **Appendix L**.

In the predictive method, a facility consists of a contiguous set of individual intersections and roadway segments referred to as "sites." For the study segment, it was determined that there would be 8 intersections and 8 segments. This segmentation has been discussed with FDOT's prime reviewer for this study effort. These segments were determined based on the crashes associated to the intersection and crashes associated to the main roadway of SR 994.

The intersections/segments were as follows:

- Signalized Intersections:
  - SW 137th Avenue
  - SW 134th Avenue
  - SW 127th Avenue
- Unsignalized Intersections:
  - SW 133rd Avenue
  - SW 132nd Place
  - SW 132nd Avenue
  - SW 130th Avenue
  - SW 129th Avenue
- Segments:
  - SW 137th Avenue to SW 134th Avenue
  - SW 134th Avenue to SW 133rd Avenue
  - SW 133rd Avenue to SW 132nd Avenue
  - SW 132nd Avenue to SW 130th Avenue
  - SW 130th Avenue to SW 129th Avenue

- SW 129th Avenue to SW 128th Avenue
- SW 128th Avenue to SW 127th Avenue
- SW 127th Avenue to SW 125th Avenue

The predictive model was developed for all alternatives (i.e., No Build, Build 1, Build 2, and Build 3) for design year 2045 to estimate the predicted average crash frequency of the individual intersections and the homogenous roadway segments, as presented in **Tables 33** and **34**. Based on the analysis, the number of crashes for existing conditions for the study corridor are 13.6 segment crashes and 64.4 intersection crashes on a yearly average, resulting in a total average of 78.0 crashes per year. For the 2045 No Build Alternative, the expected average crash frequency is 9.7 segment crashes and 44.0 intersection crashes per year with a total of 53.7 crashes. The decrease observed in crash frequency could be attributed to the scheduled improvements at the intersections of SW 137th Avenue, where the south leg has been already opened to traffic, and SW 127th Avenue where an exclusive northbound right-turn bay will be added to the intersection. Nevertheless, the crashes documented for existing conditions cannot be directly compared to the number of crashes expected under the 2045 No-Build Alternative, as one represents actual historical crashes and the other is based on crash expectancy calculations given the future roadway conditions of the study corridor.

The Build 1 Alternative improvements result in an expected average crash frequency of 9.7 segment crashes and 44.0 intersection crashes per year, resulting in a total of 53.7 crashes. The crash reduction of 5.6 crashes for the Build 1 Alternative when compared to No Build is attributed to the additional capacity improvements, such as the addition of turning lanes, recommended throughout the study corridor.

Under the Build 2 Alternative, the expected average crash frequency is 8.4 segment crashes and 43.6 intersection crashes per year, resulting in a total of 52.0 crashes. The crash decrease of 1.7 crashes for the Build 2 Alternative when compared to the Build 1 improvements is attributed to the additional capacity improvements due to widening SR 994 from two lanes to four and the installation of a raised median.

The Build 3 Alternative has the same expected average crash frequencies as the Build 2 Alternative. Although there are some differing improvements between the Build 2 and Build 3 Alternatives, these differences are minor and are not identified or measured by the HSM analysis.

It is noted that the HSM Predictive Method for Urban and Suburban Arterials Analysis Spreadsheet has limitations which may have affected the results observed. The limitations applicable to this analysis are as follows:

- Does not identify whether the lanes allow for passing. For example, in the existing conditions, and thus no-build alternative, the two lanes along SR 994 are divided by yellow broken line pavement markings which indicate that passing is allowed.
- Does not include a 2-lane divided roadway as a roadway type. This condition is present in the Build 1 Alternative. As a result, the 2-lane undivided arterial type was selected for this analysis.
- Does not consider prohibited movements. In the proposed alternatives, raised medians are installed which at certain locations eliminate left turns from the minor road.

In addition to the HSM analysis, a cursory review was performed using Crash Modification Factors (CMFs), included as **Appendix M**, from the Federal Highway Administration's Crash Modification Factors Clearinghouse to better differentiate the potential safety benefits of the Build Alternatives. A CMF of 29% (i.e., CRF of 71%) with ID 2219, rated with four stars (3 or higher is preferred) from FHWA's source, was selected to estimate the potential crash reduction association with installing a raised median along the study corridor. This CMF is applicable for all crashes along an urban roadway. Additionally, a CMF of 37% (i.e., CRF of 63%) with ID 7568, rated with four stars (3 or higher is preferred) from FHWA's source, was also selected to estimate the potential crash reduction association with widening the study corridor from 2 lanes to 4 lanes. This CMF is applicable for all crashes along an urban roadway. Based on the application of these CMFs to the Build Alternatives, the following is stated:

- For the Build 1 Alternative, installing a raised median along SR 994 has an expected crash reduction of 71% for all crashes (CMF ID: 2219). During the five-year study period, there were 390 documented crashes along the study corridor, averaging 78 crashes per year. The crash reduction percentage will be applied to 60% these crashes (78 crashes reduced by 40% to account for crashes occurring at intersections where the raised median may not be present). After applying the reduction, the estimated potential crash reduction under the Build 1 Alternative is 33.4 crashes per year.

- For the Build 2 and 3 Alternatives, the study corridor will be widened from two lanes to four lanes in addition to installing a raised median as in the Build 1 Alternative. The same

CMF ID 2219 for installing a raised median will be applied for these alternatives. Additionally, a CMF of 0.63 (37% crash reduction) for widening the road (CMF: 7568) will be applied to the total 78 crashes, after accounting for the already reduced crash expectancy of 33.4 crashes per year. After applying this additional reduction, the estimated potential crash reduction under the Build 2 and 3 Alternatives is 16.5 crashes per year, for a total crash reduction of 49.9 crashes annually.

In conclusion, based on the HSM and CMF methodologies crashes are expected to decrease for No Build due to the improvements at SW 137th Avenue, SW 134th Avenue, and SW 127th Avenue per other FDOT and County projects that are being completed by 2045. With the implementation of the Build Alternatives, crashes are expected to further decrease. Based on the HSM methodology, the safety benefits between the Build Alternatives are minimal (a difference of 1.7 crashes per year). The CMF application methodology presents greater safety benefits for the Build 2 and 3 Alternatives when compared to the Build 1 Alternative. Based on the CMF methodology, the four-lane roadway with a raised median option is slightly better than the two-lane roadway with a raised median alternative (with a reduction of 16.5 more crashes per year).

Installing a raised median along an undivided arterial, such as the study roadway, can bring several safety benefits, including:

- **Reduction in Head-On Collisions:** A raised median creates a physical barrier between opposing lanes of traffic, reducing the risk of head-on collisions.
- **Prevention of Left-Turn Crashes:** Raised medians can provide designated areas for left-turning vehicles, reducing the likelihood of conflicts with through traffic and decreasing left-turn crashes.
- **Improved Pedestrian Safety:** Raised medians provide pedestrians with a refuge area when crossing the street. They can cross one direction of traffic at a time, reducing exposure to moving vehicles.
- **Channelization of Traffic:** Raised medians help to guide traffic flow and discourage unsafe maneuvers such as sudden lane changes.
- **Reduced Conflict Points:** By limiting the number of conflict points where vehicles can cross paths, raised medians decrease the likelihood of crashes.
- **Speed Reduction:** Medians can be designed to visually narrow the roadway, which can encourage drivers to reduce speed, enhancing overall safety.

Additionally, safety benefits that can be achieved by widening the road from two lanes to four lanes under Build Alternatives 2 or 3, include the following:

- **Reduced Rear-End Collisions:** Additional lanes can ease congestion and reduce the likelihood of rear-end collisions caused by sudden stops or traffic slowdowns.
- **Decreased Congestion-Related Crashes:** By increasing roadway capacity, widening can help alleviate congestion, reducing the likelihood of crashes caused by congestion-related factors such as sudden lane changes or merging conflicts.
- **Reduced Sideswipe Collisions:** Additional lanes provide more space for vehicles, reducing the chance of sideswipe collisions, especially during lane changes or overtaking maneuvers.
- **Enhanced Passing Opportunities:** With more lanes available, drivers have increased opportunities to pass slower-moving vehicles safely, potentially reducing aggressive passing maneuvers and associated crashes.
- **Decreased Lane Departure Crashes:** Additional lanes provide more space for vehicles, potentially reducing the likelihood of lane departure crashes caused by drifting out of lanes due to narrow roadways.
- **Improved Traffic Flow:** Widening can smooth traffic flow, reducing stop-and-go conditions and the likelihood of crashes associated with abrupt changes in speed.

During the five-year study period, the crash analysis documented a total of 390 crashes. These crashes consisted of 48% (187) rear-end collisions, 30% (117) angle/left-turn collisions, 11% (43) sideswipe collisions, and 5% (18) lane departure collisions. Furthermore, approximately 35% of all crashes resulted in injury, while the majority (65%) resulted in property-damage only crashes. This high percentage of property-damage only crashes indicate incidents related to saturated traffic conditions along the study corridor, attributed to the presence of only one lane in each direction amidst growing traffic.

The improvements proposed under Build Alternatives 2 and 3 will specifically target these crash types to enhance the safety of the study corridor compared to Build Alternative 1.

Overall, widening a two-lane roadway to four lanes can lead to a safer and more efficient transportation corridor by reducing congestion, improving traffic flow, and providing additional space for vehicles to maneuver safely. Similarly, installing a raised median along an undivided arterial can significantly enhance safety for both motorists and pedestrians by reducing conflict points and providing physical separation between opposing traffic flows. These potential benefits are specifically associated with Build Alternatives 2 and 3, rather than Build 1.

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Table 33: 2045 Design Year Safety Analysis for No Build & Build Alternatives - Segments

Location	Existing Avg Crashes	NO BUILD 2045		BUILD 1 2045		BUILD 2 2045		BUILD 3 2045	
		Expected Avg Crash Frequency	Improvements	Expected Avg Crash Frequency	Improvements (In Addition to No Build)	Expected Avg Crash Frequency	Improvements (In Addition to Build 1)	Expected Avg Crash Frequency	Improvements (In Addition to Build 2)
ROADWAY SEGMENTS				ROADWAY SEGMENTS		ROADWAY SEGMENTS		ROADWAY SEGMENTS	
SW 137 Ave to SW 134 Ave	3.600	2.222	-	2.313	Adding a raised median. Inclusion of directional medians.	2.085	From 1 lane in each direction to 2 lanes in each direction.	2.085	Extension of raised median resulting in median closures.
SW 134 Ave to SW 133 Ave	2.200	1.006	-	1.040	Adding a raised median.	0.866	From 1 lane in each direction to 2 lanes in each direction.	0.866	Extension of raised median resulting in directional medians.
SW 133 Ave to SW 132 Ave	0.800	0.629	-	0.704	Adding a raised median. Inclusion of directional medians.	0.504	From 1 lane in each direction to 2 lanes in each direction.	0.504	-
SW 132 Ave to SW 130 Ave	1.400	1.077	-	1.162	Adding a raised median.	0.961	From 1 lane in each direction to 2 lanes in each direction.	0.961	-
SW 130 Ave to SW 129 Ave	0.800	0.870	-	0.892	Adding a raised median.	0.655	From 1 lane in each direction to 2 lanes in each direction.	0.655	-
SW 129 Ave to SW 128 Ave	0.200	0.694	-	0.711	Adding a raised median.	0.477	From 1 lane in each direction to 2 lanes in each direction.	0.477	-
SW 128 Ave to SW 127 Ave	2.200	1.293	-	1.369	Adding a raised median.	1.369	From 1 lane in each direction to 2 lanes in each direction.	1.369	-
SW 127 Ave to SW 125 Ave	2.400	1.493	-	1.503	Adding a raised median.	1.503	-	1.503	-
Total Roadway Segment Crashes	*13.600*	*9.284*	-	*9.694*	-	*8.420*	-	*8.420*	-

Note: The crashes documented for existing conditions cannot be directly compared to the number of crashes expected under the 2045 No-Build Alternative, as one represents actual historical crashes and the other is based on crash expectancy calculations given the future roadway conditions of the study corridor.

Table 34: 2045 Design Year Safety Analysis for No Build & Build Alternatives – Intersections

Location	Existing Avg Crashes	NO BUILD 2045		BUILD 1 2045		BUILD 2 2045		BUILD 3 2045	
		Expected Avg Crash Frequency	Improvements	Expected Avg Crash Frequency	Improvements (In Addition to No Build)	Expected Avg Crash Frequency	Improvements (In Addition to Build 1)	Expected Avg Crash Frequency	Improvements (In Addition to Build 2)
INTERSECTIONS				INTERSECTIONS		INTERSECTIONS		INTERSECTIONS	
SW 137 Ave	11.400	8.535	The south leg will open with one left-turn lane and a shared through/right-turn lane.	6.788	Adding one additional southbound, eastbound, and westbound left-turn lane. Converting the southbound and northbound shared through/right turn lane to one through lane and one right-turn bay. Adding one additional southbound and northbound through lane. Converting the eastbound shared left-turn/through/right-turn lane to one left-turn lane and one shared through/right-turn lane. Converting the westbound through/left-turn lane to one through lane and one left-turn bay. Adding one additional westbound right-turn lane.	6.603	Additional exclusive through lane in both major approaches. Adding one additional northbound left-turn lane.	6.603	-
SW 134 Ave	13.800	8.730	-	8.032	Converting the southbound shared left-turn/through/right-turn lane to one left-turn lane and one shared through/right-turn lane. Converting the westbound shared through/right-turn lane to one through lane and one right-turn lane.	8.032	Additional exclusive through lane in both major approaches.	8.032	-
SW 133 Ave	1.600	2.094	-	1.877	Adding left-turn on westbound approach.	1.877	Additional exclusive through lane in both major approaches.	1.877	Eliminating northbound left-turn movement.
SW 132 Pl	0.600	1.269	-	0.844	Eliminating the eastbound left-turn movement.	0.844	Additional exclusive through lane in both major approaches.	0.844	-
SW 132 Ave	6.600	5.568	-	5.025	Converting the northbound approach to one left-turn lane and one right-turn lane. Adding left-turn on westbound approach.	5.025	Additional exclusive through lane in both major approaches.	5.025	-
SW 130 Ave	3.000	3.364	-	2.711	Adding left-turn bays along the major road.	2.390	Additional exclusive through lane in both major approaches.	2.390	-
SW 129 Ave	3.400	3.484	-	2.473	Adding left-turn bays along the major road.	2.473	Additional exclusive through lane in both major approaches.	2.473	-
SW 127 Ave	24.000	16.977	An exclusive right-turn bay will be added to the northbound approach.	16.260	Adding one additional westbound and northbound left-turn lane. Converting the southbound shared through/right-turn lane to one through lane and one right-turn lane.	16.330	Additional exclusive through lane in the eastbound approach. Converting the eastbound shared through/right-turn lane to one through lane and one right-turn lane. Eliminating one northbound left-turn lane.	16.330	-
Total Intersection Crashes	*64.400*	*50.020*	-	*44.009*	-	*43.574*	-	*43.574*	-
TOTAL CRASHES (Segments + Intersections)	**78.000**	**59.305**	**-**	**53.703**	**-**	**51.994**	**-**	**51.994**	**-**

Note: The crashes documented for existing conditions cannot be directly compared to the number of crashes expected under the 2045 No-Build Alternative, as one represents actual historical crashes and the other is based on crash expectancy calculations given the future roadway conditions of the study corridor.

8.2 SHARED-USE PATH ANALYSIS

A study was conducted to assess the feasibility of implementing a Shared-Use Path along one or both sides of the study corridor (FM No. 445804-1-22-01; Task 40). The Department is open to considering the inclusion of this multimodal amenity in the PD&E's preferred alternative. Two alternatives were evaluated: Alternative 1, which features a 10-foot directional Shared-Use Path on both sides of the road, and Alternative 2, which includes a 12-foot bidirectional Shared-Use Path on the south side and a 6-foot sidewalk on the north side. Given the roadway profile of the study corridor, the south side of the road is the more feasible option for implementing a one-sided Shared-Use Path, as discussed during the design phase.

The objective of this study was accomplished by assessing the pedestrian and bicycle travel in the study area and performing safety and operational analyses per available guidelines.

Based on the study, a Shared-Use Path was determined to be an appropriate facility for bicycle users to be serviced given the 40 MPH posted speed limit and >10k vehicular traffic for the study corridor. The Shared-Use Path is recommended on both sides of the study corridor (Alternative 1) per the following statements below. Furthermore, according to the Sidepath Intersection & Crossing Treatment Guide (June 2018), one-way bikeways on each side of the road are preferred over a two-way bikeway for two-way streets whenever possible.

- Based on the Strava Global Heatmaps, there is significant pedestrian activity along the study corridor between SW 132nd Avenue and SW 127th Avenue, the Black Creek Trail, and to the south of the study corridor along SW 132nd Avenue, SW 127th Avenue and SW 208th Street. Although the bicyclist activity along the study corridor seems lower, there is more predominant activity along the Black Creek Trail, SW 137th Avenue, and to the south of the study corridor along SW 216th Street. Nevertheless, there is also bicyclist activity to the north of the study corridor through SW 132nd Place/SW 133rd Avenue and to the south along SW 132nd Avenue and SW 208th Street.
- These findings are supported by the pedestrian and bicycle data collected which determined that there were a total of 205 modal users during the peak hour of 5:00 PM to 6:00 PM with 181 (88%) of them travelling along the north and south sides of the study corridor, with a majority opting for the south side, and 24 (12%) of them crossing SR 994 at intersections rather than midblock locations. Despite the lack of bicycle lanes and sidewalk presence within the study corridor, there is substantial bicyclist and pedestrian

activity. There is approximately 39% sidewalk coverage along the north side of the study corridor and 67% sidewalk coverage along the south side.

- Furthermore, the Miami-Dade County has identified as Priority 4 (2031-2040) providing bicycle lanes along each direction of SW 137th Avenue from US 1 to SW 184th Avenue (already constructed at SW 137th Avenue) and a Shared-Use Path along the north side of SW 200th Street (not state road section) from SR 994 to US 1. Pedestrian crosswalks and signals will be provided at the intersections of SW 137th Avenue and SW 134th Avenue (upgrading to signal control), and the box will be closed at the intersection of SW 127th Avenue, as part of the PD&E's preferred alternative. These facilities are expected to attract more pedestrian and bicyclist activity to both the north and south sides of the study corridor.
- Within approximately a ½ mile radius from the study corridor bordered by single family homes, there are numerous pedestrian and bicyclist generators and attractors that could benefit from a Shared-Use Path on both sides of the corridor, including two schools, two parks, five churches, and retail businesses (The Shoppes at Quail Roost, 7-Eleven, Publix, YouFit Gym, Family Dollar, and others).
- Based on the number of conflict points, bicyclists along a bidirectional Shared-Use Path (Alternative 2) are at higher risk than along a directional Shared-Use Path (Alternative 1) with a higher potential for conflict with right-turning vehicles and overall traffic patterns at commercial driveways and signalized intersections.
- According to the Sidepath Intersection & Crossing Treatment Guide (June 2018), the "Interested but Concerned" bicycle user represents most of the potential bicycle activity in any community. It is expected that approximately 60% of the modal users in the study area would originate from this category. This type of bicycle user could potentially originate from the north and south sides of the study corridor, since both sides share very similar land use characteristics (i.e., single family homes).
- Based on the bicycle level of traffic stress (BLTS), Alternative 1 presents a lower stress tolerance in comparison to Alternative 2. Alternative 1 is classified as LTS 1 (LTS 1 on both sides of the roadway) which is designated as a level that most children can use confidently. According to the latest Census Data (2020), the study corridor falls within postal zip code 33177, where the percentage of children in the population is high at 20%. On the other hand, Alternative 2 has a final score of LTS 4 (LTS 4 and LTS 1 on the north and south sides of the roadway, respectively) which designates the level as only being tolerated by those with limited routes or mode choices, and/or cycling enthusiasts that

choose to ride under stressful conditions. Given the balanced residential land use on both sides of the study corridor, the target bicyclist demographic is the "Interested but Concerned" cyclist, expected to generate around 60% of bicycle traffic. A score of LTS4 for Alternative 2 is not suitable for this type of bicyclist.

- Based on the HCM predictive operational analysis, both Shared-Use Path alternatives are expected to operate at a LOS A for bicyclists. Furthermore, it was noted that Alternative 1 experiences less weighted events (passings and meetings) than Alternative 2. This is expected due to Alternative 1 proposing directional Shared-Use Paths, meaning that there will be no path user meetings as defined by the HCM.
- According to the Sidepath Safety Model: Bicycle Sidepath Design Factors Affecting Crash Rates (2006), it would be safer to travel along the sidepath when the adjacent roadway has three lanes or less, but less safe when the roadway has four lanes or more. The number of travel lanes along the study corridor of SR 994 in each direction will be less than three lanes, that is two lanes. This suggests that implementing Shared-Use Paths on each side of the study corridor would constitute a safe design approach.

Following the outlined results and discussions with the Department, it has been decided to incorporate a multimodal facility on both sides of the study corridor in the PD&E's preferred alternative. However, after additional analysis and coordination with FDOT District Six's Design Office, the Shared-Use Paths will be replaced by sidewalks with sidewalk-level Separated Bicycle Lanes (SBLs).

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9.0 ALTERNATIVE SELECTION MATRIX

The no action alternative (No Build) and Build Alternatives 1, 2, and 3 were scored based on the overall potential operational and safety benefits, as presented in **Table 35**. A no action alternative is not desirable for the study corridor of SR 994, since it is expected to endure operational deficiencies. The No Build alternative received the lowest score with a -8 when compared to the other alternatives. Build 1 trails in second place with a score of +1. Based on the traffic simulation, Build 1 will experience significant queuing at some of the side streets due to the lack of roadway capacity along SR 994, which is to be provided by the latter alternatives. Lastly, Builds 2 and 3 are very similar with a score of +8. Both Builds 2 and 3 are expected to have similar safety benefits. However, the slightly higher operational benefits expected with Build 3 over Build 2 are attributed to the additional restriction of left-turns to/from the side streets and estimating their diversion mainly to the signalized intersection of SW 134th Avenue which is to be upgraded to signal control. These additional turn restrictions are not deemed necessary based on the crash patterns identified for the study corridor of SR 994. Therefore, from a traffic and safety perspective, Build 2 seems to be the most suitable alternative for implementation. The following sections further detail the safety, traffic operations, and capacity benefits of Build 2.

Safety Benefits

Build Alternative 2 is expected to improve safety and reduce the amount and severity of crashes along the study corridor. The addition of a median will reduce the number of conflicts at stop controlled intersections by restricting or eliminating some of the existing turn movements. An additional though lane in each direction will allow for vehicles to safely pass slower traffic. The additional through lane also serves for occasional deceleration of right turning vehicles when an exclusive turn lane is not present, alleviating the high incidence of rear-end crashes that exists today. Traffic separators at signalized intersections will channelize traffic and provide refuge for pedestrians. Shared use paths on both sides of the road will enhance bicycle and pedestrian safety and reduce the potential for bicycles crossing at undesignated mid-block locations to reach the other side, compared to only providing one shared use path. The new signalized intersection at SW 134th Avenue will provide an additional crossing location between SW 137th Avenue and SW 127th Avenue.

Traffic Operations

Build Alternative 2 provides one additional through lane in each direction between SW 137th Avenue and SW 127th Avenue, which will provide faster travel times, especially during peak hours. Additional auxiliary turn lanes at signalized intersections will improve capacity and reduce queue lengths with higher levels of service. SW 132nd Avenue will be improved with an exclusive westbound left-turn lane and separate left and right turn lanes in the northbound direction. Access management restrictions that are currently enforced with raised directional islands or pavement markings will now be controlled with the raised median.

Capacity

Build Alternative 2 adds corridor capacity between SW 137th Avenue and SW 127th Avenue. The additional through lane will improve travel time. The addition of auxiliary lanes at signalized and unsignalized intersections will also reduce delay for vehicular traffic.

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Table 35: Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives Comparison							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
ENGINEERING	Traffic Operations	**Corridor-Wide**							
		Traffic Operations significantly deteriorate from existing conditions. 310 hours of delay by Opening Year VS. 138 hours today If no action (both AM&PM for signalized/critical movements at unsignalized intersections; mostly due to lack of turning lanes); Delay is expected to double by Design Year 2045 to 693 hours Travel Time increases by 5 mins by Opening Year from 8 mins for the total of both AM&PM + EB/WB; By 2045, travel time increases from 8 mins to 27 mins	--	Delay is significantly reduced by -42% to 401 hours VS. 693 hours in No-Build for 2045 (both AM+PM) Travel Time improved to 7 mins back/forth (from 19 mins) for the AM peak hour and to 7 mins back/forth (from 7.5 mins) for the PM peak hour when compared to No-Build	+	Delay is significantly reduced by -68% to 222 hours VS. 693 hours in No-Build for 2045 (both AM+PM) Build 2 reduces delay by an additional -26% when compared to Build 1 Travel Time improved to 6 mins back/forth (from 7 mins) per peak period when compared to Build 1	++	Delay is significantly reduced by -67% to 226 hours VS. 693 hours in No-Build for 2045 (both AM+PM) Build 3 increases delay by +2% when compared to Build 2 Travel Time remains at 6 mins back/forth per peak period	+
		Main Intersections							
		LOS at SW 137 Ave fails (from C or better) due to lack of turning lanes Already failing LOS at SW 134 Ave worsens by 2045 where 2 fatal crashes occurred LOS at SW 127 Ave fails by 2045 (from D)	--	LOS at SW 137 Ave improved to E (from F, if No Action); it cannot be improved to LOS D due to the single eastbound approach through lane at SW 137 Ave LOS at SW 134 Ave improved to C (from F, if No Action) LOS at SW 127 Ave improved to D (from F, if No Action)	+	Delay at SW 137 Ave further reduced by -45% (-61 hours) at an improved LOS D Delay at SW 134 Ave further reduced by -53% (-24 hours) at an improved LOS B Although at LOS D, SW 127 Ave delay further reduced by -9% (-8 hours)	++	Although at LOS D, SW 137 Ave delay increased by +9% (+7 hours) Although at LOS B, SW 134 Ave delay increased by +9% (+2 hours) Although at LOS D, SW 134 Ave delay further reduced by -4% (-3 hours)	+
		Stop-Controlled Intersections							
		Turning Traffic Delay from/onto side streets worsens to 106 hours by 2045 from 16 hours for both AM & PM peak periods	--	Turning Traffic Delay from/onto side streets worsens by +24% to 132 hours from 106 hours for both AM & PM peak periods	--	Turning Traffic Delay from/onto side streets improves by -66% to 45 hours from 132 hours for both AM & PM peak periods when compared to Build 1	++	Turning Traffic Delay from/onto side streets improves by -2% to 44 hours from 45 hours for both AM & PM peak periods when compared to Build 2	++

Evaluation Criteria		Alternatives Comparison							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
	Safety	Number of crashes expected to increase compared to existing conditions due to projected increase in traffic volumes	--	Safety Improvements include: • Turn Lanes (left and right) • Protected Left-Turn Phasing • Multimodal Facilities (SUPs) • Special Emphasis Ped/Bike Crossings • Enhancements to Existing Trail Crossing • Corridor Lighting • Traffic Control Upgrade at SW 134 Ave to Signal Control • Some Access Management Improvements • Raised Median Islands/Traffic Separators Per CMF Methodology, expected to reduce 33 crashes per year In addition, this alternative addresses severity of crashes – 2 out of 3 fatal accidents in the past 5 years were related to turning movements at the SW 134 Avenue intersection	+	Safety Improvements include the same as Build Alternative 1 plus the addition of: • One additional thru lane in each direction Per CMF Methodology, expected to reduce 50 crashes per year; this is approximately 16 more crashes than Build 1 Same as Build 1, this alternative addresses severity of crashes; however, Build 1 does not address crashes related to traffic congestion such as rear-end collisions	++	Safety Improvements include the same as Build alternative 2 plus the addition of: • Wider Raised Median, 22 ft • Additional Access Management Improvements Per CMF Methodology, expected to reduce 50 crashes per year; this is approximately 16 more crashes than Build 1* *Similar safety benefits as Build 2, since the locations where Build 3 implemented additional access management improvements did not have significant crashes for mitigation Same as Builds 1 and 2, this alternative addresses severity of crashes. however, Build 1 does not address crashes related to traffic congestion such as rear-end collisions	++
TOTAL SCORE		**-8**		**1**		**8**		**6**	

Score	Description
+	Alternative meets or has a positive response to the Evaluation Criteria (attributed a score of +1)
0	Alternative has no effect or provides some benefit to the Evaluation Criteria (attributed a score of 0)
-	Alternative has a poor or negative response to the Evaluation Criteria (attributed a score of -1)
Note:	++ or -- denote greater impact positively or negatively, respectively (attributed a score of +2 or -2, respectively)

10.0 ENHANCEMENTS TO PREFERRED ALTERNATIVE

During the development of the Project Traffic Analysis Report (PTAR), the PD&E team considered a recent system linkage/capacity improvement project led by Miami-Dade County, which was completed in June 2022 at the intersection of SR 994 and SW 137th Avenue. At the start of the PD&E, the south leg at the SW 137th Avenue intersection was under construction, extending south along SW 137th Avenue to connect to US-1.

Initially, traffic patterns for the PD&E alternative development were estimated based on historical data, traffic counts from 2021, and planning model outputs. Roadway capacity improvements for the build alternatives were developed accordingly. However, once the new SW 137th Avenue connection opened to traffic, additional traffic data was collected in early 2023 to reassess future turning movement volumes for the No-Build and Build Alternatives for the years 2025 and 2045, as discussed in **Section 4.5.9.4**.

The new data revealed a decrease in traffic patterns from southbound SW 137th Avenue to eastbound SR 994 and then to southbound SW 134th Avenue, as well as from westbound SR 994 to northbound SW 137th Avenue. Consequently, future turning movement volumes were revised during this current submittal based on the changes and analyzed according to the previously developed roadway capacity improvements for the intersections of SW 137th Avenue and SW 134th Avenue. A separate sensitivity analysis was conducted to refine the Build 2 Alternative and determine if turning lanes could be reconsidered.

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The refinements to intersection capacities resulted in positive operational benefits, as detailed in **Tables 36** and **37**. Additionally, these modifications reduce the need for right-of-way acquisition. The changes include:

At SW 137th Avenue:

- **Eastbound Approach:** Reduce from 2 left-turn lanes to 1 left-turn lane
- **Westbound Approach:** Reduce from 2 right-turn lanes to 1 right-turn lane
- **Northbound Approach:** Reduce from 2 left-turn lanes to 1 left-turn lane
- **Southbound Approach:** Remove right-turn lane to share with through lane

At SW 134th Avenue:

- **Eastbound Approach:** Remove right-turn lane to share with through lane
- **Westbound Approach:** Remove right-turn lane to share with through lane
- **Northbound Approach:** No changes
- **Southbound Approach:** No changes

The Synchro analysis worksheets are included in the Project Traffic Analysis Report in **Appendix N**.

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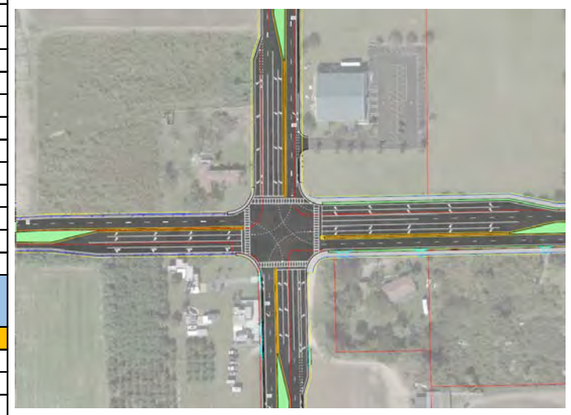
Table 36. Build 2 (Refined) Operational Results 2045 AM & PM for SW 137th Ave

AM Peak Hour

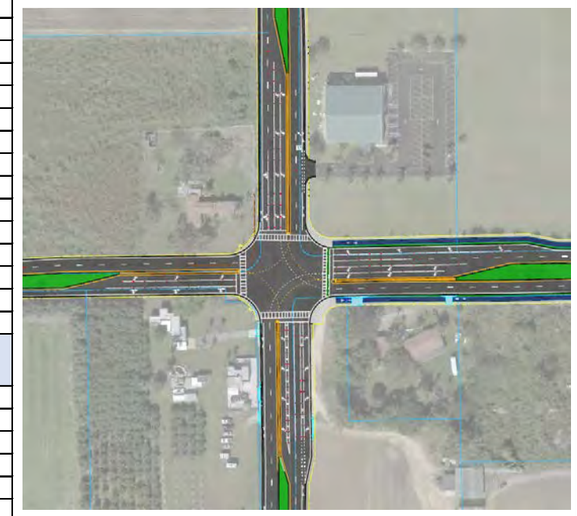
BUILD 2 - 2045						
Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	84	54.6	1.3	61	0.42	D
EBT	562	36.5	6.7	405	0.64	D
EBRT	98	*	*	*	*	*
WBLT	278	44.1	3.4	135	0.67	D
WBT	413	21.8	2.5	204	0.35	C
WBRT	383	10.6	1.1	107	0.18	B
NBLT	131	54.5	2.0	87	0.51	D
NBT	521	47.9	6.9	254	0.73	D
NBRT	242	39.7	2.7	90	0.24	D
SBLT	292	52.8	4.3	158	0.67	D
SBT	353	45.7	4.5	173	0.74	D
SBRT	121	32.6	1.1	20	0.09	C
Int	**3478**	**37.7**	**36.4**			**D**

BUILD 2 - 2045 Intersection Geometry



Refined BUILD 2 - 2045						
Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	84	22.7	0.5	69	0.24	C
EBT	562	34.9	6.4	332	0.62	C
EBRT	98	*	*	*	*	*
WBLT	278	47.1	3.6	156	0.66	D
WBT	413	34.3	3.9	222	0.32	C
WBRT	383	1.5	0.2	6	0.27	A
NBLT	131	36.5	1.3	107	0.48	D
NBT	521	50.4	7.3	270	0.77	D
NBRT	242	39.8	2.7	68	0.16	D
SBLT	292	54.1	4.4	162	0.70	D
SBT	353	55.0	7.2	237	0.86	D
SBRT	121	*	*	*	*	*
Int	**3478**	**38.9**	**37.6**			**D**

Refined BUILD 2 - 2045 Intersection Geometry



PM Peak Hour

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	51	56.1	0.8	42	0.60	E
EBT	529	54.8	9.4	445	0.36	D
EBRT	88	*	*	*	*	*
WBLT	242	50.7	3.4	145	0.74	D
WBT	347	33.5	3.2	192	0.37	C
WBRT	294	1.3	0.1	3	0.18	A
NBLT	109	26.8	0.8	30	0.22	C
NBT	319	32.8	2.9	141	0.37	C
NBRT	274	31.4	2.4	61	0.73	C
SBLT	379	51.9	5.5	195	0.80	D
SBT	626	39.8	6.9	283	0.85	D
SBRT	123	20.8	0.7	16	0.09	C
Int	**3381**	**38.5**	**36.1**			**D**

EB: 2 LEFTS + 1 THRU + 1 SHARED THRU/RIGHT
WB: 2 LEFTS + 2 THRUS + 2 RIGHTS
NB: 2 LEFTS + 2 THRUS + 1 RIGHT
SB: 2 LEFTS + 2 THRUS + 1 RIGHT

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	51	31.4	0.4	61	0.19	C
EBT	529	48.7	8.3	#351	0.78	D
EBRT	88	*	*	*	*	*
WBLT	242	51.8	3.5	128	0.70	D
WBT	347	30.0	2.9	160	0.35	C
WBRT	294	4.5	0.4	142	0.20	A
NBLT	109	32.0	1.0	61	0.48	C
NBT	319	33.9	3.0	263	0.33	C
NBRT	274	33.9	2.6	105	0.31	C
SBLT	379	52.9	5.6	186	0.74	D
SBT	626	53.4	11.1	#507	0.95	D
SBRT	123	*	*	*	*	*
Int	**3381**	**41.3**	**38.8**			**D**

EB: 1 LEFT + 1 THRU + 1 SHARED THRU/RIGHT
WB: 2 LEFTS + 2 THRUS + 1 RIGHT
NB: 1 LEFT + 2 THRUS + 1 RIGHT
SB: 2 LEFTS + 1 THRU + 1 SHARED THRU/RIGHT

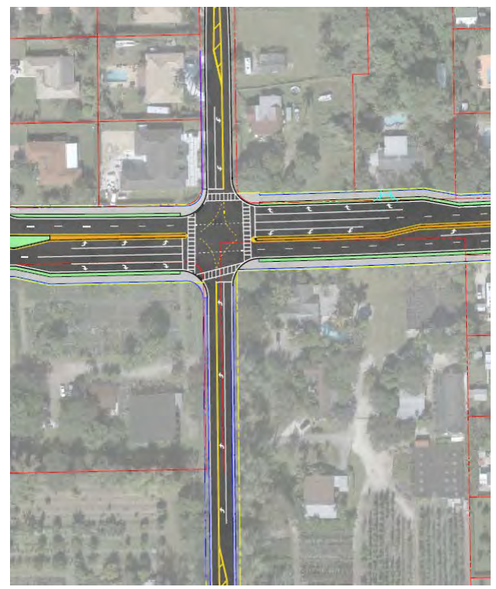
Notes: “v/c” indicates volume over capacity; values greater than 1 indicates over capacity. “*” indicates movement is shared. LOS E is highlighted in orange.

Table 37. Build 2 (Refined) Operational Results 2045 AM & PM for SW 134th Ave

AM Peak Hour

BUILD 2 - 2045						
Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	25	9.2	0.1	35	0.08	A
EBT	1009	11.0	3.1	518	0.48	B
EBRT	73	5.1	0.1	49	0.07	A
WBLT	98	7.8	0.2	58	0.27	A
WBT	957	6.3	1.7	274	0.39	A
WBRT	66	4.5	0.1	19	0.06	A
NBLT	85	45.5	1.1	89	0.43	D
NBT	23	46.3	2.1	62	0.58	D
NBRT	139	*	*	*	*	*
SBLT	81	55.9	1.3	113	0.50	E
SBT	52	56.9	1.4	100	0.63	E
SBRT	35	*	*	*	*	*
Int	**2643**	**15.0**	**11.0**			**B**

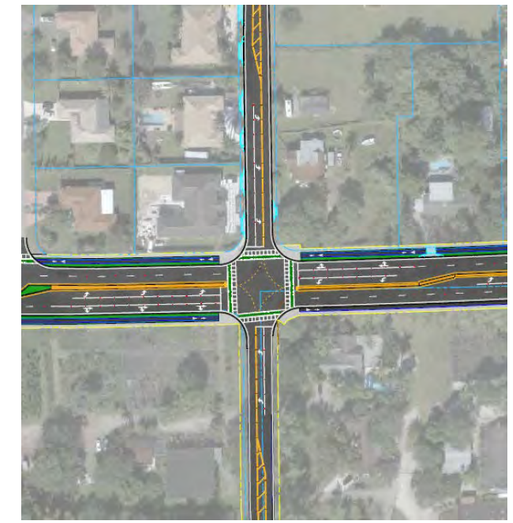
BUILD 2 - 2045 Intersection Geometry



EB: 1 LEFT + 2 THRUS + 1 RIGHT
WB: 1 LEFT + 2 THRUS + 1 RIGHT
NB: 1 LEFT + 1 SHARED THRU/RIGHT
SB: 1 LEFT + 1 SHARED THRU/RIGHT

Refined BUILD 2 - 2045						
Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	25	7.2	0.1	1	0.08	A
EBT	1009	12.1	3.6	338	0.51	B
EBRT	73	*	*	*	*	*
WBLT	98	8.3	0.2	35	0.27	A
WBT	957	10.2	2.9	261	0.44	B
WBRT	66	*	*	*	*	*
NBLT	85	49.0	1.2	114	0.38	D
NBT	23	46.5	2.1	79	0.59	**D**
NBRT	139	*	*	*	*	*
SBLT	81	56.2	1.3	129	0.51	E
SBT	52	42.6	1.0	95	0.31	D
SBRT	35	*	*	*	*	*
Int	**2643**	**16.8**	**12.4**			**B**

Refined BUILD 2 - 2045 Intersection Geometry



EB: 1 LEFT + 1 THRU + 1 SHARED THRU/RIGHT
WB: 1 LEFT + 1 THRU + 1 SHARED THRU/RIGHT
NB: 1 LEFT + 1 SHARED THRU/RIGHT
SB: 1 LEFT + 1 SHARED THRU/RIGHT

PM Peak Hour

Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	33	6.9	0.1	14	0.09	A
EBT	1112	10.1	3.1	553	0.51	B
EBRT	93	4.6	0.1	36	0.09	A
WBLT	73	7.1	0.1	40	0.22	A
WBT	781	4.9	1.1	185	0.31	A
WBRT	62	3.7	0.1	16	0.05	A
NBLT	76	47.4	1.0	87	0.40	D
NBT	49	50.0	2.3	98	0.68	D
NBRT	120	*	*	*	*	*
SBLT	49	57.1	0.8	79	0.39	E
SBT	29	58.0	1.0	67	0.57	E
SBRT	33	*	*	*	*	*
Int	**2510**	**13.9**	**9.7**			**B**

Refined BUILD 2 - 2045						
Movement	Vol (vph)	Delay (sec/veh)	Delay (veh-hr)	95th % Q (ft)	v/c	LOS
EBLT	33	5.7	0.1	18	0.09	A
EBT	1112	11.5	3.8	588	0.55	B
EBRT	93	*	*	*	*	*
WBLT	73	7.8	0.2	25	0.22	A
WBT	781	8.3	1.9	188	0.36	A
WBRT	62	*	*	*	*	*
NBLT	76	49.4	1.0	106	0.35	D
NBT	49	50.8	2.4	134	0.68	D
NBRT	120	*	*	*	*	*
SBLT	49	57.2	0.8	90	0.39	E
SBT	29	44.1	0.8	63	0.25	D
SBRT	33	*	*	*	*	*
Int	**2510**	**15.7**	**11.0**			**B**

Notes: “v/c” indicates volume over capacity; values greater than 1 indicates over capacity. “*” indicates movement is shared. LOS E is highlighted in orange.

11.0 CONCLUSION AND RECOMMENDATIONS

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to address safety, traffic operations, and capacity issues along State Road (SR) 994/SW 200th Street/Quail Roost Drive in southwest Miami-Dade County. The study area spans from just west of SW 137th Avenue to just east of SW 127th Avenue, covering approximately 1.67 miles. The project's goal is to accommodate future travel demand resulting from population and employment growth in the area. Additional objectives of this project include improving the overall safety conditions along the corridor, including emergency evacuation and response times, and enhancing mobility options and multi-modal access.

The purpose of this Project Traffic Analysis Report is to examine the existing traffic and safety conditions of SR 994 to predict the future operational and safety characteristics of the study corridor for the following scenarios:

- Existing Conditions 2021 for AM & PM Peak Hours
- No Build Alternative 2025 & 2045 for AM & PM Peak Hours
- Build Alternatives 2025 & 2045 for AM & PM Peak Hours
    - Build 1: Includes widening SR 994 to provide a raised median with left-turning opportunities from and onto the side streets while implementing access management enhancements. Additionally, implement several capacity improvements at the signalized intersections of SW 137th Avenue and SW 127th Avenue, and upgrade the stop-controlled intersection of SW 134th Avenue to signal control.
    - Build 2: In addition to the improvements in Build 1, this alternative widens SR 994 from two lanes to four lanes.
    - Build 3: In addition to the improvements in Build 2, this alternative implements additional access management enhancements.

Based on the evaluation of the No Build and Build Alternatives, the following concluding statements are presented for the proposed project's opening and design years 2025 and 2045, respectively:

It is essential to consider the timing and type of improvements under each Build alternative to understand the operational results and the changes to traffic patterns that these actions will bring.

In other words, the benefits or decay in operations due to the implementation of the Build Alternatives are not linearly related but influenced by the modifications taking place at such time.

Build 1 includes capacity improvements at SW 137th Avenue and the opening of the south leg to traffic by the 2025 analysis year (the intersection leg actually opened in June 2022). Introduction of the south leg at SW 137th Avenue altered traffic patterns at SW 137th Avenue and SW 134th Avenue. Additionally, a County project to widen SW 137th Avenue from 2 lanes to 4 lanes is expected to be completed by 2030. While this project will improve traffic conditions by 2045, it will not affect conditions in the analysis year 2025. Starting with Build 1, the traffic control at the intersection of SW 134th Avenue will be upgraded to signal control. Additionally, capacity improvements will be implemented at the intersection of SW 127th Avenue. Under Build 2 and 3 alternatives, SR 994 is to be widened from 2 lanes to 4 lanes by FDOT. The primary difference between Build 2 and Build 3 is that Build 3 includes additional access management enhancements, which will divert traffic within the study corridor.

Traffic Operations Benefits:

- *Arterial:* With the implementation of the recommended improvements under the Build conditions, the arterial operations of the study corridor would improve to LOS D or better with increased speeds and lower travel times, as presented in **Tables 23** and **24**. Although all three Build alternatives are expected to significantly improve travel speeds during both the AM and PM peak hours in future years, Builds 2 and 3 are anticipated to provide approximately 3-5 MPH higher speeds when compared to Build 1. With regards to arterial operations, Builds 2 and 3 have similar potential benefits while both being better than Build 1.
- *SW 137th Avenue:* For the opening year 2025, operations at SW 137th Avenue are expected to show some improvement under Build 1. The overall average intersection delay per vehicle is projected to decrease from 119 to 65 seconds during the AM peak hour and from 159 to 121 seconds during the PM peak hour. Despite these improvements, the intersection level of service remains similar to No Build conditions at LOS E or worse. By 2045, further improvements in intersection operations are anticipated due to the widening of SW 137th Avenue. The overall average intersection delay per vehicle is expected to decrease from 217 to 61 seconds during the AM peak hour and from 135 to 79 seconds during the PM peak hour. However, the intersection level of service remains at E for both peak hours.

Although significant operational improvements are anticipated with both Build Alternatives 2 and 3, Build 2 is expected to experience lower vehicular delay. For the opening year 2025, the level of services for both alternatives are projected to be LOS D for the AM peak hour and LOS E for the PM peak hour. The overall average intersection delay per vehicle is 38 seconds for Build 2 and 41 seconds for Build 3 during the AM peak hour. For the PM peak hour, the overall average intersection delay per vehicle is 55 seconds for Build 2 and 65 seconds for Build 3. By year 2045, the intersection level of service improves to LOS D due to the widening of SW 137th Avenue. The overall average intersection delay per vehicle is 38 seconds for Build 2 and 40 seconds for Build 3 during the AM peak hour. For the PM peak hour, the overall average intersection delay per vehicle is 39 seconds for Build 2 and 43 seconds for Build 3.

To highlight the difference in total vehicular delays between Build 2 and Build 3, the total cumulative intersection vehicular delay for 2045 was calculated. For Build 2, the total delay is 36 hours during the AM and PM peak hours each, compared to 38 to 41 hours for Build 3 during the same periods, making Build 2 the better option at the intersection of SW 137th Avenue

- *SW 134th Avenue:* With the implementation of any of the Build alternatives, the overall intersection operation during the AM and PM peak hours is improved to LOS C or better in 2025 and 2045 (from estimated LOS F) as seen in **Tables 27** and **28**. The intersection is upgraded to signal control under the Build alternatives. The overall average intersection delay per vehicle is expected to be 10 to 33 seconds with any of the alternatives. Build 2 and 3 seem to provide better operational benefits when compared to Build 1 with an average vehicular delay of 15 seconds vs. 25 seconds during each peak hour.

- *SW 127th Avenue:* With the implementation of any of the Build alternatives, the overall intersection operation during the AM and PM peak hours is improved to LOS C or better in 2025 and 2045 (from LOS F) as seen in **Tables 29** and **30**. The overall average intersection delay per vehicle is expected to be approximately 35 to 50 seconds with any of the alternatives. Although some intersection movements are expected to operate at LOS E, the vehicular queues are moderate. The overall benefits at this intersection are similar under any of the Build alternatives since the improvements are very similar.

- *Stopped-Control Intersections:* The critical movements at the stop-controlled intersections within the study limits include making a left-turn from the side streets or mainline SR 994. This is due to the lack of left-turning lanes and gaps on SR 994 given only one travel lane in each direction. **Tables 31** and **32** present a summary of the average vehicular delay, 95th percentile queue length, and level of service for all left-turn movements at each intersection for the No Build and Build alternatives. Although there are several left-turning movements expected to operate at LOS F for No Build conditions 2025 and 2045 during the AM and PM peak hours, most of these movements experience short queues. However, the southbound left-turn at SW 130 Avenue and the northbound left-turns at SW 132nd Avenue and SW 133rd Avenue are expected to experience significant queuing by 2045 during the AM peak hour. For No Build 20245, the 95th percentile queue for these movements at SW 130th Avenue, SW 132 Avenue, and SW 133 Avenue are 363, 752, and 506 feet, respectively. The additional roadway widening for SR 994 under Build 2 and 3 is expected to facilitate turning left from these side streets experiencing significant queuing. The vehicular queues for all critical intersection movements are low-to-moderate for Builds 2 and 3 under all scenarios. Builds 2 and 3 are expected to reduce left-turn delay by approximately 50% or more when compared to Build 1. The total vehicular delay for Build 1 is projected to be 131.8 vehicular hours in 2045 for both the AM and PM peak hours, compared to 45.3 vehicular hours for Build 2 and 44.4 vehicular hours for Build 3. Build 3 has a slightly lower delay due to additional access management enhancements compared to Build 2.

Safety Benefits:

Based on the HSM and CMF methodologies crashes are expected to decrease for No Build due to the improvements at SW 137th Avenue, SW 134th Avenue, and SW 127th Avenue per other FDOT and County projects that are being completed by 2045. With the implementation of the Build Alternatives, crashes are expected to further decrease. Based on the HSM methodology, the safety benefits between the Build Alternatives are minimal (a difference of 1.7 crashes per year). The CMF application methodology presents greater safety benefits for the Build 2 and 3 Alternatives when compared to the Build 1 Alternative. Based on the CMF methodology, the four-lane roadway with a raised median option is slightly better than the two-lane roadway with a raised median alternative (with a reduction of 16.5 more crashes per year).

Alternative Ranking:

Based on the overall potential operational and safety benefits of a no action alternative, No Build, and Build Alternatives 1, 2, and 3, the alternatives were ranked for operations and safety, each, as presented in **Table 35**. It is clear that a no action alternative is not desirable for the study corridor of SR 994, since it is expected to endure safety and operational deficiencies. The No Build alternative received the lowest ranking of -8 when compared to the other alternatives. Build 1 trails in second place with a ranking of +1. Based on the traffic simulation, Build 1 will experience significant queuing at some of the side streets due to the lack of roadway capacity along SR 994, which is to be provided by the latter alternatives. Build 3 follows with a ranking of +6. Lastly, Build 2 leads with a ranking of +8. Build 2 demonstrates better operational benefits for the entire corridor and at the main study intersections compared to Build 3. The operational benefits for the left-turning movements from/to the side streets at the unsignalized intersections are very similar for both build alternatives. However, other related needs, such as the amount of right-of-way for the implementation of Build 2 or 3 should be vetted to obtain more differentiation between these two alternatives apart from the operations and safety benefits presented in this report.

Enhancements to Preferred Alternative:

Additionally, the preferred should include a sidewalk with a sidewalk level bicycle lane on each side of the study corridor. The Department is open to considering the inclusion of this multimodal amenity in the PD&E's preferred alternative. Additional details are presented in **Section 8.2**.

Lastly, although the operational and safety analyses included the opening of the south leg at the SW 137th Avenue intersection, a sensitivity analysis was conducted to refine the preferred Build 2 Alternative. This analysis aimed to determine if turning lanes could be reconsidered at the intersections of SW 137th Avenue and SW 134th Avenue, as discussed in **Section 10.0**. The results indicate that both intersections can still maintain a level of service D while implementing the following capacity modifications:

At SW 137th Avenue:

- **Eastbound Approach:** Reduce from 2 left-turn lanes to 1 left-turn lane
- **Westbound Approach:** Reduce from 2 right-turn lanes to 1 right-turn lane
- **Northbound Approach:** Reduce from 2 left-turn lanes to 1 left-turn lane
- **Southbound Approach:** Remove right-turn lane to share with through lane

At SW 134th Avenue:

- **Eastbound Approach:** Remove right-turn lane to share with through lane
- **Westbound Approach:** Remove right-turn lane to share with through lane
- **Northbound Approach:** No changes
- **Southbound Approach:** No changes

Additionally, these modifications reduce the need for right-of-way acquisition.

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FDOT

Appendix A: Relevant Traffic Reports and Planning Studies

FLORIDA DEPARTMENT OF TRANSPORTATION

TWO 48

DISTRICT SIX – TRAFFIC OPERATIONS

Districtwide Traffic Operations & Safety Studies

June 2019

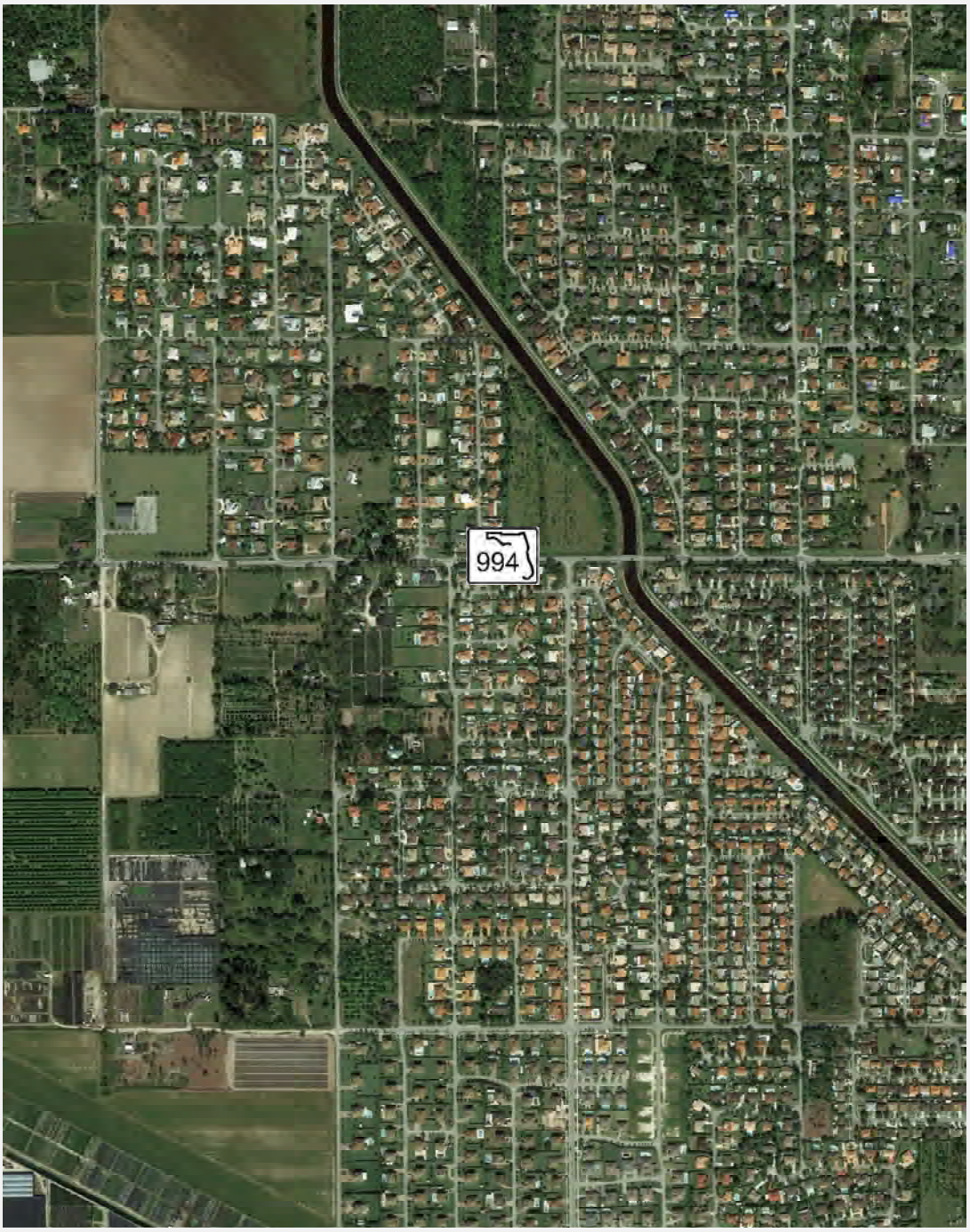
FPID 250650-4-32-01

Contract C-9R38

SR 994/Quail Roost Drive/SW 200th Street

From West of SW 137th Avenue to West of SW 127th Avenue

Section 87091000 (MP 4.035 to 4.961)



3R SAFETY REVIEW

FDOT

FDOT Project Manager: Isis Sotolongo

Resurfacing, Restoration and Rehabilitation (RRR/3R)

SAFETY REVIEW

District Six Traffic Operations

District-Wide Traffic Operations & Safety Studies

FM: 250650-4-32-01

Contract No. C-9R38

Task Work Order No. 48

SR 994 / QUAIL ROOST DRIVE / SW 200TH STREET

From West of SW 137TH Avenue to West of SW 127TH Avenue

Section 87091000 (MP 4.035 to 4.961)

FDOT Project Manager: Isis Sotolongo

TABLE OF CONTENTS

1 INTRODUCTION 1
2 EXISTING CONDITIONS 3
3 WORK PROGRAM REVIEW 5
4 CRASH ANALYSIS 6
5 FIELD REVIEW 19
6 IMPROVEMENT DEVELOPMENT 23
6.1 . CRASH PATTERNS AND COUNTERMEASURES 23
6.2 . PROPOSED IMPROVEMENTS 23
6.3 . DATA COLLECTION 26
6.4 . FEASIBILITY OF ADDING AN EASTBOUND LEFT-TURN LANE - SW 137TH AVENUE 28
6.5 . B/C ANALYSIS - SW 137TH AVENUE 28
6.6 . SIGNAL WARRANT ANALYSIS – SW 132nd Avenue 30
6.7 . FEASIBILITY OF ADDING A WESTBOUND LEFT-TURN LANE AT SW 132nd AVENUE 30
6.8 . CAPACITY ANALYSIS – SW 132ND AVENUE 31
6.9 . B/C ANALYSIS - SW 132ND AVENUE 32
7 IMPROVEMENT RECOMMENDATIONS 34
APPENDIX A – STRAIGHT LINE DIAGRAM ..... A
APPENDIX B – SIGNAL OPERATING PLAN SHEETS ..... B
APPENDIX C – COLLISION DIAGRAMS AND ANNUAL CRASH SUMMARIES C
APPENDIX D – RAW CRASH DATA ..... D
APPENDIX E – TRAFFIC DATA ..... E
APPENDIX F – COST ESTIMATE FOR SW 137TH AVENUE ..... F
APPENDIX G - B/C AND NPV ANALYSIS FOR SW 137TH AVENUE ..... G
APPENDIX H – SIGNAL WARRANT ANALYSIS – SW 132nd AVENUE ..... H
APPENDIX I – OPERATIONAL ANALYSIS I
APPENDIX J – COST ESTIMATE FOR SW 132ND AVENUE ..... J
APPENDIX K – B/C AND NPV ANALYSIS FOR SW 132ND AVENUE ..... K
APPENDIX L – COORDINATION WITH SFWMD L
APPENDIX M – ERC COMMENTS AND RESPONSES ..... M

LIST OF FIGURES

FIGURE 1.1: PROJECT LOCATION MAP 2
FIGURE 4.1: HISTOGRAMS OF CRASH SUMMARIES 10
FIGURE 4.2: CRASH DISTRIBUTION BY SECTION 11
FIGURE 7.1: PROPOSED IMPROVEMENT DIAGRAM 35

LIST OF TABLES

TABLE 4.1: CONFIDENCE LEVEL CALCULATIONS FOR THE SEGMENT 7
TABLE 4.2: CRASH SUMMARY BY TYPE – SR 994 STUDY SEGMENT 8
TABLE 4.3: CRASH SUMMARIES BY OTHER CATEGORIES – SEGMENT 9
TABLE 4.4: CRASH DISTRIBUTION BY INTERSECTIONS 11
TABLE 4.5: CRASH STATISTICS - SR 994 AT SW 137TH AVENUE 13
TABLE 4.6: CRASH SUMMARY BY DIRECTION - SR 994 AT SW 137TH AVENUE 13
TABLE 4.7: CRASH STATISTICS - SR 994 AT SW 134TH AVENUE 15
TABLE 4.8: CRASH SUMMARY BY DIRECTION - SR 994 AT SW 134TH AVENUE 15
TABLE 4.9: CRASH STATISTICS - SR 994 AT SW 132ND AVENUE 17
TABLE 4.10: CRASH STATISTICS - SR 994 AT SW 130TH AVENUE 18
TABLE 6.1: PROBABLE CAUSES & CRASH COUNTERMEASURES 23
TABLE 6.2: SUMMARY OF TRAFFIC CHARACTERISTICS - SR 994 AT SW 137TH AVENUE 26
TABLE 6.3: SUMMARY OF TRAFFIC CHARACTERISTICS - SR 994 AT SW 134TH AVENUE 27
TABLE 6.4: SUMMARY OF TRAFFIC CHARACTERISTICS - SR 994 AT SW 132ND AVENUE 27
TABLE 6.5: PRELIMINARY COST ESTIMATE FOR SR 994 AT SW 137TH AVENUE 28
TABLE 6.6: CRF CALCULATION FOR SR 994 AT SW 137TH AVENUE 29
TABLE 6.7: BENEFIT/COST CALCULATION FOR SR 994 AT SW 137TH AVENUE 29
TABLE 6.8: SUMMARY OF SIGNAL WARRANT ANALYSIS - SR 994 AT SW 132ND AVENUE 30
TABLE 6.9: OPERATIONAL ANALYSIS FOR SR 994 AT SW 132ND AVENUE 31
TABLE 6.10: PRELIMINARY COST ESTIMATE FOR SR 994 AT SW 132ND AVENUE 32
TABLE 6.11: CRF CALCULATION FOR SR 994 AT SW 132ND AVENUE 33
TABLE 6.12: BENEFIT/COST CALCULATION FOR SR 994 AT SW 132ND AVENUE 33

LIST OF EXHIBITS

EXHIBIT 5.1: FIELD OBSERVATIONS 20
EXHIBIT 5.2: FIELD OBSERVATIONS 21
EXHIBIT 5.3: FIELD OBSERVATIONS 22

ENGINEER'S CERTIFICATION

I, Keffler Castro, PE, with Florida PE No. 66437, certify that I currently hold an active Professional Engineer's License in the State of Florida and I am competent through education or experience to provide engineering services in the civil and traffic engineering disciplines contained in this report. I further certify that this report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusions and recommendations made herein are true and correct to the best of my knowledge and ability.

Project Description:

3R SAFETY REVIEW

SR 994/QUAIL ROOST DRIVE/SW 200TH STREET

FROM WEST OF SW 137TH AVENUE TO WEST OF SW 127TH AVENUE

SECTION 87091000 (MP 4.035 TO 4.961)

KEFFLER CASTRO
LICENSE
No. 66437
STATE OF FLORIDA
PROFESSIONAL ENGINEER

June 6, 2019

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CA No.25976

1 INTRODUCTION

The segment of SR 994/Quail Roost Drive/SW 200th Street from West of SW 137th Avenue to West of SW 127th Avenue was identified by the Department as a candidate for a Resurfacing, Restoration and Rehabilitation (3R) project with FM No. 443915-1. This report has been prepared in response to the Department's request for a safety review for this project. The purpose of the safety review is to identify crash patterns, suggest further review and/or recommend safety countermeasures to enhance safety and operations. Some of the recommended improvements could potentially be implemented through the subject 3R Project. **Figure 1.1** depicts the locations of the 3R safety review project.

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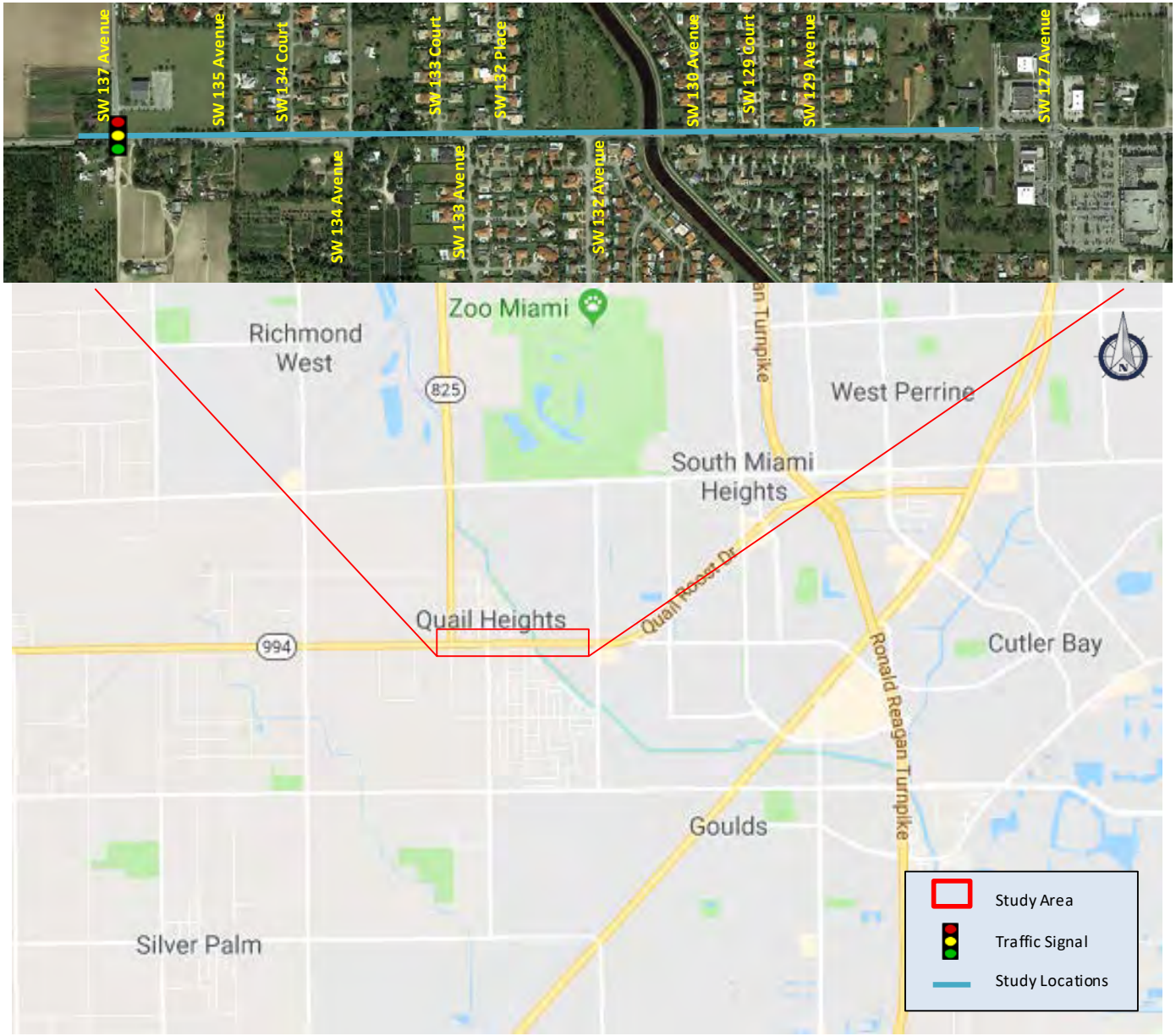

Figure 1.1: Project Location Map

2 EXISTING CONDITIONS

The approximately 1-mile study segment runs along SR 994/SW 200th Street/Quail Roost Drive, from West of SW 137th Avenue to West of SW 127th Avenue (MP 4.035 TO 4.961) in Miami-Dade County, Florida. SR 994, also called Quail Roost Drive within the study area, is identified as section 87091000 on the State Highway System (SHS).

Within the study limits, SR 994/Quail Roost Drive is classified as a rural minor arterial from MP 4.035 to MP 4.073 (SW 137th Avenue) and as an urban minor arterial from MP 4.073 to MP 4.961. SR 994/Quall Roost Drive runs in the east-west direction and its typical section consists of one travel lane in each direction. There are no sidewalks and curb/gutters along SR 994/Quail Roost Drive within the study limits. The study limits have a posted speed limit of 40 mph throughout the entire segment. The straight line diagram for the roadway section forming the study segment is included in **Appendix A**.

The study segment includes the signalized intersection of SR 994/Quail Roost Drive at SW 137th Avenue and ten (10) un-signalized intersections. The Signal Timing Information for the intersection SR 994/Quail Roost Drive at SW 137th Avenue is included as **Appendix B**. The existing lane configuration and general roadway characteristics at the signalized intersection and some of the un-signalized intersections are as follows:

<u>SR 994/Quail Roost Drive at SW 137th Avenue – MP 4.075 (Asset No. 6507)</u>

- EB Approach: One shared through/left-turn/right-turn lane.
- WB Approach: One shared through/left-turn lane and one right-turn lane.
- NB Approach: One shared through/left-turn/right-turn lane.
- SB Approach: One shared through/left-turn and one right-turn lane.

SR 994/Quail Roost Drive at SW 137th Avenue is a four-legged intersection. The eastbound, westbound, and northbound movements are controlled via mast arm traffic assembly. The southbound movements are controlled by two post-mounted signals. To the south of SW 200th Street, SW 137th Avenue is an unpaved dirt road. There are no pedestrian crossing features. A review of the signal timing information obtained from the Miami-Dade Traffic Signal site revealed the current Yellow Change Interval and All Red Clearance Interval for all movements comply with the Traffic Engineering Manual (TEM) requirements.

<u>SR 994/Quail Roost Drive at SW 134th Avenue – MP 4.328 (Un-signalized intersection)</u>

- EB Approach: One shared through/left-turn and one right-turn lane.
- WB Approach: One shared through/left-turn/right-turn lane.
- NB Approach: One shared through/left-turn/right-turn lane (Movements controlled via stop signs).
- SB Approach: One shared through/left-turn/right-turn lane (Movements controlled via stop signs).

SR 994/Quail Roost Drive at SW 130th Avenue – MP 4.700 (Un-signalized intersection)

- EB Approach: One shared through/left-turn/right-turn lane.
- WB Approach: One shared through/left-turn/right-turn lane.
- NB Approach: One shared through/left-turn/right-turn lane (Movements controlled via stop signs).
- SB Approach: One shared through/left-turn/right-turn lane (Movements controlled via stop signs).

SR 994/Quail Roost Drive at SW 129th Avenue – MP 4.835 (Un-signalized intersection)

- EB Approach: One shared through/left-turn/right-turn lane.
- WB Approach: One shared through/left-turn/right-turn lane.
- NB Approach: One left-turn lane and one right-turn lane (Movements controlled via stop signs).
- SB Approach: One shared through/left-turn/right-turn lane (Movements controlled via stop signs).

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3 WORK PROGRAM REVIEW

A review of the FIVE-YEAR FDOT Work Program and relevant studies reveal that the study corridor or intersections fall within the limits of the following projects:

FUTURE PROJECTS

- FM: 429341-3-52-01, Roadway Improvements along SR 994/Quail Roost Drive/SW 186th Street/SW 200th Street from west of SW 127th Avenue to SW 113th Avenue. The scope of work of this project includes:
  - Installing a new traffic signal and new lighting at SW 200th Street/Caribbean Boulevard
  - Installing a new traffic signal at SW 134th Avenue.
  - Repaving and restriping the roadway along the project limits.
  - Upgrading signs, pavement markings and pedestrian ramps, signals and adding push buttons.
  - Adding speed feedback signs on the eastbound and westbound approaches to the SW 113th Avenue and SW 200th Street intersections.
  - Enhancing pedestrian signals to countdown type.
  - Upgrading lighting at SW 122nd Avenue, SW 117th Avenue and SW 115th Avenue.

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4 CRASH ANALYSIS

The crash data for the latest three-year period (January 2014 to December 2016) was downloaded from the FDOT's Crash Analysis Reporting System (CARS), reviewed, and summarized for the study segments. The raw data for the segments included a total of 139 crashes. Upon reviewing the raw data and eliminating crashes that fell outside the study limits, a total of 137 crashes remained and were used for this safety review. The following is a summary of the analysis for the entire segment:

- The segment experienced a total of 137 crashes in the three-year period with a yearly breakdown of 36, 49, and 52 crashes (2014, 2015, and 2016).
- The percentage of nighttime crashes (night/dusk/dawn) was 23.4% (32 crashes), which is below the district-wide average of 29.5%.
- The percentage of crashes that occurred during wet/slippery pavement conditions was 21.2% (29 crashes), which is above the district-wide average of 15%. According to the FDOT Skid Hazard reporting system, the friction number (FN) along SR 994 eastbound and westbound directions within the limits of the study segment is between 35 and 37, and the disposition code is 91, which based on the FDOT Skid Hazard Report means 'No action required, FN adequate'. However, the RRR Project will resurface the entire pavement within the project limits.
- Based on crash severity, 34.3% (47 crashes) were injury type crashes and 65.0% (89 crashes) were property damage only crashes. There was a fatal crash during the three-year study period.
- The fatal crash (Crash No. 852268560 – Batch 2016 B10) occurred at the intersection of SR 994/Quail Roost Drive and SW 132nd Avenue on Sunday, March 20, 2016, at 8:40 PM. The crash occurred when a vehicle (dirt bike) traveling eastbound struck a westbound vehicle attempting to make a left-turn to continue southbound. The driver of the eastbound vehicle was traveling without headlights and without a helmet and died on the date of the crash. As part of a previous fatal crash disposition, no further actions were recommended for this crash.
- The leading types of crashes were rear end with 77 crashes and angle with 24 crashes. The peak period for all crashes was 3:00 PM to 6:00 PM with 37 crashes. There were no bicyclist or pedestrian crashes during all three years.

Based on FDOT's 2014-2016 High Crash Lists for spots and segments, the following locations were considered high crash spots/segments:

- SR 994/Quail Roost Drive at SW 137th Avenue (spot)
- SR 994/Quail Roost Drive at SW 134th Avenue (spot)
- SR 994/Quail Roost Drive at SW 132nd Avenue (spot)
- SR 994/Quail Roost Drive from east of SW 139th Avenue to SW 137th Avenue (segment)
- SR 994/Quail Roost Drive from SW 137th Avenue to west of SW 127th Avenue (segment)

Table 4.1 shows the confidence level for the study segment which was calculated at 75.00% for the year 2014, 90.00% for 2015, and 50.00% for the year 2016. Segments with a confidence level of 99.95%, or higher, have such probability of their crash rates being abnormally high.

Table 4.1: Confidence Level Calculations for the Segment

Year	2014	2015	2016
Number of Crashes	36	49	52
Average Daily Traffic (ADT)	17,016	17,402	17,960
Actual Crash Rate (ACR)	6.260	8.331	8.566
District 6 Average Crash Rate (A)	5.539	6.909	8.075
Average Vehicle Exposure (M)	5.751	5.882	6.070
Critical Crash Rate (CCR)	8.682	10.391	11.789
Safety Ratio	0.638	0.665	0.685
Statistical Significance	0.823	1.390	0.497
Confidence Level	75.00%	90.00%	50.00%

Table 4.2 presents a summary by crash type for the segment. **Table 4.3** presents a crash summary by different categories such as lighting conditions, surface conditions and weather conditions. The same information is depicted graphically in **Figure 4.1** for visual comparison.

Table 4.4 and **Figure 4.2** present an overall perspective of the clustering and staggering of crashes along the study segment. From these, the following intersections will be further investigated:

- SR 994/Quail Roost Drive at SW 137th Avenue.
- SR 994/Quail Roost Drive at SW 134th Avenue.
- SR 994/Quail Roost Drive at SW 132nd Avenue.
- SR 994/Quail Roost Drive at SW 130th Avenue.

Collision Diagrams were prepared for the crash clusters for the analysis period of January 2014 through December 2016, and are presented in **Appendix C**. The raw crash data for the segment is also presented in **Appendix D**.

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Table 4.2: Crash Summary by Type – SR 994 Study Segment

SR 994 / Quail Roost Dr from W of SW 137th Avenue to W of SW 127th Avenue		Number of Crashes Year			3 Year Total Crashes	Mean Crashes Per Year	%
		2014	2015	2016			
CRASH TYPE	Rear End	22	27	28	77	26	56.2%
	Head On	0	2	3	5	2	3.6%
	Angle	4	6	14	24	8	17.5%
	Left Turn	1	4	1	6	2	4.4%
	Right Turn	3	0	1	4	1	2.9%
	Sideswipe	3	3	2	8	3	5.8%
	Backed Into	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0.0%
	Bicycle	0	0	0	0	0	0.0%
	Fixed Object	*0*	*6*	*3*	*9*	*3*	*6.6%*
	Impact Attenuator/Crash Cushion	0	0	0	0	0	0.0%
	Bridge Overhead Structure	0	0	0	0	0	0.0%
	Bridge Pier or Support	0	0	0	0	0	0.0%
	Bridge Rail	0	1	0	1	0	0.7%
	Culvert	0	0	0	0	0	0.0%
	Curb	0	0	0	0	0	0.0%
	Ditch	0	0	0	0	0	0.0%
	Embankment	0	0	0	0	0	0.0%
	Guardrail Face	0	0	1	1	0	0.7%
	Guardrail End	0	0	0	0	0	0.0%
	Cable Barrier	0	0	0	0	0	0.0%
	Concrete Traffic Barrier	0	0	0	0	0	0.0%
	Other Traffic Barrier	0	0	0	0	0	0.0%
	Tree (Standing)	0	2	2	4	1	2.9%
	Utility Pole/Light Support	0	0	0	0	0	0.0%
	Traffic Sign Support	0	0	0	0	0	0.0%
	Traffic Signal Support	0	0	0	0	0	0.0%
	Other Post, Pole Or Support	0	0	0	0	0	0.0%
	Fence	0	3	0	3	1	2.2%
	Mailbox	0	0	0	0	0	0.0%
	Other Fixed Object	0	0	0	0	0	0.0%
	Other Non Fixed Object Collisions	*2*	*1*	*0*	*3*	*1*	*2.2%*
	Railway Vehicle (Train, Engine)	0	0	0	0	0	0.0%
	Animal	1	1	0	2	1	1.5%
	Motor Vehicle in Transport	1	0	0	1	0	0.7%
	Parked Motor Vehicle	0	0	0	0	0	0.0%
	Work Zone/Maintenance Equip.	0	0	0	0	0	0.0%
	Struck by Falling/Shifting Cargo	0	0	0	0	0	0.0%
	Other Non-Fixed Object	0	0	0	0	0	0.0%
	Non-Collisions	*1*	*0*	*0*	*1*	*0*	*0.7%*
	Overturn/Rollover	0	0	0	0	0	0.0%
	Fire/Explosion	0	0	0	0	0	0.0%
	Immersion	0	0	0	0	0	0.0%
	Jackknife	0	0	0	0	0	0.0%
	Cargo/Equipment Loss or Shift	1	0	0	1	0	0.7%
	Fell/Jumped from Motor Vehicle	0	0	0	0	0	0.0%
	Thrown or Falling Object	0	0	0	0	0	0.0%
	Ran into Water/Canal	0	0	0	0	0	0.0%
	Other Non-Collision	0	0	0	0	0	0.0%
	Others	0	0	0	0	0	0.0%
	Total Crashes	**36**	**49**	**52**	**137**	**46**	**100.0%**

Table 4.3: Crash Summaries by Other Categories – Segment

SR 994 / Quail Roost Dr from W of SW 137th Avenue to W of SW 127th Avenue		Number of Crashes Year			3 Year Total Crashes	Mean Crashes Per Year	%
		2014	2015	2016			
SEVERITY	PDO Crashes	20	34	35	89	30	65.0%
	Fatal Crashes	0	0	1	1	0	0.7%
	Injury Crashes	16	15	16	47	16	34.3%
LIGHTING CONDITIONS	Daylight	24	38	43	105	35	76.6%
	Dusk	0	0	0	0	0	0.0%
	Dawn	0	0	1	1	0	0.7%
	Dark	12	11	8	31	10	22.6%
	Unknown	0	0	0	0	0	0.0%
SURFACE CONDITIONS	Dry	29	36	43	108	36	78.8%
	Wet	7	13	9	29	10	21.2%
	Others	0	0	0	0	0	0.0%
MONTH OF YEAR	January	6	3	2	11	4	8.0%
	February	3	6	3	12	4	8.8%
	March	5	4	5	14	5	10.2%
	April	1	1	4	6	2	4.4%
	May	0	2	3	5	2	3.6%
	June	3	6	5	14	5	10.2%
	July	2	2	5	9	3	6.6%
	August	5	3	2	10	3	7.3%
	September	3	7	5	15	5	10.9%
	October	2	3	7	12	4	8.8%
	November	4	5	6	15	5	10.9%
	December	2	7	5	14	5	10.2%
DAY OF WEEK	Monday	5	6	9	20	7	14.6%
	Tuesday	6	6	7	19	6	13.9%
	Wednesday	7	9	8	24	8	17.5%
	Thursday	5	8	9	22	7	16.1%
	Friday	5	9	10	24	8	17.5%
	Saturday	4	7	5	16	5	11.7%
	Sunday	4	4	4	12	4	8.8%
HOUR OF DAY	00:00-06:00	5	1	2	8	3	5.8%
	06:00-09:00	8	12	11	31	10	22.6%
	09:00-11:00	3	7	5	15	5	10.9%
	11:00-13:00	0	5	4	9	3	6.6%
	13:00-15:00	4	5	1	10	3	7.3%
	15:00-18:00	9	11	17	37	12	27.0%
	18:00-21:00	6	3	10	19	6	13.9%
	21:00-24:00	1	5	2	8	3	5.8%
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	1	4	0	5	2	3.6%
	Careless or Negligent Manner	18	25	32	75	25	54.7%
	Failed to Yield Right-Of-Way	5	9	10	24	8	17.5%
	Improper Backing	0	0	0	0	0	0.0%
	Improper Turn	1	0	0	1	0	0.7%
	Followed too Closely	2	3	1	6	2	4.4%
	Ran Red Light	0	0	1	1	0	0.7%
	Ran Stop Sign	3	1	3	7	2	5.1%
	Improper Passing	1	1	0	2	1	1.5%
	Failed To Keep In Proper Lane	2	2	0	4	1	2.9%
	Over-Correcting/Over-Steering	0	1	0	1	0	0.7%
	Swerved Or Avoided	0	3	2	5	2	3.6%
	Erratic, Reckless or Aggressive	0	0	1	1	0	0.7%
	Other Contributing Action	3	0	2	5	2	3.6%
WEATHER CONDITIONS	Clear	22	29	27	78	26	56.9%
	Cloudy	11	11	17	39	13	28.5%
	Rain	3	9	8	20	7	14.6%

Figure 4.1: Histograms of Crash Summaries

Table 4.4: Crash Distribution by Intersections

Location	2014	2015	2016	PDO	Injury	Fatal	Totals	Average
SW 137th Avenue	6	19	14	29	10	0	39	13
SW 135th Avenue	2	1	2	3	2	0	5	2
SW 134th Court	0	0	0	0	0	0	0	0
SW 134th Avenue	15	10	12	22	15	0	37	12
SW 133rd Court	0	1	2	3	0	0	3	1
SW 133rd Avenue	1	4	3	6	2	0	8	3
SW 132nd Place	1	0	0	0	1	0	1	0
SW 132nd Avenue	7	6	8	10	10	1	21	7
SW 130th Avenue	1	6	6	9	4	0	13	4
SW 129th Court	0	0	0	0	0	0	0	0
SW 129th Avenue	3	2	5	7	3	0	10	3
Total	**36**	**49**	**52**	**89**	**47**	**1**	**137**	**45**

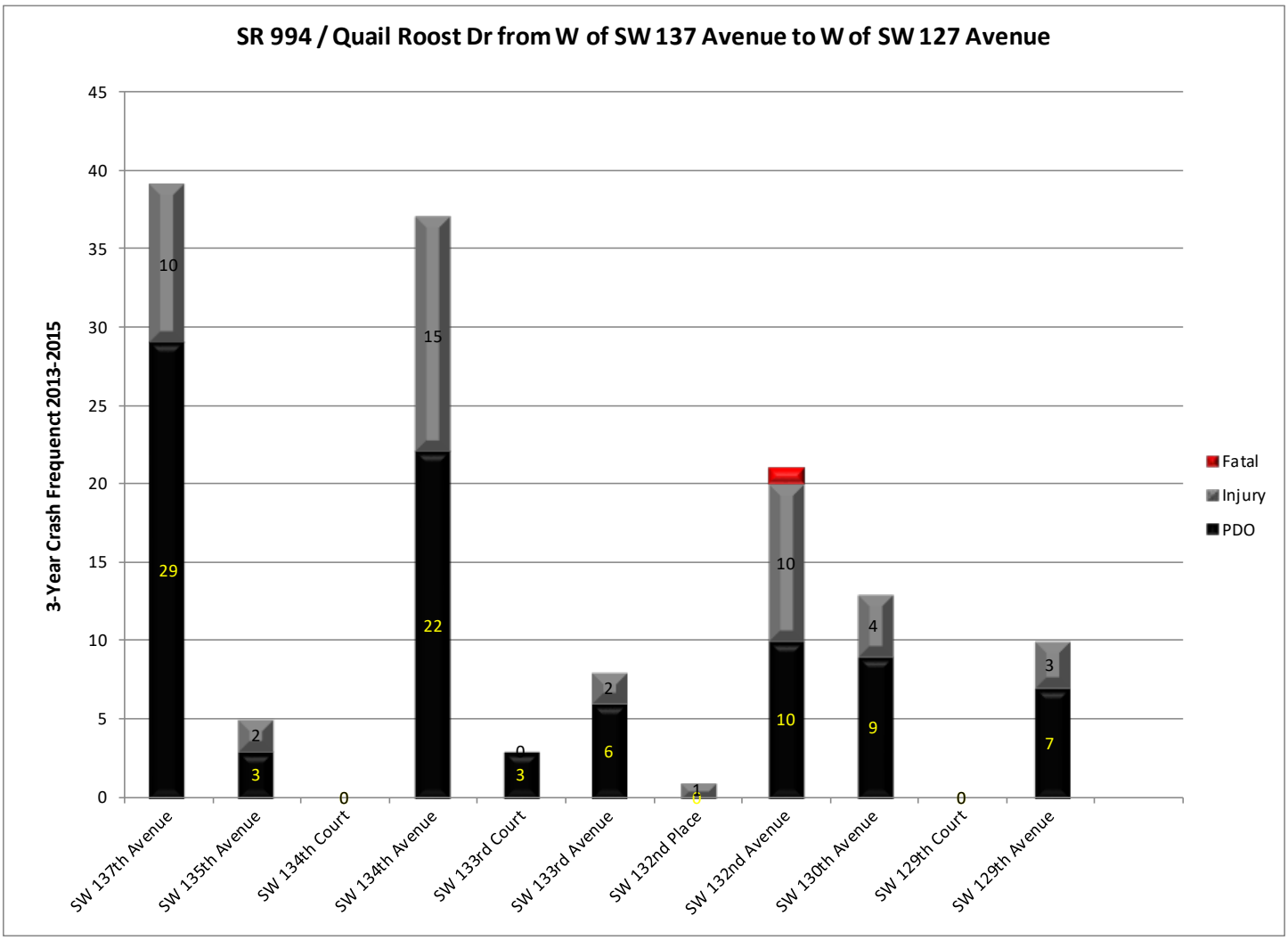

Figure 4.2: Crash Distribution by Section

Cluster 1 – SR 994/Quail Roost Drive at SW 137th Avenue

Given that there are not expected values for the geometric layout of this intersection (2 Lane x 2 Lane), an expected value analysis was not performed. A frequency analysis was performed instead.

- Overall, there were 39 crashes in the three-year study period with a yearly breakdown of 6, 19, and 14 crashes (2014, 2015, and 2016).
- Based on crash severity, 25.6% (10 crashes) were injury type crashes and 74.4% (29 crashes) were property damage only crashes. There were no fatal crashes during the three-year study period.
- The percentage of crashes that occurred during nighttime (night/dusk/dawn) was 25.6% (10 crashes), which is below the district-wide average of 29.5%; and the percentage of crashes that occurred during wet/slippery pavement conditions was 23.1% (9 crashes), which is above the district-wide average of 15%.
- The peak period for all crashes was 3:00 PM to 6:00 PM with 35.9% (14 crashes).
- The most predominant crash type was rear-end at 71.8% (28 crashes).
- Of the 28 rear end crashes, 22 involved eastbound vehicles, three (3) westbound vehicles, and three (3) southbound vehicles. The review of police reports revealed that the majority of the rear end crashes occurred when eastbound vehicles struck the queue created by eastbound left-turning vehicles standing at the intersection, waiting for a gap to perform left-turn movements. Thirteen (13) of the 28 crashes occurred between 3:00 PM to 6:00 PM.
- A review of Signal 4 Analytics Database revealed an additional three (3) eastbound rear end crashes in 2017 and three (3) eastbound rear end crashes in 2018.
- There were three (3) collision with fixed object during the three-year study period. Two (2) crashes involved vehicles traveling westbound and one (1) crash involved a vehicle traveling southbound. The first crash occurred when a westbound vehicle traveling under dry pavement conditions was blinded by the lights of an opposing vehicle, causing the driver to lose control of vehicle and hit a tree. The second crash occurred under wet pavement conditions when the driver of a southbound vehicle lost control for an unknown reason and struck a fence. The final crash occurred when a westbound vehicle traveling under dry pavement conditions swerved to avoid another vehicle while making a left turn and hit a concrete utility pole.
- There were three (3) head-on crashes during the study period. The first crash occurred under wet pavement conditions when a westbound driver crossing the intersection of SR 994/SW 200 Street and SW 137 Avenue drifted into the eastbound lane and struck another vehicle. The second crash occurred under dry pavement conditions when a northbound driver, after turning from SR 994/SW 200 Street, made a wide turn to avoid a ditch at the northeast corner and struck a southbound vehicle head-on. The final crash occurred under dry pavement conditions when a southbound vehicle lost control of the vehicle due to their dog attempting to jump out the car window and struck a northbound vehicle.

Table 4.5 summarizes the crash statistics of the intersection. **Table 4.6** presents a summary of rear end crashes by direction.

Table 4.5: Crash Statistics - SR 994 at SW 137th Avenue

SR 994 / Quail Roost Drive at SW 137th Avenue Segment/Spot with No Expected Values Available		Number of Crashes Year 2014	2015	2016	3 Year Total Crashes	Mean Crashes Per Year	%
CRASH TYPE	Rear End	6	12	10	28	9.33	71.8%
	Head On	0	1	2	3	1.00	7.7%
	Angle	0	1	1	2	0.67	5.1%
	Left Turn	0	2	0	2	0.67	5.1%
	Right Turn	0	0	0	0	0.00	0.0%
	Sideswipe	0	1	0	1	0.33	2.6%
	Backed Into	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0.00	0.0%
	Fixed Object	0	2	1	3	1.00	7.7%
	Other Non-Collisions	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0.00	0.0%
	Others	0	0	0	0	0.00	0.0%
	Total Crashes	**6**	**19**	**14**	**39**	**13.00**	**100.0%**
SEVERITY	PDO Crashes	5	12	12	29	9.67	74.4%
	Fatal Crashes	0	0	0	0	0.00	0.0%
	Injury Crashes	1	7	2	10	3.33	25.6%
LIGHTING CONDITIONS	Daylight	5	13	11	29	9.67	74.4%
	Dusk	0	0	0	0	0.00	0.0%
	Dawn	0	0	1	1	0.33	2.6%
	Dark	1	6	2	9	3.00	23.1%
	Unknown	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	4	12	14	30	10.00	76.9%
	Wet	2	7	0	9	3.00	23.1%
	Others	0	0	0	0	0.00	0.0%

Table 4.6: Crash Summary by Direction - SR 994 at SW 137th Avenue

SR 994 / Quail Roost Drive at SW 137th Avenue		Number of Crashes Year 2014	2015	2016	3 Year Total Crashes	Mean Crashes Per Year	%
CRASH TYPE	**Rear End**	**6**	**12**	**10**	**28**	**9.33**	
	E & E	5	10	7	22	7.33	78.6%
	W & W	0	0	3	3	1.00	10.7%
	N & N	0	0	0	0	0.00	0.0%
	S & S	1	2	0	3	1.00	10.7%

Cluster 2 – SR 994/Quail Roost Drive at SW 134th Avenue

Given that there are not expected values for the geometric layout of this intersection (2 Lane x 2 Lane), an expected value analysis was not performed. A frequency analysis was performed instead.

- Overall, there were 37 crashes in the three-year study period with a yearly breakdown of 15, 10, and 12 crashes (2014, 2015, and 2016).
- Based on crash severity, 40.5% (15 crashes) were injury type crashes and 59.5% (22 crashes) were property damage only crashes. There were no fatal crashes during the three-year study period.
- The percentage of crashes that occurred during nighttime (night/dusk/dawn) was 24.3% (9 crashes), which is below the district-wide average of 29.5%; and the percentage of crashes that occurred during wet/slippery pavement conditions was 13.5% (5 crashes), which is below the district-wide average of 15%.
- Although, there is a slight peak period for all crashes between 6:00 AM and 9:00 AM with 27.0% (10 crashes), the crashes were spread out during the day and night.
- The most predominant crash types were angle at 37.8% (14 crashes) and rear-end at 35.1% (13 crashes).
- Of the 14 angle crashes, 13 crashes involved northbound vehicles with seven (7) attempting to make left-turn and six (6) attempting to continue straight on SW 134th Avenue. Failing to obey a traffic control device (stop sign) was the contributing cause of the majority of the angle crashes. There was no clear peak period for the angle crashes; instead, they were spread out during the day and night. It is noted that eight (8) of the 14 angle crashes occurred in 2016 with six (6) crashes involving northbound and eastbound vehicles and two (2) crashes involving northbound and westbound vehicles.
- Of the 13 rear end crashes, six (6) involved eastbound vehicles, five (5) northbound vehicles, one (1) westbound vehicles and one (1) southbound vehicles. The review of police reports revealed that the majority of the rear end crashes occurred when through vehicles failed to observe left-turning vehicles at the intersection waiting for a gap to perform left-turn movements. The peak periods for rear end crashes were (6:00 AM to 9 AM) and (3:00 PM to 6:00 PM) with five (5) (38.5%) and four (4) (30.8) crashes, respectively.
- A review of Signal Four Analytics Database revealed eight (8) angle crashes in 2017 and eight (8) angle crashes in 2018. Of the 16 angle crashes, eight (8) involved northbound vehicles colliding with eastbound vehicles, five (5) involved northbound vehicles colliding with westbound vehicles, and three (3) involved southbound vehicles colliding with eastbound vehicles. Failing to obey a traffic control device (stop sign) was the contributing cause of the majority of the angle crashes. The peak period for angle crashes was from 6 AM to 9 AM with five (5) angle crashes (31%).

Table 4.7 summarizes the crash statistics of the intersection. **Table 4.8** presents a summary of angle and rear end crashes by direction.

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Table 4.7: Crash Statistics - SR 994 at SW 134th Avenue

SR 994 / Quail Roost Drive at SW 134th Avenue Segment/Spot with No Expected Values Available		Number of Crashes Year 2014	2015	2016	3 Year Total Crashes	Mean Crashes Per Year	%
CRASH TYPE	Rear End	7	3	3	13	4.33	35.1%
	Head On	0	1	0	1	0.33	2.7%
	Angle	4	2	8	14	4.67	37.8%
	Left Turn	0	2	0	2	0.67	5.4%
	Right Turn	1	0	0	1	0.33	2.7%
	Sideswipe	2	2	1	5	1.67	13.5%
	Backed Into	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0.00	0.0%
	Fixed Object	0	0	0	0	0.00	0.0%
	Other Non-Collisions	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0.00	0.0%
	Others	1	0	0	1	0.33	2.7%
	Total Crashes	**15**	**10**	**12**	**37**	**12.33**	**100.0%**
SEVERITY	PDO Crashes	8	7	7	22	7.33	59.5%
	Fatal Crashes	0	0	0	0	0.00	0.0%
	Injury Crashes	7	3	5	15	5.00	40.5%
LIGHTING CONDITIONS	Daylight	9	7	12	28	9.33	75.7%
	Dusk	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0.00	0.0%
	Dark	6	3	0	9	3.00	24.3%
	Unknown	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	13	9	10	32	10.67	86.5%
	Wet	2	1	2	5	1.67	13.5%
	Others	0	0	0	0	0.00	0.0%

Table 4.8: Crash Summary by Direction - SR 994 at SW 134th Avenue

SR 994 / Quail Roost Drive at SW 134th Avenue		Number of Crashes Year 2014	2015	2016	3 Year Total Crashes	Mean Crashes Per Year	%
CRASH TYPE	**Rear End**	**7**	**3**	**3**	**13**	**4.33**	
	E & E	4	2	0	6	2.00	46.2%
	W & W	1	0	0	1	0.33	7.7%
	N & N	2	1	2	5	1.67	38.5%
	S & S	0	0	1	1	0.33	7.7%
	Angle	**4**	**2**	**8**	**14**	**4.67**	
	E & N	2	1	6	9	3.00	64.3%
	E & S	0	0	0	0	0.00	0.0%
	W & N	1	1	2	4	1.33	28.6%
	W & S	1	0	0	1	0.33	7.1%

Cluster 3 – SR 994/Quail Roost Drive at SW 132nd Avenue

Given that there are not expected values for the geometric layout of this intersection (2 Lane x 2 Lane), an expected value analysis was not performed. A frequency analysis was performed instead.

- Overall, there were 21 crashes in the three-year study period with a yearly breakdown of 7, 6, and 8 crashes (2014, 2015, and 2016).
- Based on crash severity, 47.6% (10 crashes) were injury type crashes and 47.6% (10 crashes) were property damage only crashes. There was a fatal crash during the three-year study period. As discussed at the beginning of Section 4, the crash occurred on Sunday, March 20, 2016, at 8:40 PM when a dirt bike traveling eastbound struck a westbound vehicle attempting to make a left-turn to continue southbound. The dirt bike driver was traveling without headlights and without a helmet and died on the same date of the crash. The fatal crash disposition did not recommend any further actions for this crash.
- The percentage of crashes that occurred during nighttime (night/dusk/dawn) was 23.8% (5 crashes), which is below the district-wide average of 29.5%; and the percentage of crashes that occurred during wet/slippery pavement conditions was 38.1% (8 crashes), which is above the district-wide average of 15%.
- Although, there is a slight peak period for all crashes between 3:00 PM and 6:00 PM with 23.8% (5 crashes), the crashes were spread out during the day and night.
- The most predominant crash type was rear end at 66.7% (14 crashes).
- Of the 14 rear end crashes, 13 involved westbound vehicles and one (1) involved northbound vehicles. The review of police reports revealed that the majority of the rear end crashes occurred when westbound through vehicles failed to observe left-turning vehicles stopped at the intersection, waiting for a gap to perform left-turn movements. The majority of the rear end crashes occurred during the afternoon peak period.
- A review of Signal4 Analytics Database revealed six (6) rear end crashes in 2017 and one (1) rear end crash in 2018.

Table 4.9 summarizes the crash statistics of the intersection.

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Table 4.9: Crash Statistics - SR 994 at SW 132nd Avenue

SR 994 / Quail Roost Drive at SW 132nd Avenue Segment/Spot with No Expected Values Available		Number of Crashes Year 2014	2015	2016	3 Year Total Crashes	Mean Crashes Per Year	%
CRASH TYPE	Rear End	5	3	6	14	4.67	66.7%
	Head On	0	0	1	1	0.33	4.8%
	Angle	0	1	0	1	0.33	4.8%
	Left Turn	0	0	1	1	0.33	4.8%
	Right Turn	0	0	0	0	0.00	0.0%
	Sideswipe	0	0	0	0	0.00	0.0%
	Backed Into	0	0	0	0	0.00	0.0%
	Coll. w/ Parked Car	0	0	0	0	0.00	0.0%
	Coll. w/ Pedestrian	0	0	0	0	0.00	0.0%
	Coll. w/ Bicycle	0	0	0	0	0.00	0.0%
	Fixed Object	0	2	0	2	0.67	9.5%
	Ran Off Road	0	0	0	0	0.00	0.0%
	Overturned	0	0	0	0	0.00	0.0%
	Other	2	0	0	2	0.67	9.5%
	Total Crashes	**7**	**6**	**8**	**21**	**7.00**	**100.0%**
SEVERITY	PDO Crashes	3	4	3	10	3.33	47.6%
	Fatal Crashes	0	0	1	1	0.33	4.8%
	Injury Crashes	4	2	4	10	3.33	47.6%
LIGHTING CONDITIONS	Daylight	6	6	4	16	5.33	76.2%
	Dusk	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0.00	0.0%
	Dark	1	0	4	5	1.67	23.8%
	Unknown	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	5	4	4	13	4.33	61.9%
	Wet	2	2	4	8	2.67	38.1%
	Others	0	0	0	0	0.00	0.0%

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Cluster 4– SR 994/Quail Roost Drive at SW 130th Avenue

Given that there are not expected values for the geometric layout of this intersection (2 Lane x 2 Lane), an expected value analysis was not performed. A frequency analysis was performed instead.

- Overall, there were 13 crashes in the three-year study period with a yearly breakdown of 1, 6, and 6 crashes (2014, 2015, and 2016).
- Based on crash severity, 30.8% (4 crashes) were injury type crashes and 69.2% (9 crashes) were property damage only crashes.
- The percentage of crashes that occurred during nighttime (night/dusk/dawn) was 30.8% (4 crashes), which is above the district-wide average of 29.5%; and the percentage of crashes that occurred during wet/slippery pavement conditions was 15.4% (2 crashes), which is slightly above the district-wide average of 15%.
- The most predominant crash type was rear end at 61.5% (8 crashes).
- Of the eight (8) rear end crashes, six (6) involved eastbound and two (2) westbound vehicles.
- A review of Signal 4 Analytics Database revealed one (1) rear end crash in 2017 and two (2) rear end crashes in 2018, and therefore, rear end crashes will not be further investigated.

Table 4.10 summarizes the crash statistics of the intersection.

Table 4.10: Crash Statistics - SR 994 at SW 130th Avenue

SR 994 / Quail Roost Drive at SW 130th Avenue Segment/Spot with No Expected Values Available		Number of Crashes			3 Year Total Crashes	Mean Crashes Per Year	%
		Year					
		2014	2015	2016			
CRASH TYPE	Rear End	0	4	4	8	2.67	61.5%
	Head On	0	0	0	0	0.00	0.0%
	Angle	0	1	2	3	1.00	23.1%
	Left Turn	0	0	0	0	0.00	0.0%
	Right Turn	1	0	0	1	0.33	7.7%
	Sideswipe	0	0	0	0	0.00	0.0%
	Backed Into	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0.00	0.0%
	Fixed Object	0	0	0	0	0.00	0.0%
	Other Non-Collisions	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0.00	0.0%
	Others	0	1	0	1	0.33	7.7%
	Total Crashes	**1**	**6**	**6**	**13**	**4.33**	**100.0%**
SEVERITY	PDO Crashes	1	5	3	9	3.00	69.2%
	Fatal Crashes	0	0	0	0	0.00	0.0%
	Injury Crashes	0	1	3	4	1.33	30.8%
LIGHTING CONDITIONS	Daylight	0	5	4	9	3.00	69.2%
	Dusk	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0.00	0.0%
	Dark	1	1	2	4	1.33	30.8%
	Unknown	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	1	5	5	11	3.67	84.6%
	Wet	0	1	1	2	0.67	15.4%
	Others	0	0	0	0	0.00	0.0%

5 FIELD REVIEW

The field reviews were conducted on Tuesday, January 29, 2019 between 3:00 PM and 6:00 PM and on Wednesday, January 30, 2019 between 7:00 AM and 9:00 AM. The findings of all field reviews are summarized below:

SR 994/Quail Roost Drive at SW 137th Avenue

1. During the AM Peak period, all legs of the intersection were able to clear their queues during the green phase.
2. During the PM Peak period, eastbound and westbound traffic was able to clear during the green phase, but southbound left-turning traffic required two cycles to clear the intersection. Additionally, the southbound queue appears to be metered by an all-way stop controlled intersection at SW 192nd Street. The southbound queue from SW 192nd Street extends to SW 184th Street.
3. During both AM and PM Peak periods, eastbound left-turn traffic was forced to stop and wait for gaps in westbound traffic to complete a left-turn to travel northbound on SW 137th Avenue. Sufficient gaps appeared to allow these movements during the green phase.
4. On the west leg of the intersection, trees are obstructing eastbound drivers' view to the signal heads.

SR 994/Quail Roost Drive at SW 134th Avenue

5. During the AM Peak period, traffic in the eastbound direction was light with large gaps and traffic in the westbound direction was moderate with occasional gaps.
6. During both AM and PM Peak periods, long queues formed on the northbound approach due to insufficient gaps to allow through or left-turn movements. The longest queues observed during the AM and PM Peak periods were 16 vehicles and 13 vehicles, respectively.
7. Westbound left-turn vehicles stopping to wait for gaps in eastbound traffic caused backups on the east leg of the intersection. Some drivers were observed traveling on the grass around the stopped vehicle. Additionally, westbound turning vehicles were observed stopping to provide gaps for northbound turning and through vehicles.

SR 994/Quail Roost Drive at SW 132nd Avenue

8. During both AM Peak and PM Peak periods, traffic was heavy in the eastbound direction, occasionally stopping due to traffic further downstream of the intersection. This provided gaps in eastbound traffic for westbound and northbound vehicles to attempt left-turn movements.
9. During the PM Peak period, traffic was heavy in the westbound direction and westbound left-turning vehicles were forced to stop and wait for a gap, causing a backup on the east leg of the intersection.
10. During the AM Peak period, queues formed on the south leg due to northbound left and right turn movements waiting at the stop bar for a sufficient gap to appear in traffic on SR 994/Quail Roost Drive. The longest queue observed during the AM Peak period was 13 vehicles.
11. The heavy eastbound traffic led to both northbound and westbound drivers attempted risky maneuvers to make left-turns at the intersection.
12. The truncated domes at the southwest corner have been significantly worn away.

Exhibit 5.1 to **5.4** depicts photographs taken during field observations.

Exhibit 5.1: Field Observations

Photo 1 - Comment 2

Southbound queue on SW 137th Avenue at SR 994/Quail Roost Drive/SW 200th Street

Photo 2 - Comment 2

Southbound queue on SW 137th Avenue extending nearly to SW 184th Street/Eureka Drive

Photo 3 - Comment 4

Eastbound signal head obstructed by vegetation at SW 137th Avenue

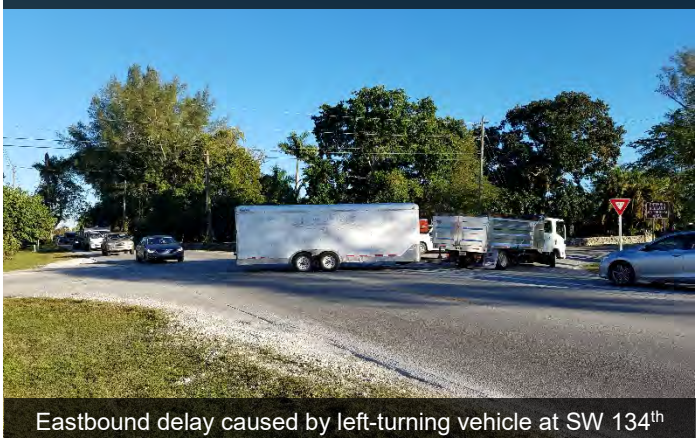
Photo 4 - Comment 4

Vegetation obstructing eastbound signal head at SW 137th Avenue

Photo 5 - Comment 6

Long northbound queues at SW 134th Avenue

Photo 6 - Comment 7



Eastbound delay caused by left-turning vehicle at SW 134th Avenue

Exhibit 5.2: Field Observations

Photo 7 – Comment 7

Eastbound through vehicle driving around an eastbound left-turn vehicle stopped awaiting gap to turn at SW 134th Avenue

Photo 8 – Comment 10

Northbound queue at SW 132nd Avenue extending approximately 300 ft

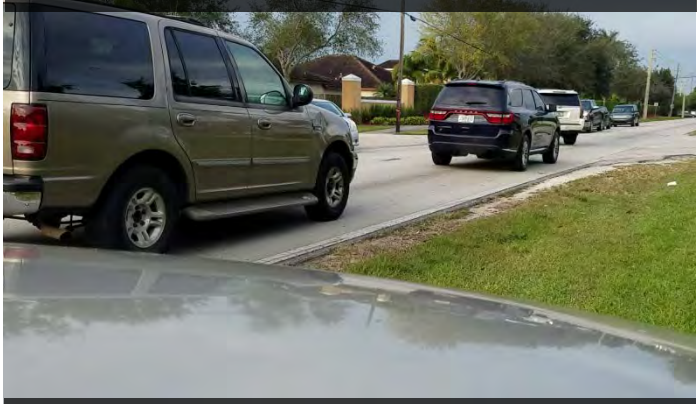
Photo 9 – Comment 11

Northbound left-turn vehicle turning in front of westbound traffic at SW 132nd Avenue

Photo 10 – Comment 12

Truncated domes at southwest corner have been significantly worn down by vehicular traffic at SW 132nd Avenue

Photo 11 – Comment 15



Eastbound vehicles stopped to allow westbound vehicle to make left-turn at SW 129th Avenue

Photo 12 – Comment 16

Westbound through vehicle driving around a westbound left-turn vehicle stopped awaiting gap to turn

Exhibit 5.3: Field Observations

Photo 13 – Comment 17

School bus stop at SW 129th Avenue

Photo 14 – Comment 17

School bus stop at SW 129th Avenue

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6 IMPROVEMENT DEVELOPMENT

6.1 CRASH PATTERNS AND COUNTERMEASURES

Table 6.1 details the crash types to target for mitigation, probable contributing causes, and possible crash countermeasures. These countermeasures were used as the foundation to develop conceptual improvements to reduce the identified crash patterns and improve motorists' safety (and traffic operations) along the study segment.

Table 6.1: Probable Causes & Crash Countermeasures

Cluster	Crash Pattern(s)	Probable Cause(s)	Possible Countermeasure(s)
SW 137th Avenue	Rear end	- High demand of left-turn traffic - Lack of left-turn lane - Lack of adequate gaps - Speed differential - Lack of visibility to the signal heads	- Install additional advance traffic control signs - Provide left-turn lane - Trim landscaping
SW 134th Avenue	Angle	- High demand of side street Traffic - Lack of visibility to oncoming traffic - Lack of adequate gaps	- Installing a signal
	Rear end	- High demand of left-turn traffic	- Provide left-turn lane
SW 132nd Avenue	Rear end	- High demand of left-turn traffic - Lack of left-turn lane - Lack of adequate gaps - Speed differential	- Installing a signal - Provide left-turn lane

6.2 PROPOSED IMPROVEMENTS

Cluster 1 – SR 994/Quail Roost Drive at SW 137th Avenue

Crash Pattern:

- Rear end involving eastbound through vehicles and eastbound vehicles stopped due to left-turning vehicles.

Probable Cause:

- Lack of left-turn lane.
- Congestion/Lack of capacity.
- Lack of adequate gaps.
- Speed differential.
- Lack of visibility to the signal heads.

Recommended Improvements:

- Provide a left-turn lane on the eastbound approach. *A preliminary review of the intersection revealed there may not be sufficient right-of-way for accommodating the left-turn lane for the eastbound approach. Therefore, right-of-way acquisition may be necessary to implement this improvement.*
- Install a 'BE PREPARED TO STOP' sign (W3-4) with flashing beacons facing the eastbound approach. *A benefit cost analysis may be necessary before the implementation of this improvement.*
- Trim landscaping limiting the visibility to signal heads facing the eastbound approach.

Cluster 2 – SR 994/Quail Roost Drive at SW 134th Avenue

Crash Pattern:

- Angle crashes involving mostly northbound and westbound vehicles

Probable Cause:

- Failing to yield the right-of-way.
- Lack of adequate gaps.
- Congestion/Lack of capacity/Heavy demand on the side street.

Recommended Improvements:

- Install a traffic signal. The crash history of the intersection and field observations reveal moderate demand, an excessive delay of northbound vehicles approaching the intersection.

Crash Pattern:

- Rear end involving westbound through vehicles and westbound vehicles stopped due to left-turning vehicles

Probable Cause:

- Lack of left-turn lane.
- Congestion/Lack of capacity.
- Lack of adequate gaps.
- Speed differential.

Recommended Improvements:

- Evaluate the feasibility of providing a left-turn lane on the westbound approach.

It is noted that previous studies were conducted by the Department at this intersection and a traffic signal will be installed at this intersection under the RRR project FM No. 429341-3. Based on the plans, the new signalized intersection will also include a westbound left-turn lane, curb and gutters, drainage, and lighting improvements.

Cluster 3 – SR 994/Quail Roost Drive at SW 132nd Avenue

Crash Pattern:

- Rear end crashes involving westbound through vehicles and left-turning vehicles

Probable Cause:

- Lack of left-turn lane
- Congestion/Lack of capacity
- Lack of adequate gaps
- Speed differential

Recommended Improvements:

- Install a traffic signal. The crash history of the intersection and field observations reveal moderate demand, an excessive delay of northbound vehicles approaching the intersection.
- Evaluate the feasibility of providing a left-turn lane on the westbound approach.

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6.3 DATA COLLECTION

The data collection efforts for this study consisted of 72-hr Automated Traffic Recorders (ATRs) and Turning Movement Counts (TMCs) at the following locations within the study area:

- SR 994/Quail Roost Drive at SW 137th Avenue – (6-Hour TMCs)
- SR 994/Quail Roost Drive at SW 134th Avenue – (6-Hour TMCs)
- SR 994/Quail Roost Drive at SW 132nd Avenue – (12 Hour TMCs)

The ATRs were collected from Tuesday, February 5, 2019 through Thursday, February 7, 2019. The TMCs were performed at the intersection of SR 994/Quail Roost Drive at SW 137th Avenue on Tuesday, February 5, 2019, and at intersections of SR 994/Quail Roost Drive at SW 134th Avenue and SW 132nd Avenue on Thursday, January 31, 2019, during the AM and PM peak periods. The TMCs periods at SW 137th Avenue and SW 134th Avenue were 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. The TMCs periods at SW 132nd Avenue were 6:00 AM to 10:00 AM and 12:00 PM to 8:00 PM.

The TMCs also included heavy vehicles, pedestrians/bicycles, and U-Turns separately. The peak hour TMCs for each intersection are summarized in **Table 6.2** to **Table 6.4**. In addition, the TMCs data sheets are included in **Appendix E**.

Table 6.2: Summary of Traffic Characteristics - SR 994 at SW 137th Avenue

Period		Traffic Characteristics	Movement											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM PEAK	8:30 AM	RAW TMCs (VPH)	0	0	1	481	0	0	56	351	0	2	338	497
		PEAK 15 MIN.	0	0	1	133	0	0	21	94	0	1	91	151
		PHF	0.00	0.00	0.25	0.90	0.00	0.00	0.67	0.93	0.00	0.50	0.93	0.82
	To	TRUCKS	0	0	0	1	0	0	1	7	0	0	17	15
		% TRUCKS	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%	5%	3%
	7:30 AM	APPROACH TOTAL (VPH)	1			481			407			837		
		PEDESTRIANS (Crossing the approach)	0			0			0			0		
		INTERSECTION TOTAL (VPH)	1726											
Period		Traffic Characteristics	Movement											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
PM PEAK	6:00 PM	RAW TMCs (VPH)	0	0	0	490	0	63	64	396	1	2	336	327
		PEAK 15 MIN.	0	0	0	126	0	20	19	111	1	1	87	97
		PHF	0.00	0.00	0.00	0.97	0.00	0.79	0.84	0.89	0.25	0.50	0.97	0.84
	To	TRUCKS	0	0	0	5	0	1	0	2	1	0	5	0
		% TRUCKS	0%	0%	0%	1%	0%	2%	0%	1%	100%	0%	1%	0%
	5:00 PM	APPROACH TOTAL (VPH)	0			553			461			665		
		PEDESTRIANS (Crossing the approach)	0			0			0			0		
		INTERSECTION TOTAL (VPH)	1679											

Table 6.3: Summary of Traffic Characteristics - SR 994 at SW 134th Avenue

Period		Traffic Characteristics	Movement											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM PEAK	8:15 AM	RAW TMCs (VPH)	101	32	29	12	1	1	2	647	229	61	758	155
		PEAK 15 MIN.	31	13	8	4	1	1	1	191	65	26	199	48
		PHF	0.81	0.62	0.91	0.75	0.25	0.25	0.50	0.85	0.88	0.59	0.95	0.81
	To	TRUCKS	5	0	0	1	0	1	0	33	5	6	45	1
		% TRUCKS	5%	0%	0%	8%	0%	100%	0%	5%	2%	10%	6%	1%
	7:15 AM	APPROACH TOTAL (VPH)	162			14			878			974		
		PEDESTRIANS (Crossing the approach)	0			0			0			1		
		INTERSECTION TOTAL (VPH)	2028											
Period		Traffic Characteristics	Movement											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
PM PEAK	6:00 PM	RAW TMCs (VPH)	81	23	38	13	29	3	1	551	384	83	582	32
		PEAK 15 MIN.	25	7	12	6	10	1	1	143	108	25	166	10
		PHF	0.81	0.82	0.79	0.54	0.73	0.75	0.25	0.96	0.89	0.83	0.88	0.80
	To	TRUCKS	0	0	0	0	0	0	0	17	9	4	32	0
		% TRUCKS	0%	0%	0%	0%	0%	0%	0%	3%	2%	5%	5%	0%
	5:00 PM	APPROACH TOTAL (VPH)	142			45			936			697		
		PEDESTRIANS (Crossing the approach)	0			0			0			0		
		INTERSECTION TOTAL (VPH)	1820											

Table 6.4: Summary of Traffic Characteristics - SR 994 at SW 132nd Avenue

Period		Traffic Characteristics	Movement											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM PEAK	8:00 AM	RAW TMCs (VPH)	72	0	130	0	0	0	0	762	10	20	758	0
		PEAK 15 MIN.	21	0	40	0	0	0	0	205	5	8	208	0
		PHF	0.86	0.00	0.81	0.00	0.00	0.00	0.00	0.93	0.50	0.63	0.91	0.00
	To	TRUCKS	1	0	0	0	0	0	0	13	0	1	18	0
		% TRUCKS	1%	0%	0%	0%	0%	0%	0%	2%	0%	5%	2%	0%
	7:00 AM	APPROACH TOTAL (VPH)	202			0			772			778		
		PEDESTRIANS (Crossing the approach)	0			0			0			1		
		INTERSECTION TOTAL (VPH)	1752											
Period		Traffic Characteristics	Movement											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
PM PEAK	6:00 PM	RAW TMCs (VPH)	36	0	62	0	0	0	0	607	27	163	643	0
		PEAK 15 MIN.	11	0	18	0	0	0	0	160	10	48	195	0
		PHF	0.82	0.00	0.86	0.00	0.00	0.00	0.00	0.95	0.68	0.85	0.82	0.00
	To	TRUCKS	0	0	0	0	0	0	0	8	1	1	8	0
		% TRUCKS	0%	0%	0%	0%	0%	0%	0%	1%	4%	1%	1%	0%
	5:00 PM	APPROACH TOTAL (VPH)	98			0			634			806		
		PEDESTRIANS (Crossing the approach)	0			0			1			0		
		INTERSECTION TOTAL (VPH)	1538											

6.4 FEASIBILITY OF ADDING AN EASTBOUND LEFT-TURN LANE - SW 137TH AVENUE

An investigation of the existing right-of-way at the east leg of the intersection was conducted to evaluate the feasibility of providing an eastbound left-turn lane. The investigation revealed that there is only 30 feet of right-of-way, which is insufficient to accommodate the additional lane. In addition, providing the additional lane would require the following:

- Relocating the guardrail along the south side.
- Relocating the mast-arm facing the eastbound approach.
- Relocating the two post-mounted signals facing the southbound approach.
- Relocating the wood fence of the property located in the southwest quadrant.
- Relocating light poles along south side and transmissions lines and concrete poles along north side.

Given the insufficient right-of-way, the impacts of accommodating the additional lane, and the reduction of rear-end crashes involving eastbound vehicles in 2017 and 2018, it is concluded that providing the eastbound left-turn lane is not feasible at this time. However, it is recommended to provide a 'BE PREPARED TO STOP' sign (W3-4) with flashing beacons facing the eastbound approach and keep monitoring the rear-end crashes involving eastbound traffic.

6.5 B/C ANALYSIS - SW 137TH AVENUE

A benefit/cost (b/c) ratio analysis was performed for the installation of a 'BE PREPARED TO STOP' sign (W3-4) with flashing beacons facing the eastbound approach. The b/c ratio analysis required an estimation of the potential reduction of crashes upon the implementation of the improvements and estimation of preliminary construction cost. If the improvements result in a b/c ratio of 1.0 or more, then the proposed safety improvements are considered to be economically viable and could be implemented barring other constraints. In addition, a net present value (NPV) for the proposed improvements was performed.

Cost Estimate: The preliminary safety improvement cost was estimated and summarized in **Table 6.5**. This estimate included costs for construction, engineering, maintenance of traffic, mobilization, construction engineering inspection, and a contingency amount to cover for unexpected costs. A detailed cost estimate showing costs for individual construction pay items is included in **Appendix F**.

Table 6.5: Preliminary Cost Estimate for SR 994 at SW 137TH Avenue

SAFETY IMPROVEMENTS	COST
SIGNING & PAVEMENT MARKINGS	$ 10,000.00
SUBTOTAL	**$ 10,000.00**
20% Maintenance of Traffic	$ 2,000.00
10% Mobilization	$ 1,000.00
PE & CEI	$ 2,000.00
Contingency	$ 5,000.00
GRAND TOTAL	**$ 20,000.00**

Crash Reduction Factors (CRF): In order to estimate the safety benefits realized from undertaking the above improvement, an estimate of the potential number of crashes that can be reduced as result of each improvement was calculated using crash reduction factors (CRFs). A list of CRF values for the various improvements was obtained either from the Department's database and/or from the FHWA's Desktop Reference for Crash Reduction Factors dated September 2008 and from the FHWA Crash Modification Factors (CMF) Clearinghouse database. **Table 6.6** illustrates in detail the crash reduction computations for the safety improvement. The table indicates that if the improvement was to be implemented, there is a potential to reduce six (6) crashes over the next three years or two (2) crashes per year.

Table 6.6: CRF Calculation for SR 994 at SW 137TH Avenue

Proposed Improvement(s)	CRF					Targeted Crash Types	Total Crashes Reduced
	Source	Crash Group	Default CRF	% Adjustment	Adjusted CRF[A]		
Install Sign with Flashing Beacons as Advance warning	FHWA (p. 36)	Rear-end (EB)	36%	80.00% [1]	28.80%	Rear-end	6.34
Total Crashes Reduced in 3 Years							6.34
Possible Crashes to be Reduced with Proposed Improvement per Year							**2.11**

Notes:
*A. Adjusted CRF = Default CRF * (% Adjustment)*
1. CRF adjustment commensurate with the level of effectiveness anticipated from these collective improvements.

B/C Calculation: Benefits for the modification improvement were estimated by using the annual crash cost values established by FDOT and the estimated annual number of crashes reduced. The estimated safety benefits were compared to the annualized cost estimate for the safety improvement to determine the benefit to cost ratio (b/c). The b/c ratio value for the proposed safety improvements was determined to be approximately **165.9** as shown in **Table 6.7**. Given such a high positive b/c ratio value, the recommended safety improvement described above appear to be economically feasible for implementation. Detailed calculations of the b/c ratio and NPV analysis were included in **Appendix G**.

Table 6.7: Benefit/Cost Calculation for SR 994 at SW 137TH Avenue

DESCRIPTION	COST
Safety Benefits	$ 263,359.37
Annualizez Cost of Project	$ 1,587.49
SAFETY B/C	**165.9**
NVP	**$ 2,629,154.79**

CONCLUSIONS: Given the positive results of the b/c ratio analysis, installing a 'BE PREPARED TO STOP' sign (W3-4) with flashing beacons facing the eastbound approach is a feasible improvement.

6.6 SIGNAL WARRANT ANALYSIS – SW 132nd Avenue

The signal warrant analysis for the intersection of SR 994/Quail Roost Drive at SW 132nd Avenue was conducted in accordance with the procedures and guidelines outlined in the Manual on Uniform Traffic Control Devices (MUTCD 2009) and Manual on Uniform Traffic Studies (MUTS). At least one of nine warrants must be satisfied as a minimum condition for an un-signalized location to be considered for a traffic signal control installation. However, satisfaction of a warrant does not by itself require installation of a traffic control signal. Due to the nature of the study location, only four of the warrants in the MUTCD were found to be applicable to this location i.e., Signal Warrant 1, Signal Warrant 2, Signal Warrant 3, and Signal Warrant 7. Given the operational conditions observed during the field review and the crash history of the intersection, the signal warrant analysis will be performed assuming only the northbound left-turn volumes. Extract pages from the MUTCD showing the criteria for the different signal warrants are included in **Appendix H**.

SR 994/Quail Roost Drive at SW 132nd Avenue

The warrant analysis shows that no signal warrants were satisfied. **Table 6.8** shows a summary of the warrant analysis. **Appendix H** includes all the warrant analysis forms used.

Table 6.8: Summary of Signal Warrant Analysis - SR 994 at SW 132nd Avenue

Warrant	Applicable	Satisfied
Warrant 1: Eight-Hour Vehicular Volume	Yes	No
Warrant 2: Four-Hour Vehicular Volume	Yes	No
Warrant 3: Peak Hour	Yes	No
Warrant 4: Pedestrian Volume	No	n/a
Warrant 5: School Crossing	No	n/a
Warrant 6: Coordinated Signal System	No	n/a
Warrant 7: Crash Experience	Yes	No
Warrant 8: Roadway Network	No	n/a
Warrant 9: Intersection Near a Grade Crossing	No	n/a

The results of the Signal Warrant Analysis revealed that the installation of signal at this intersection is not warranted. Additionally, based on the crash analysis, field observations, and engineering judgment the rear end crashes at the intersection can be largely reduced by adding a westbound left-turn lane. Therefore, it is recommended to evaluate the feasibility of providing a left-turn lane facing the westbound approach.

6.7 FEASIBILITY OF ADDING A WESTBOUND LEFT-TURN LANE AT SW 132nd AVENUE

An investigation of the existing right-of-way at the east leg of the intersection was conducted to evaluate the feasibility of providing an eastbound left-turn lane. The investigation revealed that there is 80 feet of right-of-way, which is sufficient to accommodate the additional lane. However, providing the additional lane would require the following:

- Widening or replacing the concrete bridge located at approximately 300 feet of SW 132nd Avenue

(centerline) to provide the required left-turn lane length. ***Coordination was established with South Florida Water Management District (SFWMD) to determine if the concrete bridge could be widened or if it needs to be replaced. Based on the information provided by SFWMD and the investigation conducted under this study, which includes a review of the bridge plans, the bridge can be widened. However, benefit/cost analysis should be conducted assuming both scenarios, 1) the widening and 2) the replacement of the bridge. The communication with SFWMD is presented in Appendix L.***

- Relocating the guardrail along the north and/or south sides of SR 994/SW 200th Street.
- Relocating the rectangular rapid flashing beacons located just east of the concrete bridge.

Given the crash history of the intersection and the heavy demand of westbound left-turn traffic, it is recommended to add a westbound left-turn lane at SR 994/SW 200th Street. A benefit/cost analysis was conducted to confirm that this improvement is economically viable (See **Section 6.9**).

6.8 CAPACITY ANALYSIS – SW 132ND AVENUE

An operational analysis was performed at the intersection of SR 994/Quail Roost Drive at SW 132nd Avenue for the existing and proposed conditions for the AM and PM peak traffic periods using Synchro/SimTraffic Traffic Software. The results were obtained from SYNCHRO 10.0 based on HCM 2000 methodology. The primary Measures of Effectiveness (MOEs) used was based on volume/capacity (v/c), total delay (control and queue), Level of Service (LOS), and 95th Percentile Queue (feet). Synchro output sheets are included in **Appendix I**. The results of existing and proposed conditions analysis for the signalized intersections are presented in **Table 6.9**.

Table 6.9: Operational Analysis for SR 994 at SW 132nd Avenue

			Existing					Proposed					Proposed vs Existing AM					
													Δ Delay				Δ 95% Queue	
	Lane Group	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
AM PEAK	EB	TR	750	0.0	A	0.50	0	750	0.0	A	0.50	0	0.0	-	Same	0%	0	-
		RT	10					10										
		Appr	-	0.0	A			-	0.0	A			0.0	-	Same	-	-	-
	WB	LT	15					15	9.7	A	0.03	3						
		TR	756	1.0	A	0.03	3	756	0.0	A	0.49	0	(1.0)	-100%	Same	1533%	(3)	-100%
		Appr	-	1.0	A			-	0.3	A			(0.7)	-70%	Same	-	-	-
	NB	LT	66					66										
		RT	118	187.8	F	1.22	311	118	187.8	F	1.22	311	0.0	0%	Same	0%	0	0%
		Appr	-	187.8	F			-	187.8	F			0.0	0%	Same	-	-	-
	Intersection			23.2					22.9				(0.3)	-1%	Same	-	-	-

			Existing					Proposed					Proposed vs Existing PM					
													Δ Delay				Δ 95% Queue	
	Lane Group	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
PM PEAK	EB	TR	607	0.0	A	0.40	0	607	0.0	A	0.40	0	0.0	-	Same	0%	0	-
		RT	27					27										
		Appr	-	0.0	A			-					0.0	-	Better	-	-	-
	WB	LT	163					163	10.0	A	0.21	20						
		TR	643	5.1	A	0.21	20	643	0.0	A	0.46	0	(5.1)	-100%	Same	119%	(20)	-100%
		Appr	-	5.1	A			-					(5.1)	-100%	Better	-	-	-
	NB	LT	36					36										
		RT	62	90.9	F	0.81	127	62	90.9	F	0.81	127	0.0	0%	Same	0%	0	0%
		Appr	-	90.9	F			-	90.9	F			0.0	0%	Same	-	-	-
	Intersection			8.7					7.0				(1.7)	-20%	Same	-	-	-

With the addition of a westbound left-turn lane, there is a significant decrease in vehicle delay for the westbound through movement and for the overall intersection of SR 994/Quail Roost Drive at SW 132nd Avenue during the AM and PM periods. The LOS for all movements and approaches either improves or remains the same. There is no change to the delay of the eastbound movements.

6.9 B/C ANALYSIS - SW 132ND AVENUE

A b/c ratio analysis was performed for adding a westbound left-turn lane. The b/c ratio analysis required an estimation of the potential reduction of crashes upon the implementation of the improvements and estimation of preliminary construction cost. If the improvements result in a b/c ratio of 1.0 or more, then the proposed safety improvements are considered to be economically viable and could be implemented barring other constraints. In addition, a net present value (NPV) for the proposed improvements was performed. The benefit/cost analysis will assume two scenarios. The first scenario will assume that the bridge does not have to be replaced and that providing the left-turn lane can be performed by widening the bridge to the north side. The second scenario will assume that the bridge has to be replaced.

Cost Estimate: The preliminary safety improvements costs were estimated and summarized in **Table 6.10**. This estimate included costs for construction, engineering, maintenance of traffic, mobilization, construction engineering inspection, and a contingency amount to cover for unexpected costs. A detailed cost estimate showing costs for individual construction pay items is included in **Appendix J**.

Table 6.10: Preliminary Cost Estimate for SR 994 at SW 132nd Avenue

SAFETY IMPROVEMENTS	COST Bridge Widening	COST Bridge Replacing
ROADWAY	$ 134,072.24	$ 190,393.93
SIGNING & PAVEMENT MARKINGS	$ 18,616.26	$ 16,382.31
STRUCTURES/BRIDGE WIDENING/REPLACEMENT	$ 300,000.00	$ 1,000,000.00
SUBTOTAL	$ 452,688.51	$ 1,206,776.24
20% Maintenance of Traffic	$ 90,537.70	$ 241,355.25
10% Mobilization	$ 45,268.85	$ 120,677.62
32% Preliminary Engineering	$ 144,860.32	$ 386,168.40
18% Construction Engineering & Inspection	$ 81,483.93	$ 217,219.72
Contingency	$ 125,000.00	$ 250,000.00
GRAND TOTAL	$ 939,839.31	$ 2,422,197.23

Crash Reduction Factors (CRF): In order to estimate the safety benefits realized from undertaking the above improvements, an estimate of the potential number of crashes that can be reduced as result of each improvement was calculated using crash reduction factors (CRFs). A list of CRF values for the various improvements was obtained either from the Department's database and/or from the FHWA's Desktop Reference for Crash Reduction Factors dated September 2008 and from the FHWA Crash Modification Factors (CMF) Clearinghouse database. **Table 6.11** illustrates in detail the crash reduction computations for the safety

improvements. The table indicates that if the improvements were to be implemented, there is a potential to reduce near six (6) crashes over the next three years or two (2) crashes per year.

Table 6.11: CRF Calculation for SR 994 at SW 132nd Avenue

Proposed Improvement(s)	CRF					Targeted Crash Types	Crashes Reduced		
	Source	Crash Group	Default CRF	% Adjustment	Adjusted CRF[A]		Rear-end (14)	Left-turn (1)	Total
Provide Left-Turn Lane - Westbound	FHWA (p. 22)	Rear-end	39%	100.00% [1]	39.00%	Rear-end	5.50		5.50
		Left-turn	35%	100.00% [1]	35.00%	Left-turn		0.40	0.40
Total Crashes Reduced							5.50	0.40	5.90
Total Crashes Reduced in 3 Years							5.90		
Possible Crashes to be Reduced with Proposed Improvement per Year							**1.97**		

Notes:
*A. Adjusted CRF = Default CRF * (% Adjustment)*
1. CRF adjustment commensurate with the level of effectiveness anticipated from these collective improvements.

B/C Calculation: Benefits for the modification improvements were estimated by using the annual crash cost values established by FDOT and the estimated annual number of crashes reduced. The estimated safety benefits were compared to the annualized cost estimate for the safety improvement to determine the benefit to cost ratio (b/c). The b/c ratio value for the proposed safety improvements was determined to be approximately **3.1** if the bridge can be widened and **1.2** if the bridge needs to be replaced, as shown in **Table 6.12**. The recommended safety improvements described above appear to be economically feasible for implementation. Detailed calculations of the b/c ratio and NPV analysis were included in **Appendix K**.

Table 6.12: Benefit/Cost Calculation for SR 994 at SW 132nd Avenue

DESCRIPTION	COST Widening Bridge	COST Replacing Bridge
Safety Benefits	$ 245,082.07	$ 245,082.07
Annualizez Cost of Project	$ 78,682.14	$ 204,499.97
SAFETY B/C	**3.1**	**1.2**
NVP	**$ 1,525,462.53**	**$ 43,104.61**

CONCLUSIONS: Given the positive results of the b/c ratio analysis, adding a westbound left-turn lane at SW 132nd Avenue is a feasible improvement.

7 IMPROVEMENT RECOMMENDATIONS

Proposed Improvements are geared towards mitigating crash patterns identified at the cluster locations. The proposed improvements are as follows:

SR 994/Quail Roost Drive at SW 137th Avenue

Short term:

- Install a 'BE PREPARED TO STOP' sign (W3-4) with flashing beacons facing the eastbound approach.
- Trim landscaping limiting the visibility to signal heads facing the eastbound approach.

Long term:

- Consider provide a left-turn lane on the eastbound approach. *A preliminary investigation revealed there is not sufficient right-of-way for accommodating a left-turn lane for the eastbound approach; therefore, right-of-way acquisition is necessary to implement this improvement.*

SR 994/Quail Roost Drive at SW 134th Avenue

- **Install a traffic signal.** *It is noted that previous studies have been conducted by the Department at this intersection and a traffic signal will be installed at this intersection under the RRR project FM No. 429341-3. Based on the plans, the new signalized intersection will also include a westbound left-turn lane, curb and gutters, drainage, and lighting improvements.*

SR 994/Quail Roost Drive at SW 132nd Avenue

- **Provide a westbound left-turn lane.** *The implementation of this improvement will require the following:*
  - *Widening or replacing the concrete bridge located at approximately 300 feet of SW 132nd Avenue (centerline) to provide a standard left-turn lane.* ***Coordination was established with SFWMD to determine if the concrete bridge could be widened or if it needs to be replaced. Based on the information provided by SFWMD and the investigation conducted under this report, which includes a review of the bridge plan, the bridge can be widened. However, benefit/cost analysis was conducted assuming the widening and replacement of the bridge. The communication with SFWMD is presented in Appendix L.***
  - *Relocating the guardrail along the north and/or south sides of SR 994/SW 200th Street.*
  - *Relocating the rectangular rapid flashing beacons located just east of the concrete bridge.*

Segment-wide

- The Department should consider in the future at the possibility of widening SR 994/Quail Roost Drive to provide 2 lanes in each direction from SW 137th Avenue to West of SW 127th Avenue.

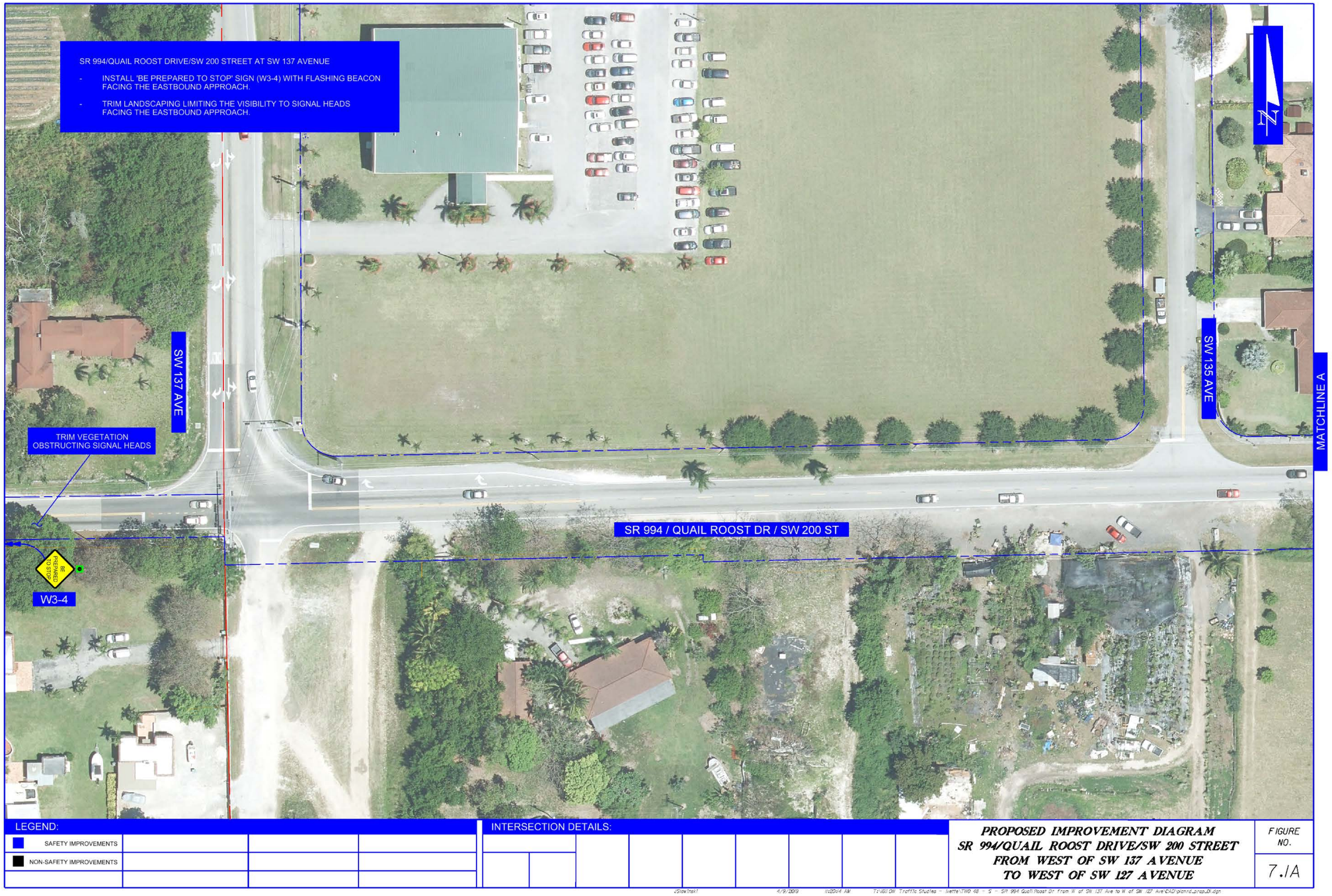
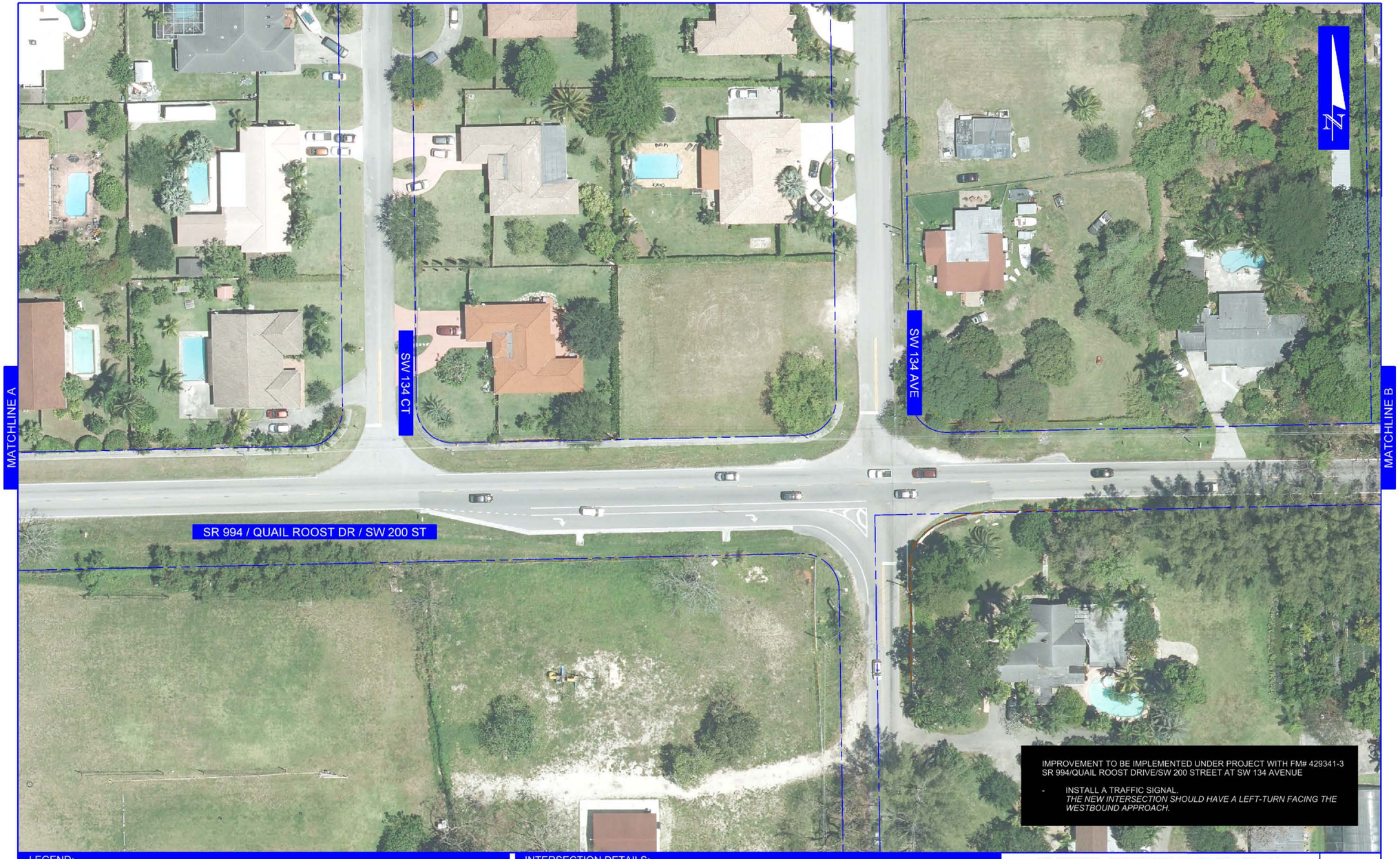


Figure 7.1: Proposed Improvement Diagram



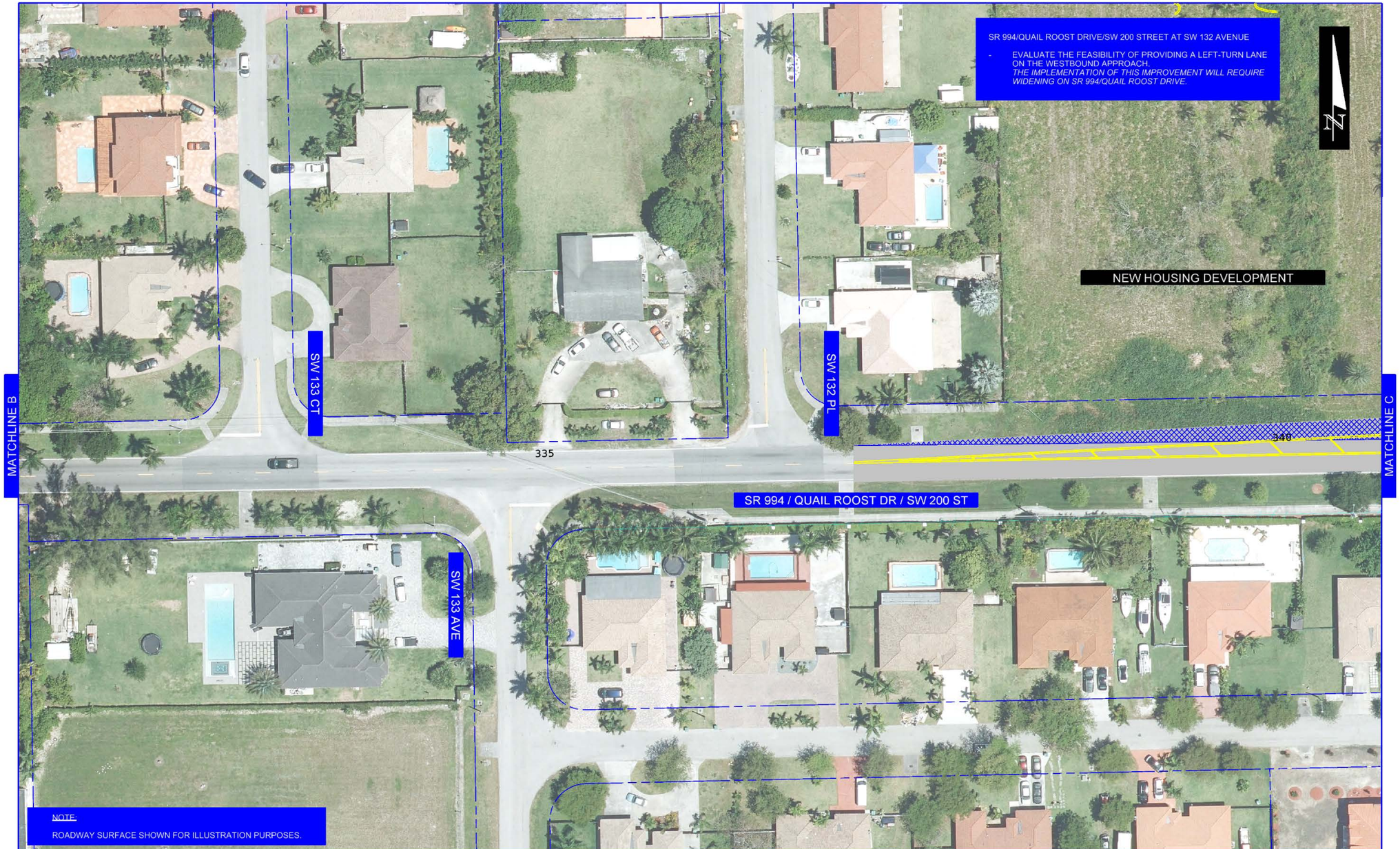
LEGEND:

SAFETY IMPROVEMENTS	
NON-SAFETY IMPROVEMENTS	

INTERSECTION DETAILS:

PROPOSED IMPROVEMENT DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO. 7.IB



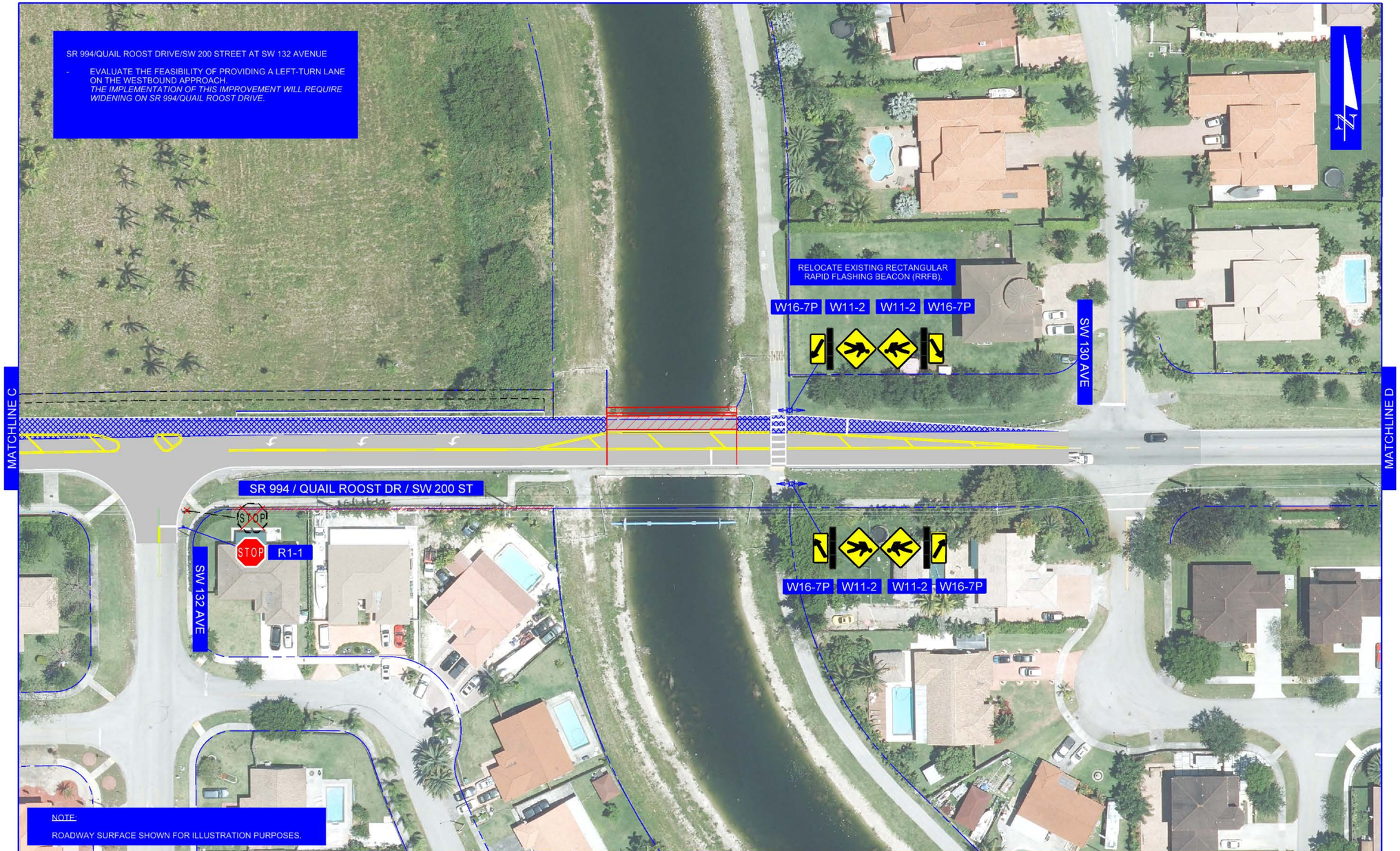
LEGEND:

SAFETY IMPROVEMENTS	ROADWAY WIDENING		
NON-SAFETY IMPROVEMENTS			
ROADWAY SURFACE			

INTERSECTION DETAILS:

PROPOSED IMPROVEMENT DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO.
7.1C



LEGEND:

SAFETY IMPROVEMENTS	BRIDGE WIDENING		
NON-SAFETY IMPROVEMENTS	ROADWAY WIDENING		
ROADWAY SURFACE			

INTERSECTION DETAILS:

PROPOSED IMPROVEMENT DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO. 7.ID

JSlovinski 5/14/2019 2:23:06 PM T:\Gill DM Traffic Studies - Metro\WO 48 - 5 - SR 994 Quail Roost Dr from W of SW 137 Ave to W of SW 127 Ave\CAD\planrd_prop_D4.dgn

APPENDIX A – STRAIGHT LINE DIAGRAM

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	01/30/2018	02/12/2018	0.000	8.058	N/A	11/13/2018 FDOT
BY	URS	URS				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 994	MIAMI-DADE	06	87091000	1 OF 2

0.0 1.0 2.0 3.0 4.0

997

INSIDE URBAN, OUTSIDE CITY
* MIAMI
*I<=SW 200 ST/QUAIL DR
*I<SR 994

OUTSIDE CITY & URBAN
*I<=SW 200 ST/QUAIL DR
*I<SR 994

MIAMI-DADE COUNTY

KROME AVE 0.000 — 1117 — SW 167 AVE 1.023 — SW 165 AVE 1.148 — SW 162 AVE 1.529 — 631130N — C-102 — SW 152 AVE 2.542 — SW 147 AVE 3.057

SR 997/SW 177 AVE 0.000 — GPS COORDINATES 25°34' 47" N 80° 28' 42" W — SW 172 AVE 0.511 — SW 158 AVE 1.909 — SW 157 AVE 2.039 — SW 155 AVE 2.164 — SW 154 AVE 2.291 — CANAL — SW 149 AVE 2.798 — SW 140 AVE 3.684 — SW 139 AVE 3.814

ROADWAY FEATURES

LANE WIDTHS ARE AVERAGED

0.175 46.0' - 22.0'
2 - 11.0' RDWY
2 - 12.0' LWN SHLD1

0.000 70.0' - 22.0'
2 - 11.0' RDWY
12.0 PVD MED
2 - 6.0' PVD SHLD1
2 - 12.0' LWN SHLD2

1.229 40.0' - 22.0'
2 - 11.0' RDWY
6.0' LWN SHLD1 - LT
12.0' LWN SHLD1 - RT

ROADWAY COMPOSITION

0.000 28/FC-2 — 0.175 28/FC-2
28/FC-2

HORIZONTAL ALIGNMENT

PI=0.511 Δ=0°00'04.00" B=N88°08'48"E
PI=1.019 Δ=0°30'14.00" B=N88°08'52"E
PI=1.524 Δ=0°06'30.00" B=N88°39'06"E
PI=2.032 Δ=0°39'08.00" B=N88°32'36"E
Δ=0°00'46.00" PI=2.541 B=N89°11'44"E
PI=3.049 Δ=0°00'31.00" B=N89°10'58"E
Δ=0°00'04.00" PI=3.556 B=N89°11'29"E
B=N89°11'25"E

STRUCTURE DESCRIPTION

2.468 #0628 2.475
37'
BR

TRAFFIC DATA

AADT= 7,100 D= 59.30
K= 9.00 T= 9.80
All Traffic Data as of 12-31-17

SIS

FUN CLASS

0.000 URBAN MAJOR COLLECTOR
1.273 RURAL MAJOR COLLECTOR

● = SIGNALIZED INTERSECTION

4.0 5.0 6.0

4.000 OUTSIDE CITY & URBAN
*I<=SW 200 ST/QUAIL DR
*I<SR 994

4.075 INSIDE URBAN, OUTSIDE CITY
* MIAMI
*I<=SW 200 ST/QUAIL DR
*I<SR 994

MIAMI-DADE COUNTY

5.090 INSIDE URBAN, OUTSIDE CITY
* MIAMI
*I<=QUAIL ROOST DR
*I<SR 994

SW 137 AVE 4.075 — SW 135 AVE 4.200 — SW 134 CT 4.264 — SW 134 AVE 4.328 — SW 133 CT 4.425 — SW 132 PL 4.490 — BLACK CREEK CANAL — SW 130 AVE 4.711 — SW 129 CT 4.774 — SW 129 AVE 4.835 — 1116 — SW 127 AVE 5.090 — SW 125 AVE 5.212 — SW 124 CT 5.301 — SW 123 PL 5.422 — SW 123 CT 5.475 — SW 122 PL 5.592 — TN LN TO SW 122 AVE 5.686 — SW 122 AVE 5.686 — FAMILY & CHILDREN EN 5.737 — FAMILY & CHILDREN EN 5.807 — EMERGENCY SIGNAL — SW 192 TER 5.985

SW 133 AVE 4.457 — SW 132 AVE 4.584 — SW 124 CT 5.282 — SW 200 ST 5.354 — SW 198 ST 5.567 — TN LN TO SW 122 AVE 5.648 — SW 196 ST 5.737 — SW 194 TER 5.856 — SW 193 ST RD 5.985

ROADWAY FEATURES

LANE WIDTHS ARE AVERAGED

4.075 46.0' - 22.0'
2 - 11.0' RDWY
2 - 12.0' LWN SHLD1

4.000 40.0' - 22.0'
2 - 11.0' RDWY
6.0' LWN SHLD1 - LT
12.0' LWN SHLD1 - RT

4.961 48.0' - 11.0'L+22.0'R
1 - 11.0'L + 2 - 11.0'R RDWY
11.0 PVD MED
2 - 2.0' C&G SHLD1

5.090 59.0' - 44.0'
4 - 11.0' RDWY
11.0 PVD MED
2 - 2.0' C&G SHLD1

ROADWAY COMPOSITION

4.000 28/FC-2
28/FC-2 — 4.961 28/FC-2
28/FC-2

HORIZONTAL ALIGNMENT

Δ=0°25'30.00" PI=4.059 B=N88°45'55"E
PI=4.574 Δ=1°02'37.00" B=N89°48'32"E
Δ=0°34'16.00" PI=5.080 B=N89°14'16"E
Δ=38°11'30.00" D=3°00' PC=5,172 PI=5,297 PT=5,413 B=N52°16'32"E
PI=5.492 Δ=0°03'49.00" Δ=1°13'03.00" PI=5.504 B=N51°03'29"E B=N48°02'40"E
Δ=11°51'09.00" D=4°06' PC=5,686 PI=5,714 PT=5,741 B=N36°11'31"E
PC=5.783 PI=5.815 PT=5.847 Δ=13°45'07.00" D=4°06' B=N50°00'10"E

STRUCTURE DESCRIPTION

4.645 #0633 4.663
95'
BR

TRAFFIC DATA

4.075 AADT= 18,700 D= 55.70
K= 9.00 T= 10.50
All Traffic Data as of 12-31-17

5.090 AADT= 32,000 D= 55.70
K= 9.00 T= 8.40

SIS

FUN CLASS

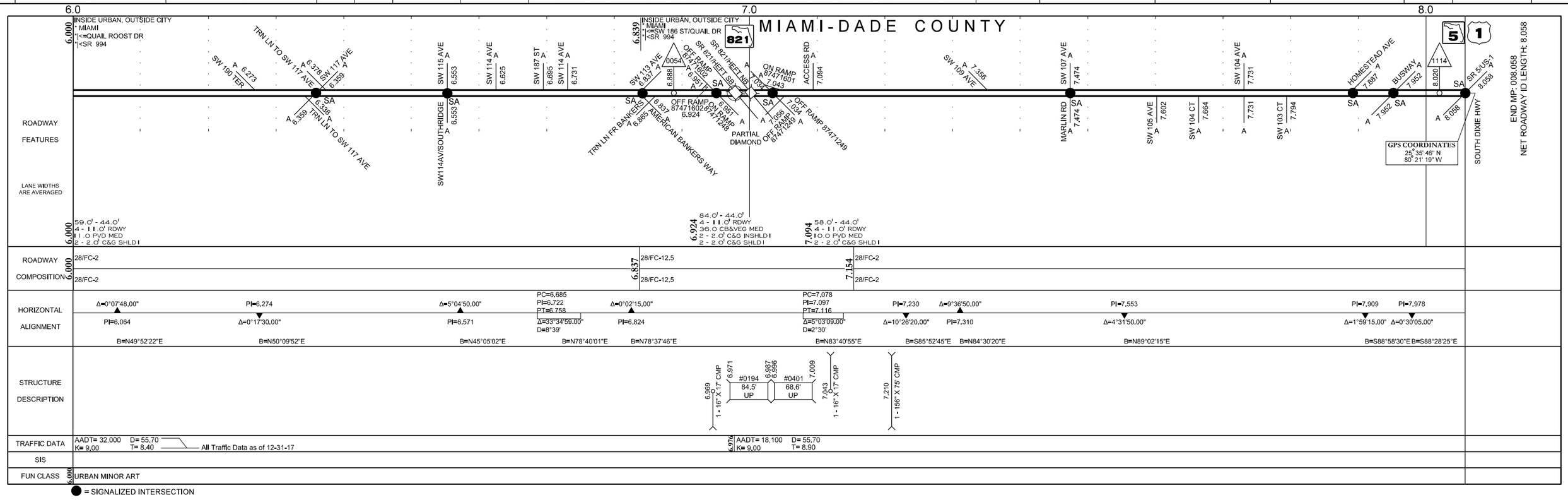
4.000 RURAL MAJOR COLLECTOR
4.075 URBAN MINOR ART

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	01/30/2018	02/12/2018	0.000	8.058	N/A	11/13/2018 FDOT
BY	URS	URS				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO.
02		SR 994	MIAMI-DADE	06	87091000	2 OF 2



APPENDIX B – SIGNAL OPERATING PLAN SHEETS

TOD Schedule Report

for 6507: Quail Roost Dr&SW 137 Av

Print Date: 5/22/2018

Print Time: 6:42 PM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
6507	Quail Roost Dr&SW 137 Av	DOW-3		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
EBL	WBT	-	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk (Phase Bank 1 - 2 - 3)	Don't Walk (1 - 2 - 3)	Min Initial (1 - 2 - 3)	Veh Ext (1 - 2 - 3)	Max Limit (1 - 2 - 3)	Max 2 (1 - 2 - 3)	Yellow	Red
1 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	10 - 10 - 10	15 - 15 - 15	4	2
2 WBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	35 - 40 - 40	0 - 55 - 0	4.4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	20 - 40 - 20	25 - 40 - 0	4.4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	35 - 40 - 40	0 - 55 - 0	4.4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	20 - 40 - 20	25 - 40 - 0	4.4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12-4-6-8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	1 EBL	2 WBT	3 -	4 NBT	5 -	6 EBT	7 -	8 SBT	Ring Offset	Offset

Local TOD Schedule

Time	Plan	DOW
0000	Flash	Su M T W Th F S
0500	Free	Su M T W Th F S

TOD Schedule Report

for 6507: Quail Roost Dr&SW 137 Av

Print Date: 5/22/2018

Print Time: 6:42 PM

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	TOD OUTPUTS	-------1	M T W ThF
0630	TOD OUTPUTS	------2-	M T W ThF
0900	TOD OUTPUTS	-------1	M T W ThF
1600	TOD OUTPUTS	------2-	M T W ThF
1900	TOD OUTPUTS	-------1	M T W ThF
2100	TOD OUTPUTS	--------	M T W ThF

Local Time of Day Function

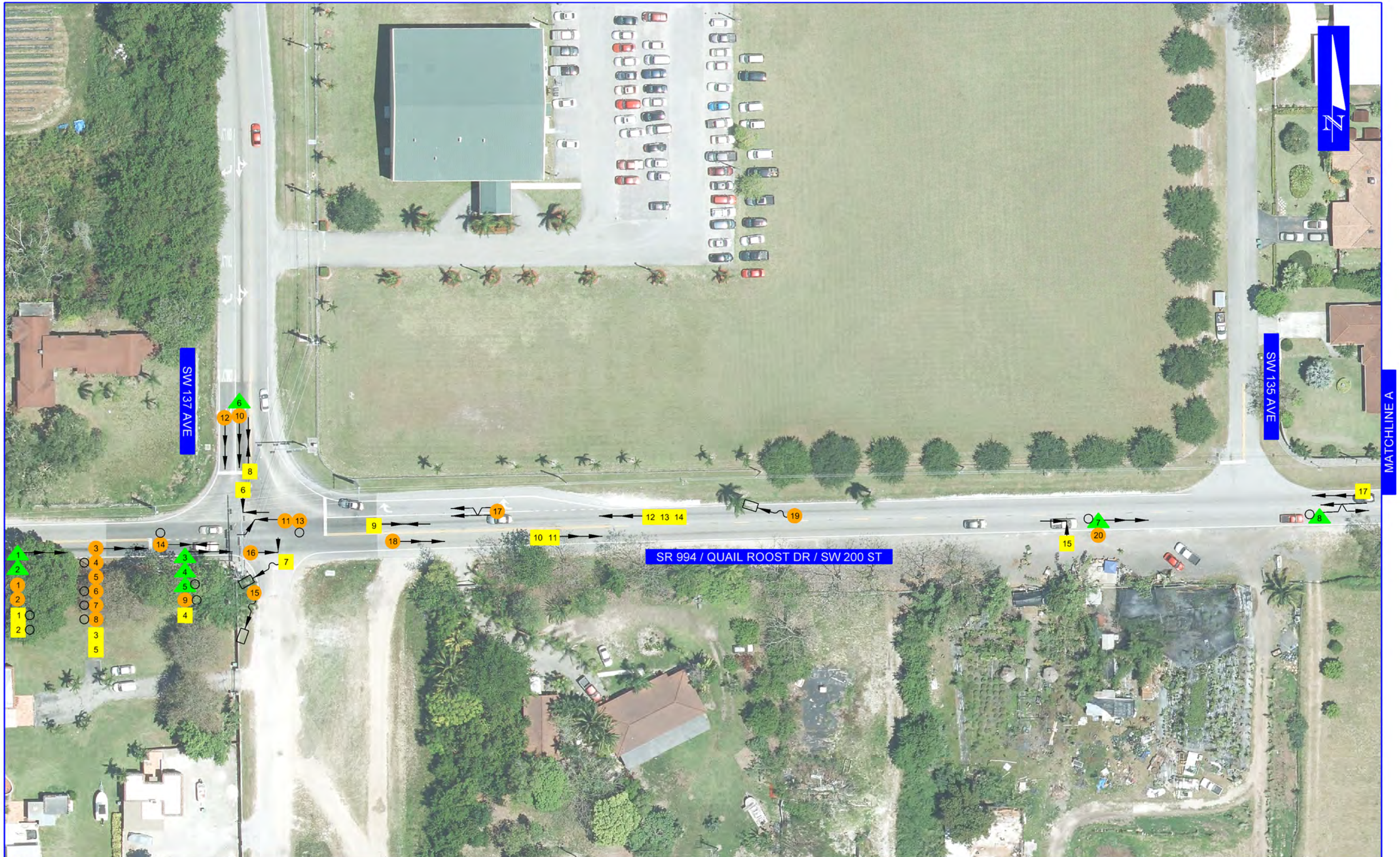
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	TOD OUTPUTS	-------1	M T W ThF
0630	TOD OUTPUTS	------2-	M T W ThF
0900	TOD OUTPUTS	-------1	M T W ThF
1600	TOD OUTPUTS	------2-	M T W ThF
1900	TOD OUTPUTS	-------1	M T W ThF
2100	TOD OUTPUTS	--------	M T W ThF

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

APPENDIX C – COLLISION DIAGRAMS AND ANNUAL CRASH SUMMARIES



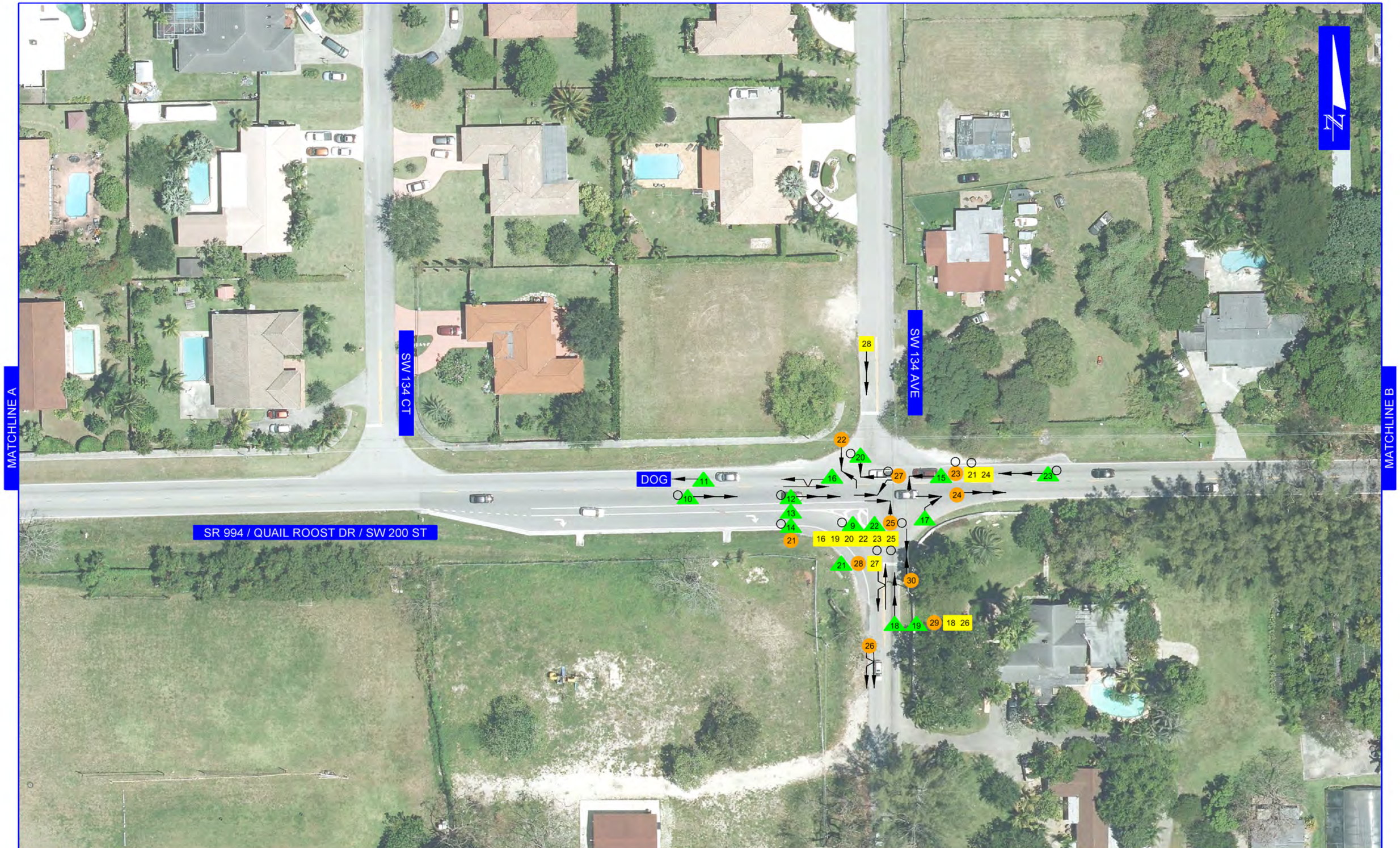
COLLISION SYMBOLS:

RECORD NUMBER	BICYCLIST	FIXED OBJECT	LEFT TURN	HEAD ON	CARGO LOSS/DEBRIS		YR 2014
INJURY	PEDESTRIAN	PARKED CAR	OUT OF CONTROL	ANGLE	U-TURN		YR 2015
FATAL	BACKING VEHICLE	REAR END	RIGHT TURN	SIDE SWIPE	OVERTURNED		YR 2016

COLLISION DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO.
C-1

JSlawinski 2/7/2019 3:45:07 PM T:\1611 DW Traffic Studies - Ivette\TWO 48 - S - SR 994 Quail Roost Dr from W of SW 137 Ave to W of SW 127 Ave\CAD\planra_co_01.dgn



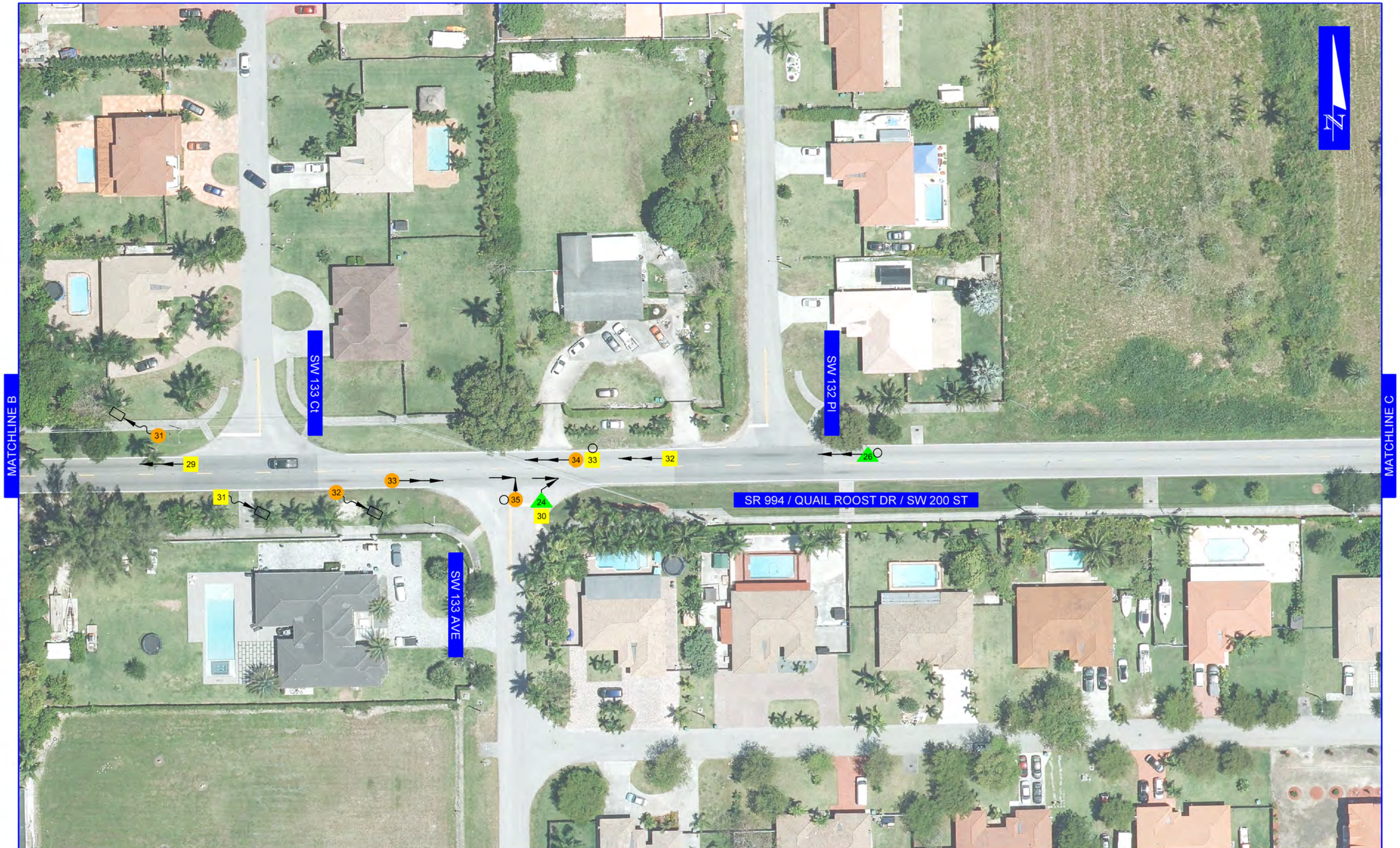
COLLISION SYMBOLS:

RECORD NUMBER	BICYCLIST	FIXED OBJECT	LEFT TURN	HEAD ON	CARGO LOSS/DEBRIS		YR 2014
INJURY	PEDESTRIAN	PARKED CAR	OUT OF CONTROL	ANGLE	U-TURN		YR 2015
FATAL	BACKING VEHICLE	REAR END	RIGHT TURN	SIDE SWIPE	OVERTURNED		YR 2016

COLLISION DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO.
C-2

JSlawinski 2/7/2019 3:45:15 PM T:\1611 DW Traffic Studies - Ivette\TWO 48 - S - SR 994 Quail Roost Dr from W of SW 137 Ave to W of SW 127 Ave\CAD\planro_co_02.dgn



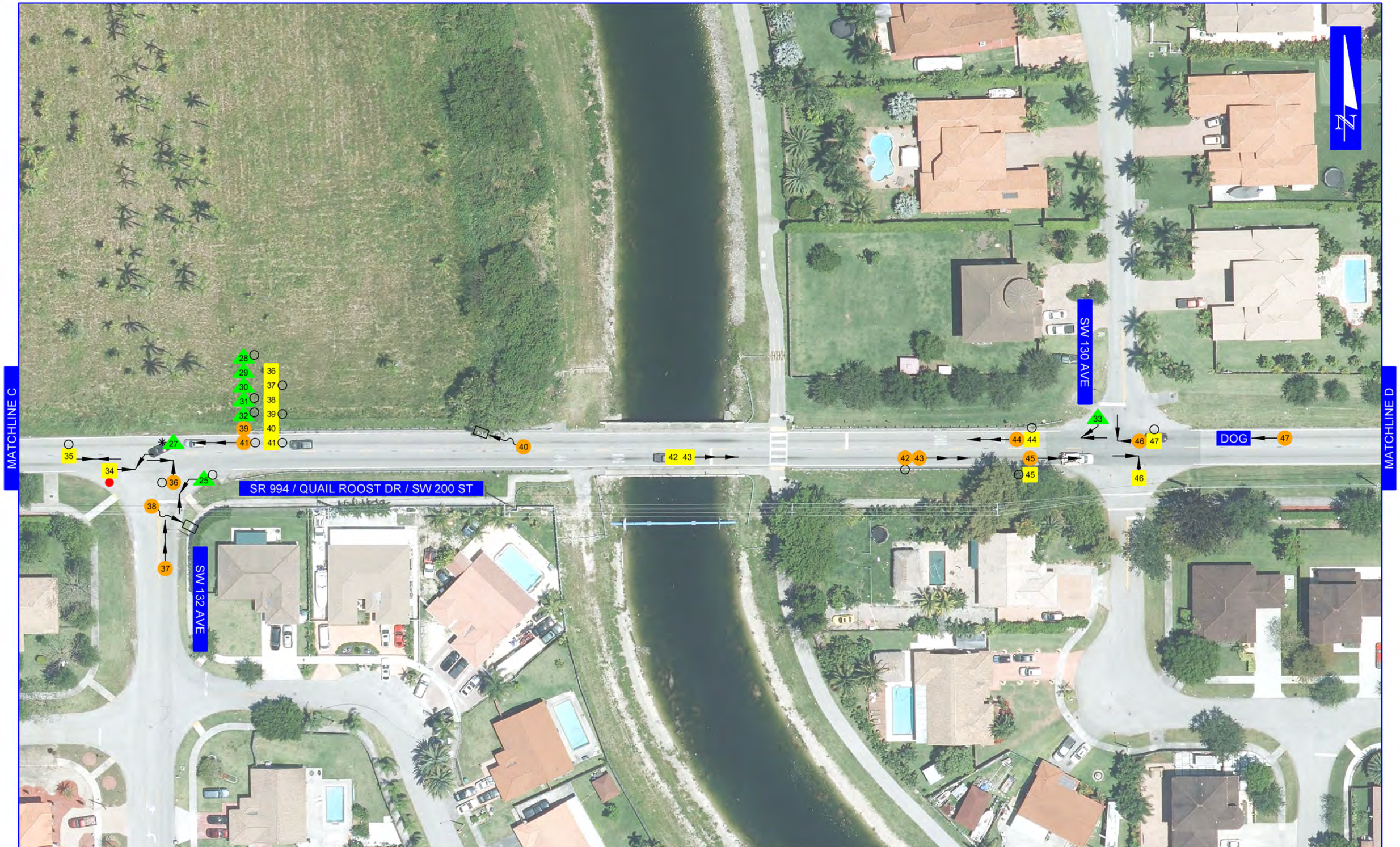
COLLISION SYMBOLS:

RECORD NUMBER	BICYCLIST	FIXED OBJECT	LEFT TURN	HEAD ON	CARGO LOSS/DEBRIS		YR 2014
INJURY	PEDESTRIAN	PARKED CAR	OUT OF CONTROL	ANGLE	U-TURN		YR 2015
FATAL	BACKING VEHICLE	REAR END	RIGHT TURN	SIDE SWIPE	OVERTURNED		YR 2016

COLLISION DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO.
C-3

JSlawinski 2/7/2019 3:45:21 PM T:\1611 DW Traffic Studies - Ivette\TWO 48 - S - SR 994 Quail Roost Dr from W of SW 137 Ave to W of SW 127 Ave\CAD\planro_co_03.dgn

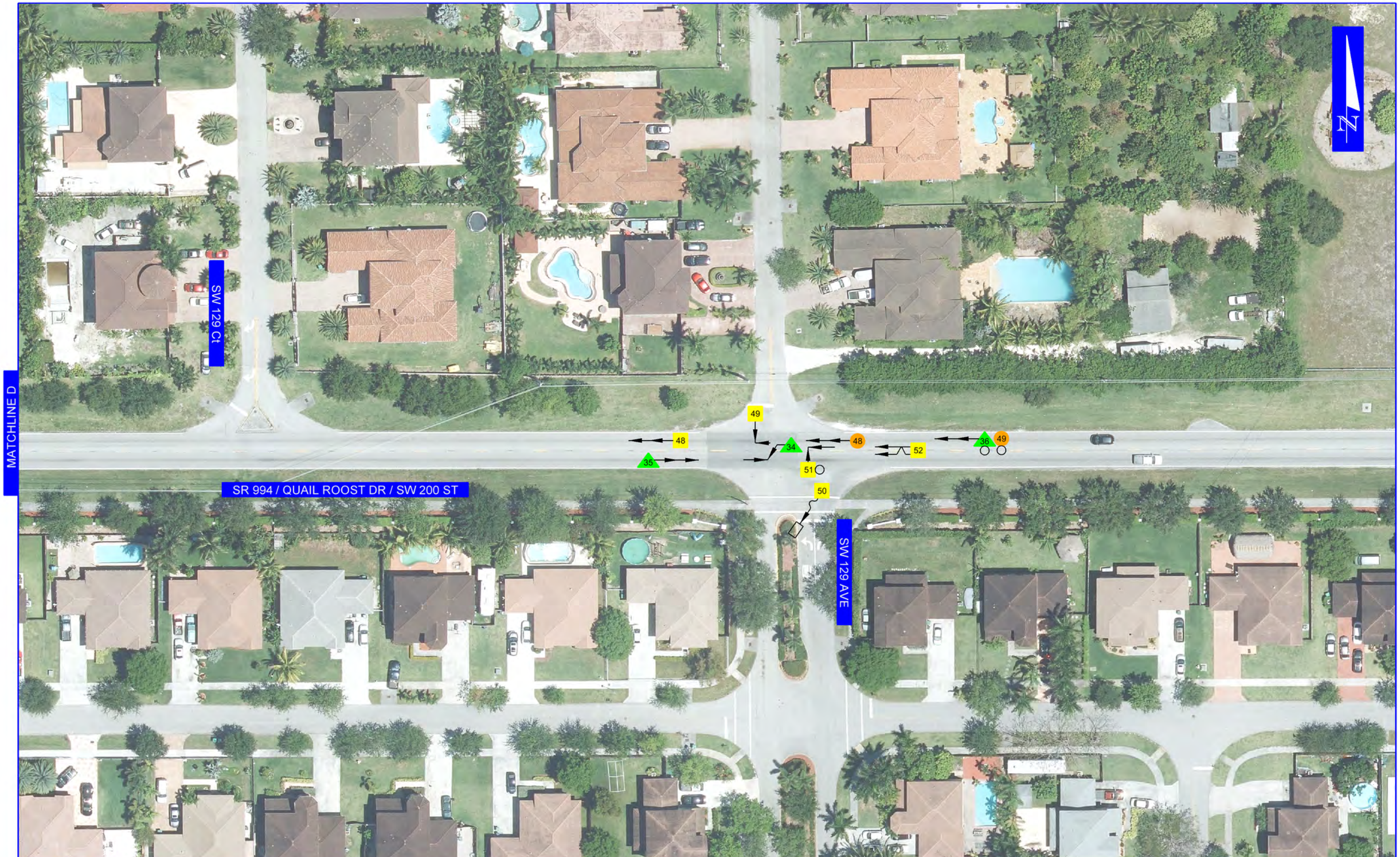


COLLISION SYMBOLS:											
RECORD NUMBER	BICYCLIST	FIXED OBJECT	LEFT TURN	HEAD ON	CARGO LOSS/DEBRIS		YR 2014
INJURY	PEDESTRIAN	PARKED CAR	OUT OF CONTROL	ANGLE	U-TURN		YR 2015
FATAL	BACKING VEHICLE	REAR END	RIGHT TURN	SIDE SWIPE	OVERTURNED		YR 2016

COLLISION DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO.
C-4

JSlawinski 2/7/2019 3:45:29 PM T:\1611 DW Traffic Studies - Iwelte\TWO 48 - S - SR 994 Quail Roost Dr from W of SW 137 Ave to W of SW 127 Ave\CAD\planro_co_04.dgn



COLLISION SYMBOLS:

RECORD NUMBER	BICYCLIST	FIXED OBJECT	LEFT TURN	HEAD ON	CARGO LOSS/DEBRIS		YR 2014		
INJURY	PEDESTRIAN	PARKED CAR	OUT OF CONTROL	ANGLE	U-TURN		YR 2015		
FATAL	BACKING VEHICLE	REAR END	RIGHT TURN	SIDE SWIPE	OVERTURNED		YR 2016		

COLLISION DIAGRAM
SR 994/QUAIL ROOST DRIVE/SW 200 STREET
FROM WEST OF SW 137 AVENUE
TO WEST OF SW 127 AVENUE

FIGURE NO.
C-5

JSlawinski 2/7/2019 3:45:36 PM T:\1611 DW Traffic Studies - Ivette\TWO 48 - S - SR 994 Quail Roost Dr from W of SW 137 Ave to W of SW 127 Ave\CAD\planro_co_05.dgn

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: From West of SW 137 Avenue to West of SW 127 Avenue M.P. 4.035 TO 4.961 ENGINEER: FDOT D6
STUDY PERIOD: FROM 1/ 2014 TO 12/ 2014 COUNTY: Miami-Dade

Crash Number	No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
838100430	1	4.037	08/25/14	Mon	0740	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
837614740	2	4.056	08/20/14	Wed	0830	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
837327670	3	4.071	01/06/14	Mon	1615	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
843674580	4	4.073	06/24/14	Tue	2048	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
843461020	5	4.075	01/10/14	Fri	1734	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
843811800	6	4.075	10/26/14	Sun	1018	Rear-End	0	0	1	Day	Dry	Followed too Closely
843530490	7	4.196	03/01/14	Sat	1952	Rear-End	0	5	0	Night	Dry	Careless or Negligent Manner
837193210	8	4.200	07/30/14	Wed	1613	Sideswipe	0	2	0	Day	Dry	Failed To Keep In Proper Lane
838044830	9	4.300	11/07/14	Fri	2218	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
837631670	10	4.309	03/07/14	Fri	1448	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
838019590	11	4.309	06/17/14	Tue	0430	Animal	0	0	1	Night	Dry	No Contributing Action
837181130	12	4.322	01/29/14	Wed	0825	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
843456940	13	4.322	08/20/14	Wed	0005	Rear-End	0	0	1	Night	Dry	Other Contributing Action
831471890	14	4.328	04/22/14	Tue	1655	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
836736050	15	4.328	03/10/14	Mon	1000	Angle	0	0	1	Day	Dry	Improper Passing
837181500	16	4.328	06/01/14	Sun	0310	Sideswipe	0	0	1	Night	Dry	Failed To Keep In Proper Lane
838003880	17	4.328	07/16/14	Wed	1020	Right-Turn	0	0	1	Day	Dry	Ran Stop Sign
843757050	18	4.328	09/09/14	Tue	0805	Rear-End	0	2	0	Day	Dry	Followed too Closely
843809170	19	4.328	11/05/14	Wed	1530	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
844755760	20	4.328	08/24/14	Sun	1855	Angle	0	4	0	Day	Dry	Ran Stop Sign
845075540	21	4.328	09/11/14	Thu	2020	Sideswipe	0	0	1	Night	Wet	Careless or Negligent Manner
845537310	22	4.328	12/28/14	Sun	0008	Angle	0	2	0	Night	Dry	Failed to Yield Right-Of-Way
837198920	23	4.330	02/10/14	Mon	0751	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
843475620	24	4.457	02/06/14	Thu	0741	Right-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
843557550	25	4.584	03/25/14	Tue	1305	Motor Vehicle in Transport	0	1	0	Day	Dry	Improper Turn
845021000	26	4.490	11/08/14	Sat	1945	Rear-End	0	2	0	Night	Dry	Careless or Negligent Manner
837513480	27	4.584	01/08/14	Wed	1448	Cargo/Equipment Loss or Shift	0	0	1	Day	Dry	Other Contributing Action
844905170	28	4.584	08/28/14	Thu	1340	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
837046460	29	4.586	01/30/14	Thu	1720	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
845191090	30	4.588	12/05/14	Fri	0823	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
843443950	31	4.590	01/13/14	Mon	1729	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
843525610	32	4.593	02/27/14	Thu	1810	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner
845025960	33	4.711	11/25/14	Tue	1715	Right-Turn	0	0	1	Night	Dry	Ran Stop Sign
837181260	34	4.835	03/01/14	Sat	0530	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
844866520	35	4.835	09/26/14	Fri	0830	Rear-End	0	0	1	Day	Wet	Failed to Yield Right-Of-Way
845120900	36	4.846	10/18/14	Sat	1532	Rear-End	0	2	0	Day	Dry	Other Contributing Action

Total No.	Fatal	Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
36	**0**	**16**	**20**	**22**	**0**	**4**	**1**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**
Percent	*0.00%*	*44.44%*	*55.56%*	*61.11%*	*0.00%*	*11.11%*	*2.78%*	*8.33%*	*8.33%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

Contrib. Cause	Day	Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**24**	**12**	**7**	**29**	**18**	**5**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**
Percent	*66.67%*	*33.33%*	*19.44%*	*80.56%*	*50.00%*	*13.89%*	*2.78%*	*0.00%*	*0.00%*	*2.78%*	*0.00%*	*0.00%*	*0.00%*	*2.78%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **17,016** SEGMENT CRASH RATE: **6.260** CRASHES PER MILLION VEHICLE MILES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: From West of SW 137 Avenue to West of SW 127 Avenue M.P. 4.035 TO 4.961 ENGINEER: FDOT D6
STUDY PERIOD: FROM 1/ 2015 TO 12/ 2015 COUNTY: Miami-Dade

Crash Number	No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
845513230	1	4.037	01/02/15	Fri	1740	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
845542650	2	4.056	02/02/15	Mon	0900	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
845538250	3	4.066	02/25/15	Wed	1207	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
852256840	4	4.068	12/07/15	Mon	1301	Rear-End	0	2	0	Day	Wet	No Contributing Action
845626860	5	4.072	04/29/15	Wed	2113	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
851204490	6	4.073	06/18/15	Thu	0940	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
851881750	7	4.073	10/04/15	Sun	1510	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
852410130	8	4.073	12/29/15	Tue	1000	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
851810590	9	4.074	08/23/15	Sun	1549	Rear-End	0	5	0	Day	Dry	Careless or Negligent Manner
843363810	10	4.075	12/22/15	Tue	2255	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
843445240	11	4.075	12/19/15	Sat	1045	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
845095870	12	4.075	02/09/15	Mon	0655	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
851956080	13	4.075	09/22/15	Tue	0617	Left-Turn	0	2	0	Night	Wet	No Contributing Action
852362580	14	4.075	12/21/15	Mon	0701	Head-On	0	2	0	Night	Wet	Failed To Keep In Proper Lane
856670910	15	4.075	06/27/15	Sat	1127	Fence	0	0	1	Day	Wet	Careless or Negligent Manner
860005010	16	4.075	11/08/15	Sun	0100	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
851881580	17	4.084	09/23/15	Wed	1710	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
852424860	18	4.084	12/10/15	Thu	1717	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
856514400	19	4.137	03/17/15	Tue	2225	Tree (Standing)	0	0	1	Night	Dry	Over-Correcting/Over-Steering
851128500	20	4.198	06/06/15	Sat	1255	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
851214760	21	4.325	07/17/15	Fri	1621	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
843405290	22	4.328	12/14/15	Mon	1700	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
845537460	23	4.328	03/07/15	Sat	0835	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
848895560	24	4.328	05/01/15	Fri	2041	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
851642360	25	4.328	10/03/15	Sat	1440	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
856571260	26	4.328	02/06/15	Fri	1553	Sideswipe	0	0	1	Day	Dry	Improper Passing
856604800	27	4.328	03/02/15	Mon	0716	Left-Turn	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
856605140	28	4.328	02/25/15	Wed	1306	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
856682400	29	4.328	08/19/15	Wed	2245	Rear-End	0	0	1	Night	Dry	Followed too Closely
859783330	30	4.328	08/05/15	Wed	0605	Head-On	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
848677070	31	4.397	06/04/15	Thu	0920	Fence	0	0	1	Day	Dry	Swerved Or Avoided
845450470	32	4.441	01/24/15	Sat	2115	Tree (Standing)	0	0	1	Night	Dry	Careless or Negligent Manner
851233630	33	4.451	09/04/15	Fri	0800	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
845281810	34	4.463	02/25/15	Wed	1332	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
859804910	35	4.457	07/21/15	Tue	1044	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
851956670	36	4.584	11/20/15	Fri	1225	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
856560690	37	4.584	01/16/15	Fri	1545	Rear-End	0	0	1	Day	Dry	Followed too Closely
859959690	38	4.584	11/15/15	Sun	1030	Fence	0	0	1	Day	Wet	Swerved Or Avoided
848677150	39	4.593	06/27/15	Sat	1145	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
851233620	40	4.603	09/03/15	Thu	0850	Bridge Rail	0	0	1	Day	Dry	Swerved Or Avoided
852034690	41	4.612	10/14/15	Wed	0815	Rear-End	0	3	0	Day	Dry	No Contributing Action
851233640	42	4.692	09/04/15	Fri	0730	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
852121180	43	4.692	11/19/15	Thu	0800	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
845399670	44	4.702	03/05/15	Thu	1925	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
859745270	45	4.709	06/03/15	Wed	1654	Rear-End	0	0	1	Day	Dry	Followed too Closely
851798710	46	4.711	09/10/15	Thu	1427	Angle	0	0	1	Day	Dry	Ran Stop Sign
859961520	47	4.717	11/06/15	Fri	1723	Animal	0	0	1	Day	Dry	No Contributing Action
845542800	48	4.835	05/05/15	Tue	0830	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
851881520	49	4.854	09/17/15	Thu	1839	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner

	Total No.	Fatal	Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
	49	**0**	**15**	**34**	**27**	**2**	**6**	**4**	**0**	**3**	**0**	**0**	**0**	**6**	**0**	**0**
	Percent	*0.00%*	*30.61%*	*69.39%*	*55.10%*	*4.08%*	*12.24%*	*8.16%*	*0.00%*	*6.12%*	*0.00%*	*0.00%*	*0.00%*	*12.24%*	*0.00%*	*0.00%*

	Contrib. Cause	Day	Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
	Total	**38**	**11**	**13**	**36**	**25**	**9**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**
	Percent	*77.55%*	*22.45%*	*26.53%*	*73.47%*	*51.02%*	*18.37%*	*0.00%*	*0.00%*	*0.00%*	*2.04%*	*0.00%*	*0.00%*	*0.00%*	*2.04%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **17,402** SEGMENT CRASH RATE: **8.331** CRASHES PER MILLION VEHICLE MILES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: From West of SW 137 Avenue to West of SW 127 Avenue M.P. 4.035 TO 4.961 ENGINEER: FDOT D6
STUDY PERIOD: FROM 1/ 2016 TO 12/ 2016 COUNTY: Miami-Dade

Crash Number	No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
852268660	1	4.037	04/11/16	Mon	1755	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
853032130	2	4.066	04/01/16	Fri	1241	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
866998440	3	4.066	09/04/16	Sun	1912	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
853506010	4	4.070	06/20/16	Mon	1641	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
852385100	5	4.073	02/05/16	Fri	1525	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
852410430	6	4.075	02/11/16	Thu	0800	Angle	0	0	1	Day	Dry	Ran Red Light
853732670	7	4.075	11/25/16	Fri	0045	Guardrail Face	0	0	1	Night	Dry	Swerved Or Avoided
865115230	8	4.075	05/02/16	Mon	0605	Head-On	0	0	1	Night	Dry	Careless or Negligent Manner
853844170	9	4.084	10/08/16	Sat	1020	Head-On	0	0	1	Day	Dry	Careless or Negligent Manner
854154670	10	4.084	10/25/16	Tue	1739	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
854154680	11	4.084	10/25/16	Tue	1739	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
854166150	12	4.094	11/05/16	Sat	1500	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
853164430	13	4.113	05/13/16	Fri	1700	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
868826890	14	4.113	12/27/16	Tue	1941	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
853546330	15	4.181	07/26/16	Tue	1618	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
854253020	16	4.328	11/19/16	Sat	0555	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
867143420	17	4.228	12/15/16	Thu	1719	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
851241330	18	4.328	01/04/16	Mon	0645	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
852780800	19	4.328	02/21/16	Sun	1039	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
852899300	20	4.328	03/04/16	Fri	1300	Angle	0	0	1	Day	Dry	Ran Stop Sign
853277280	21	4.328	08/15/16	Mon	0650	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
853726990	22	4.328	09/08/16	Thu	1555	Angle	0	0	1	Day	Dry	Ran Stop Sign
854337040	23	4.328	12/02/16	Fri	0623	Angle	0	2	0	Day	Wet	Failed to Yield Right-Of-Way
859729140	24	4.328	01/17/16	Sun	1254	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
865140440	25	4.328	06/15/16	Wed	1237	Angle	0	1	0	Day	Dry	Careless or Negligent Manner
865148430	26	4.328	06/16/16	Thu	1545	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
867142370	27	4.328	12/06/16	Tue	1645	Sideswipe	0	0	1	Day	Dry	Erratic, Reckless or Aggressive
867158020	28	4.328	12/16/16	Fri	0647	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
867057730	29	4.406	10/20/16	Thu	1801	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
852713670	30	4.457	03/30/16	Wed	1900	Right-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
852917760	31	4.425	05/28/16	Sat	1702	Tree (Standing)	0	0	1	Day	Dry	Careless or Negligent Manner
853335350	32	4.460	07/16/16	Sat	1620	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
854226150	33	4.470	11/16/16	Wed	0703	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
852268560	34	4.584	03/20/16	Sun	2040	Left-Turn	1	0	0	Night	Wet	Other Contributing Action
853877170	35	4.584	10/19/16	Wed	0910	Head-On	0	2	0	Day	Dry	Swerved Or Avoided
852917840	36	4.586	06/08/16	Wed	1515	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
853647190	37	4.588	07/18/16	Mon	2150	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner
853797870	38	4.590	09/21/16	Wed	1600	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
853513620	39	4.591	07/06/16	Wed	1005	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
853335430	40	4.593	07/18/16	Mon	2130	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
854154780	41	4.593	11/08/16	Tue	2007	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
852338810	42	4.649	03/04/16	Fri	0845	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
852338820	43	4.649	03/04/16	Fri	0846	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
852699190	44	4.705	04/21/16	Thu	1000	Rear-End	0	2	0	Day	Dry	Followed too Closely
852687820	45	4.705	04/05/16	Tue	2019	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
853506560	46	4.711	09/26/16	Mon	2025	Angle	0	0	1	Night	Dry	Ran Stop Sign
853686100	47	4.712	08/18/16	Thu	0718	Angle	0	4	0	Day	Wet	Failed to Yield Right-Of-Way
853506660	48	4.830	10/17/16	Mon	1733	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
853647690	49	4.835	09/09/16	Fri	1816	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
867121100	50	4.835	11/24/16	Thu	1230	Tree (Standing)	0	0	1	Day	Dry	Other Contributing Action
854060260	51	4.838	10/05/16	Wed	0623	Angle	0	2	0	Day	Wet	Failed to Yield Right-Of-Way
831602150	52	4.839	06/16/16	Thu	1909	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner

	Total No.	Fatal	Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
	52	**1**	**16**	**35**	**28**	**3**	**14**	**1**	**1**	**2**	**0**	**0**	**0**	**6**	**0**	**0**
	Percent	*1.92%*	*30.77%*	*67.31%*	*53.85%*	*5.77%*	*26.92%*	*1.92%*	*1.92%*	*3.85%*	*0.00%*	*0.00%*	*0.00%*	*11.54%*	*0.00%*	*0.00%*
	Contrib. Cause	Day	Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
	Total	**43**	**9**	**9**	**43**	**25**	**9**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
	Percent	*82.69%*	*17.31%*	*17.31%*	*82.69%*	*48.08%*	*17.31%*	*0.00%*	*0.00%*	*0.00%*	*1.92%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **17,402** SEGMENT CRASH RATE: **8.331** CRASHES PER MILLION VEHICLE MILES

APPENDIX D – RAW CRASH DATA

```
      CCCCCCCCCC      AAAAAAAAAA       RRRRRRRRR
     CCCCCCCCCC     AAAAAAAAAA       RRRRRRRRRR
    CCC             AAA     AAA       RRR      RRR
   CCC             AAA     AAA       RRR      RRR
  CCC             AAAAAAAAAA       RRRRRRRRRRR
 CCC             AAAAAAAAAA      RRRRRRRRRRR
CCC             AAA     AAA      RRR      RRR
CCC            AAA     AAA      RRR       RRR
CCCCCCCCCCC    AAA     AAA      RRR       RRRR
CCCCCCCCCCC    AAA     AAA      RRR       RRRRRR
```

C R A S H R E P O R T I N G S Y S T E M

N O T I C E: THE INFORMATION CONTAINED IN THIS DOCUMENT (REPORT, SCHEDULE, LIST, OR DATA) HAS BEEN COMPILED FROM INFORMATION COLLECTED FOR THE PURPOSE OF IDENTIFYING, EVALUATING, OR PLANNING SAFETY ENHANCEMENTS. THIS PRODUCT IDENTIFIES INFORMATION USED FOR THE PURPOSE OF DEVELOPING HIGHWAY SAFETY CONSTRUCTION IMPROVEMENT PROJECTS WHICH MAY BE IMPLEMENTED UTILIZING FEDERAL-AID HIGHWAY FUNDS. ANY DOCUMENT DISPLAYING THIS NOTICE SHALL BE USED ONLY FOR THOSE PURPOSES DEEMED APPROPRIATE BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. SEE TITLE 23, UNITED STATES CODE, SECTION 409.

```
I/O NAME: ..............  CARI122
PROGRAM ID: ............  CARPJ122
REPORT NUMBER: .........  01
RUN CLASS: .............  A
MESSAGE CLASS: .........  Q
PRINTER DEST: ..........  LOCAL
# COPIES: ..............  01
ACCOUNT #: .............  5565945
SUBMIT W/HOLD? .........  N
USERID: ................  KNCHPCK
DETAIL SORT ORDER: .....  1 - SORT BY ROADWAY, MILE POINT
PRINT SEGMENTS? ........  Y
PRINT INTERSECTIONS? ...  N
SUMMARY FORMAT: ........  2 - TOP LINE ALL BREAKS
OVERRIDE VALUES:
 MAX # OF BREAKS: ......  06
 CRASH RATE CATEGORY: ...
 AVERAGE DAILY TRAFFIC:..
 # OF LEGS: ............
```

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2016 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.035 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 004.961 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF CRASH	SEVERITY	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE HSG	ALCOHOL INVOLVED	HAZ MATERIAL INVOLVED	MOTOR VEHICLE INVOLVED	LIGHT CONDITION	WEATHER CONDITION	RD SURFACE CONDITION	RD OBSTRUCTION CONDITION	DAMAGE LOCATION	DRIVER LICENSE STATE	AGE OF DRIVER	VEHICLE 1	VEHICLE 1	VEHICLE FAULT 1	VEHICLE MANEUVER 1	VEHICLE 1	VEHICLE 1	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE MAKE	VEHICLE MODEL	NUMBER OF VEHICLES	VEHICLE MOVEMENT	#	#	#
838100430	87091000	04.037 2946	994	007200	14	08	25	07	R-2UN	0	14	01	01	01	01	01	03	R	1	E	01	01	01	02	19	E	02	01	13	01		52	2	0	00
845513230	87091000	04.037 2946	994	007200	15	01	02	17	R-2UN	0	14	01	01	01	01	01	01	R	2	E	16	01	01	02	46	E	16	01	77	01		42	3	0	00
852268660	87091000	04.037 2946	994	007100	16	04	11	17	R-2UN	0	14	01	01	01	01	01	01	R	1	E	03	01	01	02	57	E	01	01	13	01		29	2	0	01
837614740	87091000	04.056 2946	994	007200	14	08	20	08	R-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	22	E	02	01	13	01		46	2	0	00
845542650	87091000	04.056 2946	994	007200	15	02	02	09	R-2UN	0	14	01	01	01	01	01	03	R	1	E	01	01	01	02	19	E	01	01	13	01		23	2	0	00
845538250	87091000	04.066 2946	994	007200	15	02	25	12	R-2UN	0	14	01	01	01	01	01	02	R	1	E	02	01	01	02	54	E	03	01	13	01		41	3	0	00
853032130	87091000	04.066 2946	994	007100	16	04	01	12	R-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	23	E	16	01	13	01		70	2	0	02
866998440	87091000	04.066 2946	994	007100	16	09	04	19	R-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	28	W	01	01	03	01		33	2	0	00
852256840	87091000	04.068 2946	994	007200	15	12	07	13	R-2UN	0	14	01	01	03	02	01	02	R	1	E	01	01	01	01	66	E	01	01	13	01		69	2	0	02
853506010	87091000	04.070 2946	994	007100	16	06	20	16	R-2UN	0	14	01	01	02	01	01	03	R	1	E	16	01	01	02	25	E	02	01	13			00	2	0	00
837327670	87091000	04.071 2946	994	007200	14	01	06	16	R-2UN	0	14	01	01	02	02	01	02	R	1	E	03	01	01	02	38	E	01	01	13	01		22	2	0	00
845626860	87091000	04.072 2946	994	007200	15	04	29	21	R-2UN	0	14	01	05	02	02	01	02	R	1	E	03	01	01	02	36	E	01	01	03	01		29	2	0	00
843674580	87091000	04.073 2946	994	007200	14	06	24	20	R-2UN	0	14	01	05	02	02	01	02	R	1	E	03	01	01	02	42	E	01	01	13	01		61	2	0	00
844831150	87091000	04.073 2946	994	007200	14	07	19	21	R-2UN	0	14	88	04	02	02	01	02	R	2	E	01	01	05	02	26	E	01	01	01	01		58	2	0	00
851204490	87091000	04.073 2946	994	007200	15	06	18	09	R-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	47	E	01	01	01	01		66	3	0	01
851881750	87091000	04.073 2946	994	007200	15	10	04	15	R-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	14	02	25	E	01	01	13	01		48	2	0	01
852410130	87091000	04.073 2946	994	007200	15	12	29	10	R-2UN	0	14	01	01	01	01	01	02	R	1	E	16	01	01	02	39	E	01	01	13	01		63	2	0	01
852385100	87091000	04.073 2946	994	007100	16	02	05	15	R-2UN	0	14	01	01	02	01	01	03	R	1	E	16	01	01	02	39	E	03	01	13	01		46	2	0	00
851810590	87091000	04.074 2946	994	007200	15	08	23	15	R-2UN	1	14	01	01	01	01	01	02	R	1	E	16	01	01	02	42	E	16	01	13	01		52	4	0	05
843461020	87091000	04.075 2946	994	007200	14	01	10	17	R-2UN	0	14	01	01	01	01	01	02	R	1	E	02	01	01	02	81	E	01	01	13	01		48	2	0	02
843811800	87091000	04.075 2946	994	007200	14	10	26	10	R-2UN	0	14	01	01	01	01	01	02	T	1	S	01	01	01	10	19	S	03	01	01	01		50	2	0	00
845095870	87091000	04.075 2946	994	007200	15	02	09	06	R-2UN	0	14	01	01	03	02	01	02	T	1	S	01	01	01	02	16	S	03	01	13	01		47	2	0	00
856670910	87091000	04.075 2946	994	007200	15	06	27	11	R-2UN	0	37	77	01	03	02	01	02	R	S	S	03	01	01	02	49	S	03	01	08			00	3	0	00
851956080	87091000	04.075 2946	994	007200	15	09	22	06	R-2UN	0	14	03	06	02	02	01	02	R	1	E	01	01	03	01	60	W	16	01	01	01		22	2	0	02
860005010	87091000	04.075 2946	994	007200	15	11	08	01	R-2UN	0	14	03	05	01	01	01	02	R	1	S	01	01	03	03	25	E	16	01	01	01		23	2	0	00
843445240	87091000	04.075 2946	994	007200	15	12	19	10	R-2UN	0	14	03	01	01	01	01	02	L	1	E	20	01	03	03	57	W	16	01	01	01		68	2	0	00
852362580	87091000	04.075 2946	994	007200	15	12	21	07	R-2UN	0	14	02	06	03	02	01	02	R	1	W	11	01	01	25	63	E	02	01	01	01		23	2	0	02
843363810Y	87091000	04.075 2946	994	007200	15	12	22	22	R-2UN	0	14	01	05	02	02	10	03	T	L	S	01	88	01	02	00	S	01	01	13	01		46	2	0	00
852410430	87091000	04.075 2946	994	007100	16	02	11	08	R-2UN	0	14	03	01	01	01	01	02	I	M	W	01	01	01	11	35	S	03	01	03	01		38	2	0	00
865115230	87091000	04.075 2946	994	007100	16	05	02	06	R-2UN	0	14	03	03	02	01	01	03	T	L	N	01	01	03	02	77	S	01	01	01	01		30	2	0	00
853732670	87091000	04.075 2946	994	007100	16	11	25	00	R-2UN	0	27	03	04	01	01	01	02	R	S	W	03	01	01	01	30	S	16	01	03			00	2	0	00
851881580	87091000	04.084 2946	994	017900	15	09	23	17	S-2UN	0	14	03	01	01	01	01	02	L	1	W	01	01	06	25	25	W	03	01	01	01		58	2	0	00
852424860	87091000	04.084 2946	994	017900	15	12	10	17	S-2UN	0	14	01	01	02	01	01	02	L	1	E	03	01	01	02	24	E	01	01	13	01		30	3	0	00
853844170	87091000	04.084 2946	994	018500	16	10	08	10	S-2UN	0	14	02	01	01	01	01	03	L	L	E	16	01	03	02	19	W	01	01	13	01		57	2	0	00
854154670	87091000	04.084 2946	994	018500	16	10	25	17	S-2UN	0	14	01	01	02	01	01	03	R	1	E	03	01	01	02	45	E	02	01	13	01		35	2	0	00
854154680	87091000	04.084 2946	994	018500	16	10	25	17	S-2UN	0	14	01	01	02	01	01	03	R	1	E	02	01	01	02	44	E	03	01	13	01		45	3	0	00
854166150	87091000	04.094 2946	994	018500	16	11	05	15	S-2UN	0	14	01	01	01	01	01	03	L	1	W	01	01	01	02	29	W	01	01	13	01		64	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2016 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.035 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 004.961 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF SUBSTANCE	SEVERITY	ADT	VAR ADT	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE	ALCOHOL INVOLVED	HAZ MATERIAL INVOLVED	MOTOR VEHICLE INVOLVED	LIGHT CONDITION	WEATHER CONDITION	RAILROAD CROSSING	RAILROAD OCCUPANCY	DAYLIGHT SAVING TIME	RAMP CONDITION	ACCIDENT CLASSIFICATION	VEHICLE 1	VEHICLE 1 DIRECTION	VEHICLE 1 DAMAGE	VEHICLE 1 INITIAL IMPACT	VEHICLE 1 SECOND IMPACT	VEHICLE 2	VEHICLE 2 DIRECTION	VEHICLE 2 DAMAGE	VEHICLE 2 INITIAL IMPACT	VEHICLE 2 SECOND IMPACT	NUMBER OF VEHICLES	NUMBER OF PERSONS	# VEHICLES	# PERSONS	# NON-MOTORISTS
853164430	87091000	04.113 2946	994	018500	16	05	13	17	S-2UN	0	14	01	01	01	01	01	03	L	2	W	16	01	01	02	28	W	16	01	13	01	22	3	0	00
868826890	87091000	04.113 2946	994	018500	16	12	27	19	S-2UN	0	14	01	04	01	01	01	03	L	1	W	01	01	01	02	38	W	16	01	13	01	48	2	0	00
856514400	87091000	04.170 6805	994	017900	15	03	17	22	S-2UN	0	32	77	04	01	01	01	01	L	S	W	01	01	01	29	24							1	0	00
853546330	87091000	04.181 6805	994	018500	16	07	26	16	S-2UN	0	14	03	01	01	01	01	03	R	1	E	01	01	10	06	39	E	03	01	01	01	26	2	0	00
854253020	87091000	04.181 6805	994	018500	16	11	19	05	S-2UN	0	14	03	01	01	01	01	03	R	1	W	17	01	03	03	57	E	03	01	01	01	49	2	0	00
843530490	87091000	04.196 6805	994	017500	14	03	01	19	S-2UN	1	14	01	05	01	01	01	02	R	1	E	16	88	01	02	49	E	01	01	13	01	30	4	0	04
851128500	87091000	04.198 6805	994	017900	15	06	06	12	S-2UN	0	14	01	01	01	01	01	02	R	1	E	16	01	01	02	55	E	16	01	13	01	53	3	0	00
837193210	87091000	04.200 6805	994	017500	14	07	30	16	S-2UN	0	14	02	01	02	01	01	02	R	1	W	16	01	01	25	18	E	02	01	01	01	35	4	0	02
867143420	87091000	04.228 6805	994	018500	16	12	15	17	S-2UN	0	14	01	01	01	01	01	03	L	1	W	01	01	01	02	19	W	01	01	01	01	47	2	0	00
838044830	87091000	04.300 3335	994	017500	14	11	07	22	S-2UN	0	14	03	05	01	01	01	02	L	1	N	16	01	03	03	17	E	03	01	01	01	49	2	0	00
837631670	87091000	04.309 3335	994	017500	14	03	07	14	S-2UN	0	14	01	01	01	01	01	03	R	1	E	02	01	01	02	46	E	01	01	13	01	27	2	0	01
838019590	87091000	04.309 3335	994	017500	14	06	17	04	S-2UN	0	13	77	05	02	01	01	03	L	1	W	01	01	01	01	42							1	0	00
837181130	87091000	04.322 3335	994	017500	14	01	29	08	S-2UN	0	14	01	01	03	02	01	02	R	1	E	01	01	01	02	25	E	03	01	13	01	23	2	0	01
843456940	87091000	04.322 3335	994	017500	14	08	20	00	S-2UN	0	14	01	05	01	01	01	02	R	1	E	01	88	01	77	00	E	01	01	01	01	53	2	0	00
851214760	87091000	04.325 3335	994	017900	15	07	17	16	S-2UN	0	14	01	01	03	02	01	02	R	1	E	01	01	01	02	88	E	01	01	13	01	26	2	0	00
836736050	87091000	04.328 3335	994	017500	14	03	10	10	S-2UN	0	14	03	01	01	01	01	02	R	1	W	01	01	11	15	21	N	01	01	01	01	34	2	0	00
831471890	87091000	04.328 3335	994	017500	14	04	22	16	S-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	36	E	01	01	01	01	41	2	0	01
837181500	87091000	04.328 3335	994	017500	14	06	01	03	S-2UN	0	14	05	05	02	01	01	02	R	1	W	00	01	01		00	E	01	01	01	01	24	2	0	00
838003880	87091000	04.328 3335	994	017500	14	07	16	10	S-2UN	0	14	03	01	01	01	01	02	I	M	N	01	01	05	13	82	E	01	01	01	01	85	2	0	00
844755760	87091000	04.328 3335	994	017500	14	08	24	18	S-2UN	0	14	03	01	01	01	01	02	L	1	S	01	01	03	13	47	W	01	01	03	01	21	3	0	04
843757050	87091000	04.328 3335	994	017500	14	09	09	08	S-2UN	0	14	01	01	01	01	01	02	S	1	N	16	01	01	10	24	N	01	01	13	01	33	2	0	02
845075540	87091000	04.328 3335	994	017500	14	09	11	20	S-2UN	0	14	03	04	03	02	01	02	S	1	E	01	01	05		00	N	01	01	13	01	24	2	0	00
843809170	87091000	04.328 3335	994	017500	14	11	05	15	S-2UN	0	14	01	01	01	01	01	02	S	1	N	01	01	01	02	19	N	01	01	13	01	40	2	0	00
845537310	87091000	04.328 3335	994	017500	14	12	28	00	S-2UN	0	14	03	04	01	01	01	02	R	1	0	00	01	00		00	E	01	01	01	01	22	2	0	02
856571260	Y87091000	04.328 3335	994	017900	15	02	06	15	S-2UN	0	14	03	01	01	01	01	04	S	1	S	01	01	77	77	19	S	03	01	05	01	40	2	0	00
856605140	87091000	04.328 3335	994	017900	15	02	25	13	S-2UN	0	14	03	01	01	01	01	02	S	1	E	03	01	05	02	70	N	01	01	13	01	43	2	0	00
856604800	87091000	04.328 3335	994	017900	15	03	02	07	S-2UN	0	14	03	01	01	01	01	02	R	1	S	17	01	03	03	43	E	01	01	01	01	27	3	0	01
845537460	87091000	04.328 3335	994	017900	15	03	07	08	S-2UN	0	14	03	01	01	01	01	02	L	1	N	01	01	01	03	73	W	20	01	01	01	45	2	0	02
848895560	87091000	04.328 3335	994	017900	15	05	01	20	S-2UN	0	14	01	05	02	01	01	02	R	1	E	01	01	01	02	22	E	01	01	13	01	24	2	0	00
859783330	87091000	04.328 3335	994	017900	15	08	05	06	S-2UN	0	14	02	05	01	01	01	02	I	M	N	01	01	03	03	44	S	16	01	03	06	24	2	0	00
856682400	87091000	04.328 3335	994	017900	15	08	19	22	S-2UN	0	14	01	05	01	01	01	02	S	1	N	01	88	88	10	00	N	01	01	01	01	45	2	0	00
851642360	87091000	04.328 3335	994	017900	15	10	03	14	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	01	03	21	E	16	01	01	01	31	2	0	02
843405290	87091000	04.328 3335	994	017900	15	12	14	17	S-2UN	0	14	03	01	01	01	01	02	I	M	N	01	01	03	03	25	S	01	01	01	01	20	2	0	00
851241330	87091000	04.328 3335	994	018500	16	01	04	06	S-2UN	0	14	01	01	03	02	01	02	S	1	N	03	01	01	02	25	N	02	01	13	01	41	2	0	00
859729140	87091000	04.328 3335	994	018500	16	01	17	12	S-2UN	0	14	03	01	01	01	01	01	L	S	W	01	03	01	01	50	N	01	01	03	03	76	2	0	00
852780800	87091000	04.328 3335	994	018500	16	02	21	10	S-2UN	0	14	03	01	02	01	01	02	I	M	N	01	01	03	03	49	E	01	01	01	01	49	2	0	02
852899300	87091000	04.328 3335	994	018500	16	03	04	13	S-2UN	0	14	03	01	02	01	01	02	R	1	N	01	01	03	13	22	E	16	01	01	01	52	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2016 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.035 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 004.961 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	SEVERITY	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE HSG	ALCOHOL INVOLVED	HAZMAT INVOLVED	MOTOR VEHICLE INVOLVED	LIGHT CONDITION	WEATHER CONDITION	RELATION TO ROADWAY	DAY OF WEEK	RAMP OCCUPANCY DATA	DRIVER LICENSE STATE	AGE OF DRIVER 1	VEHICLE 1	VEHICLE 1	VEHICLE 1 YEAR	VEHICLE 1 MAKE	VEHICLE 1 MODEL	VEHICLE 2 YEAR	VEHICLE 2 MAKE	VEHICLE 2 MODEL	VEHICLE 2 MAKE	VEHICLE 2 MODEL	NUMBER OF VEHICLES	NUMBER OF MOTOR VEHICLES	# VEHICLES	# KILLED	# INJURED
865140440	87091000	04.328	3335	994	018500	16	06	15	12	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	03	02	18	E	03	01	01	01	56	2	0	01
865148430	87091000	04.328	3335	994	018500	16	06	16	15	S-2UN	0	14	01	01	01	01	01	02	S	1	N	01	01	01	02	17	N	02	01	01	01	34	2	0	00
853277280	87091000	04.328	3335	994	018500	16	08	15	06	S-2UN	0	14	03	01	01	01	01	02	L	1	N	01	01	03	03	19	W	01	01	01	01	59	2	0	01
853726990	87091000	04.328	3335	994	018500	16	09	08	15	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	01		00	E	16	01	01	01	43	2	0	00
854337040	87091000	04.328	3335	994	018500	16	12	02	06	S-2UN	0	14	03	01	03	02	01	02	R	2	N	16	01	01	03	56	E	16	01	01	01	69	2	0	02
867142370	87091000	04.328	3335	994	018500	16	12	06	16	S-2UN	0	14	05	01	01	01	01	03	S	1	S	03	00	01	31	06	N	16	01	01	01	40	2	0	00
867158020	87091000	04.328	3335	994	018500	16	12	16	06	S-2UN	0	14	01	01	01	01	01	03	T	1	S	16	01	01	02	42	S	02	01	13	01	48	2	0	01
837198920	87091000	04.330	3335	994	017500	14	02	10	07	S-2UN	0	14	01	01	01	01	01	02	L	1	W	02	01	01	01	61	W	01	01	13	01	41	2	0	02
848677070	87091000	04.397	8551	994	017900	15	06	04	09	S-2UN	0	09	77	01	02	01	01	03	L	S	W	01	00	77		00	W	01	01	01	01	27	2	0	00
867057730	87091000	04.406	8551	994	018500	16	10	20	18	S-2UN	0	14	01	01	03	02	01	03	L	1	W	01	01	01	02	32	W	03	01	01	01	56	2	0	00
845450470	87091000	04.421	8551	994	017900	15	01	24	21	S-2UN	0	36	77	04	01	01	01	02	R	S	E	01	01	01	02	59							1	0	00
851233630	87091000	04.423	8551	994	017900	15	09	04	08	S-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	49	E	16	01	14	01	29	2	0	00
843475620	87091000	04.425	8551	994	017500	14	02	06	07	S-2UN	0	14	04	01	01	01	01	02	R	1	N	01	01	05	03	31	E	01	01	01	01	16	2	0	00
852713670	87091000	04.425	8551	994	018500	16	03	30	19	S-2UN	0	14	01	01	01	01	01	02	R	1	N	01	01	05	03	56	E	02	01	01	01	38	2	0	00
852917760	87091000	04.425	8551	994	018500	16	05	28	17	S-2UN	0	32	77	01	02	01	01	02	R	S	E	03	01	01	02	64							1	0	00
853335350	87091000	04.429	8551	994	018500	16	07	16	16	S-2UN	0	14	01	01	02	01	01	03	L	1	W	01	01	01	02	27	W	01	01	14	01	19	2	0	00
854226150	87091000	04.430	8551	994	018500	16	11	16	07	S-2UN	0	14	01	01	01	01	01	03	L	1	W	16	01	01	02	60	W	01	01	13	01	43	2	0	02
845281810	87091000	04.434	8551	994	017900	15	02	25	13	S-2UN	0	14	01	01	02	01	01	02	L	2	W	16	01	01	02	20	W	16	01	13	01	30	3	0	00
859804910	87091000	04.457	8552	994	017900	15	07	21	10	S-2UN	0	14	03	01	01	01	01	02	R	1	N	03	01	03	03	26	E	01	01	01	01	35	2	0	01
843557550	87091000	04.490	8553	994	017500	14	03	25	13	S-2UN	0	14	03	01	01	01	01	02	L	1	E	01	01	03	06	20	S	03	01	14	01	56	2	0	01
845021000	87091000	04.490	8553	994	017500	14	11	08	19	S-2UN	0	14	01	04	01	01	01	02	L	1	W	01	01	01	02	20	W	03	01	01	01	56	2	0	02
837513480	87091000	04.584	3376	994	017500	14	01	08	14	S-2UN	0	05	77	01	02	01	01	02	L	1	W	20	01	13	77	46	W	01	01	13	01	40	2	0	00
844905170	87091000	04.584	3376	994	017500	14	08	28	13	S-2UN	0	14	01	01	02	01	01	02	L	1	W	16	01	01	02	28	W	01	01	13	01	18	2	0	02
856560690	87091000	04.584	3376	994	017900	15	01	16	15	S-2UN	0	14	01	01	01	01	01	03	R	1	N	01	03	01	10	49	N	16	01	01	01	50	2	0	00
859959690	87091000	04.584	3376	994	017900	15	11	15	10	S-2UN	0	37	77	01	03	02	01	02	T	S	W	03	01	77	30	70							1	0	00
851956670	87091000	04.584	3376	994	017900	15	11	20	12	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	03	03	18	E	12	01	01	01	64	2	0	01
852268560	87091000	04.584	3376	994	018500	16	03	20	20	S-2UN	0	14	03	04	03	02	01	02	R	1	E	11	01	01	77	24	W	16	01	03	01	49	2	1	00
853877170	87091000	04.584	3376	994	018500	16	10	19	09	S-2UN	0	14	02	01	01	01	01	02	R	1	W	01	01	01	30	25	E	01	01	01	01	45	2	0	02
837046460	87091000	04.586	3376	994	017500	14	01	30	17	S-2UN	0	14	01	01	03	02	01	02	L	2	W	16	01	01	02	41	W	01	01	13	01	53	2	0	00
852917840	87091000	04.586	3376	994	018500	16	06	08	15	S-2UN	0	14	01	01	03	02	01	03	L	1	W	03	01	01	02	40	W	16	01	13	01	64	2	0	00
845191090	87091000	04.588	3376	994	017500	14	12	05	08	S-2UN	0	14	01	01	01	01	01	02	L	2	W	01	01	01	02	20	W	03	01	13	01	41	2	0	00
853647190	87091000	04.588	3376	994	018500	16	07	18	21	S-2UN	0	14	01	05	03	02	01	03	L	1	W	01	01	01	02	30	W	03	01	14	01	45	2	0	01
843443950	87091000	04.590	3376	994	017500	14	01	13	17	S-2UN	0	14	01	01	01	01	01	02	L	1	W	01	01	01	02	20	W	16	01	13	01	74	2	0	01
853797870	87091000	04.590	3376	994	018500	16	09	21	16	S-2UN	0	14	01	01	01	01	01	03	L	1	W	16	01	01	02	29	W	01	01	13	01	30	3	0	00
853513620	87091000	04.591	3376	994	018500	16	07	06	10	S-2UN	0	14	01	01	02	01	01	02	L	1	W	03	01	01	02	67	W	03	01	13	01	18	2	0	01
843525610	87091000	04.593	3376	994	017500	14	02	27	18	S-2UN	0	14	01	04	02	02	01	02	L	1	W	01	01	01	02	26	W	01	01	13	01	30	3	0	01
848677150	87091000	04.593	3376	994	017900	15	06	27	11	S-2UN	0	14	01	01	03	02	01	02	L	1	W	01	01	01	02	53	W	01	01	14	01	31	3	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2016 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.035 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 004.961 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF CRASH	SEVERITY	ADT	VAR ADT	YEAR	MONTH	DAY	HOUR	CRASH RALATED STATUS	ALCOHOL INVOLVED	HAZARDOUS MEDIUM	MOTOR VEHICLE	LIGHT CONDITION	WEATHER CONDITION	RAMP	ROAD OWNER	DAMAGE OCCURRED ON	DAMAGE TO ADJACENT	ACCIDENT LOCATION	VEHICLE 1	VEHICLE 1	VEHICLE 1 DAMAGE	VEHICLE 1 FIRST	VEHICLE 1 SECOND	VEHICLE 1 THIRD	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	NUMBER OF VEHICLES	NUMBER OF PERSONS	# HARMFUL EVENTS	# VEHICLES	# KILLED	# INJURED
853335430	87091000	04.593	3376	994	018500	16	07	18	21	S-2UN	0	14	01	05	03	02	01	03	L	1	W	01	01	01	02	22	W	01	01	13	01		49	2	0	00
854154780	87091000	04.593	3376	994	018500	16	11	08	20	S-2UN	0	14	01	05	02	01	01	03	L	1	W	01	01	01	02	27	W	01	01	14	01		21	2	0	01
851233620	87091000	04.603	3376	994	017900	15	09	03	08	S-2UN	0	22	77	01	02	01	01	01	L	S	W	00	01	11		00	W	19	01	01	01		43	2	0	00
852338810	87091000	04.603	3376	994	018500	16	03	04	08	S-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	31	E	01	01	13	01		22	3	0	00
852338820	87091000	04.603	3376	994	018500	16	03	04	08	S-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	34	E	01	01	14	01		31	2	0	00
852034690	87091000	04.612	3376	994	017900	15	10	14	08	S-2UN	0	14	01	01	02	01	01	03	L	1	W	16	01	01	01	26	W	03	01	13	01		30	3	0	03
852699190	87091000	04.622	3336	994	018500	16	04	21	10	S-2UN	0	14	01	01	01	01	01	03	L	2	W	01	01	01	10	57	W	03	01	13	01		54	2	0	02
851233640	87091000	04.692	3337	994	017900	15	09	04	07	S-2UN	0	14	01	01	01	01	01	03	R	1	E	20	01	01	02	56	E	01	01	14	01		29	3	0	01
852121180	87091000	04.692	3337	994	017900	15	11	19	08	S-2UN	0	14	01	01	02	02	01	03	R	1	E	16	01	01	02	51	E	01	01	14	01		17	2	0	00
845399670	87091000	04.702	3337	994	017900	15	03	05	19	S-2UN	0	14	01	05	01	01	01	02	L	1	W	16	01	01	02	38	W	01	01	13	01		28	3	0	00
852687820	87091000	04.705	3337	994	018500	16	04	05	20	S-2UN	0	14	01	05	01	01	01	03	R	1	E	03	01	01	02	29	E	01	01	13	01		23	3	0	01
859745270	87091000	04.709	3337	994	017900	15	06	03	16	S-2UN	0	14	01	01	01	01	01	02	R	1	E	03	01	01	10	72	E	01	01	14	01		40	2	0	00
845025960	87091000	04.711	3337	994	017500	14	11	25	17	S-2UN	0	14	03	04	01	01	01	02	L	1	S	01	01	05	13	23	W	03	01	01	01		40	2	0	00
851798710	87091000	04.711	3337	994	017900	15	09	10	14	S-2UN	0	14	03	01	02	01	01	02	L	1	S	01	01	03	13	27	W	16	01	01	01		45	2	0	00
853506560	87091000	04.711	3337	994	018500	16	09	26	20	S-2UN	0	14	03	05	01	01	01	02	R	1	N	01	01	01	13	21	E	03	01	01	01		40	2	0	00
853686100	87091000	04.712	3337	994	018500	16	08	18	07	S-2UN	0	14	03	01	03	02	01	02	L	1	S	16	01	01	03	90	W	01	01	01	01		53	2	0	04
859961520	87091000	04.717	3337	994	017900	15	11	06	17	S-2UN	0	13	77	01	01	01	01	02	L	1	W	16	01	01	01	63								1	0	00
853506660	87091000	04.830	3374	994	018500	16	10	17	17	S-2UN	0	14	01	01	01	01	01	03	L	1	W	02	01	01	02	40	W	03	01	13	01		63	3	0	00
837181260	87091000	04.835	3374	994	017500	14	03	01	05	S-2UN	0	14	02	05	02	01	01	02	R	1	W	01	01	03	03	23	E	01	01	01	01		51	2	0	00
844866520	87091000	04.835	3374	994	017500	14	09	26	08	S-2UN	0	14	01	01	02	02	01	02	R	1	E	01	01	01	01	41	E	02	01	13	01		39	2	0	00
845542800	87091000	04.835	3374	994	017900	15	05	05	08	S-2UN	0	14	01	01	03	02	01	02	L	1	W	17	01	01	02	42	W	16	01	13	01		35	2	0	00
853647690	87091000	04.835	3374	994	018500	16	09	09	18	S-2UN	0	14	03	01	02	01	01	02	L	1	S	01	01	03	03	17	W	02	01	01	01		36	2	0	00
867121100	87091000	04.835	3374	994	018500	16	11	24	12	S-2UN	0	32	01	01	01	01	01	03	S	M	W	01	01	01	77	71								1	0	00
854060260	87091000	04.838	3374	994	018500	16	10	05	06	S-2UN	0	14	03	01	02	02	01	02	L	1	E	01	01	03	03	25	W	16	01	01	01		32	2	0	02
831602150	87091000	04.839	3374	994	018500	16	06	16	19	S-2UN	0	14	04	01	02	01	01	03	L	1	W	01	01	01		00	W	16	01	13	01		27	2	0	00
845120900	87091000	04.846	3374	994	017500	14	10	18	15	S-2UN	0	14	01	01	01	01	01	01	L	1	W	01	01	77	77	22	W	16	01	77	77		39	3	0	02
851881520	87091000	04.854	3374	994	017900	15	09	17	18	S-2UN	0	14	01	01	03	02	01	03	L	2	W	01	01	01	02	20	W	01	01	13	01		38	2	0	01
853902780	87091000	04.938	3374	994	018500	16	10	25	22	S-2UN	0	14	01	04	01	01	01	01	R	2	E	03	01	01	02	18	E	03	01	13	01		24	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2016 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.035 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 004.961 CR/OS INCL

FOR YEAR	FATAL CRASH STATISTICS			INJURY CRASH STATS		PROPERTY DAMAGE ONLY	TOTALS			INFLUENCE CRASHES OCCURRING ON INTERSECTING RDWYS	
	CRASHES	FATALITIES	INJURIES	CRASHES	INJURIES	CRASHES	CRASHES	FATALITIES	INJURIES	AT INT.	INFL AREA
2014	0	0	0	16	30	21	37	0	30	4	0
2015	0	0	0	15	26	34	49	0	26	4	2
2016	1	1	0	16	26	36	53	1	26	6	0
TOTAL	1	1	0	47	82	91	139	1	82	14	2

N O T I C E: THE INFORMATION CONTAINED IN THIS DOCUMENT (REPORT, SCHEDULE, LIST, OR DATA) HAS BEEN COMPILED FROM INFORMATION COLLECTED FOR THE PURPOSE OF IDENTIFYING, EVALUATING, OR PLANNING SAFETY ENHANCEMENTS. THIS PRODUCT IDENTIFIES INFORMATION USED FOR THE PURPOSE OF DEVELOPING HIGHWAY SAFETY CONSTRUCTION IMPROVEMENT PROJECTS WHICH MAY BE IMPLEMENTED UTILIZING FEDERAL-AID HIGHWAY FUNDS. ANY DOCUMENT DISPLAYING THIS NOTICE SHALL BE USED ONLY FOR THOSE PURPOSES DEEMED APPROPRIATE BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. SEE TITLE 23, UNITED STATES CODE, SECTION 409.

*** REPORT TOTALS ***

CUMULATIVE TOTALS FOR ALL LOCATIONS SUBMITTED - OVERLAPPING OR INTERSECTING LOCATIONS MAY RESULT IN CRASHES COUNTED MORE THAN ONCE

FOR YEAR	FATAL CRASH STATISTICS			INJURY CRASH STATS		PROPERTY DAMAGE ONLY	TOTALS			INFLUENCE CRASHES OCCURRING ON INTERSECTING RDWYS	
	CRASHES	FATALITIES	INJURIES	CRASHES	INJURIES	CRASHES	CRASHES	FATALITIES	INJURIES	AT INT.	INFL AREA
2014	0	0	0	16	30	21	37	0	30	4	0
2015	0	0	0	15	26	34	49	0	26	4	2
2016	1	1	0	16	26	36	53	1	26	6	0
TOTAL	1	1	0	47	82	91	139	1	82	14	2

N O T I C E: THE INFORMATION CONTAINED IN THIS DOCUMENT (REPORT, SCHEDULE, LIST, OR DATA) HAS BEEN COMPILED FROM INFORMATION COLLECTED FOR THE PURPOSE OF IDENTIFYING, EVALUATING, OR PLANNING SAFETY ENHANCEMENTS. THIS PRODUCT IDENTIFIES INFORMATION USED FOR THE PURPOSE OF DEVELOPING HIGHWAY SAFETY CONSTRUCTION IMPROVEMENT PROJECTS WHICH MAY BE IMPLEMENTED UTILIZING FEDERAL-AID HIGHWAY FUNDS. ANY DOCUMENT DISPLAYING THIS NOTICE SHALL BE USED ONLY FOR THOSE PURPOSES DEEMED APPROPRIATE BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. SEE TITLE 23, UNITED STATES CODE, SECTION 409.

APPENDIX E – TRAFFIC DATA

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 1

Groups Printed- Passenger Cars - Heavy Vehicles

	SW 137 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 137 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	1	0	24	0	25	86	50	0	0	136	1	0	0	0	1	1	76	14	0	91	253
06:15 AM	1	0	34	0	35	118	61	0	0	179	0	0	0	0	0	1	84	16	0	101	315
06:30 AM	2	0	40	0	42	150	74	0	0	224	0	0	0	0	0	2	83	13	0	98	364
06:45 AM	0	0	73	0	73	130	83	1	0	214	0	0	0	0	0	0	78	12	0	90	377
Total	4	0	171	0	175	484	268	1	0	753	1	0	0	0	1	4	321	55	0	380	1309
07:00 AM	0	0	91	0	91	137	87	0	0	224	2	1	0	0	3	0	80	17	0	97	415
07:15 AM	0	0	93	0	93	133	65	0	0	198	1	0	1	0	2	0	74	29	0	103	396
07:30 AM	0	0	121	0	121	120	90	0	0	210	1	0	0	0	1	0	91	15	0	106	438
07:45 AM	0	0	133	0	133	109	83	0	0	192	0	0	0	0	0	0	94	5	0	99	424
Total	0	0	438	0	438	499	325	0	0	824	4	1	1	0	6	0	339	66	0	405	1673
08:00 AM	0	0	129	0	129	117	74	1	0	192	0	0	0	0	0	0	91	15	0	106	427
08:15 AM	0	0	98	0	98	151	91	1	0	243	0	0	0	0	0	0	75	21	0	96	437
08:30 AM	5	0	93	0	98	132	75	0	0	207	0	0	0	0	0	5	60	22	0	87	392
08:45 AM	6	0	81	0	87	149	75	0	0	224	0	0	0	0	0	6	66	11	0	83	394
Total	11	0	401	0	412	549	315	2	0	866	0	0	0	0	0	11	292	69	0	372	1650
*** BREAK ***																					
03:00 PM	18	0	108	0	126	69	76	0	0	145	0	0	0	0	0	1	81	9	0	91	362
03:15 PM	26	0	114	0	140	64	97	0	0	161	0	0	0	0	0	2	77	7	0	86	387
03:30 PM	17	0	119	0	136	83	95	3	0	181	0	0	0	0	0	0	92	18	0	110	427
03:45 PM	21	0	125	0	146	67	79	0	0	146	0	0	0	0	0	1	82	13	0	96	388
Total	82	0	466	0	548	283	347	3	0	633	0	0	0	0	0	4	332	47	0	383	1564
04:00 PM	18	0	134	0	152	82	84	0	0	166	0	0	0	1	1	1	80	10	0	91	410
04:15 PM	20	0	113	0	133	69	114	0	0	183	0	0	0	0	0	2	69	15	0	86	402
04:30 PM	25	0	118	0	143	60	78	1	0	139	0	0	0	0	0	1	85	13	0	99	381
04:45 PM	15	0	113	0	128	84	106	1	0	191	0	0	0	0	0	0	87	12	0	99	418
Total	78	0	478	0	556	295	382	2	0	679	0	0	0	1	1	4	321	50	0	375	1611
05:00 PM	10	0	123	0	133	76	78	1	0	155	0	0	0	0	0	0	101	15	0	116	404
05:15 PM	15	0	121	0	136	73	87	1	0	161	0	0	0	0	0	0	111	19	0	130	427
05:30 PM	18	0	126	0	144	97	86	0	0	183	0	0	0	0	0	0	89	13	0	102	429
05:45 PM	20	0	120	0	140	81	85	0	0	166	0	0	0	0	0	1	95	17	0	113	419
Total	63	0	490	0	553	327	336	2	0	665	0	0	0	0	0	1	396	64	0	461	1679
Grand Total	238	0	2444	0	2682	2437	1973	10	0	4420	5	1	1	1	8	24	2001	351	0	2376	9486
Apprch %	8.9	0	91.1	0		55.1	44.6	0.2	0		62.5	12.5	12.5	12.5		1	84.2	14.8	0		
Total %	2.5	0	25.8	0	28.3	25.7	20.8	0.1	0	46.6	0.1	0	0	0	0.1	0.3	21.1	3.7	0	25	
Passenger Cars	235	0	2423	0	2658	2397	1915	10	0	4322	4	1	1	1	7	22	1942	347	0	2311	9298
% Passenger Cars																					
Heavy Vehicles	3	0	21	0	24	40	58	0	0	98	1	0	0	0	1	2	59	4	0	65	188
% Heavy Vehicles	1.3	0	0.9	0	0.9	1.6	2.9	0	0	2.2	20	0	0	0	12.5	8.3	2.9	1.1	0	2.7	2

P&B CNL: Pedestrians & Bicyclists Crossing North Leg

P&B CEL:Pedestrians & Bicyclists Crossing East Leg

P&B CSL:Pedestrians & Bicyclists Crossing South Leg

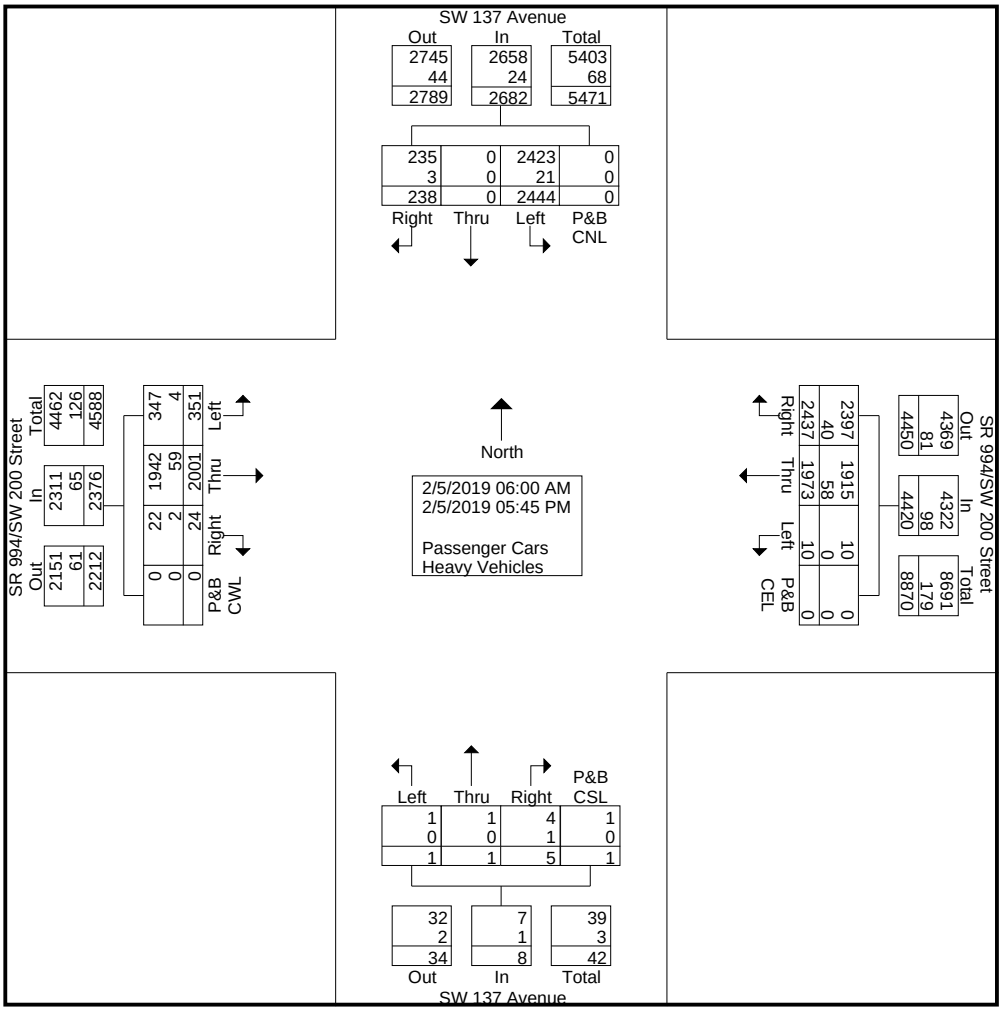
P&B CWL:Pedestrians & Bicyclists Crossing West Leg

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 2



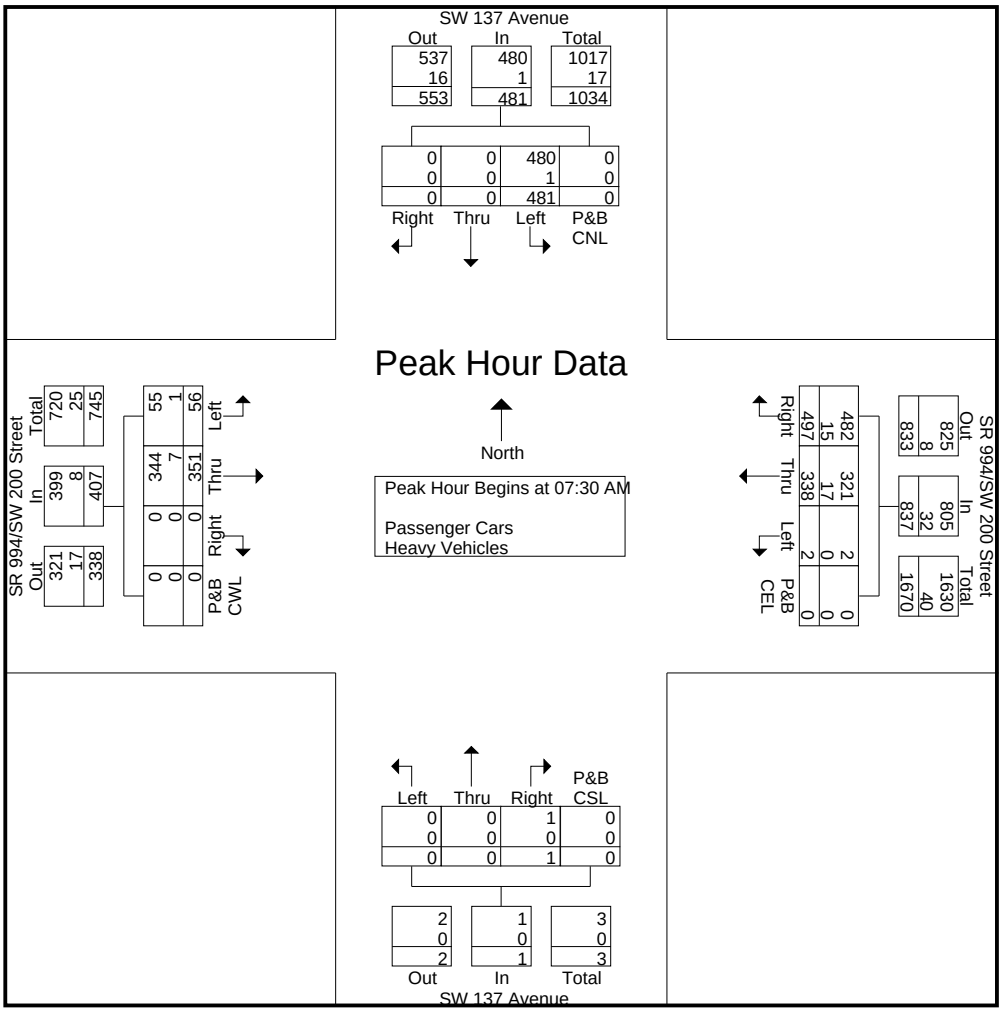
CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 3

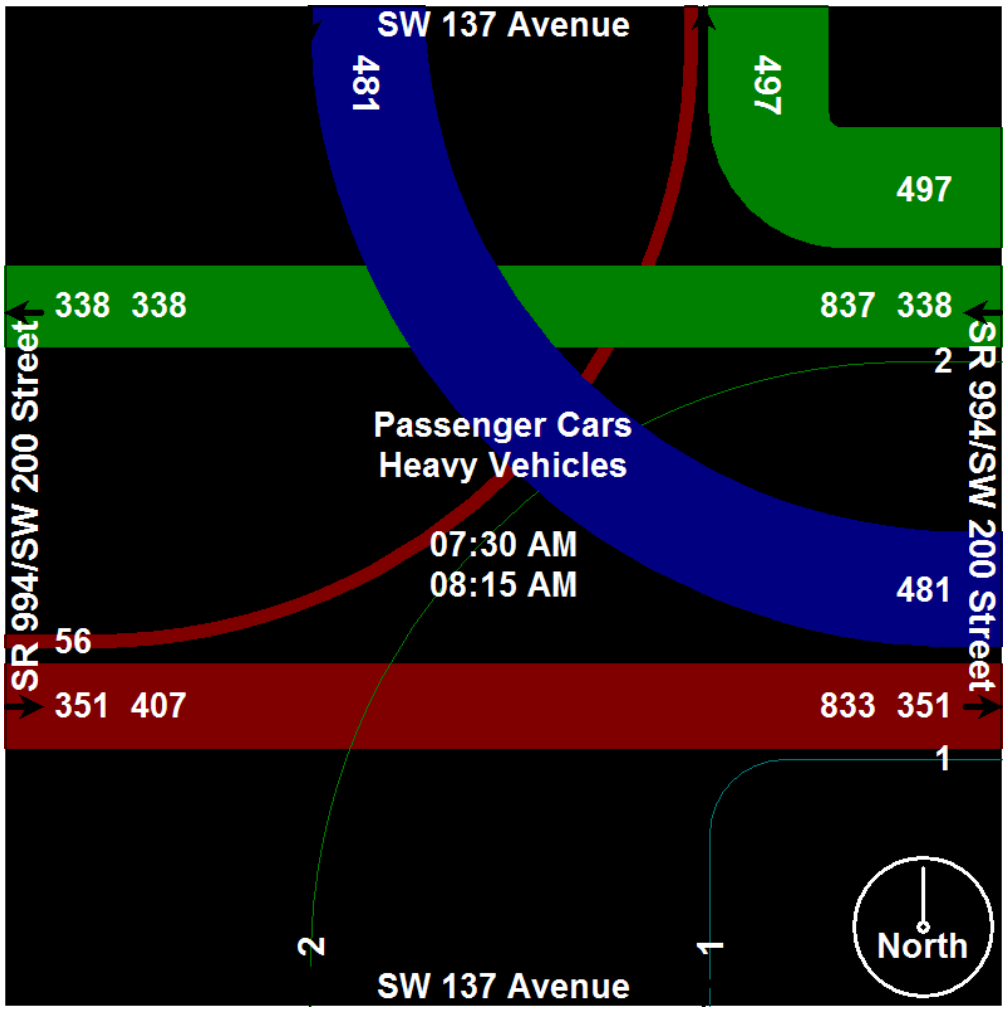
	SW 137 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 137 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	121	0	121	120	90	0	0	210	**1**	0	0	0	**1**	0	91	15	0	**106**	**438**
07:45 AM	0	0	**133**	0	**133**	109	83	0	0	192	0	0	0	0	0	0	**94**	5	0	99	424
08:00 AM	0	0	129	0	129	117	74	**1**	0	192	0	0	0	0	0	0	91	15	0	106	427
08:15 AM	0	0	98	0	98	**151**	**91**	1	0	**243**	0	0	0	0	0	0	75	**21**	0	96	437
Total Volume	0	0	481	0	481	497	338	2	0	837	1	0	0	0	1	0	351	56	0	407	1726
% App. Total	0	0	100	0		59.4	40.4	0.2	0		100	0	0	0		0	86.2	13.8	0		
PHF	.000	.000	.904	.000	.904	.823	.929	.500	.000	.861	.250	.000	.000	.000	.250	.000	.934	.667	.000	.960	.985
Passenger Cars	0	0	480	0	480	482	321	2	0	805	1	0	0	0	1	0	344	55	0	399	1685
% Passenger Cars																					
Heavy Vehicles	0	0	1	0	1	15	17	0	0	32	0	0	0	0	0	0	7	1	0	8	41
% Heavy Vehicles	0	0	0.2	0	0.2	3.0	5.0	0	0	3.8	0	0	0	0	0	0	2.0	1.8	0	2.0	2.4



CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 4



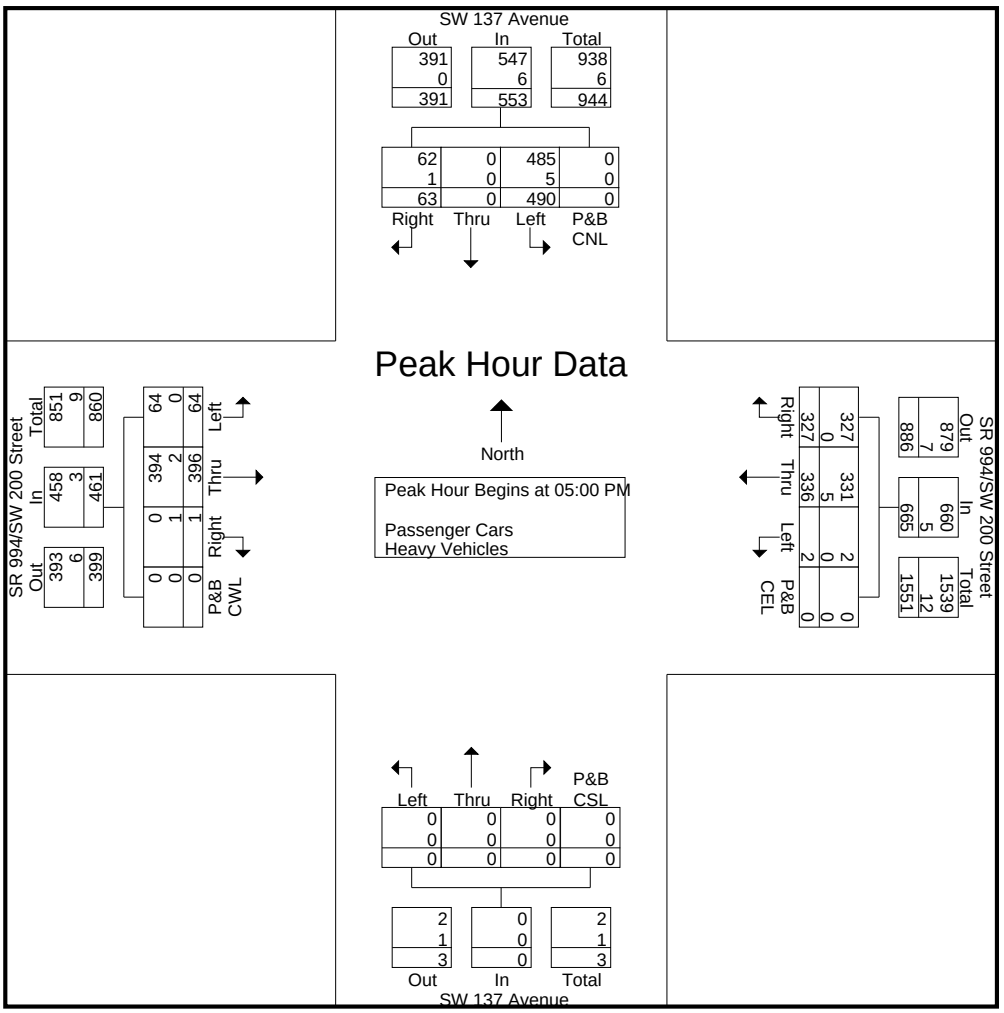
CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 5

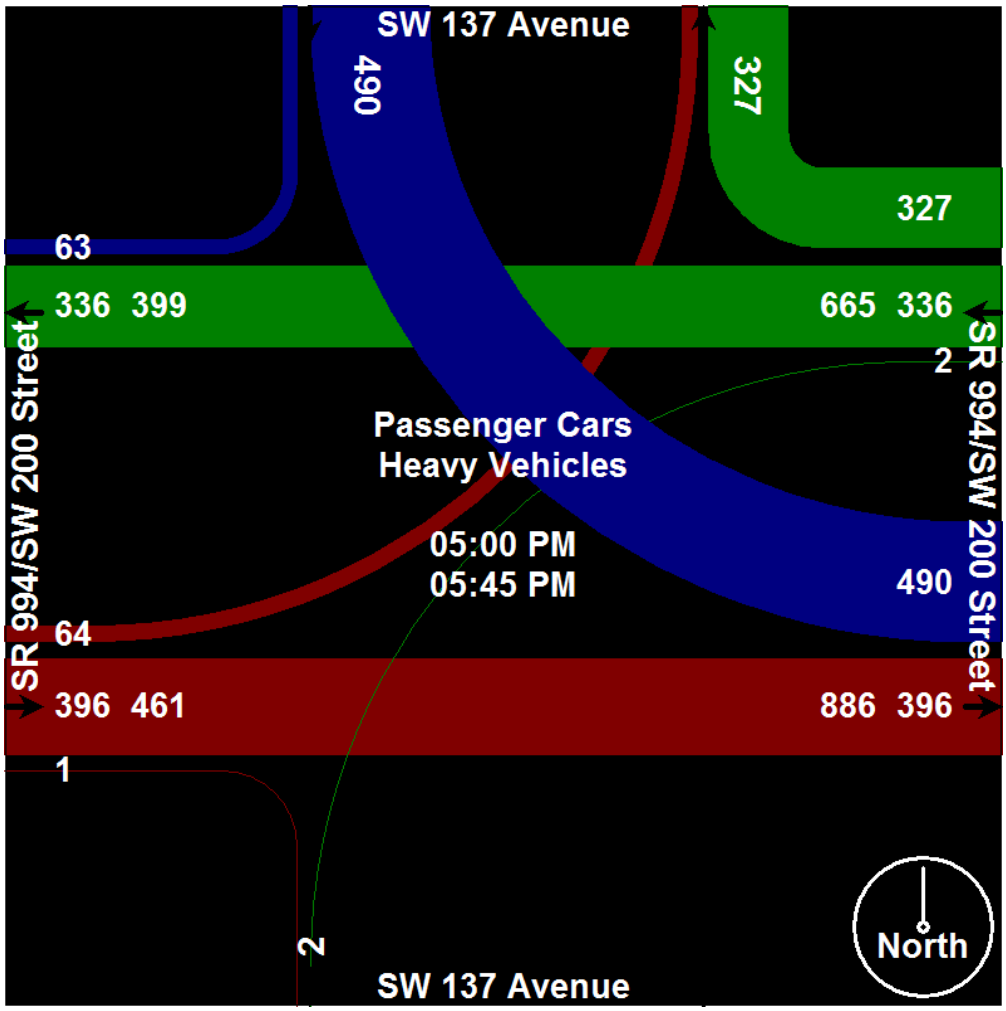
	SW 137 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 137 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	10	0	123	0	133	76	78	**1**	0	155	0	0	0	0	0	0	101	15	0	116	404
05:15 PM	15	0	121	0	136	73	**87**	1	0	161	0	0	0	0	0	0	**111**	**19**	0	**130**	427
05:30 PM	18	0	**126**	0	**144**	**97**	86	0	0	**183**	0	0	0	0	0	0	89	13	0	102	**429**
05:45 PM	**20**	0	120	0	140	81	85	0	0	166	0	0	0	0	0	**1**	95	17	0	113	419
Total Volume	63	0	490	0	553	327	336	2	0	665	0	0	0	0	0	1	396	64	0	461	1679
% App. Total	11.4	0	88.6	0		49.2	50.5	0.3	0		0	0	0	0		0.2	85.9	13.9	0		
PHF	.788	.000	.972	.000	.960	.843	.966	.500	.000	.908	.000	.000	.000	.000	.000	.250	.892	.842	.000	.887	.978
Passenger Cars	62	0	485	0	547	327	331	2	0	660	0	0	0	0	0	0	394	64	0	458	1665
% Passenger Cars																					
Heavy Vehicles	1	0	5	0	6	0	5	0	0	5	0	0	0	0	0	1	2	0	0	3	14
% Heavy Vehicles	1.6	0	1.0	0	1.1	0	1.5	0	0	0.8	0	0	0	0	0	100	0.5	0	0	0.7	0.8



CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 6



CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 1

Groups Printed- Passenger Cars

	SW 137 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 137 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	1	0	24	0	25	83	47	0	0	130	1	0	0	0	1	1	71	14	0	86	242
06:15 AM	1	0	32	0	33	118	58	0	0	176	0	0	0	0	0	1	77	15	0	93	302
06:30 AM	2	0	37	0	39	147	69	0	0	216	0	0	0	0	0	2	73	12	0	87	342
06:45 AM	0	0	71	0	71	124	82	1	0	207	0	0	0	0	0	0	78	12	0	90	368
Total	4	0	164	0	168	472	256	1	0	729	1	0	0	0	1	4	299	53	0	356	1254
07:00 AM	0	0	91	0	91	137	83	0	0	220	1	1	0	0	2	0	76	17	0	93	406
07:15 AM	0	0	93	0	93	132	65	0	0	197	1	0	1	0	2	0	74	29	0	103	395
07:30 AM	0	0	121	0	121	114	83	0	0	197	1	0	0	0	1	0	90	15	0	105	424
07:45 AM	0	0	132	0	132	102	77	0	0	179	0	0	0	0	0	0	90	5	0	95	406
Total	0	0	437	0	437	485	308	0	0	793	3	1	1	0	5	0	330	66	0	396	1631
08:00 AM	0	0	129	0	129	116	72	1	0	189	0	0	0	0	0	0	91	14	0	105	423
08:15 AM	0	0	98	0	98	150	89	1	0	240	0	0	0	0	0	0	73	21	0	94	432
08:30 AM	5	0	93	0	98	129	72	0	0	201	0	0	0	0	0	5	58	21	0	84	383
08:45 AM	6	0	81	0	87	148	75	0	0	223	0	0	0	0	0	6	65	11	0	82	392
Total	11	0	401	0	412	543	308	2	0	853	0	0	0	0	0	11	287	67	0	365	1630
*** BREAK ***																					
03:00 PM	17	0	106	0	123	66	75	0	0	141	0	0	0	0	0	0	81	9	0	90	354
03:15 PM	26	0	113	0	139	64	95	0	0	159	0	0	0	0	0	2	72	7	0	81	379
03:30 PM	17	0	118	0	135	81	92	3	0	176	0	0	0	0	0	0	90	18	0	108	419
03:45 PM	21	0	124	0	145	65	77	0	0	142	0	0	0	0	0	1	80	13	0	94	381
Total	81	0	461	0	542	276	339	3	0	618	0	0	0	0	0	3	323	47	0	373	1533
04:00 PM	18	0	133	0	151	81	83	0	0	164	0	0	0	1	1	1	80	10	0	91	407
04:15 PM	19	0	112	0	131	69	111	0	0	180	0	0	0	0	0	2	66	15	0	83	394
04:30 PM	25	0	118	0	143	60	76	1	0	137	0	0	0	0	0	1	81	13	0	95	375
04:45 PM	15	0	112	0	127	84	103	1	0	188	0	0	0	0	0	0	82	12	0	94	409
Total	77	0	475	0	552	294	373	2	0	669	0	0	0	1	1	4	309	50	0	363	1585
05:00 PM	10	0	123	0	133	76	77	1	0	154	0	0	0	0	0	0	100	15	0	115	402
05:15 PM	14	0	121	0	135	73	86	1	0	160	0	0	0	0	0	0	110	19	0	129	424
05:30 PM	18	0	123	0	141	97	85	0	0	182	0	0	0	0	0	0	89	13	0	102	425
05:45 PM	20	0	118	0	138	81	83	0	0	164	0	0	0	0	0	0	95	17	0	112	414
Total	62	0	485	0	547	327	331	2	0	660	0	0	0	0	0	0	394	64	0	458	1665
Grand Total	235	0	2423	0	2658	2397	1915	10	0	4322	4	1	1	1	7	22	1942	347	0	2311	9298
Apprch %	8.8	0	91.2	0		55.5	44.3	0.2	0		57.1	14.3	14.3	14.3		1	84	15	0		
Total %	2.5	0	26.1	0	28.6	25.8	20.6	0.1	0	46.5	0	0	0	0	0.1	0.2	20.9	3.7	0	24.9	

P&B CNL: Pedestrians & Bicyclists Crossing North Leg

P&B CEL:Pedestrians & Bicyclists Crossing East Leg

P&B CSL:Pedestrians & Bicyclists Crossing South Leg

P&B CWL:Pedestrians & Bicyclists Crossing West Leg

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 137 Avenue

File Name : SW 200 St at SW 137 Ave
Site Code : 20013701
Start Date : 2/5/2019
Page No : 1

Groups Printed- Heavy Vehicles

	SW 137 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 137 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	3	3	0	0	6	0	0	0	0	0	0	5	0	0	5	11
06:15 AM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	0	7	1	0	8	13
06:30 AM	0	0	3	0	3	3	5	0	0	8	0	0	0	0	0	0	10	1	0	11	22
06:45 AM	0	0	2	0	2	6	1	0	0	7	0	0	0	0	0	0	0	0	0	0	9
Total	0	0	7	0	7	12	12	0	0	24	0	0	0	0	0	0	22	2	0	24	55
07:00 AM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	4	0	0	4	9
07:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	6	7	0	0	13	0	0	0	0	0	0	1	0	0	1	14
07:45 AM	0	0	1	0	1	7	6	0	0	13	0	0	0	0	0	0	4	0	0	4	18
Total	0	0	1	0	1	14	17	0	0	31	1	0	0	0	1	0	9	0	0	9	42
08:00 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	1	0	1	4
08:15 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	2	0	0	2	5
08:30 AM	0	0	0	0	0	3	3	0	0	6	0	0	0	0	0	0	2	1	0	3	9
08:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	6	7	0	0	13	0	0	0	0	0	0	5	2	0	7	20
*** BREAK ***																					
03:00 PM	1	0	2	0	3	3	1	0	0	4	0	0	0	0	0	1	0	0	0	1	8
03:15 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	8
03:30 PM	0	0	1	0	1	2	3	0	0	5	0	0	0	0	0	0	2	0	0	2	8
03:45 PM	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	7
Total	1	0	5	0	6	7	8	0	0	15	0	0	0	0	0	1	9	0	0	10	31
04:00 PM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
04:15 PM	1	0	1	0	2	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	8
04:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
04:45 PM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	9
Total	1	0	3	0	4	1	9	0	0	10	0	0	0	0	0	0	12	0	0	12	26
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
05:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
05:30 PM	0	0	3	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
05:45 PM	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	5
Total	1	0	5	0	6	0	5	0	0	5	0	0	0	0	0	1	2	0	0	3	14
Grand Total	3	0	21	0	24	40	58	0	0	98	1	0	0	0	1	2	59	4	0	65	188
Apprch %	12.5	0	87.5	0		40.8	59.2	0	0		100	0	0	0		3.1	90.8	6.2	0		
Total %	1.6	0	11.2	0	12.8	21.3	30.9	0	0	52.1	0.5	0	0	0	0.5	1.1	31.4	2.1	0	34.6	

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 1

Groups Printed- Passenger Cars - Heavy Vehicles

	SW 134 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 134 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	2	93	2	0	97	24	3	53	0	80	10	94	0	0	104	281
06:15 AM	0	1	0	0	1	12	119	3	0	134	10	7	43	0	60	19	108	0	0	127	322
06:30 AM	0	0	1	0	1	16	166	17	0	199	1	3	37	0	41	21	122	0	0	143	384
06:45 AM	0	0	2	0	2	12	122	3	0	137	3	6	30	0	39	28	128	0	0	156	334
Total	0	1	3	0	4	42	500	25	0	567	38	19	163	0	220	78	452	0	0	530	1321
07:00 AM	0	0	0	0	0	28	177	13	0	218	12	13	33	0	58	51	147	1	0	199	475
07:15 AM	0	0	1	0	1	30	199	7	0	236	7	13	30	0	50	53	137	1	0	191	478
07:30 AM	0	0	3	0	3	48	187	10	1	246	8	7	17	0	32	60	191	0	0	251	532
07:45 AM	1	1	4	0	6	46	186	26	0	258	8	10	23	0	41	65	165	1	0	231	536
Total	1	1	8	0	10	152	749	56	1	958	35	43	103	0	181	229	640	3	0	872	2021
08:00 AM	0	0	4	0	4	31	186	18	0	235	6	2	31	0	39	51	154	0	0	205	483
08:15 AM	1	0	2	0	3	20	180	14	0	214	11	7	37	0	55	35	143	1	0	179	451
08:30 AM	0	0	2	0	2	22	175	7	0	204	4	5	41	0	50	39	130	0	0	169	425
08:45 AM	0	0	1	0	1	17	175	12	0	204	10	4	35	0	49	49	141	0	0	190	444
Total	1	0	9	0	10	90	716	51	0	857	31	18	144	0	193	174	568	1	0	743	1803
*** BREAK ***																					
03:00 PM	0	1	1	0	2	3	125	10	0	138	4	2	19	0	25	59	133	0	0	192	357
03:15 PM	1	0	5	0	6	5	148	15	0	168	5	1	25	0	31	75	112	1	0	188	393
03:30 PM	1	4	3	1	9	4	155	22	0	181	9	4	28	0	41	71	146	0	0	217	448
03:45 PM	0	1	2	0	3	7	174	23	0	204	7	3	26	0	36	72	141	0	0	213	456
Total	2	6	11	1	20	19	602	70	0	691	25	10	98	0	133	277	532	1	0	810	1654
04:00 PM	0	2	0	0	2	3	169	25	0	197	6	9	24	0	39	78	120	0	0	198	436
04:15 PM	1	4	4	0	9	5	138	16	1	160	12	3	23	0	38	89	124	0	0	213	420
04:30 PM	1	2	1	0	4	5	136	16	1	158	14	4	22	0	40	68	147	1	0	216	418
04:45 PM	1	5	1	0	7	8	136	24	0	168	9	4	29	0	42	93	130	2	0	225	442
Total	3	13	6	0	22	21	579	81	2	683	41	20	98	0	159	328	521	3	0	852	1716
05:00 PM	0	6	1	0	7	10	166	22	0	198	11	3	23	0	37	88	140	0	0	228	470
05:15 PM	1	9	6	0	16	6	136	25	0	167	12	7	20	0	39	101	142	1	0	244	466
05:30 PM	1	4	3	0	8	6	128	21	0	155	7	6	25	0	38	108	126	0	0	234	435
05:45 PM	1	10	3	0	14	10	152	15	0	177	8	7	13	0	28	87	143	0	0	230	449
Total	3	29	13	0	45	32	582	83	0	697	38	23	81	0	142	384	551	1	0	936	1820
Grand Total	10	50	50	1	111	356	3728	366	3	4453	208	133	687	0	1028	1470	3264	9	0	4743	10335
Apprch %	9	45	45	0.9		8	83.7	8.2	0.1		20.2	12.9	66.8	0		31	68.8	0.2	0		
Total %	0.1	0.5	0.5	0	1.1	3.4	36.1	3.5	0	43.1	2	1.3	6.6	0	9.9	14.2	31.6	0.1	0	45.9	
Passenger Cars	9	49	49	1	108	350	3518	334	3	4205	193	132	664	0	989	1422	3088	9	0	4519	9821
% Passenger Cars																					
Heavy Vehicles	1	1	1	0	3	6	210	32	0	248	15	1	23	0	39	48	176	0	0	224	514
% Heavy Vehicles	10	2	2	0	2.7	1.7	5.6	8.7	0	5.6	7.2	0.8	3.3	0	3.8	3.3	5.4	0	0	4.7	5

P&B CNL: Pedestrians & Bicyclists Crossing North Leg

P&B CEL:Pedestrians & Bicyclists Crossing East Leg

P&B CSL:Pedestrians & Bicyclists Crossing South Leg

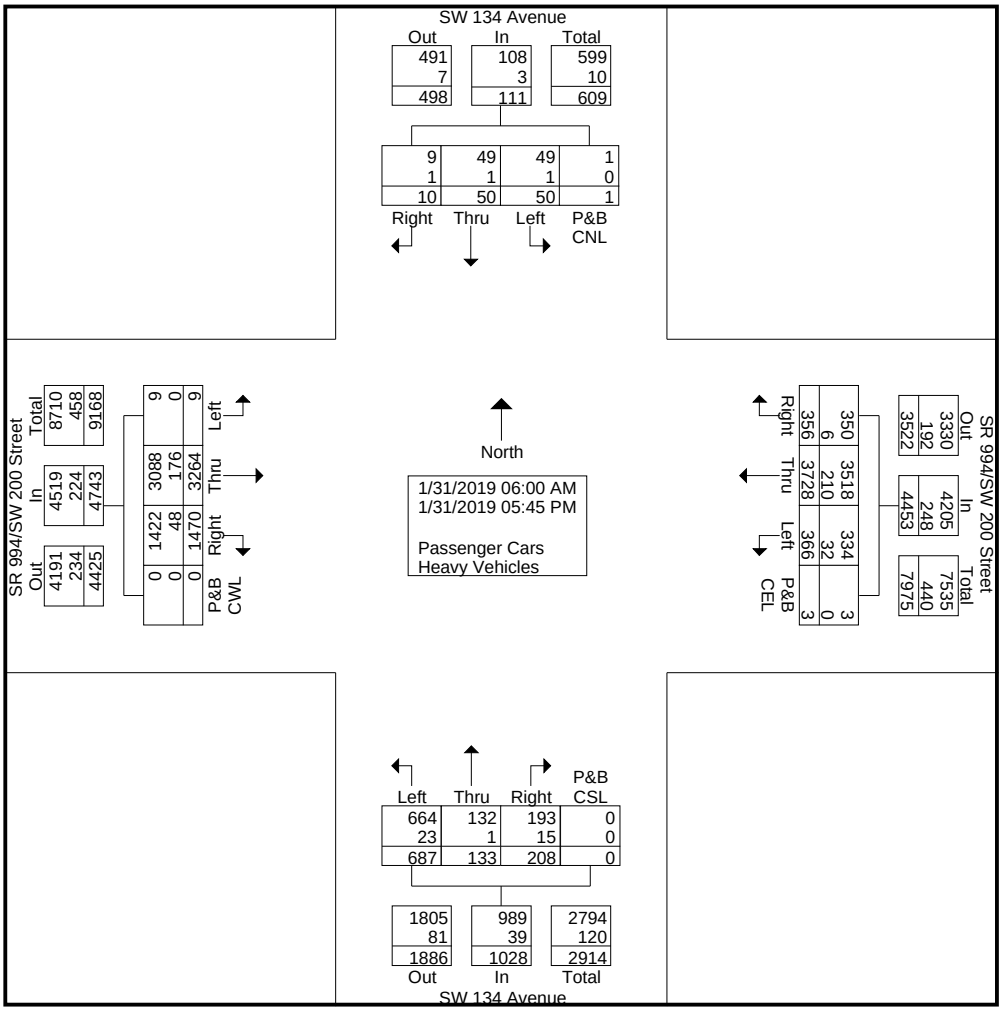
P&B CWL:Pedestrians & Bicyclists Crossing West Leg

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 2



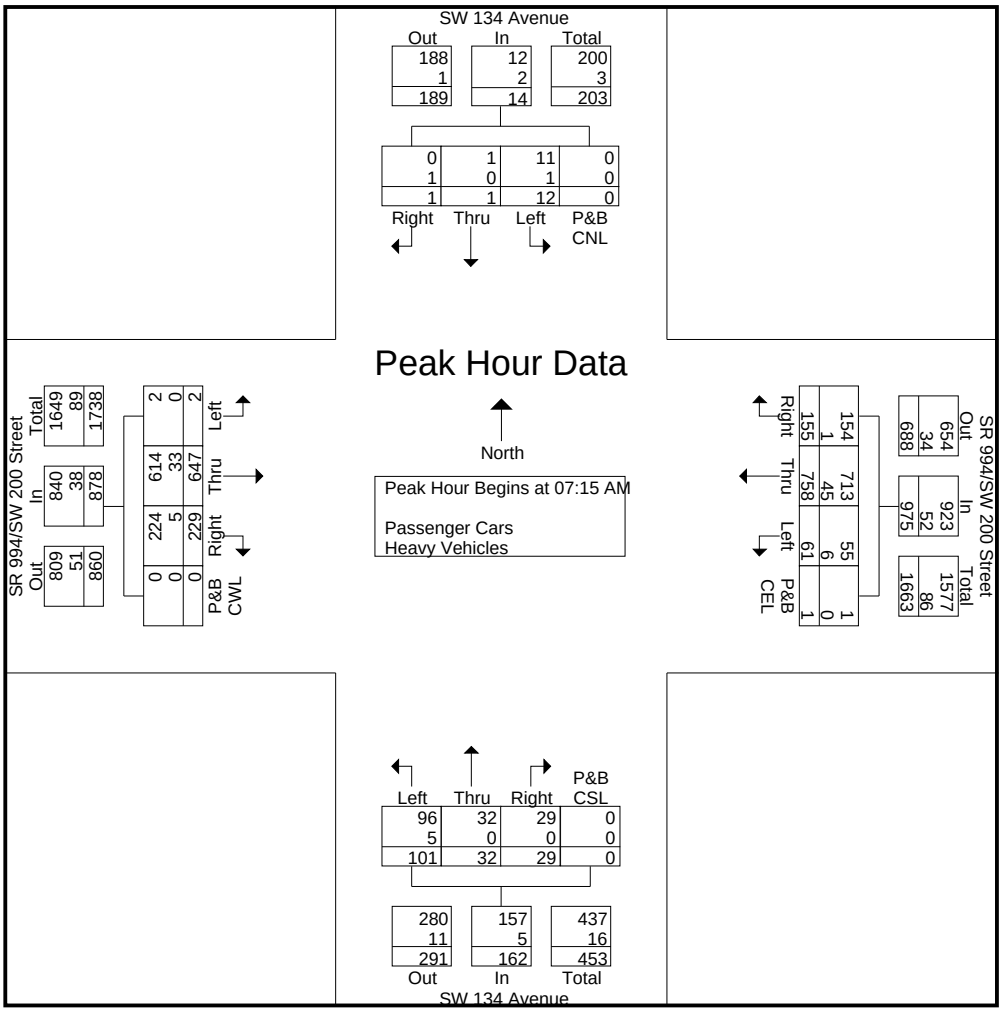
CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 3

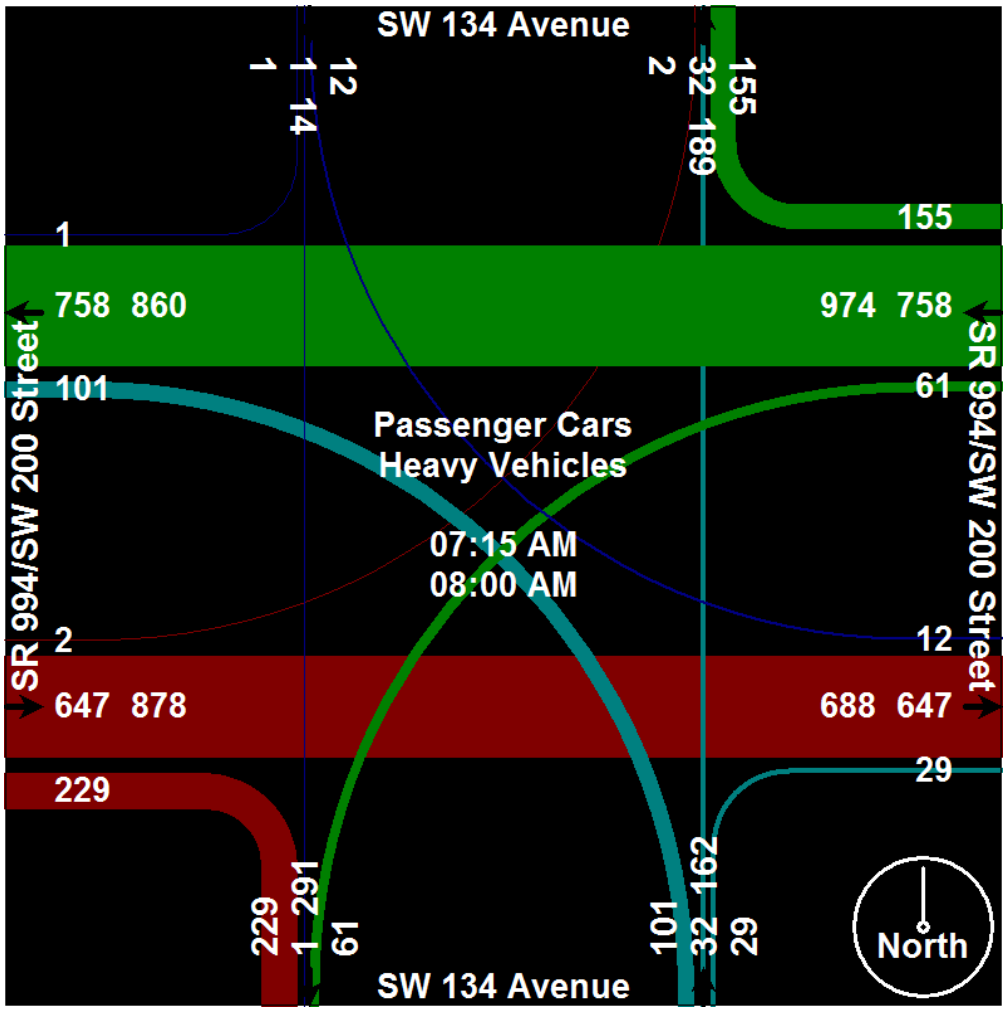
	SW 134 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 134 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	1	0	1	30	**199**	7	0	236	7	**13**	30	0	**50**	53	137	**1**	0	191	478
07:30 AM	0	0	3	0	3	**48**	187	10	**1**	246	**8**	7	17	0	32	60	**191**	0	0	**251**	532
07:45 AM	**1**	**1**	**4**	0	**6**	46	186	**26**	0	**258**	8	10	23	0	41	**65**	165	1	0	231	**536**
08:00 AM	0	0	4	0	4	31	186	18	0	235	6	2	**31**	0	39	51	154	0	0	205	483
Total Volume	1	1	12	0	14	155	758	61	1	975	29	32	101	0	162	229	647	2	0	878	2029
% App. Total	7.1	7.1	85.7	0		15.9	77.7	6.3	0.1		17.9	19.8	62.3	0		26.1	73.7	0.2	0		
PHF	.250	.250	.750	.000	.583	.807	.952	.587	.250	.945	.906	.615	.815	.000	.810	.881	.847	.500	.000	.875	.946
Passenger Cars	0	1	11	0	12	154	713	55	1	923	29	32	96	0	157	224	614	2	0	840	1932
% Passenger Cars																					
Heavy Vehicles	1	0	1	0	2	1	45	6	0	52	0	0	5	0	5	5	33	0	0	38	97
% Heavy Vehicles	100	0	8.3	0	14.3	0.6	5.9	9.8	0	5.3	0	0	5.0	0	3.1	2.2	5.1	0	0	4.3	4.8



CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 4



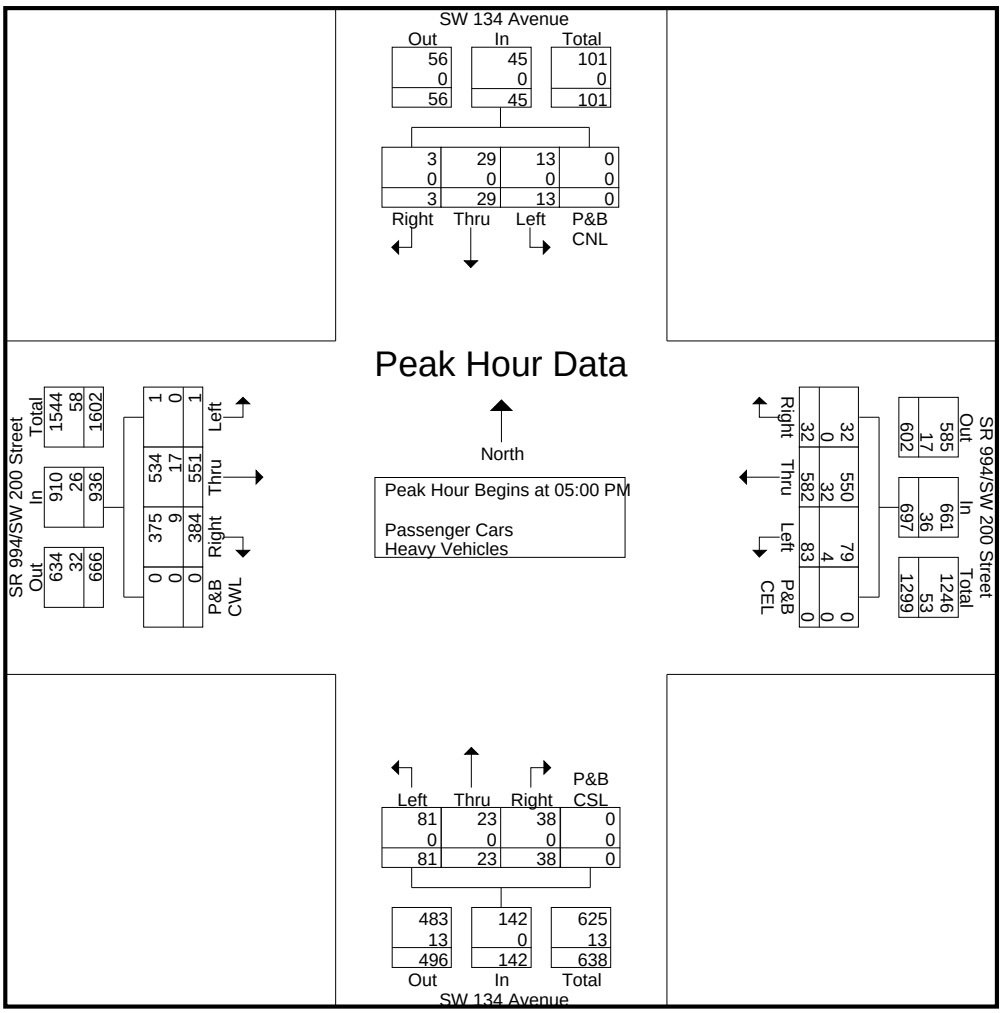
CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 5

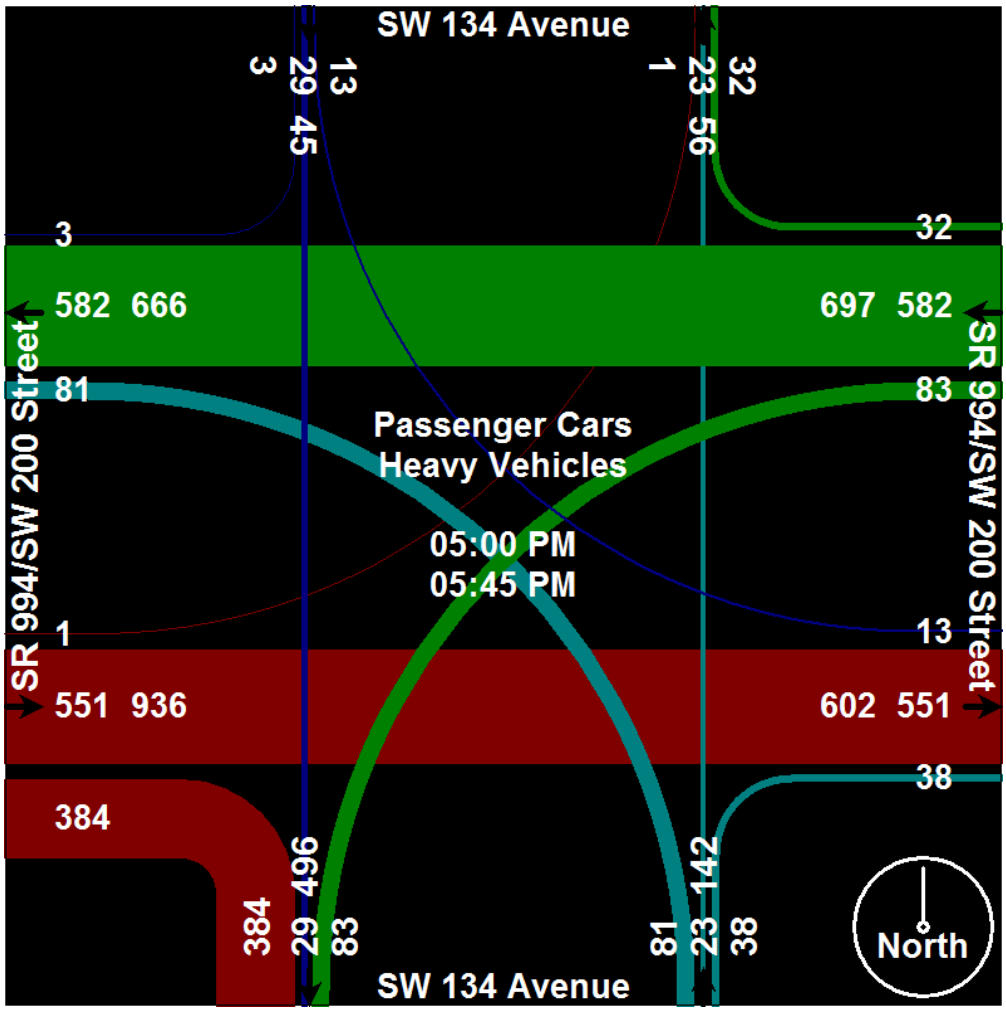
	SW 134 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 134 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	6	1	0	7	**10**	**166**	22	0	**198**	11	3	23	0	37	88	140	0	0	228	**470**
05:15 PM	**1**	9	**6**	0	**16**	6	136	**25**	0	167	**12**	**7**	20	0	**39**	101	142	**1**	0	**244**	466
05:30 PM	1	4	3	0	8	6	128	21	0	155	7	6	**25**	0	38	**108**	126	0	0	234	435
05:45 PM	1	**10**	3	0	14	10	152	15	0	177	8	7	13	0	28	87	**143**	0	0	230	449
Total Volume	3	29	13	0	45	32	582	83	0	697	38	23	81	0	142	384	551	1	0	936	1820
% App. Total	6.7	64.4	28.9	0		4.6	83.5	11.9	0		26.8	16.2	57	0		41	58.9	0.1	0		
PHF	.750	.725	.542	.000	.703	.800	.877	.830	.000	.880	.792	.821	.810	.000	.910	.889	.963	.250	.000	.959	.968
Passenger Cars	3	29	13	0	45	32	550	79	0	661	38	23	81	0	142	375	534	1	0	910	1758
% Passenger Cars																					
Heavy Vehicles	0	0	0	0	0	0	32	4	0	36	0	0	0	0	0	9	17	0	0	26	62
% Heavy Vehicles	0	0	0	0	0	0	5.5	4.8	0	5.2	0	0	0	0	0	2.3	3.1	0	0	2.8	3.4



CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 6



CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 1

Groups Printed- Passenger Cars

	SW 134 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 134 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	2	89	2	0	93	21	3	51	0	75	9	77	0	0	86	254
06:15 AM	0	1	0	0	1	12	113	3	0	128	8	7	42	0	57	18	95	0	0	113	299
06:30 AM	0	0	1	0	1	16	149	13	0	178	0	3	36	0	39	20	113	0	0	133	351
06:45 AM	0	0	2	0	2	12	119	2	0	133	2	6	28	0	36	28	125	0	0	153	324
Total	0	1	3	0	4	42	470	20	0	532	31	19	157	0	207	75	410	0	0	485	1228
07:00 AM	0	0	0	0	0	28	172	13	0	213	12	12	33	0	57	50	142	1	0	193	463
07:15 AM	0	0	1	0	1	30	187	7	0	224	7	13	28	0	48	51	128	1	0	180	453
07:30 AM	0	0	2	0	2	47	174	8	1	230	8	7	17	0	32	59	179	0	0	238	502
07:45 AM	0	1	4	0	5	46	180	26	0	252	8	10	21	0	39	65	160	1	0	226	522
Total	0	1	7	0	8	151	713	54	1	919	35	42	99	0	176	225	609	3	0	837	1940
08:00 AM	0	0	4	0	4	31	172	14	0	217	6	2	30	0	38	49	147	0	0	196	455
08:15 AM	1	0	2	0	3	20	168	13	0	201	9	7	35	0	51	34	134	1	0	169	424
08:30 AM	0	0	2	0	2	21	165	6	0	192	4	5	41	0	50	38	120	0	0	158	402
08:45 AM	0	0	1	0	1	16	169	12	0	197	10	4	33	0	47	48	131	0	0	179	424
Total	1	0	9	0	10	88	674	45	0	807	29	18	139	0	186	169	532	1	0	702	1705
*** BREAK ***																					
03:00 PM	0	1	1	0	2	3	116	10	0	129	4	2	18	0	24	58	128	0	0	186	341
03:15 PM	1	0	5	0	6	4	135	14	0	153	5	1	21	0	27	69	103	1	0	173	359
03:30 PM	1	4	3	1	9	4	147	20	0	171	9	4	27	0	40	70	139	0	0	209	429
03:45 PM	0	1	2	0	3	7	166	18	0	191	6	3	24	0	33	66	133	0	0	199	426
Total	2	6	11	1	20	18	564	62	0	644	24	10	90	0	124	263	503	1	0	767	1555
04:00 PM	0	2	0	0	2	3	159	23	0	185	6	9	24	0	39	74	114	0	0	188	414
04:15 PM	1	4	4	0	9	4	130	15	1	150	9	3	23	0	35	85	117	0	0	202	396
04:30 PM	1	1	1	0	3	4	123	13	1	141	12	4	22	0	38	65	144	1	0	210	392
04:45 PM	1	5	1	0	7	8	135	23	0	166	9	4	29	0	42	91	125	2	0	218	433
Total	3	12	6	0	21	19	547	74	2	642	36	20	98	0	154	315	500	3	0	818	1635
05:00 PM	0	6	1	0	7	10	156	20	0	186	11	3	23	0	37	85	136	0	0	221	451
05:15 PM	1	9	6	0	16	6	128	24	0	158	12	7	20	0	39	98	134	1	0	233	446
05:30 PM	1	4	3	0	8	6	118	20	0	144	7	6	25	0	38	106	124	0	0	230	420
05:45 PM	1	10	3	0	14	10	148	15	0	173	8	7	13	0	28	86	140	0	0	226	441
Total	3	29	13	0	45	32	550	79	0	661	38	23	81	0	142	375	534	1	0	910	1758
Grand Total	9	49	49	1	108	350	3518	334	3	4205	193	132	664	0	989	1422	3088	9	0	4519	9821
Apprch %	8.3	45.4	45.4	0.9		8.3	83.7	7.9	0.1		19.5	13.3	67.1	0		31.5	68.3	0.2	0		
Total %	0.1	0.5	0.5	0	1.1	3.6	35.8	3.4	0	42.8	2	1.3	6.8	0	10.1	14.5	31.4	0.1	0	46	

P&B CNL: Pedestrians & Bicyclists Crossing North Leg

P&B CEL:Pedestrians & Bicyclists Crossing East Leg

P&B CSL:Pedestrians & Bicyclists Crossing South Leg

P&B CWL:Pedestrians & Bicyclists Crossing West Leg

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 134 Avenue

File Name : SW 200 St at SW 134 Ave
Site Code : 20013401
Start Date : 1/31/2019
Page No : 1

Groups Printed- Heavy Vehicles

	SW 134 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 134 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	4	0	0	4	3	0	2	0	5	1	17	0	0	18	27
06:15 AM	0	0	0	0	0	0	6	0	0	6	2	0	1	0	3	1	13	0	0	14	23
06:30 AM	0	0	0	0	0	0	17	4	0	21	1	0	1	0	2	1	9	0	0	10	33
06:45 AM	0	0	0	0	0	0	3	1	0	4	1	0	2	0	3	0	3	0	0	3	10
Total	0	0	0	0	0	0	30	5	0	35	7	0	6	0	13	3	42	0	0	45	93
07:00 AM	0	0	0	0	0	0	5	0	0	5	0	1	0	0	1	1	5	0	0	6	12
07:15 AM	0	0	0	0	0	0	12	0	0	12	0	0	2	0	2	2	9	0	0	11	25
07:30 AM	0	0	1	0	1	1	13	2	0	16	0	0	0	0	0	1	12	0	0	13	30
07:45 AM	1	0	0	0	1	0	6	0	0	6	0	0	2	0	2	0	5	0	0	5	14
Total	1	0	1	0	2	1	36	2	0	39	0	1	4	0	5	4	31	0	0	35	81
08:00 AM	0	0	0	0	0	0	14	4	0	18	0	0	1	0	1	2	7	0	0	9	28
08:15 AM	0	0	0	0	0	0	12	1	0	13	2	0	2	0	4	1	9	0	0	10	27
08:30 AM	0	0	0	0	0	1	10	1	0	12	0	0	0	0	0	1	10	0	0	11	23
08:45 AM	0	0	0	0	0	1	6	0	0	7	0	0	2	0	2	1	10	0	0	11	20
Total	0	0	0	0	0	2	42	6	0	50	2	0	5	0	7	5	36	0	0	41	98
*** BREAK ***																					
03:00 PM	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	1	5	0	0	6	16
03:15 PM	0	0	0	0	0	1	13	1	0	15	0	0	4	0	4	6	9	0	0	15	34
03:30 PM	0	0	0	0	0	0	8	2	0	10	0	0	1	0	1	1	7	0	0	8	19
03:45 PM	0	0	0	0	0	0	8	5	0	13	1	0	2	0	3	6	8	0	0	14	30
Total	0	0	0	0	0	1	38	8	0	47	1	0	8	0	9	14	29	0	0	43	99
04:00 PM	0	0	0	0	0	0	10	2	0	12	0	0	0	0	0	4	6	0	0	10	22
04:15 PM	0	0	0	0	0	1	8	1	0	10	3	0	0	0	3	4	7	0	0	11	24
04:30 PM	0	1	0	0	1	1	13	3	0	17	2	0	0	0	2	3	3	0	0	6	26
04:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2	5	0	0	7	9
Total	0	1	0	0	1	2	32	7	0	41	5	0	0	0	5	13	21	0	0	34	81
05:00 PM	0	0	0	0	0	0	10	2	0	12	0	0	0	0	0	3	4	0	0	7	19
05:15 PM	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	3	8	0	0	11	20
05:30 PM	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	2	2	0	0	4	15
05:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	3	0	0	4	8
Total	0	0	0	0	0	0	32	4	0	36	0	0	0	0	0	9	17	0	0	26	62
Grand Total	1	1	1	0	3	6	210	32	0	248	15	1	23	0	39	48	176	0	0	224	514
Apprch %	33.3	33.3	33.3	0		2.4	84.7	12.9	0		38.5	2.6	59	0		21.4	78.6	0	0		
Total %	0.2	0.2	0.2	0	0.6	1.2	40.9	6.2	0	48.2	2.9	0.2	4.5	0	7.6	9.3	34.2	0	0	43.6	

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 1

Groups Printed- Passenger Cars - Heavy Vehicles

	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	84	2	0	86	33	0	9	0	42	2	138	0	0	140	268
06:15 AM	0	0	0	0	0	0	101	4	0	105	35	0	15	0	50	4	143	0	0	147	302
06:30 AM	0	0	0	0	0	0	146	2	0	148	35	0	18	0	53	3	167	0	0	170	371
06:45 AM	0	0	0	0	0	0	153	7	1	161	37	0	13	0	50	1	182	0	0	183	394
Total	0	0	0	0	0	0	484	15	1	500	140	0	55	0	195	10	630	0	0	640	1335
07:00 AM	0	0	0	0	0	0	181	8	0	189	33	0	21	0	54	0	192	0	0	192	435
07:15 AM	0	0	0	0	0	0	198	7	0	205	25	0	19	0	44	2	160	0	0	162	411
07:30 AM	0	0	0	0	0	0	208	1	1	210	40	0	17	0	57	3	205	0	0	208	475
07:45 AM	0	0	0	0	0	0	171	4	0	175	32	0	15	0	47	5	205	0	0	210	432
Total	0	0	0	0	0	0	758	20	1	779	130	0	72	0	202	10	762	0	0	772	1753
08:00 AM	0	0	0	0	0	0	179	3	0	182	21	0	15	0	36	0	180	0	0	180	398
08:15 AM	0	0	0	0	0	0	162	20	1	183	17	0	15	0	32	2	179	0	0	181	396
08:30 AM	0	0	0	0	0	0	177	17	0	194	23	0	17	0	40	6	146	0	0	152	386
08:45 AM	0	0	0	0	0	0	160	8	0	168	18	0	13	0	31	5	142	0	0	147	346
Total	0	0	0	0	0	0	678	48	1	727	79	0	60	0	139	13	647	0	0	660	1526
09:00 AM	0	0	0	0	0	0	145	11	0	156	22	0	15	0	37	1	133	0	0	134	327
09:15 AM	0	0	0	0	0	0	118	7	0	125	16	0	9	0	25	3	128	0	0	131	281
09:30 AM	0	0	0	0	0	0	117	9	0	126	18	0	10	0	28	2	116	0	0	118	272
09:45 AM	0	0	0	0	0	0	102	10	0	112	17	0	9	0	26	3	99	0	0	102	240
Total	0	0	0	0	0	0	482	37	0	519	73	0	43	0	116	9	476	0	0	485	1120
*** BREAK ***																					
12:00 PM	0	0	0	0	0	0	127	7	0	134	14	0	5	0	19	2	95	0	0	97	250
12:15 PM	0	0	0	0	0	0	132	8	0	140	20	0	6	0	26	1	107	0	0	108	274
12:30 PM	0	0	0	0	0	0	122	6	0	128	24	0	6	0	30	3	87	0	0	90	248
12:45 PM	0	0	0	0	0	0	122	5	0	127	21	0	10	0	31	1	79	0	0	80	238
Total	0	0	0	0	0	0	503	26	0	529	79	0	27	0	106	7	368	0	0	375	1010
01:00 PM	0	0	0	0	0	0	125	8	0	133	22	0	11	0	33	2	96	0	0	98	264
01:15 PM	0	0	0	0	0	0	130	10	0	140	20	0	12	0	32	1	112	0	0	113	285
01:30 PM	0	0	0	0	0	0	119	9	0	128	19	0	8	0	27	2	98	0	0	100	255
01:45 PM	0	0	0	0	0	0	130	7	0	137	22	0	11	0	33	2	93	0	0	95	265
Total	0	0	0	0	0	0	504	34	0	538	83	0	42	0	125	7	399	0	0	406	1069
02:00 PM	0	0	0	0	0	0	149	12	0	161	22	0	10	0	32	1	87	0	0	88	281
02:15 PM	0	0	0	0	0	0	158	16	0	174	16	0	8	0	24	2	95	0	0	97	295
02:30 PM	0	0	0	0	0	0	153	14	0	167	20	0	8	0	28	1	111	0	0	112	307
02:45 PM	0	0	0	0	0	0	171	15	0	186	16	0	6	0	22	2	118	0	0	120	328
Total	0	0	0	0	0	0	631	57	0	688	74	0	32	0	106	6	411	0	0	417	1211
03:00 PM	0	0	0	0	0	0	115	24	0	139	20	0	5	0	25	8	132	0	0	140	304
03:15 PM	0	0	0	0	0	0	153	36	0	189	23	0	10	0	33	5	123	0	0	128	350
03:30 PM	0	0	0	0	0	0	172	26	0	198	16	0	5	0	21	15	145	0	1	161	380
03:45 PM	0	0	0	0	0	0	181	48	0	229	10	0	7	0	17	10	197	0	0	207	453
Total	0	0	0	0	0	0	621	134	0	755	69	0	27	0	96	38	597	0	1	636	1487
04:00 PM	0	0	0	0	0	0	178	30	0	208	9	0	9	0	18	9	117	0	1	127	353
04:15 PM	0	0	0	0	0	0	165	36	0	201	5	0	5	0	10	6	135	0	0	141	352
04:30 PM	0	0	0	0	0	0	155	21	0	176	11	0	8	0	19	9	156	0	0	165	360
04:45 PM	0	0	0	0	0	0	140	32	0	172	9	0	3	0	12	10	146	0	0	156	340
Total	0	0	0	0	0	0	638	119	0	757	34	0	25	0	59	34	554	0	1	589	1405
05:00 PM	0	0	0	0	0	0	195	32	0	227	17	0	8	0	25	10	142	0	0	152	404
05:15 PM	0	0	0	0	0	0	127	39	0	166	10	0	11	0	21	8	160	0	1	169	356
05:30 PM	0	0	0	0	0	0	153	44	0	197	18	0	11	0	29	8	145	0	0	153	379
05:45 PM	0	0	0	0	0	0	168	48	0	216	17	0	6	0	23	1	160	0	0	161	400
Total	0	0	0	0	0	0	643	163	0	806	62	0	36	0	98	27	607	0	1	635	1539
06:00 PM	0	0	0	0	0	0	204	40	0	244	17	0	10	0	27	5	119	0	0	124	395
06:15 PM	0	0	0	0	0	0	191	36	0	227	23	0	8	0	31	3	126	0	0	129	387
06:30 PM	0	0	0	0	0	0	172	30	0	202	20	0	12	0	32	4	129	0	0	133	367
06:45 PM	0	0	0	0	0	0	147	32	0	179	18	0	11	0	29	2	111	0	0	113	321
Total	0	0	0	0	0	0	714	138	0	852	78	0	41	0	119	14	485	0	0	499	1470

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 2

Groups Printed- Passenger Cars - Heavy Vehicles

	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
07:00 PM	0	0	0	0	0	0	155	28	0	183	13	0	10	0	23	4	85	0	0	89	295
07:15 PM	0	0	0	0	0	0	141	26	0	167	15	0	10	0	25	5	85	0	0	90	282
07:30 PM	0	0	0	0	0	0	115	23	0	138	18	0	8	0	26	4	77	0	0	81	245
07:45 PM	0	0	0	0	0	0	107	24	0	131	20	0	6	0	26	3	74	0	0	77	234
Total	0	0	0	0	0	0	518	101	0	619	66	0	34	0	100	16	321	0	0	337	1056
Grand Total	0	0	0	0	0	0	7174	892	3	8069	967	0	494	0	1461	191	6257	0	3	6451	15981
Apprch %	0	0	0	0		0	88.9	11.1	0		66.2	0	33.8	0		3	97	0	0		
Total %	0	0	0	0	0	0	44.9	5.6	0	50.5	6.1	0	3.1	0	9.1	1.2	39.2	0	0	40.4	
Passenger Cars	0	0	0	0	0	0	7018	885	3	7906	958	0	493	0	1451	189	6095	0	3	6287	15644
% Passenger Cars																					
Heavy Vehicles	0	0	0	0	0	0	156	7	0	163	9	0	1	0	10	2	162	0	0	164	337
% Heavy Vehicles	0	0	0	0	0	0	2.2	0.8	0	2	0.9	0	0.2	0	0.7	1	2.6	0	0	2.5	2.1

P&B CNL: Pedestrians & Bicyclists Crossing North Leg

P&B CEL:Pedestrians & Bicyclists Crossing East Leg

P&B CSL:Pedestrians & Bicyclists Crossing South Leg

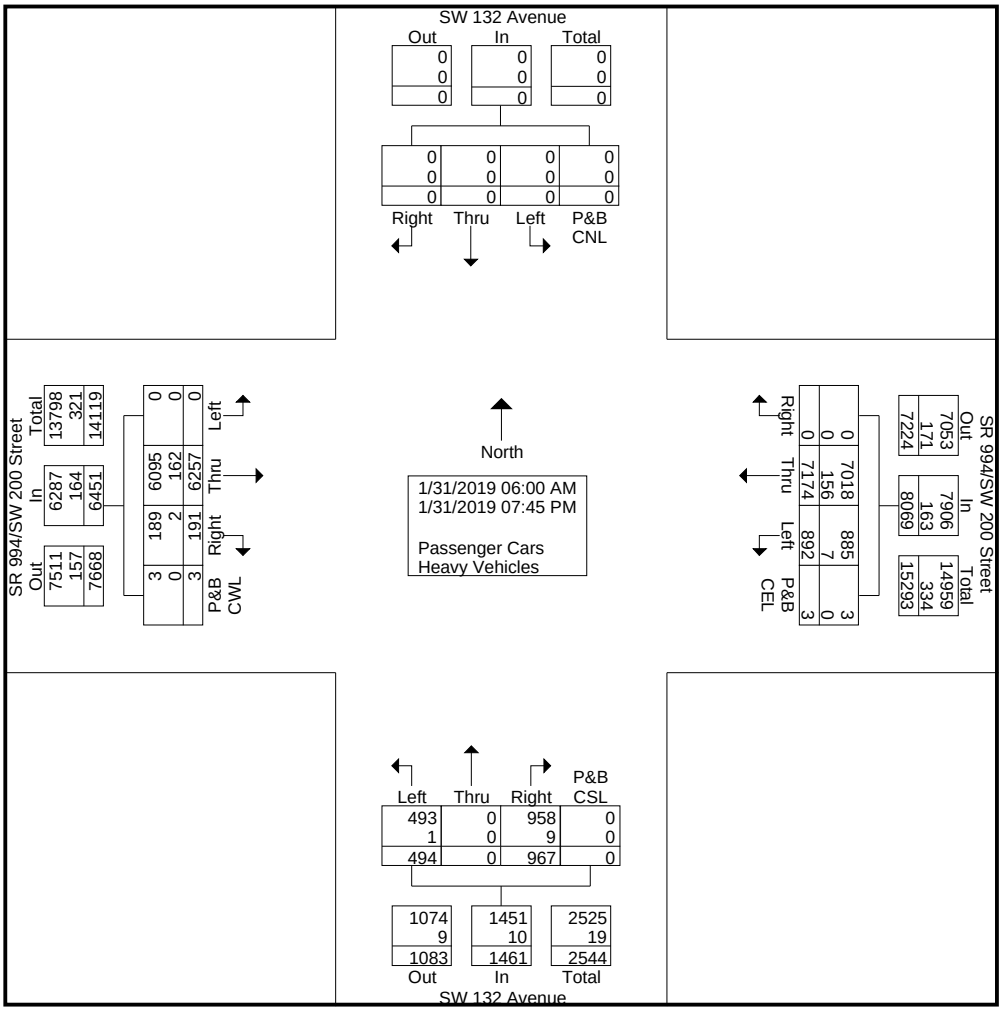
P&B CWL:Pedestrians & Bicyclists Crossing West Leg

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 3



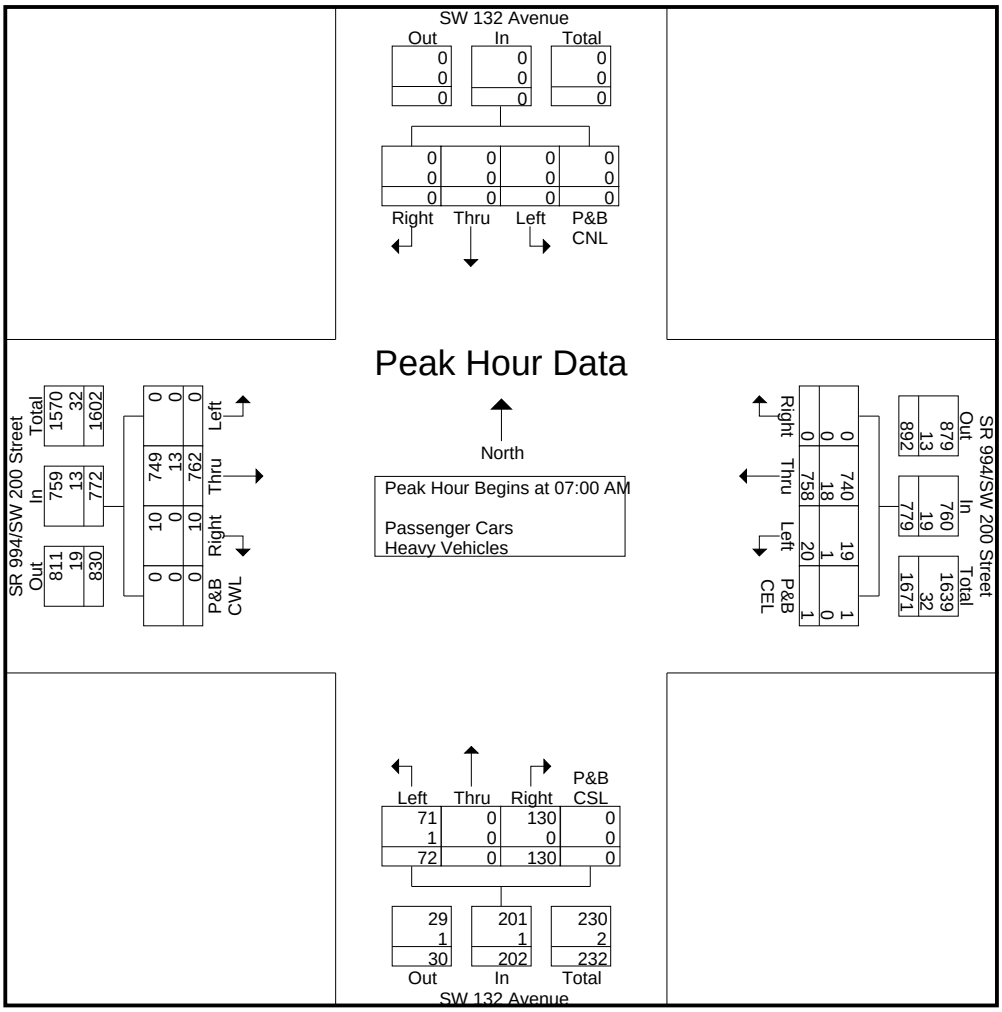
CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 4

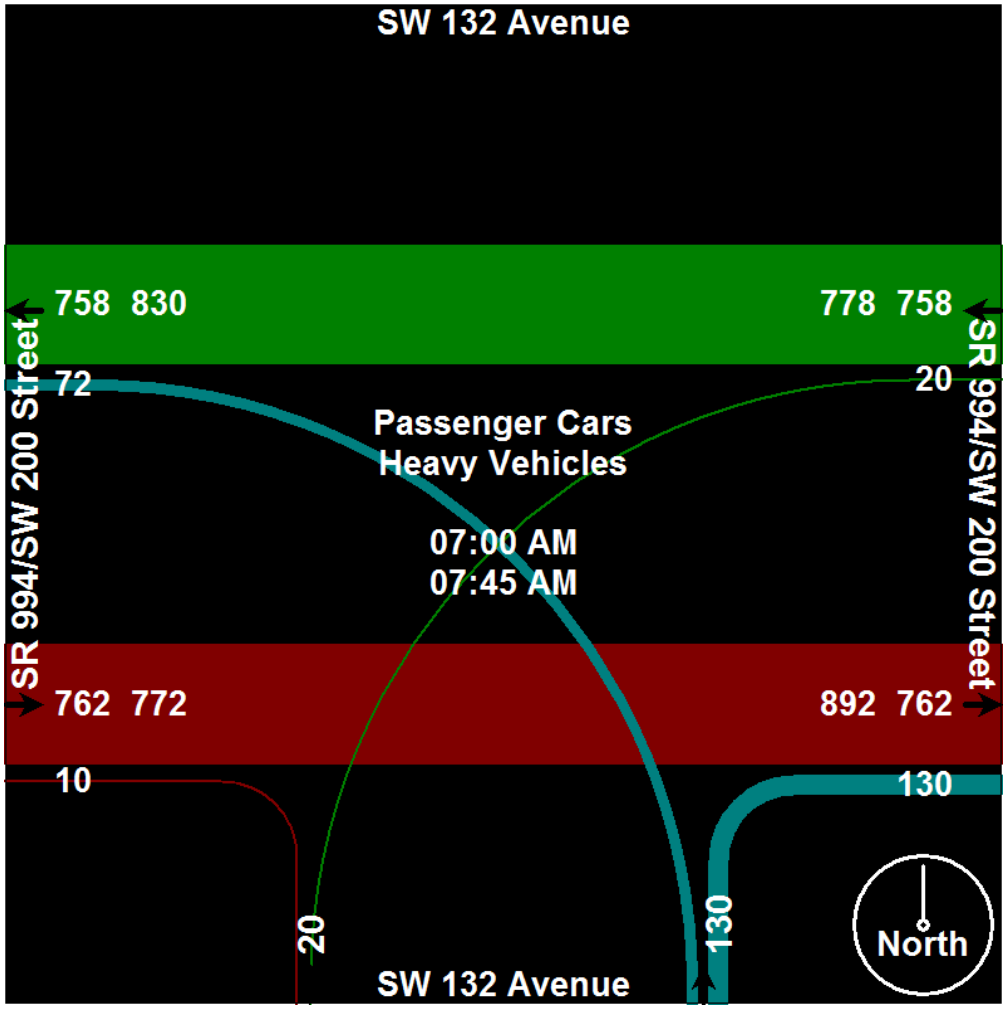
	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	181	**8**	0	189	33	0	**21**	0	54	0	192	0	0	192	435
07:15 AM	0	0	0	0	0	0	198	7	0	205	25	0	19	0	44	2	160	0	0	162	411
07:30 AM	0	0	0	0	0	0	**208**	1	**1**	**210**	**40**	0	17	0	**57**	3	**205**	0	0	208	**475**
07:45 AM	0	0	0	0	0	0	171	4	0	175	32	0	15	0	47	**5**	205	0	0	**210**	432
Total Volume	0	0	0	0	0	0	758	20	1	779	130	0	72	0	202	10	762	0	0	772	1753
% App. Total	0	0	0	0		0	97.3	2.6	0.1		64.4	0	35.6	0		1.3	98.7	0	0		
PHF	.000	.000	.000	.000	.000	.000	.911	.625	.250	.927	.813	.000	.857	.000	.886	.500	.929	.000	.000	.919	.923
Passenger Cars	0	0	0	0	0	0	740	19	1	760	130	0	71	0	201	10	749	0	0	759	1720
% Passenger Cars																					
Heavy Vehicles	0	0	0	0	0	0	18	1	0	19	0	0	1	0	1	0	13	0	0	13	33
% Heavy Vehicles	0	0	0	0	0	0	2.4	5.0	0	2.4	0	0	1.4	0	0.5	0	1.7	0	0	1.7	1.9



CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 5



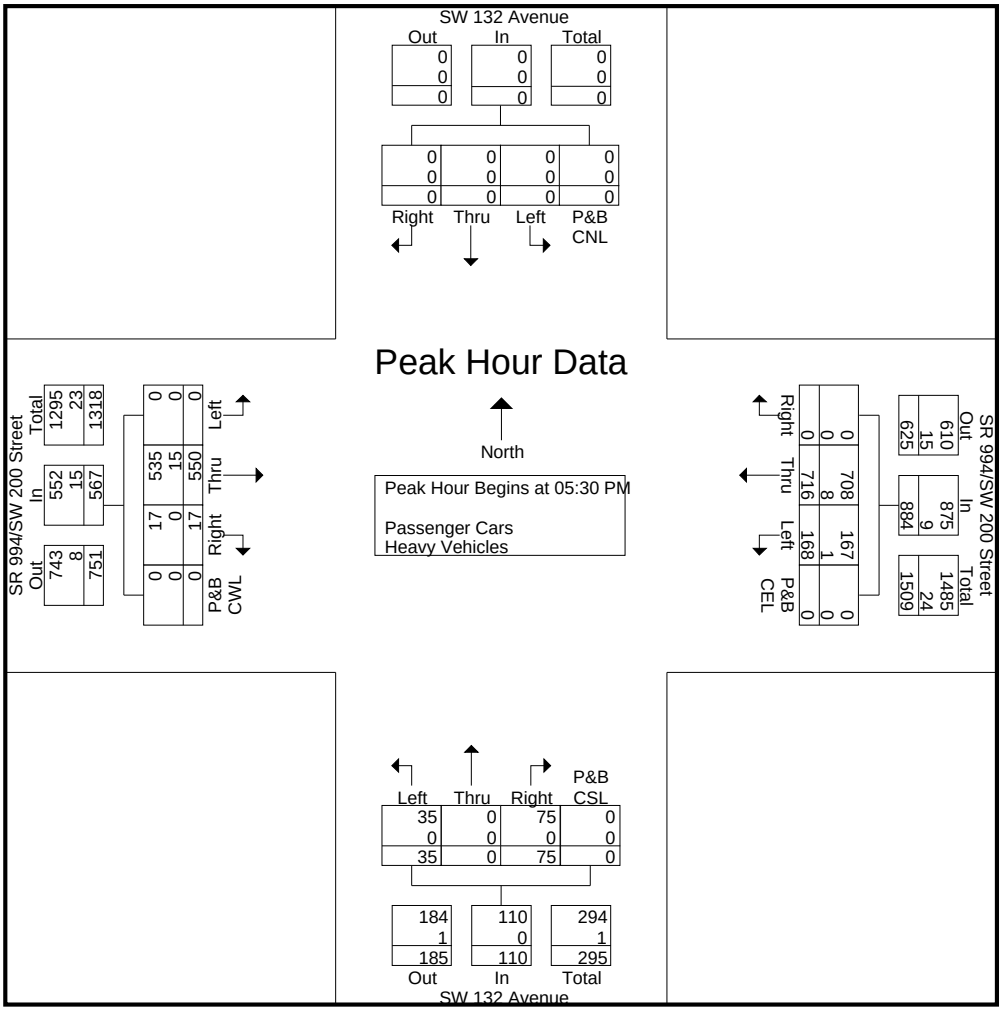
CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 6

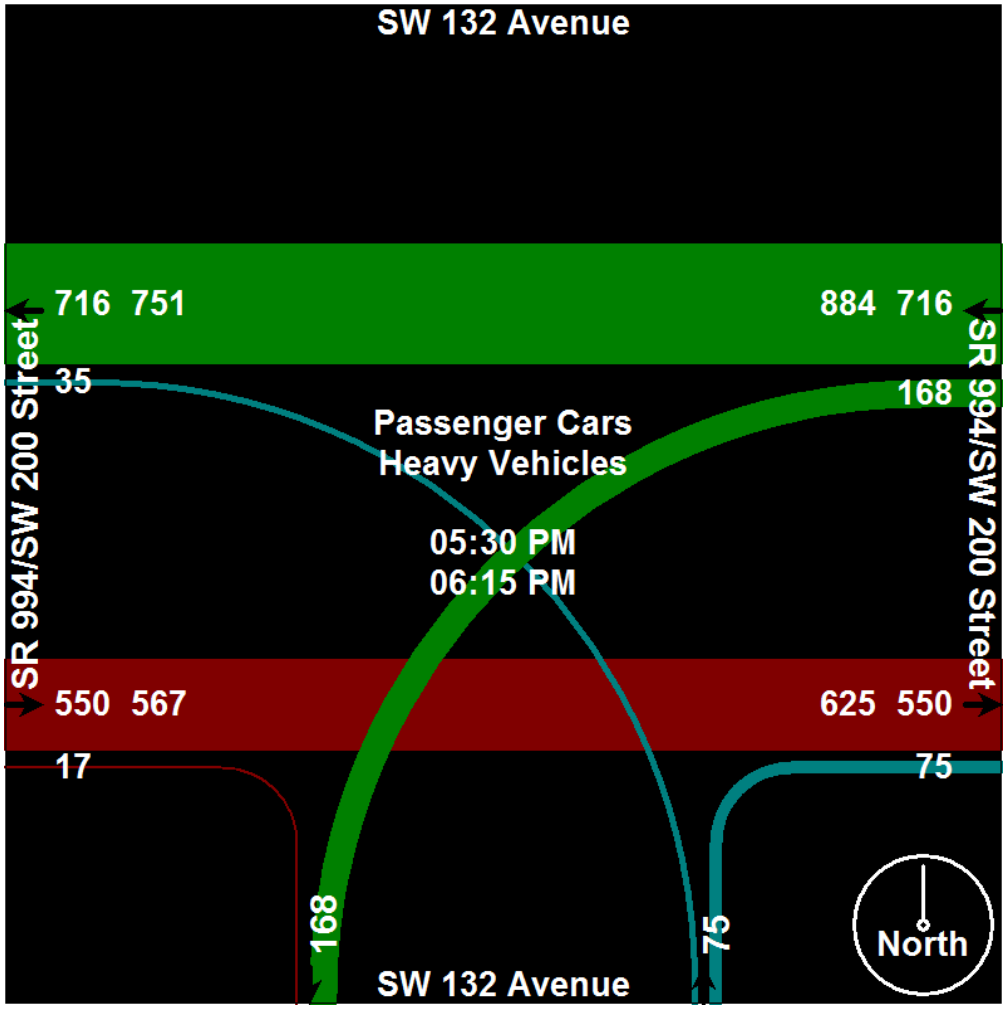
	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 07:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:30 PM																					
05:30 PM	0	0	0	0	0	0	153	44	0	197	18	0	**11**	0	29	**8**	145	0	0	153	379
05:45 PM	0	0	0	0	0	0	168	**48**	0	216	17	0	6	0	23	1	**160**	0	0	**161**	**400**
06:00 PM	0	0	0	0	0	0	**204**	40	0	**244**	17	0	10	0	27	5	119	0	0	124	395
06:15 PM	0	0	0	0	0	0	191	36	0	227	**23**	0	8	0	**31**	3	126	0	0	129	387
Total Volume	0	0	0	0	0	0	716	168	0	884	75	0	35	0	110	17	550	0	0	567	1561
% App. Total	0	0	0	0		0	81	19	0		68.2	0	31.8	0		3	97	0	0		
PHF	.000	.000	.000	.000	.000	.000	.877	.875	.000	.906	.815	.000	.795	.000	.887	.531	.859	.000	.000	.880	.976
Passenger Cars	0	0	0	0	0	0	708	167	0	875	75	0	35	0	110	17	535	0	0	552	1537
% Passenger Cars																					
Heavy Vehicles	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	0	15	0	0	15	24
% Heavy Vehicles	0	0	0	0	0	0	1.1	0.6	0	1.0	0	0	0	0	0	0	2.7	0	0	2.6	1.5



CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 7



CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 1

Groups Printed- Passenger Cars

	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	81	2	0	83	32	0	9	0	41	2	128	0	0	130	254
06:15 AM	0	0	0	0	0	0	98	3	0	101	33	0	15	0	48	4	137	0	0	141	290
06:30 AM	0	0	0	0	0	0	138	2	0	140	35	0	18	0	53	3	159	0	0	162	355
06:45 AM	0	0	0	0	0	0	151	7	1	159	34	0	13	0	47	1	174	0	0	175	381
Total	0	0	0	0	0	0	468	14	1	483	134	0	55	0	189	10	598	0	0	608	1280
07:00 AM	0	0	0	0	0	0	178	7	0	185	33	0	20	0	53	0	187	0	0	187	425
07:15 AM	0	0	0	0	0	0	193	7	0	200	25	0	19	0	44	2	158	0	0	160	404
07:30 AM	0	0	0	0	0	0	202	1	1	204	40	0	17	0	57	3	200	0	0	203	464
07:45 AM	0	0	0	0	0	0	167	4	0	171	32	0	15	0	47	5	204	0	0	209	427
Total	0	0	0	0	0	0	740	19	1	760	130	0	71	0	201	10	749	0	0	759	1720
08:00 AM	0	0	0	0	0	0	172	3	0	175	19	0	15	0	34	0	179	0	0	179	388
08:15 AM	0	0	0	0	0	0	159	18	1	178	17	0	15	0	32	2	174	0	0	176	386
08:30 AM	0	0	0	0	0	0	169	17	0	186	23	0	17	0	40	6	139	0	0	145	371
08:45 AM	0	0	0	0	0	0	157	8	0	165	18	0	13	0	31	5	140	0	0	145	341
Total	0	0	0	0	0	0	657	46	1	704	77	0	60	0	137	13	632	0	0	645	1486
09:00 AM	0	0	0	0	0	0	144	11	0	155	22	0	15	0	37	1	131	0	0	132	324
09:15 AM	0	0	0	0	0	0	117	7	0	124	16	0	9	0	25	3	127	0	0	130	279
09:30 AM	0	0	0	0	0	0	115	9	0	124	18	0	10	0	28	2	115	0	0	117	269
09:45 AM	0	0	0	0	0	0	101	10	0	111	17	0	9	0	26	3	98	0	0	101	238
Total	0	0	0	0	0	0	477	37	0	514	73	0	43	0	116	9	471	0	0	480	1110
*** BREAK ***																					
12:00 PM	0	0	0	0	0	0	123	7	0	130	14	0	5	0	19	2	93	0	0	95	244
12:15 PM	0	0	0	0	0	0	129	8	0	137	20	0	6	0	26	1	105	0	0	106	269
12:30 PM	0	0	0	0	0	0	118	6	0	124	24	0	6	0	30	3	83	0	0	86	240
12:45 PM	0	0	0	0	0	0	120	5	0	125	21	0	10	0	31	1	77	0	0	78	234
Total	0	0	0	0	0	0	490	26	0	516	79	0	27	0	106	7	358	0	0	365	987
01:00 PM	0	0	0	0	0	0	124	8	0	132	22	0	11	0	33	2	94	0	0	96	261
01:15 PM	0	0	0	0	0	0	129	10	0	139	20	0	12	0	32	1	110	0	0	111	282
01:30 PM	0	0	0	0	0	0	117	9	0	126	19	0	8	0	27	2	97	0	0	99	252
01:45 PM	0	0	0	0	0	0	127	7	0	134	22	0	11	0	33	2	91	0	0	93	260
Total	0	0	0	0	0	0	497	34	0	531	83	0	42	0	125	7	392	0	0	399	1055
02:00 PM	0	0	0	0	0	0	148	12	0	160	22	0	10	0	32	1	86	0	0	87	279
02:15 PM	0	0	0	0	0	0	156	16	0	172	16	0	8	0	24	2	93	0	0	95	291
02:30 PM	0	0	0	0	0	0	150	14	0	164	20	0	8	0	28	1	109	0	0	110	302
02:45 PM	0	0	0	0	0	0	170	15	0	185	16	0	6	0	22	2	116	0	0	118	325
Total	0	0	0	0	0	0	624	57	0	681	74	0	32	0	106	6	404	0	0	410	1197
03:00 PM	0	0	0	0	0	0	110	23	0	133	19	0	5	0	24	8	127	0	0	135	292
03:15 PM	0	0	0	0	0	0	143	36	0	179	23	0	10	0	33	5	118	0	0	123	335
03:30 PM	0	0	0	0	0	0	169	26	0	195	16	0	5	0	21	14	142	0	1	157	373
03:45 PM	0	0	0	0	0	0	172	48	0	220	10	0	7	0	17	10	193	0	0	203	440
Total	0	0	0	0	0	0	594	133	0	727	68	0	27	0	95	37	580	0	1	618	1440
04:00 PM	0	0	0	0	0	0	170	29	0	199	9	0	9	0	18	9	111	0	1	121	338
04:15 PM	0	0	0	0	0	0	161	36	0	197	5	0	5	0	10	6	127	0	0	133	340
04:30 PM	0	0	0	0	0	0	146	21	0	167	11	0	8	0	19	9	151	0	0	160	346
04:45 PM	0	0	0	0	0	0	140	32	0	172	9	0	3	0	12	10	141	0	0	151	335
Total	0	0	0	0	0	0	617	118	0	735	34	0	25	0	59	34	530	0	1	565	1359
05:00 PM	0	0	0	0	0	0	192	32	0	224	17	0	8	0	25	9	141	0	0	150	399
05:15 PM	0	0	0	0	0	0	124	39	0	163	10	0	11	0	21	8	160	0	1	169	353
05:30 PM	0	0	0	0	0	0	152	44	0	196	18	0	11	0	29	8	143	0	0	151	376
05:45 PM	0	0	0	0	0	0	167	47	0	214	17	0	6	0	23	1	155	0	0	156	393
Total	0	0	0	0	0	0	635	162	0	797	62	0	36	0	98	26	599	0	1	626	1521
06:00 PM	0	0	0	0	0	0	200	40	0	240	17	0	10	0	27	5	115	0	0	120	387
06:15 PM	0	0	0	0	0	0	189	36	0	225	23	0	8	0	31	3	122	0	0	125	381
06:30 PM	0	0	0	0	0	0	171	30	0	201	20	0	12	0	32	4	126	0	0	130	363
06:45 PM	0	0	0	0	0	0	146	32	0	178	18	0	11	0	29	2	107	0	0	109	316
Total	0	0	0	0	0	0	706	138	0	844	78	0	41	0	119	14	470	0	0	484	1447

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 2

Groups Printed- Passenger Cars

	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
07:00 PM	0	0	0	0	0	0	154	28	0	182	13	0	10	0	23	4	83	0	0	87	292
07:15 PM	0	0	0	0	0	0	139	26	0	165	15	0	10	0	25	5	81	0	0	86	276
07:30 PM	0	0	0	0	0	0	114	23	0	137	18	0	8	0	26	4	75	0	0	79	242
07:45 PM	0	0	0	0	0	0	106	24	0	130	20	0	6	0	26	3	73	0	0	76	232
Total	0	0	0	0	0	0	513	101	0	614	66	0	34	0	100	16	312	0	0	328	1042
Grand Total	0	0	0	0	0	0	7018	885	3	7906	958	0	493	0	1451	189	6095	0	3	6287	15644
Apprch %	0	0	0	0		0	88.8	11.2	0		66	0	34	0		3	96.9	0	0		
Total %	0	0	0	0	0	0	44.9	5.7	0	50.5	6.1	0	3.2	0	9.3	1.2	39	0	0	40.2	

P&B CNL: Pedestrians & Bicyclists Crossing North Leg

P&B CEL:Pedestrians & Bicyclists Crossing East Leg

P&B CSL:Pedestrians & Bicyclists Crossing South Leg

P&B CWL:Pedestrians & Bicyclists Crossing West Leg

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 1

Groups Printed- Heavy Vehicles

	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	10	0	0	10	14
06:15 AM	0	0	0	0	0	0	3	1	0	4	2	0	0	0	2	0	6	0	0	6	12
06:30 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	8	0	0	8	16
06:45 AM	0	0	0	0	0	0	2	0	0	2	3	0	0	0	3	0	8	0	0	8	13
Total	0	0	0	0	0	0	16	1	0	17	6	0	0	0	6	0	32	0	0	32	55
07:00 AM	0	0	0	0	0	0	3	1	0	4	0	0	1	0	1	0	5	0	0	5	10
07:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7
07:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	11
07:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total	0	0	0	0	0	0	18	1	0	19	0	0	1	0	1	0	13	0	0	13	33
08:00 AM	0	0	0	0	0	0	7	0	0	7	2	0	0	0	2	0	1	0	0	1	10
08:15 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	0	5	0	0	5	10
08:30 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	7	0	0	7	15
08:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
Total	0	0	0	0	0	0	21	2	0	23	2	0	0	0	2	0	15	0	0	15	40
09:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
09:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
09:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
09:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10
*** BREAK ***																					
12:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
12:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
12:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
12:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
Total	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	10	0	0	10	23
01:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
01:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
01:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
01:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
Total	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	14
02:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
02:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
02:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
02:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	14
03:00 PM	0	0	0	0	0	0	5	1	0	6	1	0	0	0	1	0	5	0	0	5	12
03:15 PM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	5	0	0	5	15
03:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	3	0	0	4	7
03:45 PM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	4	0	0	4	13
Total	0	0	0	0	0	0	27	1	0	28	1	0	0	0	1	1	17	0	0	18	47
04:00 PM	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	0	6	0	0	6	15
04:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	12
04:30 PM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	5	0	0	5	14
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5
Total	0	0	0	0	0	0	21	1	0	22	0	0	0	0	0	0	24	0	0	24	46
05:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	1	0	0	2	5
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
05:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	5	0	0	5	7
Total	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	1	8	0	0	9	18
06:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
06:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
06:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
06:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	15	0	0	15	23

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178

Turning Movement Counts
SR 994/SW 200 Street at SW 132 Avenue

File Name : SW 200 St at SW 132 Ave
Site Code : 20013201
Start Date : 1/31/2019
Page No : 2

Groups Printed- Heavy Vehicles

	SW 132 Avenue Southbound					SR 994/SW 200 Street Westbound					SW 132 Avenue Northbound					SR 994/SW 200 Street Eastbound					
Start Time	Right	Thru	Left	P&B CNL	App. Total	Right	Thru	Left	P&B CEL	App. Total	Right	Thru	Left	P&B CSL	App. Total	Right	Thru	Left	P&B CWL	App. Total	Int. Total
07:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
07:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
07:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
07:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	9	0	0	9	14
Grand Total	0	0	0	0	0	0	156	7	0	163	9	0	1	0	10	2	162	0	0	164	337
Apprch %	0	0	0	0		0	95.7	4.3	0		90	0	10	0		1.2	98.8	0	0		
Total %	0	0	0	0	0	0	46.3	2.1	0	48.4	2.7	0	0.3	0	3	0.6	48.1	0	0	48.7	

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00013
SR 994/SW 200 Street Westbound
At East of SW 137 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	66	68	61	*		65		*	*		65		
01:00	*	32	25	35	*		31		*	*		31		
02:00	*	14	17	21	*		17		*	*		17		
03:00	*	21	34	32	*		29		*	*		29		
04:00	*	68	74	68	*		70		*	*		70		
05:00	*	298	285	285	*		289		*	*		289		
06:00	*	720	679	684	*		694		*	*		694		
07:00	*	840	**843**	**865**	*		**849**		*	*		**849**		
08:00	*	**882**	824	838	*		848		*	*		848		
09:00	*	585	595	546	*		575		*	*		575		
10:00	*	445	443	445	*		444		*	*		444		
11:00	*	486	488	523	*		499		*	*		499		
12:00 PM	*	517	508	487	*		504		*	*		504		
01:00	*	539	527	544	*		537		*	*		537		
02:00	*	635	631	593	*		620		*	*		620		
03:00	*	645	**705**	639	*		663		*	*		663		
04:00	*	678	649	691	*		673		*	*		673		
05:00	*	**681**	695	**714**	*		**697**		*	*		**697**		
06:00	*	630	614	549	*		598		*	*		598		
07:00	*	539	471	484	*		498		*	*		498		
08:00	*	417	325	344	*		362		*	*		362		
09:00	*	225	275	288	*		263		*	*		263		
10:00	*	195	193	180	*		189		*	*		189		
11:00	*	129	127	124	*		127		*	*		127		
Day Total	0	10287	10095	10040	0		10141		0	0		10141		
% Avg. WkDay	0.0%	101.4%	99.5%	99.0%	0.0%									
% Avg. Week	0.0%	101.4%	99.5%	99.0%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	08:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	882	843	865	-	-	849	-	-	-	-	849	-	-
PM Peak	-	17:00	15:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	681	705	714	-	-	697	-	-	-	-	697	-	-
Grand Total	0	10287	10095	10040	0		10141		0	0		10141		

ADT ADT 10,134 AADT 10,134

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00013
SR 994/SW 200 Street Westbound
At East of SW 137 Avenue

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	28	133		22	108		22	110		24	117
12:15	18	122		15	134		18	130		17	129
12:30	12	136		19	126		12	117		14	126
12:45	8	126		12	140		9	130		10	132
01:00	8	138		5	140		11	133		8	137
01:15	6	142		8	132		10	148		8	141
01:30	10	127		8	130		6	142		8	133
01:45	8	132		4	125		8	121		7	126
02:00	5	145		3	138		9	135		6	139
02:15	2	182		4	171		3	137		3	163
02:30	3	135		6	158		3	152		4	148
02:45	4	173		4	164		6	169		5	169
03:00	6	144		8	153		2	124		5	140
03:15	4	154		6	**188**		8	166		6	169
03:30	5	193		6	**179**		10	174		7	182
03:45	6	154		14	**185**		12	175		11	171
04:00	10	169		4	**156**		7	183		7	169
04:15	12	174		14	176		8	170		11	173
04:30	23	161		25	160		23	183		24	168
04:45	23	174		31	157		30	155		28	162
05:00	30	160		31	194		37	**189**		33	**181**
05:15	49	**162**		46	160		40	**184**		45	**169**
05:30	85	**198**		87	177		83	**152**		85	**176**
05:45	134	**161**		121	164		125	**189**		127	**171**
06:00	128	**176**		115	141		127	135		123	151
06:15	162	151		165	155		163	166		163	157
06:30	207	137		193	168		195	148		198	151
06:45	223	166		**206**	150		**199**	100		**209**	139
07:00	215	151		**224**	131		**217**	141		**219**	141
07:15	229	126		**208**	129		**222**	126		**220**	127
07:30	205	140		**205**	106		**244**	108		**218**	118
07:45	191	122		206	105		182	109		193	112
08:00	**205**	104		193	84		224	98		207	95
08:15	**231**	123		218	76		203	82		217	94
08:30	**221**	102		223	102		196	88		213	97
08:45	**225**	88		190	63		215	76		210	76
09:00	165	78		163	78		176	79		168	78
09:15	142	53		137	78		138	81		139	71
09:30	131	42		155	65		120	76		135	61
09:45	147	52		140	54		112	52		133	53
10:00	119	58		93	61		99	51		104	57
10:15	115	53		105	47		115	48		112	49
10:30	88	39		123	43		114	59		108	47
10:45	123	45		122	42		117	22		121	36
11:00	95	30		120	36		130	30		115	32
11:15	126	36		130	31		124	34		127	34
11:30	133	35		117	33		138	32		129	33
11:45	132	28		121	27		131	28		128	28
Total	4457	5830		4375	5720		4403	5637		4412	5728
Combined Total	10287			10095			10040			10140	
Peak	08:00	05:15	-	06:45	03:15	-	06:45	05:00	-	06:45	05:00
Vol.	882	697	-	843	708	-	882	714	-	866	697
P.H.F.	0.955	0.880		0.941	0.941		0.904	0.944		0.984	0.963
ADT	ADT 10,134			AADT 10,134							

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00005
SR 994/SW 200 Street Eastbound
At West of SW 137 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	20	19	22	*		20		*	*		20		
01:00	*	12	9	9	*		10		*	*		10		
02:00	*	9	7	13	*		10		*	*		10		
03:00	*	14	13	8	*		12		*	*		12		
04:00	*	34	44	37	*		38		*	*		38		
05:00	*	216	208	224	*		216		*	*		216		
06:00	*	397	413	400	*		403		*	*		403		
07:00	*	**447**	**448**	**450**	*		**448**		*	*		**448**		
08:00	*	436	413	394	*		414		*	*		414		
09:00	*	376	331	407	*		371		*	*		371		
10:00	*	359	339	332	*		343		*	*		343		
11:00	*	314	316	348	*		326		*	*		326		
12:00 PM	*	300	347	360	*		336		*	*		336		
01:00	*	335	355	334	*		341		*	*		341		
02:00	*	347	348	353	*		349		*	*		349		
03:00	*	393	394	383	*		390		*	*		390		
04:00	*	397	391	412	*		400		*	*		400		
05:00	*	**460**	**426**	**460**	*		**449**		*	*		**449**		
06:00	*	376	397	329	*		367		*	*		367		
07:00	*	252	237	234	*		241		*	*		241		
08:00	*	161	173	155	*		163		*	*		163		
09:00	*	112	102	110	*		108		*	*		108		
10:00	*	60	70	72	*		67		*	*		67		
11:00	*	41	40	47	*		43		*	*		43		
Day Total	0	5868	5840	5893	0		5865		0	0		5865		
% Avg. WkDay	0.0%	100.1%	99.6%	100.5%	0.0%									
% Avg. Week	0.0%	100.1%	99.6%	100.5%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	447	448	450	-	-	448	-	-	-	-	448	-	-
PM Peak	-	17:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	460	426	460	-	-	449	-	-	-	-	449	-	-
Grand Total	0	5868	5840	5893	0		5865		0	0		5865		

ADT ADT 5,866 AADT 5,866

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00005
SR 994/SW 200 Street Eastbound
At West of SW 137 Avenue

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	9	84		6	86		10	89		8	86
12:15	6	80		3	93		5	94		5	89
12:30	3	76		4	94		4	98		4	89
12:45	2	60		6	74		3	79		4	71
01:00	4	91		4	84		4	101		4	92
01:15	3	81		3	90		0	85		2	85
01:30	4	88		2	92		2	73		3	84
01:45	1	75		0	89		3	75		1	80
02:00	1	82		3	80		4	71		3	78
02:15	4	71		1	89		1	92		2	84
02:30	1	82		1	91		6	85		3	86
02:45	3	112		2	88		2	105		2	102
03:00	1	95		3	99		2	85		2	93
03:15	2	99		2	88		0	108		1	98
03:30	4	103		2	94		2	87		3	95
03:45	7	96		6	113		4	103		6	104
04:00	5	100		5	85		5	99		5	95
04:15	7	101		3	95		6	108		5	101
04:30	5	94		16	107		7	88		9	96
04:45	17	102		20	104		19	**117**		19	108
05:00	23	**113**		25	100		24	**100**		24	**104**
05:15	35	**122**		36	**122**		36	**122**		36	**122**
05:30	56	**110**		59	**101**		54	**127**		56	**113**
05:45	102	**115**		88	**103**		110	111		100	**110**
06:00	96	88		100	**116**		98	86		98	97
06:15	107	96		107	114		106	97		107	102
06:30	99	115		111	88		91	78		100	94
06:45	95	77		95	79		105	68		98	75
07:00	113	73		78	65		**95**	72		95	70
07:15	104	69		**121**	59		**114**	54		113	61
07:30	**117**	53		**129**	63		**112**	63		**119**	60
07:45	**113**	57		**120**	50		**129**	45		**121**	51
08:00	**125**	37		**117**	49		95	57		**112**	48
08:15	**119**	48		113	51		111	33		**114**	44
08:30	94	45		83	40		82	35		86	40
08:45	98	31		100	33		106	30		101	31
09:00	93	31		90	37		103	28		95	32
09:15	97	29		86	24		111	30		98	28
09:30	86	33		68	23		99	33		84	30
09:45	100	19		87	18		94	19		94	19
10:00	106	11		77	23		101	26		95	20
10:15	92	19		97	15		80	17		90	17
10:30	84	15		71	12		77	18		77	15
10:45	77	15		94	20		74	11		82	15
11:00	70	16		79	14		75	14		75	15
11:15	82	10		81	10		103	11		89	10
11:30	81	4		70	7		74	8		75	6
11:45	81	11		86	9		96	14		88	11
Total	2634	3234		2560	3280		2644	3249		2613	3256
Combined Total	5868			5840			5893			5869	
Peak	07:30	05:00	-	07:15	05:15	-	07:00	04:45	-	07:30	05:00
Vol.	474	460	-	487	442	-	450	466	-	466	449
P.H.F.	0.948	0.943		0.944	0.906		0.872	0.917		0.963	0.920
ADT		ADT 5,866		AADT 5,866							

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00006
SW 137 Avenue Southbound
At North of SR 994/SW 200 Street

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	69	68	75	*		71		*	*		71		
01:00	*	36	27	36	*		33		*	*		33		
02:00	*	20	17	18	*		18		*	*		18		
03:00	*	11	16	12	*		13		*	*		13		
04:00	*	23	23	19	*		22		*	*		22		
05:00	*	51	56	56	*		54		*	*		54		
06:00	*	227	210	197	*		211		*	*		211		
07:00	*	**543**	**526**	**538**	*		**536**		*	*		**536**		
08:00	*	446	452	454	*		451		*	*		451		
09:00	*	317	324	316	*		319		*	*		319		
10:00	*	289	266	248	*		268		*	*		268		
11:00	*	290	293	343	*		309		*	*		309		
12:00 PM	*	323	291	320	*		311		*	*		311		
01:00	*	336	337	381	*		351		*	*		351		
02:00	*	408	448	453	*		436		*	*		436		
03:00	*	554	505	572	*		544		*	*		544		
04:00	*	**598**	**597**	574	*		**590**		*	*		**590**		
05:00	*	565	590	**592**	*		582		*	*		582		
06:00	*	582	539	585	*		569		*	*		569		
07:00	*	440	402	421	*		421		*	*		421		
08:00	*	288	281	276	*		282		*	*		282		
09:00	*	203	235	237	*		225		*	*		225		
10:00	*	196	175	168	*		180		*	*		180		
11:00	*	101	117	104	*		107		*	*		107		
Day Total	0	6916	6795	6995	0		6903		0	0		6903		
% Avg. WkDay	0.0%	100.2%	98.4%	101.3%	0.0%									
% Avg. Week	0.0%	100.2%	98.4%	101.3%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	543	526	538	-	-	536	-	-	-	-	536	-	-
PM Peak	-	16:00	16:00	17:00	-	-	16:00	-	-	-	-	16:00	-	-
Vol.	-	598	597	592	-	-	590	-	-	-	-	590	-	-
Grand Total	0	6916	6795	6995	0		6903		0	0		6903		

ADT ADT 6,896 AADT 6,896

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00006
SW 137 Avenue Southbound
At North of SR 994/SW 200 Street

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	31	77		23	64		18	78		24	73
12:15	15	75		18	70		19	85		17	77
12:30	12	79		10	86		19	83		14	83
12:45	11	92		17	71		19	74		16	79
01:00	9	74		14	72		15	84		13	77
01:15	13	77		6	85		3	103		7	88
01:30	7	88		3	95		11	98		7	94
01:45	7	97		4	85		7	96		6	93
02:00	4	100		5	128		5	85		5	104
02:15	4	94		4	118		5	109		4	107
02:30	6	117		2	95		3	121		4	111
02:45	6	97		6	107		5	138		6	114
03:00	2	123		4	114		3	116		3	118
03:15	2	141		4	136		3	168		3	148
03:30	2	138		2	124		3	159		2	140
03:45	5	**152**		6	131		3	129		5	137
04:00	3	**162**		5	**153**		5	140		4	152
04:15	0	**135**		10	**151**		2	137		4	141
04:30	10	**166**		3	**131**		8	142		7	146
04:45	10	135		5	**162**		4	155		6	151
05:00	5	136		7	149		6	149		6	145
05:15	6	143		12	137		10	**144**		9	141
05:30	15	140		11	146		13	**152**		13	**146**
05:45	25	146		26	158		27	**147**		26	**150**
06:00	30	151		27	142		21	**163**		26	**152**
06:15	43	148		33	147		53	135		43	**143**
06:30	66	151		71	133		57	148		65	144
06:45	88	132		79	117		66	139		78	129
07:00	119	109		137	100		**133**	103		**130**	104
07:15	**135**	116		**129**	127		**139**	105		**134**	116
07:30	**141**	109		**121**	103		**128**	101		**130**	104
07:45	**148**	106		**139**	72		**138**	112		**142**	97
08:00	**128**	71		**139**	72		121	78		129	74
08:15	120	87		129	82		138	71		129	80
08:30	106	59		99	66		100	72		102	66
08:45	92	71		85	61		95	55		91	62
09:00	104	55		99	66		87	70		97	64
09:15	86	51		96	75		88	64		90	63
09:30	63	49		65	53		77	52		68	51
09:45	64	48		64	41		64	51		64	47
10:00	74	59		63	50		59	36		65	48
10:15	94	56		59	54		65	53		73	54
10:30	53	37		73	30		59	35		62	34
10:45	68	44		71	41		65	44		68	43
11:00	72	33		62	35		82	32		72	33
11:15	82	25		79	29		80	24		80	26
11:30	52	19		77	29		89	20		73	23
11:45	84	24		75	24		92	28		84	25
Total	2322	4594		2278	4517		2312	4683		2306	4597
Combined Total	6916			6795			6995			6903	
Peak	07:15	03:45	-	07:15	04:00	-	07:00	05:15	-	07:00	05:30
Vol.	552	615	-	528	597	-	538	606	-	536	591
P.H.F.	0.932	0.926		0.950	0.921		0.968	0.929		0.944	0.972
ADT		ADT 6,896		AADT 6,896							

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00002
SR 994/SW 200 Street Westbound
At East of SW 134 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	58	63	63	*		61		*	*		61		
01:00	*	20	20	33	*		24		*	*		24		
02:00	*	11	19	16	*		15		*	*		15		
03:00	*	14	23	20	*		19		*	*		19		
04:00	*	57	65	57	*		60		*	*		60		
05:00	*	210	202	194	*		202		*	*		202		
06:00	*	641	629	631	*		634		*	*		634		
07:00	*	**972**	**973**	**969**	*		**971**		*	*		**971**		
08:00	*	909	857	857	*		874		*	*		874		
09:00	*	479	506	466	*		484		*	*		484		
10:00	*	424	396	423	*		414		*	*		414		
11:00	*	460	449	479	*		463		*	*		463		
12:00 PM	*	486	493	502	*		494		*	*		494		
01:00	*	536	512	521	*		523		*	*		523		
02:00	*	634	626	575	*		612		*	*		612		
03:00	*	689	701	690	*		693		*	*		693		
04:00	*	**754**	679	707	*		713		*	*		713		
05:00	*	743	**712**	**732**	*		**729**		*	*		**729**		
06:00	*	661	632	615	*		636		*	*		636		
07:00	*	547	482	475	*		501		*	*		501		
08:00	*	400	315	333	*		349		*	*		349		
09:00	*	221	247	270	*		246		*	*		246		
10:00	*	181	165	170	*		172		*	*		172		
11:00	*	115	116	107	*		113		*	*		113		
Day Total	0	10222	9882	9905	0		10002		0	0		10002		
% Avg. WkDay	0.0%	102.2%	98.8%	99.0%	0.0%									
% Avg. Week	0.0%	102.2%	98.8%	99.0%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	972	973	969	-	-	971	-	-	-	-	971	-	-
PM Peak	-	16:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	754	712	732	-	-	729	-	-	-	-	729	-	-
Grand Total	0	10222	9882	9905	0		10002		0	0		10002		

ADT ADT 9,998 AADT 9,998

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00002
SR 994/SW 200 Street Westbound
At East of SW 134 Avenue

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	21	136		22	112		17	113		20	120
12:15	16	108		12	133		23	138		17	126
12:30	10	125		18	119		11	117		13	120
12:45	11	117		11	129		12	134		11	127
01:00	5	137		3	125		11	126		6	129
01:15	4	138		5	133		7	138		5	136
01:30	9	110		9	124		9	138		9	124
01:45	2	151		3	130		6	119		4	133
02:00	3	149		4	145		5	146		4	147
02:15	1	173		5	168		3	112		3	151
02:30	1	143		4	149		3	159		3	150
02:45	6	169		6	164		5	158		6	164
03:00	3	150		7	149		3	145		4	148
03:15	2	170		5	181		3	162		3	171
03:30	2	188		4	178		7	**189**		4	185
03:45	7	181		7	193		7	**194**		7	189
04:00	5	177		4	160		4	**172**		4	170
04:15	12	204		14	170		6	**191**		11	188
04:30	22	176		24	166		22	177		23	173
04:45	18	**197**		23	**183**		25	167		22	**182**
05:00	32	**180**		24	**198**		34	187		30	**188**
05:15	36	**205**		37	**166**		29	198		34	**190**
05:30	67	**193**		56	**179**		58	164		60	**179**
05:45	75	165		85	169		73	183		78	172
06:00	94	190		90	171		82	162		89	174
06:15	142	157		130	162		146	185		139	168
06:30	193	144		192	154		192	170		192	156
06:45	212	170		217	145		211	98		213	138
07:00	**252**	171		**227**	142		214	146		231	153
07:15	**238**	127		**248**	121		**234**	111		**240**	120
07:30	**251**	136		**263**	109		**269**	118		**261**	121
07:45	**231**	113		**235**	110		**252**	100		**239**	108
08:00	241	114		220	83		**241**	95		**234**	97
08:15	244	112		229	76		222	76		232	88
08:30	219	99		235	87		231	79		228	88
08:45	205	75		173	69		163	83		180	76
09:00	121	76		156	73		164	71		147	73
09:15	125	37		102	72		141	70		123	60
09:30	104	54		132	48		105	77		114	60
09:45	129	54		116	54		56	52		100	53
10:00	116	62		83	55		112	50		104	56
10:15	96	40		96	35		107	39		100	38
10:30	90	36		104	39		95	56		96	44
10:45	122	43		113	36		109	25		115	35
11:00	81	32		112	34		124	36		106	34
11:15	128	32		107	32		112	24		116	29
11:30	111	29		117	29		129	29		119	29
11:45	140	22		113	21		114	18		122	20
Total	4255	5967		4202	5680		4208	5697		4221	5780
Combined Total	10222			9882			9905			10001	
Peak	07:00	04:45	-	07:00	04:45	-	07:15	03:30	-	07:15	04:45
Vol.	972	775	-	973	726	-	996	746	-	974	739
P.H.F.	0.964	0.945		0.925	0.917		0.926	0.961		0.933	0.972
ADT		ADT 9,998		AADT 9,998							

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00001
SR 994/SW 200 Street Eastbound
At West of SW 134 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	89	83	91	*		88		*	*		88		
01:00	*	49	44	47	*		47		*	*		47		
02:00	*	28	22	27	*		26		*	*		26		
03:00	*	27	29	24	*		27		*	*		27		
04:00	*	50	61	50	*		54		*	*		54		
05:00	*	221	213	227	*		220		*	*		220		
06:00	*	521	529	514	*		521		*	*		521		
07:00	*	**873**	**874**	**901**	*		**883**		*	*		**883**		
08:00	*	810	806	765	*		794		*	*		794		
09:00	*	619	581	622	*		607		*	*		607		
10:00	*	566	551	483	*		533		*	*		533		
11:00	*	492	531	556	*		526		*	*		526		
12:00 PM	*	548	544	562	*		551		*	*		551		
01:00	*	592	583	577	*		584		*	*		584		
02:00	*	642	705	626	*		658		*	*		658		
03:00	*	817	763	824	*		801		*	*		801		
04:00	*	847	890	837	*		858		*	*		858		
05:00	*	**897**	**905**	**910**	*		**904**		*	*		**904**		
06:00	*	876	869	848	*		864		*	*		864		
07:00	*	625	600	622	*		616		*	*		616		
08:00	*	419	440	426	*		428		*	*		428		
09:00	*	311	311	323	*		315		*	*		315		
10:00	*	261	231	214	*		235		*	*		235		
11:00	*	144	156	151	*		150		*	*		150		
Day Total	0	11324	11321	11227	0		11290		0	0		11290		
% Avg. WkDay	0.0%	100.3%	100.3%	99.4%	0.0%									
% Avg. Week	0.0%	100.3%	100.3%	99.4%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	873	874	901	-	-	883	-	-	-	-	883	-	-
PM Peak	-	17:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	897	905	910	-	-	904	-	-	-	-	904	-	-
Grand Total	0	11324	11321	11227	0		11290		0	0		11290		

ADT ADT 11,283 AADT 11,283

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00001
SR 994/SW 200 Street Eastbound
At West of SW 134 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	89	83	91	*		88		*	*		88		
01:00	*	49	44	47	*		47		*	*		47		
02:00	*	28	22	27	*		26		*	*		26		
03:00	*	27	29	24	*		27		*	*		27		
04:00	*	50	61	50	*		54		*	*		54		
05:00	*	221	213	227	*		220		*	*		220		
06:00	*	521	529	514	*		521		*	*		521		
07:00	*	**873**	**874**	**901**	*		**883**		*	*		**883**		
08:00	*	810	806	765	*		794		*	*		794		
09:00	*	619	581	622	*		607		*	*		607		
10:00	*	566	551	483	*		533		*	*		533		
11:00	*	492	531	556	*		526		*	*		526		
12:00 PM	*	548	544	562	*		551		*	*		551		
01:00	*	592	583	577	*		584		*	*		584		
02:00	*	642	705	626	*		658		*	*		658		
03:00	*	817	763	824	*		801		*	*		801		
04:00	*	847	890	837	*		858		*	*		858		
05:00	*	**897**	**905**	**910**	*		**904**		*	*		**904**		
06:00	*	876	869	848	*		864		*	*		864		
07:00	*	625	600	622	*		616		*	*		616		
08:00	*	419	440	426	*		428		*	*		428		
09:00	*	311	311	323	*		315		*	*		315		
10:00	*	261	231	214	*		235		*	*		235		
11:00	*	144	156	151	*		150		*	*		150		
Day Total	0	11324	11321	11227	0		11290		0	0		11290		
% Avg. WkDay	0.0%	100.3%	100.3%	99.4%	0.0%									
% Avg. Week	0.0%	100.3%	100.3%	99.4%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	873	874	901	-	-	883	-	-	-	-	883	-	-
PM Peak	-	17:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	897	905	910	-	-	904	-	-	-	-	904	-	-
Grand Total	0	11324	11321	11227	0		11290		0	0		11290		

ADT ADT 11,283 AADT 11,283

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00010
SW 134 Avenue Southbound
At North of SR 994/SW 200 Street

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	1	1	4	*		2		*	*		2		
01:00	*	0	0	1	*		0		*	*		0		
02:00	*	0	1	1	*		1		*	*		1		
03:00	*	0	0	0	*		0		*	*		0		
04:00	*	2	0	1	*		1		*	*		1		
05:00	*	3	3	3	*		3		*	*		3		
06:00	*	8	15	10	*		11		*	*		11		
07:00	*	21	29	25	*		25		*	*		25		
08:00	*	**27**	**33**	**32**	*		**31**		*	*		**31**		
09:00	*	15	20	28	*		21		*	*		21		
10:00	*	16	6	18	*		13		*	*		13		
11:00	*	13	10	12	*		12		*	*		12		
12:00 PM	*	9	11	17	*		12		*	*		12		
01:00	*	7	16	15	*		13		*	*		13		
02:00	*	12	20	16	*		16		*	*		16		
03:00	*	16	14	14	*		15		*	*		15		
04:00	*	47	32	**48**	*		42		*	*		42		
05:00	*	**68**	**44**	30	*		**47**		*	*		**47**		
06:00	*	38	19	1	*		19		*	*		19		
07:00	*	11	8	8	*		9		*	*		9		
08:00	*	6	9	4	*		6		*	*		6		
09:00	*	12	6	7	*		8		*	*		8		
10:00	*	5	5	7	*		6		*	*		6		
11:00	*	2	4	1	*		2		*	*		2		
Day Total	0	339	306	303	0		315		0	0		315		
% Avg. WkDay	0.0%	107.6%	97.1%	96.2%	0.0%									
% Avg. Week	0.0%	107.6%	97.1%	96.2%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	08:00	08:00	08:00	-	-	08:00	-	-	-	-	08:00	-	-
Vol.	-	27	33	32	-	-	31	-	-	-	-	31	-	-
PM Peak	-	17:00	17:00	16:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	68	44	48	-	-	47	-	-	-	-	47	-	-
Grand Total	0	339	306	303	0		315		0	0		315		
ADT		ADT 315		AADT 315										

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00010
SW 134 Avenue Southbound
At North of SR 994/SW 200 Street

Start Time	Tue 05-Feb-19 A.M.	P.M.	Wed 06-Feb-19 A.M.	P.M.	Thu 07-Feb-19 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	1	3	1	2	1	3	1	3
12:15	0	5	0	1	0	6	0	4
12:30	0	1	0	5	1	1	0	2
12:45	0	0	0	3	2	7	1	3
01:00	0	0	0	2	1	3	0	2
01:15	0	2	0	6	0	2	0	3
01:30	0	1	0	5	0	7	0	4
01:45	0	4	0	3	0	3	0	3
02:00	0	4	0	5	0	4	0	4
02:15	0	2	0	4	0	4	0	3
02:30	0	1	0	6	1	3	0	3
02:45	0	5	1	5	0	5	0	5
03:00	0	3	0	3	0	4	0	3
03:15	0	4	0	5	0	3	0	4
03:30	0	5	0	3	0	2	0	3
03:45	0	4	0	3	0	5	0	4
04:00	2	6	0	4	1	**10**	1	7
04:15	0	5	0	10	0	**14**	0	10
04:30	0	17	0	6	0	**13**	0	12
04:45	0	19	0	12	0	**11**	0	14
05:00	0	8	1	4	2	8	1	7
05:15	0	**23**	0	**12**	0	7	0	**14**
05:30	0	**17**	0	**14**	0	9	0	**13**
05:45	3	**20**	2	**14**	1	6	2	**13**
06:00	0	**29**	3	**9**	1	1	1	**13**
06:15	3	2	2	3	1	0	2	2
06:30	1	4	4	5	4	0	3	3
06:45	4	3	6	2	4	0	5	2
07:00	5	4	5	0	6	2	5	2
07:15	3	6	4	2	5	4	4	4
07:30	**7**	1	**7**	3	6	0	**7**	1
07:45	**6**	0	**13**	3	**8**	2	**9**	2
08:00	**4**	0	**11**	1	**9**	1	**8**	1
08:15	**14**	1	**13**	2	**8**	1	**12**	1
08:30	5	4	4	4	**8**	2	6	3
08:45	4	1	5	2	7	0	5	1
09:00	1	5	6	0	2	3	3	3
09:15	5	1	4	2	13	0	7	1
09:30	3	3	5	1	4	1	4	2
09:45	6	3	5	3	9	3	7	3
10:00	5	1	2	3	5	1	4	2
10:15	4	1	2	0	4	0	3	0
10:30	3	2	1	0	2	2	2	1
10:45	4	1	1	2	7	4	4	2
11:00	2	1	3	0	0	0	2	0
11:15	5	0	3	1	7	0	5	0
11:30	3	1	1	2	2	0	2	1
11:45	3	0	3	1	3	1	3	1
Total	106	233	118	188	135	168	119	194
Combined Total	339		306		303		313	
Peak	07:30	05:15 -	07:30	05:15 -	07:45	04:00 -	07:30	05:15
Vol.	31	89 -	44	49 -	33	48 -	36	53
P.H.F.	0.554	0.767	0.846	0.875	0.917	0.857	0.750	0.946
ADT		ADT 315	AADT 315					

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00003
SW 134 Avenue Northbound
At South of SR 994/SW 200 Street

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	24	19	17	*		20		*	*		20		
01:00	*	16	12	16	*		15		*	*		15		
02:00	*	6	9	7	*		7		*	*		7		
03:00	*	9	10	15	*		11		*	*		11		
04:00	*	29	30	31	*		30		*	*		30		
05:00	*	185	159	164	*		169		*	*		169		
06:00	*	**238**	**227**	**232**	*		**232**		*	*		**232**		
07:00	*	129	143	165	*		146		*	*		146		
08:00	*	160	149	157	*		155		*	*		155		
09:00	*	182	192	175	*		183		*	*		183		
10:00	*	139	151	148	*		146		*	*		146		
11:00	*	117	123	112	*		117		*	*		117		
12:00 PM	*	128	139	96	*		121		*	*		121		
01:00	*	130	127	135	*		131		*	*		131		
02:00	*	128	148	149	*		142		*	*		142		
03:00	*	143	157	135	*		145		*	*		145		
04:00	*	**146**	147	162	*		152		*	*		152		
05:00	*	139	**160**	**175**	*		**158**		*	*		**158**		
06:00	*	144	150	120	*		138		*	*		138		
07:00	*	125	111	117	*		118		*	*		118		
08:00	*	71	68	68	*		69		*	*		69		
09:00	*	67	61	70	*		66		*	*		66		
10:00	*	52	50	39	*		47		*	*		47		
11:00	*	41	39	52	*		44		*	*		44		
Day Total	0	2548	2581	2557	0		2562		0	0		2562		
% Avg. WkDay	0.0%	99.5%	100.7%	99.8%	0.0%									
% Avg. Week	0.0%	99.5%	100.7%	99.8%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	06:00	06:00	06:00	-	-	06:00	-	-	-	-	06:00	-	-
Vol.	-	238	227	232	-	-	232	-	-	-	-	232	-	-
PM Peak	-	16:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	146	160	175	-	-	158	-	-	-	-	158	-	-
Grand Total	0	2548	2581	2557	0		2562		0	0		2562		

ADT ADT 2,560 AADT 2,560

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00003
SW 134 Avenue Northbound
At South of SR 994/SW 200 Street

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	14	28		4	26		6	18		8	24
12:15	5	29		7	32		6	24		6	28
12:30	3	30		5	42		3	21		4	31
12:45	2	41		3	39		2	33		2	38
01:00	2	28		4	34		5	31		4	31
01:15	3	41		2	30		2	35		2	35
01:30	5	38		6	39		5	37		5	38
01:45	6	23		0	24		4	32		3	26
02:00	0	33		0	27		3	39		1	33
02:15	4	30		2	38		2	32		3	33
02:30	0	31		3	34		0	46		1	37
02:45	2	34		4	49		2	32		3	38
03:00	2	35		0	27		2	27		1	30
03:15	4	38		2	50		3	25		3	38
03:30	2	33		3	44		6	46		4	41
03:45	1	37		5	36		4	37		3	37
04:00	9	27		4	31		6	43		6	34
04:15	1	**43**		3	31		3	40		2	38
04:30	10	**40**		13	**40**		10	**46**		11	**42**
04:45	9	**36**		10	**45**		12	**33**		10	**38**
05:00	16	**36**		11	**45**		15	**47**		14	**43**
05:15	30	25		31	**44**		25	**50**		29	**40**
05:30	**61**	42		49	40		**60**	43		**57**	42
05:45	**78**	36		**68**	31		**64**	35		**70**	34
06:00	**74**	36		**71**	32		**75**	38		**73**	35
06:15	**57**	33		**61**	42		**50**	27		**56**	34
06:30	50	43		**51**	41		56	29		52	38
06:45	57	32		44	35		51	26		51	31
07:00	23	28		50	26		56	35		43	30
07:15	41	32		15	34		48	34		35	33
07:30	30	30		33	26		31	26		31	27
07:45	35	35		45	25		30	22		37	27
08:00	47	21		34	17		40	20		40	19
08:15	36	22		28	15		29	17		31	18
08:30	42	16		35	19		41	15		39	17
08:45	35	12		52	17		47	16		45	15
09:00	53	29		60	14		51	25		55	23
09:15	41	18		43	22		44	16		43	19
09:30	49	10		57	11		36	15		47	12
09:45	39	10		32	14		44	14		38	13
10:00	38	8		37	14		30	9		35	10
10:15	33	16		32	13		36	11		34	13
10:30	33	15		38	16		41	9		37	13
10:45	35	13		44	7		41	10		40	10
11:00	27	8		30	13		26	11		28	11
11:15	36	12		33	10		27	14		32	12
11:30	28	9		34	6		35	16		32	10
11:45	26	12		26	10		24	11		25	11
Total	1234	1314		1224	1357		1239	1318		1231	1330
Combined Total	2548			2581			2557			2561	
Peak	05:30	04:15	-	05:45	04:30	-	05:30	04:30	-	05:30	04:30
Vol.	270	155	-	251	174	-	249	176	-	256	163
P.H.F.	0.865	0.901		0.884	0.870		0.830	0.880		0.877	0.948
ADT		ADT 2,560		AADT 2,560							

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00007
SR 994/SW 200 Street Westbound
At East of SW 132 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	69	77	86	*		77		*	*		77		
01:00	*	26	23	40	*		30		*	*		30		
02:00	*	11	21	23	*		18		*	*		18		
03:00	*	16	21	20	*		19		*	*		19		
04:00	*	61	69	59	*		63		*	*		63		
05:00	*	198	187	193	*		193		*	*		193		
06:00	*	517	523	510	*		517		*	*		517		
07:00	*	**835**	**814**	**827**	*		**825**		*	*		**825**		
08:00	*	792	769	736	*		766		*	*		766		
09:00	*	486	498	462	*		482		*	*		482		
10:00	*	416	423	409	*		416		*	*		416		
11:00	*	483	476	501	*		487		*	*		487		
12:00 PM	*	515	535	541	*		530		*	*		530		
01:00	*	550	533	550	*		544		*	*		544		
02:00	*	694	693	627	*		671		*	*		671		
03:00	*	773	780	793	*		782		*	*		782		
04:00	*	894	854	815	*		854		*	*		854		
05:00	*	**960**	**894**	**918**	*		**924**		*	*		**924**		
06:00	*	840	818	762	*		807		*	*		807		
07:00	*	672	599	623	*		631		*	*		631		
08:00	*	475	431	409	*		438		*	*		438		
09:00	*	280	302	327	*		303		*	*		303		
10:00	*	226	206	201	*		211		*	*		211		
11:00	*	144	128	133	*		135		*	*		135		
Day Total	0	10933	10674	10565	0		10723		0	0		10723		
% Avg. WkDay	0.0%	102.0%	99.5%	98.5%	0.0%									
% Avg. Week	0.0%	102.0%	99.5%	98.5%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	835	814	827	-	-	825	-	-	-	-	825	-	-
PM Peak	-	17:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	960	894	918	-	-	924	-	-	-	-	924	-	-
Grand Total	0	10933	10674	10565	0		10723		0	0		10723		

ADT ADT 10,718 AADT 10,718

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00007
SR 994/SW 200 Street Westbound
At East of SW 132 Avenue

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	23	145		27	116		21	129		24	130
12:15	18	120		17	143		31	144		22	136
12:30	14	128		21	134		19	135		18	132
12:45	14	122		12	142		15	133		14	132
01:00	9	137		4	132		13	144		9	138
01:15	5	150		7	133		10	151		7	145
01:30	10	110		10	126		10	133		10	123
01:45	2	153		2	142		7	122		4	139
02:00	2	163		5	160		7	149		5	157
02:15	1	183		5	178		4	136		3	166
02:30	2	155		4	169		3	172		3	165
02:45	6	193		7	186		9	170		7	183
03:00	4	173		8	173		3	165		5	170
03:15	2	190		2	187		4	189		3	189
03:30	2	200		3	205		5	209		3	205
03:45	8	210		8	215		8	230		8	218
04:00	5	215		4	189		4	185		4	196
04:15	12	246		15	**219**		7	206		11	224
04:30	24	198		28	**221**		22	212		25	210
04:45	20	235		22	**225**		26	212		23	224
05:00	31	236		23	**242**		32	**228**		29	**235**
05:15	34	**255**		34	219		29	**250**		32	**241**
05:30	62	**246**		53	218		62	**203**		59	**222**
05:45	71	**223**		77	215		70	**237**		73	**225**
06:00	81	**253**		80	236		74	215		78	235
06:15	113	205		110	207		111	227		111	213
06:30	145	181		147	196		151	188		148	188
06:45	178	201		186	179		174	132		179	171
07:00	216	201		183	158		186	191		195	183
07:15	**208**	169		**218**	160		**202**	148		**209**	159
07:30	**223**	159		**213**	144		**231**	145		**222**	149
07:45	**188**	143		**200**	137		**208**	139		**199**	140
08:00	**218**	128		**194**	113		**208**	113		**207**	118
08:15	202	129		211	103		191	101		201	111
08:30	194	117		217	116		213	106		208	113
08:45	178	101		147	99		124	89		150	96
09:00	123	98		151	95		164	86		146	93
09:15	122	50		111	80		138	87		124	72
09:30	108	65		123	65		101	95		111	75
09:45	133	67		113	62		59	59		102	63
10:00	112	76		94	75		109	54		105	68
10:15	97	50		99	46		84	52		93	49
10:30	88	46		108	43		101	59		99	49
10:45	119	54		122	42		115	36		119	44
11:00	94	41		126	36		119	39		113	39
11:15	131	35		107	31		131	31		123	32
11:30	125	38		122	33		132	40		126	37
11:45	133	30		121	28		119	23		124	27
Total	3910	7023		3901	6773		3866	6699		3893	6829
Combined Total	10933			10674			10565			10722	
Peak	07:15	05:15	-	07:15	04:15	-	07:15	05:00	-	07:15	05:00
Vol.	837	977	-	825	907	-	849	918	-	837	923
P.H.F.	0.938	0.958		0.946	0.937		0.919	0.918		0.943	0.957
ADT	ADT 10,718		AADT 10,718								

CH Perez and Associates Consulting Engineers Inc.

9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00008
SR 994/SW 200 Street Eastbound
At West of SW 132 Avenue

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	54	23	15	*		31		*	*		31		
01:00	*	24	5	5	*		11		*	*		11		
02:00	*	15	3	1	*		6		*	*		6		
03:00	*	16	5	1	*		7		*	*		7		
04:00	*	35	21	17	*		24		*	*		24		
05:00	*	275	187	164	*		209		*	*		209		
06:00	*	628	582	507	*		572		*	*		572		
07:00	*	**818**	748	**755**	*		**774**		*	*		**774**		
08:00	*	741	**749**	601	*		697		*	*		697		
09:00	*	548	422	465	*		478		*	*		478		
10:00	*	462	353	298	*		371		*	*		371		
11:00	*	386	287	296	*		323		*	*		323		
12:00 PM	*	412	312	338	*		354		*	*		354		
01:00	*	454	345	351	*		383		*	*		383		
02:00	*	431	329	324	*		361		*	*		361		
03:00	*	**558**	408	414	*		460		*	*		460		
04:00	*	535	461	406	*		467		*	*		467		
05:00	*	549	**475**	**442**	*		**489**		*	*		**489**		
06:00	*	508	423	400	*		444		*	*		444		
07:00	*	334	273	262	*		290		*	*		290		
08:00	*	219	199	171	*		196		*	*		196		
09:00	*	153	120	111	*		128		*	*		128		
10:00	*	91	63	46	*		67		*	*		67		
11:00	*	40	33	32	*		35		*	*		35		
Day Total	0	8286	6826	6422	0		7177		0	0		7177		
% Avg. WkDay	0.0%	115.5%	95.1%	89.5%	0.0%									
% Avg. Week	0.0%	115.5%	95.1%	89.5%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	08:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	818	749	755	-	-	774	-	-	-	-	774	-	-
PM Peak	-	15:00	17:00	17:00	-	-	17:00	-	-	-	-	17:00	-	-
Vol.	-	558	475	442	-	-	489	-	-	-	-	489	-	-
Grand Total	0	8286	6826	6422	0		7177		0	0		7177		

ADT ADT 7,175 AADT 7,175

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00008
SR 994/SW 200 Street Eastbound
At West of SW 132 Avenue

Start	Tue	05-Feb-19		Wed	06-Feb-19		Thu	07-Feb-19		Daily Average	
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
12:00	22	110		6	82		8	81		12	91
12:15	14	120		5	69		4	74		8	88
12:30	10	96		7	78		1	101		6	92
12:45	8	86		5	83		2	82		5	84
01:00	8	105		4	81		2	84		5	90
01:15	6	112		1	97		0	89		2	99
01:30	4	129		0	96		0	95		1	107
01:45	6	108		0	71		3	83		3	87
02:00	0	102		3	95		1	75		1	91
02:15	7	92		0	84		0	82		2	86
02:30	7	104		0	73		0	85		2	87
02:45	1	133		0	77		0	82		0	97
03:00	2	**142**		1	80		0	71		1	98
03:15	2	**125**		0	118		0	121		1	121
03:30	6	**151**		1	110		1	135		3	132
03:45	6	**140**		3	100		0	87		3	109
04:00	10	137		3	103		2	88		5	109
04:15	3	107		4	105		4	104		4	105
04:30	4	142		5	137		4	94		4	124
04:45	18	149		9	116		7	120		11	128
05:00	22	130		14	96		9	88		15	105
05:15	48	136		30	**140**		23	**113**		34	**130**
05:30	78	129		44	**122**		37	**132**		53	**128**
05:45	127	154		99	**117**		95	**109**		107	**127**
06:00	148	130		119	**124**		115	**124**		127	**126**
06:15	152	119		141	127		126	100		140	115
06:30	158	143		168	88		121	101		149	111
06:45	170	116		154	84		145	75		156	92
07:00	197	81		153	74		175	79		175	78
07:15	194	92		188	69		173	69		185	77
07:30	**198**	81		**197**	76		**194**	45		**196**	67
07:45	**229**	80		**210**	54		**213**	69		**217**	68
08:00	**230**	50		**238**	50		**173**	55		**214**	52
08:15	**211**	74		**236**	53		**184**	53		**210**	60
08:30	153	44		140	60		137	36		143	47
08:45	147	51		135	36		107	27		130	38
09:00	155	40		113	37		158	31		142	36
09:15	149	34		132	38		140	33		140	35
09:30	118	47		91	27		62	23		90	32
09:45	126	32		86	18		105	24		106	25
10:00	126	27		83	26		80	15		96	23
10:15	133	24		89	15		57	17		93	19
10:30	97	25		86	8		75	6		86	13
10:45	106	15		95	14		86	8		96	12
11:00	84	18		81	14		60	11		75	14
11:15	98	13		78	7		88	13		88	11
11:30	93	2		69	8		73	4		78	5
11:45	111	7		59	4		75	4		82	5
Total	4002	4284		3385	3441		3125	3297		3502	3676
Combined Total	8286			6826			6422			7178	
Peak	07:30	03:00	-	07:30	05:15	-	07:30	05:15	-	07:30	05:15
Vol.	868	558	-	881	503	-	764	478	-	837	511
P.H.F.	0.943	0.924		0.925	0.898		0.897	0.905		0.964	0.983
ADT		ADT 7,175		AADT 7,175							

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00011
SW 132 Avenue Northbound
At South of SR 994/SW 200 Street

Start Time	Mon 04-Feb-19	Tue 05-Feb-19	Wed 06-Feb-19	Thu 07-Feb-19	Fri 08-Feb-19		Average Day		Sat 09-Feb-19	Sun 10-Feb-19		Week Average		
12:00 AM	*	9	9	10	*		9		*	*		9		
01:00	*	6	5	9	*		7		*	*		7		
02:00	*	7	1	5	*		4		*	*		4		
03:00	*	6	11	11	*		9		*	*		9		
04:00	*	20	15	20	*		18		*	*		18		
05:00	*	96	101	98	*		98		*	*		98		
06:00	*	244	238	245	*		242		*	*		242		
07:00	*	**275**	**273**	**265**	*		**271**		*	*		**271**		
08:00	*	229	221	242	*		231		*	*		231		
09:00	*	117	133	120	*		123		*	*		123		
10:00	*	86	97	112	*		98		*	*		98		
11:00	*	92	93	87	*		91		*	*		91		
12:00 PM	*	94	95	94	*		94		*	*		94		
01:00	*	100	103	114	*		106		*	*		106		
02:00	*	105	93	**115**	*		104		*	*		104		
03:00	*	**128**	**124**	108	*		**120**		*	*		**120**		
04:00	*	101	113	106	*		107		*	*		107		
05:00	*	106	121	114	*		114		*	*		114		
06:00	*	126	104	113	*		114		*	*		114		
07:00	*	112	105	94	*		104		*	*		104		
08:00	*	73	71	73	*		72		*	*		72		
09:00	*	39	56	57	*		51		*	*		51		
10:00	*	36	40	41	*		39		*	*		39		
11:00	*	14	32	29	*		25		*	*		25		
Day Total	0	2221	2254	2282	0		2251		0	0		2251		
% Avg. WkDay	0.0%	98.7%	100.1%	101.4%	0.0%									
% Avg. Week	0.0%	98.7%	100.1%	101.4%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	07:00	07:00	07:00	-	-	07:00	-	-	-	-	07:00	-	-
Vol.	-	275	273	265	-	-	271	-	-	-	-	271	-	-
PM Peak	-	15:00	15:00	14:00	-	-	15:00	-	-	-	-	15:00	-	-
Vol.	-	128	124	115	-	-	120	-	-	-	-	120	-	-
Grand Total	0	2221	2254	2282	0		2251		0	0		2251		

ADT ADT 2,252 AADT 2,252

CH Perez and Associates Consulting Engineers Inc.
9594 NW 41st Street, Suite 201, Miami, Florida 33178
Phone: (305) 592-1070 & Fax: (305) 592-1078

Station ID: 00011
SW 132 Avenue Northbound
At South of SR 994/SW 200 Street

Start Time	Tue 05-Feb-19 A.M.	P.M.	Wed 06-Feb-19 A.M.	P.M.	Thu 07-Feb-19 A.M.	P.M.	Daily Average A.M.	P.M.
12:00	4	22	3	14	6	24	4	20
12:15	3	22	3	25	3	27	3	25
12:30	2	26	2	34	1	18	2	26
12:45	0	24	1	22	0	25	0	24
01:00	1	27	1	23	1	18	1	23
01:15	2	24	1	34	2	**25**	2	28
01:30	0	25	1	23	2	**33**	1	27
01:45	3	24	2	23	4	**38**	3	28
02:00	2	33	0	28	4	**35**	2	32
02:15	2	21	0	24	1	21	1	22
02:30	1	18	0	26	0	27	0	24
02:45	2	33	1	15	0	32	1	27
03:00	1	25	2	**32**	2	27	2	28
03:15	1	35	4	**50**	1	29	2	38
03:30	1	35	3	**22**	6	21	3	26
03:45	3	33	2	**20**	2	31	2	28
04:00	2	26	1	23	0	29	1	26
04:15	2	33	2	28	7	23	4	28
04:30	7	22	8	26	3	23	6	24
04:45	9	20	4	36	10	31	8	29
05:00	15	24	12	29	17	26	15	26
05:15	23	21	18	24	16	39	19	28
05:30	27	30	33	28	24	20	28	26
05:45	31	**31**	38	40	41	29	37	**33**
06:00	46	**32**	40	21	35	28	40	**27**
06:15	54	**29**	58	34	55	33	56	**32**
06:30	**78**	**38**	71	21	83	31	**77**	**30**
06:45	**66**	27	69	28	72	21	**69**	25
07:00	**69**	24	**68**	26	66	23	**68**	24
07:15	**63**	21	**56**	31	61	20	**60**	24
07:30	69	34	**74**	33	**70**	27	71	31
07:45	74	33	**75**	15	**68**	24	72	24
08:00	53	20	56	19	**85**	23	65	21
08:15	63	27	55	14	**65**	18	61	20
08:30	59	9	53	20	43	14	52	14
08:45	54	17	57	18	49	18	53	18
09:00	35	13	44	18	44	11	41	14
09:15	31	11	28	20	20	15	26	15
09:30	27	7	32	10	22	16	27	11
09:45	24	8	29	8	34	15	29	10
10:00	24	14	24	17	33	17	27	16
10:15	24	11	28	5	37	9	30	8
10:30	24	4	22	8	26	7	24	6
10:45	14	7	23	10	16	8	18	8
11:00	23	4	26	9	25	8	25	7
11:15	28	3	28	10	21	5	26	6
11:30	21	2	15	7	22	8	19	6
11:45	20	5	24	6	19	8	21	6
Total	1187	1034	1197	1057	1224	1058	1204	1049
Combined Total	2221		2254		2282		2253	
Peak	06:30	05:45 -	07:00	03:00 -	07:30	01:15 -	06:30	05:45
Vol.	276	130 -	273	124 -	288	131 -	274	122
P.H.F.	0.885	0.855	0.910	0.620	0.847	0.862	0.890	0.803
ADT	ADT 2,252		AADT 2,252					

APPENDIX F – COST ESTIMATE FOR SW 137TH AVENUE

Cost Estimate

Location: SR 994/Quail Roost Drive at 137th Avenue

Roadway Section: **87091000**

Date: **3/25/2019**

Produced By: JC **QA/QC By:** AM

Pay Item	Description	Unit Measured	Avg. Unit Cost	Quantity	Total
0700 12 22	SIGN BEACON, F&I GM- SOLAR, TWO BEACONS	AS	$10,000.00	1	$10,000.00

	Signing	$10,000.00
	Pre-Total	$10,000.00
20%	Maintenance of Traffic (MOT)	$2,000.00
10%	Mobilization	$1,000.00
	Contingency Project	$5,000.00
LS	PE & CEI	$2,000.00
	Grand-Total	**$20,000.00**

APPENDIX G - B/C AND NPV ANALYSIS FOR SW 137TH AVENUE

FORM 511-09
SAFETY 7/1/1991

CONCEPTUAL ALTERNATIVE

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

SAFETY OFFICE ANNUAL BENEFIT COST ANALYSIS

1	SUBMITTED BY	**CH Perez & Associates**			WPA NO.	**N/A**		SAFETY PRIORITY	
2	DATE SUBMITTED	**5/14/2019**			ENVIRONMENTAL STUDY				
3	PROJECT NO.	**FM: 250650-4-32-01 - TWO 48**						SKID (I.D.)	**N/A**
4	ALTERNATIVE NO.	**1**			SN	**NA**		SPEED	**40**
6	DISTRICT	**VI**	COUNTY **DADE**	SECTION	**87091000**	STATE ROAD	**994**	U.S. ROAD	**-**
7	BEGINNING MILE POST	**4.075**	ENDING MILE POST		**4.075**	LENGTH	**0.000** miles	NODE	-

8 DESCRIPTION OF LOCATION/FACILITY TYPE **SR 994 / Quail Roost Drive at SW 137th Avenue**

9 CAUSE OF CRASH PROBLEMS (LIST AND DISCUSS)
Rear-end Crashes Caused for kack of visibility to stopped vehicles

10 PROPOSED IMPROVEMENTS (LIST AND DISCUSS)
Install a 'Be Prepared to Stop' sign (W3-4) with flashing beacons facing the eastbound approach.

		2014	2015	2016	AVG.
11	NO. OF CRASHES	**6**	**19**	**14**	**13.0**
12	NO. CRASHES POTENTIALLY REDUCED	**1.0**	**3.1**	**2.3**	**2.1**

14 **CRASH INFORMATION FOR FACILITY**

COST/CRASH	$ 124,618.00
CRASH CLEANUP	$ 100
INTEREST RATE	4%

13

TYPE OF CRASH	NUMBER OF CRASHES (3-year)	CRASHES TO BE REDUCED
Rear End	28	6.34
Head On	3	0.00
Angle	2	0.00
Left Turn	2	0.00
Right Turn	0	0.00
Sideswipe	1	0.00
Backed Into	0	0.00
Coll. w/ Parked Car	0	0.00
Coll. w/ Pedestrian	0	0.00
Coll. w/ Bicycle	0	0.00
Fixed Object	3	0.00
Ran Off Road	0	0.00
Overturned	0	0.00
Other	0	0.00
Total Crashes	39	6.34
Crashes Per Year	7.80	**2.11**
Wet/Slippery	9	0.00
Night Time	10	0.00

15 **ANNUAL COST OF IMPROVEMENTS**

	TYPE	COST	LIFE	CRF	ANNUAL COST
A.	R-O-W	$ -	0	0.0000	$ -
B.	P.E.C.E.I.	$ 10,000	15	0.0899	$ 899.41
C.	STRUCTURE	$ -	16	0.0858	$ -
D.	ROADWAY	$ -	20	0.0736	$ -
E.	SIGNING/PAVEMENT	$ 10,000	15	0.0899	$ 899.41
F.	SIGNALS	$ -	15	0.0899	$ -
G.	SUBTOTAL	$ 20,000			$ 1,798.82
H.	CHANGE IN MAINTENANCE				$ -
I.	CRASH CLEANUP				$ (211.33)
J.	**TOTAL**				**$ 1,587.49**

16 **BENEFITS**

A.	CRASH REDUCTION	2.11	crash @	$ 124,618	$ 263,359.37
B.	DELAY SAVINGS		veh-hrs @		$ -
	SUB TOTAL ANNUAL BENEFIT				**$ 263,359.37**
C.	OTHER BENEFIT	0		$ -	$ -
D.	**TOTAL ANNUAL BENEFIT**				**$ 263,359.37**

17	**NET BENEFIT/COST**	$ 263,359.37	$ 1,587.49	**165.9**
	SAFETY BENEFIT/COST	$ 263,359.37	$ 1,587.49	**165.9**

PREPARED BY **RK** APPROVED BY **KC** DATE **05/14/2019**

COMMENTS/CRASH REDUCTION METHOD:
FHWA, FDOT

HIGH CRASH LISTINGS:
2014-2016

PROJECT NET PRESENT VALUE (NPV)

Project Name	**SR 994 / Quail Roost Drive at SW 137th Avenue**
Current Year	2017
Project Completion	2018
Project Life	15
Project Category	
Discount Rate	0.07
Project Ends	2032

#REF!

Year #	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Calendar Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Estimated Cost	$20,000																			
Estimated Benefits		263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	263,359	
Calculation																				
Discount Factor	1.000	0.935	0.873	0.816	0.763	0.713	0.666	0.623	0.582	0.544	0.508	0.475	0.444	0.415	0.388	0.362	0.339	0.317	0.296	0.277
Discounted Cost	-20,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discounted Benefits	0	246,130	230,028	214,980	200,916	187,772	175,487	164,007	153,278	143,250	133,879	125,120	116,935	109,285	102,135	95,454	89,209	83,373	77,919	0
NPV	**2,629,155**																			

APPENDIX H – SIGNAL WARRANT ANALYSIS – SW 132nd AVENUE

CHAPTER 4C. TRAFFIC CONTROL SIGNAL NEEDS STUDIES

Section 4C.01 Studies and Factors for Justifying Traffic Control Signals

Standard:

01 **An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location.**

02 **The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:**

Warrant 1, Eight-Hour Vehicular Volume
Warrant 2, Four-Hour Vehicular Volume
Warrant 3, Peak Hour
Warrant 4, Pedestrian Volume
Warrant 5, School Crossing
Warrant 6, Coordinated Signal System
Warrant 7, Crash Experience
Warrant 8, Roadway Network
Warrant 9, Intersection Near a Grade Crossing

03 **The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.**

Support:

04 Sections 8C.09 and 8C.10 contain information regarding the use of traffic control signals instead of gates and/or flashing-light signals at highway-rail grade crossings and highway-light rail transit grade crossings, respectively.

Guidance:

05 *A traffic control signal should not be installed unless one or more of the factors described in this Chapter are met.*

06 *A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.*

07 *A traffic control signal should not be installed if it will seriously disrupt progressive traffic flow.*

08 *The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count when evaluating the count against the signal warrants listed in Paragraph 2.*

09 *Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. The site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left-turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles.*

10 *Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.*

11 *At a location that is under development or construction and where it is not possible to obtain a traffic count that would represent future traffic conditions, hourly volumes should be estimated as part of an engineering study for comparison with traffic signal warrants. Except for locations where the engineering study uses the satisfaction of Warrant 8 to justify a signal, a traffic control signal installed under projected conditions should have an engineering study done within 1 year of putting the signal into stop-and-go operation to determine if the signal is justified. If not justified, the signal should be taken out of stop-and-go operation or removed.*

12 *For signal warrant analysis, a location with a wide median, even if the median width is greater than 30 feet, should be considered as one intersection.*

Option:

13 At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher of the major-street left-turn volumes as the "minor-street" volume and the corresponding single direction of opposing traffic on the major street as the "major-street" volume.

14 For signal warrants requiring conditions to be present for a certain number of hours in order to be satisfied, any four sequential 15-minute periods may be considered as 1 hour if the separate 1-hour periods used in the warrant analysis do not overlap each other and both the major-street volume and the minor-street volume are for the same specific one-hour periods.

15 For signal warrant analysis, bicyclists may be counted as either vehicles or pedestrians.

Support:

16 When performing a signal warrant analysis, bicyclists riding in the street with other vehicular traffic are usually counted as vehicles and bicyclists who are clearly using pedestrian facilities are usually counted as pedestrians.

Option:

17 Engineering study data may include the following:

A. The number of vehicles entering the intersection in each hour from each approach during 12 hours of an average day. It is desirable that the hours selected contain the greatest percentage of the 24-hour traffic volume.
B. Vehicular volumes for each traffic movement from each approach, classified by vehicle type (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in some locations, bicycles), during each 15-minute period of the 2 hours in the morning and 2 hours in the afternoon during which total traffic entering the intersection is greatest.
C. Pedestrian volume counts on each crosswalk during the same periods as the vehicular counts in Item B and during hours of highest pedestrian volume. Where young, elderly, and/or persons with physical or visual disabilities need special consideration, the pedestrians and their crossing times may be classified by general observation.
D. Information about nearby facilities and activity centers that serve the young, elderly, and/or persons with disabilities, including requests from persons with disabilities for accessible crossing improvements at the location under study. These persons might not be adequately reflected in the pedestrian volume count if the absence of a signal restrains their mobility.
E. The posted or statutory speed limit or the 85th-percentile speed on the uncontrolled approaches to the location.
F. A condition diagram showing details of the physical layout, including such features as intersection geometrics, channelization, grades, sight-distance restrictions, transit stops and routes, parking conditions, pavement markings, roadway lighting, driveways, nearby railroad crossings, distance to nearest traffic control signals, utility poles and fixtures, and adjacent land use.
G. A collision diagram showing crash experience by type, location, direction of movement, severity, weather, time of day, date, and day of week for at least 1 year.

18 The following data, which are desirable for a more precise understanding of the operation of the intersection, may be obtained during the periods described in Item B of Paragraph 17:

A. Vehicle-hours of stopped time delay determined separately for each approach.
B. The number and distribution of acceptable gaps in vehicular traffic on the major street for entrance from the minor street.
C. The posted or statutory speed limit or the 85th-percentile speed on controlled approaches at a point near to the intersection but unaffected by the control.
D. Pedestrian delay time for at least two 30-minute peak pedestrian delay periods of an average weekday or like periods of a Saturday or Sunday.
E. Queue length on stop-controlled approaches.

Section 4C.02 Warrant 1, Eight-Hour Vehicular Volume

Support:

01 The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

02 The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

03 It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.

Standard:

04 **The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:**

A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or

B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.

In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.

Option:

05 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.

Guidance:

06 *The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied and should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.*

Standard:

07 **The need for a traffic control signal shall be considered if an engineering study finds that both of the following conditions exist for each of any 8 hours of an average day:**

A. The vehicles per hour given in both of the 80 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; and

B. The vehicles per hour given in both of the 80 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.

These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B—Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000
[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Option:

08 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Section 4C.03 Warrant 2, Four-Hour Vehicular Volume

Support:

01 The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.**

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

Section 4C.04 Warrant 3, Peak Hour

Support:

01 The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

Standard:

02 **This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.**

03 **The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:**

- **A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:**
  1. **The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and**
  2. **The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and**
  3. **The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.**
- **B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.**

Option:

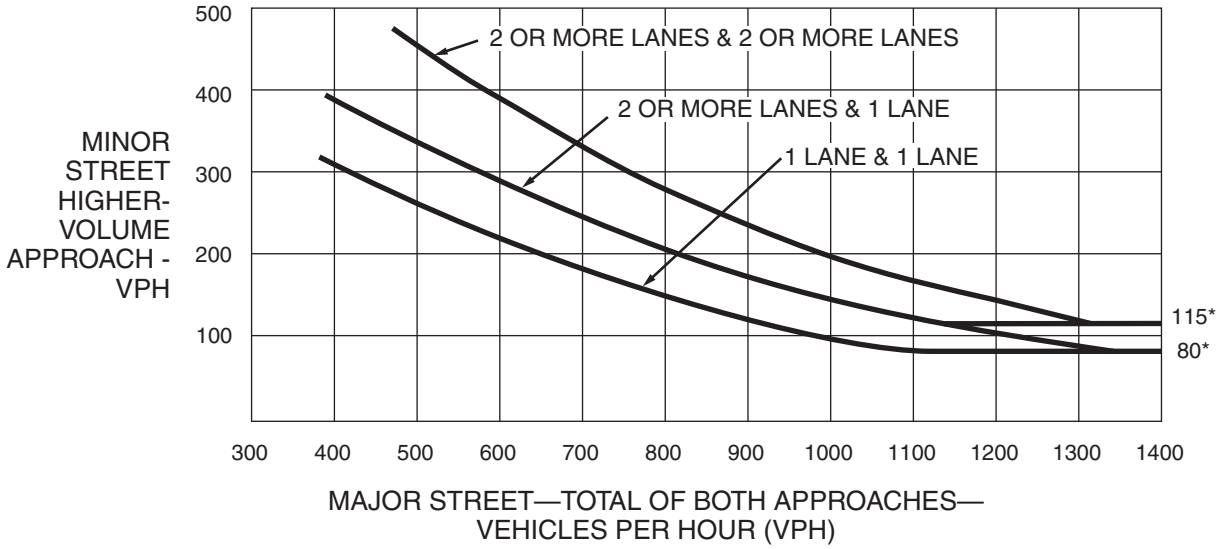
04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in the second category of the Standard.

05 If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

Guidance:

06 *If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.*

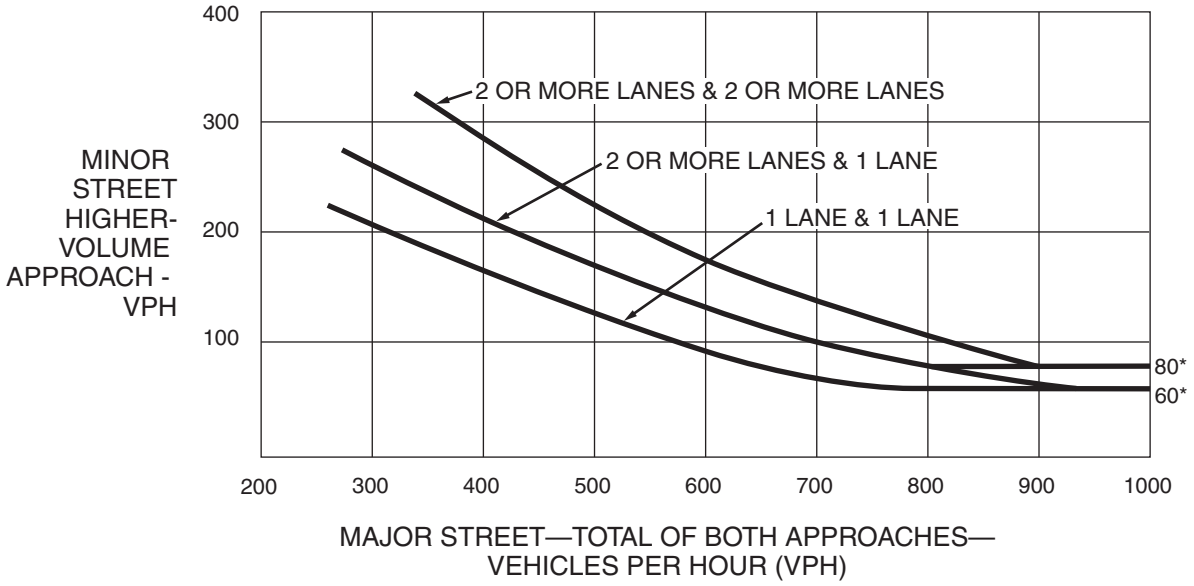
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

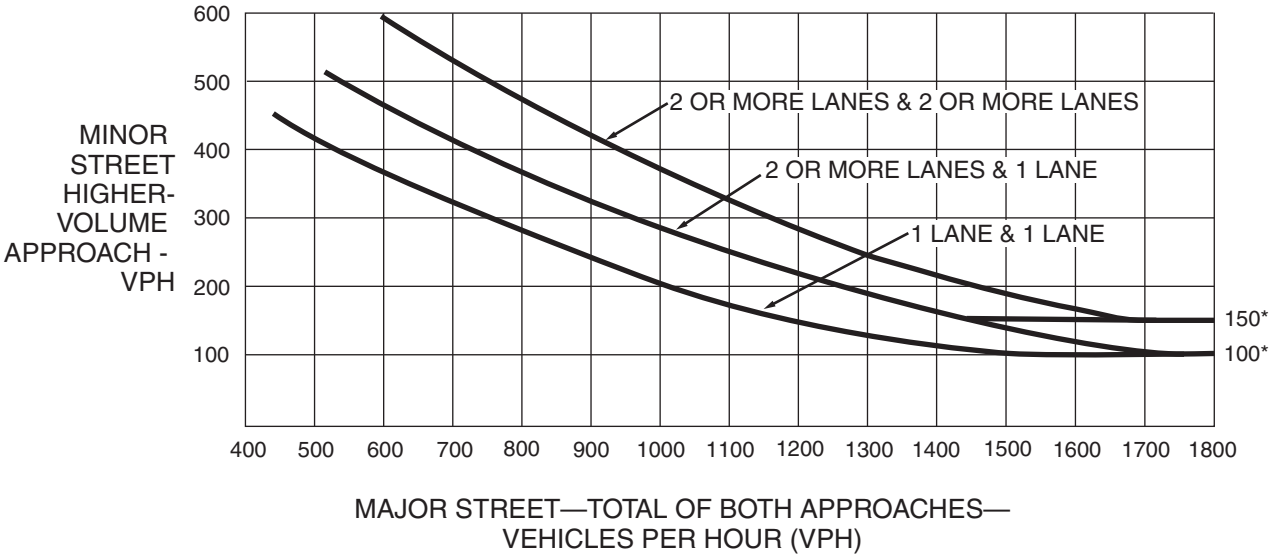
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

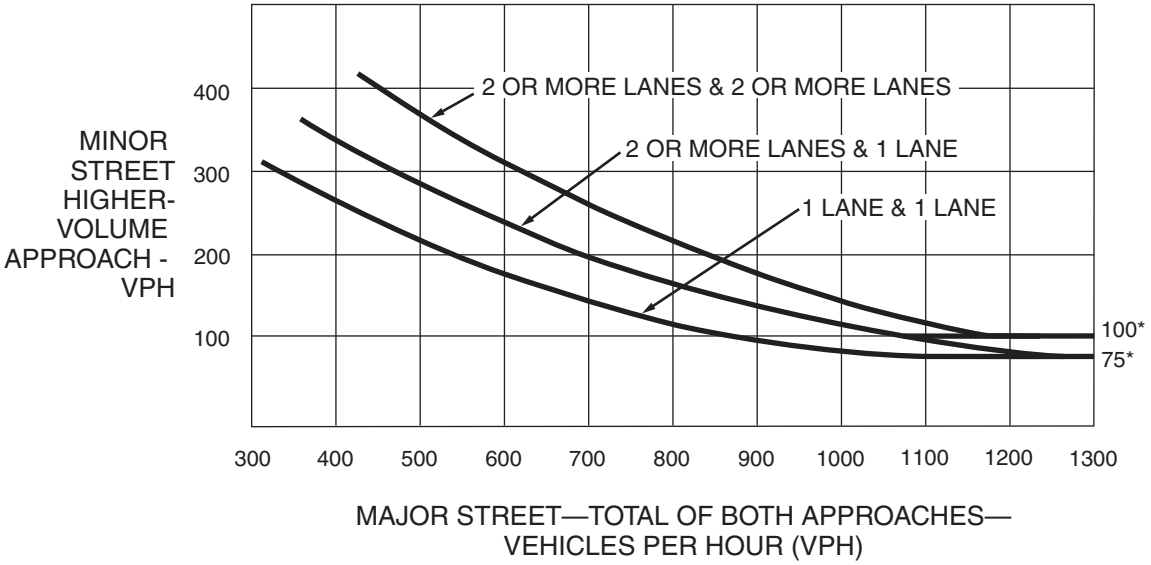
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Section 4C.05 Warrant 4, Pedestrian Volume

Support:

01 The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Standard:

02 **The need for a traffic control signal at an intersection or midblock crossing shall be considered if an engineering study finds that one of the following criteria is met:**

A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5; or

B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 35 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-6 may be used in place of Figure 4C-5 to evaluate Criterion A in Paragraph 2, and Figure 4C-8 may be used in place of Figure 4C-7 to evaluate Criterion B in Paragraph 2.

Standard:

04 **The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.**

05 **If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E.**

Guidance:

06 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*

A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.

B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.

C. Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.

Option:

07 The criterion for the pedestrian volume crossing the major street may be reduced as much as 50 percent if the 15th-percentile crossing speed of pedestrians is less than 3.5 feet per second.

08 A traffic control signal may not be needed at the study location if adjacent coordinated traffic control signals consistently provide gaps of adequate length for pedestrians to cross the street.

Section 4C.06 Warrant 5, School Crossing

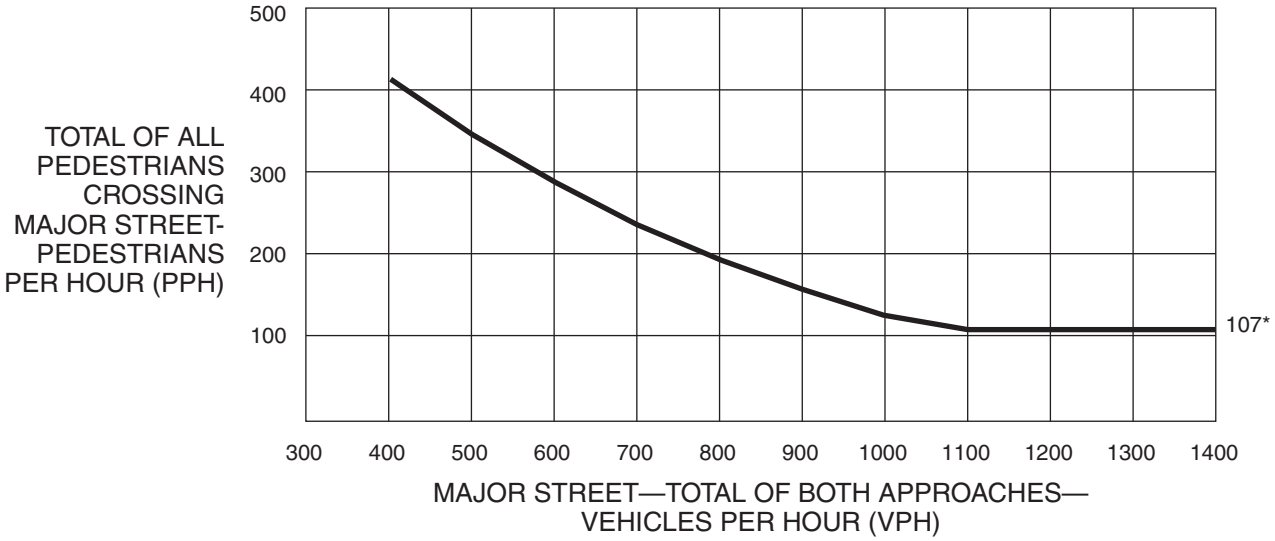
Support:

01 The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For the purposes of this warrant, the word “schoolchildren” includes elementary through high school students.

Standard:

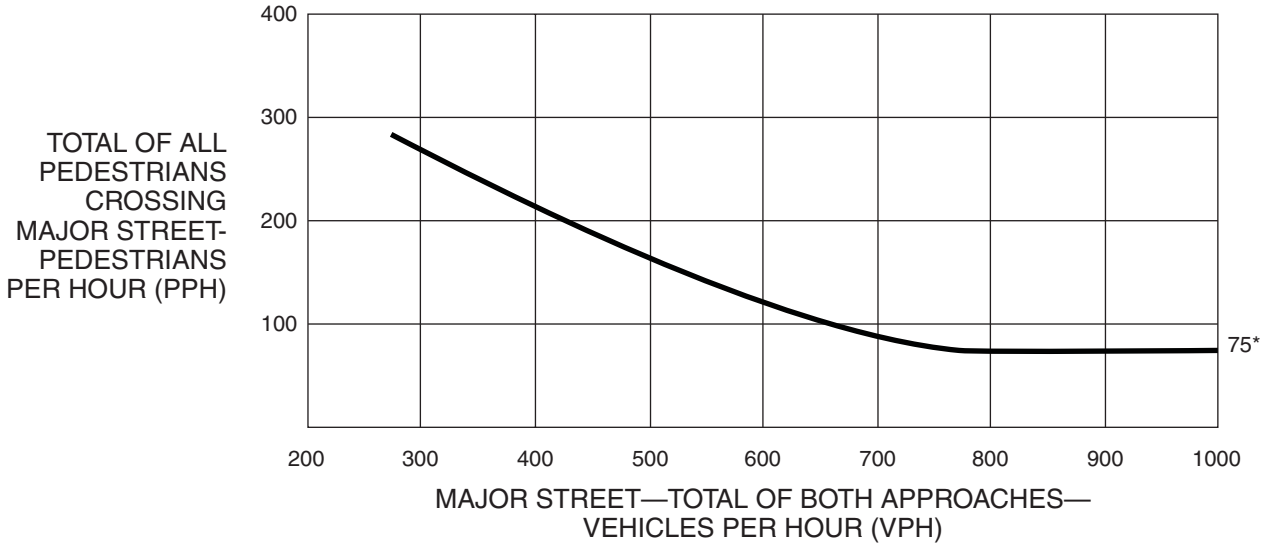
02 **The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of schoolchildren at an established school crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the schoolchildren are using the crossing is less than the number of minutes in the same period (see Section 7A.03) and there are a minimum of 20 schoolchildren during the highest crossing hour.**

Figure 4C-5. Warrant 4, Pedestrian Four-Hour Volume



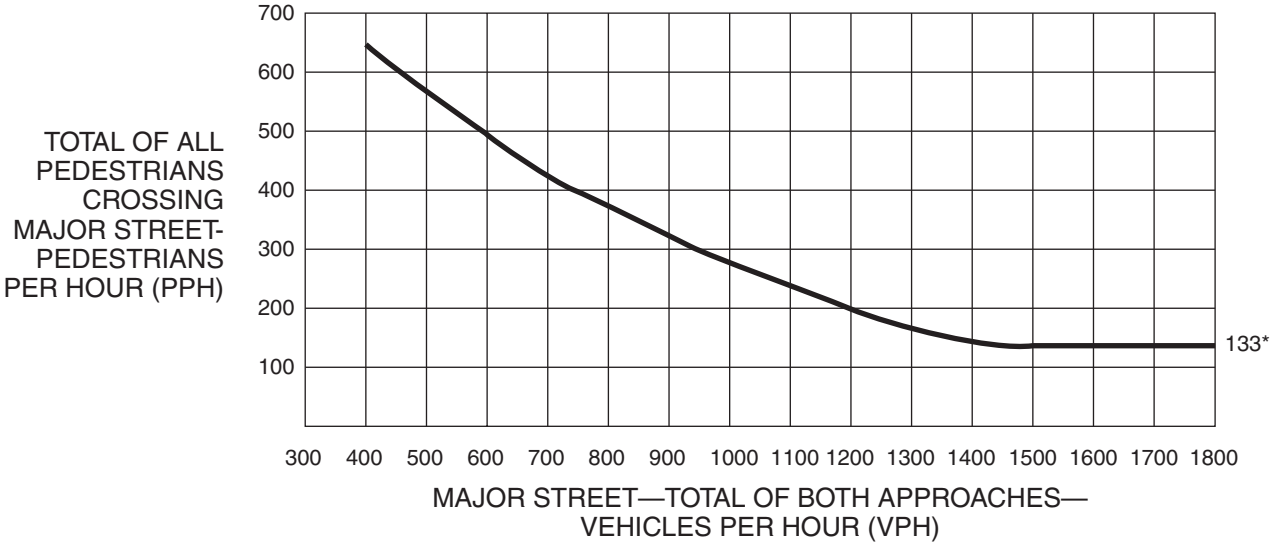
*Note: 107 pph applies as the lower threshold volume.

Figure 4C-6. Warrant 4, Pedestrian Four-Hour Volume (70% Factor)



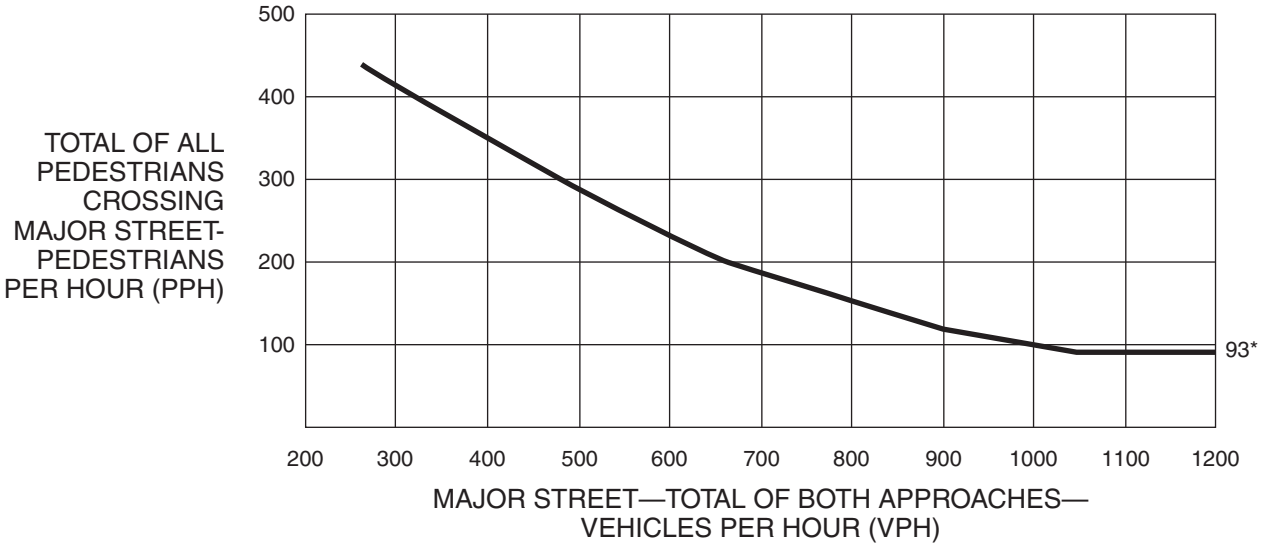
*Note: 75 pph applies as the lower threshold volume.

Figure 4C-7. Warrant 4, Pedestrian Peak Hour



*Note: 133 pph applies as the lower threshold volume.

Figure 4C-8. Warrant 4, Pedestrian Peak Hour (70% Factor)



*Note: 93 pph applies as the lower threshold volume.

03 **Before a decision is made to install a traffic control signal, consideration shall be given to the implementation of other remedial measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.**

04 **The School Crossing signal warrant shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.**

Guidance:

05 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*

A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.

B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.

C. Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.

Section 4C.07 Warrant 6, Coordinated Signal System

Support:

01 Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that one of the following criteria is met:**

A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.

B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.

Guidance:

03 *The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1,000 feet.*

Section 4C.08 Warrant 7, Crash Experience

Support:

01 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:**

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Section 4C.09 Warrant 8, Roadway Network

Support:

01 Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:**

A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or

B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).

03 **A major route as used in this signal warrant shall have at least one of the following characteristics:**

A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.

B. It includes rural or suburban highways outside, entering, or traversing a city.

C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Section 4C.10 Warrant 9, Intersection Near a Grade Crossing

Support:

01 The Intersection Near a Grade Crossing signal warrant is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal.

Guidance:

02 *This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing. Among the alternatives that should be considered or tried are:*

A. Providing additional pavement that would enable vehicles to clear the track or that would provide space for an evasive maneuver, or

B. Reassigning the stop controls at the intersection to make the approach across the track a non-stopping approach.

Standard:

03 **The need for a traffic control signal shall be considered if an engineering study finds that both of the following criteria are met:**

A. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and

B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1A.13.

Guidance:

04 *The following considerations apply when plotting the traffic volume data on Figure 4C-9 or 4C-10:*

A. Figure 4C-9 should be used if there is only one lane approaching the intersection at the track crossing location and Figure 4C-10 should be used if there are two or more lanes approaching the intersection at the track crossing location.

CHAPTER 4F. PEDESTRIAN HYBRID BEACONS

Section 4F.01 Application of Pedestrian Hybrid Beacons

Support:

01 A pedestrian hybrid beacon is a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.

Option:

02 A pedestrian hybrid beacon may be considered for installation to facilitate pedestrian crossings at a location that does not meet traffic signal warrants (see Chapter 4C), or at a location that meets traffic signal warrants under Sections 4C.05 and/or 4C.06 but a decision is made to not install a traffic control signal.

Standard:

03 **If used, pedestrian hybrid beacons shall be used in conjunction with signs and pavement markings to warn and control traffic at locations where pedestrians enter or cross a street or highway. A pedestrian hybrid beacon shall only be installed at a marked crosswalk.**

Guidance:

04 *If one of the signal warrants of Chapter 4C is met and a traffic control signal is justified by an engineering study, and if a decision is made to install a traffic control signal, it should be installed based upon the provisions of Chapters 4D and 4E.*

05 *If a traffic control signal is not justified under the signal warrants of Chapter 4C and if gaps in traffic are not adequate to permit pedestrians to cross, or if the speed for vehicles approaching on the major street is too high to permit pedestrians to cross, or if pedestrian delay is excessive, the need for a pedestrian hybrid beacon should be considered on the basis of an engineering study that considers major-street volumes, speeds, widths, and gaps in conjunction with pedestrian volumes, walking speeds, and delay.*

06 *For a major street where the posted or statutory speed limit or the 85th-percentile speed is 35 mph or less, the need for a pedestrian hybrid beacon should be considered if the engineering study finds that the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding total of all pedestrians crossing the major street for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4F-1 for the length of the crosswalk.*

07 *For a major street where the posted or statutory speed limit or the 85th-percentile speed exceeds 35 mph, the need for a pedestrian hybrid beacon should be considered if the engineering study finds that the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding total of all pedestrians crossing the major street for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4F-2 for the length of the crosswalk.*

08 *For crosswalks that have lengths other than the four that are specifically shown in Figures 4F-1 and 4F-2, the values should be interpolated between the curves.*

Section 4F.02 Design of Pedestrian Hybrid Beacons

Standard:

01 **Except as otherwise provided in this Section, a pedestrian hybrid beacon shall meet the provisions of Chapters 4D and 4E.**

02 **A pedestrian hybrid beacon face shall consist of three signal sections, with a CIRCULAR YELLOW signal indication centered below two horizontally aligned CIRCULAR RED signal indications (see Figure 4F-3).**

03 **When an engineering study finds that installation of a pedestrian hybrid beacon is justified, then:**

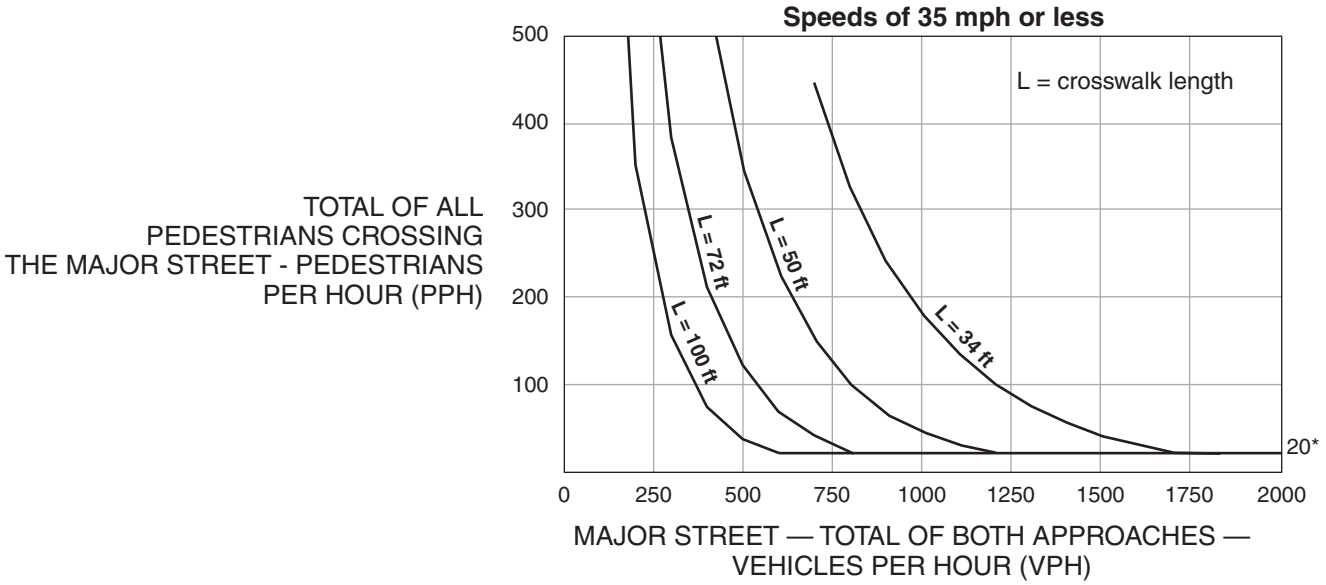
A. At least two pedestrian hybrid beacon faces shall be installed for each approach of the major street,
B. A stop line shall be installed for each approach to the crosswalk,
C. A pedestrian signal head conforming to the provisions set forth in Chapter 4E shall be installed at each end of the marked crosswalk, and
D. The pedestrian hybrid beacon shall be pedestrian actuated.

Guidance:

04 *When an engineering study finds that installation of a pedestrian hybrid beacon is justified, then:*

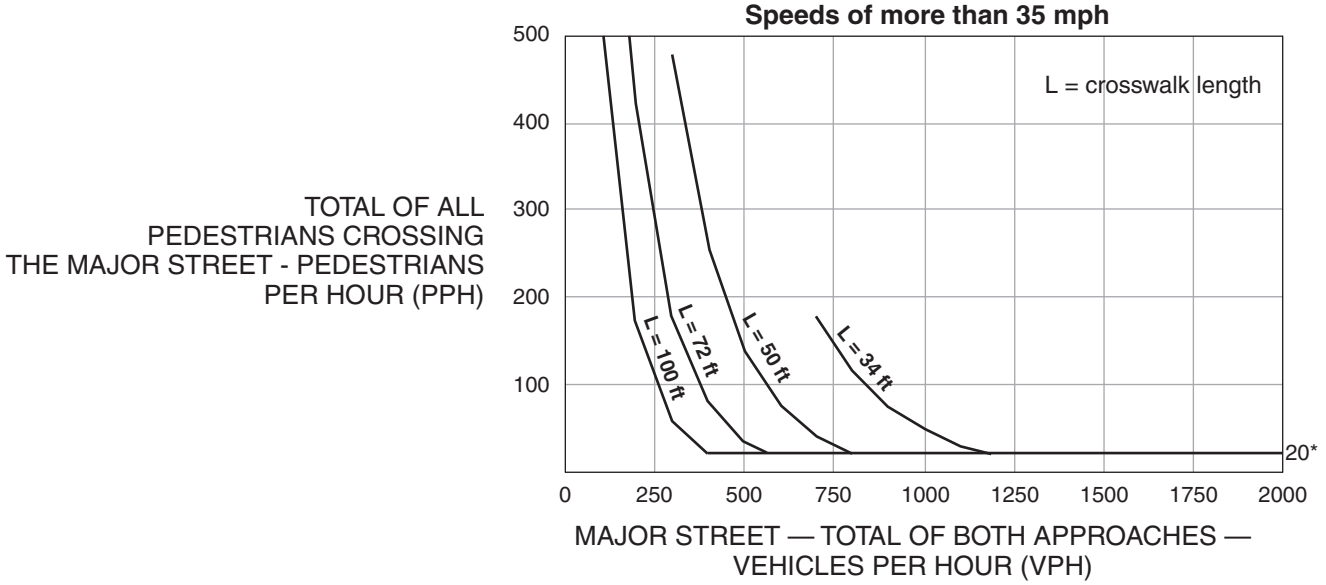
A. The pedestrian hybrid beacon should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs,

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways



* Note: 20 pph applies as the lower threshold volume

Figure 4F-2. Guidelines for the Installation of Pedestrian Hybrid Beacons on High-Speed Roadways



* Note: 20 pph applies as the lower threshold volume

SIGNAL WARRANT ANALYSIS

Introduction

- The Signal Warrant Analysis Spreadsheets are a tool for assisting traffic engineers when evaluating the need for a traffic signal installation
- The filled spreadsheets can be used as part of the supporting documents for the signal warrant evaluation

Note: This templates are a useful resource, but it remains necessary to apply engineering judgment and to consider specific environmental, traffic, geometric, and operational conditions

Instructions

Fill in "Orange" areas only	
Automated cells based on in Input Data in "orange" cells	
General Information	Fill in below the general information including: District, County (drop-down menu) City, Engineer, Date Major and Minor Street with corresponding number of lanes and speed limits
Enter Eight Hour Volumes	Any 8 hours of an average day. Major-street and minor-street volumes shall be for the same 8 hours; however, the 8 hours satisfied in Condition A shall **not** be required to be the same 8 hours satisfied in Condition B **for 80% columns only.** On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.
Enter Four Hour Volumes	Any 4 hours of an average day. Vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only, not required to be on the same approach during each of the 4 hours)
Enter Pedestrian Volumes (4-hr)	Pedestrians per hour crossing the major street (total of all crossings)
Enter Peak Hour Volumes	Vehicular: Any four consecutive 15-minute periods of an average day Pedestrian: Any four consecutive 15-minute periods of an average day representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings)

Input Data

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

City:	Miami		
County:	87 – Miami Dade	Engineer:	CHP
District:	Six	Date:	April 30, 2019

Major Street:	SR 994/SW 200 Street	# Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 132 Avenue	# Lanes:	2	Minor Approach Speed:	30

Eight Hour Volumes (Condition A)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
06:00 AM	1105	55
07:00 AM	1562	72
08:00 AM	1518	60
09:00 AM	920	43
03:00 PM	1188	27
04:00 PM	1315	25
05:00 PM	1369	36
07:00 PM	872	34

Eight Hour Volumes (Condition B)

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
06:00 AM	1105	55
07:00 AM	1562	72
08:00 AM	1518	60
09:00 AM	920	43
03:00 PM	1188	27
04:00 PM	1315	25
05:00 PM	1369	36
07:00 PM	872	34

Highest Four Hour Vehicular Volumes

Hours	Major Street (total of both approaches)	Minor Street (one direction only)
06:00 AM	1105	55
07:00 AM	1562	72
08:00 AM	1518	60
09:00 AM	920	43

Highest Four Hour Pedestrian Volumes

Hours	Major Street (total of both approaches)	Pedestrian Crossings on Major Street
06:00 AM	1105	1
07:00 AM	1562	1
08:00 AM	1518	1
3:00 PM	1188	1

Vehicular Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Minor Street (one direction only)	Total Entering Volume
7:00 AM	1562	72	1634

Pedestrian Peak Hour Volumes

Peak Hour	Major Street (total of both approaches)	Pedestrian Crossing Volumes on Major Street
7:00 AM	1562	1

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Miami	Engineer:	CHP
County:	87 – Miami Dade	Date:	April 30, 2019
District:	Six		

Major Street:	SR 994/SW 200 Street	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 132 Avenue	Lanes:	2	Minor Approach Speed:	30

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ 70% ☑ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours. ☐ Yes ☑ No

Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems). ☐ Yes ☑ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

100% Satisfied: ☐ Yes ☑ No
80% Satisfied: ☐ Yes ☑ No
70% Satisfied: ☐ Yes ☑ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	06:00 AM	07:00 AM	08:00 AM	09:00 AM	03:00 PM	04:00 PM	05:00 PM	07:00 PM
Major	1,105	1,562	1,518	920	1,188	1,315	1,369	872
Minor	55	72	60	43	27	25	36	34

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☑ Yes	☐ No
100% Satisfied:	☐ Yes	☑ No
80% Satisfied:	☐ Yes	☑ No
70% Satisfied:	☐ Yes	☑ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**06:00 AM**	**07:00 AM**	**08:00 AM**	**09:00 AM**	**03:00 PM**	**04:00 PM**	**05:00 PM**	**07:00 PM**
Major	1,105	1,562	1,518	920	1,188	1,315	1,369	872
Minor	55	72	60	43	27	25	36	34

Existing Volumes

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Miami	Engineer:	CHP
County:	87 – Miami Dade	Date:	April 30, 2019
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Major Street:	SR 994/SW 200 Street	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 132 Avenue	Lanes:	2	Minor Approach Speed:	30

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ Yes ☑ No

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

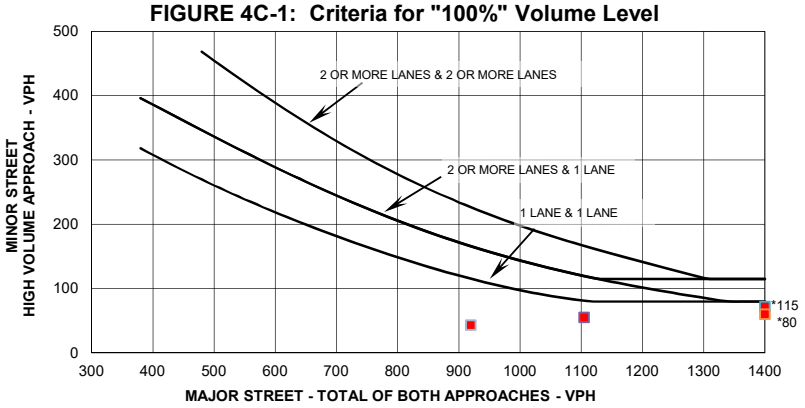
Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
06:00 AM	1105	55
07:00 AM	1562	72
08:00 AM	1518	60
09:00 AM	920	43

FIGURE 4C-1: Criteria for "100%" Volume Level



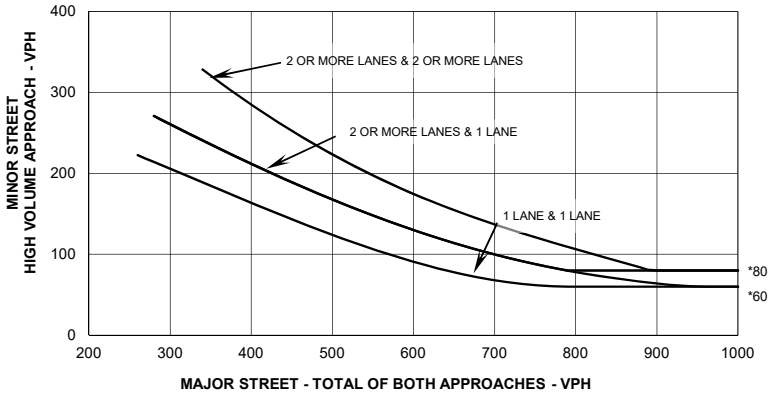
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Miami	Engineer:	CHP
County:	87 – Miami Dade	Date:	April 30, 2019
District:	Six		

Major Street:	SR 994/SW 200 Street	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 132 Avenue	Lanes:	2	Minor Approach Speed:	30

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ 70% ☑ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Unusual condition justifying use of warrant:

Excessive deay on minor street

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
7:00 AM	1562	72

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

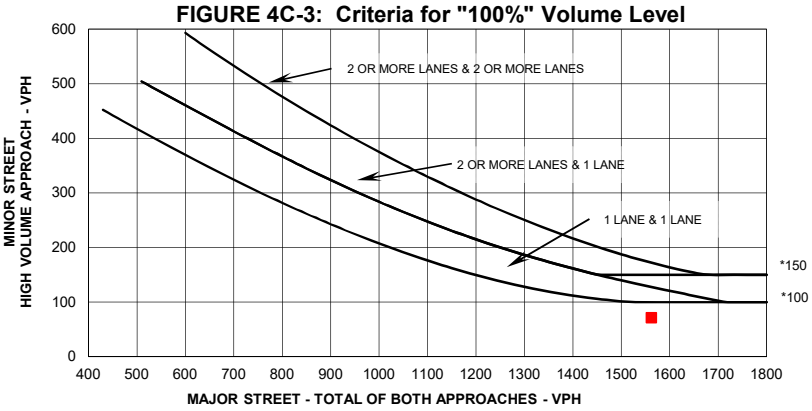
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*	0.8	
Fulfilled?:	☐ Yes	☑ No

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*	141	
Fulfilled?:	☑ Yes	☐ No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*	1,269	
Fulfilled?:	☑ Yes	☐ No

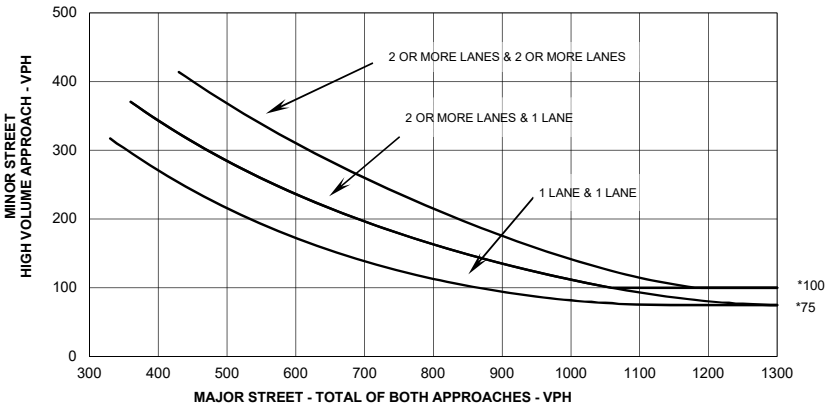
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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County:	**87 – Miami Dade**	Date:	**April 30, 2019**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ 70% ☑ 100%

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☑ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
06:00 AM	1105	1
07:00 AM	1562	1
08:00 AM	1518	1
08:00 AM	1188	1

Plot four volume combinations on the applicable figure below.

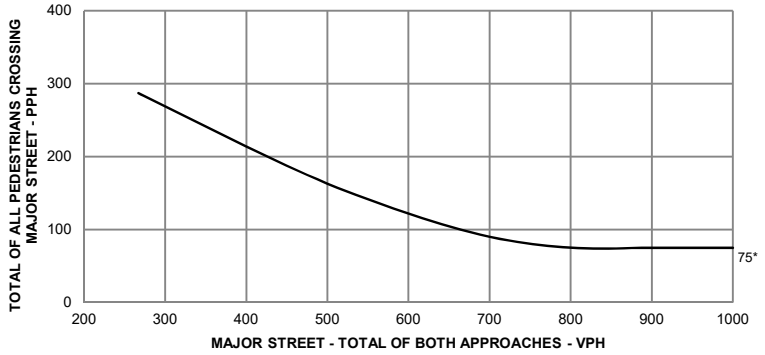
Figure 4C-5. Criteria for "100%" Volume Level

** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

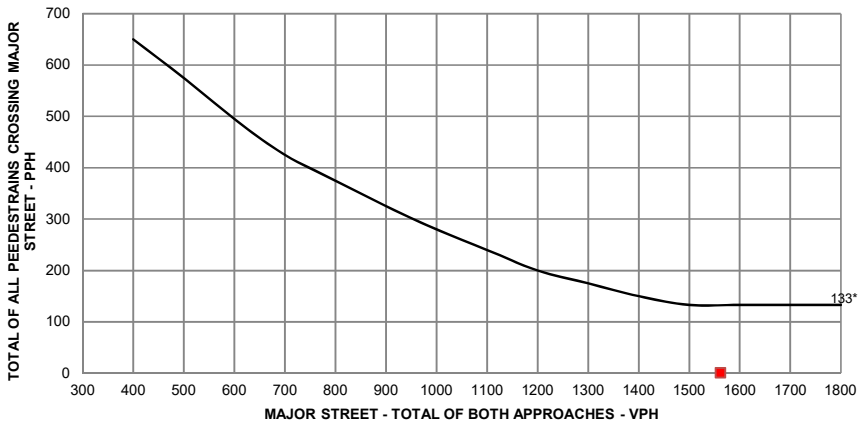
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
7:00 AM	1562	1

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

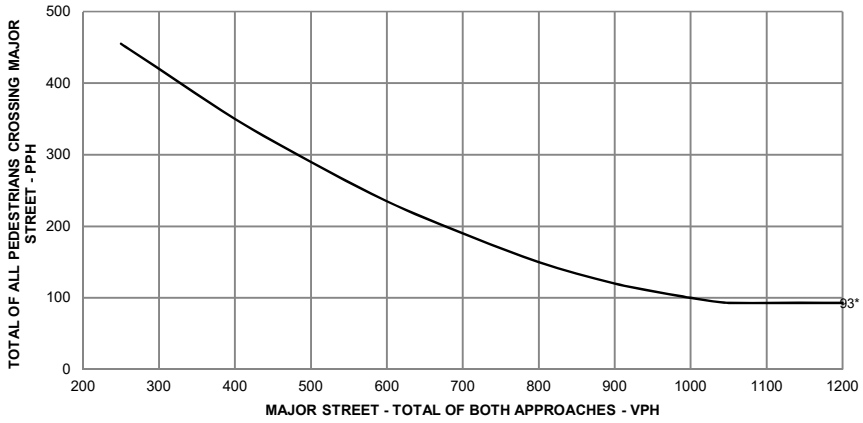


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

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County:	**87 – Miami Dade**	Date:	**April 30, 2019**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:			
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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County:	**87 – Miami Dade**	Date:	**April 30, 2019**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled?	
	Yes	**No**
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

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County:	**87 – Miami Dade**	Date:	**April 30, 2019**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Criteria		Hour								Volume		Met?		Fulfilled?	
										Major	Minor	Yes	No	Yes	No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	x	x	x	x	x		x		x	x		x	x	
	Warrant 1, Condition B (80% satisfied)	x	x	x	x	x	x	x	x			x			
	Warrant 4, Pedestrian Volume at 80% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.												x		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:													x
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.		Observed Crash Types:			Angle Left Turn					Number of crashes per 12 months:				x	

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

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District:	Six		

Major Street:	SR 994/SW 200 Street	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 132 Avenue	Lanes:	2	Minor Approach Speed:	30

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.			Entering Volume:						
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3				
			Satisfied?:							
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour			
							←Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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County:	87 – Miami Dade	Date:	April 30, 2019
District:	Six		

Major Street:	SR 994/SW 200 Street	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 132 Avenue	Lanes:	2	Minor Approach Speed:	30

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☑ 1 ☐ 2 or

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☑ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☑
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☑

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		Adjustment Factors from Tables
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Minor-Street Approach		1.00
Enter D (feet)		
% of Tractor-Trailer Trucks on Minor-Street Approach		0.50

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor: D less than 70 feet	Adjustment Factor: D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

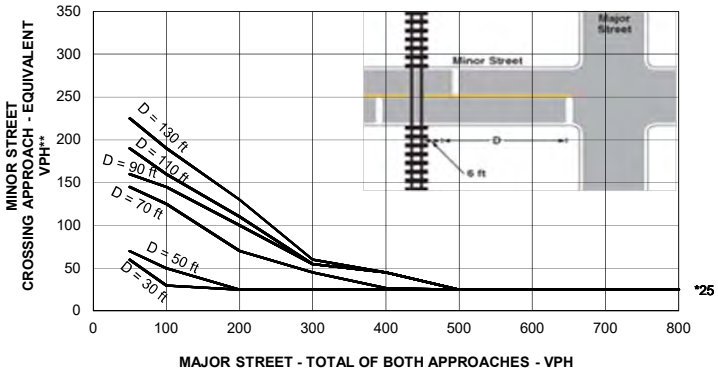
Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

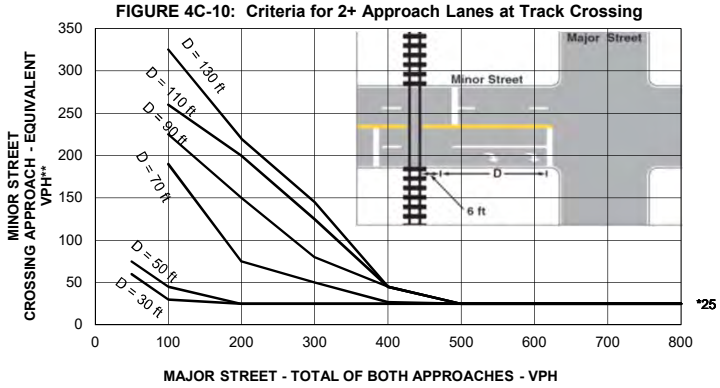
Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Form 750-020-01
TRAFFIC ENGINEERING
February 2015

State of Florida Department of Transportation

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Major Street:	**SR 994/SW 200 Street**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

Remarks: **Installation of a traffic signal is not justified**

WARRANTS SATISFIED:

☐	Warrant 1	☐	Not Applicable
☐	Warrant 2	☐	Not Applicable
☐	Warrant 3	☐	Not Applicable
☐	Warrant 4	☑	Not Applicable
☐	Warrant 5	☑	Not Applicable
☐	Warrant 6	☑	Not Applicable
☐	Warrant 7	☐	Not Applicable
☐	Warrant 8	☑	Not Applicable
☐	Warrant 9	☑	Not Applicable

APPENDIX I – OPERATIONAL ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	350	0	1	312	479	1	0	2	476	0	0
Future Volume (vph)	64	350	0	1	312	479	1	0	2	476	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.4	6.4		6.4			6.4	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frt		1.00			1.00	0.85		0.93			1.00	
Flt Protected		0.99			1.00	1.00		0.98			0.95	
Satd. Flow (prot)		1855			1809	1568		1729			1805	
Flt Permitted		0.64			1.00	1.00		0.75			0.75	
Satd. Flow (perm)		1207			1802	1568		1324			1430	
Peak-hour factor, PHF	0.55	0.93	0.92	0.25	0.87	0.90	0.25	0.92	0.50	0.89	0.92	0.92
Adj. Flow (vph)	116	376	0	4	359	532	4	0	4	535	0	0
RTOR Reduction (vph)	0	0	0	0	0	286	0	6	0	0	0	0
Lane Group Flow (vph)	0	492	0	0	363	246	0	2	0	0	535	0
Heavy Vehicles (%)	2%	1%	0%	0%	5%	3%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	3			8			2			6	
Permitted Phases	3			8		8	2			6		6
Actuated Green, G (s)		76.4			55.0	55.0		40.0			40.0	
Effective Green, g (s)		76.4			55.0	55.0		40.0			40.0	
Actuated g/C Ratio		0.59			0.43	0.43		0.31			0.31	
Clearance Time (s)		6.0			6.4	6.4		6.4			6.4	
Vehicle Extension (s)		2.0			1.0	1.0		2.5			2.5	
Lane Grp Cap (vph)		801			769	669		411			444	
v/s Ratio Prot		c0.08										
v/s Ratio Perm		c0.28			0.20	0.16		0.00			c0.37	
v/c Ratio		0.61			0.47	0.37		0.01			1.20	
Uniform Delay, d1		16.8			26.5	25.1		30.7			44.4	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.5			2.1	1.6		0.0			111.9	
Delay (s)		20.3			28.6	26.6		30.7			156.3	
Level of Service		C			C	C		C			F	
Approach Delay (s)		20.3			27.4			30.7			156.3	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: SR 994/Quail Roost Drive/SW 200 Street & SW 137 Avenue

03/11/2019

Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	492	363	532	8	535
v/c Ratio	0.62	0.47	0.56	0.02	1.21
Control Delay	19.0	29.0	5.2	0.0	151.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	29.0	5.2	0.0	151.9
Queue Length 50th (ft)	216	214	15	0	~543
Queue Length 95th (ft)	298	291	95	0	#763
Internal Link Dist (ft)	362	576		87	1067
Turn Bay Length (ft)			150		
Base Capacity (vph)	791	769	956	454	443
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.47	0.56	0.02	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	647	229	61	758	155	101	32	29	12	1	1
Future Volume (Veh/h)	2	647	229	61	758	155	101	32	29	12	1	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.85	0.88	0.59	0.95	0.81	0.81	0.62	0.91	0.75	0.25	0.25
Hourly flow rate (vph)	4	761	260	103	798	191	125	52	32	16	4	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	989			761			1874	1964	761	1926	1868	894
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	989			761			1874	1964	761	1926	1868	894
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.2	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.6	4.0	4.2
p0 queue free %	99			87			0	6	92	0	94	98
cM capacity (veh/h)	707			816			45	55	409	7	64	231

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	765	260	1092	209	24
Volume Left	4	0	103	125	16
Volume Right	0	260	191	32	4
cSH	707	1700	816	55	10
Volume to Capacity	0.01	0.15	0.13	3.78	2.36
Queue Length 95th (ft)	0	0	11	Err	100
Control Delay (s)	0.2	0.0	3.7	Err	1348.3
Lane LOS	A		A	F	F
Approach Delay (s)	0.1		3.7	Err	1348.3
Approach LOS				F	F

Intersection Summary			
Average Delay	904.8		
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	750	10	15	756	66	118
Future Volume (Veh/h)	750	10	15	756	66	118
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.50	0.54	0.91	0.87	0.74
Hourly flow rate (vph)	824	20	28	831	76	159
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			844		1721	834
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			844		1721	834
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		21	57
cM capacity (veh/h)			801		96	368

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	844	859	235
Volume Left	0	28	76
Volume Right	20	0	159
cSH	1700	801	192
Volume to Capacity	0.50	0.03	1.22
Queue Length 95th (ft)	0	3	311
Control Delay (s)	0.0	1.0	187.8
Lane LOS		A	F
Approach Delay (s)	0.0	1.0	187.8
Approach LOS			F

Intersection Summary			
Average Delay	23.2		
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	396	1	2	336	327	0	0	0	490	0	63
Future Volume (vph)	64	396	1	2	336	327	0	0	0	490	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.4	6.4					6.4	6.4
Lane Util. Factor		1.00			1.00	1.00					1.00	1.00
Frt		1.00			1.00	0.85					1.00	0.85
Flt Protected		0.99			1.00	1.00					0.95	1.00
Satd. Flow (prot)		1855			1862	1615					1787	1583
Flt Permitted		0.80			0.99	1.00					0.76	1.00
Satd. Flow (perm)		1501			1853	1615					1424	1583
Peak-hour factor, PHF	0.84	0.89	0.25	0.50	0.97	0.84	0.92	0.92	0.92	0.97	0.92	0.79
Adj. Flow (vph)	76	445	4	4	346	389	0	0	0	505	0	80
RTOR Reduction (vph)	0	0	0	0	0	218	0	0	0	0	0	43
Lane Group Flow (vph)	0	525	0	0	350	171	0	0	0	0	505	37
Heavy Vehicles (%)	0%	1%	100%	0%	2%	0%	0%	0%	0%	1%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm				Perm	NA	Perm
Protected Phases	7	3			8			2			6	
Permitted Phases	3			8		8	2			6		6
Actuated Green, G (s)		76.4			55.0	55.0					40.0	40.0
Effective Green, g (s)		76.4			55.0	55.0					40.0	40.0
Actuated g/C Ratio		0.59			0.43	0.43					0.31	0.31
Clearance Time (s)		6.0			6.4	6.4					6.4	6.4
Vehicle Extension (s)		2.0			1.0	1.0					2.5	2.5
Lane Grp Cap (vph)		937			791	689					442	491
v/s Ratio Prot		c0.07										
v/s Ratio Perm		c0.26			0.19	0.11					c0.35	0.02
v/c Ratio		0.56			0.44	0.25					1.14	0.07
Uniform Delay, d1		16.0			26.1	23.7					44.4	31.3
Progression Factor		1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2		2.4			1.8	0.9					87.9	0.0
Delay (s)		18.4			27.9	24.5					132.3	31.4
Level of Service		B			C	C					F	C
Approach Delay (s)		18.4			26.1			0.0			118.5	
Approach LOS		B			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	16.8
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	525	350	389	505	80
v/c Ratio	0.56	0.44	0.43	1.14	0.15
Control Delay	17.9	28.3	4.1	128.5	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	28.3	4.1	128.5	11.5
Queue Length 50th (ft)	236	203	4	~492	10
Queue Length 95th (ft)	317	290	45	#709	37
Internal Link Dist (ft)	362	576		1072	
Turn Bay Length (ft)			150		200
Base Capacity (vph)	932	791	907	442	535
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.44	0.43	1.14	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	551	384	83	582	32	81	23	38	13	29	3
Future Volume (Veh/h)	1	551	384	83	582	32	81	23	38	13	29	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.96	0.89	0.83	0.88	0.80	0.81	0.82	0.79	0.54	0.72	0.75
Hourly flow rate (vph)	4	574	431	100	661	40	100	28	48	24	40	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	701			574			1487	1483	574	1525	1463	681
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	701			574			1487	1483	574	1525	1463	681
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			0	75	91	64	66	99
cM capacity (veh/h)	905			984			70	113	522	66	116	454

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	578	431	801	176	68
Volume Left	4	0	100	100	24
Volume Right	0	431	40	48	4
cSH	905	1700	984	99	95
Volume to Capacity	0.00	0.25	0.10	1.78	0.72
Queue Length 95th (ft)	0	0	8	356	91
Control Delay (s)	0.1	0.0	2.5	461.1	106.9
Lane LOS	A		A	F	F
Approach Delay (s)	0.1		2.5	461.1	106.9
Approach LOS				F	F

Intersection Summary			
Average Delay	44.1		
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	607	27	163	643	36	62
Future Volume (Veh/h)	607	27	163	643	36	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.68	0.85	0.82	0.82	0.86
Hourly flow rate (vph)	639	40	192	784	44	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			679		1827	659
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			679		1827	659
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		35	85
cM capacity (veh/h)			918		68	467

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	679	976	116
Volume Left	0	192	44
Volume Right	40	0	72
cSH	1700	918	144
Volume to Capacity	0.40	0.21	0.81
Queue Length 95th (ft)	0	20	127
Control Delay (s)	0.0	5.1	90.9
Lane LOS		A	F
Approach Delay (s)	0.0	5.1	90.9
Approach LOS			F

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	350	0	1	312	479	1	0	2	476	0	0
Future Volume (vph)	64	350	0	1	312	479	1	0	2	476	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.4	6.4		6.4			6.4	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.93			1.00	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.95	
Satd. Flow (prot)	1770	1881			1809	1568		1729			1805	
Flt Permitted	0.38	1.00			1.00	1.00		0.75			0.75	
Satd. Flow (perm)	713	1881			1804	1568		1324			1430	
Peak-hour factor, PHF	0.55	0.93	0.92	0.25	0.87	0.90	0.25	0.92	0.50	0.89	0.92	0.92
Adj. Flow (vph)	116	376	0	4	359	532	4	0	4	535	0	0
RTOR Reduction (vph)	0	0	0	0	0	286	0	6	0	0	0	0
Lane Group Flow (vph)	116	376	0	0	363	246	0	2	0	0	535	0
Heavy Vehicles (%)	2%	1%	0%	0%	5%	3%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	3			8			2			6	
Permitted Phases	3			8		8	2			6		6
Actuated Green, G (s)	76.4	76.4			55.0	55.0		40.0			40.0	
Effective Green, g (s)	76.4	76.4			55.0	55.0		40.0			40.0	
Actuated g/C Ratio	0.59	0.59			0.43	0.43		0.31			0.31	
Clearance Time (s)	6.0	6.0			6.4	6.4		6.4			6.4	
Vehicle Extension (s)	2.0	2.0			1.0	1.0		2.5			2.5	
Lane Grp Cap (vph)	546	1115			770	669		411			444	
v/s Ratio Prot	0.02	c0.20										
v/s Ratio Perm	0.10				c0.20	0.16		0.00			c0.37	
v/c Ratio	0.21	0.34			0.47	0.37		0.01			1.20	
Uniform Delay, d1	12.9	13.3			26.5	25.1		30.7			44.4	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.9	0.8			2.1	1.6		0.0			111.9	
Delay (s)	13.8	14.1			28.5	26.6		30.7			156.3	
Level of Service	B	B			C	C		C			F	
Approach Delay (s)		14.1			27.4			30.7			156.3	
Approach LOS		B			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	59.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: SR 994/Quail Roost Drive/SW 200 Street & SW 137 Avenue

03/28/2019

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	116	376	363	532	8	535
v/c Ratio	0.21	0.34	0.47	0.56	0.02	1.21
Control Delay	12.4	14.4	29.0	5.2	0.0	151.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	14.4	29.0	5.2	0.0	151.9
Queue Length 50th (ft)	40	151	214	15	0	~543
Queue Length 95th (ft)	40	214	291	95	0	#763
Internal Link Dist (ft)		362	576		87	1066
Turn Bay Length (ft)	150			150		
Base Capacity (vph)	546	1115	769	956	466	443
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.34	0.47	0.56	0.02	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	647	229	61	758	155	167	32	29	12	1	1
Future Volume (vph)	2	647	229	61	758	155	167	32	29	12	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.97			0.98			0.98	
Flt Protected		1.00	1.00	0.95	1.00			0.97			0.97	
Satd. Flow (prot)		1810	1583	1641	1757			1801			1473	
Flt Permitted		1.00	1.00	0.13	1.00			0.78			0.79	
Satd. Flow (perm)		1802	1583	221	1757			1448			1203	
Peak-hour factor, PHF	0.50	0.85	0.88	0.59	0.95	0.81	0.85	0.62	0.91	0.75	0.25	0.25
Adj. Flow (vph)	4	761	260	103	798	191	196	52	32	16	4	4
RTOR Reduction (vph)	0	0	118	0	8	0	0	3	0	0	3	0
Lane Group Flow (vph)	0	765	142	103	981	0	0	277	0	0	21	0
Heavy Vehicles (%)	0%	5%	2%	10%	6%	1%	0%	0%	3%	8%	0%	100%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		51.5	51.5	65.1	65.1			25.2			25.2	
Effective Green, g (s)		51.5	51.5	65.1	65.1			25.2			25.2	
Actuated g/C Ratio		0.50	0.50	0.63	0.63			0.24			0.24	
Clearance Time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		900	790	238	1109			353			294	
v/s Ratio Prot				0.03	c0.56							
v/s Ratio Perm		0.42	0.09	0.24				c0.19			0.02	
v/c Ratio		0.85	0.18	0.43	0.88			0.78			0.07	
Uniform Delay, d1		22.4	14.2	15.9	15.9			36.4			30.0	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		7.6	0.1	1.3	8.6			10.9			0.1	
Delay (s)		30.0	14.3	17.1	24.5			47.3			30.1	
Level of Service		C	B	B	C			D			C	
Approach Delay (s)		26.0			23.8			47.3			30.1	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	19.2
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	765	260	103	989	280	24
v/c Ratio	0.85	0.29	0.43	0.89	0.79	0.08
Control Delay	32.4	3.0	12.8	26.4	55.8	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	3.0	12.8	26.4	55.8	33.2
Queue Length 50th (ft)	423	8	25	497	165	10
Queue Length 95th (ft)	516	40	27	707	217	9
Internal Link Dist (ft)	258			417	1285	374
Turn Bay Length (ft)		225	250			
Base Capacity (vph)	1398	1280	237	1551	370	308
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.20	0.43	0.64	0.76	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	750	10	15	756	0	118
Future Volume (Veh/h)	750	10	15	756	0	118
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.50	0.54	0.91	0.87	0.74
Hourly flow rate (vph)	824	20	28	831	0	159
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			844		1721	834
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			844		1721	834
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	57
cM capacity (veh/h)			801		96	368

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	844	28	831	159
Volume Left	0	28	0	0
Volume Right	20	0	0	159
cSH	1700	801	1700	368
Volume to Capacity	0.50	0.03	0.49	0.43
Queue Length 95th (ft)	0	3	0	53
Control Delay (s)	0.0	9.7	0.0	22.0
Lane LOS		A		C
Approach Delay (s)	0.0	0.3		22.0
Approach LOS				C

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	396	1	2	336	327	0	0	0	490	0	63
Future Volume (vph)	64	396	1	2	336	327	0	0	0	490	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.4	6.4					6.4	6.4
Lane Util. Factor	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	1.00			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.95	1.00
Satd. Flow (prot)	1805	1862			1862	1615					1787	1583
Flt Permitted	0.39	1.00			1.00	1.00					0.76	1.00
Satd. Flow (perm)	750	1862			1855	1615					1424	1583
Peak-hour factor, PHF	0.84	0.89	0.25	0.50	0.97	0.84	0.92	0.92	0.92	0.97	0.92	0.79
Adj. Flow (vph)	76	445	4	4	346	389	0	0	0	505	0	80
RTOR Reduction (vph)	0	0	0	0	0	218	0	0	0	0	0	55
Lane Group Flow (vph)	76	449	0	0	350	171	0	0	0	0	505	25
Heavy Vehicles (%)	0%	1%	100%	0%	2%	0%	0%	0%	0%	1%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm				Perm	NA	Perm
Protected Phases	7	3			8			2			6	
Permitted Phases	3			8		8	2			6		6
Actuated Green, G (s)	76.4	76.4			55.0	55.0					40.0	40.0
Effective Green, g (s)	76.4	76.4			55.0	55.0					40.0	40.0
Actuated g/C Ratio	0.59	0.59			0.43	0.43					0.31	0.31
Clearance Time (s)	6.0	6.0			6.4	6.4					6.4	6.4
Vehicle Extension (s)	2.0	2.0			1.0	1.0					2.5	2.5
Lane Grp Cap (vph)	567	1104			792	689					442	491
v/s Ratio Prot	0.02	c0.24										
v/s Ratio Perm	0.06				c0.19	0.11					c0.35	0.02
v/c Ratio	0.13	0.41			0.44	0.25					1.14	0.05
Uniform Delay, d1	12.4	14.0			26.1	23.7					44.4	31.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	0.5	1.1			1.8	0.9					87.9	0.0
Delay (s)	12.9	15.2			27.8	24.5					132.3	31.1
Level of Service	B	B			C	C					F	C
Approach Delay (s)		14.8			26.1			0.0			118.5	
Approach LOS		B			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: SR 994/Quail Roost Drive/SW 200 Street & SW 137 Avenue

03/28/2019

Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	76	449	350	389	505	80
v/c Ratio	0.13	0.41	0.44	0.43	1.14	0.15
Control Delay	11.8	15.4	28.3	4.1	128.5	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	15.4	28.3	4.1	128.5	7.4
Queue Length 50th (ft)	26	190	203	4	~492	0
Queue Length 95th (ft)	44	259	290	45	#709	27
Internal Link Dist (ft)		362	576		1075	
Turn Bay Length (ft)	150			150		200
Base Capacity (vph)	567	1105	791	907	442	546
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.44	0.43	1.14	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	551	384	83	582	32	117	23	38	13	29	3
Future Volume (vph)	1	551	384	83	582	32	117	23	38	13	29	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.99			0.97			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.97			0.98	
Satd. Flow (prot)		1844	1583	1719	1799			1786			1852	
Flt Permitted		1.00	1.00	0.22	1.00			0.76			0.86	
Satd. Flow (perm)		1837	1583	404	1799			1404			1622	
Peak-hour factor, PHF	0.25	0.96	0.89	0.83	0.88	0.80	0.81	0.82	0.79	0.54	0.73	0.75
Adj. Flow (vph)	4	574	431	100	661	40	144	28	48	24	40	4
RTOR Reduction (vph)	0	0	240	0	2	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	578	191	100	699	0	0	212	0	0	66	0
Heavy Vehicles (%)	0%	3%	2%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		33.7	33.7	45.5	45.5			17.8			17.8	
Effective Green, g (s)		33.7	33.7	45.5	45.5			17.8			17.8	
Actuated g/C Ratio		0.44	0.44	0.60	0.60			0.23			0.23	
Clearance Time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		813	701	334	1075			328			379	
v/s Ratio Prot				0.02	c0.39							
v/s Ratio Perm		c0.31	0.12	0.16				c0.15			0.04	
v/c Ratio		0.71	0.27	0.30	0.65			0.65			0.18	
Uniform Delay, d1		17.2	13.4	9.5	10.1			26.3			23.3	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.9	0.2	0.5	1.4			4.3			0.2	
Delay (s)		20.2	13.6	10.1	11.5			30.6			23.5	
Level of Service		C	B	B	B			C			C	
Approach Delay (s)		17.4			11.3			30.6			23.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	19.2
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	578	431	100	701	220	68
v/c Ratio	0.71	0.46	0.27	0.67	0.65	0.18
Control Delay	24.0	3.3	9.1	14.6	38.4	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	3.3	9.1	14.6	38.4	27.9
Queue Length 50th (ft)	220	0	18	189	90	25
Queue Length 95th (ft)	411	48	44	384	185	58
Internal Link Dist (ft)	258			417	1285	374
Turn Bay Length (ft)		225	250			
Base Capacity (vph)	1590	1428	379	1693	714	821
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.30	0.26	0.41	0.31	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	607	27	163	643	0	62
Future Volume (Veh/h)	607	27	163	643	0	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.68	0.85	0.82	0.82	0.86
Hourly flow rate (vph)	639	40	192	784	0	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			679		1827	659
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			679		1827	659
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		100	85
cM capacity (veh/h)			918		68	467

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	679	192	784	72
Volume Left	0	192	0	0
Volume Right	40	0	0	72
cSH	1700	918	1700	467
Volume to Capacity	0.40	0.21	0.46	0.15
Queue Length 95th (ft)	0	20	0	14
Control Delay (s)	0.0	10.0	0.0	14.1
Lane LOS		A		B
Approach Delay (s)	0.0	2.0		14.1
Approach LOS				B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	350	0	1	312	479	1	0	2	476	0	0
Future Volume (vph)	64	350	0	1	312	479	1	0	2	476	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.4	6.4		6.4			6.4	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.93			1.00	
Flt Protected	0.95	1.00			1.00	1.00		0.98			0.95	
Satd. Flow (prot)	1770	1881			1809	1568		1729			1805	
Flt Permitted	0.38	1.00			1.00	1.00		0.75			0.75	
Satd. Flow (perm)	713	1881			1804	1568		1324			1430	
Peak-hour factor, PHF	0.55	0.93	0.92	0.25	0.87	0.90	0.25	0.92	0.50	0.89	0.92	0.92
Adj. Flow (vph)	116	376	0	4	359	532	4	0	4	535	0	0
RTOR Reduction (vph)	0	0	0	0	0	286	0	6	0	0	0	0
Lane Group Flow (vph)	116	376	0	0	363	246	0	2	0	0	535	0
Heavy Vehicles (%)	2%	1%	0%	0%	5%	3%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	3			8			2			6	
Permitted Phases	3			8		8	2			6		6
Actuated Green, G (s)	76.4	76.4			55.0	55.0		40.0			40.0	
Effective Green, g (s)	76.4	76.4			55.0	55.0		40.0			40.0	
Actuated g/C Ratio	0.59	0.59			0.43	0.43		0.31			0.31	
Clearance Time (s)	6.0	6.0			6.4	6.4		6.4			6.4	
Vehicle Extension (s)	2.0	2.0			1.0	1.0		2.5			2.5	
Lane Grp Cap (vph)	546	1115			770	669		411			444	
v/s Ratio Prot	0.02	c0.20										
v/s Ratio Perm	0.10				c0.20	0.16		0.00			c0.37	
v/c Ratio	0.21	0.34			0.47	0.37		0.01			1.20	
Uniform Delay, d1	12.9	13.3			26.5	25.1		30.7			44.4	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.9	0.8			2.1	1.6		0.0			111.9	
Delay (s)	13.8	14.1			28.5	26.6		30.7			156.3	
Level of Service	B	B			C	C		C			F	
Approach Delay (s)		14.1			27.4			30.7			156.3	
Approach LOS		B			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	59.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	116	376	363	532	8	535
v/c Ratio	0.21	0.34	0.47	0.56	0.02	1.21
Control Delay	12.4	14.4	29.0	5.2	0.0	151.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	14.4	29.0	5.2	0.0	151.9
Queue Length 50th (ft)	40	151	214	15	0	~543
Queue Length 95th (ft)	40	214	291	95	0	#763
Internal Link Dist (ft)		362	576		87	1066
Turn Bay Length (ft)	150			150		
Base Capacity (vph)	546	1115	769	956	466	443
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.34	0.47	0.56	0.02	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	647	229	61	758	155	101	32	29	12	1	1
Future Volume (vph)	2	647	229	61	758	155	101	32	29	12	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.97			0.98			0.98	
Flt Protected		1.00	1.00	0.95	1.00			0.97			0.97	
Satd. Flow (prot)		1810	1583	1641	1757			1798			1473	
Flt Permitted		1.00	1.00	0.17	1.00			0.81			0.79	
Satd. Flow (perm)		1802	1583	289	1757			1491			1204	
Peak-hour factor, PHF	0.50	0.85	0.88	0.59	0.95	0.81	0.85	0.62	0.91	0.75	0.25	0.25
Adj. Flow (vph)	4	761	260	103	798	191	119	52	32	16	4	4
RTOR Reduction (vph)	0	0	108	0	7	0	0	5	0	0	3	0
Lane Group Flow (vph)	0	765	152	103	982	0	0	198	0	0	21	0
Heavy Vehicles (%)	0%	5%	2%	10%	6%	1%	0%	0%	3%	8%	0%	100%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		49.8	49.8	61.4	61.4			17.7			17.7	
Effective Green, g (s)		49.8	49.8	61.4	61.4			17.7			17.7	
Actuated g/C Ratio		0.54	0.54	0.67	0.67			0.19			0.19	
Clearance Time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		976	857	269	1173			287			231	
v/s Ratio Prot				0.02	c0.56							
v/s Ratio Perm		0.42	0.10	0.23				c0.13			0.02	
v/c Ratio		0.78	0.18	0.38	0.84			0.69			0.09	
Uniform Delay, d1		16.8	10.7	11.7	11.5			34.5			30.5	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		4.2	0.1	0.9	5.3			7.0			0.2	
Delay (s)		20.9	10.8	12.6	16.8			41.5			30.7	
Level of Service		C	B	B	B			D			C	
Approach Delay (s)		18.4			16.4			41.5			30.7	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.9	Sum of lost time (s)	19.2
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	765	260	103	989	203	24
v/c Ratio	0.78	0.27	0.34	0.86	0.70	0.10
Control Delay	24.1	2.8	8.9	20.8	51.4	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	2.8	8.9	20.8	51.4	34.2
Queue Length 50th (ft)	347	6	19	370	106	9
Queue Length 95th (ft)	516	40	27	707	155	9
Internal Link Dist (ft)	258			417	1285	374
Turn Bay Length (ft)		225	250			
Base Capacity (vph)	1512	1366	303	1601	463	373
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.19	0.34	0.62	0.44	0.06

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	750	10	15	756	66	118
Future Volume (Veh/h)	750	10	15	756	66	118
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.50	0.54	0.91	0.87	0.74
Hourly flow rate (vph)	824	20	28	831	76	159
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			844		1721	834
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			844		1721	834
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		21	57
cM capacity (veh/h)			801		96	368

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	844	28	831	235
Volume Left	0	28	0	76
Volume Right	20	0	0	159
cSH	1700	801	1700	192
Volume to Capacity	0.50	0.03	0.49	1.22
Queue Length 95th (ft)	0	3	0	311
Control Delay (s)	0.0	9.7	0.0	187.8
Lane LOS		A		F
Approach Delay (s)	0.0	0.3		187.8
Approach LOS				F

Intersection Summary			
Average Delay	22.9		
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	396	1	2	336	327	0	0	0	490	0	63
Future Volume (vph)	64	396	1	2	336	327	0	0	0	490	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.4	6.4					6.4	6.4
Lane Util. Factor	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	1.00			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.95	1.00
Satd. Flow (prot)	1805	1862			1862	1615					1787	1583
Flt Permitted	0.39	1.00			1.00	1.00					0.76	1.00
Satd. Flow (perm)	750	1862			1855	1615					1424	1583
Peak-hour factor, PHF	0.84	0.89	0.25	0.50	0.97	0.84	0.92	0.92	0.92	0.97	0.92	0.79
Adj. Flow (vph)	76	445	4	4	346	389	0	0	0	505	0	80
RTOR Reduction (vph)	0	0	0	0	0	218	0	0	0	0	0	55
Lane Group Flow (vph)	76	449	0	0	350	171	0	0	0	0	505	25
Heavy Vehicles (%)	0%	1%	100%	0%	2%	0%	0%	0%	0%	1%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm				Perm	NA	Perm
Protected Phases	7	3			8			2			6	
Permitted Phases	3			8		8	2			6		6
Actuated Green, G (s)	76.4	76.4			55.0	55.0					40.0	40.0
Effective Green, g (s)	76.4	76.4			55.0	55.0					40.0	40.0
Actuated g/C Ratio	0.59	0.59			0.43	0.43					0.31	0.31
Clearance Time (s)	6.0	6.0			6.4	6.4					6.4	6.4
Vehicle Extension (s)	2.0	2.0			1.0	1.0					2.5	2.5
Lane Grp Cap (vph)	567	1104			792	689					442	491
v/s Ratio Prot	0.02	c0.24										
v/s Ratio Perm	0.06				c0.19	0.11					c0.35	0.02
v/c Ratio	0.13	0.41			0.44	0.25					1.14	0.05
Uniform Delay, d1	12.4	14.0			26.1	23.7					44.4	31.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	0.5	1.1			1.8	0.9					87.9	0.0
Delay (s)	12.9	15.2			27.8	24.5					132.3	31.1
Level of Service	B	B			C	C					F	C
Approach Delay (s)		14.8			26.1			0.0			118.5	
Approach LOS		B			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	18.8
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: SR 994/Quail Roost Drive/SW 200 Street & SW 137 Avenue

03/28/2019

Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	76	449	350	389	505	80
v/c Ratio	0.13	0.41	0.44	0.43	1.14	0.15
Control Delay	11.8	15.4	28.3	4.1	128.5	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	15.4	28.3	4.1	128.5	7.4
Queue Length 50th (ft)	26	190	203	4	~492	0
Queue Length 95th (ft)	44	259	290	45	#709	27
Internal Link Dist (ft)		362	576		1075	
Turn Bay Length (ft)	150			150		200
Base Capacity (vph)	567	1105	791	907	442	546
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.44	0.43	1.14	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	551	384	83	582	32	81	23	38	13	29	3
Future Volume (vph)	1	551	384	83	582	32	81	23	38	13	29	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.99			0.96			0.99	
Flt Protected		1.00	1.00	0.95	1.00			0.97			0.98	
Satd. Flow (prot)		1844	1583	1719	1799			1779			1852	
Flt Permitted		1.00	1.00	0.23	1.00			0.79			0.87	
Satd. Flow (perm)		1837	1583	413	1799			1439			1631	
Peak-hour factor, PHF	0.25	0.96	0.89	0.83	0.88	0.80	0.81	0.82	0.79	0.54	0.73	0.75
Adj. Flow (vph)	4	574	431	100	661	40	100	28	48	24	40	4
RTOR Reduction (vph)	0	0	239	0	2	0	0	11	0	0	2	0
Lane Group Flow (vph)	0	578	192	100	699	0	0	165	0	0	66	0
Heavy Vehicles (%)	0%	3%	2%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		31.4	31.4	43.2	43.2			14.5			14.5	
Effective Green, g (s)		31.4	31.4	43.2	43.2			14.5			14.5	
Actuated g/C Ratio		0.45	0.45	0.61	0.61			0.21			0.21	
Clearance Time (s)		6.4	6.4	6.4	6.4			6.4			6.4	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		818	705	353	1102			295			335	
v/s Ratio Prot				0.02	c0.39							
v/s Ratio Perm		c0.31	0.12	0.15				c0.11			0.04	
v/c Ratio		0.71	0.27	0.28	0.63			0.56			0.20	
Uniform Delay, d1		15.8	12.3	8.4	8.6			25.1			23.2	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.8	0.2	0.4	1.2			2.3			0.3	
Delay (s)		18.6	12.5	8.8	9.9			27.4			23.5	
Level of Service		B	B	A	A			C			C	
Approach Delay (s)		16.0			9.7			27.4			23.5	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	19.2
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	578	431	100	701	176	68
v/c Ratio	0.70	0.46	0.26	0.66	0.57	0.20
Control Delay	22.2	3.2	7.8	12.7	34.6	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	3.2	7.8	12.7	34.6	28.0
Queue Length 50th (ft)	200	0	15	163	64	24
Queue Length 95th (ft)	373	45	38	330	139	56
Internal Link Dist (ft)	258			417	1285	374
Turn Bay Length (ft)		225	250			
Base Capacity (vph)	1665	1474	400	1740	787	885
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.29	0.25	0.40	0.22	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	607	27	163	643	36	62
Future Volume (Veh/h)	607	27	163	643	36	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.68	0.85	0.82	0.82	0.86
Hourly flow rate (vph)	639	40	192	784	44	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			679		1827	659
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			679		1827	659
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		35	85
cM capacity (veh/h)			918		68	467

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	679	192	784	116
Volume Left	0	192	0	44
Volume Right	40	0	0	72
cSH	1700	918	1700	144
Volume to Capacity	0.40	0.21	0.46	0.81
Queue Length 95th (ft)	0	20	0	127
Control Delay (s)	0.0	10.0	0.0	90.9
Lane LOS		A		F
Approach Delay (s)	0.0	2.0		90.9
Approach LOS				F

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

APPENDIX J – COST ESTIMATE FOR SW 132ND AVENUE

Cost Estimate

Bridge Widening Alternative

Location: SR 994/Quail Roost Drive at 132nd Avenue
Roadway Section: 87091000

Date: 6/3/2019
Produced By: KC **QA/QC By:** AM

Pay Item	Description	Unit Measured	Avg. Unit Cost	Quantity	Total
0110 1 1	CLEARING & GRUBBING	LS	15,000.00	1.00	$15,000.00
0160 4	TYPE B STABILIZATION	SY	$4.27	1,081.78	$4,619.19
0285709	OPTIONAL BASE,BASE GROUP 09	SY	$14.41	1,081.78	$15,588.42
0327 70 6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	SY	$2.33	2,721.89	$6,342.00
0334 1 13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	TN	$87.55	345.18	$30,220.75
0337 7 83	ASPH CONC FC,TRAFFIC C,(FC-12.5,PG 76-22)(1.5")	TN	$108.80	345.18	$37,555.88
0339 1	MISCELLANEOUS ASPHALT PAVEMENT	TN	$189.00	10.00	$1,890.00
0536 1 1	GUARDRAIL- ROADWAY	LF	$21.24	400.00	$8,496.00
0536 73	GUARDRAIL REMOVAL	LF	$4.59	400.00	$1,836.00
0536 85 24	GUARDRAIL END ANCHORAGE ASSEM- PARALLEL	EA	$3,131.00	4.00	$12,524.00
0654 2 22	RECTANGULAR RAPID FLASHING BEACON, F&I, SOLAR POWERED, COMPLETE SIGN ASSEMBLY- BACK TO BACK	AS	$7,200.00	1.00	$7,200.00
0654 2 40	RECTANGULAR RAPID FLASHING BEACON, RELOCATE COMPLETE SIGN ASSEMBLY	AS	$3,000.00	1.00	$3,000.00
0700 1 11	SINGLE POST SIGN, F&I, LESS THAN 12 SF	AS	$359.07	1	$359.07
0700 20 40	SINGLE POST SIGN, RELOCATE	AS	$363.67	4	$1,454.68
0700 1 60	SINGLE POST SIGN, REMOVE	AS	$34.14	1	$34.14
0711 11103	THERMOPLASTIC, STD, WHITE, SOLID, 12"	GM	$8,879.91	0.02	$177.60
0711 11125	THERMOPLASTIC, STD, WHITE, SOLID, 24"	LF	$4.18	110	$459.80
0711 11160	THERMOPLASTIC, STD, WHITE, MESSAGE	EA	$130.66	4	$522.64
0711 11170	THERMOPLASTIC, STD, WHITE, ARROW	EA	$67.73	3	$203.19
0711 11224	THERMOPLASTIC, STD, YELLOW, SOLID, 18"	LF	$2.87	148	$424.76
0711 15101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	GM	$4,558.62	0.41	$1,869.03
0711 15201	THERMOPLASTIC, STD-OP, YELLOW, SOLID, 6"	GM	$4,468.80	0.61	$2,733.75

	Roadway	$134,072.24
	Signing	$12,225.49
	Markings	$6,390.78
	Bridge Widening	$300,000.00
	Pre-Total	$452,688.51
20%	Maintenance of Traffic (MOT)	$90,537.70
10%	Mobilization	$45,268.85
	Contingency Project	$125,000.00
32%	Preliminary Engineering	$144,860.32
18%	Construction Engineering & Inspection	$81,483.93
	Grand-Total	**$939,839.31**

Cost Estimate

Bridge Replacement Alternative

Location: SR 994/Quail Roost Drive at 132nd Avenue
Roadway Section: 87091000

Date: 6/6/2019
Produced By: KC **QA/QC By:** AM

Pay Item	Description	Unit Measured	Avg. Unit Cost	Quantity	Total
0110 1 1	CLEARING & GRUBBING	LS	15,000.00	1.00	$15,000.00
0160 4	TYPE B STABILIZATION	SY	$4.27	2,624.44	$11,206.38
0285709	OPTIONAL BASE,BASE GROUP 09	SY	$14.41	2,624.44	$37,818.24
0327 70 6	MILLING EXIST ASPH PAVT,1 1/2" AVG DEPTH	SY	$2.33	1,588.33	$3,700.82
0334 1 13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	TN	$87.55	382.31	$33,471.20
0337 7 83	ASPH CONC FC,TRAFFIC C,(FC-12.5,PG 76-22)(ARB)(1.5")	TN	$108.80	382.31	$41,595.28
0339 1	MISCELLANEOUS ASPHALT PAVEMENT	TN	$189.00	10.00	$1,890.00
0536 1 1	GUARDRAIL- ROADWAY	LF	$21.24	800.00	$16,992.00
0536 73	GUARDRAIL REMOVAL	LF	$4.59	800.00	$3,672.00
0536 85 24	GUARDRAIL END ANCHORAGE ASSEM- PARALLEL	EA	$3,131.00	8.00	$25,048.00
654 2 40	RECTANGULAR RAPID FLASHING BEACON, RELOCATE COMPLETE SIGN ASSEMBLY	AS	$3,000.00	2.00	$6,000.00
0700 1 11	SINGLE POST SIGN, F&I, LESS THAN 12 SF	AS	$359.07	6	$2,154.42
0700 20 40	SINGLE POST SIGN, RELOCATE	AS	$363.67	4	$1,454.68
0700 1 60	SINGLE POST SIGN, REMOVE	AS	$34.14	6	$204.84
0711 11103	THERMOPLASTIC, STD, WHITE, SOLID, 12"	GM	$8,879.91	0.02	$177.60
0711 11125	THERMOPLASTIC, STD, WHITE, SOLID, 24"	LF	$4.18	110	$459.80
0711 11160	THERMOPLASTIC, STD, WHITE, MESSAGE	EA	$130.66	4	$522.64
0711 11170	THERMOPLASTIC, STD, WHITE, ARROW	EA	$67.73	3	$203.19
0711 11224	THERMOPLASTIC, STD, YELLOW, SOLID, 18"	LF	$2.87	148	$424.76
0711 15101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	GM	$4,558.62	0.41	$1,869.03
0711 15201	THERMOPLASTIC, STD-OP, YELLOW, SOLID, 6"	GM	$4,468.80	0.61	$2,733.75

	Roadway	$190,393.93
	Signing	$9,991.54
	Markings	$6,390.78
	Bridge Replacement	$1,000,000.00
	Pre-Total	$1,206,776.24
20%	Maintenance of Traffic (MOT)	$241,355.25
10%	Mobilization	$120,677.62
	Contingency Project	$250,000.00
32%	Preliminary Engineering	$386,168.40
18%	Construction Engineering & Inspection	$217,219.72
	Grand-Total	**$2,422,197.23**

APPENDIX K – B/C AND NPV ANALYSIS FOR SW 132ND AVENUE

FORM 511-09

CONCEPTUAL ALTERNATIVE

SAFETY 7/1/1991

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

SAFETY OFFICE ANNUAL BENEFIT COST ANALYSIS

1	SUBMITTED BY	**CH Perez & Associates**			WPA NO.	**N/A**		SAFETY PRIORITY	
2	DATE SUBMITTED	**5/14/2019**			ENVIRONMENTAL STUDY				
3	PROJECT NO.	**FM: 250650-4-32-01 - TWO 48**						SKID (I.D.)	**N/A**
4	ALTERNATIVE NO.	**1 - Widening Bridge**			SN	**NA**		SPEED	**40**
6	DISTRICT	**VI**	COUNTY **DADE**	SECTION	**87091000**	STATE ROAD	**994**	U.S. ROAD	**-**
7	BEGINNING MILE POST	**4.035**	ENDING MILE POST		**4.961**	LENGTH	**0.926** miles	NODE	-

8 DESCRIPTION OF LOCATION/FACILITY TYPE **SR 994 / Quail Roost Drive at SW 132nd Avenue**

9 CAUSE OF CRASH PROBLEMS (LIST AND DISCUSS)

Rear-end Crashes Caused for kack of visibility to stopped vehicles

10 PROPOSED IMPROVEMENTS (LIST AND DISCUSS)

Provide Left-turn lane facing westbound and bridge widening

		2014	2015	2016	AVG.
11	NO. OF CRASHES	**7**	**6**	**8**	**7.0**
12	NO. CRASHES POTENTIALLY REDUCED	**2.0**	**1.7**	**2.2**	**2.0**

14 **CRASH INFORMATION FOR FACILITY**

COST/CRASH	$ 124,618.00
CRASH CLEANUP	$ 100
INTEREST RATE	4%

13

TYPE OF CRASH	NUMBER OF CRASHES (5-year)	CRASHES TO BE REDUCED
Rear End	14	5.50
Head On	1	0.00
Angle	1	0.00
Left Turn	1	0.40
Right Turn	0	0.00
Sideswipe	0	0.00
Backed Into	0	0.00
Coll. w/ Parked Car	0	0.00
Coll. w/ Pedestrian	0	0.00
Coll. w/ Bicycle	0	0.00
Fixed Object	2	0.00
Ran Off Road	0	0.00
Overturned	0	0.00
Other	0	0.00
Total Crashes	21	5.90
Crashes Per Year	4.20	**1.97**
Wet/Slippery	8	0.00
Night Time	5	0.00

15 **ANNUAL COST OF IMPROVEMENTS**

	TYPE	COST	LIFE	CRF	ANNUAL COST
A.	R-O-W	$ -	0	0.0000	$ -
B.	P.E.C.E.I.	$ 351,344	15	0.0899	$ 31,600.29
C.	STRUCTURE	$ 300,000	16	0.0858	$ 25,746.00
D.	ROADWAY	$ 269,879	20	0.0736	$ 19,858.15
E.	SIGNING/PAVEMENT	$ 18,616	15	0.0899	$ 1,674.37
F.	SIGNALS	$ -	15	0.0899	$ -
G.	SUBTOTAL	$ 939,839			$ 78,878.81
H.	CHANGE IN MAINTENANCE				$ -
I.	CRASH CLEANUP				$ (196.67)
J.	**TOTAL**				**$ 78,682.14**

16 **BENEFITS**

A.	CRASH REDUCTION	1.97	crash @	$ 124,618	$ 245,082.07
B.	DELAY SAVINGS		veh-hrs @		$ -
	SUB TOTAL ANNUAL BENEFIT				**$ 245,082.07**
C.	OTHER BENEFIT	0		$ -	$ -
D.	**TOTAL ANNUAL BENEFIT**				**$ 245,082.07**

17

NET BENEFIT/COST	$ 245,082.07	$ 78,682.14	**3.1**
SAFETY BENEFIT/COST	$ 245,082.07	$ 78,682.14	**3.1**

PREPARED BY **RK** APPROVED BY **KC** DATE **05/14/2019**

COMMENTS/CRASH REDUCTION METHOD:

FHWA, FDOT

HIGH CRASH LISTINGS:

PROJECT NET PRESENT VALUE (NPV)

Project Name	**SR 994 / Quail Roost Drive at SW 132nd Avenue**
Current Year	2019
Project Completion	2023
Project Life	15
Project Category	
Discount Rate	0.07
Project Ends	2037

Estimated Reduction in Crashes = 1.96666666666667 crashes/year; Total Annual benefit = $245,082; Cost Per Crash $124,618

Year #	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Calendar Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Estimated Cost	$939,839																			
Estimated Benefits		245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	
Calculation																				
Discount Factor	1.000	0.935	0.873	0.816	0.763	0.713	0.666	0.623	0.582	0.544	0.508	0.475	0.444	0.415	0.388	0.362	0.339	0.317	0.296	0.277
Discounted Cost	-939,839	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discounted Benefits	0	229,049	214,064	200,060	186,972	174,740	163,309	152,625	142,640	133,308	124,587	116,437	108,819	101,700	95,047	88,829	83,018	77,587	72,511	0
NPV	**1,525,463**																			

FORM 511-09

CONCEPTUAL ALTERNATIVE

SAFETY 7/1/1991

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

SAFETY OFFICE ANNUAL BENEFIT COST ANALYSIS

1	SUBMITTED BY	**CH Perez & Associates**			WPA NO.	**N/A**		SAFETY PRIORITY	
2	DATE SUBMITTED	**6/6/2019**			ENVIRONMENTAL STUDY				
3	PROJECT NO.	**FM: 250650-4-32-01 - TWO 48**						SKID (I.D.)	**N/A**
4	ALTERNATIVE NO.	**2 - Replacing Bridge**			SN	**NA**		SPEED	**40**
6	DISTRICT	**VI**	COUNTY **DADE**	SECTION **87091000**	STATE ROAD	**994**		U.S. ROAD	**-**
7	BEGINNING MILE POST	**4.035**	ENDING MILE POST	**4.961**	LENGTH	**0.926**	miles	NODE	-
8	DESCRIPTION OF LOCATION/FACILITY TYPE	**SR 994 / Quail Roost Drive at SW 132nd Avenue**							

9 CAUSE OF CRASH PROBLEMS (LIST AND DISCUSS)

Rear-end Crashes Caused for kack of visibility to stopped vehicles

10 PROPOSED IMPROVEMENTS (LIST AND DISCUSS)

Provide Left-turn lane facing westbound and bridge replacement

		2014	2015	2016	AVG.
11	NO. OF CRASHES	**7**	**6**	**8**	**7.0**
12	NO. CRASHES POTENTIALLY REDUCED	**2.0**	**1.7**	**2.2**	**2.0**

14 **CRASH INFORMATION FOR FACILITY**

COST/CRASH	$	124,618
CRASH CLEANUP	$	100
INTEREST RATE		4%

13

TYPE OF CRASH	NUMBER OF CRASHES (5-year)	CRASHES TO BE REDUCED
Rear End	14	5.50
Head On	1	0.00
Angle	1	0.00
Left Turn	1	0.40
Right Turn	0	0.00
Sideswipe	0	0.00
Backed Into	0	0.00
Coll. w/ Parked Car	0	0.00
Coll. w/ Pedestrian	0	0.00
Coll. w/ Bicycle	0	0.00
Fixed Object	2	0.00
Ran Off Road	0	0.00
Overturned	0	0.00
Other	0	0.00
Total Crashes	21	5.90
Crashes Per Year	4.20	**1.97**
Wet/Slippery	8	0.00
Night Time	5	0.00

15 **ANNUAL COST OF IMPROVEMENTS**

	TYPE	COST	LIFE	CRF	ANNUAL COST
A.	R-O-W	$ -	0	0.0000	$ -
B.	P.E.C.E.I.	$ 853,388	15	0.0899	$ 76,754.67
C.	STRUCTURE	$ 1,000,000	16	0.0858	$ 85,820.00
D.	ROADWAY	$ 552,427	20	0.0736	$ 40,648.53
E.	SIGNING/PAVEMENT	$ 16,382	15	0.0899	$ 1,473.44
F.	SIGNALS	$ -	15	0.0899	$ -
G.	SUBTOTAL	$ 2,422,197			$ 204,696.64
H.	CHANGE IN MAINTENANCE				$ -
I.	CRASH CLEANUP				$ (196.67)
J.	**TOTAL**				**$ 204,499.97**

16 **BENEFITS**

A.	CRASH REDUCTION	1.97	crash @	$ 124,618	$ 245,082.07
B.	DELAY SAVINGS		veh-hrs @		$ -
	SUB TOTAL ANNUAL BENEFIT				**$ 245,082.07**
C.	OTHER BENEFIT	0		$ -	$ -
D.	**TOTAL ANNUAL BENEFIT**				**$ 245,082.07**

17

NET BENEFIT/COST	$ 245,082.07	$ 204,499.97	**1.2**
SAFETY BENEFIT/COST	$ 245,082.07	$ 204,499.97	**1.2**

PREPARED BY **RK** APPROVED BY **KC** DATE **06/06/2019**

COMMENTS/CRASH REDUCTION METHOD:

FHWA, FDOT

HIGH CRASH LISTINGS:

PROJECT NET PRESENT VALUE (NPV)

Project Name	**SR 994 / Quail Roost Drive at SW 132nd Avenue**
Current Year	2019
Project Completion	2023
Project Life	15
Project Category	
Discount Rate	0.07
Project Ends	2037

Estimated Reduction in Crashes = 1.96666666666667 crashes/year; Total Annual benefit = $245,082; Cost Per Crash $124,618

Year #	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Calendar Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Estimated Cost	$2,422,197																			
Estimated Benefits		245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	245,082	
Calculation																				
Discount Factor	1.000	0.935	0.873	0.816	0.763	0.713	0.666	0.623	0.582	0.544	0.508	0.475	0.444	0.415	0.388	0.362	0.339	0.317	0.296	0.277
Discounted Cost	-2,422,197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discounted Benefits	0	229,049	214,064	200,060	186,972	174,740	163,309	152,625	142,640	133,308	124,587	116,437	108,819	101,700	95,047	88,829	83,018	77,587	72,511	0
NPV	**43,105**																			

APPENDIX L – COORDINATION WITH SFWMD

Keffler Castro

From: Keffler Castro
Sent: Tuesday, April 9, 2019 11:25 AM
To: 'Leon, Misleidys'
Cc: Revocatus Kanilwa; 'Borrego, Liana'
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study
Attachments: Proposed Improvements (COMPRESSED).pdf

Hi Misleidys,

Please find attached the proposed condition diagram for SR 994/Quail Roost Drive.

Please let us know if you have any question,

Thanks,

Keffler Castro, MSCE, P.E., CGC *(kc@p-a.cc)*

C. H. Perez & Associates Consulting Engineers, Inc.
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From: Keffler Castro
Sent: Friday, March 29, 2019 2:37 PM
To: 'Borrego, Liana' <Liana.Borrego@dot.state.fl.us>
Cc: 'Leon, Misleidys' <Misleidys.Leon@dot.state.fl.us>; Alejandro G. Meitin <agm@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>
Subject: FW: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

Hi Liana,

Please see below communication with South Florida Water Management (SFWM).

Alex Meitin was able to find the plans of the bridge (see attachment). Based on those plans, the elevation of the lowest member of the bridge is 8.5 ft- NGVD, which is minimum required (see below).

We'll still keep in the report the costs and B/C ratio analysis for the two (2) scenarios but it seems like the additional lane can be provided without having to replace the bridge.

Thanks,

Keffler Castro, MSCE, P.E., CGC *(kc@p-a.cc)*

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From: Crichton, Christopher [mailto:ccrichto@sfwmd.gov]
Sent: Friday, March 29, 2019 2:22 PM
To: Alejandro G. Meitin <agm@p-a.cc>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>; Blanchette, Tyler <tblanche@sfwmd.gov>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

That is correct.

Christopher Crichton
ROW Specialist Supervisor
Operations and Maintenance Resources
(561) 682- 2068 or
(561) 686-8800 Ext. 7134; Email: ccrichto@sfwmd.gov
3301 Gun Club Road, MSC 5330, West Palm Beach, FL.33406
www.sfwmd.gov/rowpermits

From: Alejandro G. Meitin <agm@p-a.cc>
Sent: Friday, March 29, 2019 1:59 PM

To: Crichton, Christopher <ccrichto@sfwmd.gov>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>; Blanchette, Tyler <tblanche@sfwmd.gov>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

Thanks for your help.

I assume that we can widen the existing bridge as long as low member is at elevation 8.5 or higher. Is that a correct statement?

Alejandro Meitin, P.E. *(agm@p-a.cc)*
Vice President
Roadway Department Manager

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From: Crichton, Christopher <ccrichto@sfwmd.gov>
Sent: Friday, March 29, 2019 1:56 PM
To: Alejandro G. Meitin <agm@p-a.cc>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>; Blanchette, Tyler <tblanche@sfwmd.gov>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

Alejandro:

Please see canal design information below. The bridge should have been built according to the below specifications with a Low member elevation of 8.5'NGVD. However, no as-builts drawing were found in permit file. So, a survey of the existing will be needed when any new design for the bridge is submitted.

The following is the summary of the Design information from "C&SF Project Design Memorandums"(PartVSupp31) and canal as-built.

Canal Bottom Width: 40 ft

Canal Bottom Elevation: (-)12.0 feet-NGVD
Sideslopes: 1V:1H
Design Water Level: 4.3 ft-NGVD
Optimum Water Level: 5.0 ft-NGVD

Hope the above information satisfies your request. Please let me know if you have any questions. Sorry for the long wait.

Have a great weekend.

Christopher Crichton
ROW Specialist Supervisor
Operations and Maintenance Resources
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3301 Gun Club Road, MSC 5330, West Palm Beach, FL.33406
www.sfwmd.gov/rowpermits

From: Alejandro G. Meitin <agm@p-a.cc>
Sent: Tuesday, March 26, 2019 2:44 PM
To: Crichton, Christopher <ccrichto@sfwmd.gov>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

Thank you for the update. We look forward to hearing back and getting your input.

Have a great day.

Alejandro Meitin, P.E. *(agm@p-a.cc)*
Vice President
Roadway Department Manager

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---

From: Crichton, Christopher <ccrichto@sfwmd.gov>
Sent: Tuesday, March 26, 2019 2:40 PM
To: Alejandro G. Meitin <agm@p-a.cc>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

Alejandro:

You have not been forgotten. I forwarded your request to one of our water managers to confirm my findings. However, he was on vacation and should be back today. So, hopefully by the end of the week we should hear from him. But, I sure he will has a lot of catching up to do because that's what happens when someone takes off.

Best regards,

Christopher Crichton
ROW Specialist Supervisor
Operations and Maintenance Resources
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www.sfwmd.gov/rowpermits

From: Alejandro G. Meitin <agm@p-a.cc>
Sent: Tuesday, March 19, 2019 10:20 AM
To: Crichton, Christopher <ccrichto@sfwmd.gov>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

I appreciate your efforts

Have a great day.

Alejandro Meitin, P.E. *(agm@p-a.cc)*
Vice President
Roadway Department Manager

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From: Crichton, Christopher <ccrichto@sfwmd.gov>
Sent: Tuesday, March 19, 2019 10:14 AM
To: Alejandro G. Meitin <agm@p-a.cc>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>
Subject: RE: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

I am working on the information for you. Thanks

Christopher Crichton
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Operations and Maintenance Resources
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(561) 686-8800 Ext. 7134; Email: ccrichto@sfwmd.gov
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www.sfwmd.gov/rowpermits

From: Alejandro G. Meitin <agm@p-a.cc>
Sent: Wednesday, March 13, 2019 3:31 PM
To: Crichton, Christopher <ccrichto@sfwmd.gov>
Cc: Keffler Castro <kc@p-a.cc>; Jose A. Cabrera <jac@p-a.cc>; Revocatus Kanilwa <rk@p-a.cc>
Subject: SR 994 / Quail Roost Drive / SW 200 Street / from SW 137 Ave to SW 127 Ave Safety Study

Mr. Crichton:

Thank you for your time this afternoon. As Jose Cabrera and I explained in our meeting at your office in Doral this afternoon, FDOT is conducting a safety study along SR 994 / Quail Roost Drive / SW 200 Street. A recommendation to increase safety along the corridor is to add a westbound left turn lane at SW 132 Avenue. In order to provide this

additional lane FDOT would be required to widen bridge number 870633 (SR 994 over C-1W / Black Creek Canal). We would like to know if South Florida Water management would allow the FDOT to simply widen the bridge or would they be required to reconstruct it at a higher elevation to allow more clearance underneath. I appreciate your looking into this matter and advising since the cost to reconstruct would be much higher.

I have included a rough sketch showing the widening area of the bridge and the roadway alignment on the bridge.

Thanks again for your efforts in this matter.

Alejandro Meitin, P.E. *(agm@p-a.cc)*
Vice President
Roadway Department Manager

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APPENDIX M – ERC COMMENTS AND RESPONSES

Submittal Report

Financial Project:	250650-4-32-01	Submittal Type:	OTHER
Submittal Phase:	OTHER	Submittal Staff Type:	CONSULTANT
Received Date:	4/30/2019	Response Due Date:	5/7/2019
Grace Period:	0	District:	SIXTH
Status:	OPEN	Create Date:	4/30/2019
Create User Id:	RD652NP	Last Update:	4/30/2019
		Last Update User Id:	RD652NP

Description:

250650-4: This is a RRR safety review. No meeting required.
Group: PRELIMINARY ENGINEERING Phase Review Type: Traffic Operational Study
Phase Initiation Date: 4/30/2019
Comments Due Date: 5/6/2019 Days Allowed for Review: 7
Review Meeting: 5/6/2019 9:45 PM to 9:45 PM @ No Review Meeting Required
Field Meeting: 4/6/2019 9:45 PM to 9:45 PM @ No Review Meeting Required
Plans Format: Electronic
Comments: This is a RRR safety review. No meeting required.
Please have Keffler Castro as PM for comments responses (kc@p-a.cc).

Threads:

Name	Assignment	Due Date	Status	Comments
Adebayo Coker	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Alejandro Casals	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Amanda Montgomery	REVIEWER	5/6/2019	ACTIVE	6

No	Status	Current Holder	Reference	Categories
14	RESPONSE ACCEPTED			ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Amanda Montgomery	5/6/2019	1	

The South Florida Water Management District (SFWMD) has Right-of-Way (R/W) along the Black Creek (C-1W) Canal. Any work proposed within (i.e., bridge widening/replacement, floating turbidity barriers) or encroaching within, SFWMD R/W may require a SFWMD R/W Occupancy Permit. Design plans should include the labelled waterbody and SFWMD R/W lines, and a cross-section of the canal and proposed bridge work for agency coordination.

Keffler Castro	5/7/2019	1	

Agree. Contact was made with SFWMD during the preparation of the 3R Safety Review. However, the above efforts should be performed during the design phase.

Thanks,

Amanda Montgomery	5/8/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
15	RESPONSE ACCEPTED			ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Amanda Montgomery	5/6/2019	1	

Please note, a U.S. Army Corps of Engineers (USACE) Section 408 review may be required for activities falling within a federal project (Black Creek/C-1W Canal).

Keffler Castro	5/7/2019	1	

Thanks, We'll consider adding a note.

Amanda Montgomery	5/8/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
16	RESPONSE ACCEPTED			ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Amanda Montgomery	5/6/2019	1	

Please note, a USACE Section 404 Dredge and Fill Permit may be required for any proposed in-water work (i.e., bridge widening/replacement).

Keffler Castro	5/7/2019	1	

Agree, This should be performed (if necessary) during the design phase.

Amanda Montgomery	5/8/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
17	RESPONSE ACCEPTED			ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Amanda Montgomery	5/6/2019	1	

Please note, a SFWMD Environmental Resource Permit (ERP) may be required for any proposed in-water work (i.e., bridge widening/replacement).

Keffler Castro	5/7/2019	1	

Agree, This should be performed (if necessary) during the design phase.

Amanda Montgomery	5/8/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
18	RESPONSE ACCEPTED			ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Amanda Montgomery	5/6/2019	1	

Please be aware that this project falls within the consultation and focal area for the Florida bonneted bat. Any tree and/or bridge impacts warrant a field review for habitat for the bat.

Keffler Castro	5/7/2019	1	

Agree, This should be performed (if necessary) during the design phase.

Thanks,

Amanda Montgomery	5/8/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
19	RESPONSE ACCEPTED			ENVIRONMENTAL PERMITS

Created By	Created On	Version	Delegate For
Amanda Montgomery	5/6/2019	1	

Please contact me at Amanda.Montgomery@dot.state.fl.us with any questions pertaining to the provided comments or environmental permitting. Thank you.

Keffler Castro	5/7/2019	1	

Thanks Amanda!!

Amanda Montgomery	5/8/2019	1

Response Accepted & Comment Closed

Name	Assignment	Due Date	Status	Comments
Arturo Gomez	REVIEWER	5/6/2019	ACTIVE	3

No	Status	Current Holder	Reference	Categories
11	RESPONSE SUBMITTED	Arturo Gomez	Page 31 and 34	MAINTENANCE

Created By	Created On	Version	Delegate For
Arturo Gomez	5/6/2019	1	

Feasibility study for bridge widening or replacement should not be based only on SFWMD criteria.
Check with FDOT-D6 Structures Section and Bridge Maintenance. For example: The latest inspection report shows longitudinal cracks in the asphalt wearing surface. This means that the existing precast slabs are working independently, the load rating will be lower and a retrofit for the joints will be required if the bridge is widened. This repair will represent additional costs. The existing railings will also need to be replaced

Keffler Castro	5/7/2019	1

Please note that we don't have all information and therefore a b/c analysis was conducted assuming that the bridge needs to be replaced. In addition a contingency amount is assumed for both scenarios. Please note also that Safety funds can be used only for Safety Improvements of for works to implement those safety improvements. Bridge Structural Evaluation are not part of our scope and repairs should be performed with other funds different than safety funds.

No	Status	Current Holder	Reference	Categories
12	RESPONSE SUBMITTED	Arturo Gomez	Appendix F and J	MAINTENANCE

Created By	Created On	Version	Delegate For
Arturo Gomez	5/6/2019	1	

Costs for bridge widening and bridge replacement look high. Verify.

Keffler Castro	5/7/2019	1

Agree. We have assumed high costs after experiences with similar projects.
Thanks,

No	Status	Current Holder	Reference	Categories
13	RESPONSE SUBMITTED	Arturo Gomez		MAINTENANCE

Created By	Created On	Version	Delegate For
Arturo Gomez	5/6/2019	1	

The recommendations included the Installation of a traffic signals. Explain/clarify if new mast arms will be required.
Were the new signals/mast arms included in the cost estimates? Verify.

Keffler Castro	5/7/2019	1

A traffic signal was recommended only at SW 134th Avenue. However, the design is being conducted under another project. That design should include mast-arms.

Thanks,

Name	Assignment	Due Date	Status	Comments
Barbara Russell	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Calvin Mason	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Carlos Benitez	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Carlos Perez	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Carlos Verson	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Corina del Sol Alonso	REVIEWER	5/6/2019	ACTIVE	0*
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Diana Peralta	REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
EDGAR MONTANEZ	REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
EUGENE SHERMAN	LEAD REVIEWER	5/6/2019	ACTIVE	6

No	Status	Current Holder	Reference	Categories
5	RESPONSE ACCEPTED		Pg. 24, 25, & 34	ROADWAY

Created By	Created On	Version	Delegate For
EUGENE SHERMAN	5/3/2019	1	

SR 994/Quail Roost Drive at SW 134th Avenue: there is a statement in the report that “a traffic signal will be installed at this intersection under the RRR project FM No. 429341□3”. Please, note that SW 134 St is outside of the limits of scope of FM 429341□3 which are from SW 127 St to SW 113 St. Refer to the submittals information on ERC site.

Keffler Castro 5/7/2019 1

Agree, We're aware that SW 134th Avenue falls outside of the limits of the FM 429341 project (We completed that 3R Safety Review). However, based on information provided by the Department, this was added recently after citizen complaints and subsequent additional studies (QAs, Signa Warrant).

Thanks,

EUGENE SHERMAN 5/7/2019 1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
6	RESPONSE ACCEPTED		Pg. 34	ROADWAY

Created By	Created On	Version	Delegate For
EUGENE SHERMAN	5/3/2019	1	

SR 994/Quail Roost Drive at SW 134th Avenue: as shown in Figure 7.1D, the R/W seems to be impacted by the construction of roadway and bridge widening. Please address.

Keffler Castro 5/7/2019 1

We'll review and revise the figure accordingly.

EUGENE SHERMAN 5/7/2019 1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
7	RESPONSE ACCEPTED		Pg. 25	ROADWAY

Created By	Created On	Version	Delegate For
EUGENE SHERMAN	5/3/2019	1	

Cluster 3 - SR 994/Quail Roost Drive at SW 132nd Avenue: Recommended Improvements call for installation of a traffic signal however IMPROVEMENT RECOMMENDATIONS on Pg. 34 do not include it (neither this reflected in Fig. 71D). Please reconcile.

Keffler Castro 5/7/2019 1

The section Recommended Improvements includes potential improvements to be considered and evaluated. The "Improvement Recommendations" section includes only those improvements that will be feasible after the investigation. The Traffic Signal at SW 132nd Avenue was considered as a potential alternative but given the results of the signal warrant analysis and the possibility of targeting rear-end crashes with the additional WB LT lane, the installation of the signal was discarded; and therefore, not included in the "Improvement Recommendations Section".

EUGENE SHERMAN 5/7/2019 1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
8	RESPONSE ACCEPTED		Figure 7.1D	ROADWAY

Created By	Created On	Version	Delegate For
EUGENE SHERMAN	5/3/2019	1	

a) Consider showing the relocation of the guardrail to both directions from the bridge.
b) is rapid flashed beacon sign assembly also recommended to be replaced on the south side of SR 994? Please clarify.

Keffler Castro 5/7/2019 1

a) We'll do. However, that is is a concept and the exact location will be defined during the design phase.

b) Yes, we're assuming that the rapid rectangular flashing beacon located along the south side will have to be replaced.

EUGENE SHERMAN 5/7/2019 1

b) Why? There is no widening on the south side.

No	Status	Current Holder	Reference	Categories
9	RESPONSE ACCEPTED		Pg. 179 & 180	ROADWAY

Created By	Created On	Version	Delegate For
EUGENE SHERMAN	5/3/2019	1	

a) explain the use of Pay Item 110-4-10: the recommendation that calls for concrete pavement (such as curb & gutter, sidewalk, traffic separators) removal/replacement could not be found in this study. Also, by some reason, this pay item quantity is identical to the quantities of OBG and Stabilization, in both Cost Estimates;
b) is the cost of partial or all of the existing bridge removal included in the cost of bridge widening/replacement? Typically, the pay item 110-3 “Removal of Existing Structure” is used fin the estimates of the bridge removal;
c) Per BOE, pay Item 337-7-83 is no longer “ARB”, effective 1-1-17;
d) Per BOE, pay Item 536-85-22 is valid through June 2019 lettings;
e) Pay item for the installation (not relocating) of rapid flashed beacon sign assembly is not included. Refer to Fig. 7.1A (sign W3-4).

Keffler Castro 5/7/2019 1

a) Pay item has been removed.

b) The lump sum estimate for the bridge widening/replacement includes removal of existing elements as necessary.

c) Agree. Will update pay item description.

d) Agree. We will update the cost estimate.

Thanks,
e) Agree. We will update the cost estimate.

EUGENE SHERMAN 5/8/2019 1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
10	RESPONSE ACCEPTED		Pg. 179 & 180	ROADWAY

Created By	Created On	Version	Delegate For
EUGENE SHERMAN	5/3/2019	1	

It is understanding that the difference between the Cost Estimates shown on Pg. 179 and Pg. 180 is that one assumes the bridge widening and the other one bridge replacement? If so, why the roadway quantities vary significantly?

Keffler Castro 5/7/2019 1

The bridge widening and replacement was an estimated lump sum for the structural elements. The bridge would still require paving. We will review the quantities and revise as necessary.

EUGENE SHERMAN 5/8/2019 1

Response Accepted & Comment Closed

Name	Assignment	Due Date	Status	Comments
Felipe Gonzalez	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
FRANCO SARACENO	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
GORKY CHARPENTIER	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**

Hong Benitez	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Isis Sotolongo	IN-HOUSE PROJECT MANAGER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Jasmine Andrion	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Jeannie Cann	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
JESSICA JOSSELYN	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Jinyan Lu	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Joaquin De la Cruz	LEAD REVIEWER	5/6/2019	ACTIVE	3

No	Status	Current Holder	Reference	Categories
1	RESPONSE ACCEPTED		wet weather crashes	PAVEMENT DESIGN

Created By	Created On	Version	Delegate For
Joaquin De la Cruz	5/1/2019	1	

Please include a discussion for the substandard cross slopes within the project limits (see attached MPVS from District Materials Office).

Keffler Castro	5/7/2019	1	

We'll review the documentation your have provided and revise the report accordingly.
Thanks,

Joaquin De la Cruz	5/7/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
2	RESPONSE ACCEPTED		Existing typical section	PAVEMENT DESIGN

Created By	Created On	Version	Delegate For
Joaquin De la Cruz	5/1/2019	1	

Please include a discussion for the existing typical section (rural high speed) with existing design speed 55 mph.

Keffler Castro	5/7/2019	1	

We have discussed the existing typical section under the existing conditions.
"Within the study limits, SR 994/Quail Roost Drive is classified as a rural minor arterial from MP 4.035 to MP 4.073 (SW 137th Avenue) and as an urban minor arterial from MP 4.073 to MP 4.961. SR 994/Quall Roost Drive runs in the east□west direction and its typical section consists of one travel lane in each direction. There are no sidewalks and curb/gutters along SR 994/Quail Roost Drive within the study limits."
However, we'll mention the lane widths.
Please note that the information you have provided does not fall within the limits of the RRR. The project limits are from just West of SW 137 Avenue to West of SW 127 Avenue. The attached document you provided is for SW 147 Avenue.

Thanks,

Joaquin De la Cruz	5/7/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
3	RESPONSE ACCEPTED		Friction course	PAVEMENT DESIGN

Created By	Created On	Version	Delegate For
Joaquin De la Cruz	5/1/2019	1	

Please include discussion for the existing friction course (dense graded FC) and the need for open graded FC 5 to prevent potential hydroplaning.

Keffler Castro 5/7/2019 1

The Crash Analysis (Section 4. Page 6) includes the following text:

"The percentage of crashes that occurred during wet/slippery pavement conditions was 21.2%, which is above the district□wide average of 15%. According to the FDOT Skid Hazard reporting system, the friction number (FN) along SR 994 eastbound and westbound directions within the limits of the study segment is between 35 and 37, and the disposition code is 91, which based on the FDOT Skid Hazard Report means 'No action required, FN adequate'. However, the RRR Project will resurface the entire pavement within the project limits."

Additional information about the pavement conditions may be provided by the consultant preparing the scoping report.

Thanks,

Joaquin De la Cruz 5/7/2019 1

Response Accepted & Comment Closed

Name	Assignment	Due Date	Status	Comments
Judith Dotres-Garcia	REVIEWER	5/6/2019	ACTIVE	0
Judy Solaun-Gonzalez	LEAD REVIEWER	5/6/2019	ACTIVE	0
Julie Cossavella	REVIEWER	5/6/2019	ACTIVE	1

No	Status	Current Holder	Reference	Categories
4	RESPONSE ACCEPTED			CONTAMINATION

Created By	Created On	Version	Delegate For
Julie Cossavella	5/6/2019	1	

There are no known contaminated sites within a 500-foot radius of the project corridor. Therefore, no contamination impacts are anticipated.

Keffler Castro 5/7/2019 1

No response is necessary!

Julie Cossavella 5/8/2019 1

Response Accepted & Comment Closed

Name	Assignment	Due Date	Status	Comments
Keffler Castro	CONSULTANT PROJECT MANAGER	5/7/2019	ACTIVE	0
Ken Jeffries	LEAD REVIEWER	5/6/2019	ACTIVE	0
Kirenia Borbolla	LEAD REVIEWER	5/6/2019	ACTIVE	0
Krish Dial	REVIEWER	5/6/2019	ACTIVE	0
Leonard Salazar	REVIEWER	5/6/2019	ACTIVE	0
Luis Lopez	REVIEWER	5/6/2019	ACTIVE	0
Mario Dominguez	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Mauricio Gomez	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Mikhail Dubrovsky	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Pablo Orozco	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Patrick Marchant	LEAD REVIEWER	5/6/2019	ACTIVE	0

Name	Assignment	Due Date	Status	Comments
Phani Allu	REVIEWER	5/6/2019	ACTIVE	9

No	Status	Current Holder	Reference	Categories
20	RESPONSE ACCEPTED			TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Please consider including the scope of work for FM No. 443915-1 in an Appendix.

Created By	Created On	Version	Delegate For
Keffler Castro	5/7/2019	1	

Agree. We'll consider your recommendation

Created By	Created On	Version	Delegate For
Phani Allu	5/7/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
21	RESPONSE ACCEPTED		Page 3	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Page 3, Section 2: It was mentioned that there are 10 un-signalized intersections within the study limits. However, lane configuration was included in the report for only three intersections. Please clarify.

Created By	Created On	Version	Delegate For
Keffler Castro	5/7/2019	1	

The report stated:
"The existing lane configuration and general roadway characteristics at the signalized intersection and SOME of the un□signalized intersections are as follows:"

The were selected based on a preliminary investigation of the crash clusters and existing roadway network.

Created By	Created On	Version	Delegate For
Phani Allu	5/7/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
22	RESPONSE ACCEPTED		Page 6	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Page 6, Section 4: For the nighttime and wet/slippery crashes, please consider showing the number of crashes along with the percentage.

Created By	Created On	Version	Delegate For
Keffler Castro	5/7/2019	1	

Agree. The number of nighttime and wet/slippery crashes will be added.

Created By	Created On	Version	Delegate For
Phani Allu	5/7/2019	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
23	RESPONSE ACCEPTED		Page 18	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Page 18, Section 4 (Cluster 4): It was mentioned that the wet/slippery crashes at the intersection of SW 130 Avenue (15.4%) is below the districtwide average (15%). Please revise to indicate that it is either similar or slightly higher.

Keffler Castro	5/7/2019	1

Agree. The text will be revised.

Phani Allu	5/7/2019	1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
24	RESPONSE ACCEPTED		Page 5	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Page 5, Section 3: It was mentioned that there were no relevant studies within the study corridor. However, in later section on Page 25, it was mentioned that, there was a previous study that recommended a signal at SW 134 Avenue to be implemented under FM No. 429341-3. Please verify and revise accordingly..

Keffler Castro	5/7/2019	1

Agree. Section 3 will be revised.
Thanks,

Phani Allu	5/7/2019	1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
25	RESPONSE ACCEPTED		Appendix G	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

The B/C calculation in Appendix G does not seem to use the latest cost per crash (shows $117,867). Please verify and revise the B/C analysis accordingly.

Keffler Castro	5/7/2019	1

You' 're absolutely right. We'll revise the b/c analysis.

Thanks,

Phani Allu	5/7/2019	1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
26	RESPONSE ACCEPTED		Page 31	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Page 31 (under Section 6.7): It is indicated that a b/c analysis should be conducted to verify the economic feasibility of adding a WBLT lane. Would this analysis be a separate study or completed as part of the subject study?

Keffler Castro	5/7/2019	1

The B/C analysis was completed under Section 6.9.

Thanks,

Phani Allu	5/7/2019	1

Please indicate that B/C analysis was conducted as part of the subject study and reference it to the appropriate section.

No	Status	Current Holder	Reference	Categories
27	RESPONSE ACCEPTED		Page 31	TRAFFIC OPERATIONS

Created By	Created On	Version	Delegate For
Phani Allu	5/6/2019	1	

Page 31, Section 6.8: It is mentioned that HCM 2010 methodology was used to obtain the MOEs for operational analysis. However, Appendix I appears to include HCM 2000 output. Please verify and revise appropriately. Please also clarify why HCM 6th Edition analysis was not considered for the subject.

Keffler Castro 5/7/2019 1

HCM 2010 edition methodology and HCM 6th edition methodology do not support the existing lane configurations for all of the intersections within the study area (SW 137 Avenue). HCM 2000 was used to provide a consistent methodology.

We will review and update the report as necessary.

Phani Allu 5/7/2019 1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
28	RESPONSE ACCEPTED		Page 33	TRAFFIC OPERATIONS
	Created By	**Created On**	**Version**	**Delegate For**
	Phani Allu	5/6/2019	1	

Page 33, Table 6.11 (Appendix K): The number of crashes reduced shown in Appendix K is not consistent with the number of crashes reduced shown in Table 6.11. Please verify and revise accordingly.

Keffler Castro 5/7/2019 1

We'll review and revise accordingly.

Phani Allu 5/7/2019 1

Response Accepted & Comment Closed

Name	Assignment	Due Date	Status	Comments
Sedat Oner	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Sergio Bravo	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Simon Gutierrez	REVIEWER	5/6/2019	ACTIVE	0*
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Simon Prilutsky	REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Steven James	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Tim Albury	LEAD REVIEWER	5/6/2019	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Xiomara Nunez	LEAD REVIEWER	5/6/2019	ACTIVE	0

SR 994/SW 200 Street/ Quail Roost Drive at SW 134 Avenue

TWO 51 – Intersection Qualitative Assessment
TWO 54 – Signal Warrant Analysis
TWO 58 – Conceptual Design Alternatives
Financial Project Number 249726-4-32-01 Contract Number C-9G07

June 2017

Prepared for:

Florida Department of Transportation District 6

Traffic Operations Office

1000 NW 111 Avenue

Miami, FL 33172

FINAL

ENGINEERS CERTIFICATION

I, Ian M. Rairden P.E. # 69224, certify that I currently hold an active Professional Engineers License in the State of Florida and am competent through education or experience to provide engineering services in the civil and traffic engineering disciplines contained in this plan, print, specification, or report. I further certify that this Intersection Qualitative Assessment was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusions, and recommendations made herein are true and correct to the best of my knowledge and ability.

Study Location: **SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue**
Section No.: **87091000 (MP 4.328)**
Project Location: **Miami-Dade County, Florida**

IAN M. RAIRDEN
LICENSE
06-23-17
No. 69224
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Ian M. Rairden, P.E.
Florida Registration No. 69224
Kimley-Horn and Associates, Inc.
600 North Pine Island Road, Suite 450
Plantation, Florida 33324
Certificate of Authorization No. 696

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) has retained Kimley-Horn to prepare an Intersection Qualitative Assessment for the State Road (SR) 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue intersection (Section Number 87091000, Mile Post (MP) 4.328). A citizen contacted FDOT requesting a traffic signal at this intersection. The citizen has reported delay during peak hours, especially during the morning peak period when SW 134 Avenue becomes gridlocked due to the high volume of northbound vehicles. Additionally, the citizen has reported that speeding eastbound vehicles make it difficult to turn onto SR 994. This study analyzed operations and safety deficiencies of the intersection, and provided recommendations to improve operations and safety of the intersection. Traffic count data was collected and peak period field reviews were conducted, which included a field inventory and qualitative assessment.

The SR 994 at SW 134 Avenue intersection is a four (4)-legged intersection. SR 994, the major travel way, runs east-west, and SW 134 Avenue, the minor travel way, runs north-south. The intersection is under two-way stop control with SR 994 uncontrolled and SW 134 Avenue under stop control.

AM and PM peak hour field visits were conducted to perform observations. During the AM peak hour northbound traffic was observed to have a queue between 12 and 35 vehicles during a 40-minute period. Additionally, one (1) vehicle was observed to experience an eight (8)-minute delay. Eastbound traffic also queued through the SW 134 Avenue intersection on multiple occasions. During the PM peak hour, queues of between 6 and 16 vehicles were observed with maximum observed queues timed between 5 and 6 minutes.

A signal warrant analysis was also performed to determine if the two-way stop controlled intersection satisfied criteria to become a signalized intersection. The analysis revealed that three (3) of the four (4) applicable warrants were met.

Based on the field observations and qualitative assessment, the following recommendations have been provided to improve the operation and safety of the SR 994 at SW 134 Avenue intersection.

<u>Recommendations</u>

- Install a traffic signal
- Conduct lighting analysis to determine if lighting improvements are required
- Trim landscaping in northeast corner

Concept Design Alternatives (CDAs) with Opinions of Probable Cost (OPCs) were developed for two (2) signalized alternatives. Alternative 1 included just the traffic signal without any turn lane improvements. Alternative 2 provided a new westbound left-turn lane in addition to the traffic signal. The OPCs for Alternative 1 and Alternative 2 are $566,599.11 and $623,222.66, respectively.

TABLE OF CONTENTS

INTRODUCTION 1
STUDY METHODOLOGY 3
EXISTING CONDITIONS 4
DATA COLLECTION 6
QUALITATIVE ASSESSMENT 10
- General Observations 10
- AM Peak Period Observations 12
- PM Peak Period Observations 13
- Access Management 14

CRASH DATA ANALYSIS 15
- Crashes by Year 15
- Crashes by Type 16
- Crashes by Lighting Condition 17
- Crashes by Surface Condition 17
- Safety Ratios and Confidence Levels 18
- Expected Value Analysis 18

PROGRAMMED ROADWAY IMPROVEMENTS 18
SIGNAL WARRANT ANALYSIS 19
CONCEPTUAL DESIGN ALTERNATIVES AND OPINIONS OF PROBABLE COST 21
RECOMMENDATIONS 22

LIST OF FIGURES

Figure 1: Project Location 2
Figure 2: Condition Diagram 5
Figure 3: 72-hour ATR Volumes 7
Figure 4: Existing 2016 Peak Hour Volumes 8
Figure 5: Crashes by Year 15
Figure 6: Crashes by Type 16

LIST OF TABLES

Table 1: 72-hour ATR Volumes 6
Table 2: Turning Movement Counts 8
Table 3: Vehicle Delay Summary 9
Table 4: Crashes by Type 16
Table 5: Crashes by Lighting Condition 17
Table 6: Crashes by Surface Condition 17
Table 7: Safety Ratios and Confidence Levels 2012-2014 18
Table 8: Signal Warrant Analysis Summary 20

LIST OF APPENDICES

Appendix A: FDOT Correspondence
Appendix B: Data Collection
Appendix C: Field Reviews
Appendix D: Collision Diagrams
Appendix E: Crash Summary Worksheets
Appendix F: FDOT Traffic Signal Warrant Summary Form 750-020-01
Appendix G: Conceptual Design Alternatives
Appendix H: Opinions of Probable Cost

INTRODUCTION

The Florida Department of Transportation (FDOT) has retained Kimley-Horn to prepare an Intersection Qualitative Assessment for the SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue intersection (Section Number 87091000, Mile Post (MP) 4.328). A citizen contacted FDOT requesting a traffic signal at this intersection. The citizen has reported delay during peak hours, especially during the morning peak period when SW 134 Avenue becomes gridlocked due to the high volume of northbound vehicles. Additionally, the citizen has reported that speeding eastbound vehicles make it difficult to turn onto SR 994. This study primarily focused on operations and safety deficiencies of the intersection, and provides recommendations to improve operations and safety of the intersection.

This study is based on observations made during field reviews, review of peak hour turning movement counts, and review of three (3) years of crash data. A signal warrant analysis was also completed to determine if the existing two-way stop controlled intersection satisfied criteria to become a signalized intersection. Appendix A includes FDOT correspondence detailing the origin of the request to evaluate this intersection. The following sections summarize existing conditions, data collection efforts, field reviews, crash data, and recommendations. Figure 1 illustrates the location of the intersection.

Figure 1: Project Location

STUDY METHODOLOGY

The procedure for the intersection study was based upon the following tasks:

- Data Collection – Turning movements and pedestrian counts were collected at the intersection. The counts captured the morning and evening peak periods (see Appendix B).

- Field Inventory – A field review was conducted to examine existing conditions of the intersection. A condition diagram was prepared (see Figure 2) and photographs were taken to document the existing conditions (see Appendix C).

- Qualitative Assessment – A professional engineer visited the intersection and environs to observe the operations during peak traffic demand periods and to assess existing geometric features and traffic characteristics. Morning and evening weekday peak hour observations were conducted.

- Crash Analysis – Crash reports were reviewed and collision diagrams and crash tables prepared based upon the most recent three (3) years of crash data obtained from the FDOT's Crash Analysis Reporting (CAR) On-Line database (see Appendix D and Appendix E).

- Signal Warrant Analysis – Peak season count data and crash data were utilized to determine if a traffic signal is warranted based on the criteria within the Manual on Uniform Traffic Control Devices (MUTCD) (see Appendix F).

- Recommendation of Improvements – Recommendations for safety and operational improvements were developed. The improvements focused upon crash reduction, safety, and traffic operations.

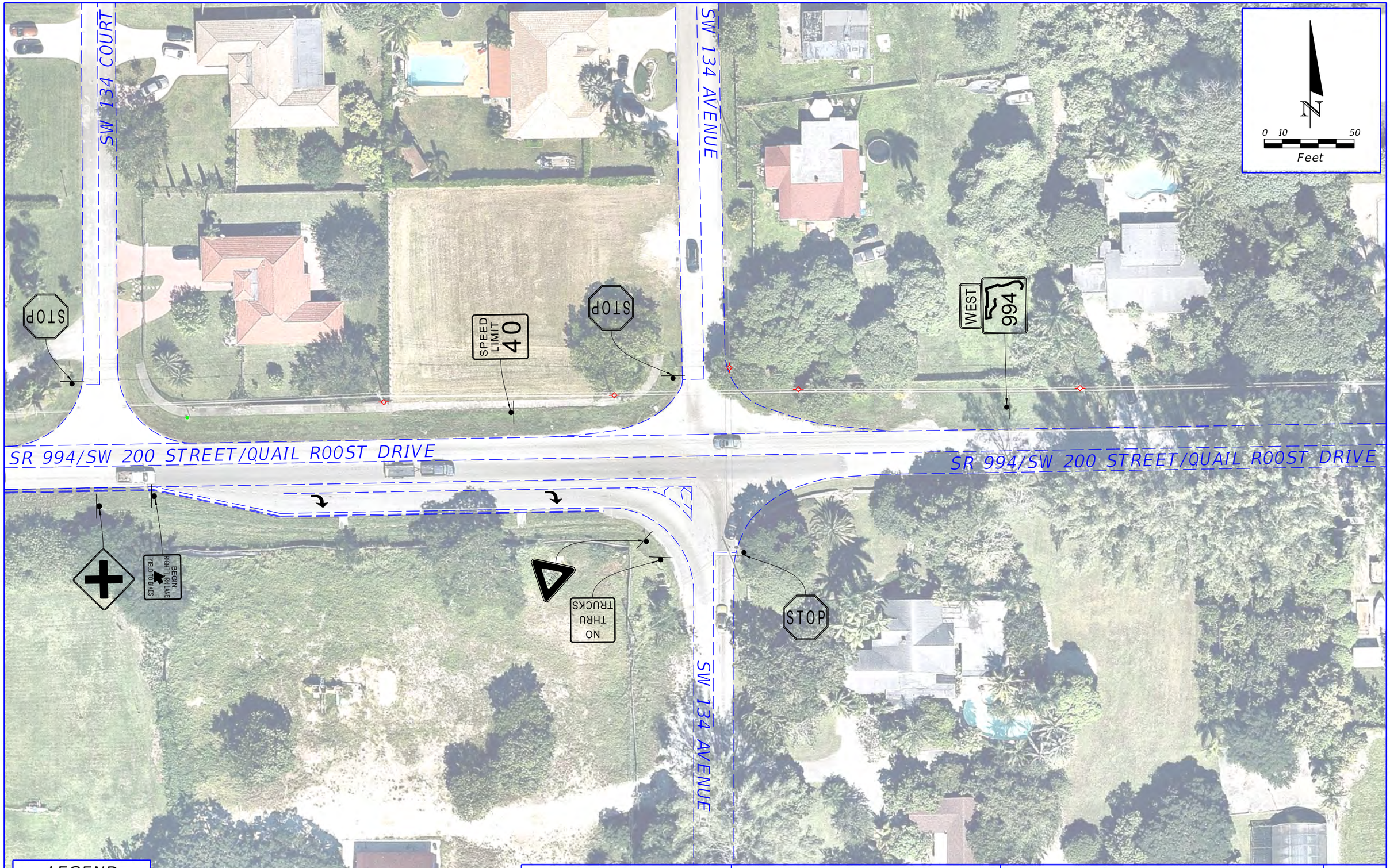
EXISTING CONDITIONS

The SR 994 at SW 134 Avenue intersection has four (4) approaches: SR 994 runs east-west and SW 134 Avenue runs north-south. The lane configuration for each approach is as follows:

- Eastbound approach: One (1) shared left-turn/through lane and one (1) right-turn lane
- Westbound approach: One (1) shared left-turn/through/right-turn lane
- Northbound approach: One (1) shared left-turn/through/right-turn lane
- Southbound approach: One (1) shared left-turn/through/right-turn lane

A field inventory was conducted at the study intersection on Wednesday, December 7, 2016, during the AM peak period and Thursday, December 8, 2016, during the PM peak period. SR 994 (Section Number 87091000), locally called SW 200 Street and Quail Roost Drive, is an Urban Minor Arterial oriented in the east-west direction. An eastbound speed limit is not posted within the vicinity of the intersection; however, an eastbound speed limit of 40 miles per hour (mph) is posted approximately 1,260 feet west of SW 134 Avenue. A westbound speed limit of 40 mph is posted on the west leg of the intersection. SR 994 is a two (2)-lane undivided roadway with 12-foot wide travel lanes. A five (5)-foot wide bike lane is provided on the west leg between the eastbound shared left-turn/through lane and the eastbound right-turn lane. SW 134 Avenue is located at MP 4.328 along SR 994 (Section Number 87091000). SW 134 Avenue is a local north-south roadway providing access to single-family residential. SW 134 Avenue is a two (2)-lane undivided roadway with 11-foot wide lanes south of SR 994 and 12-foot wide lanes north of SR 994. A speed limit is not posted on SW 134 Avenue north of SR 994; however, a speed limit of 35 mph is posted on SW 134 Avenue south of SR 994.

Five (5)-foot wide sidewalks exist along the north side of SR 994 west of SW 134 Avenue and along the west side of SW 134 Avenue north of SR 994. The intersection is under two-way stop control. SR 994 is uncontrolled while SW 134 Avenue is under stop control. The area immediately surrounding the study intersection is single-family residential. Overhead electric service is present along the north side of SR 994. A condition diagram of existing signage, lane configuration, and placement of utilities is shown in Figure 2.



PREPARED BY:
KIMLEY-HORN AND ASSOCIATES, INC.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	249726-4-32-01

FIGURE 2: CONDITION DIAGRAM
SR 994/SW 200 STREET AT
SW 134 AVENUE

PAGE NO.
5

brandon.fleming 12/7/2016 1:18:27 PM K:\FTL_TPTO\040006418-C9G07 TWO#51 SR 994 - 200th St & 134th Ave\CADD\roadway\roadway\PLANRD01.DGN

DATA COLLECTION

Seventy-two (72) hour automatic traffic recorder (ATR) tube counts were conducted on SR 994 and SW 134 Avenue from Tuesday, November 29, 2016, through Thursday, December 1, 2016. Table 1 includes three (3) days of vehicle volumes for each of the four (4) approaches. Figure 3 includes 72-hour ATR volumes in graphical form.

Table 1: 72-hour ATR Volumes

	Tuesday, November 29, 2016					Wednesday, November 30, 2016					Thursday, December 1, 2016					
Begin Time	SR 994/SW 200 Street/Quail Roost Drive Eastbound	SR 994/SW 200 Street/Quail Roost Drive Westbound	SW 134 Avenue Northbound	SW 134 Avenue Southbound	Total	SR 994/SW 200 Street/Quail Roost Drive Eastbound	SR 994/SW 200 Street/Quail Roost Drive Westbound	SW 134 Avenue Northbound	SW 134 Avenue Southbound	Total	SR 994/SW 200 Street/Quail Roost Drive Eastbound	SR 994/SW 200 Street/Quail Roost Drive Westbound	SW 134 Avenue Northbound	SW 134 Avenue Southbound	Total	3-Day Average
12:00 AM	78	46	16	0	140	86	62	16	3	167	92	68	35	2	197	168
1:00 AM	44	39	15	1	99	39	34	11	1	85	62	36	9	0	107	97
2:00 AM	23	15	9	0	47	39	21	8	0	68	28	25	9	1	63	59
3:00 AM	30	22	9	0	61	41	32	17	0	90	36	26	18	0	80	77
4:00 AM	51	47	23	0	121	46	45	22	1	114	47	55	27	0	129	121
5:00 AM	219	181	157	2	559	228	201	156	2	587	245	188	144	2	579	575
6:00 AM	515	638	318	5	1,476	531	642	304	6	1,483	558	644	307	6	1,515	1,491
7:00 AM	935	940	170	21	2,066	903	953	186	35	2,077	878	943	165	22	2,008	2,050
8:00 AM	825	728	199	31	1,783	829	712	231	23	1,795	876	717	209	36	1,838	1,805
9:00 AM	600	474	181	12	1,267	560	397	150	10	1,117	581	424	190	17	1,212	1,199
10:00 AM	471	435	133	12	1,051	491	357	121	7	976	463	384	119	9	975	1,001
11:00 AM	441	417	100	14	972	455	409	119	9	992	504	414	125	6	1,049	1,004
12:00 PM	523	404	105	8	1,040	509	424	130	8	1,071	488	429	120	7	1,044	1,052
1:00 PM	554	460	125	8	1,147	577	464	126	5	1,172	562	491	129	10	1,192	1,170
2:00 PM	634	526	155	7	1,322	621	556	113	11	1,301	635	526	144	10	1,315	1,313
3:00 PM	711	657	145	16	1,529	684	591	135	15	1,425	686	640	145	11	1,482	1,479
4:00 PM	833	629	135	26	1,623	849	644	183	36	1,712	825	609	160	25	1,619	1,651
5:00 PM	920	675	139	48	1,782	920	683	182	17	1,802	897	650	144	61	1,752	1,779
6:00 PM	822	560	132	35	1,549	774	514	103	36	1,427	748	532	141	14	1,435	1,470
7:00 PM	516	463	104	11	1,094	536	459	96	8	1,099	526	452	86	8	1,072	1,088
8:00 PM	378	280	65	7	730	369	313	83	8	773	386	343	74	2	805	769
9:00 PM	310	250	54	1	615	310	257	57	6	630	275	245	53	3	576	607
10:00 PM	264	192	45	8	509	232	159	44	0	435	250	175	52	7	484	476
11:00 PM	136	119	32	0	287	177	169	58	2	406	165	127	33	6	331	341
24-Hour Total	10,833	9,197	2,566	273	22,869	10,806	9,098	2,651	249	22,804	10,813	9,143	2,638	265	22,859	22,844

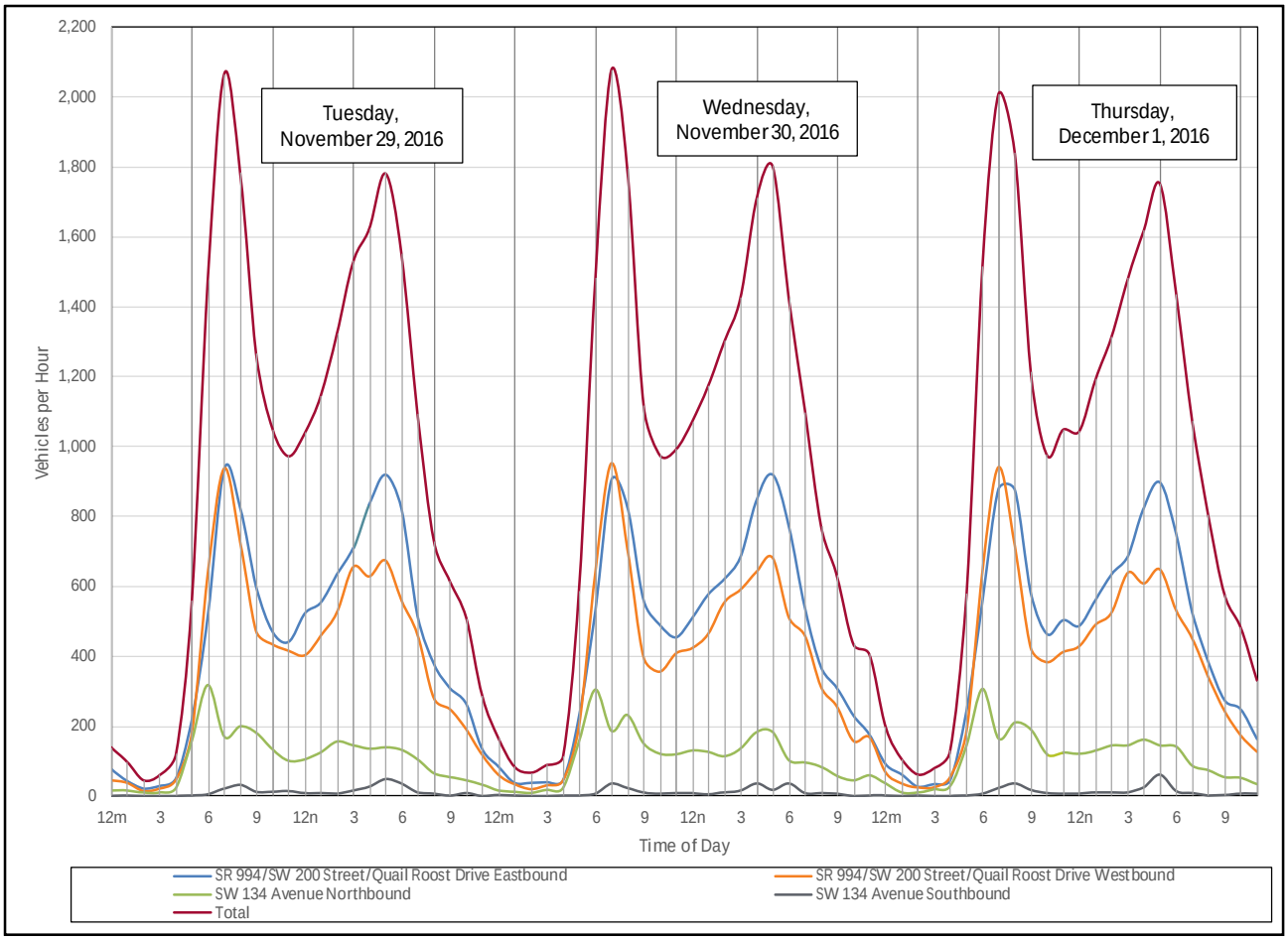


Figure 3: 72-hour ATR Volumes

Four (4) hour turning movement counts were collected for SR 994 and SW 134 Avenue on Tuesday, November 29, 2016, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. Pedestrian counts were also collected during the same four (4) hours. According to the data collected, the AM peak hour begins at 7:15 AM and ends at 8:15 AM and the PM peak hour begins at 4:45 PM and ends at 5:45 PM.

Turning movement volumes were adjusted using a FDOT peak season conversion factor of 1.04. Figure 4 shows the average peak season AM and PM peak hour traffic volumes and pedestrian volumes. Table 2 summarizes the four (4) hour turning movement counts.

Seventy-two (72) hour raw tube counts, peak period raw turning movement counts, and FDOT peak season conversion factors are included in Appendix B.

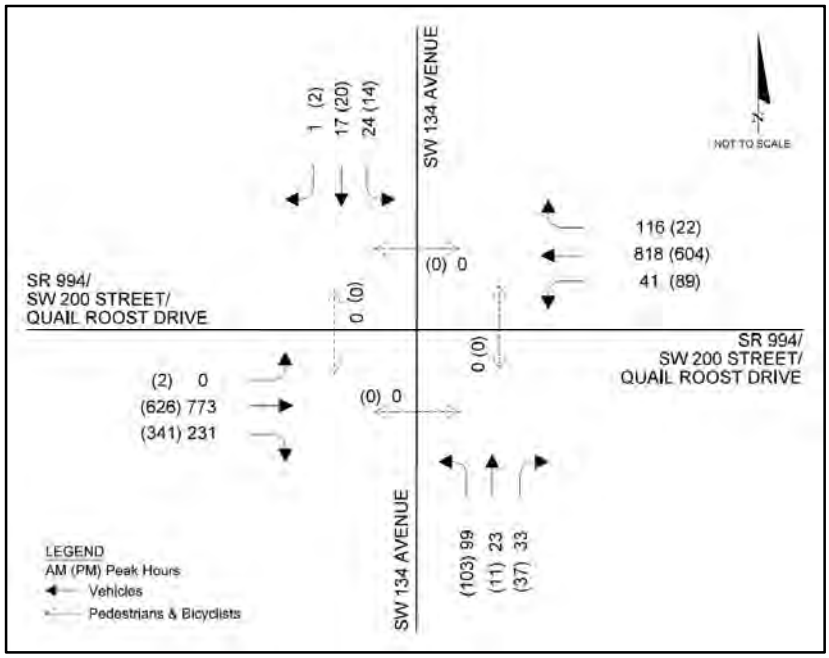


Figure 4: Existing 2016 Peak Hour Volumes

Table 2: Turning Movement Counts

	Begin Time	SR 994/ SW 200 Street/ Quail Roost Drive Eastbound				SR 994/ SW 200 Street/ Quail Roost Drive Westbound				SW 134 Avenue Northbound				SW 134 Avenue Southbound				Vehicular Total
		Left	Through	Right	Pedestrians/Bikes	Left	Through	Right	Pedestrians/Bikes	Left	Through	Right	Pedestrians/Bikes	Left	Through	Right	Pedestrians/Bikes	
	7:00 AM	0	155	49	0	15	199	25	0	43	7	14	0	1	0	1	0	509
PEAK HOUR	7:15 AM	0	184	67	0	10	210	31	0	28	4	8	0	1	0	0	0	543
PEAK HOUR	7:30 AM	0	187	60	0	10	222	32	0	22	7	6	0	2	0	0	0	548
PEAK HOUR	7:45 AM	0	215	52	0	10	200	25	0	26	8	10	0	10	6	1	0	563
PEAK HOUR	8:00 AM	0	187	52	0	11	186	28	0	23	4	9	0	11	11	0	0	522
	8:15 AM	0	196	49	0	11	182	14	0	29	6	15	0	2	4	0	0	508
	8:30 AM	0	158	29	0	8	170	7	0	45	9	17	0	1	0	1	0	445
	8:45 AM	0	173	25	0	5	148	3	0	45	6	9	0	1	0	0	0	415
	4:00 PM	0	140	66	0	10	126	5	0	18	3	5	0	1	1	1	0	376
	4:15 PM	0	135	70	0	23	141	2	0	15	3	5	0	2	2	1	0	399
	4:30 PM	1	141	74	0	12	155	1	0	22	5	15	0	6	6	0	0	438
PEAK HOUR	4:45 PM	0	157	93	0	22	150	4	0	31	2	12	0	4	2	1	0	478
PEAK HOUR	5:00 PM	0	152	68	0	22	157	10	0	28	2	8	0	1	1	1	0	450
PEAK HOUR	5:15 PM	2	164	90	0	24	136	4	0	28	6	11	0	2	8	0	0	475
PEAK HOUR	5:30 PM	0	153	90	0	21	161	4	0	16	1	6	0	7	9	0	0	468
	5:45 PM	1	164	80	0	14	134	4	0	22	2	14	0	5	16	0	0	456

Vehicle delay data was collected on Tuesday, November 29, 2016, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM for the northbound and southbound approaches at the study intersection. A summary of the vehicle delay data is shown in Table 3 and the raw vehicle delay data can be found in Appendix B.

Table 3: Vehicle Delay Summary

	SW 134 Avenue at SR 994			
	Northbound Approach		Southbound Approach	
	7-9 AM	4-6 PM	7-9 AM	4-6 PM
Total Vehicles	392	280	52	74
Average Stopped Time (in seconds)	222.89	80.25	58.21	80.07
Maximum Stopped Time (in seconds)	548	271	171	239
Average Queue (in vehicles)	11.89	3.02	0.53	0.84
Maximum Queue (in vehicles)	22	16	5	8

As shown in Table 3, the highest volumes occurred on the northbound approach during both peak periods. The longest stopped time was experienced on the northbound approach during the AM peak period with an average stopped time of approximately four (4) minutes and a maximum stopped time of approximately nine (9) minutes. Additionally, the northbound approach experienced a maximum queue of at least 16 vehicles in both peak periods.

QUALITATIVE ASSESSMENT

Field observations were conducted on Thursday, December 8, 2016, during the AM peak period and Wednesday, December 7, 2016, during the PM peak period to assess intersection operations, safety, queuing, conflicts, and existing signage. Field Observation Reports along with photographs are included in Appendix C.

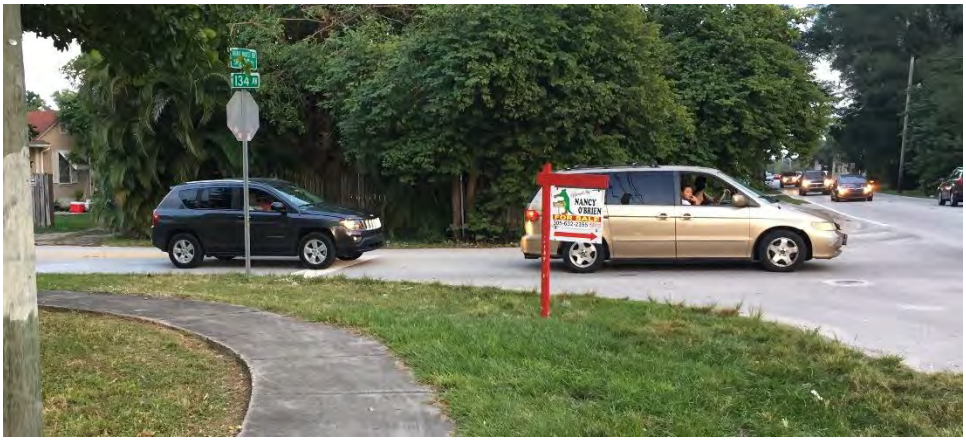
During the AM and PM peak period field reviews, the following was observed:

<u>General Observations</u>

- Accident debris in southeast, northeast, and northwest corners

- Wall in the southeast corner has been hit twice
  - Accident debris observed in one of the breaks in the wall

- Trees in the northeast corner obstruct view of westbound traffic from southbound drivers and vice versa
    - Southbound drivers must pull up past the stop bar to see westbound traffic



- Chain link fence with black tarp in the southwest corner obstructs view of eastbound traffic from northbound drivers and vice versa
    - Northbound drivers must pull up past the stop bar to see eastbound traffic
    - When northbound left drivers pull up to the edge of the intersection, the following vehicle, if destined eastbound, is able to pull around and make a right turn; however, sight of eastbound vehicles is obstructed by the northbound left-turning vehicle
    - When northbound drivers pull up to the edge of the intersection it impacts the turning radius for the westbound left turning drivers
- There is a path worn in the northeast corner where westbound through vehicles are going around westbound left-turning vehicles that are stopped waiting for a gap in eastbound traffic

- Traffic signal to the west at SW 137 Avenue created gaps in eastbound traffic; however, there was not a signal to the east to create gaps

- When a westbound left-turning vehicle is waiting for gaps in eastbound traffic there is a westbound queue that forms. Once the vehicle is able to make the westbound left it takes additional time to clear the westbound queue which reduces the available gaps for side street traffic to enter SR 994.
- As side street vehicle delay got to be excessive drivers would grow impatient
    - Vehicles in queue would honk
    - Turning vehicles would either accept smaller gaps or cut into traffic causing eastbound/westbound traffic to stop
    - Vehicles would roll through intersection without stopping
- Although a speed study was not conducted, eastbound and westbound vehicles along SR 994 did not appear to be travelling at excessive speeds.

<u>AM Peak Period Observations</u>

- Longest observed northbound queue of 35 vehicles
- Peak northbound queues occurred between 7:45 AM and 8:20 AM ranging from 12 to 35 vehicles

- Timed delay for three (3) vehicles
    - 1st vehicle at 7:44 AM: 3 minutes and 55 seconds
    - 2nd vehicle at 7:48 AM: 7 minutes and 54 seconds
    - 3rd vehicle at 8:09 AM: 8 minutes and 29 seconds

- The eastbound traffic would queue up through the SW 134 Avenue intersection; however, the cause of the queue could not be seen.

- On one (1) instance there were vehicles waiting to make northbound left, westbound left, and southbound through movements. When a gap in eastbound traffic appeared the southbound through and westbound left-turning vehicles went at the same time causing the southbound through vehicle to swerve to avoid hitting the westbound left-turning vehicle.

PM Peak Period Observations

- On two (2) occasions a westbound driver stopped to allow side street traffic to enter SR 994

- The sun set during the site visit causing street lights to activate. Lighting did not appear adequate for the intersection
- Timed delay for two (2) vehicles
    - 1st vehicle at 5:27 PM: 2 minutes and 10 seconds
    - 2nd vehicle at 5:46 PM: 2 minutes and 59 seconds
- Witnessed hesitation of westbound left-turning and eastbound right-turning drivers as to who had right-of-way for making the turn
    - There is a yield sign for the eastbound right-turn lane

Access Management

SR 994 is an Access Class 4 roadway and has a posted speed limit of 40 mph. Based on the Access Management Standards from *Administrative Rule Chapter 14-97* the spacing standards along an Access Class 4 roadway posted at 45 mph or less are: 2,640 feet for a traffic signal and 400 feet for a connection.

The signalized intersection at SW 137 Avenue is located approximately 1,335 feet west of SW 134 Avenue and the signalized intersection at SW 127 Avenue is located approximately 4,020 feet east of SW 134 Avenue. The distance between both signalized intersections is approximately 5,355 feet and therefore satisfies the Access Management Standards.

Two (2) connections exist within 400 feet of SW 134 Avenue; therefore, SR 994 within the vicinity of SW 134 Avenue does not satisfy Access Management Standards.

CRASH DATA ANALYSIS

Crash data for the most recent three (3) years (2012-2014) was obtained from FDOT's CAR On-Line database. Police crash reports were reviewed to verify accuracy of the electronic crash database. Collision diagrams showing all crashes are included in Appendix D. A summary of the crash analysis is provided below. Full crash summary sheets are provided in Appendix E.

Crashes by Year

A total of 30 crashes occurred within the study intersection from January 2012 to December 2014. As shown in Figure 5, the frequency of crashes nearly doubled from 2013 to 2014. There were 10 crashes with injury and no crashes with fatality.

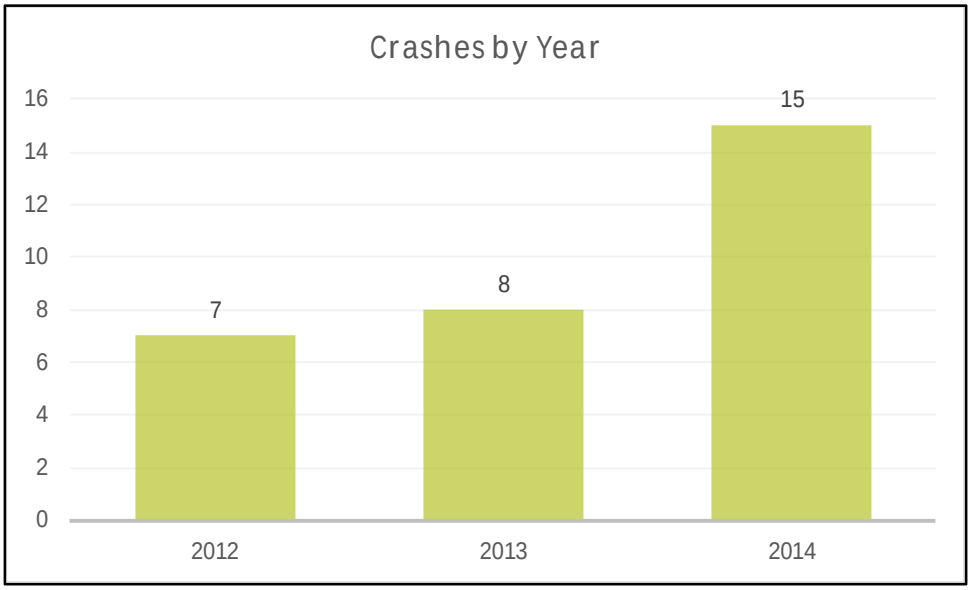


Figure 5: Crashes by Year

Crashes by Type

As shown in Figure 6 and Table 4, the three most frequent crash types are rear end crashes (15 crashes/50 percent), angle crashes (4 crashes/13 percent), and right-turn crashes (4 crashes/13 percent). Collision diagrams illustrating the following crash patterns are included in Appendix D.

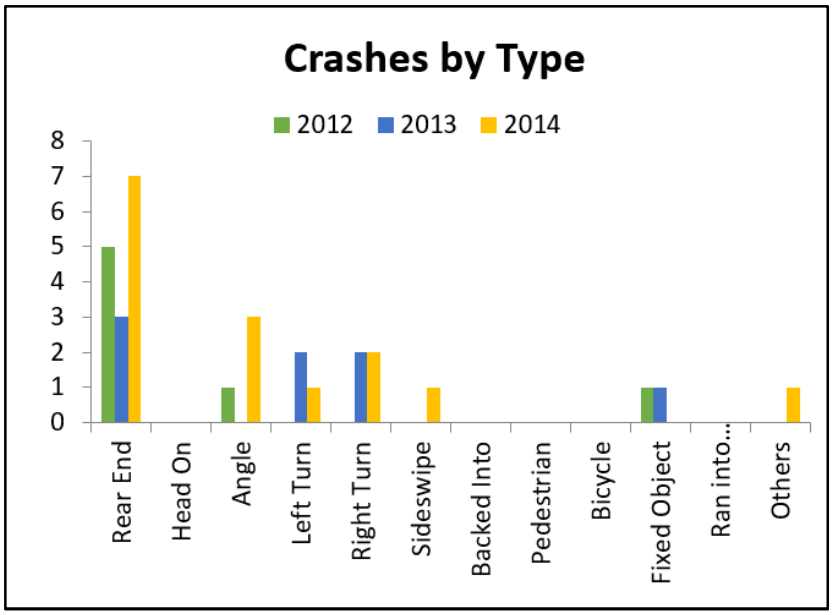


Figure 6: Crashes by Type

Table 4: Crashes by Type

Rank	Crash Type	Total	%
1	Rear End	15	50
2	Angle	4	13
2	Right Turn	4	13
4	Left Turn	3	10
5	Fixed Object	2	7
6	Sideswipe	1	3
6	Others	1	3
N/A	Head On	0	0
N/A	Backed Into	0	0
N/A	Pedestrian	0	0
N/A	Bicycle	0	0
N/A	Ran into Water/Canal	0	0

Note: Due to rounding, the cumulative percentage does not equal 100 percent.

Crashes by Lighting Condition

Table 5 shows that approximately 67 percent of crashes occurred during daylight conditions and approximately 33 percent of crashes occurred during dawn/dusk/dark conditions. Overall, the percentage of dark condition crashes is comparable to the statewide average (33 percent versus 31 percent).

Table 5: Crashes by Lighting Condition

Lighting Conditions	Number of Crashes	Percent of Crashes
Daylight	20	66.7
Dusk/Dawn	1	3.3
Dark	9	30
Unknown	0	0
Total	30	100

Crashes by Surface Condition

As shown in Table 6, approximately 17 percent of crashes occurred when the roadway surface was wet. The percentage of wet pavement crashes is equal to the statewide average (17 percent).

Table 6: Crashes by Surface Condition

Surface Conditions	Number of Crashes	Percent of Crashes
Dry	25	83.3
Wet	5	16.7
Other	0	0
Total	30	100

Safety Ratios and Confidence Levels

The calculated spot safety ratios and confidence levels for the years 2012 through 2014, as shown in Table 7, indicate that the study intersection experienced more overall crashes in years 2012 through 2014 than would typically be anticipated on similar facilities. Based on FDOT's high crash location reports the SR 994 at SW 134 Avenue intersection was listed as a high crash location in 2013 and 2014.

Table 7: Safety Ratios and Confidence Levels 2012-2014

Year	2012	2013	2014
Safety Ratio	0.460	0.471	0.484
Confidence Level	99.9986%	99.9997%	99.9999%

Expected Value Analysis

An Expected Value Analysis (EVA) was not able to be performed since EVA cannot evaluate two-lane by two-lane intersections.

PROGRAMMED ROADWAY IMPROVEMENTS

The 2017-2021 FDOT Work Program was reviewed for future roadway improvements within the vicinity of the study intersection. No roadway projects with the vicinity of SR 994 at SW 134 Avenue are programmed through year 2021.

SIGNAL WARRANT ANALYSIS

A signal warrant analysis was conducted for the SR 994 at SW 134 Avenue intersection. The signal warrant analysis was completed to determine if the two-way stop controlled intersection satisfied criteria to become a signalized intersection. The signal warrant analysis used existing average peak season count data and existing geometrics and was based upon criteria contained in the Federal Highway Administration's *Manual on Uniform Traffic Control Devices* (MUTCD), 2009 Edition. It should be noted that the volumes utilized for signal warrant analysis do not match the ATR volumes in Table 1, this is due to 3 main factors: (1) the FDOT PSCF was applied to the turning movement volumes but not the ATR volumes, (2) the turning movement volumes were manually counted and the starting times for each hour may be slightly different from the ATR counts based on the clocks not being synced, and (3) per MUTCD guidelines the right-turn volumes were removed from the minor street approach, based on engineering judgement, to provide a conservative analysis. Appendix F includes the signal warrant analysis specific to the following volume warrants:

- Warrant Number 1: Eight-Hour Vehicular Volume Warrant
  - Condition A: Minimum Vehicular Volume
    - Intended for application at location where a large volume intersecting traffic is the principal reason to consider installing a traffic control signal.
  - Condition B: Interruption of Continuous Traffic
    - Intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor street suffers excessive delay or conflict in entering or crossing the major street.
  - Combination: Combination of Conditions A & B
    - Intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.
- Warrant Number 2: Four-Hour Vehicular Volume Warrant
    - Intended to be applied where the volume of intersecting traffic is the principle reason to consider installing a traffic control signal.
- Warrant Number 3: Peak Hour Vehicular Volume Warrant
    - Intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

- Warrant Number 4: Pedestrian Volume
  - Intended for application where a traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.
- Warrant Number 5: School Crossing
  - Intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For purposes of this warrant, the word "schoolchildren" includes elementary through high school students.
- Warrant Number 6: Coordinated Signal System
  - Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proposed platooning of vehicles.
- Warrant Number 7: Crash Experience
  - Intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.
- Warrant Number 8: Roadway Network
  - Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network
- Warrant Number 9: Intersection Near a Grade Crossing
  - Intended for use at a location where none of the conditions described in the other eight warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a stop or yield sign is the principal reason to consider installing a traffic control signal.

It is important to note that the MUTCD clearly states that Warrants should be viewed as guidelines, not as absolute values. Satisfaction of a warrant or warrants does not guarantee that the device is needed. The signal warrant analysis completed is summarized in Table 8 and is included in its entirety in Appendix F. As Table 8 indicates, the SR 994 at SW 134 Avenue intersection satisfies volume Warrants 1, 2, and 3 under existing conditions.

Table 8: Signal Warrant Analysis Summary

Warrant 1	Satisfied ✓	Warrant 6	Not Applicable
Warrant 2	Satisfied ✓	Warrant 7	Not Satisfied ×
Warrant 3	Satisfied ✓	Warrant 8	Not Applicable
Warrant 4	Not Applicable	Warrant 9	Not Applicable
Warrant 5	Not Applicable		

CONCEPTUAL DESIGN ALTERNATIVES AND OPINIONS OF PROBABLE COST

Conceptual Design Alternatives (CDAs) with Opinions of Probable Cost (OPCs) for the SR 994 at SW 134 Avenue intersection were requested by the FDOT District Six Scoping Committee after the Qualitative Assessment, Intersection Delay Study, and Signal Warrant Analysis were completed at the study intersection. CDAs with OPCs were requested for two (2) alternatives, each with a traffic signal. Alternative 1 included just the traffic signal without any turn lane improvements. Alternative 2 provided a new westbound left-turn lane in addition to the traffic signal. A new eastbound left-turn lane was an initial requirement for Alternative 2; however, it was determined due to spacing with the adjacent intersection the new eastbound left-turn lane transition would extended through the adjacent intersection to the west of SW 134 Avenue. Both CDAs included providing the following:

- Traffic signal
- Sidewalks along the north and south side of SR 994 within 300 feet of the intersection including ADA ramp connections
- Crosswalks across all four (4) legs of the intersection
- Countdown pedestrian signals for all proposed crosswalks
- Pedestrian push buttons for the proposed crosswalks across SR 994
- New street lighting at the intersection

The OPCs for Alternative 1 and Alternative 2 are $566,599.11 and $623,222.66, respectively. The CDAs are included in Appendix G and the OPCs are included in Appendix H.

RECOMMENDATIONS

This study evaluated operational and safety improvements for the SR 994 at SW 134 Avenue intersection. A total of 30 crashes occurred within the study intersection from January 2012 through December 2014. Based on the field observations and qualitative assessment described herein, the following recommendations have been provided to improve the operation and safety of the SR 994 at SW 134 Avenue intersection:

- Install a traffic signal
- Conduct lighting analysis to determine if lighting improvements are required
- Trim landscaping in northeast corner

APPENDIX A

FDOT CORRESPONDENCE

Meitin, Omar

From: Maarouf, Khalil
Sent: Tuesday, November 01, 2016 2:00 PM
To: Meitin, Omar
Subject: FW: Phone call

Omar,

Please issue a CTP_____ number to the request below as you did for the other. I downloaded the original request to the one that you issued earlier this morning. Thanks

Khalil Maarouf
Florida Department of Transportation
District 6 Traffic Operations
1000 NW 111 Ave, Room 6202A
Phone (305) 470-5335, Fax (305) 470-5815
E-mail: khalil.maarouf@dot.state.fl.us

From: Espinal, Esteban
Sent: Tuesday, November 01, 2016 10:00 AM
To: Maarouf, Khalil
Subject: RE: Phone call

Khalil,
Mr. San Clemente request is for the intersection of SW 200th Street and SW 134th Avenue. He is requesting a traffic signal at this location due to delays he is experiencing in the peak hours. He advised that in the morning at the intersection northbound SW 134th Avenue has become a gridlock due to the high volume of northbound vehicles and speeding eastbound vehicles, making it very difficult to turn at SW 200th Street. Please create a CTP so we can follow up with Mr. San Clemente. His information is below.

Alejandro San Clemente
Tel. 305 910-9443
Email. Alexpapas@gmail.com

Thanks,

Esteban A. Espinal, E.I.
Traffic Operations Analyst
Florida Department of Transportation, District 6
1000 NW 111th Avenue, 6206A
Miami, Florida 33172
Tel. (305) 470-5303 Fax. (305) 470-5330
Esteban.Espinal@dot.state.fl.us

From: Maarouf, Khalil
Sent: Tuesday, November 01, 2016 6:38 AM
To: Espinal, Esteban
Subject: FW: Phone call

Good morning Esteban,

Please call citizen and get his e-mail address and verify location and his concerns. It could be SW instead of NW. Thanks

Khalil Maarouf
Florida Department of Transportation
District 6 Traffic Operations
1000 NW 111 Ave, Room 6202A
Phone (305) 470-5335, Fax (305) 470-5815
E-mail: khalil.maarouf@dot.state.fl.us

From: Del Villar, Carmen
Sent: Monday, October 31, 2016 2:21 PM
To: Maarouf, Khalil
Cc: Meitin, Omar
Subject: Phone call

Alejandro San Clemente 305 910-9443 he has a big concern with the intersection of 200 Street NW 134 Avenue. It's very hard to drive across this intersection. He is afraid that there will be a very bad accident in that location.

Carmen Del Villar
Administrative Assistant
Traffic Operations Dept.
1000 N.W. 111th Ave. Suite 6206
Miami, Florida 33172
Phone : 305-470-5335
Fax : 305-470-5815
e-mail : Carmen.DelVillar@dot.state.fl.us

APPENDIX B

DATA COLLECTION

County: 99
Station: 0228
Description: SW 134TH AVENUE S OF SW 200TH STREET
Start Date: 11/29/2016
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	5	4	4	3	16	12	9	4	3	28	44
0100	6	2	4	3	15	7	6	7	2	22	37
0200	4	3	1	1	9	1	0	2	1	4	13
0300	1	3	2	3	9	1	7	1	3	12	21
0400	4	4	7	8	23	2	2	4	5	13	36
0500	15	28	36	78	157	5	9	10	13	37	194
0600	80	90	71	77	318	13	22	36	36	107	425
0700	56	38	37	39	170	60	76	70	69	275	445
0800	36	44	65	54	199	72	64	36	29	201	400
0900	47	49	42	43	181	34	45	31	24	134	315
1000	38	32	44	19	133	34	24	24	22	104	237
1100	20	22	28	30	100	27	25	24	25	101	201
1200	33	18	29	25	105	35	38	27	39	139	244
1300	23	38	45	19	125	40	36	42	45	163	288
1400	42	34	43	36	155	36	45	57	56	194	349
1500	27	25	43	50	145	65	64	59	81	269	414
1600	26	23	42	44	135	75	94	91	113	373	508
1700	39	41	24	35	139	90	119	119	108	436	575
1800	40	30	26	36	132	97	108	85	69	359	491
1900	33	26	24	21	104	65	69	40	56	230	334
2000	14	12	22	17	65	43	40	25	36	144	209
2100	11	18	11	14	54	35	39	36	24	134	188
2200	15	11	12	7	45	27	21	33	23	104	149
2300	8	10	5	9	32	18	18	18	13	67	99
24-Hour Totals:					2566					3650	6216

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	830	215	715	287	645	450
P.M.	1630	166	1715	443	1645	589
Daily	545	319	1715	443	1645	589

Generated by SPS 5.0.53P

County: 99
Station: 0228
Description: SW 134TH AVENUE S OF SW 200TH STREET
Start Date: 11/30/2016
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	8	5	3	0	16	9	4	5	4	22	38
0100	6	3	0	2	11	6	5	4	5	20	31
0200	2	3	2	1	8	6	5	2	0	13	21
0300	1	5	6	5	17	1	3	6	7	17	34
0400	1	7	8	6	22	4	3	5	3	15	37
0500	23	26	32	75	156	13	8	11	9	41	197
0600	89	67	89	59	304	11	20	38	52	121	425
0700	59	45	46	36	186	49	73	73	61	256	442
0800	46	72	53	60	231	58	66	50	46	220	451
0900	27	38	48	37	150	37	37	36	25	135	285
1000	35	32	26	28	121	17	30	31	14	92	213
1100	23	37	29	30	119	26	25	21	41	113	232
1200	29	36	33	32	130	21	29	29	36	115	245
1300	31	32	39	24	126	37	35	36	40	148	274
1400	21	28	32	32	113	47	47	72	49	215	328
1500	29	36	32	38	135	46	67	64	73	250	385
1600	47	43	46	47	183	82	87	106	106	381	564
1700	41	44	47	50	182	103	103	104	98	408	590
1800	32	25	25	21	103	125	89	81	61	356	459
1900	27	25	25	19	96	66	67	56	52	241	337
2000	22	31	13	17	83	34	36	32	26	128	211
2100	16	17	12	12	57	35	27	24	28	114	171
2200	16	9	12	7	44	28	27	23	36	114	158
2300	10	13	17	18	58	34	19	7	6	66	124
24-Hour Totals:					2651					3601	6252

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	800	231	715	265	730	458
P.M.	1600	183	1715	430	1715	603
Daily	545	320	1715	430	1715	603

Generated by SPS 5.0.53P

County: 99
Station: 0228
Description: SW 134TH AVENUE S OF SW 200TH STREET
Start Date: 12/01/2016
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	18	15	0	2	35	8	4	13	8	33	68
0100	3	0	4	2	9	4	9	7	5	25	34
0200	2	3	3	1	9	4	2	4	4	14	23
0300	3	2	7	6	18	1	4	2	1	8	26
0400	1	7	8	11	27	3	4	3	4	14	41
0500	10	28	39	67	144	7	10	10	12	39	183
0600	90	83	67	67	307	17	21	32	60	130	437
0700	51	41	29	44	165	50	73	74	57	254	419
0800	41	44	65	59	209	73	65	46	41	225	434
0900	46	54	43	47	190	50	44	28	24	146	336
1000	28	23	32	36	119	25	28	20	37	110	229
1100	38	28	27	32	125	29	30	41	38	138	263
1200	31	35	20	34	120	22	26	27	34	109	229
1300	32	34	31	32	129	36	56	48	39	179	308
1400	48	26	34	36	144	52	48	61	54	215	359
1500	33	33	41	38	145	52	63	72	55	242	387
1600	34	38	46	42	160	68	96	89	85	338	498
1700	40	34	34	36	144	114	101	123	111	449	593
1800	52	43	23	23	141	98	92	75	67	332	473
1900	25	27	12	22	86	73	70	47	50	240	326
2000	20	20	18	16	74	48	38	52	39	177	251
2100	12	17	15	9	53	25	28	24	21	98	151
2200	14	17	10	11	52	30	25	17	23	95	147
2300	9	7	5	12	33	27	15	20	8	70	103
24-Hour Totals:					2638					3680	6318

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	830	224	715	277	645	445
P.M.	1615	166	1700	449	1700	593
Daily	545	307	1700	449	1700	593

Generated by SPS 5.0.53P

County: 99
Station: 0229
Description: SW 134TH AVENUE N OF SW 200TH STREET
Start Date: 11/29/2016
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	2	0	0	0	2	0	0	0	0	0	2
0100	1	1	3	0	5	0	0	1	0	1	6
0200	0	0	0	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0	0	0
0500	0	0	0	3	3	0	1	0	1	2	5
0600	5	10	16	24	55	0	3	0	2	5	60
0700	30	35	36	32	133	1	1	2	17	21	154
0800	32	17	14	7	70	22	6	2	1	31	101
0900	1	4	2	3	10	4	5	2	1	12	22
1000	4	5	6	2	17	3	5	3	1	12	29
1100	4	3	8	3	18	3	6	2	3	14	32
1200	3	5	7	6	21	2	2	1	3	8	29
1300	5	6	4	3	18	2	2	2	2	8	26
1400	3	5	6	7	21	0	3	2	2	7	28
1500	8	3	9	7	27	6	2	4	4	16	43
1600	8	5	7	5	25	3	5	13	5	26	51
1700	12	13	4	6	35	3	10	16	19	48	83
1800	4	4	10	5	23	12	9	11	3	35	58
1900	7	7	3	6	23	7	2	2	0	11	34
2000	1	1	2	3	7	6	0	0	1	7	14
2100	2	4	1	1	8	1	0	0	0	1	9
2200	4	2	4	3	13	4	1	1	2	8	21
2300	5	0	0	1	6	0	0	0	0	0	6
24-Hour Totals:					540					273	813

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	715	135	730	47	715	177
P.M.	1630	37	1715	57	1715	84
Daily	715	135	1715	57	715	177

Generated by SPS 5.0.53P

County: 99
Station: 0229
Description: SW 134TH AVENUE N OF SW 200TH STREET
Start Date: 11/30/2016
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	1	1	2	0	4	0	0	3	0	3	7
0100	0	1	0	0	1	0	0	0	1	1	2
0200	1	1	0	0	2	0	0	0	0	0	2
0300	0	0	0	0	0	0	0	0	0	0	0
0400	0	1	0	0	1	0	1	0	0	1	2
0500	0	1	0	3	4	0	1	0	1	2	6
0600	6	11	28	25	70	1	3	1	1	6	76
0700	32	36	43	32	143	3	1	6	25	35	178
0800	31	17	15	7	70	16	3	1	3	23	93
0900	5	4	7	3	19	1	2	2	5	10	29
1000	1	4	4	2	11	0	4	2	1	7	18
1100	6	2	5	5	18	2	1	3	3	9	27
1200	3	2	8	3	16	0	1	5	2	8	24
1300	6	4	4	6	20	1	1	0	3	5	25
1400	3	4	11	2	20	5	0	3	3	11	31
1500	4	10	4	5	23	6	4	2	3	15	38
1600	13	9	8	3	33	5	3	13	15	36	69
1700	12	9	3	6	30	4	1	4	8	17	47
1800	13	4	4	6	27	19	7	7	3	36	63
1900	14	5	4	4	27	1	3	1	3	8	35
2000	4	8	4	4	20	3	1	3	1	8	28
2100	2	2	2	1	7	1	0	1	4	6	13
2200	0	1	0	2	3	0	0	0	0	0	3
2300	1	1	1	2	5	1	1	0	0	2	7
24-Hour Totals:					574					249	823

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	700	143	730	50	715	190
P.M.	1545	35	1745	41	1600	69
Daily	700	143	730	50	715	190

Generated by SPS 5.0.53P

County: 99
Station: 0229
Description: SW 134TH AVENUE N OF SW 200TH STREET
Start Date: 12/01/2016
Start Time: 0000

	Direction: N					Direction: S					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	1	0	0	1	2	1	0	0	1	2	4
0100	0	0	1	0	1	0	0	0	0	0	1
0200	1	1	0	0	2	1	0	0	0	1	3
0300	0	0	0	0	0	0	0	0	0	0	0
0400	0	2	0	0	2	0	0	0	0	0	2
0500	1	0	0	3	4	0	1	0	1	2	6
0600	7	7	19	14	47	1	3	1	1	6	53
0700	35	40	30	27	132	4	2	4	12	22	154
0800	29	15	9	2	55	15	3	10	8	36	91
0900	4	4	3	6	17	6	3	7	1	17	34
1000	4	1	6	6	17	0	2	5	2	9	26
1100	3	9	5	3	20	1	2	2	1	6	26
1200	2	1	1	4	8	2	2	1	2	7	15
1300	2	3	6	0	11	4	2	2	2	10	21
1400	3	8	6	5	22	2	3	1	4	10	32
1500	7	3	12	8	30	3	2	3	3	11	41
1600	7	7	5	6	25	3	8	4	10	25	50
1700	10	4	3	8	25	16	5	28	12	61	86
1800	8	3	3	7	21	5	3	5	1	14	35
1900	5	13	3	3	24	2	2	1	3	8	32
2000	0	3	1	0	4	0	1	0	1	2	6
2100	0	1	2	1	4	1	1	0	1	3	7
2200	2	2	0	3	7	2	1	3	1	7	14
2300	0	2	2	0	4	3	1	2	0	6	10
24-Hour Totals:					484					265	749

Peak Volume Information

	Direction: N		Direction: S		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	700	132	745	40	715	159
P.M.	1530	34	1700	61	1700	86
Daily	700	132	1700	61	715	159

Generated by SPS 5.0.53P

County: 99
Station: 0230
Description: SW 200TH STREET W OF SW 134TH AVENUE
Start Date: 11/29/2016
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	24	19	17	18	78	18	8	15	11	52	130
0100	11	12	14	7	44	17	12	6	7	42	86
0200	6	5	4	8	23	4	7	5	7	23	46
0300	8	8	5	9	30	2	8	7	8	25	55
0400	11	9	12	19	51	14	9	21	19	63	114
0500	15	34	63	107	219	36	50	88	105	279	498
0600	100	115	138	162	515	137	183	233	231	784	1299
0700	202	242	235	256	935	234	231	242	222	929	1864
0800	224	233	177	191	825	205	202	214	190	811	1636
0900	175	166	133	126	600	155	155	146	138	594	1194
1000	120	119	120	112	471	145	103	145	107	500	971
1100	96	115	110	120	441	106	118	108	115	447	888
1200	124	128	117	154	523	115	97	119	105	436	959
1300	134	128	143	149	554	99	139	126	142	506	1060
1400	130	172	178	154	634	128	145	157	160	590	1224
1500	171	168	180	192	711	155	156	197	202	710	1421
1600	194	191	217	231	833	142	158	175	178	653	1486
1700	209	243	234	234	920	185	163	177	149	674	1594
1800	244	231	193	154	822	144	153	138	161	596	1418
1900	143	145	107	121	516	133	133	114	125	505	1021
2000	113	92	89	84	378	95	72	80	61	308	686
2100	78	93	79	60	310	73	70	58	61	262	572
2200	80	59	69	56	264	54	57	52	38	201	465
2300	38	36	32	30	136	38	43	22	21	124	260
24-Hour Totals:					10833					10114	20947

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	715	957	645	938	700	1864
P.M.	1715	955	1500	710	1645	1620
Daily	715	957	645	938	700	1864

Generated by SPS 5.0.53P

County: 99
Station: 0230
Description: SW 200TH STREET W OF SW 134TH AVENUE
Start Date: 11/30/2016
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	27	20	19	20	86	20	29	16	9	74	160
0100	15	6	9	9	39	15	10	4	8	37	76
0200	12	14	9	4	39	5	7	8	6	26	65
0300	7	7	11	16	41	8	12	6	12	38	79
0400	5	8	13	20	46	6	11	22	22	61	107
0500	27	36	67	98	228	38	57	87	120	302	530
0600	105	117	144	165	531	144	187	226	217	774	1305
0700	179	231	244	249	903	221	243	229	224	917	1820
0800	228	213	190	198	829	222	196	211	177	806	1635
0900	157	149	128	126	560	104	116	126	133	479	1039
1000	116	116	148	111	491	107	98	104	104	413	904
1100	106	97	120	132	455	99	117	133	115	464	919
1200	124	141	117	127	509	129	127	118	107	481	990
1300	156	132	144	145	577	132	132	129	116	509	1086
1400	150	172	159	140	621	142	138	153	141	574	1195
1500	149	196	153	186	684	139	140	175	172	626	1310
1600	189	211	215	234	849	167	163	166	157	653	1502
1700	229	223	240	228	920	199	201	153	179	732	1652
1800	240	205	174	155	774	151	133	122	119	525	1299
1900	148	140	133	115	536	127	113	123	111	474	1010
2000	103	101	78	87	369	104	97	88	61	350	719
2100	81	92	60	77	310	72	73	59	68	272	582
2200	55	58	59	60	232	47	47	45	36	175	407
2300	69	49	30	29	177	42	52	44	43	181	358
24-Hour Totals:					10806					9943	20749

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	715	952	715	918	715	1870
P.M.	1715	931	1700	732	1700	1652
Daily	715	952	715	918	715	1870

Generated by SPS 5.0.53P

County: 99
Station: 0230
Description: SW 200TH STREET W OF SW 134TH AVENUE
Start Date: 12/01/2016
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	25	22	25	20	92	23	19	18	16	76	168
0100	14	23	13	12	62	9	11	8	9	37	99
0200	12	4	6	6	28	5	7	5	9	26	54
0300	10	7	6	13	36	6	6	12	16	40	76
0400	10	11	11	15	47	5	15	22	29	71	118
0500	28	43	63	111	245	32	51	80	117	280	525
0600	131	111	145	171	558	156	200	230	224	810	1368
0700	186	213	251	228	878	205	233	249	232	919	1797
0800	266	231	186	193	876	194	202	209	188	793	1669
0900	186	146	127	122	581	129	140	134	129	532	1113
1000	113	116	114	120	463	107	104	114	112	437	900
1100	104	145	128	127	504	118	106	120	117	461	965
1200	103	137	118	130	488	115	125	128	120	488	976
1300	123	160	155	124	562	134	153	130	137	554	1116
1400	136	166	153	180	635	137	138	143	154	572	1207
1500	153	187	166	180	686	157	184	177	164	682	1368
1600	195	207	210	213	825	153	149	167	168	637	1462
1700	222	218	244	213	897	180	143	167	180	670	1567
1800	217	193	177	161	748	153	157	126	139	575	1323
1900	142	169	97	118	526	124	136	106	100	466	992
2000	102	73	120	91	386	101	88	94	79	362	748
2100	63	71	77	64	275	67	77	66	59	269	544
2200	79	65	56	50	250	63	44	45	43	195	445
2300	58	40	42	25	165	34	23	33	30	120	285
24-Hour Totals:					10813					10072	20885

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	730	976	700	919	715	1866
P.M.	1645	897	1500	682	1700	1567
Daily	730	976	700	919	715	1866

Generated by SPS 5.0.53P

County: 99
Station: 0231
Description: SW 200TH STREET E OF SW 134TH AVENUE
Start Date: 11/29/2016
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	13	15	15	16	59	14	10	12	10	46	105
0100	7	9	10	3	29	14	14	7	4	39	68
0200	8	6	2	7	23	1	5	4	5	15	38
0300	6	4	4	6	20	2	8	5	7	22	42
0400	10	9	11	14	44	11	7	17	12	47	91
0500	16	32	67	115	230	27	31	62	61	181	411
0600	117	118	136	149	520	93	135	206	204	638	1158
0700	165	189	192	233	779	227	242	249	222	940	1719
0800	201	208	171	178	758	212	192	177	147	728	1486
0900	165	157	120	112	554	125	126	115	108	474	1028
1000	110	118	115	105	448	124	87	122	102	435	883
1100	94	111	108	114	427	104	112	100	101	417	844
1200	112	116	107	135	470	97	100	110	97	404	874
1300	105	111	124	130	470	91	128	113	128	460	930
1400	114	147	136	126	523	111	134	130	151	526	1049
1500	128	129	147	151	555	147	152	182	176	657	1212
1600	145	141	158	168	612	138	162	165	164	629	1241
1700	156	174	165	178	673	190	160	177	148	675	1348
1800	179	157	146	117	599	120	145	141	154	560	1159
1900	102	94	86	83	365	111	129	99	124	463	828
2000	82	66	73	57	278	89	69	69	53	280	558
2100	58	62	51	48	219	75	67	52	56	250	469
2200	66	47	41	40	194	55	50	48	39	192	386
2300	22	25	21	22	90	39	38	23	19	119	209
24-Hour Totals:					8939					9197	18136

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	730	834	700	940	715	1740
P.M.	1715	696	1645	691	1645	1354
Daily	730	834	700	940	715	1740

Generated by SPS 5.0.53P

County: 99
Station: 0231
Description: SW 200TH STREET E OF SW 134TH AVENUE
Start Date: 11/30/2016
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	19	16	23	15	73	14	25	14	9	62	135
0100	9	2	7	10	28	10	9	6	9	34	62
0200	7	8	7	4	26	5	6	5	5	21	47
0300	7	4	10	14	35	7	8	4	13	32	67
0400	2	8	8	19	37	6	8	14	17	45	82
0500	21	35	74	108	238	28	37	68	68	201	439
0600	124	121	128	135	508	93	148	196	205	642	1150
0700	160	194	203	238	795	215	253	252	233	953	1748
0800	216	184	157	168	725	218	169	190	135	712	1437
0900	144	121	128	110	503	89	88	114	106	397	900
1000	113	109	133	116	471	85	83	96	93	357	828
1100	102	94	100	123	419	94	98	113	104	409	828
1200	112	138	105	115	470	111	112	102	99	424	894
1300	136	115	125	131	507	121	116	113	114	464	971
1400	129	142	121	124	516	138	134	151	133	556	1072
1500	131	150	121	146	548	127	129	171	164	591	1139
1600	156	161	162	174	653	174	161	161	148	644	1297
1700	159	160	169	178	666	191	194	141	157	683	1349
1800	161	156	121	109	547	157	127	112	118	514	1061
1900	99	99	95	78	371	127	110	121	101	459	830
2000	85	76	54	74	289	96	83	78	56	313	602
2100	60	75	49	50	234	68	68	60	61	257	491
2200	43	35	42	30	150	43	41	39	36	159	309
2300	38	39	21	20	118	41	51	41	36	169	287
24-Hour Totals:					8927					9098	18025

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	715	851	715	956	715	1807
P.M.	1715	668	1630	694	1630	1349
Daily	715	851	715	956	715	1807

Generated by SPS 5.0.53P

County: 99
Station: 0231
Description: SW 200TH STREET E OF SW 134TH AVENUE
Start Date: 12/01/2016
Start Time: 0000

	Direction: E					Direction: W					Combined
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Total
0000	17	20	14	15	66	15	17	20	16	68	134
0100	9	16	10	7	42	7	12	9	8	36	78
0200	7	4	2	6	19	3	6	5	11	25	44
0300	9	4	6	14	33	3	5	6	12	26	59
0400	8	8	11	13	40	5	11	18	21	55	95
0500	26	38	68	119	251	25	30	55	78	188	439
0600	137	125	134	170	566	98	147	208	191	644	1210
0700	160	184	204	200	748	209	249	246	239	943	1691
0800	232	201	175	169	777	197	190	177	153	717	1494
0900	167	131	116	123	537	106	103	110	105	424	961
1000	106	106	104	117	433	94	94	100	96	384	817
1100	92	127	102	117	438	99	93	111	111	414	852
1200	100	131	107	117	455	101	112	114	102	429	884
1300	108	124	133	104	469	122	135	117	117	491	960
1400	119	129	120	151	519	120	133	133	140	526	1045
1500	128	155	128	150	561	150	174	170	146	640	1201
1600	156	148	155	185	644	143	150	151	165	609	1253
1700	153	145	184	157	639	170	138	159	183	650	1289
1800	159	136	116	121	532	142	135	116	139	532	1064
1900	94	123	63	82	362	116	129	107	100	452	814
2000	71	57	82	67	277	92	85	93	73	343	620
2100	46	51	65	46	208	63	68	60	54	245	453
2200	58	53	49	30	190	58	39	41	37	175	365
2300	39	29	23	6	97	33	25	33	36	127	224
24-Hour Totals:					8903					9143	18046

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	730	837	700	943	715	1751
P.M.	1645	667	1700	650	1645	1299
Daily	730	837	700	943	715	1751

Generated by SPS 5.0.53P

SW 200th Street & SW 134th Avenue

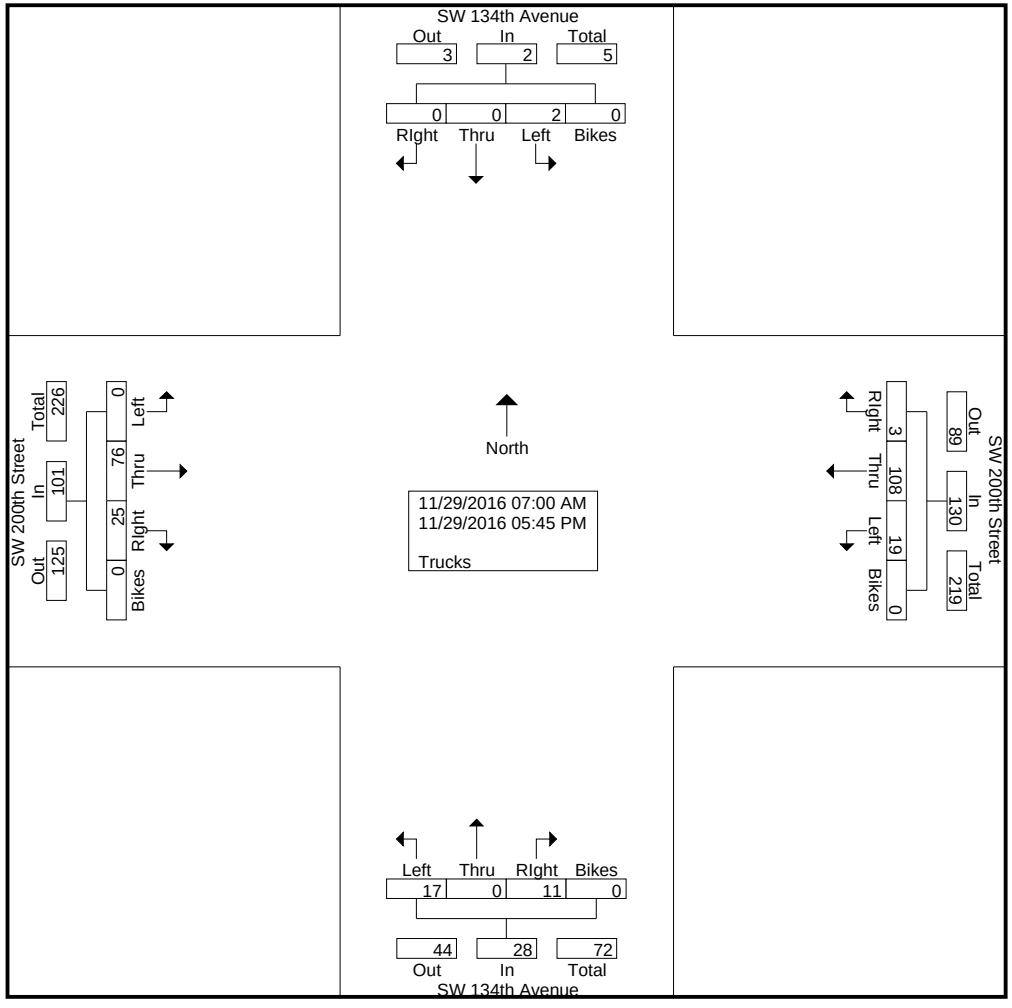
File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 1

Groups Printed- Trucks

	SW 134th Avenue Southbound					SW 134th Avenue Northbound					SW 200th Street Westbound					SW 200th Street Eastbound					
Start Time	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	8	2	0	10	17
07:15 AM	0	0	0	0	0	2	0	1	0	3	1	8	1	0	10	0	7	5	0	12	25
07:30 AM	0	0	0	0	0	1	0	0	0	1	1	4	1	0	6	0	6	0	0	6	13
07:45 AM	0	0	0	0	0	2	0	1	0	3	0	8	0	0	8	0	2	0	0	2	13
Total	0	0	0	0	0	5	0	2	0	7	2	27	2	0	31	0	23	7	0	30	68
08:00 AM	1	0	0	0	1	1	0	1	0	2	0	6	0	0	6	0	3	1	0	4	13
08:15 AM	0	0	0	0	0	2	0	2	0	4	0	7	0	0	7	0	5	3	0	8	19
08:30 AM	0	0	0	0	0	4	0	2	0	6	0	7	0	0	7	0	9	1	0	10	23
08:45 AM	0	0	0	0	0	2	0	0	0	2	0	9	0	0	9	0	8	1	0	9	20
Total	1	0	0	0	1	9	0	5	0	14	0	29	0	0	29	0	25	6	0	31	75
*** BREAK ***																					
04:00 PM	1	0	0	0	1	0	0	0	0	0	2	7	0	0	9	0	7	2	0	9	19
04:15 PM	0	0	0	0	0	2	0	1	0	3	5	9	0	0	14	0	3	0	0	3	20
04:30 PM	0	0	0	0	0	0	0	1	0	1	1	10	0	0	11	0	4	3	0	7	19
04:45 PM	0	0	0	0	0	0	0	1	0	1	2	4	0	0	6	0	1	1	0	2	9
Total	1	0	0	0	1	2	0	3	0	5	10	30	0	0	40	0	15	6	0	21	67
05:00 PM	0	0	0	0	0	0	0	0	0	0	2	7	1	0	10	0	5	1	0	6	16
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	8	0	0	9	0	5	1	0	6	15
05:30 PM	0	0	0	0	0	1	0	0	0	1	1	4	0	0	5	0	2	2	0	4	10
05:45 PM	0	0	0	0	0	0	0	1	0	1	3	3	0	0	6	0	1	2	0	3	10
Total	0	0	0	0	0	1	0	1	0	2	7	22	1	0	30	0	13	6	0	19	51
Grand Total	2	0	0	0	2	17	0	11	0	28	19	108	3	0	130	0	76	25	0	101	261
Apprch %	100	0	0	0		60.7	0	39.3	0		14.6	83.1	2.3	0		0	75.2	24.8	0		
Total %	0.8	0	0	0	0.8	6.5	0	4.2	0	10.7	7.3	41.4	1.1	0	49.8	0	29.1	9.6	0	38.7	

SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 2



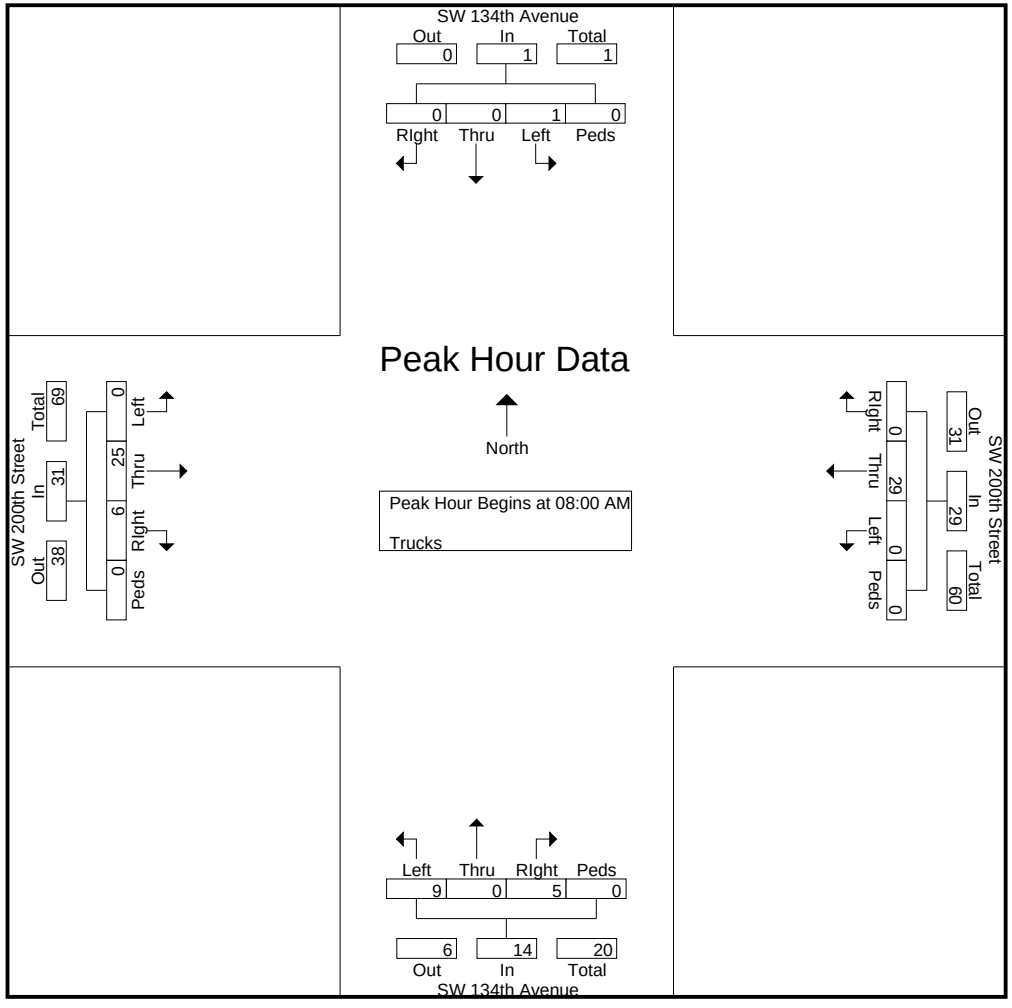
SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 3

	SW 134th Avenue Southbound					SW 134th Avenue Northbound					SW 200th Street Westbound					SW 200th Street Eastbound					
Start Time	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**1**	0	0	0	**1**	1	0	1	0	2	0	6	0	0	6	0	3	1	0	4	13
08:15 AM	0	0	0	0	0	2	0	**2**	0	4	0	7	0	0	7	0	5	**3**	0	8	19
08:30 AM	0	0	0	0	0	**4**	0	2	0	**6**	0	7	0	0	7	0	**9**	1	0	**10**	**23**
08:45 AM	0	0	0	0	0	2	0	0	0	2	0	**9**	0	0	**9**	0	8	1	0	9	20
Total Volume	1	0	0	0	1	9	0	5	0	14	0	29	0	0	29	0	25	6	0	31	75
% App. Total	100	0	0	0		64.3	0	35.7	0		0	100	0	0		0	80.6	19.4	0		
PHF	.250	.000	.000	.000	.250	.563	.000	.625	.000	.583	.000	.806	.000	.000	.806	.000	.694	.500	.000	.775	.815

SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 4



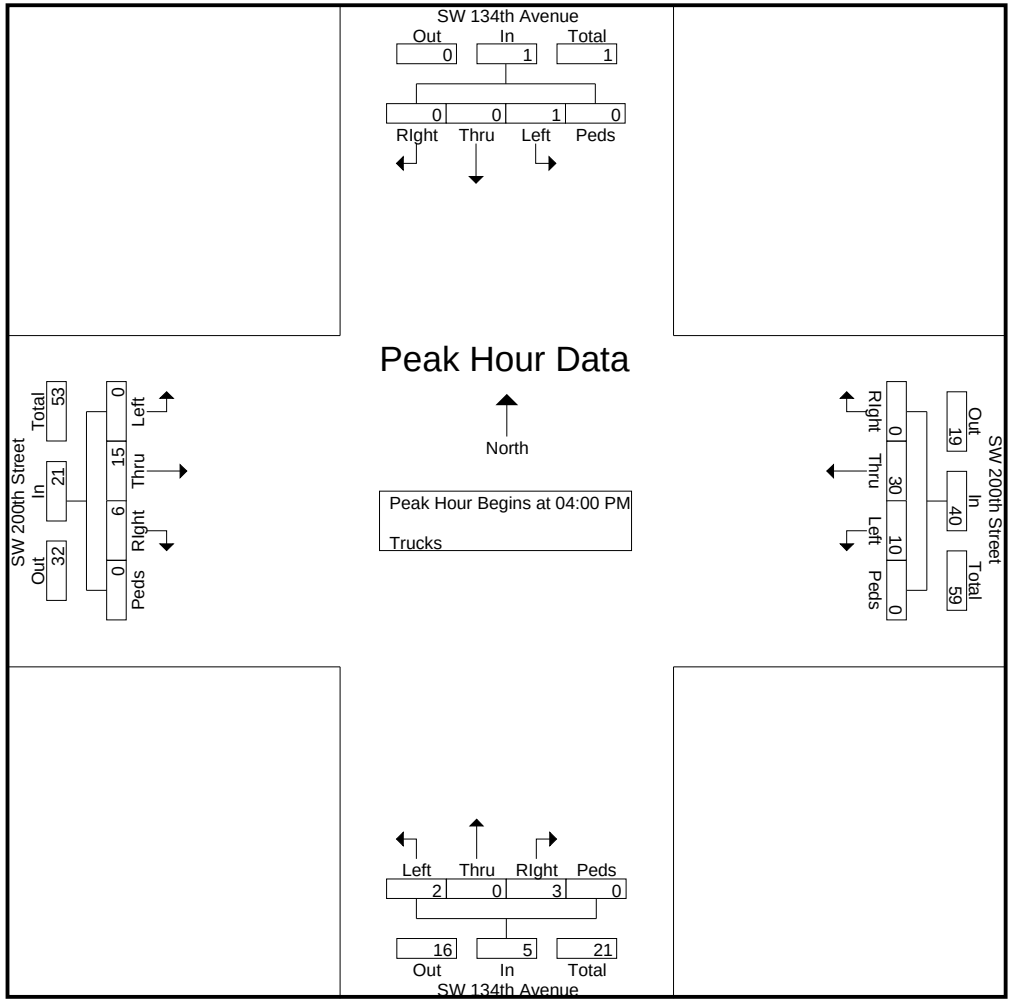
SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 5

	SW 134th Avenue Southbound					SW 134th Avenue Northbound					SW 200th Street Westbound					SW 200th Street Eastbound					
Start Time	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Left	Thru	RIght	Bikes	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**1**	0	0	0	**1**	0	0	0	0	0	2	7	0	0	9	0	**7**	2	0	**9**	19
04:15 PM	0	0	0	0	0	**2**	0	**1**	0	**3**	**5**	9	0	0	**14**	0	3	0	0	3	**20**
04:30 PM	0	0	0	0	0	0	0	1	0	1	1	**10**	0	0	11	0	4	**3**	0	7	19
04:45 PM	0	0	0	0	0	0	0	1	0	1	2	4	0	0	6	0	1	1	0	2	9
Total Volume	1	0	0	0	1	2	0	3	0	5	10	30	0	0	40	0	15	6	0	21	67
% App. Total	100	0	0	0		40	0	60	0		25	75	0	0		0	71.4	28.6	0		
PHF	.250	.000	.000	.000	.250	.250	.000	.750	.000	.417	.500	.750	.000	.000	.714	.000	.536	.500	.000	.583	.838

SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 6



SW 200th Street & SW 134th Avenue

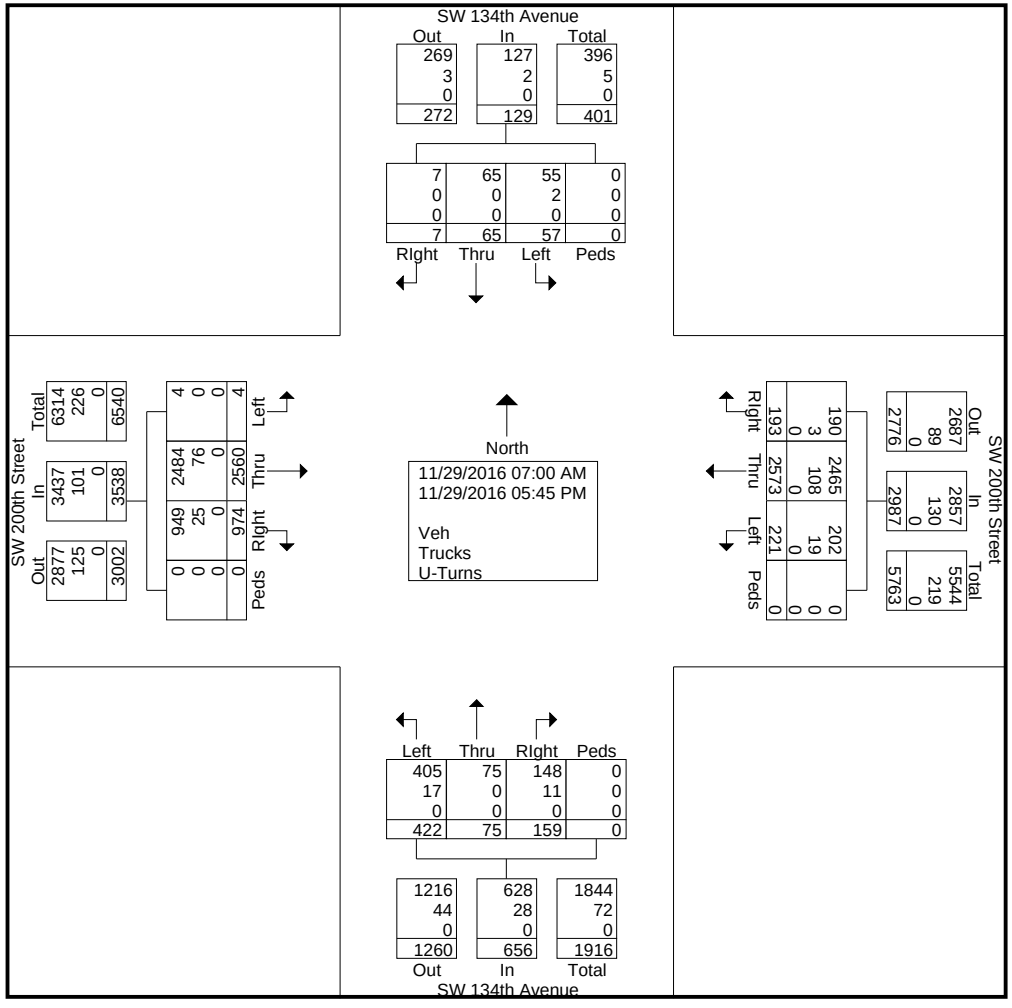
File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 1

Groups Printed- Veh - Trucks - Turns

	SW 134th Avenue Southbound					SW 134th Avenue Northbound					SW 200th Street Westbound					SW 200th Street Eastbound					
Start Time	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Int. Total
07:00 AM	1	0	1	0	2	41	7	13	0	61	14	191	24	0	229	0	149	47	0	196	488
07:15 AM	1	0	0	0	1	27	4	8	0	39	10	202	30	0	242	0	177	64	0	241	523
07:30 AM	2	0	0	0	2	21	7	6	0	34	10	213	31	0	254	0	180	58	0	238	528
07:45 AM	10	6	1	0	17	25	8	10	0	43	10	192	24	0	226	0	207	50	0	257	543
Total	14	6	2	0	22	114	26	37	0	177	44	798	109	0	951	0	713	219	0	932	2082
08:00 AM	11	11	0	0	22	22	4	9	0	35	11	179	27	0	217	0	180	50	0	230	504
08:15 AM	2	4	0	0	6	28	6	14	0	48	11	175	13	0	199	0	188	47	0	235	488
08:30 AM	1	0	1	0	2	43	9	16	0	68	8	163	7	0	178	0	152	28	0	180	428
08:45 AM	1	0	0	0	1	43	6	9	0	58	5	142	3	0	150	0	166	24	0	190	399
Total	15	15	1	0	31	136	25	48	0	209	35	659	50	0	744	0	686	149	0	835	1819
*** BREAK ***																					
04:00 PM	1	1	1	0	3	17	3	5	0	25	10	121	5	0	136	0	135	63	0	198	362
04:15 PM	2	2	1	0	5	14	3	5	0	22	22	136	2	0	160	0	130	67	0	197	384
04:30 PM	6	6	0	0	12	21	5	14	0	40	12	149	1	0	162	1	136	71	0	208	422
04:45 PM	4	2	1	0	7	30	2	12	0	44	21	144	4	0	169	0	151	89	0	240	460
Total	13	11	3	0	27	82	13	36	0	131	65	550	12	0	627	1	552	290	0	843	1628
05:00 PM	1	1	1	0	3	27	2	8	0	37	21	151	10	0	182	0	146	65	0	211	433
05:15 PM	2	8	0	0	10	27	6	11	0	44	23	131	4	0	158	2	158	87	0	247	459
05:30 PM	7	9	0	0	16	15	1	6	0	22	20	155	4	0	179	0	147	87	0	234	451
05:45 PM	5	15	0	0	20	21	2	13	0	36	13	129	4	0	146	1	158	77	0	236	438
Total	15	33	1	0	49	90	11	38	0	139	77	566	22	0	665	3	609	316	0	928	1781
Grand Total	57	65	7	0	129	422	75	159	0	656	221	2573	193	0	2987	4	2560	974	0	3538	7310
Apprch %	44.2	50.4	5.4	0		64.3	11.4	24.2	0		7.4	86.1	6.5	0		0.1	72.4	27.5	0		
Total %	0.8	0.9	0.1	0	1.8	5.8	1	2.2	0	9	3	35.2	2.6	0	40.9	0.1	35	13.3	0	48.4	
Veh	55	65	7	0	127	405	75	148	0	628	202	2465	190	0	2857	4	2484	949	0	3437	7049
% Veh	96.5	100	100	0	98.4	96	100	93.1	0	95.7	91.4	95.8	98.4	0	95.6	100	97	97.4	0	97.1	96.4
Trucks	2	0	0	0	2	17	0	11	0	28	19	108	3	0	130	0	76	25	0	101	261
% Trucks	3.5	0	0	0	1.6	4	0	6.9	0	4.3	8.6	4.2	1.6	0	4.4	0	3	2.6	0	2.9	3.6
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 2



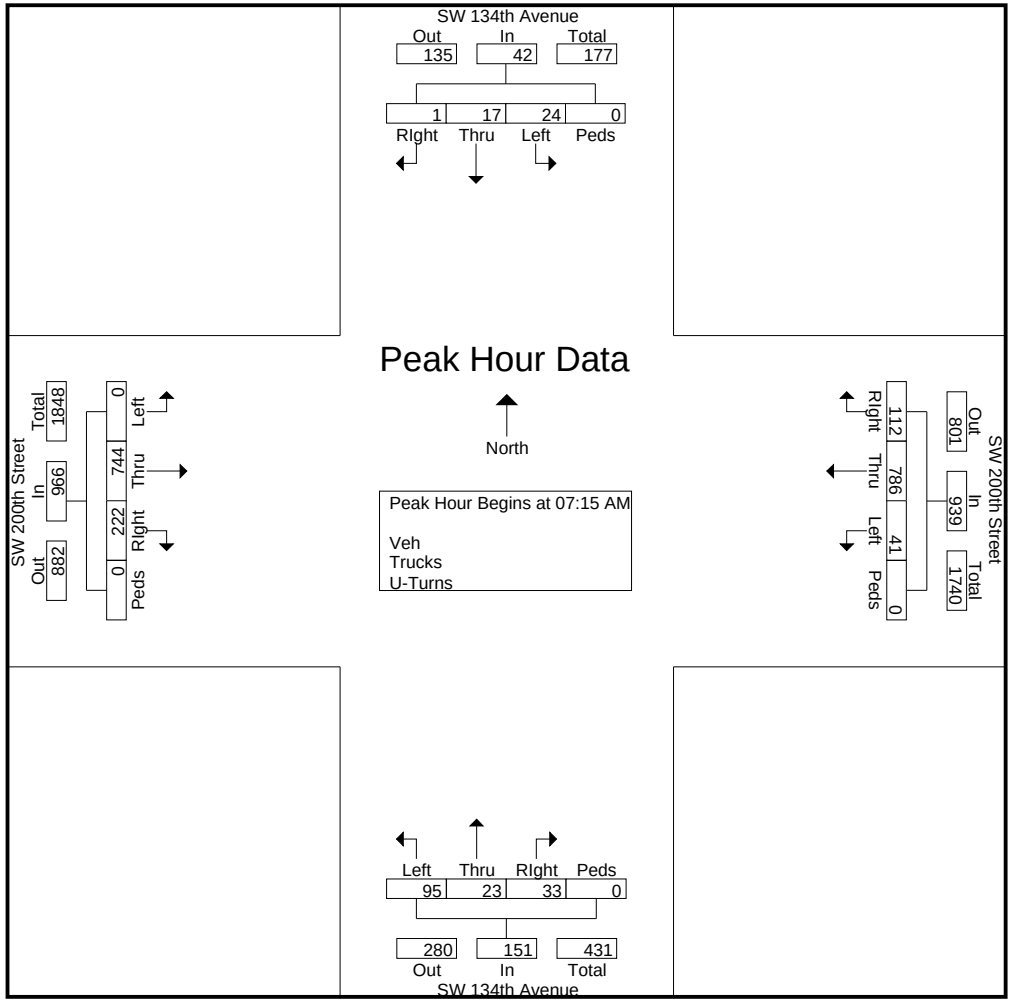
SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 3

	SW 134th Avenue Southbound					SW 134th Avenue Northbound					SW 200th Street Westbound					SW 200th Street Eastbound					
Start Time	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	0	0	0	1	**27**	4	8	0	39	10	202	30	0	242	0	177	**64**	0	241	523
07:30 AM	2	0	0	0	2	21	7	6	0	34	10	**213**	**31**	0	**254**	0	180	58	0	238	528
07:45 AM	10	6	**1**	0	17	25	**8**	**10**	0	**43**	10	192	24	0	226	0	**207**	50	0	**257**	**543**
08:00 AM	**11**	**11**	0	0	**22**	22	4	9	0	35	**11**	179	27	0	217	0	180	50	0	230	504
Total Volume	24	17	1	0	42	95	23	33	0	151	41	786	112	0	939	0	744	222	0	966	2098
% App. Total	57.1	40.5	2.4	0		62.9	15.2	21.9	0		4.4	83.7	11.9	0		0	77	23	0		
PHF	.545	.386	.250	.000	.477	.880	.719	.825	.000	.878	.932	.923	.903	.000	.924	.000	.899	.867	.000	.940	.966

SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 4



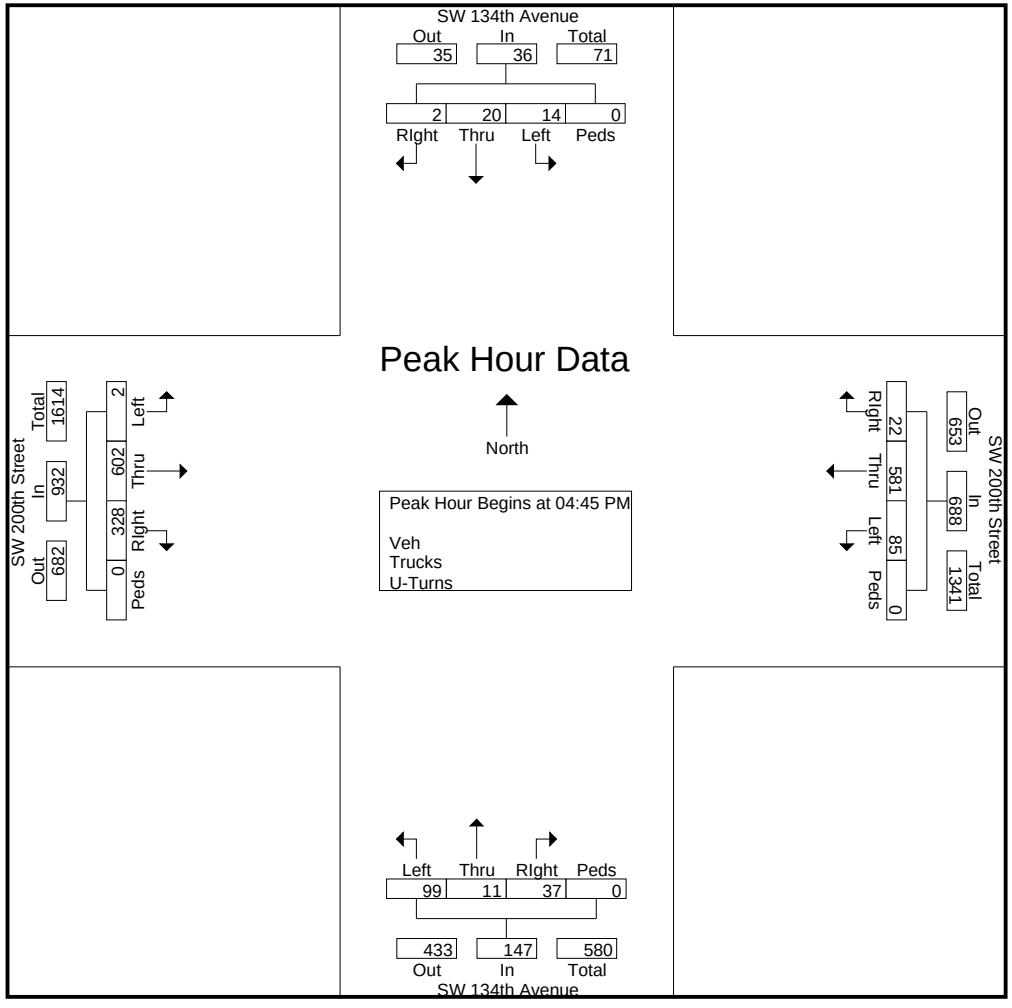
SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 5

	SW 134th Avenue Southbound					SW 134th Avenue Northbound					SW 200th Street Westbound					SW 200th Street Eastbound					
Start Time	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Left	Thru	RIght	Peds/Bike	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	4	2	**1**	0	7	**30**	2	**12**	0	**44**	21	144	4	0	169	0	151	**89**	0	240	**460**
05:00 PM	1	1	1	0	3	27	2	8	0	37	21	151	**10**	0	**182**	0	146	65	0	211	433
05:15 PM	2	8	0	0	10	27	**6**	11	0	44	**23**	131	4	0	158	**2**	**158**	87	0	**247**	459
05:30 PM	**7**	**9**	0	0	**16**	15	1	6	0	22	20	**155**	4	0	179	0	147	87	0	234	451
Total Volume	14	20	2	0	36	99	11	37	0	147	85	581	22	0	688	2	602	328	0	932	1803
% App. Total	38.9	55.6	5.6	0		67.3	7.5	25.2	0		12.4	84.4	3.2	0		0.2	64.6	35.2	0		
PHF	.500	.556	.500	.000	.563	.825	.458	.771	.000	.835	.924	.937	.550	.000	.945	.250	.953	.921	.000	.943	.980

SW 200th Street & SW 134th Avenue

File Name : SW 200th Street & SW 134th Avenue
Site Code : 00000000
Start Date : 11/29/2016
Page No : 6



SW 200th Street & SW 134th Avenue
Stop Delay Northbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 1

Ln.	No.	Joined Queue	Released From Queue	Delay
1	1	4:00:00 PM	4:00:49 PM	49
1	2	4:00:34 PM	4:00:51 PM	17
1	3	4:02:40 PM	4:03:03 PM	23
1	4	4:03:01 PM	4:03:08 PM	7
1	5	4:03:02 PM	4:03:11 PM	9
1	6	4:06:07 PM	4:06:22 PM	15
1	7	4:06:10 PM	4:06:29 PM	19
1	8	4:06:43 PM	4:07:09 PM	26
1	9	4:06:45 PM	4:07:21 PM	36
1	10	4:08:14 PM	4:08:35 PM	21
1	11	4:08:15 PM	4:08:59 PM	44
1	12	4:08:22 PM	4:09:23 PM	61
1	13	4:09:38 PM	4:09:42 PM	4
1	14	4:10:29 PM	4:10:44 PM	15
1	15	4:11:16 PM	4:11:42 PM	26
1	16	4:11:17 PM	4:11:44 PM	27
1	17	4:11:18 PM	4:11:49 PM	31
1	18	4:11:32 PM	4:11:55 PM	23
1	19	4:11:35 PM	4:12:18 PM	43
1	20	4:11:37 PM	4:12:19 PM	42
1	21	4:12:25 PM	4:13:12 PM	47
1	22	4:17:32 PM	4:17:43 PM	11
1	23	4:17:37 PM	4:17:50 PM	13
1	24	4:17:38 PM	4:17:59 PM	21
1	25	4:18:58 PM	4:19:25 PM	27
1	26	4:19:57 PM	4:20:42 PM	45
1	27	4:20:42 PM	4:20:49 PM	7
1	28	4:22:30 PM	4:22:35 PM	5
1	29	4:22:32 PM	4:22:43 PM	11
1	30	4:22:58 PM	4:23:04 PM	6
1	31	4:23:00 PM	4:23:06 PM	6
1	32	4:23:10 PM	4:23:45 PM	35
1	33	4:23:33 PM	4:24:28 PM	55
1	34	4:24:56 PM	4:25:07 PM	11
1	35	4:25:55 PM	4:26:48 PM	53
1	36	4:26:00 PM	4:27:05 PM	65
1	37	4:27:18 PM	4:27:23 PM	5
1	38	4:27:53 PM	4:28:20 PM	27
1	39	4:29:03 PM	4:29:06 PM	3
1	40	4:30:04 PM	4:30:12 PM	8
1	41	4:31:06 PM	4:31:12 PM	6
1	42	4:31:28 PM	4:32:10 PM	42
1	43	4:31:30 PM	4:32:28 PM	58
1	44	4:31:49 PM	4:32:50 PM	61
1	45	4:31:53 PM	4:33:33 PM	100
1	46	4:32:07 PM	4:33:34 PM	87
1	47	4:33:52 PM	4:34:14 PM	22
1	48	4:33:53 PM	4:34:25 PM	32
1	49	4:34:22 PM	4:35:37 PM	75
1	50	4:34:31 PM	4:35:55 PM	84
1	51	4:37:35 PM	4:37:44 PM	9
1	52	4:37:36 PM	4:37:46 PM	10
1	53	4:38:11 PM	4:38:24 PM	13
1	54	4:38:14 PM	4:38:29 PM	15
1	55	4:38:49 PM	4:38:55 PM	6
1	56	4:39:12 PM	4:39:16 PM	4
1	57	4:39:34 PM	4:40:05 PM	31
1	58	4:40:03 PM	4:40:09 PM	6
1	59	4:40:08 PM	4:40:16 PM	8
1	60	4:40:11 PM	4:40:21 PM	10
1	61	4:40:18 PM	4:40:23 PM	5
1	62	4:40:35 PM	4:40:42 PM	7
1	63	4:40:36 PM	4:40:45 PM	9

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 2

Ln.	No.	Joined Queue	Released From Queue	Delay
1	64	4:40:36 PM	4:40:49 PM	13
1	65	4:40:37 PM	4:41:50 PM	73
1	66	4:40:38 PM	4:42:55 PM	137
1	67	4:40:46 PM	4:43:00 PM	134
1	68	4:41:17 PM	4:43:02 PM	105
1	69	4:41:27 PM	4:43:04 PM	97
1	70	4:42:19 PM	4:43:08 PM	49
1	71	4:42:28 PM	4:43:11 PM	43
1	72	4:42:30 PM	4:43:27 PM	57
1	73	4:42:43 PM	4:43:28 PM	45
1	74	4:42:58 PM	4:43:33 PM	35
1	75	4:43:26 PM	4:43:35 PM	9
1	76	4:43:38 PM	4:43:45 PM	7
1	77	4:43:43 PM	4:43:46 PM	3
1	78	4:43:50 PM	4:44:01 PM	11
1	79	4:44:14 PM	4:45:07 PM	53
1	80	4:44:48 PM	4:45:19 PM	31
1	81	4:45:10 PM	4:45:43 PM	33
1	82	4:45:21 PM	4:45:48 PM	27
1	83	4:45:29 PM	4:46:20 PM	51
1	84	4:45:30 PM	4:46:21 PM	51
1	85	4:45:34 PM	4:46:52 PM	78
1	86	4:45:44 PM	4:47:27 PM	103
1	87	4:45:47 PM	4:47:37 PM	110
1	88	4:46:30 PM	4:47:40 PM	70
1	89	4:46:31 PM	4:47:56 PM	85
1	90	4:46:33 PM	4:48:12 PM	99
1	91	4:47:01 PM	4:48:25 PM	84
1	92	4:47:02 PM	4:49:01 PM	119
1	93	4:47:29 PM	4:49:15 PM	106
1	94	4:47:39 PM	4:49:18 PM	99
1	95	4:48:31 PM	4:49:39 PM	68
1	96	4:48:36 PM	4:49:49 PM	73
1	97	4:49:30 PM	4:49:53 PM	23
1	98	4:49:32 PM	4:49:59 PM	27
1	99	4:50:22 PM	4:51:01 PM	39
1	100	4:51:23 PM	4:51:29 PM	6
1	101	4:51:24 PM	4:51:52 PM	28
1	102	4:51:46 PM	4:52:15 PM	29
1	103	4:53:18 PM	4:53:23 PM	5
1	104	4:53:30 PM	4:55:00 PM	90
1	105	4:53:39 PM	4:55:06 PM	87
1	106	4:54:48 PM	4:55:17 PM	29
1	107	4:54:49 PM	4:55:27 PM	38
1	108	4:54:50 PM	4:55:34 PM	44
1	109	4:54:51 PM	4:55:38 PM	47
1	110	4:55:06 PM	4:55:46 PM	40
1	111	4:56:52 PM	4:57:26 PM	34
1	112	4:56:52 PM	4:57:33 PM	41
1	113	4:56:53 PM	4:57:41 PM	48
1	114	4:56:53 PM	4:57:45 PM	52
1	115	4:56:55 PM	4:57:53 PM	58
1	116	4:56:56 PM	4:58:25 PM	89
1	117	4:57:14 PM	4:58:41 PM	87
1	118	4:57:51 PM	4:58:42 PM	51
1	119	4:57:52 PM	4:58:44 PM	52
1	120	4:58:13 PM	4:58:47 PM	34
1	121	4:58:23 PM	4:59:09 PM	46
1	122	4:58:35 PM	4:59:19 PM	44
1	123	4:59:03 PM	4:59:20 PM	17
1	124	4:59:28 PM	4:59:30 PM	2
1	125	4:59:36 PM	4:59:44 PM	8
1	126	4:59:54 PM	4:59:56 PM	2

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 3

Ln.	No.	Joined Queue	Released From Queue	Delay
1	127	5:00:26 PM	5:02:09 PM	103
1	128	5:01:20 PM	5:02:16 PM	56
1	129	5:01:23 PM	5:03:47 PM	144
1	130	5:01:34 PM	5:04:01 PM	147
1	131	5:01:35 PM	5:04:11 PM	156
1	132	5:01:35 PM	5:04:18 PM	163
1	133	5:01:36 PM	5:04:29 PM	173
1	134	5:01:45 PM	5:05:19 PM	214
1	135	5:02:54 PM	5:05:19 PM	145
1	136	5:02:58 PM	5:05:27 PM	149
1	137	5:03:07 PM	5:05:57 PM	170
1	138	5:03:08 PM	5:06:14 PM	186
1	139	5:03:44 PM	5:06:33 PM	169
1	140	5:04:04 PM	5:07:22 PM	198
1	141	5:04:17 PM	5:07:56 PM	219
1	142	5:04:23 PM	5:07:58 PM	215
1	143	5:04:55 PM	5:08:02 PM	187
1	144	5:05:25 PM	5:08:07 PM	162
1	145	5:06:30 PM	5:08:18 PM	108
1	146	5:06:49 PM	5:08:25 PM	96
1	147	5:07:04 PM	5:08:28 PM	84
1	148	5:08:20 PM	5:08:34 PM	14
1	149	5:08:27 PM	5:08:40 PM	13
1	150	5:08:30 PM	5:08:44 PM	14
1	151	5:08:41 PM	5:08:48 PM	7
1	152	5:08:42 PM	5:08:51 PM	9
1	153	5:09:00 PM	5:09:51 PM	51
1	154	5:09:01 PM	5:09:54 PM	53
1	155	5:09:12 PM	5:10:04 PM	52
1	156	5:09:17 PM	5:10:12 PM	55
1	157	5:09:44 PM	5:10:16 PM	32
1	158	5:10:10 PM	5:11:05 PM	55
1	159	5:10:31 PM	5:11:06 PM	35
1	160	5:12:14 PM	5:13:42 PM	88
1	161	5:12:48 PM	5:15:05 PM	137
1	162	5:12:49 PM	5:15:27 PM	158
1	163	5:14:32 PM	5:16:00 PM	88
1	164	5:14:33 PM	5:16:10 PM	97
1	165	5:14:35 PM	5:16:26 PM	111
1	166	5:14:52 PM	5:16:31 PM	99
1	167	5:15:02 PM	5:16:35 PM	93
1	168	5:15:04 PM	5:16:36 PM	92
1	169	5:16:07 PM	5:16:40 PM	33
1	170	5:16:28 PM	5:16:55 PM	27
1	171	5:16:32 PM	5:17:03 PM	31
1	172	5:16:46 PM	5:17:07 PM	21
1	173	5:16:53 PM	5:17:13 PM	20
1	174	5:17:25 PM	5:17:43 PM	18
1	175	5:19:54 PM	5:21:13 PM	79
1	176	5:20:00 PM	5:21:23 PM	83
1	177	5:20:16 PM	5:21:26 PM	70
1	178	5:20:18 PM	5:21:28 PM	70
1	179	5:20:23 PM	5:21:32 PM	69
1	180	5:20:40 PM	5:21:45 PM	65
1	181	5:21:32 PM	5:23:06 PM	94
1	182	5:21:38 PM	5:23:25 PM	107
1	183	5:21:38 PM	5:23:29 PM	111
1	184	5:21:54 PM	5:23:35 PM	101
1	185	5:22:31 PM	5:24:05 PM	94
1	186	5:22:33 PM	5:24:36 PM	123
1	187	5:22:54 PM	5:24:45 PM	111
1	188	5:22:55 PM	5:24:51 PM	116
1	189	5:23:20 PM	5:25:07 PM	107

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 4

Ln.	No.	Joined Queue	Released From Queue	Delay
1	190	5:24:28 PM	5:25:15 PM	47
1	191	5:24:49 PM	5:25:21 PM	32
1	192	5:24:50 PM	5:25:28 PM	38
1	193	5:25:15 PM	5:25:29 PM	14
1	194	5:25:24 PM	5:25:41 PM	17
1	195	5:25:41 PM	5:25:46 PM	5
1	196	5:25:48 PM	5:25:58 PM	10
1	197	5:26:04 PM	5:26:21 PM	17
1	198	5:26:05 PM	5:26:25 PM	20
1	199	5:26:33 PM	5:28:05 PM	92
1	200	5:26:48 PM	5:28:34 PM	106
1	201	5:27:08 PM	5:29:21 PM	133
1	202	5:27:54 PM	5:29:27 PM	93
1	203	5:27:59 PM	5:29:31 PM	92
1	204	5:28:24 PM	5:29:34 PM	70
1	205	5:28:41 PM	5:29:44 PM	63
1	206	5:28:55 PM	5:29:50 PM	55
1	207	5:29:04 PM	5:30:00 PM	56
1	208	5:29:31 PM	5:30:01 PM	30
1	209	5:31:43 PM	5:31:48 PM	5
1	210	5:32:17 PM	5:32:20 PM	3
1	211	5:33:02 PM	5:33:11 PM	9
1	212	5:33:43 PM	5:33:50 PM	7
1	213	5:33:52 PM	5:33:54 PM	2
1	214	5:35:04 PM	5:35:12 PM	8
1	215	5:35:44 PM	5:36:04 PM	20
1	216	5:35:46 PM	5:36:55 PM	69
1	217	5:36:47 PM	5:37:02 PM	15
1	218	5:37:13 PM	5:38:30 PM	77
1	219	5:37:16 PM	5:38:40 PM	84
1	220	5:37:50 PM	5:39:04 PM	74
1	221	5:37:51 PM	5:39:17 PM	86
1	222	5:37:52 PM	5:41:05 PM	193
1	223	5:38:56 PM	5:41:36 PM	160
1	224	5:39:21 PM	5:41:38 PM	137
1	225	5:40:46 PM	5:42:27 PM	101
1	226	5:40:54 PM	5:42:38 PM	104
1	227	5:41:29 PM	5:43:05 PM	96
1	228	5:41:31 PM	5:43:48 PM	137
1	229	5:44:27 PM	5:44:30 PM	3
1	230	5:45:23 PM	5:45:31 PM	8
1	231	5:47:18 PM	5:48:26 PM	68
1	232	5:48:07 PM	5:48:28 PM	21
1	233	5:48:20 PM	5:49:26 PM	66
1	234	5:49:17 PM	5:50:07 PM	50
1	235	5:49:19 PM	5:50:09 PM	50
1	236	5:49:29 PM	5:50:27 PM	58
1	237	5:49:31 PM	5:50:33 PM	62
1	238	5:49:33 PM	5:50:36 PM	63
1	239	5:49:35 PM	5:50:37 PM	62
1	240	5:49:43 PM	5:50:47 PM	64
1	241	5:49:49 PM	5:51:07 PM	78
1	242	5:50:42 PM	5:51:14 PM	32
1	243	5:51:10 PM	5:52:56 PM	106
1	244	5:51:15 PM	5:53:17 PM	122
1	245	5:51:20 PM	5:53:24 PM	124
1	246	5:51:22 PM	5:54:06 PM	164
1	247	5:51:52 PM	5:54:58 PM	186
1	248	5:51:52 PM	5:55:03 PM	191
1	249	5:51:55 PM	5:55:56 PM	241
1	250	5:51:59 PM	5:56:26 PM	267
1	251	5:52:02 PM	5:56:33 PM	271
1	252	5:52:05 PM	5:56:36 PM	271

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 5

Ln.	No.	Joined Queue	Released From Queue	Delay
1	253	5:52:50 PM	5:56:38 PM	228
1	254	5:53:58 PM	5:56:56 PM	178
1	255	5:54:23 PM	5:57:28 PM	185
1	256	5:54:26 PM	5:57:42 PM	196
1	257	5:54:32 PM	5:57:44 PM	192
1	258	5:54:34 PM	5:58:24 PM	230
1	259	5:54:37 PM	5:58:51 PM	254
1	260	5:54:38 PM	5:58:58 PM	260
1	261	5:54:41 PM	5:59:01 PM	260
1	262	5:54:49 PM	5:59:01 PM	252
1	263	5:57:05 PM	5:59:12 PM	127
1	264	5:57:07 PM	5:59:20 PM	133
1	265	5:57:12 PM	5:59:39 PM	147
1	266	5:57:39 PM	6:01:42 PM	243
1	267	5:57:40 PM	6:01:47 PM	247
1	268	5:57:43 PM	6:01:52 PM	249
1	269	5:57:59 PM	6:02:03 PM	244
1	270	5:58:13 PM	6:02:10 PM	237
1	271	5:58:44 PM	6:02:16 PM	212
1	272	5:58:45 PM	6:02:32 PM	227
1	273	5:58:47 PM	6:02:40 PM	233
1	274	5:58:54 PM	6:02:44 PM	230
1	275	5:59:02 PM	6:02:49 PM	227
1	276	5:59:06 PM	6:03:15 PM	249
1	277	5:59:10 PM	6:03:27 PM	257
1	278	5:59:15 PM	6:03:33 PM	258
1	279	5:59:23 PM	6:03:37 PM	254
1	280	5:59:33 PM	6:03:49 PM	256

Summary Information:

4:00:00 PM - 6:04:00 PM	Lane 1
Total Vehicle Count:	280
Delayed Vehicle Count:	280
Through Vehicle Count:	0
Average Stopped Time:	80.25
Maximum Stopped Time:	271
Min. Secs. for Delay:	0
Average Queue:	3.02
Queue Density:	4.50
Maximum Queue:	16
Delay in Vehicle Hour:	3.02
Total Delay:	22471

SW 200th Street & SW 134th Avenue
Stop Delay Southbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm SB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 1

Ln.	No.	Joined Queue	Released From Queue	Delay
1	1	4:01:01 PM	4:01:05 PM	4
1	2	4:05:04 PM	4:05:32 PM	28
1	3	4:13:40 PM	4:13:46 PM	6
1	4	4:15:34 PM	4:15:47 PM	13
1	5	4:17:38 PM	4:17:55 PM	17
1	6	4:20:51 PM	4:21:11 PM	20
1	7	4:21:50 PM	4:21:59 PM	9
1	8	4:23:56 PM	4:24:05 PM	9
1	9	4:30:23 PM	4:30:27 PM	4
1	10	4:30:25 PM	4:31:00 PM	35
1	11	4:30:43 PM	4:31:13 PM	30
1	12	4:31:49 PM	4:32:02 PM	13
1	13	4:32:24 PM	4:32:44 PM	20
1	14	4:33:48 PM	4:35:04 PM	76
1	15	4:34:02 PM	4:35:09 PM	67
1	16	4:35:13 PM	4:35:28 PM	15
1	17	4:35:33 PM	4:35:39 PM	6
1	18	4:38:31 PM	4:38:39 PM	8
1	19	4:38:38 PM	4:39:41 PM	63
1	20	4:41:39 PM	4:42:27 PM	48
1	21	4:47:49 PM	4:47:55 PM	6
1	22	4:52:19 PM	4:52:26 PM	7
1	23	4:52:57 PM	4:53:03 PM	6
1	24	4:54:34 PM	4:54:37 PM	3
1	25	4:55:58 PM	4:56:32 PM	34
1	26	4:56:28 PM	4:57:07 PM	39
1	27	4:58:10 PM	4:58:19 PM	9
1	28	5:01:43 PM	5:03:38 PM	115
1	29	5:02:03 PM	5:03:51 PM	108
1	30	5:03:28 PM	5:04:02 PM	34
1	31	5:21:52 PM	5:22:57 PM	65
1	32	5:22:46 PM	5:23:05 PM	19
1	33	5:23:08 PM	5:24:09 PM	61
1	34	5:23:20 PM	5:24:12 PM	52
1	35	5:23:35 PM	5:24:21 PM	46
1	36	5:25:00 PM	5:25:10 PM	10
1	37	5:26:11 PM	5:26:20 PM	9
1	38	5:26:52 PM	5:27:38 PM	46
1	39	5:28:48 PM	5:28:54 PM	6
1	40	5:28:52 PM	5:29:02 PM	10
1	41	5:30:55 PM	5:31:16 PM	21
1	42	5:32:13 PM	5:33:04 PM	51
1	43	5:32:32 PM	5:33:25 PM	53
1	44	5:33:34 PM	5:34:53 PM	79
1	45	5:33:56 PM	5:35:26 PM	90
1	46	5:35:15 PM	5:35:36 PM	21
1	47	5:36:36 PM	5:36:46 PM	10
1	48	5:36:39 PM	5:37:24 PM	45
1	49	5:36:41 PM	5:38:45 PM	124
1	50	5:37:29 PM	5:40:36 PM	187
1	51	5:38:25 PM	5:40:49 PM	144
1	52	5:40:22 PM	5:41:06 PM	44
1	53	5:41:30 PM	5:42:01 PM	31
1	54	5:43:53 PM	5:43:58 PM	5
1	55	5:44:23 PM	5:46:17 PM	114
1	56	5:44:38 PM	5:46:20 PM	102
1	57	5:44:46 PM	5:48:34 PM	228
1	58	5:45:20 PM	5:49:08 PM	228
1	59	5:45:51 PM	5:49:39 PM	228
1	60	5:46:13 PM	5:49:50 PM	217
1	61	5:46:44 PM	5:50:40 PM	236
1	62	5:48:18 PM	5:51:52 PM	214
1	63	5:48:22 PM	5:52:21 PM	239

SW 200th Street & SW 134th Avenue
Stop Delay Southbound
4pm-6pm

File Name : Stop Delay SW 200th St & SW 134th Av 4pm-6pm SB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 2

Ln.	No.	Joined Queue	Released From Queue	Delay
1	64	5:48:33 PM	5:52:31 PM	238
1	65	5:49:56 PM	5:52:42 PM	166
1	66	5:50:38 PM	5:53:36 PM	178
1	67	5:52:29 PM	5:55:31 PM	182
1	68	5:52:50 PM	5:56:21 PM	211
1	69	5:53:04 PM	5:56:43 PM	219
1	70	5:54:13 PM	5:57:51 PM	218
1	71	5:54:19 PM	5:58:15 PM	236
1	72	5:54:24 PM	5:58:19 PM	235
1	73	5:55:55 PM	5:58:20 PM	145
1	74	5:58:23 PM	5:58:33 PM	10

Summary Information:

4:01:00 PM - 5:59:00 PM	Lane 1
Total Vehicle Count:	74
Delayed Vehicle Count:	74
Through Vehicle Count:	0
Average Stopped Time:	80.07
Maximum Stopped Time:	239
Min. Secs. for Delay:	0
Average Queue:	0.84
Queue Density:	2.64
Maximum Queue:	8
Delay in Vehicle Hour:	0.84
Total Delay:	5925

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 1

Ln.	No.	Joined Queue	Released From Queue	Delay
1	1	7:00:00 AM	7:00:03 AM	3
1	2	7:00:03 AM	7:00:08 AM	5
1	3	7:00:04 AM	7:00:53 AM	49
1	4	7:00:05 AM	7:01:10 AM	65
1	5	7:00:05 AM	7:01:43 AM	98
1	6	7:00:06 AM	7:01:46 AM	100
1	7	7:00:06 AM	7:01:48 AM	102
1	8	7:00:07 AM	7:01:49 AM	102
1	9	7:00:09 AM	7:01:56 AM	107
1	10	7:00:10 AM	7:02:02 AM	112
1	11	7:00:11 AM	7:02:09 AM	118
1	12	7:00:12 AM	7:02:11 AM	119
1	13	7:00:13 AM	7:02:14 AM	121
1	14	7:00:13 AM	7:02:21 AM	128
1	15	7:00:14 AM	7:02:22 AM	128
1	16	7:00:15 AM	7:02:52 AM	157
1	17	7:00:16 AM	7:02:55 AM	159
1	18	7:01:02 AM	7:02:59 AM	117
1	19	7:01:22 AM	7:03:02 AM	100
1	20	7:01:23 AM	7:03:20 AM	117
1	21	7:01:24 AM	7:03:21 AM	117
1	22	7:01:31 AM	7:03:25 AM	114
1	23	7:01:32 AM	7:03:27 AM	115
1	24	7:01:32 AM	7:03:30 AM	118
1	25	7:02:08 AM	7:03:35 AM	87
1	26	7:02:08 AM	7:03:43 AM	95
1	27	7:02:09 AM	7:03:57 AM	108
1	28	7:02:10 AM	7:04:09 AM	119
1	29	7:02:13 AM	7:04:59 AM	166
1	30	7:02:13 AM	7:05:20 AM	187
1	31	7:02:18 AM	7:05:28 AM	190
1	32	7:02:19 AM	7:05:34 AM	195
1	33	7:02:22 AM	7:05:39 AM	197
1	34	7:02:25 AM	7:06:01 AM	216
1	35	7:02:26 AM	7:06:11 AM	225
1	36	7:04:29 AM	7:06:21 AM	112
1	37	7:04:30 AM	7:06:31 AM	121
1	38	7:04:30 AM	7:06:49 AM	139
1	39	7:05:11 AM	7:07:53 AM	162
1	40	7:06:01 AM	7:08:26 AM	145
1	41	7:06:07 AM	7:08:29 AM	142
1	42	7:06:13 AM	7:08:46 AM	153
1	43	7:06:33 AM	7:08:51 AM	138
1	44	7:06:55 AM	7:09:28 AM	153
1	45	7:06:58 AM	7:09:34 AM	156
1	46	7:07:38 AM	7:09:42 AM	124
1	47	7:07:40 AM	7:09:44 AM	124
1	48	7:07:50 AM	7:09:47 AM	117
1	49	7:07:52 AM	7:09:51 AM	119
1	50	7:07:54 AM	7:09:52 AM	118
1	51	7:08:12 AM	7:09:55 AM	103
1	52	7:08:34 AM	7:10:02 AM	88
1	53	7:08:48 AM	7:10:05 AM	77
1	54	7:08:52 AM	7:10:10 AM	78
1	55	7:08:56 AM	7:10:14 AM	78
1	56	7:08:57 AM	7:10:16 AM	79
1	57	7:09:00 AM	7:10:19 AM	79
1	58	7:09:01 AM	7:11:26 AM	145
1	59	7:10:27 AM	7:11:29 AM	62
1	60	7:10:29 AM	7:11:34 AM	65
1	61	7:10:31 AM	7:11:44 AM	73
1	62	7:11:23 AM	7:11:52 AM	29
1	63	7:12:08 AM	7:12:23 AM	15

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 2

Ln.	No.	Joined Queue	Released From Queue	Delay
1	64	7:12:10 AM	7:12:31 AM	21
1	65	7:12:26 AM	7:14:59 AM	153
1	66	7:13:48 AM	7:15:18 AM	90
1	67	7:13:50 AM	7:15:52 AM	122
1	68	7:13:53 AM	7:16:01 AM	128
1	69	7:13:57 AM	7:16:19 AM	142
1	70	7:14:00 AM	7:16:22 AM	142
1	71	7:14:16 AM	7:16:50 AM	154
1	72	7:14:22 AM	7:18:21 AM	239
1	73	7:15:34 AM	7:18:22 AM	168
1	74	7:15:35 AM	7:18:24 AM	169
1	75	7:15:38 AM	7:18:30 AM	172
1	76	7:15:40 AM	7:18:32 AM	172
1	77	7:15:42 AM	7:18:38 AM	176
1	78	7:16:15 AM	7:18:55 AM	160
1	79	7:16:16 AM	7:19:04 AM	168
1	80	7:16:19 AM	7:19:18 AM	179
1	81	7:16:23 AM	7:20:41 AM	258
1	82	7:16:33 AM	7:20:46 AM	253
1	83	7:16:36 AM	7:20:47 AM	251
1	84	7:16:39 AM	7:20:57 AM	258
1	85	7:16:43 AM	7:21:21 AM	278
1	86	7:17:05 AM	7:22:21 AM	316
1	87	7:17:09 AM	7:24:17 AM	428
1	88	7:17:39 AM	7:24:25 AM	406
1	89	7:17:43 AM	7:25:04 AM	441
1	90	7:18:40 AM	7:25:11 AM	391
1	91	7:19:29 AM	7:26:25 AM	416
1	92	7:20:01 AM	7:26:31 AM	390
1	93	7:21:00 AM	7:26:41 AM	341
1	94	7:21:09 AM	7:26:48 AM	339
1	95	7:21:26 AM	7:27:13 AM	347
1	96	7:23:56 AM	7:27:16 AM	200
1	97	7:24:31 AM	7:28:49 AM	258
1	98	7:24:34 AM	7:28:57 AM	263
1	99	7:24:37 AM	7:29:07 AM	270
1	100	7:24:48 AM	7:29:09 AM	261
1	101	7:25:10 AM	7:29:11 AM	241
1	102	7:25:26 AM	7:29:16 AM	230
1	103	7:25:51 AM	7:29:45 AM	234
1	104	7:26:20 AM	7:29:56 AM	216
1	105	7:26:40 AM	7:30:02 AM	202
1	106	7:26:50 AM	7:30:08 AM	198
1	107	7:27:02 AM	7:30:16 AM	194
1	108	7:27:06 AM	7:30:52 AM	226
1	109	7:27:11 AM	7:31:20 AM	249
1	110	7:27:28 AM	7:31:21 AM	233
1	111	7:27:43 AM	7:31:42 AM	239
1	112	7:28:51 AM	7:31:59 AM	188
1	113	7:29:03 AM	7:32:05 AM	182
1	114	7:29:13 AM	7:32:30 AM	197
1	115	7:29:29 AM	7:32:54 AM	205
1	116	7:29:59 AM	7:33:37 AM	218
1	117	7:30:06 AM	7:34:54 AM	288
1	118	7:30:11 AM	7:35:00 AM	289
1	119	7:30:14 AM	7:35:02 AM	288
1	120	7:30:19 AM	7:35:33 AM	314
1	121	7:30:55 AM	7:36:01 AM	306
1	122	7:31:27 AM	7:36:53 AM	326
1	123	7:32:12 AM	7:38:31 AM	379
1	124	7:33:17 AM	7:39:44 AM	387
1	125	7:33:25 AM	7:39:54 AM	389
1	126	7:33:30 AM	7:40:08 AM	398

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 3

Ln.	No.	Joined Queue	Released From Queue	Delay
1	127	7:33:44 AM	7:40:20 AM	396
1	128	7:34:39 AM	7:40:59 AM	380
1	129	7:34:46 AM	7:41:41 AM	415
1	130	7:35:02 AM	7:41:56 AM	414
1	131	7:35:11 AM	7:42:05 AM	414
1	132	7:35:40 AM	7:42:43 AM	423
1	133	7:35:47 AM	7:43:48 AM	481
1	134	7:35:50 AM	7:43:56 AM	486
1	135	7:36:05 AM	7:44:10 AM	485
1	136	7:36:26 AM	7:44:29 AM	483
1	137	7:37:19 AM	7:44:57 AM	458
1	138	7:38:56 AM	7:45:08 AM	372
1	139	7:39:45 AM	7:45:10 AM	325
1	140	7:39:59 AM	7:45:25 AM	326
1	141	7:40:18 AM	7:45:35 AM	317
1	142	7:40:24 AM	7:45:40 AM	316
1	143	7:40:44 AM	7:46:00 AM	316
1	144	7:41:01 AM	7:46:12 AM	311
1	145	7:41:45 AM	7:46:35 AM	290
1	146	7:41:58 AM	7:46:52 AM	294
1	147	7:42:07 AM	7:48:07 AM	360
1	148	7:42:26 AM	7:48:28 AM	362
1	149	7:42:50 AM	7:49:06 AM	376
1	150	7:43:53 AM	7:49:57 AM	364
1	151	7:44:19 AM	7:50:16 AM	357
1	152	7:44:32 AM	7:50:19 AM	347
1	153	7:45:47 AM	7:50:23 AM	276
1	154	7:46:03 AM	7:50:29 AM	266
1	155	7:46:08 AM	7:50:33 AM	265
1	156	7:46:14 AM	7:50:38 AM	264
1	157	7:46:25 AM	7:50:46 AM	261
1	158	7:47:25 AM	7:50:46 AM	201
1	159	7:47:29 AM	7:51:09 AM	220
1	160	7:47:32 AM	7:51:10 AM	218
1	161	7:47:35 AM	7:51:20 AM	225
1	162	7:49:18 AM	7:53:03 AM	225
1	163	7:49:21 AM	7:54:16 AM	295
1	164	7:49:23 AM	7:54:31 AM	308
1	165	7:49:26 AM	7:54:33 AM	307
1	166	7:49:59 AM	7:55:01 AM	302
1	167	7:50:18 AM	7:55:08 AM	290
1	168	7:50:22 AM	7:55:39 AM	317
1	169	7:50:25 AM	7:55:45 AM	320
1	170	7:50:31 AM	7:55:53 AM	322
1	171	7:50:36 AM	7:56:02 AM	326
1	172	7:50:50 AM	7:56:30 AM	340
1	173	7:50:52 AM	7:56:50 AM	358
1	174	7:51:13 AM	7:57:02 AM	349
1	175	7:51:22 AM	7:57:06 AM	344
1	176	7:52:46 AM	7:57:16 AM	270
1	177	7:52:51 AM	7:57:19 AM	268
1	178	7:53:21 AM	7:58:56 AM	335
1	179	7:53:49 AM	7:59:03 AM	314
1	180	7:53:53 AM	7:59:19 AM	326
1	181	7:53:57 AM	8:00:13 AM	376
1	182	7:54:00 AM	8:00:52 AM	412
1	183	7:54:20 AM	8:02:21 AM	481
1	184	7:54:51 AM	8:02:28 AM	457
1	185	7:54:54 AM	8:02:31 AM	457
1	186	7:54:55 AM	8:02:36 AM	461
1	187	7:55:04 AM	8:02:39 AM	455
1	188	7:55:11 AM	8:02:42 AM	451
1	189	7:55:43 AM	8:03:07 AM	444

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 4

Ln.	No.	Joined Queue	Released From Queue	Delay
1	190	7:55:49 AM	8:03:21 AM	452
1	191	7:55:56 AM	8:04:59 AM	543
1	192	7:56:06 AM	8:05:00 AM	534
1	193	7:56:48 AM	8:05:13 AM	505
1	194	7:57:03 AM	8:05:22 AM	499
1	195	7:58:07 AM	8:06:16 AM	489
1	196	7:58:12 AM	8:06:47 AM	515
1	197	7:58:14 AM	8:06:50 AM	516
1	198	7:59:23 AM	8:07:20 AM	477
1	199	8:00:16 AM	8:07:37 AM	441
1	200	8:00:30 AM	8:08:09 AM	459
1	201	8:00:36 AM	8:08:45 AM	489
1	202	8:00:41 AM	8:08:48 AM	487
1	203	8:01:01 AM	8:08:55 AM	474
1	204	8:02:03 AM	8:09:04 AM	421
1	205	8:02:46 AM	8:09:18 AM	392
1	206	8:03:14 AM	8:10:29 AM	435
1	207	8:03:31 AM	8:10:52 AM	441
1	208	8:03:57 AM	8:12:23 AM	506
1	209	8:05:17 AM	8:13:17 AM	480
1	210	8:05:20 AM	8:13:22 AM	482
1	211	8:05:25 AM	8:13:23 AM	478
1	212	8:05:29 AM	8:14:22 AM	533
1	213	8:05:30 AM	8:14:29 AM	539
1	214	8:05:50 AM	8:14:42 AM	532
1	215	8:06:20 AM	8:14:49 AM	509
1	216	8:06:49 AM	8:15:29 AM	520
1	217	8:06:54 AM	8:16:02 AM	548
1	218	8:07:24 AM	8:16:20 AM	536
1	219	8:08:17 AM	8:16:22 AM	485
1	220	8:08:59 AM	8:16:29 AM	450
1	221	8:09:11 AM	8:16:33 AM	442
1	222	8:09:22 AM	8:16:43 AM	441
1	223	8:10:33 AM	8:16:54 AM	381
1	224	8:10:57 AM	8:17:28 AM	391
1	225	8:12:25 AM	8:17:34 AM	309
1	226	8:13:19 AM	8:18:04 AM	285
1	227	8:13:42 AM	8:18:26 AM	284
1	228	8:14:24 AM	8:18:32 AM	248
1	229	8:15:40 AM	8:18:33 AM	173
1	230	8:15:43 AM	8:19:25 AM	222
1	231	8:15:46 AM	8:19:37 AM	231
1	232	8:15:49 AM	8:19:57 AM	248
1	233	8:16:09 AM	8:20:07 AM	238
1	234	8:16:23 AM	8:20:08 AM	225
1	235	8:16:35 AM	8:20:12 AM	217
1	236	8:16:52 AM	8:20:15 AM	203
1	237	8:17:02 AM	8:20:29 AM	207
1	238	8:17:03 AM	8:20:30 AM	207
1	239	8:17:06 AM	8:20:34 AM	208
1	240	8:17:10 AM	8:20:40 AM	210
1	241	8:17:31 AM	8:20:45 AM	194
1	242	8:17:45 AM	8:23:01 AM	316
1	243	8:17:51 AM	8:23:50 AM	359
1	244	8:17:54 AM	8:24:30 AM	396
1	245	8:17:57 AM	8:24:36 AM	399
1	246	8:18:08 AM	8:24:42 AM	394
1	247	8:19:08 AM	8:24:44 AM	336
1	248	8:20:52 AM	8:24:47 AM	235
1	249	8:21:06 AM	8:26:15 AM	309
1	250	8:21:07 AM	8:26:21 AM	314
1	251	8:21:10 AM	8:26:27 AM	317
1	252	8:21:13 AM	8:26:32 AM	319

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 5

Ln.	No.	Joined Queue	Released From Queue	Delay
1	253	8:21:22 AM	8:26:38 AM	316
1	254	8:21:22 AM	8:26:39 AM	317
1	255	8:21:23 AM	8:26:41 AM	318
1	256	8:21:24 AM	8:26:46 AM	322
1	257	8:23:06 AM	8:28:07 AM	301
1	258	8:23:19 AM	8:28:30 AM	311
1	259	8:24:32 AM	8:29:39 AM	307
1	260	8:24:39 AM	8:29:49 AM	310
1	261	8:24:52 AM	8:30:09 AM	317
1	262	8:26:25 AM	8:30:16 AM	231
1	263	8:26:28 AM	8:30:17 AM	229
1	264	8:26:36 AM	8:30:26 AM	230
1	265	8:26:44 AM	8:30:30 AM	226
1	266	8:26:54 AM	8:30:49 AM	235
1	267	8:29:20 AM	8:30:53 AM	93
1	268	8:29:22 AM	8:31:01 AM	99
1	269	8:29:23 AM	8:31:05 AM	102
1	270	8:29:25 AM	8:32:34 AM	189
1	271	8:29:26 AM	8:33:40 AM	254
1	272	8:29:28 AM	8:33:43 AM	255
1	273	8:29:29 AM	8:33:55 AM	266
1	274	8:29:30 AM	8:33:58 AM	268
1	275	8:29:42 AM	8:34:01 AM	259
1	276	8:30:01 AM	8:34:11 AM	250
1	277	8:30:10 AM	8:34:12 AM	242
1	278	8:30:27 AM	8:34:26 AM	239
1	279	8:30:32 AM	8:34:31 AM	239
1	280	8:32:35 AM	8:34:35 AM	120
1	281	8:32:40 AM	8:34:39 AM	119
1	282	8:32:41 AM	8:34:48 AM	127
1	283	8:32:44 AM	8:34:52 AM	128
1	284	8:32:47 AM	8:34:54 AM	127
1	285	8:32:48 AM	8:35:17 AM	149
1	286	8:33:16 AM	8:35:30 AM	134
1	287	8:33:18 AM	8:35:35 AM	137
1	288	8:33:20 AM	8:36:05 AM	165
1	289	8:33:23 AM	8:36:08 AM	165
1	290	8:33:25 AM	8:36:21 AM	176
1	291	8:34:24 AM	8:36:42 AM	138
1	292	8:34:28 AM	8:36:50 AM	142
1	293	8:35:36 AM	8:37:02 AM	86
1	294	8:36:11 AM	8:37:16 AM	65
1	295	8:36:14 AM	8:37:45 AM	91
1	296	8:36:18 AM	8:38:35 AM	137
1	297	8:36:22 AM	8:38:39 AM	137
1	298	8:36:24 AM	8:38:55 AM	151
1	299	8:36:27 AM	8:39:05 AM	158
1	300	8:36:29 AM	8:39:21 AM	172
1	301	8:36:32 AM	8:39:29 AM	177
1	302	8:36:36 AM	8:39:38 AM	182
1	303	8:36:38 AM	8:39:43 AM	185
1	304	8:36:40 AM	8:39:50 AM	190
1	305	8:36:44 AM	8:39:58 AM	194
1	306	8:36:46 AM	8:40:02 AM	196
1	307	8:36:48 AM	8:40:10 AM	202
1	308	8:37:04 AM	8:40:24 AM	200
1	309	8:37:11 AM	8:40:33 AM	202
1	310	8:37:14 AM	8:40:58 AM	224
1	311	8:37:56 AM	8:41:02 AM	186
1	312	8:38:13 AM	8:41:35 AM	202
1	313	8:38:44 AM	8:41:48 AM	184
1	314	8:39:03 AM	8:41:52 AM	169
1	315	8:39:24 AM	8:41:55 AM	151

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 6

Ln.	No.	Joined Queue	Released From Queue	Delay
1	316	8:39:27 AM	8:42:00 AM	153
1	317	8:40:27 AM	8:42:04 AM	97
1	318	8:40:29 AM	8:42:07 AM	98
1	319	8:40:30 AM	8:42:12 AM	102
1	320	8:40:38 AM	8:42:20 AM	102
1	321	8:40:40 AM	8:42:43 AM	123
1	322	8:40:42 AM	8:42:54 AM	132
1	323	8:40:45 AM	8:42:58 AM	133
1	324	8:40:47 AM	8:43:21 AM	154
1	325	8:43:37 AM	8:43:45 AM	8
1	326	8:43:42 AM	8:43:47 AM	5
1	327	8:43:50 AM	8:44:17 AM	27
1	328	8:44:54 AM	8:45:05 AM	11
1	329	8:45:01 AM	8:45:09 AM	8
1	330	8:45:15 AM	8:45:23 AM	8
1	331	8:45:58 AM	8:46:02 AM	4
1	332	8:46:11 AM	8:46:56 AM	45
1	333	8:46:14 AM	8:47:10 AM	56
1	334	8:46:15 AM	8:47:13 AM	58
1	335	8:46:16 AM	8:47:16 AM	60
1	336	8:46:17 AM	8:47:18 AM	61
1	337	8:46:18 AM	8:47:25 AM	67
1	338	8:46:35 AM	8:47:37 AM	62
1	339	8:47:16 AM	8:47:44 AM	28
1	340	8:47:19 AM	8:48:02 AM	43
1	341	8:47:22 AM	8:48:58 AM	96
1	342	8:47:35 AM	8:49:00 AM	85
1	343	8:48:22 AM	8:49:24 AM	62
1	344	8:48:38 AM	8:49:29 AM	51
1	345	8:48:39 AM	8:49:39 AM	60
1	346	8:48:40 AM	8:49:46 AM	66
1	347	8:48:50 AM	8:50:29 AM	99
1	348	8:48:56 AM	8:50:39 AM	103
1	349	8:48:57 AM	8:50:46 AM	109
1	350	8:49:31 AM	8:50:52 AM	81
1	351	8:49:43 AM	8:51:22 AM	99
1	352	8:49:45 AM	8:51:24 AM	99
1	353	8:50:11 AM	8:51:32 AM	81
1	354	8:50:33 AM	8:52:00 AM	87
1	355	8:50:50 AM	8:52:04 AM	74
1	356	8:51:14 AM	8:52:08 AM	54
1	357	8:51:42 AM	8:52:12 AM	30
1	358	8:51:45 AM	8:53:29 AM	104
1	359	8:51:48 AM	8:53:36 AM	108
1	360	8:52:03 AM	8:53:52 AM	109
1	361	8:52:23 AM	8:54:37 AM	134
1	362	8:52:26 AM	8:54:43 AM	137
1	363	8:52:28 AM	8:54:56 AM	148
1	364	8:52:52 AM	8:54:57 AM	125
1	365	8:53:33 AM	8:55:04 AM	91
1	366	8:54:21 AM	8:55:12 AM	51
1	367	8:54:23 AM	8:55:23 AM	60
1	368	8:54:25 AM	8:55:27 AM	62
1	369	8:54:27 AM	8:55:43 AM	76
1	370	8:54:30 AM	8:56:04 AM	94
1	371	8:54:54 AM	8:56:13 AM	79
1	372	8:54:56 AM	8:56:31 AM	95
1	373	8:56:49 AM	8:57:12 AM	23
1	374	8:56:50 AM	8:57:20 AM	30
1	375	8:56:54 AM	8:58:29 AM	95
1	376	8:57:27 AM	8:58:31 AM	64
1	377	8:57:30 AM	8:58:37 AM	67
1	378	8:57:34 AM	8:58:41 AM	67

SW 200th Street & SW 134th Avenue
Stop Delay Northbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am NB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 7

Ln.	No.	Joined Queue	Released From Queue	Delay
1	379	8:58:13 AM	8:58:45 AM	32
1	380	8:58:15 AM	8:59:22 AM	67
1	381	8:58:25 AM	8:59:28 AM	63
1	382	8:58:53 AM	8:59:40 AM	47
1	383	8:59:05 AM	8:59:50 AM	45
1	384	8:59:45 AM	8:59:58 AM	13
1	385	8:59:49 AM	9:00:14 AM	25
1	386	9:00:04 AM	9:01:18 AM	74
1	387	9:00:52 AM	9:01:33 AM	41
1	388	9:00:54 AM	9:01:40 AM	46
1	389	9:00:56 AM	9:02:10 AM	74
1	390	9:00:57 AM	9:02:25 AM	88
1	391	9:00:59 AM	9:02:29 AM	90
1	392	9:01:00 AM	9:02:31 AM	91

Summary Information:

7:00:00 AM - 9:03:00 AM	Lane 1
Total Vehicle Count:	392
Delayed Vehicle Count:	392
Through Vehicle Count:	0
Average Stopped Time:	222.89
Maximum Stopped Time:	548
Min. Secs. for Delay:	0
Average Queue:	11.89
Queue Density:	12.12
Maximum Queue:	22
Delay in Vehicle Hour:	11.89
Total Delay:	87374

SW 200th Street & SW 134th Avenue
Stop Delay Southbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am SB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 1

Ln.	No.	Joined Queue	Released From Queue	Delay
1	1	7:12:01 AM	7:12:47 AM	46
1	2	7:14:47 AM	7:15:00 AM	13
1	3	7:25:05 AM	7:25:13 AM	8
1	4	7:32:06 AM	7:32:49 AM	43
1	5	7:39:47 AM	7:39:59 AM	12
1	6	7:45:12 AM	7:45:16 AM	4
1	7	7:46:01 AM	7:48:12 AM	131
1	8	7:46:11 AM	7:48:15 AM	124
1	9	7:48:34 AM	7:49:24 AM	50
1	10	7:48:46 AM	7:50:16 AM	90
1	11	7:48:53 AM	7:50:33 AM	100
1	12	7:48:55 AM	7:50:41 AM	106
1	13	7:50:24 AM	7:50:46 AM	22
1	14	7:51:19 AM	7:52:36 AM	77
1	15	7:53:35 AM	7:54:30 AM	55
1	16	7:54:20 AM	7:54:57 AM	37
1	17	7:55:05 AM	7:55:48 AM	43
1	18	7:55:10 AM	7:56:29 AM	79
1	19	7:55:32 AM	7:56:32 AM	60
1	20	7:57:25 AM	7:57:58 AM	33
1	21	7:57:30 AM	7:58:09 AM	39
1	22	7:57:49 AM	7:58:18 AM	29
1	23	8:00:10 AM	8:00:54 AM	44
1	24	8:00:31 AM	8:01:17 AM	46
1	25	8:01:25 AM	8:02:34 AM	69
1	26	8:01:43 AM	8:02:39 AM	56
1	27	8:02:00 AM	8:02:42 AM	42
1	28	8:02:12 AM	8:03:10 AM	58
1	29	8:02:23 AM	8:03:22 AM	59
1	30	8:03:50 AM	8:05:01 AM	71
1	31	8:03:51 AM	8:05:05 AM	74
1	32	8:03:52 AM	8:05:41 AM	109
1	33	8:05:26 AM	8:06:20 AM	54
1	34	8:06:11 AM	8:06:23 AM	12
1	35	8:07:28 AM	8:08:16 AM	48
1	36	8:08:02 AM	8:08:48 AM	46
1	37	8:08:20 AM	8:08:54 AM	34
1	38	8:09:09 AM	8:10:01 AM	52
1	39	8:09:28 AM	8:11:02 AM	94
1	40	8:09:33 AM	8:11:46 AM	133
1	41	8:09:56 AM	8:12:00 AM	124
1	42	8:10:29 AM	8:13:19 AM	170
1	43	8:10:34 AM	8:13:25 AM	171
1	44	8:20:00 AM	8:20:11 AM	11
1	45	8:21:17 AM	8:22:03 AM	46
1	46	8:21:19 AM	8:22:46 AM	87
1	47	8:22:41 AM	8:22:49 AM	8
1	48	8:22:56 AM	8:23:05 AM	9
1	49	8:23:57 AM	8:24:35 AM	38
1	50	8:33:45 AM	8:33:59 AM	14
1	51	8:39:26 AM	8:40:04 AM	38
1	52	8:46:51 AM	8:47:00 AM	9

SW 200th Street & SW 134th Avenue
Stop Delay Southbound
7am-9am

File Name : Stop Delay SW 200th St & SW 134th Av 7am-9am SB
Site Code : 00000000
Start Date : 11/29/2016
Page No : 2

Summary Information:

7:12:00 AM - 8:48:00 AM	Lane 1
Total Vehicle Count:	52
Delayed Vehicle Count:	52
Through Vehicle Count:	0
Average Stopped Time:	58.21
Maximum Stopped Time:	171
Min. Secs. for Delay:	0
Average Queue:	0.53
Queue Density:	1.92
Maximum Queue:	5
Delay in Vehicle Hour:	0.53
Total Delay:	3027

2015 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 8701 MIAMI-DADE SOUTH

MOCF: 0.98

WEEK	DATES	SF	PSCF
1	01/01/2015 - 01/03/2015	1.02	1.04
2	01/04/2015 - 01/10/2015	1.02	1.04
3	01/11/2015 - 01/17/2015	1.02	1.04
4	01/18/2015 - 01/24/2015	1.01	1.03
5	01/25/2015 - 01/31/2015	1.00	1.02
6	02/01/2015 - 02/07/2015	0.99	1.01
* 7	02/08/2015 - 02/14/2015	0.98	1.00
* 8	02/15/2015 - 02/21/2015	0.97	0.99
* 9	02/22/2015 - 02/28/2015	0.97	0.99
*10	03/01/2015 - 03/07/2015	0.97	0.99
*11	03/08/2015 - 03/14/2015	0.97	0.99
*12	03/15/2015 - 03/21/2015	0.98	1.00
*13	03/22/2015 - 03/28/2015	0.98	1.00
*14	03/29/2015 - 04/04/2015	0.99	1.01
*15	04/05/2015 - 04/11/2015	0.99	1.01
*16	04/12/2015 - 04/18/2015	0.99	1.01
*17	04/19/2015 - 04/25/2015	0.99	1.01
*18	04/26/2015 - 05/02/2015	0.99	1.01
*19	05/03/2015 - 05/09/2015	0.99	1.01
20	05/10/2015 - 05/16/2015	1.00	1.02
21	05/17/2015 - 05/23/2015	0.99	1.01
22	05/24/2015 - 05/30/2015	0.99	1.01
23	05/31/2015 - 06/06/2015	0.99	1.01
24	06/07/2015 - 06/13/2015	0.99	1.01
25	06/14/2015 - 06/20/2015	1.00	1.02
26	06/21/2015 - 06/27/2015	1.01	1.03
27	06/28/2015 - 07/04/2015	1.01	1.03
28	07/05/2015 - 07/11/2015	1.02	1.04
29	07/12/2015 - 07/18/2015	1.02	1.04
30	07/19/2015 - 07/25/2015	1.01	1.03
31	07/26/2015 - 08/01/2015	1.01	1.03
32	08/02/2015 - 08/08/2015	1.00	1.02
33	08/09/2015 - 08/15/2015	1.00	1.02
34	08/16/2015 - 08/22/2015	1.00	1.02
35	08/23/2015 - 08/29/2015	1.00	1.02
36	08/30/2015 - 09/05/2015	1.01	1.03
37	09/06/2015 - 09/12/2015	1.01	1.03
38	09/13/2015 - 09/19/2015	1.01	1.03
39	09/20/2015 - 09/26/2015	1.01	1.03
40	09/27/2015 - 10/03/2015	1.01	1.03
41	10/04/2015 - 10/10/2015	1.01	1.03
42	10/11/2015 - 10/17/2015	1.02	1.04
43	10/18/2015 - 10/24/2015	1.02	1.04
44	10/25/2015 - 10/31/2015	1.03	1.05
45	11/01/2015 - 11/07/2015	1.03	1.05
46	11/08/2015 - 11/14/2015	1.04	1.06
47	11/15/2015 - 11/21/2015	1.03	1.05
48	11/22/2015 - 11/28/2015	1.03	1.05
49	11/29/2015 - 12/05/2015	1.02	1.04
50	12/06/2015 - 12/12/2015	1.02	1.04
51	12/13/2015 - 12/19/2015	1.02	1.04
52	12/20/2015 - 12/26/2015	1.02	1.04
53	12/27/2015 - 12/31/2015	1.02	1.04

* PEAK SEASON

APPENDIX C

FIELD REVIEWS

FIELD OBSERVATION REPORT

Location: SW 200 St @ ~~E~~ SW 134 Ave Date: 12-8-16

Observer: Ian Rairden, P.E. Time: AM Peak

PART I - PHYSICAL CHECKLIST

		NO	YES	COMMENTS
1.	Are there sight distance obstructions to:			
	a. Traffic control devices?	X		
	b. Intersections and driveways?	X		
	c. Turning or on-coming vehicles?		X	Fence with tarp in SW corner blocks view of NB↔EB. Tree in NE corner blocks view of SB↔WB
2.	Does parking affect:			
	a. Sight distance?	X		
	b. Through or turning vehicle paths?	X		
3.	Is horizontal alignment inadequate?	X		
4.	Is vertical alignment inadequate?	X		
5.	Is pavement width or the number of lanes inadequate?		X	IN NE corner there is a path worn by ~~vet~~ WB through vehicles going around stopped WBL vehicle.
6.	Are intersection or driveway radii too short?	X		
7.	Are there problems with driveways such as:			
	a. Inadequate design?	X		
	b. Location near major intersection?	X		
	c. Too many driveways?	X		
8.	Is channelization inadequate for:			
	a. Reducing conflict points?	X		EBR and WBL were confused as to who had right-of-way
	b. Separating traffic flows or defining movements?	X		
9.	Should pedestrian crosswalks be:			
	a. Added?	X		
	b. Relocated or repainted?	X		

FIELD OBSERVATION REPORT

		NO	YES	COMMENTS
10.	Are there problems with traffic signs such as:			
	a. Inadequate or improper message?	x		
	b. Too many signs?	x		
	c. Placement or size?	x		
11.	Are there problems with traffic signals such as:			
	a. Timing?	N/A		
	b. Number of signal heads?	N/A		
	c. Placement or size?	N/A		
12.	Are there problems with pavement markings such as:			
	a. Vehicle paths not clearly marked?	x		
	b. Location of the markings?	x		
13.	Do posted speed limits appear to be too high or too low for conditions?	x		
14.	Does the pavement condition (potholes, irregular surface, etc. appear to contribute to safety problems?	x		
15.	Is roadway lighting inadequate?	N/A		Daytime site visit
16.	Are there tire skid marks on pavement?	x		
17.	Is there evidence of vehicle accident debris such as scar marks on trees, utility poles, embankments or other objects?		X	Accident debris in SE, NE, and NW corners. A wall in the SE corner has been hit twice.
18.	Is there an abundance of vehicle accident debris such as small pieces of crushed glass, plastic, etc. along the shoulder or in the median area?		x	Accident debris in SE, NE, and NW corners.

FIELD OBSERVATION REPORT

PART II - OPERATIONAL CHECKLIST

		NO	YES	COMMENTS
1.	Do obstructions block the driver's view of opposing or conflicting vehicles?		X	Fence with tarp in SW corner and trees in NE corner blocks view of E/W traffic on SW 200 St from side street.
2.	Do drivers have trouble finding the correct path through the location?	X		
3.	Is there any indication of driver confusion about routes, street names or other guidance information?	X		
4.	Do steep grades create large speed differences?	X		
5.	Are pavement surface conditions creating erratic driver movements?	X		
6.	Does the presence of existing driveways contribute to erratic driver movements?	X		
7.	Is excessive vehicle delay creating unsafe risk taking by motorists?		X	Very long delays. Side streets traffic starting to cut into SW 200 St without regard for right of way.
8.	Are there large speed differences between vehicles:			
	a. Traveling through the location?	X		
	b. Turning at driveways or intersections?	X		
9.	Do drivers respond incorrectly to:			
	a. Signals?	X		
	b. Signs or other traffic control devices?	X		
10.	Are problems being caused by the volume of:			
	a. Through traffic?		X	Minimal gaps along SW 200 St
	b. Turning traffic?		X	NB queues turning onto SW 200 St.

FIELD OBSERVATION REPORT

		NO	YES	COMMENTS
11.	Do pedestrian movements create conflicts?	X		
12.	Do bicycle movements create conflicts?	X		
13.	Is there considerable weaving or lane changing by drivers at the location?	X		
14.	Are there violations of parking at the location?	X		
15.	Are there violations of other traffic control devices or regulations such as:			
	a. Running red light?	N/A		
	b. Failing to stop or yield the right-of-way?		X	SW 134 Ave traffic cutting into SW 200 St even if gaps aren't sufficient causing EB traffic to slow down
	c. Speed limits?	X		
	d. Right-turn-on-red?	N/A		
	e. Other?		X	NB vehicles rolling through stop bar
16.	Are there traffic flow problems or traffic conflict patterns associated with turning vehicles?		X	
17.	Are there any other unusual traffic flow problems or traffic conflict patterns?	X		
18.	Does inadequate lighting cause drivers to slow down or create erratic maneuvers?	N/A		Daytime site visit
19.	Do transit operations create conflicts / excessive delays.	X		

NOTES:
- SBT truck cut in front of WBL vehicle when gap in EB traffic appeared
- Timed a vehicle at 7:44 am with ~3:55 delay
- Timed 2nd vehicle at 7:48 am with ~7:54 delay
- At 7:54 Am an EB queue formed through the SW 134 Ave intersection, but could not see the source

- Timed a 3rd vehicle at 8:09 Am with ~ 8:29 delay
- Multiple drivers stopped to ask me to put in a signal.
- NBL vehicles block view of EB traffic from NBR.

FIELD OBSERVATION REPORT

Location: SW 200 ST @ SW 134 Ave Date: 12/7/16

Observer: Ian Rairden, PE Time: 5-6 pm

PART I - PHYSICAL CHECKLIST

	NO	YES	COMMENTS
1. Are there sight distance obstructions to:			
a. Traffic control devices?	X		
b. Intersections and driveways?	X		
c. Turning or on-coming vehicles?		X	Fence with tarp in SW corner and trees in NE corner block view of SW 200 ST E/W traffic from side street
2. Does parking affect:			
a. Sight distance?	X		
b. Through or turning vehicle paths?	X		
3. Is horizontal alignment inadequate?	X		
4. Is vertical alignment inadequate?	X		
5. Is pavement width or the number of lanes inadequate?		X	Path worn on NE corner where WB through vehicles are going around turn vehicles
6. Are intersection or driveway radii too short?	X		
7. Are there problems with driveways such as:			
a. Inadequate design?	X		
b. Location near major intersection?	X		
c. Too many driveways?	X		
8. Is channelization inadequate for:			Note: There is confusion for WBL and EBR for who has right of way
a. Reducing conflict points?	X		
b. Separating traffic flows or defining movements?	X		
9. Should pedestrian crosswalks be:			
a. Added?	X		
b. Relocated or repainted?	X		

FIELD OBSERVATION REPORT

		NO	YES	COMMENTS
10.	Are there problems with traffic signs such as:			
	a. Inadequate or improper message?	X		
	b. Too many signs?	X		
	c. Placement or size?	X		
11.	Are there problems with traffic signals such as:			
	a. Timing?	N/A		
	b. Number of signal heads?	N/A		
	c. Placement or size?	N/A		
12.	Are there problems with pavement markings such as:			
	a. Vehicle paths not clearly marked?	X		
	b. Location of the markings?	X		
13.	Do posted speed limits appear to be too high or too low for conditions?	X		
14.	Does the pavement condition (potholes, irregular surface, etc. appear to contribute to safety problems?	X		
15.	Is roadway lighting inadequate?		X	Only 2 lights in this location and not covering whole intersection
16.	Are there tire skid marks on pavement?	X		
17.	Is there evidence of vehicle accident debris such as scar marks on trees, utility poles, embankments or other objects?		X	Accident debris in SE, NE, and NW corners Wall in SE corner has been hit twice
18.	Is there an abundance of vehicle accident debris such as small pieces of crushed glass, plastic, etc. along the shoulder or in the median area?		X	Accident debris in SE, NE, and NW corners

FIELD OBSERVATION REPORT

PART II - OPERATIONAL CHECKLIST

		NO	YES	COMMENTS
1.	Do obstructions block the driver's view of opposing or conflicting vehicles?		X	Fence with tarp in SW corner and trees in NE corner block view of SW 200 st E/W traffic from side street
2.	Do drivers have trouble finding the correct path through the location?	X		
3.	Is there any indication of driver confusion about routes, street names or other guidance information?	X		
4.	Do steep grades create large speed differences?	X		
5.	Are pavement surface conditions creating erratic driver movements?	X		
6.	Does the presence of existing driveways contribute to erratic driver movements?	X		
7.	Is excessive vehicle delay creating unsafe risk taking by motorists?		X	As delay gets longer NB traffic is taking smaller gaps
8.	Are there large speed differences between vehicles:			
	a. Traveling through the location?	X		
	b. Turning at driveways or intersections?	X		
9.	Do drivers respond incorrectly to:			
	a. Signals?	X		
	b. Signs or other traffic control devices?	X		
10.	Are problems being caused by the volume of:			
	a. Through traffic?		X	Not enough gaps on SW 200th street
	b. Turning traffic?		X	Long NB queues

FIELD OBSERVATION REPORT

		NO	YES	COMMENTS
11.	Do pedestrian movements create conflicts?	X		
12.	Do bicycle movements create conflicts?	X		
13.	Is there considerable weaving or lane changing by drivers at the location?	X		
14.	Are there violations of parking at the location?	X		
15.	Are there violations of other traffic control devices or regulations such as:			
	a. Running red light?	N/A		
	b. Failing to stop or yield the right-of-way?		X	side street traffic is cutting into SW 200 st even if gap not big enough
	c. Speed limits?	X		
	d. Right-turn-on-red?	N/A		
	e. Other?	X		
16.	Are there traffic flow problems or traffic conflict patterns associated with turning vehicles?		X	
17.	Are there any other unusual traffic flow problems or traffic conflict patterns?	X		
18.	Does inadequate lighting cause drivers to slow down or create erratic maneuvers?	X		Lighting appeared insufficient but did not seem to impact vehicles
19.	Do transit operations create conflicts / excessive delays.	X		

NOTES:
- when WBL stops it causes a WB queue. NB can't go because WBL have RLW then when WBL finally goes there is a long WB queue that needs to clear before gaps appear for NB.
- when longer gaps did appear, NB traffic would roll through without coming to a complete stop.

- Timed 1 car at 5:27 pm with ~2:10 delay
- Drivers waiting a long time would honk and get aggressive with gaps
  - Heard a lot of tire squeals and revving engines
- The NBL vehicles would come up to the edge of intersection, past the stop bar, and affect turning radius for WBL
- Posted speed limit of 40 mph
- Some hesitation for WBL and EBR about who had r/w
- Timed a 2nd vehicle at 5:46 pm with ~2:59 delay
- Twice a WBT vehicle stopped to allow NB traffic to enter intersection.

PHOTO LOG

General Observations

1. SR 994 eastbound approach – looking east.

2. Northeast corner worn from westbound through vehicles driving around stopped westbound left-turn vehicles – looking west.

3. Wall damaged in the southeast corner of the intersection – looking east.

4. Vehicle debris in the southeast corner of the intersection – looking west.

5. Vegetation located in the northeast corner of the intersection – looking southeast.

6. Sidewalk provided along the north side of SR 994 – looking west.

7. “NO THRU TRUCKS” sign and support is damaged located on the south leg of the intersection.

AM Observations

1. A northbound left-turning vehicle and northbound right-turning vehicle completing movements simultaneously – looking southeast.

2. SR 994 eastbound queue at SW 134 Avenue – looking southeast.

3. SR 994 eastbound queue west of SW 134 Avenue – looking west.

4. A truck queued behind the white sports utility vehicles drives around the white northbound sports utility vehicle and attempts to cross SR 994 – looking southeast.

5. A westbound left-turning vehicle and a northbound left-turning vehicle attempt to complete movements simultaneously – looking northwest.

6. SR 994 northbound queue – looking south.

7. SR 994 northbound queue – looking south.

8. SR 994 northbound queue – looking north.

9. A white sedan performs a northbound left-turn from SW 134 Avenue to SR 994 while driving in the SR 994 eastbound lanes to enter westbound traffic – looking east.

PM Observations

1. Southbound queue – looking east.

2. Northbound queue – looking south.

3. Westbound queue – looking east.

4. A white sedan southbound stops in the SR 994 westbound lane while an eastbound vehicle is crossing SW 134 Avenue – looking southeast.

5. A westbound through vehicle goes around a stopped westbound left-turning vehicle – looking east.

APPENDIX D

COLLISION DIAGRAMS

LEGEND:

- BACKING VEHICLE
- SIDESWIPE
- PEDESTRIAN PATH
- OUT OF CONTROL
- OVERTURNED VEHICLE
- PEDESTRIAN/ BIKE COLLISION
- ANGLE COLLISION
- REAR-END COLLISION
- HEAD-ON COLLISION
- LEFT TURN COLLISION
- RIGHT TURN COLLISION
- VEHICLE INVOLVED
- VEHICLE AT FAULT
- PARKED VEHICLE
- FIXED OBJECT
- PERSONAL INJURY
- FATALITY
- COMMERCIAL TRUCK
- WET CONDITIONS
- DARK LIGHTING CONDITION
- DRIVER UNDER INFLUENCE
- DUI+DARK LIGHTING CONDITION
- X=CRASH TYPE CANNOT BE DETERMINED

PREPARED BY:
KIMLEY-HORN AND ASSOCIATES, INC.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

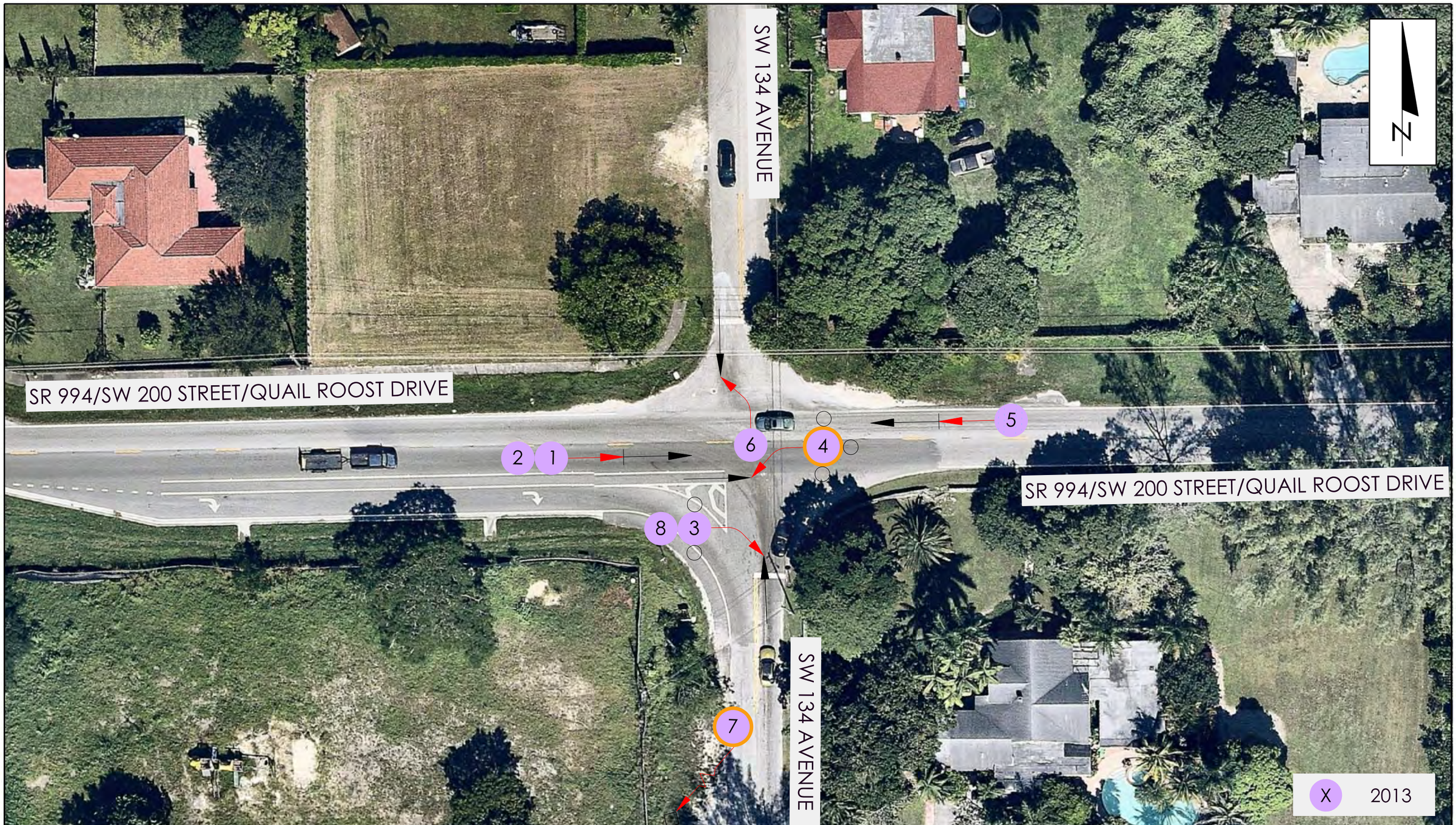
ROAD NO.	COUNTY	CITY OR TOWN
SR 994	MIAMI-DADE	UNINCORPORATED

COLLISION DIAGRAM

SR 994/SW 200 STREET/QUAIL ROOST DRIVE
AT SW 134 AVENUE

YEAR 2012

K:\FTL_TPTO\040006418-C9G07 TWO•51 SR 994 - 200TH ST & 134TH AVE\SAFETY\2012\2010 DIAGRAMS\3072PM051.DGN



LEGEND:

- BACKING VEHICLE
- SIDESWIPE
- PEDESTRIAN PATH
- OUT OF CONTROL
- OVERTURNED VEHICLE
- PEDESTRIAN/ BIKE COLLISION
- ANGLE COLLISION
- REAR-END COLLISION
- HEAD-ON COLLISION
- LEFT TURN COLLISION
- RIGHT TURN COLLISION
- VEHICLE INVOLVED / VEHICLE AT FAULT
- PARKED VEHICLE
- FIXED OBJECT
- PERSONAL INJURY
- FATALITY
- COMMERCIAL TRUCK
- WET CONDITIONS
- DARK LIGHTING CONDITION
- DRIVER UNDER INFLUENCE
- DUI+DARK LIGHTING CONDITION
- X=CRASH TYPE CANNOT BE DETERMINED

PREPARED BY:
KIMLEY-HORN AND ASSOCIATES, INC.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

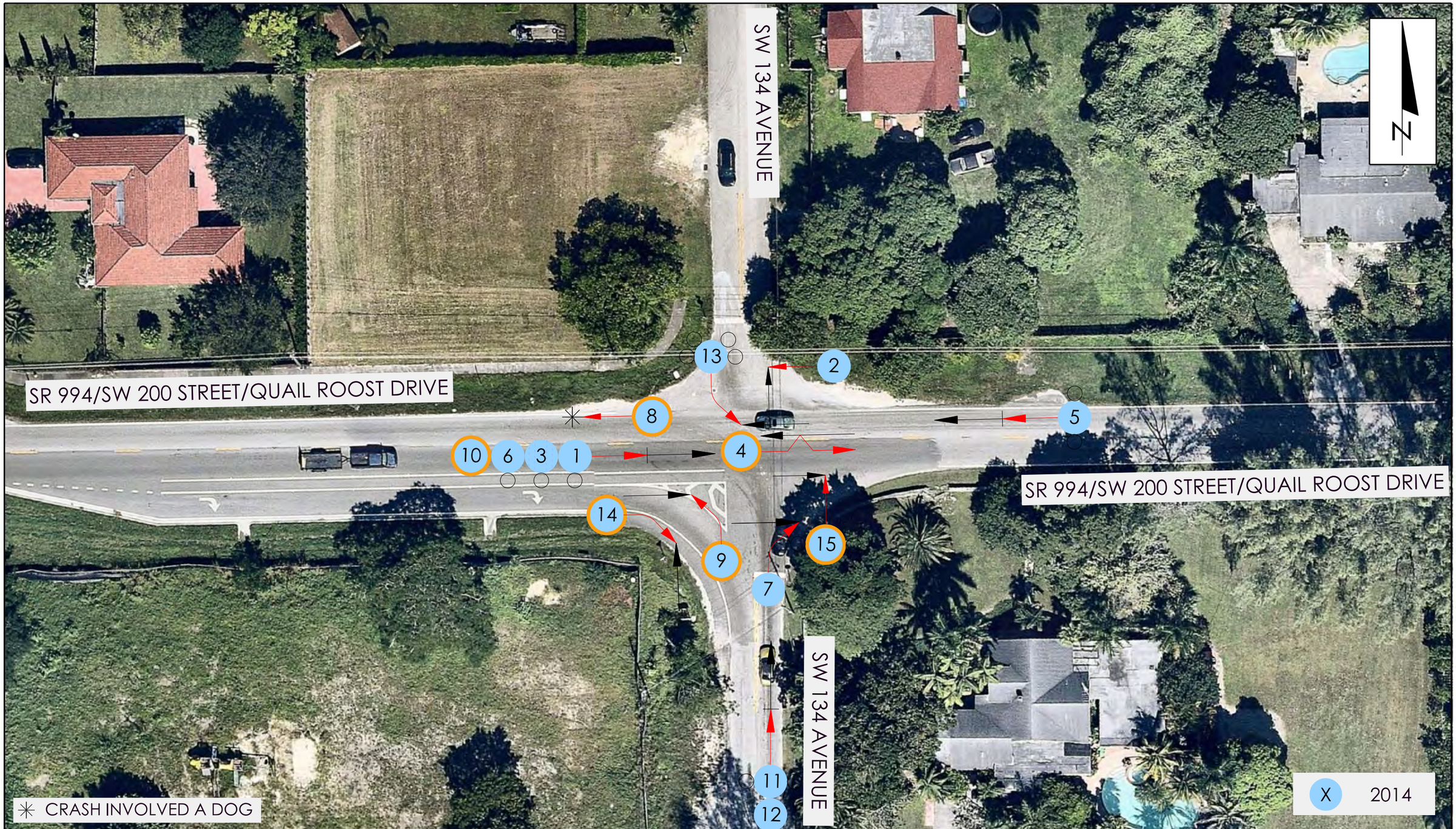
ROAD NO.	COUNTY	CITY OR TOWN
SR 994	MIAMI-DADE	UNINCORPORATED

COLLISION DIAGRAM

SR 994/SW 200 STREET/QUAIL ROOST DRIVE
AT SW 134 AVENUE

YEAR 2013

K:\FTL_TPTO\040006418-C9G07 TWO•51 SR 994 - 200TH ST & 134TH AVE\SAFETY\2013 COLLISION DIAGRAMS\2003 PM051.DGN



LEGEND:

- BACKING VEHICLE
- SIDESWIPE
- PEDESTRIAN PATH
- OUT OF CONTROL OVERTURNED VEHICLE
- PEDESTRIAN/ BIKE COLLISION
- ANGLE COLLISION
- REAR-END COLLISION
- HEAD-ON COLLISION
- LEFT TURN COLLISION
- RIGHT TURN COLLISION
- PARKED VEHICLE
- FIXED OBJECT
- PERSONAL INJURY
- FATALITY
- COMMERCIAL TRUCK
- VEHICLE INVOLVED
- VEHICLE AT FAULT
- WET CONDITIONS
- DARK LIGHTING CONDITION
- DRIVER UNDER INFLUENCE
- DUI+DARK LIGHTING CONDITION
- X=CRASH TYPE CANNOT BE DETERMINED

PREPARED BY:
KIMLEY-HORN AND ASSOCIATES, INC.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	CITY OR TOWN
SR 994	MIAMI-DADE	UNINCORPORATED

COLLISION DIAGRAM

SR 994/SW 200 STREET/QUAIL ROOST DRIVE
AT SW 134 AVENUE

YEAR 2014

K:\FTL_TPTO\040006418-C9G07 TWO•51 SR 994 - 200TH ST & 134TH AVE\SAFETY\2014 COLLISION DIAGRAM\SR994_PM051.DGN

APPENDIX E

CRASH SUMMARY WORKSHEETS

LOCATION INFORMATION
CONFIDENCE LEVEL COMPUTATIONS

Location:	SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue		
State Section:	87091000	County:	Miami-Dade
State Road:	994	District:	6
Intersection:	SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue		
Engineer:	Ian Rairden, P.E.		
Area Type:	Suburban		
Spot/Segment:	Spot		
Spot Type:	2-3 Lanes 2wy Undivided 4 Legs		
Begin Milepost:	4.278		
End Milepost:	4.378		
Begin Year:	2012		
End Year:	2014		
Number of Years:	3		

CRASH STATISTICS

Year	2012	2013	2014
Number of Crashes	7	8	15
Average Daily Traffic (ADT)	15,300	16,400	17,500
Actual Crash Rate (ACR)	1.253	1.336	2.348
District 6 Average Crash Rate (A)	0.328	0.343	0.369
Average Vehicle Exposure (M)	5.585	5.986	6.388
Critical Crash Rate (CCR)	0.713	0.729	0.762
Safety Ratio	0.460	0.471	0.484
Statistical Significance	4.188	4.499	8.561
Confidence Level	99.9986%	99.9997%	99.9999%

ADT – Average Daily Traffic

ACR – Actual Crash Rate = No. of crashes in a year / Average Vehicle Exposure (M)

M – Average Vehicle Exposure (million vehicles or million vehicles miles) = [(ADT * 365 * L) / 1,000,000]

L = Length of the Segment for Segment Analysis, 1 for Spot Analysis

A – Average Crash Rate

CCR – Critical Crash Rate = A + K * (SQRT[A/M]) - (1/[2 * M])

(Ref: FDOT Highway Safety Improvement Program Guidelines)

K = 3.291 for Urban, 1.960 for Suburban, 1.645 for Rural K = 1.96

Safety Ratio = ACR/CCR

Level of statistical significance = (ACR - A + (1/2M))/SQRT(A/M)

Confidence Level = Percent probability that the crash rate is abnormally high for the location under study, using the district-wide average as a basis. CL Threshold = 99.00%

CRASH STATISTICS

SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue		Number of Crashes Year			3 Year Total Crashes	Mean Crashes Per Year	%
		2012	2013	2014			
CRASH TYPE	Rear End	5	3	7	15	5	50.0%
	Head On	0	0	0	0	0	0.0%
	Angle	1	0	3	4	1	13.3%
	Left Turn	0	2	1	3	1	10.0%
	Right Turn	0	2	2	4	1	13.3%
	Sideswipe	0	0	1	1	0	3.3%
	Backed Into	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0.0%
	Bicycle	0	0	0	0	0	0.0%
	Fixed Object	*1*	*1*	*0*	*2*	*1*	*6.7%*
	Impact Attenuator/Crash Cushion	0	0	0	0	0	0.0%
	Bridge Overhead Structure	0	0	0	0	0	0.0%
	Bridge Pier or Support	0	0	0	0	0	0.0%
	Bridge Rail	0	0	0	0	0	0.0%
	Culvert	0	0	0	0	0	0.0%
	Curb	0	0	0	0	0	0.0%
	Ditch	0	0	0	0	0	0.0%
	Embankment	0	0	0	0	0	0.0%
	Guardrail Face	0	0	0	0	0	0.0%
	Guardrail End	0	0	0	0	0	0.0%
	Cable Barrier	0	0	0	0	0	0.0%
	Concrete Traffic Barrier	0	0	0	0	0	0.0%
	Other Traffic Barrier	0	0	0	0	0	0.0%
	Tree (Standing)	1	1	0	2	1	6.7%
	Utility Pole/Light Support	0	0	0	0	0	0.0%
	Traffic Sign Support	0	0	0	0	0	0.0%
	Traffic Signal Support	0	0	0	0	0	0.0%
	Other Post, Pole Or Support	0	0	0	0	0	0.0%
	Fence	0	0	0	0	0	0.0%
	Mailbox	0	0	0	0	0	0.0%
	Other Fixed Object	0	0	0	0	0	0.0%
	Other Non Fixed Object Collisions	*0*	*0*	*1*	*1*	*0*	*3.3%*
	Railway Vehicle (Train, Engine)	0	0	0	0	0	0.0%
	Animal	0	0	1	1	0	3.3%
	Motor Vehicle in Transport	0	0	0	0	0	0.0%
	Parked Motor Vehicle	0	0	0	0	0	0.0%
	Work Zone/Maintenance Equip.	0	0	0	0	0	0.0%
	Struck by Falling/Shifting Cargo	0	0	0	0	0	0.0%
	Other Non-Fixed Object	0	0	0	0	0	0.0%
	Non-Collisions	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Overturn/Rollover	0	0	0	0	0	0.0%
	Fire/Explosion	0	0	0	0	0	0.0%
	Immersion	0	0	0	0	0	0.0%
	Jackknife	0	0	0	0	0	0.0%
	Cargo/Equipment Loss or Shift	0	0	0	0	0	0.0%
	Fell/Jumped from Motor Vehicle	0	0	0	0	0	0.0%
	Thrown or Falling Object	0	0	0	0	0	0.0%
	Ran into Water/Canal	0	0	0	0	0	0.0%
	Other Non-Collision	0	0	0	0	0	0.0%
	Others	0	0	0	0	0	0.0%
	Total Crashes	**7**	**8**	**15**	**30**	**10**	**100.0%**
SEVERITY	PDO Crashes	6	6	8	20	7	66.7%
	Fatal Crashes	0	0	0	0	0	0.0%
	Injury Crashes	1	2	7	10	3	33.3%

CRASH STATISTICS

SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue		Number of Crashes Year			3 Year Total Crashes	Mean Crashes Per Year	%
		2012	2013	2014			
LIGHTING CONDITIONS	Daylight	4	7	9	20	7	66.7%
	Dusk	0	0	0	0	0	0.0%
	Dawn	1	0	0	1	0	3.3%
	Dark	2	1	6	9	3	30.0%
	Unknown	0	0	0	0	0	0.0%
SURFACE CONDITIONS	Dry	6	6	13	25	8	83.3%
	Wet	1	2	2	5	2	16.7%
	Others	0	0	0	0	0	0.0%
MONTH OF YEAR	January	0	0	1	1	0	3.3%
	February	0	1	1	2	1	6.7%
	March	0	0	2	2	1	6.7%
	April	2	0	1	3	1	10.0%
	May	0	0	0	0	0	0.0%
	June	0	1	2	3	1	10.0%
	July	0	0	1	1	0	3.3%
	August	1	0	2	3	1	10.0%
	September	1	2	2	5	2	16.7%
	October	0	0	0	0	0	0.0%
	November	1	3	2	6	2	20.0%
	December	2	1	1	4	1	13.3%
DAY OF WEEK	Monday	1	2	2	5	2	16.7%
	Tuesday	1	1	3	5	2	16.7%
	Wednesday	2	1	4	7	2	23.3%
	Thursday	0	1	1	2	1	6.7%
	Friday	0	2	2	4	1	13.3%
	Saturday	1	1	0	2	1	6.7%
	Sunday	2	0	3	5	2	16.7%
HOUR OF DAY	00:00-06:00	0	0	4	4	1	13.3%
	06:00-09:00	1	1	3	5	2	16.7%
	09:00-11:00	0	1	2	3	1	10.0%
	11:00-13:00	0	1	0	1	0	3.3%
	13:00-15:00	1	2	1	4	1	13.3%
	15:00-18:00	3	2	2	7	2	23.3%
	18:00-24:00	2	1	3	6	2	20.0%
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	3	0	2	5	2	16.7%
	Careless or Negligent Manner	1	3	4	8	3	26.7%
	Failed to Yield Right-Of-Way	0	2	1	3	1	10.0%
	Improper Backing	0	0	0	0	0	0.0%
	Improper Turn	0	1	0	1	0	3.3%
	Followed too Closely	0	0	1	1	0	3.3%
	Ran Red Light	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	0	1	0	1	0	3.3%
	Ran Stop Sign	0	0	2	2	1	6.7%
	Improper Passing	0	0	1	1	0	3.3%
	Exceed Posted Speed	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	0	0	0	0	0	0.0%
	Ran Off Roadway	0	0	0	0	0	0.0%
	Disregarded Other Traffic Sign	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	0	0.0%
	Swerved Or Avoided	1	0	0	1	0	3.3%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0.0%
	Other Contributing Action	2	1	4	7	2	23.3%

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994

INTERSECTING ROADWAY: SR 994/SW 200 Street/Quail Roost Drive at SW 134 Aven M.P. 4.278 TO 4.378 ENGINEER: Ian Rairden, P.E.

STUDY PERIOD: FROM 1/ 2012 TO 12/ 2012 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.347	04/01/12	Sun	1454	Rear-End	0	0	1	Day	Dry	No Contributing Action
2	4.347	04/01/12	Sun	1530	Rear-End	0	0	1	Day	Dry	No Contributing Action
3	4.328	12/12/12	Wed	1935	Rear-End	0	0	1	Night	Dry	Other Contributing Action
4	4.319	09/12/12	Wed	1702	Rear-End	0	0	1	Day	Dry	No Contributing Action
5	4.328	11/27/12	Tue	0625	Angle	0	0	1	Night	Wet	Careless or Negligent Manner
6	4.328	08/13/12	Mon	1838	Rear-End	0	0	1	Day	Dry	Other Contributing Action
7	4.328	12/08/12	Sat	1743	Tree (Standing)	0	1	0	Night	Dry	Swerved Or Avoided

Total No.	Fatal	Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
7	**0**	**1**	**6**	**5**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
Percent	*0.00%*	*14.29%*	*85.71%*	*71.43%*	*0.00%*	*14.29%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*14.29%*	*0.00%*	*0.00%*

Contrib. Cause	Day	Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**4**	**3**	**1**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Percent	*57.14%*	*42.86%*	*14.29%*	*85.71%*	*14.29%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **15,300** SPOT CRASH RATE: **1.253** CRASHES PER MILLION ENTERING VEHICLES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
INTERSECTING ROADWAY: SR 994/SW 200 Street/Quail Roost Drive at SW 134 Aven M.P. 4.278 TO 4.378 ENGINEER: Ian Rairden, P.E.
STUDY PERIOD: FROM 1/ 2013 TO 12/ 2013 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.319	02/21/13	Thu	1340	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
2	4.328	11/30/13	Sat	1220	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
3	4.328	06/25/13	Tue	1605	Right-Turn	0	0	1	Day	Dry	Other Contributing Action
4	4.328	12/06/13	Fri	1820	Left-Turn	0	3	0	Night	Dry	Failed to Yield Right-Of-Way
5	4.335	09/11/13	Wed	1635	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
6	4.328	09/30/13	Mon	0730	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
7	4.328	11/22/13	Fri	1455	Tree (Standing)	0	0	1	Day	Wet	Drove too Fast for Conditions
8	4.328	11/25/13	Mon	0918	Right-Turn	0	0	1	Day	Dry	Improper Turn

Total No.	Fatal	Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
8	0	2	6	3	0	0	2	2	0	0	0	0	1	0	0
Percent	*0.00%*	*25.00%*	*75.00%*	*37.50%*	*0.00%*	*0.00%*	*25.00%*	*25.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*12.50%*	*0.00%*	*0.00%*

Contrib. Cause	Day	Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	7	1	2	6	3	2	1	0	1	0	0	0	0	0	0
Percent	*87.50%*	*12.50%*	*25.00%*	*75.00%*	*37.50%*	*25.00%*	*12.50%*	*0.00%*	*12.50%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: 16,400 SPOT CRASH RATE: 1.336 CRASHES PER MILLION ENTERING VEHICLES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994

INTERSECTING ROADWAY: SR 994/SW 200 Street/Quail Roost Drive at SW 134 Aven M.P. 4.278 TO 4.378 ENGINEER: Ian Rairden, P.E.

STUDY PERIOD: FROM 1/ 2014 TO 12/ 2014 COUNTY: #REF!

No.	MILE POST	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.328	04/22/14	Tue	1655	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
2	4.328	03/10/14	Mon	1000	Angle	0	0	1	Day	Dry	Improper Passing
3	4.322	01/29/14	Wed	0825	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
4	4.328	06/01/14	Sun	0310	Sideswipe	0	0	1	Night	Dry	#N/A
5	4.330	02/10/14	Mon	0751	Rear-End	0	2	0	Day	Dry	No Contributing Action
6	4.309	03/07/14	Fri	1448	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
7	4.328	07/16/14	Wed	1020	Right-Turn	0	0	1	Day	Dry	Ran Stop Sign
8	4.309	06/17/14	Tue	0430	Animal	0	0	1	Night	Dry	No Contributing Action
9	4.300	11/07/14	Fri	2218	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
10	4.322	08/20/14	Wed	0005	Rear-End	0	0	1	Night	Dry	Other Contributing Action
11	4.328	09/09/14	Tue	0805	Rear-End	0	2	0	Day	Dry	Followed too Closely
12	4.328	11/05/14	Wed	1530	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
13	4.328	08/24/14	Sun	1855	Left-Turn	0	4	0	Day	Dry	Ran Stop Sign
14	4.328	09/11/14	Thu	2020	Right-Turn	0	0	1	Night	Wet	#N/A
15	4.328	12/28/14	Sun	0008	Angle	0	2	0	Night	Dry	#N/A

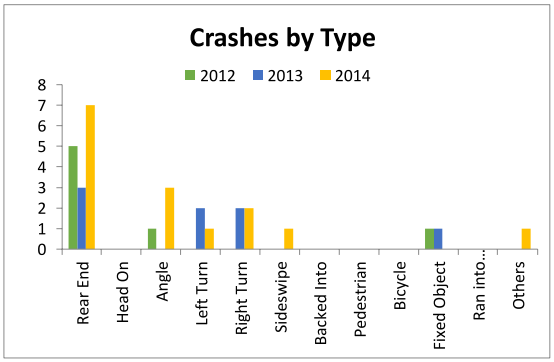
Total No.	Fatal	Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
15	0	7	8	7	0	3	1	2	1	0	0	0	0	0	0
Percent	*0.00%*	*46.67%*	*53.33%*	*46.67%*	*0.00%*	*20.00%*	*6.67%*	*13.33%*	*6.67%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

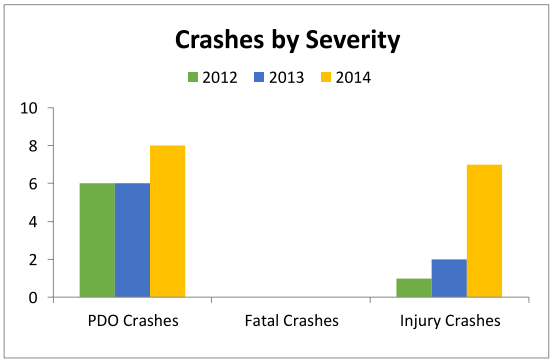
Contrib. Cause	Day	Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	9	6	2	13	4	1	0	0	0	1	0	0	0	0	0
Percent	*60.00%*	*40.00%*	*13.33%*	*86.67%*	*26.67%*	*6.67%*	*0.00%*	*0.00%*	*0.00%*	*6.67%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

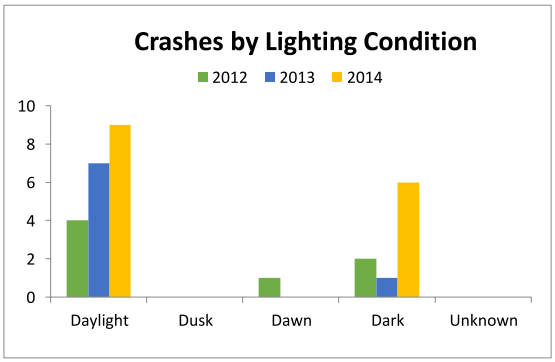
TOTAL ENTERING VEHICLES/ADT: 17,500 SPOT CRASH RATE: 2.348 CRASHES PER MILLION ENTERING VEHICLES

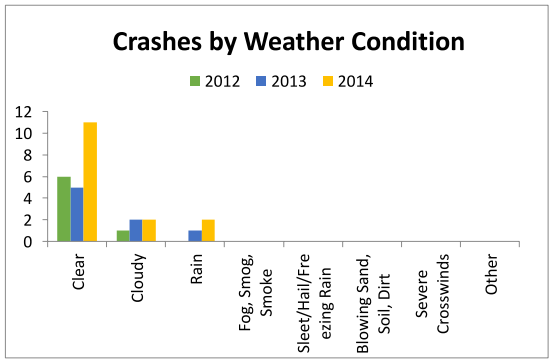
CRASH HISTOGRAMS

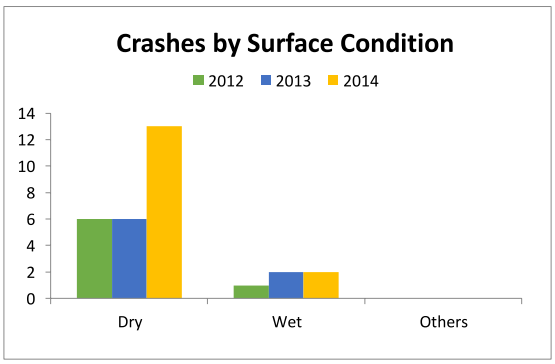
SR 994/SW 200 Street/Quail Roost Drive at SW 134 Avenue

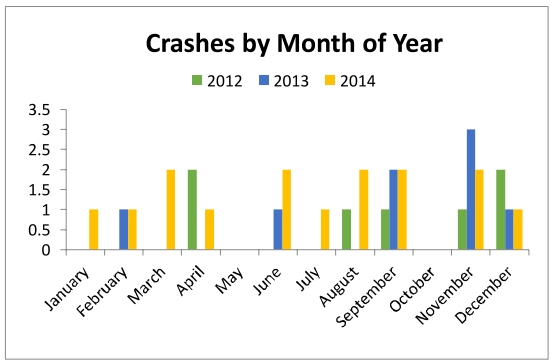


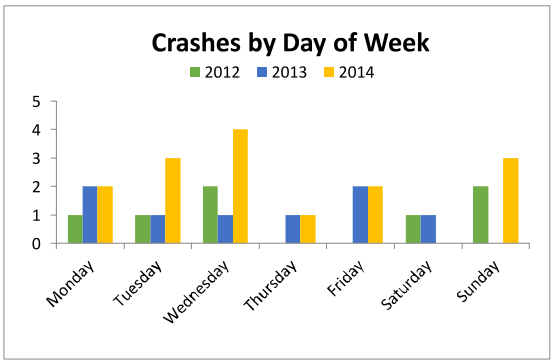


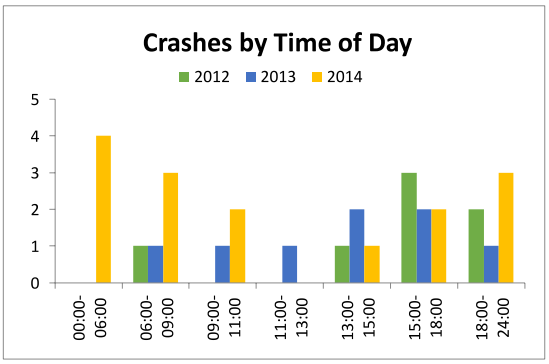












APPENDIX F

FDOT TRAFFIC SIGNAL WARRANT SUMMARY FORM 750-020-01

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Unincorporated	Engineer:	Ian Rairden, P.E.
County:	87 – Miami Dade	Date:	February 15, 2017
District:	Six		

Major Street:	SR 994/SW 200 Street/Quail Roost Drive	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 134 Avenue	Lanes:	1	Minor Approach Speed:	35

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ 70% ☑ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied for eight hours. ☑ Yes ☐ No

Warrant 1 is also satisfied if both Condition A and Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems). ☐ Yes ☑ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

100% Satisfied: ☐ Yes ☑ No
80% Satisfied: ☐ Yes ☑ No
70% Satisfied: ☐ Yes ☑ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	7:00 AM	8:00 AM	9:00 AM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Major	1,924	1,611	1,071	1,155	1,393	1,488	1,624	1,413
Minor	140	158	139	108	103	96	104	98

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☑ Yes	☐ No
100% Satisfied:	☑ Yes	☐ No
80% Satisfied:	☑ Yes	☐ No
70% Satisfied:	☑ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**7:00 AM**	**8:00 AM**	**9:00 AM**	**2:00 PM**	**3:00 PM**	**4:00 PM**	**5:00 PM**	**6:00 PM**
Major	1,924	1,611	1,071	1,155	1,393	1,488	1,624	1,413
Minor	140	158	139	108	103	96	104	98

Existing Volumes

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	Unincorporated	Engineer:	Ian Rairden, P.E.
County:	87 – Miami Dade	Date:	February 15, 2017
District:	Six		

Major Street:	SR 994/SW 200 Street/Quail Roost Drive	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 134 Avenue	Lanes:	1	Minor Approach Speed:	35

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ Yes ☑ No

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

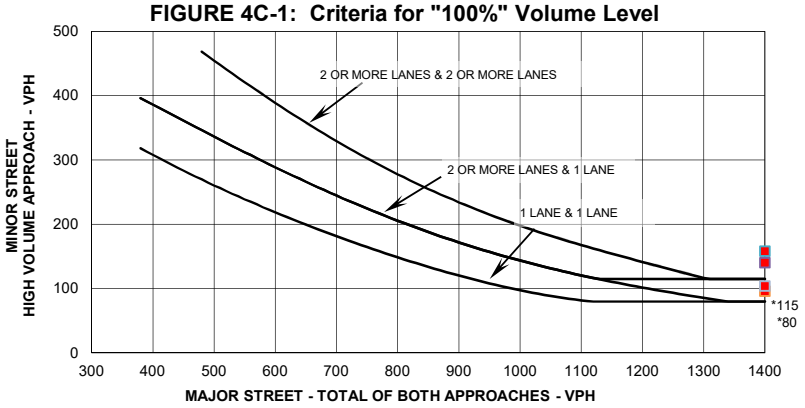
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
7:00 AM	1924	140
8:00 AM	1611	158
4:00 PM	1488	96
5:00 PM	1624	104

FIGURE 4C-1: Criteria for "100%" Volume Level



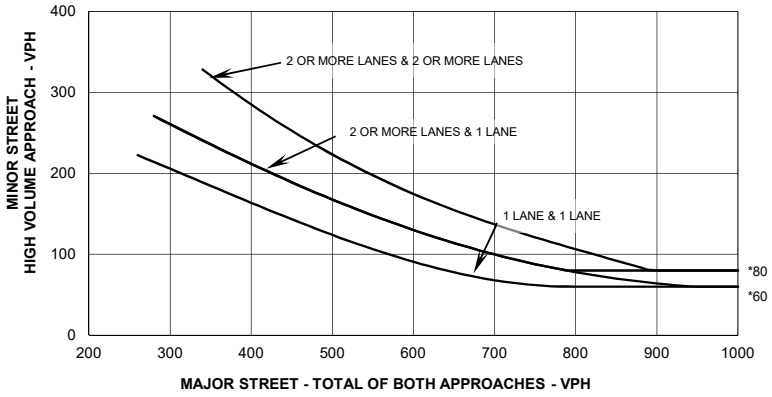
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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County:	87 – Miami Dade	Date:	February 15, 2017
District:	Six		

Major Street:	SR 994/SW 200 Street/Quail Roost Drive	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 134 Avenue	Lanes:	1	Minor Approach Speed:	35

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ 70% ☑ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
7:15 AM	1947	116

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

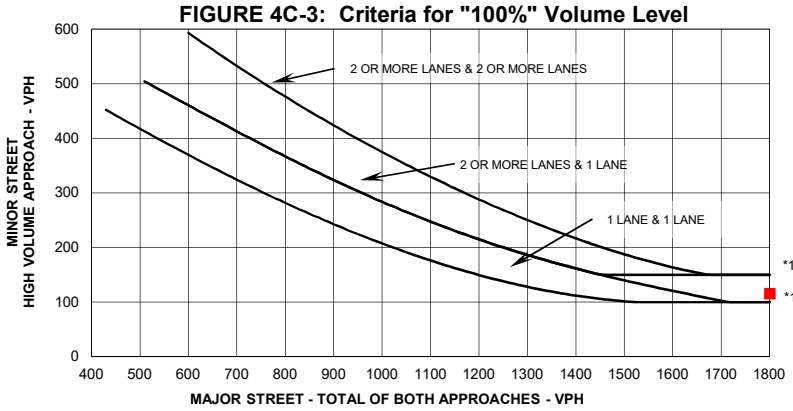
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*	10.3	
Fulfilled?:	☑ Yes	☐ No

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*	116	
Fulfilled?:	☑ Yes	☐ No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		2,063
Fulfilled?:	☑ Yes	☐ No

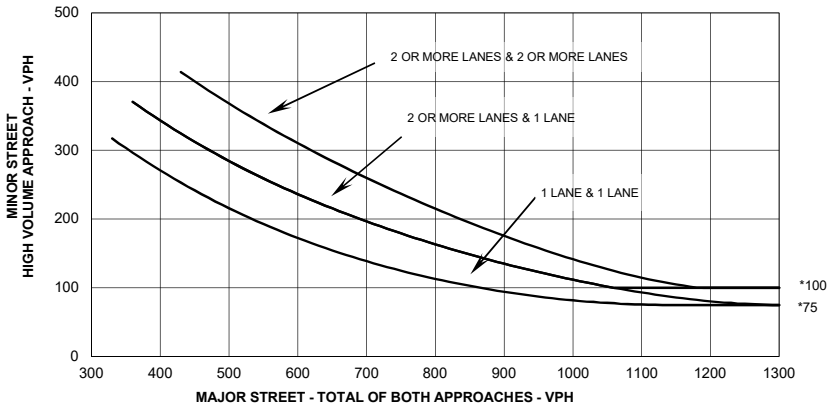
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

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County:	87 – Miami Dade	Date:	February 15, 2017
District:	Six		

Major Street:	SR 994/SW 200 Street/Quail Roost Drive	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 134 Avenue	Lanes:	1	Minor Approach Speed:	35

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph (70 km/h)? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ 70% ☑ 100%

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

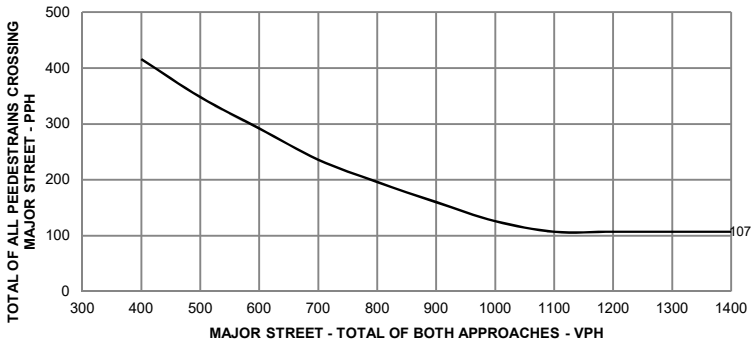
Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☑ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Plot four volume combinations on the applicable figure below.

Figure 4C-5. Criteria for "100%" Volume Level

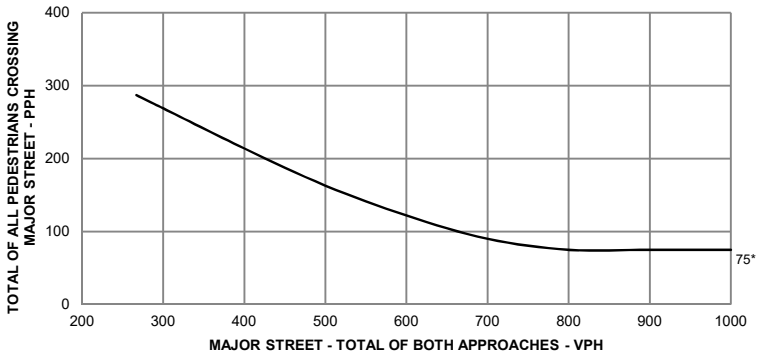


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Figure 4C-6 Criteria for "70%" Volume Level



** Note: 75 pph applies as the lower threshold volume*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☑ No

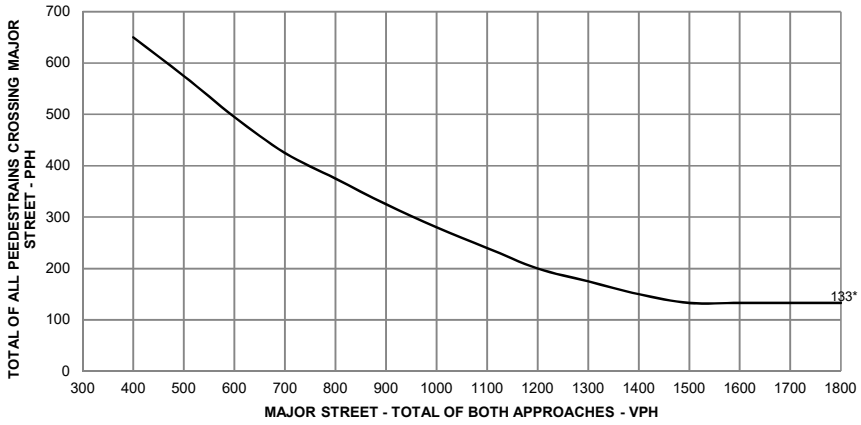
Satisfied: ☐ Yes ☑ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

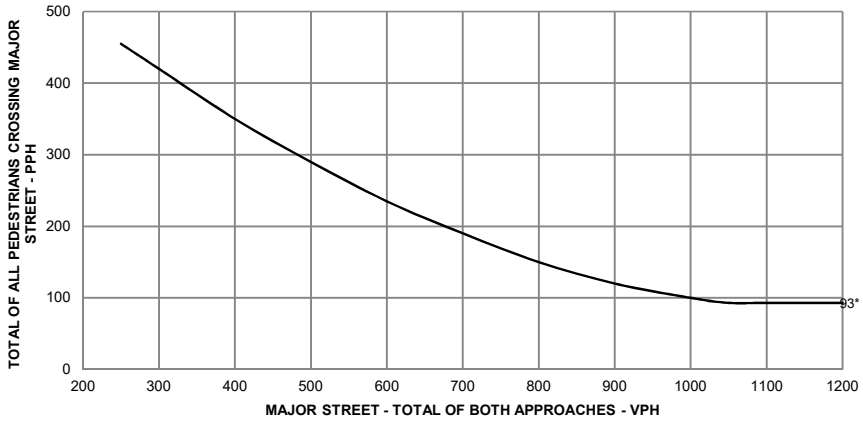


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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County:	**87 – Miami Dade**	Date:	**February 15, 2017**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street/Quail Roost Drive**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**1**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:			
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

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County:	**87 – Miami Dade**	Date:	**February 15, 2017**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street/Quail Roost Drive**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**1**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

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County:	**87 – Miami Dade**	Date:	**February 15, 2017**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street/Quail Roost Drive**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**1**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Criteria		Hour								Volume		Met?		Fulfilled?	
										Major	Minor	Yes	No	Yes	No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	7a	8a	9a	2p					480	120		No	Yes	
	Warrant 1, Condition B (80% satisfied)	7a	8a	9a	2p	3p	4p	5p	6p	720	60	Yes			
	Warrant 4, Pedestrian Volume at 80% of volume requirements: # ped/hr for four (4) hours or # ped/hr for one (1) hour.												No		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:			Installed eastbound right-turn lane									Yes	
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.		Observed Crash Types:			Angle and Left Turn					Number of crashes per 12 months:			2.3		No

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

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County:	**87 – Miami Dade**	Date:	**February 15, 2017**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street/Quail Roost Drive**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**1**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☑ No

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.			Entering Volume:						
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3				
			Satisfied?:							
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour			
							←Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

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District:	Six		

Major Street:	SR 994/SW 200 Street/Quail Roost Drive	Lanes:	2	Major Approach Speed:	40
Minor Street:	SW 134 Avenue	Lanes:	1	Minor Approach Speed:	35

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☐ 1 ☐ 2 or

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☐ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☐ No

Satisfied: ☐ Yes ☑ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☐
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☐

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		Adjustment Factors from Tables
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Minor-Street Approach		1.00
Enter D (feet)		
% of Tractor-Trailer Trucks on Minor-Street Approach		0.50

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

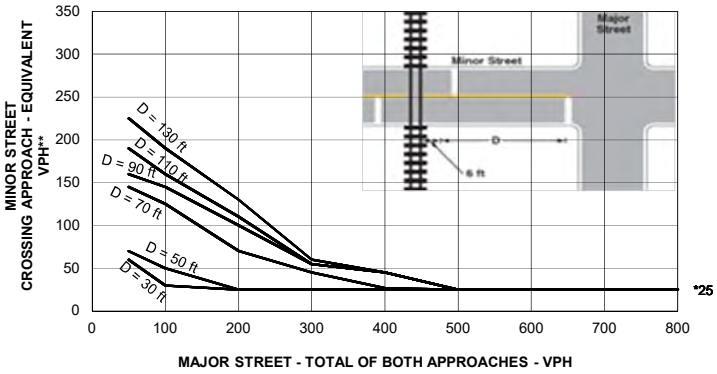
Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

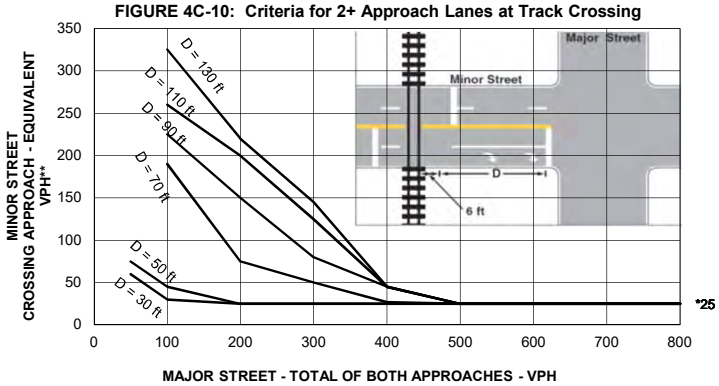
Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Form 750-020-01
TRAFFIC ENGINEERING
10/15

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TRAFFIC SIGNAL WARRANT SUMMARY

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County:	**87 – Miami Dade**	Date:	**February 15, 2017**
District:	**Six**		

Major Street:	**SR 994/SW 200 Street/Quail Roost Drive**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**1**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

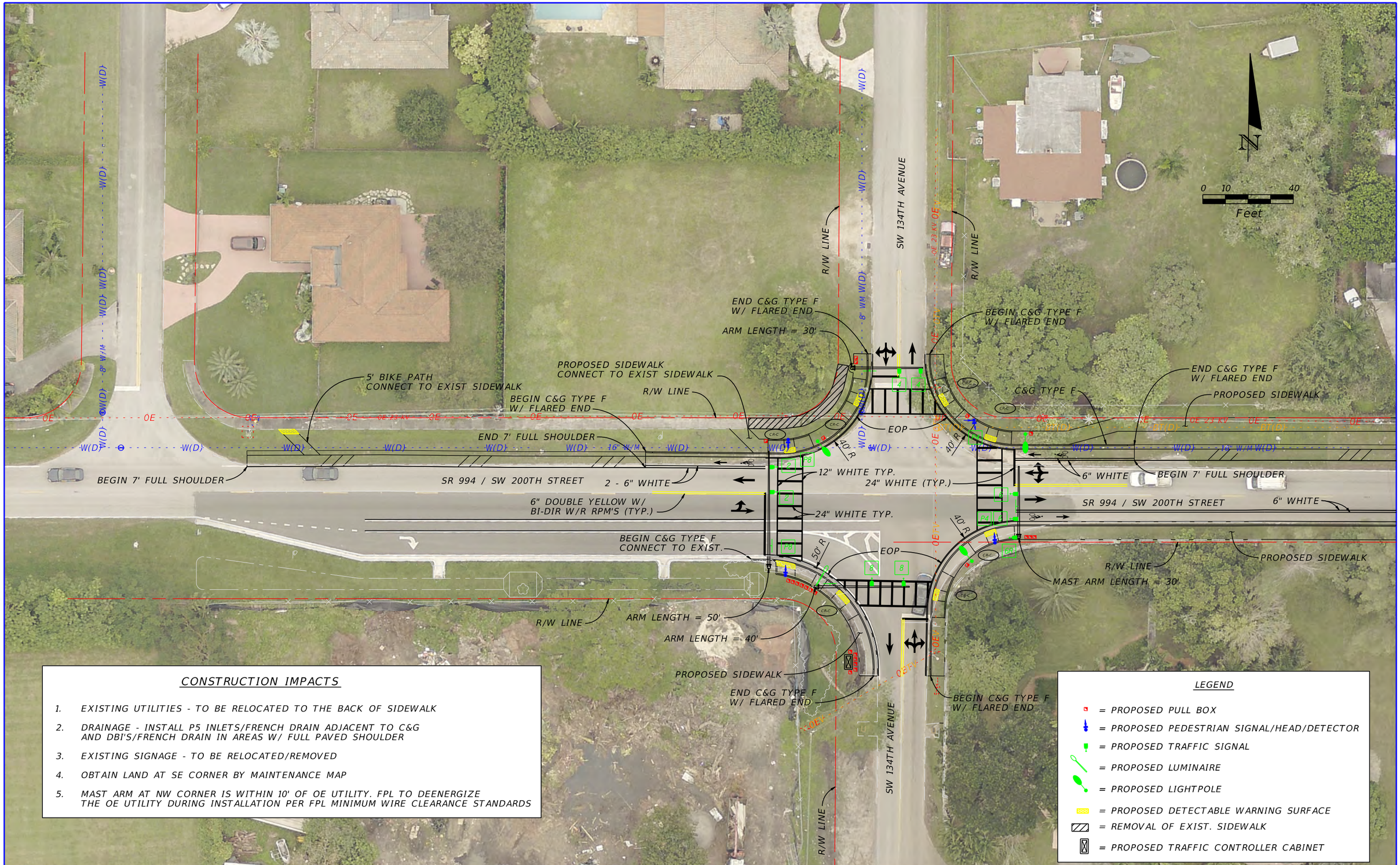
Remarks:

WARRANTS SATISFIED:

✓	Warrant 1		Not Applicable
✓	Warrant 2		Not Applicable
✓	Warrant 3		Not Applicable
	Warrant 4	✓	Not Applicable
	Warrant 5	✓	Not Applicable
	Warrant 6	✓	Not Applicable
	Warrant 7		Not Applicable
	Warrant 8	✓	Not Applicable
	Warrant 9	✓	Not Applicable

APPENDIX G

CONCEPTUAL DESIGN ALTERNATIVES



CONSTRUCTION IMPACTS

1. EXISTING UTILITIES - TO BE RELOCATED TO THE BACK OF SIDEWALK
2. DRAINAGE - INSTALL P5 INLETS/FRENCH DRAIN ADJACENT TO C&G AND DBI'S/FRENCH DRAIN IN AREAS W/ FULL PAVED SHOULDER
3. EXISTING SIGNAGE - TO BE RELOCATED/REMOVED
4. OBTAIN LAND AT SE CORNER BY MAINTENANCE MAP
5. MAST ARM AT NW CORNER IS WITHIN 10' OF OE UTILITY. FPL TO DEENERGIZE THE OE UTILITY DURING INSTALLATION PER FPL MINIMUM WIRE CLEARANCE STANDARDS

LEGEND

- = PROPOSED PULL BOX
- = PROPOSED PEDESTRIAN SIGNAL/HEAD/DETECTOR
- = PROPOSED TRAFFIC SIGNAL
- = PROPOSED LUMINAIRE
- = PROPOSED LIGHTPOLE
- = PROPOSED DETECTABLE WARNING SURFACE
- = REMOVAL OF EXIST. SIDEWALK
- = PROPOSED TRAFFIC CONTROLLER CABINET

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

BURT L. BALDO, P.E .
P.E. NO.: 53120
KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE - SUITE 1400
MIAMI, FLORIDA 33134
CERTIFICATE OF AUTHORIZATION 696

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	TWO#58

ROADWAY PLAN

SHEET NO.
1

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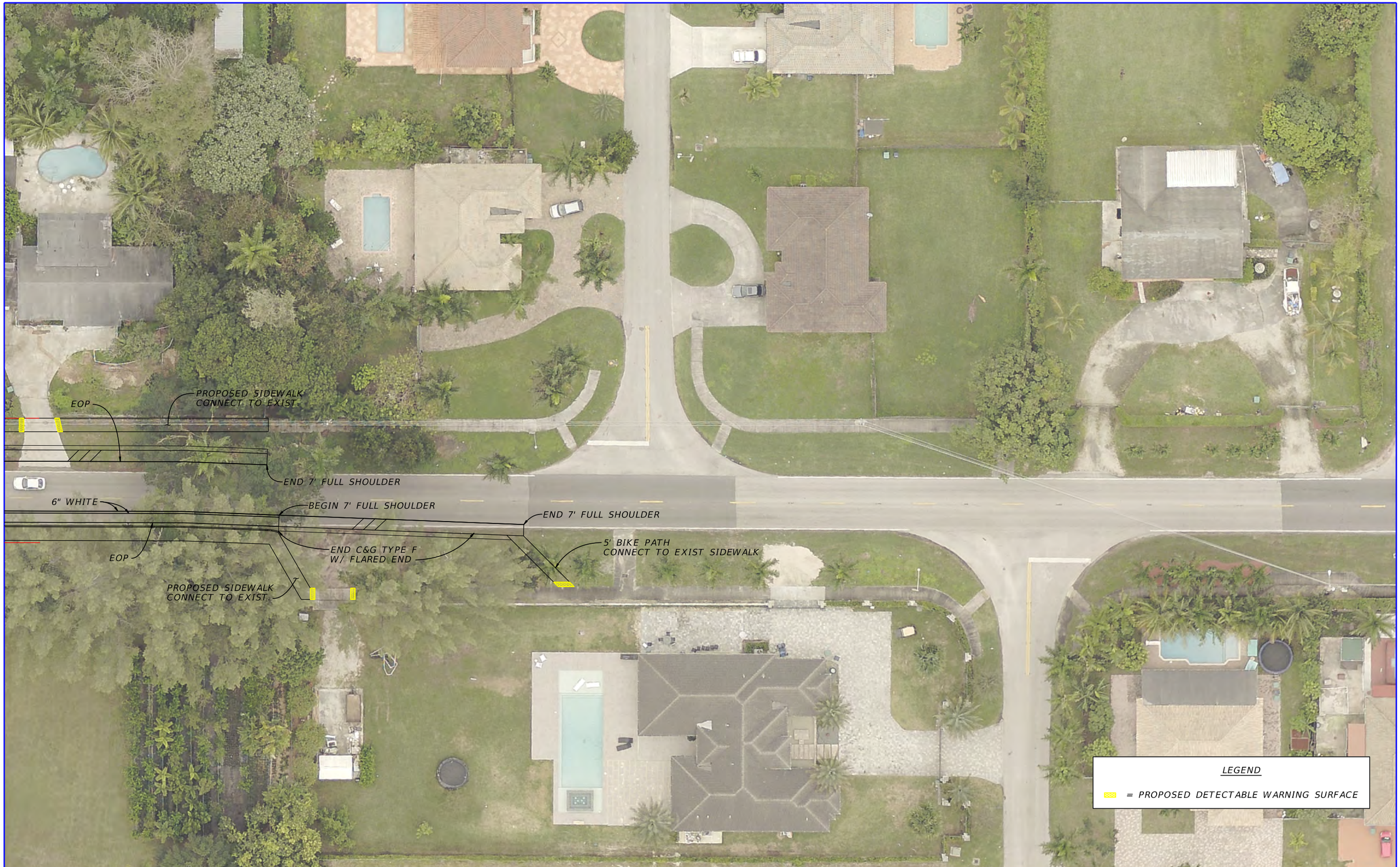

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

BURT L. BALDO, P.E .
P.E. NO.: 53120
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	TWO#58

ROADWAY PLAN

SHEET NO.
2

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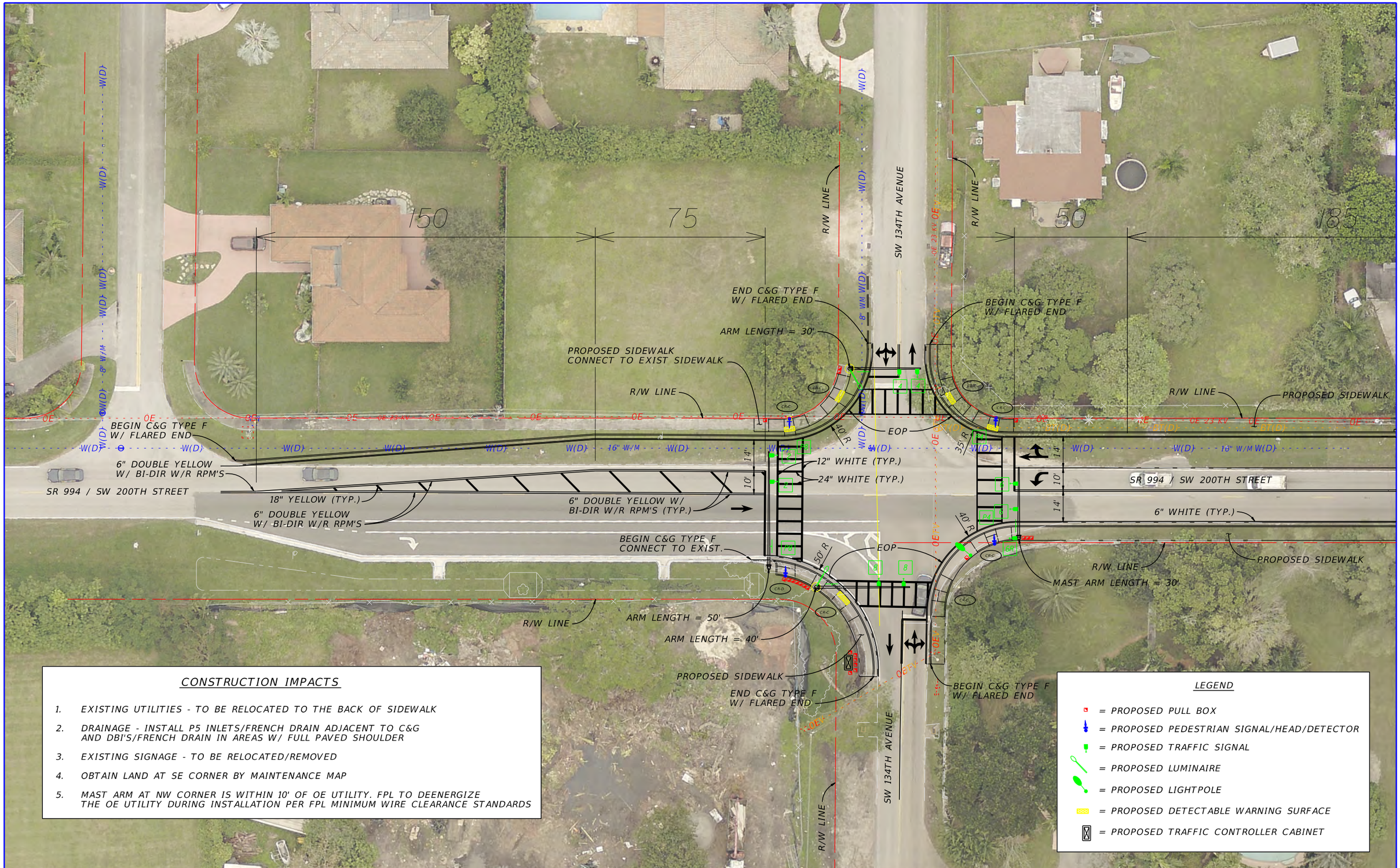

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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P.E. NO.: 53120
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	TWO#58

ROADWAY PLAN

SHEET NO. 3

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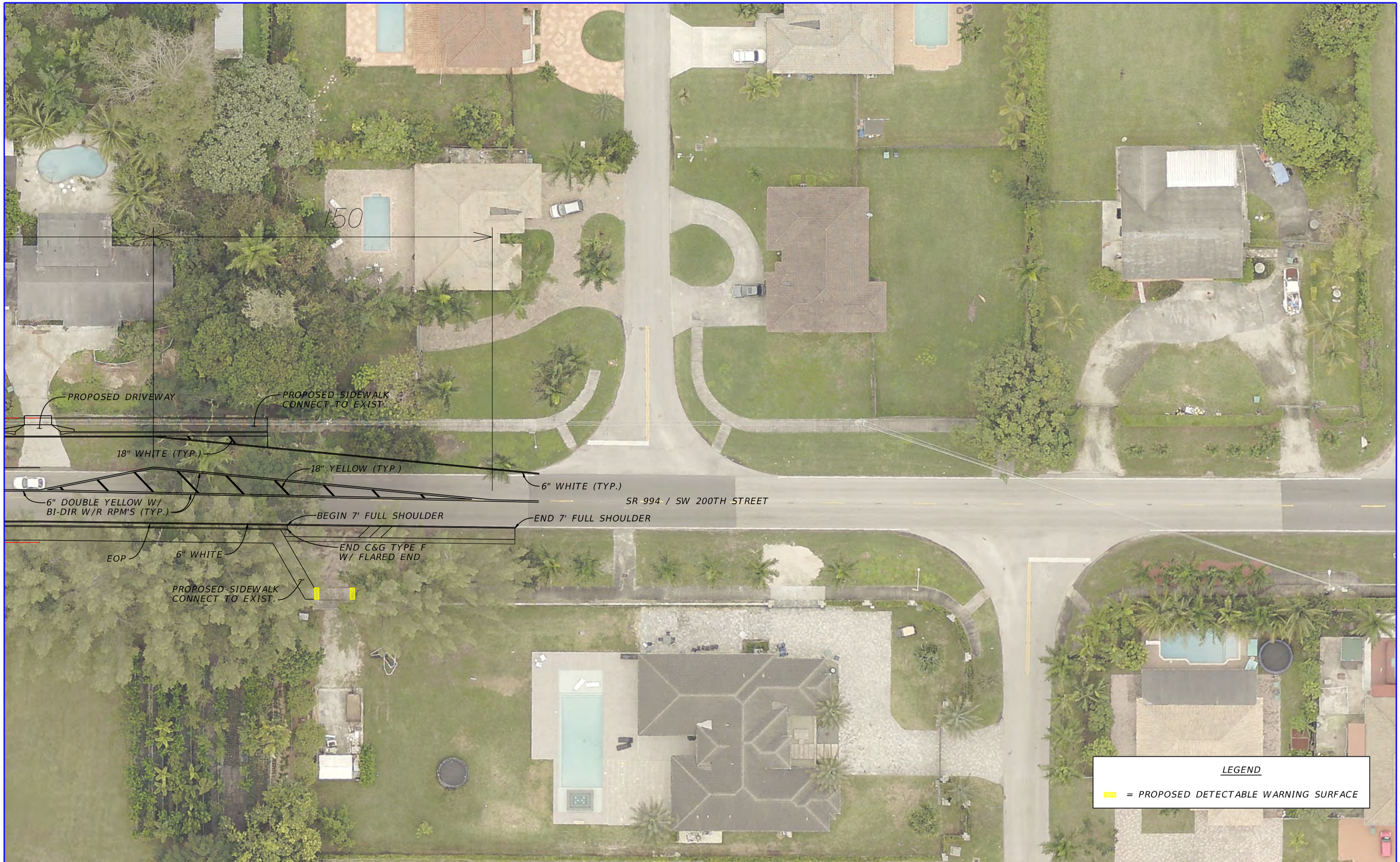

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

BURT L. BALDO, P.E .
P.E. NO.: 53120
KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE - SUITE 1400
MIAMI, FLORIDA 33134
CERTIFICATE OF AUTHORIZATION 696

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	TWO#58

ROADWAY PLAN

SHEET NO.
4

$USER$ $DATE$ $TIME$ $FILE$

APPENDIX H

OPINIONS OF PROBABLE COST

Kimley»Horn

DATE: 5/11/2017

OPINION OF PROBABLE COST (DRAFT SUBMITTAL)
SR 994 / SW 200th Street / Quail Roost Drive @ SW 134th Avenue
Alternative 1 - No Westbound Left-Turn Lane

ITEM NUMBER	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL COST
	ROADWAY/DRAINAGE PAY ITEMS				
160-4	TYPE B STABILIZATION	SY	385	$ 1.20	$ 461.75
285-07-03	OPTIONAL BASE GROUP 3	SY	402	$ 8.75	$ 3,518.73
285-7-09	OPTIONAL BASE GROUP 9	SY	446	$ 13.92	$ 6,213.54
334-1-13	SUPERPAVE ASPH CONC, TRAFFIC C	TN	74	$ 81.72	$ 6,018.83
337-7-73	ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-9.5, PG	TN	43	$ 114.93	$ 4,974.30
425-1-351	INLETS, CURB, TYPE P-5, <10'	EA	1	$ 4,904.21	$ 4,904.21
425-1-561	INLETS, DITCH BOTTOM, TYPE A, <10'	EA	6	$ 3,581.00	$ 21,486.00
443-70-4	FRENCH DRAIN, 24"	LF	469	$ 135.12	$ 63,413.17
520-1-10	CONCRETE CURB AND GUTTER, TYPE F	LF	706	$ 21.11	$ 14,904.50
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4" THICK	SY	614	$ 38.15	$ 23,408.01
527-2	DETECTABLE WARNINGS	SF	164	$ 29.00	$ 4,751.38
		ROADWAY/DRAINAGE TOTAL			**$ 154,054.43**
	SIGNING AND PAVEMENT MARKING PAY ITEMS				
700-1-50	SINGLE POST SIGN, F&I GROUND MOUNT, 12-20 SF	AS	5	$ 297.27	$ 1,486.35
700-2-52	MULTI-POST SIGN, F&I GROUND MOUNT, RELOCATE	AS	1	$ 2,265.00	$ 2,265.00
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12"	LF	297	$ 1.80	$ 534.42
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24"	LF	366	$ 3.19	$ 1,168.05
711-14-160	THERMOPLASTIC, STANDARD,WHITE SYMBOL	EA	3	$ 294.97	$ 884.91
711-14-170	THERMOPLASTIC, STANDARD,WHITE ARROW	EA	3	$ 122.44	$ 367.32
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM	0.375	$ 3,068.93	$ 1,150.85
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM	0.051	$ 3,064.94	$ 156.31
		SIGNING & PAVT MARKING TOTAL			**$ 8,013.21**
	SIGNALIZATION PAY ITEMS				
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF	350	$ 6.52	$ 2,282.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	LF	575	$ 16.32	$ 9,384.00
632-7-2	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI	1	$ 5,410.99	$ 5,410.99
635-02-11	PULL AND SPLICE BOX, F&I, 13" X 24" COVER	EA	19	$ 566.85	$ 10,770.15
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	EA	1	$ 623.78	$ 623.78
646-01-11	ALUMINUM SIGNALS POLE, PEDESTAL	EA	4	$ 962.30	$ 3,849.20
646-21-01	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 30'	EA	2	$ 27,436.00	$ 54,872.00
646-21-03	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 40'	EA	1	$ 29,886.15	$ 29,886.15
646-21-06	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 50'	EA	1	$ 32,533.69	$ 32,533.69
650-01-14	TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	AS	9	$ 946.35	$ 8,517.15
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS	4	$ 683.11	$ 2,732.44
660-4-11	VIDEO DETECTION SYSTEM - VIDEO, FURNISH & INSTALL CABINET EQUIPMENT	EA	1	$ 6,285.15	$ 6,285.15
660-4-12	VIDEO DETECTION SYSTEM - VIDEO, FURNISH & INSTALL ABOVE GROUND EQUIPMENT	EA	5	$ 2,908.08	$ 14,540.40
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	4	$ 218.83	$ 875.32
670-5-120	TRAFFIC CONTROLLER ASSEMBLY, F&I, 170	AS	1	$ 24,176.78	$ 24,176.78
700-5-21	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA	4	$ 2,866.24	$ 11,464.96
		SIGNALIZATION TOTAL			**$ 218,204.16**
	LIGHTING PAY ITEMS				
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF	100	$ 6.52	$ 652.00
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	LF	100	$ 16.32	$ 1,632.00
635-2-11	PULL AND SPLICE BOX, F&I, 13" X 24" COVER	EA	7	$ 566.85	$ 3,967.95
715-5-11	LUMINAIRE & BRACKET ARM, F&I, ALUMINUM	EA	1	$ 2,034.00	$ 2,034.00
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO 8 TO NO 6	LF	300	$ 1.70	$ 510.00
715-4-113	LIGHT POLE COMPLETE, F&I, WIND SPEED 150, POLE HEIGHT - 50'	EA	3	$ 5,896.02	$ 17,688.06
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	EA	1	$ 11,335.35	$ 11,335.35
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, CONVENTIONAL	EA	1	$ 1,611.89	$ 1,611.89
		LIGHTING TOTAL			**$ 39,431.25**
		SUB-TOTAL			**$ 419,703.05**
101-1	MOBILIZATION	LS	10%	-	$ 41,970.30
102-1	MAINTENANCE OF TRAFFIC	LS	10%	-	$ 41,970.30
	CONTINGENCY	LS	15%	-	$ 62,955.46
		GRAND TOTAL			**$ 566,599.11**

Unit prices are per FDOT Item Average Unit for year 2016-2017

Kimley-Horn and Associates, Inc. has no control over the cost of labor, materials, equipment, or services furnished by others, or over methods of determining price, or over competitive bidding or market conditions. Any and all professional opinions as to costs reflected herein, including but not limited to professional opinions as to the costs of construction materials, are made on the basis of professional experience and available data. Kimley-Horn and Associates, Inc. cannot and does not guarantee or warrant that proposals, bids, or actual costs will not vary from the professional opinions of costs shown herein.

K:\MIB_Roadway\Ft_Lauderdale\Ian Rairden\TWO 58 - Quail Roost at SW 134 Avenue\KHA Files\OPC\[20170509 TWO # 58 OPC_IMR edit.xlsx]Alternative 1

Kimley»Horn

DATE: 5/11/2017

OPINION OF PROBABLE COST (DRAFT SUBMITTAL)
SR 994 / SW 200th Street / Quail Roost Drive @ SW 134h Avenue
Alternative 2 - With Westbound Left-Turn Lane

ITEM NUMBER	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL COST
	ROADWAY/DRAINAGE PAY ITEMS				
160-4	TYPE B STABILIZATION	SY	1237	$ 1.20	$ 1,484.28
285-07-03	OPTIONAL BASE GROUP 3	SY	78	$ 8.75	$ 685.07
285-7-09	OPTIONAL BASE GROUP 9	SY	1109	$ 13.92	$ 15,439.05
334-1-13	SUPERPAVE ASPH CONC, TRAFFIC C	TN	183	$ 81.72	$ 14,955.24
337-7-73	ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-9.5, ARB	TN	65	$ 114.93	$ 7,505.86
425-1-351	INLETS, CURB, TYPE P-5, <10'	EA	6	$ 4,904.21	$ 29,425.26
425-1-561	INLETS, DITCH BOTTOM, TYPE A, <10'	EA	2	$ 3,581.00	$ 7,162.00
443-70-4	FRENCH DRAIN, 24"	LF	595	$ 135.12	$ 80,363.97
520-1-10	CONCRETE CURB AND GUTTER, TYPE F	LF	1092	$ 21.11	$ 23,044.73
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4" THICK	SY	560	$ 38.15	$ 21,370.60
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY	14	$ 20.00	$ 275.60
527-2	DETECTABLE WARNINGS	SF	84	$ 29.00	$ 2,423.98
		ROADWAY/DRAINAGE TOTAL			**$ 204,135.64**
	SIGNING AND PAVEMENT MARKING PAY ITEMS				
700-1-50	SINGLE POST SIGN, F&I GROUND MOUNT, 12-20 SF	AS	5	$ 297.27	$ 1,486.35
700-2-52	MULTI-POST SIGN, F&I GROUND MOUNT, RELOCATE	AS	1	$ 2,265.00	$ 2,265.00
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12"	LF	335	$ 1.80	$ 603.52
711-11-124	THERMOPLASTIC, STANDARD,YELLOW, SOLID, 18"	LF	6	$ 2.20	$ 14.21
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24"	LF	409	$ 3.19	$ 1,304.10
711-14-160	THERMOPLASTIC, STANDARD,WHITE SYMBOL	EA	2	$ 294.97	$ 589.94
711-11-170	THERMOPLASTIC, STANDARD,WHITE ARROW	EA	2	$ 122.44	$ 244.88
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM	0.310	$ 3,068.93	$ 951.37
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM	0.379	$ 3,064.94	$ 1,161.61
		SIGNING & PAVT MARKING TOTAL			**$ 8,620.99**
	SIGNALIZATION PAY ITEMS				
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF	280	$ 6.52	$ 1,825.60
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	LF	320	$ 16.32	$ 5,222.40
632-7-2	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI	1	$ 5,410.99	$ 5,410.99
635-02-11	PULL AND SPLICE BOX, F&I, 13" X 24" COVER	EA	17	$ 566.85	$ 9,636.45
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	EA	1	$ 623.78	$ 623.78
646-01-11	ALUMINUM SIGNALS POLE, PEDESTAL	EA	4	$ 962.30	$ 3,849.20
646-21-01	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 30'	EA	2	$ 27,436.00	$ 54,872.00
646-21-03	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 40'	EA	1	$ 29,886.15	$ 29,886.15
646-21-06	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 50'	EA	1	$ 32,533.69	$ 32,533.69
650-01-14	TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	AS	7	$ 946.35	$ 6,624.45
650-01-18	TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 5 SECTION STRAIGHT, 1 WAY	AS	2	$ 1,292.89	$ 2,585.78
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS	4	$ 683.11	$ 2,732.44
660-4-11	VIDEO DETECTION SYSTEM - VIDEO, FURNISH & INSTALL CABINET EQUIPMENT	EA	1	$ 6,285.15	$ 6,285.15
660-4-12	VIDEO DETECTION SYSTEM - VIDEO, FURNISH & INSTALL ABOVE GROUND EQUIPMENT	EA	6	$ 2,908.08	$ 17,448.48
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	4	$ 218.83	$ 875.32
670-5-120	TRAFFIC CONTROLLER ASSEMBLY, F&I, 170	AS	1	$ 24,176.78	$ 24,176.78
700-5-21	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA	4	$ 2,866.24	$ 11,464.96
		SIGNALIZATION TOTAL			**$ 216,053.62**
	LIGHTING PAY ITEMS				
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF	15	$ 6.52	$ 97.80
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	LF	300	$ 16.32	$ 4,896.00
635-2-11	PULL AND SPLICE BOX, F&I, 13" X 24" COVER	EA	6	$ 566.85	$ 3,401.10
715-5-11	LUMINAIRE & BRACKET ARM, F&I, ALUMINUM	EA	2	$ 2,034.00	$ 4,068.00
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO 8 TO NO 6	LF	900	$ 1.70	$ 1,530.00
715-4-112	LIGHT POLE COMPLETE, F&I, WIND SPEED 150, POLE HEIGHT - 45'	EA	1	$ 5,896.02	$ 5,896.02
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	EA	1	$ 11,335.35	$ 11,335.35
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, CONVENTIONAL	EA	1	$ 1,611.89	$ 1,611.89
		LIGHTING TOTAL			**$ 32,836.16**
		SUB-TOTAL			**$ 461,646.41**
101-1	MOBILIZATION	LS	10%	-	$ 46,164.64
102-1	MAINTENANCE OF TRAFFIC	LS	10%	-	$ 46,164.64
	CONTINGENCY	LS	15%	-	$ 69,246.96
		GRAND TOTAL			**$ 623,222.66**

Unit prices are per FDOT Item Average Unit for year 2016-2017

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K:\MIB_Roadway\Ft_Lauderdale\Ian Rairden\TWO 58 - Quail Roost at SW 134 Avenue\KHA Files\OPC\[20170509 TWO # 58 OPC_IMR edit.xlsx]Alternative 2

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 443907-1-52-01

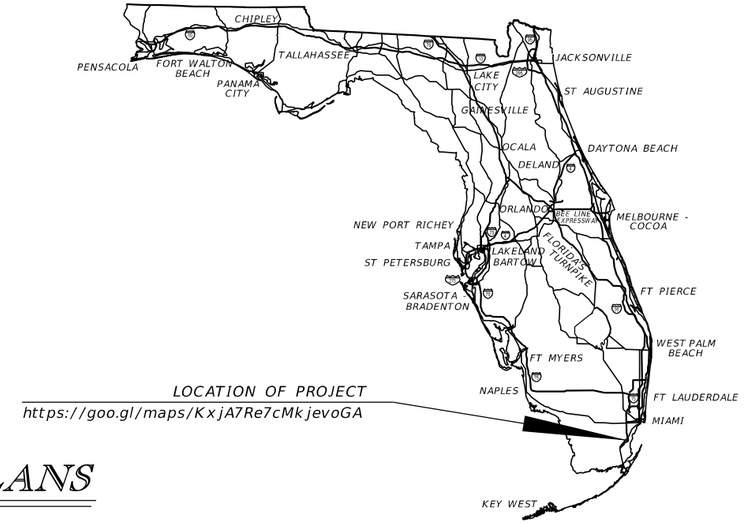
MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994 / QUAIL ROOST DRIVE / SW 200 ST
FROM E. OF KROME AVE TO W. OF SW 137 AVE

INDEX OF SIGNING AND PAVEMENT MARKING PLANS

SHEET NO.	SHEET DESCRIPTION
S-1	KEY SHEET
S-2	GENERAL NOTES
S-3 - S-38	SIGNING & PAVEMENT MARKING PLANS
S-39	LOOP DETAIL AND INSTRUCTIONS
S-40 - S-44	GUIDE SIGN WORK SHEET AND DETAILS

SIGNING AND PAVEMENT MARKING PLANS



LOCATION OF PROJECT
https://goo.gl/maps/KxjA7Re7cMkjevoGA

RAFAEL S. AGUILAR
LICENSE
No 74068
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SIGNING AND PAVEMENT MARKINGS PLANS ENGINEER OF RECORD:

RAFAEL S. AGUILAR, P.E.
P.E. LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FL 33186
CONTRACT NO.: CAD94
VENDOR NO.: F473395906

FDOT PROJECT MANAGER:

FABIANA GONZALEZ, P.E.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
TBD	23	S-1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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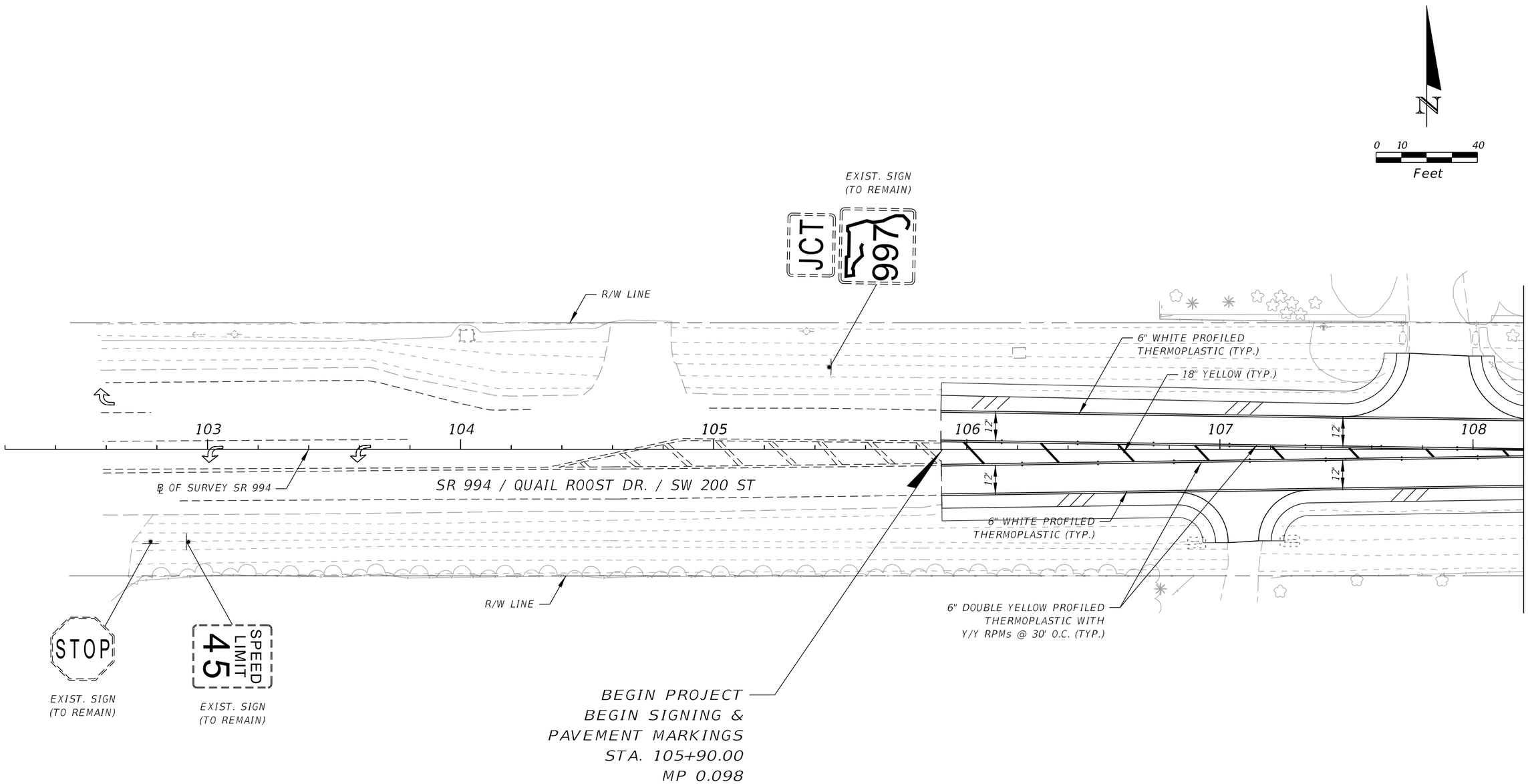
GENERAL NOTES

1. DELIVER AND UNLOAD REMOVED STREET SIGNS TO:

   MIAMI-DADE COUNTY DEPT. OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS & SIGNS DIVISION
   7100 N.W. 36TH STREET
   MIAMI, FLORIDA 33166

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

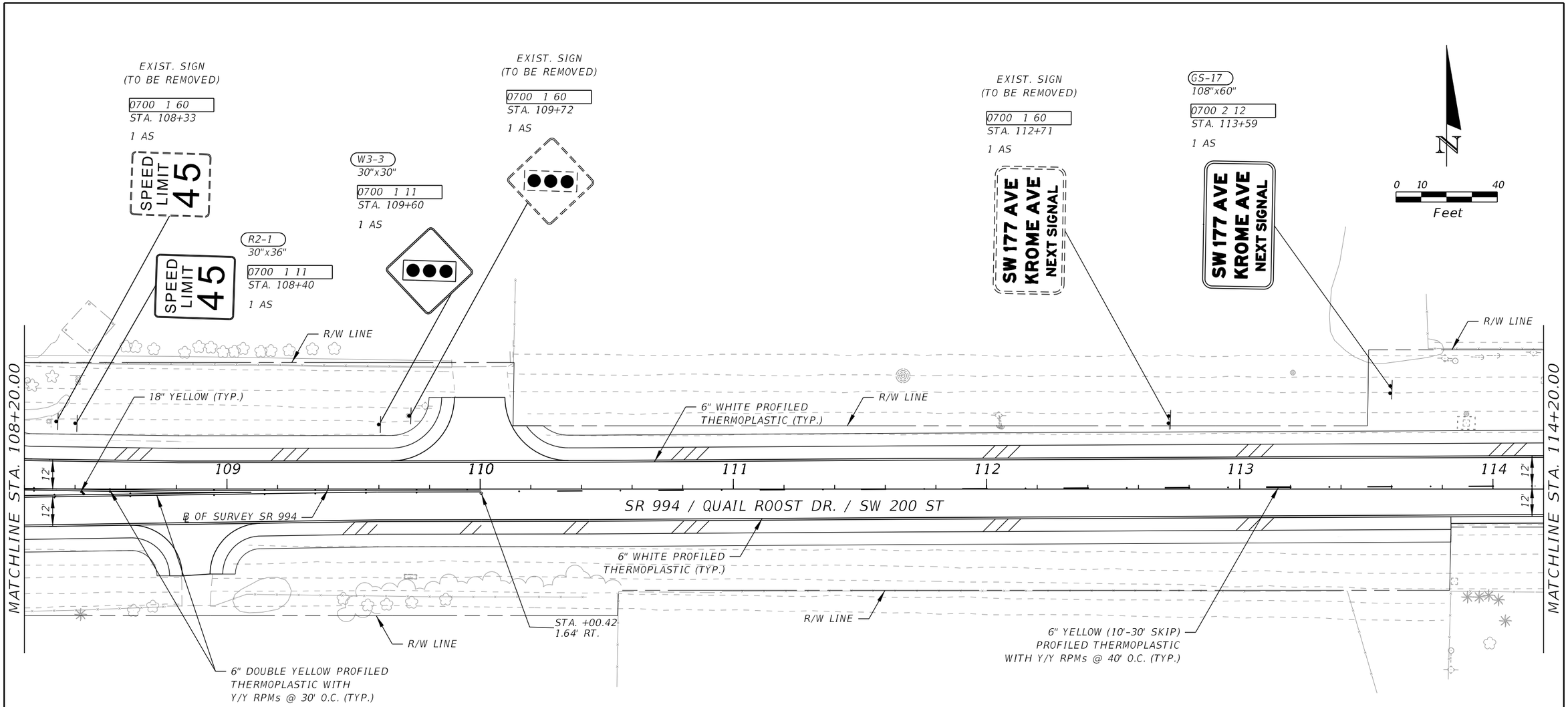
ENGINEER OF RECORD
RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-3



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REVISIONS			
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RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-4

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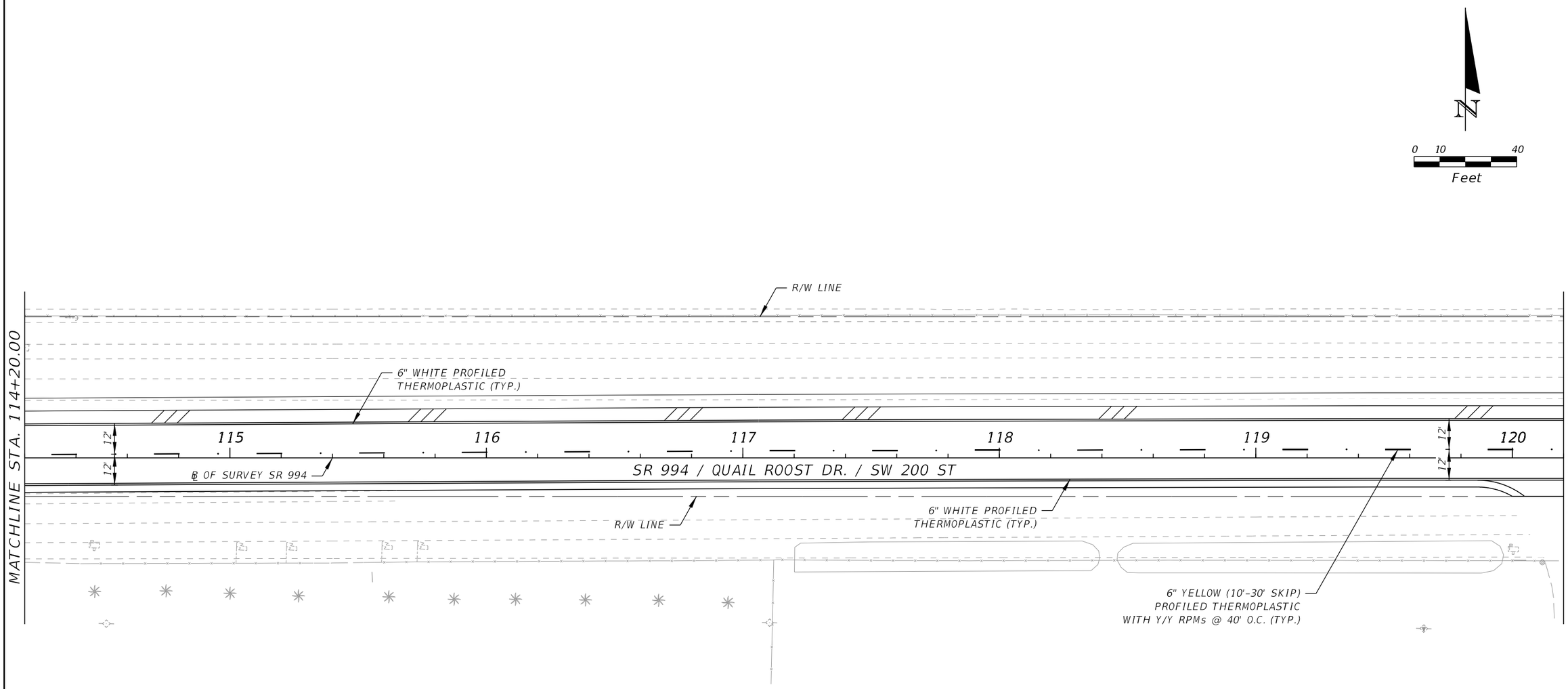

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-5

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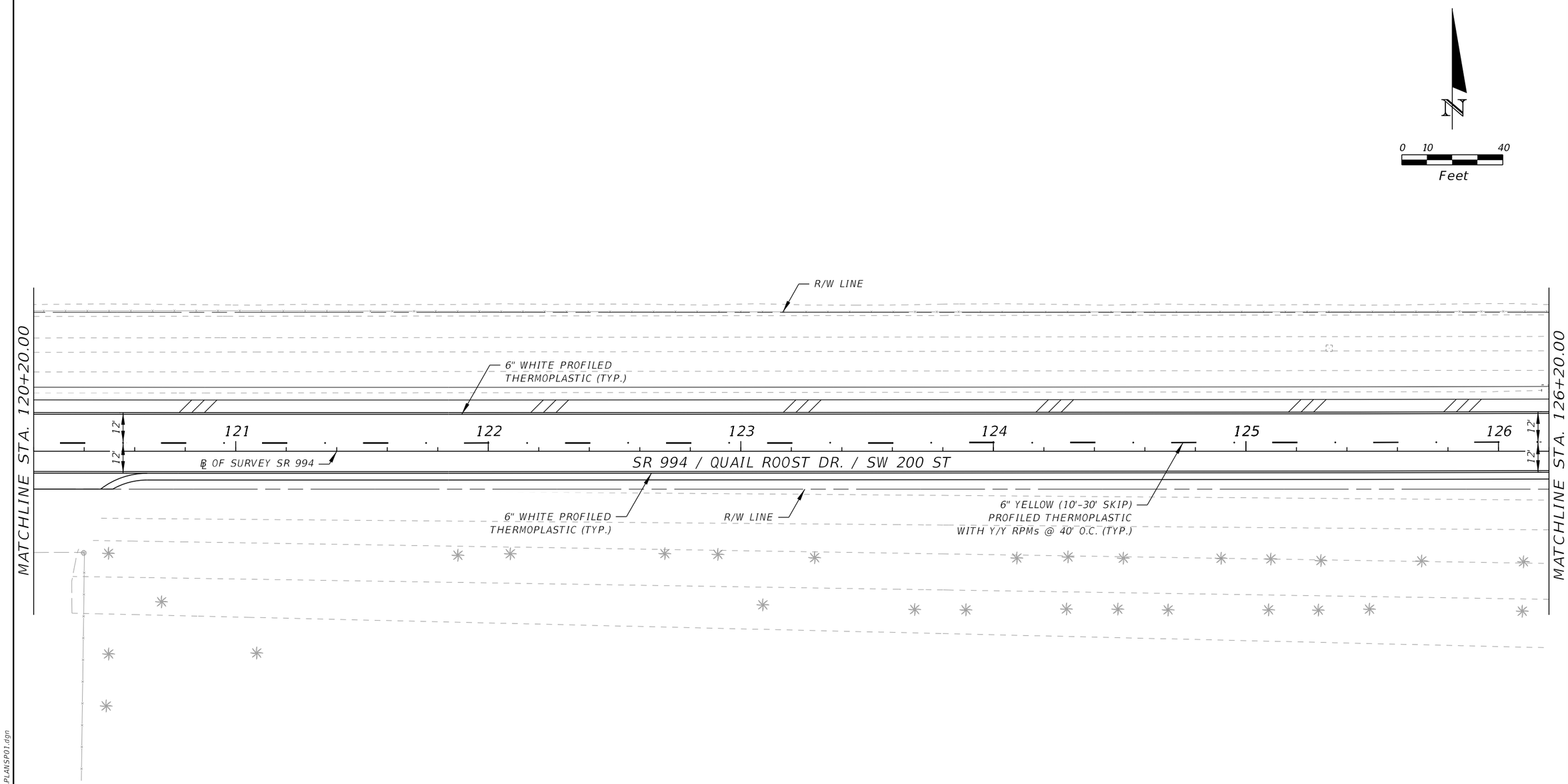

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-6

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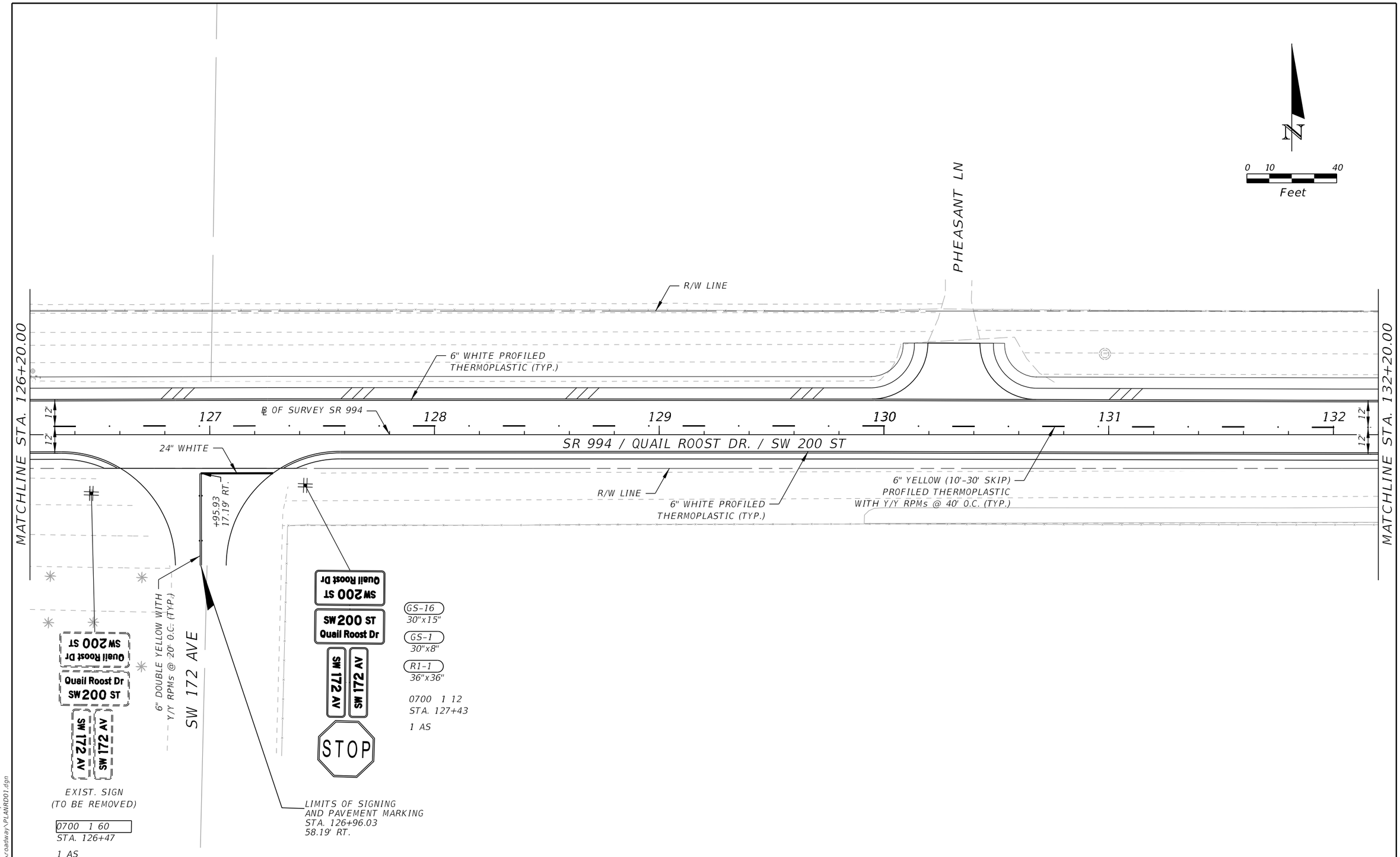

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

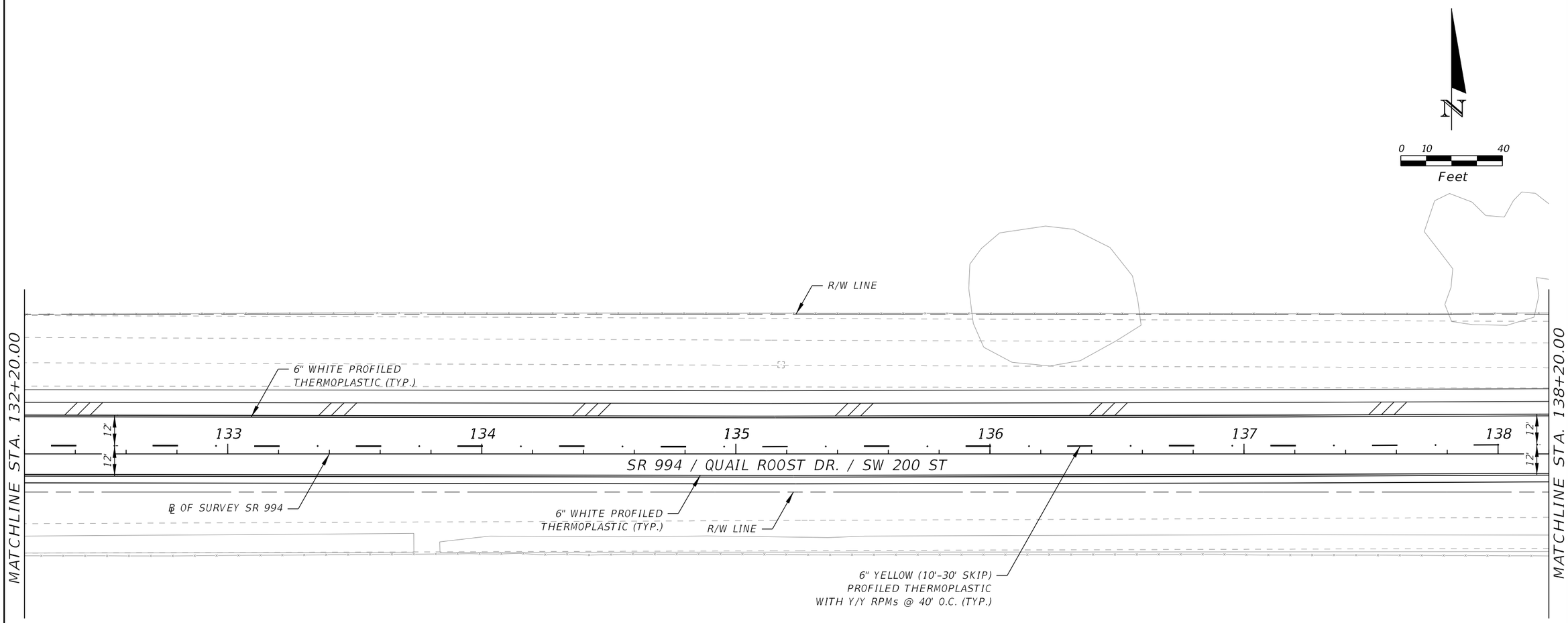
ENGINEER OF RECORD
RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-7



REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNING & PAVEMENT MARKING PLANS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	RAFAEL S. AGUILAR, P.E. LICENSE NUMBER 74068 CHOICE ENGINEERING CONSULTANTS, INC. 12855 SW 132nd STREET, SUITE 200 MIAMI, FLORIDA 33186	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		S-8
					SR 994	MIAMI-DADE	443907-1-52-01		

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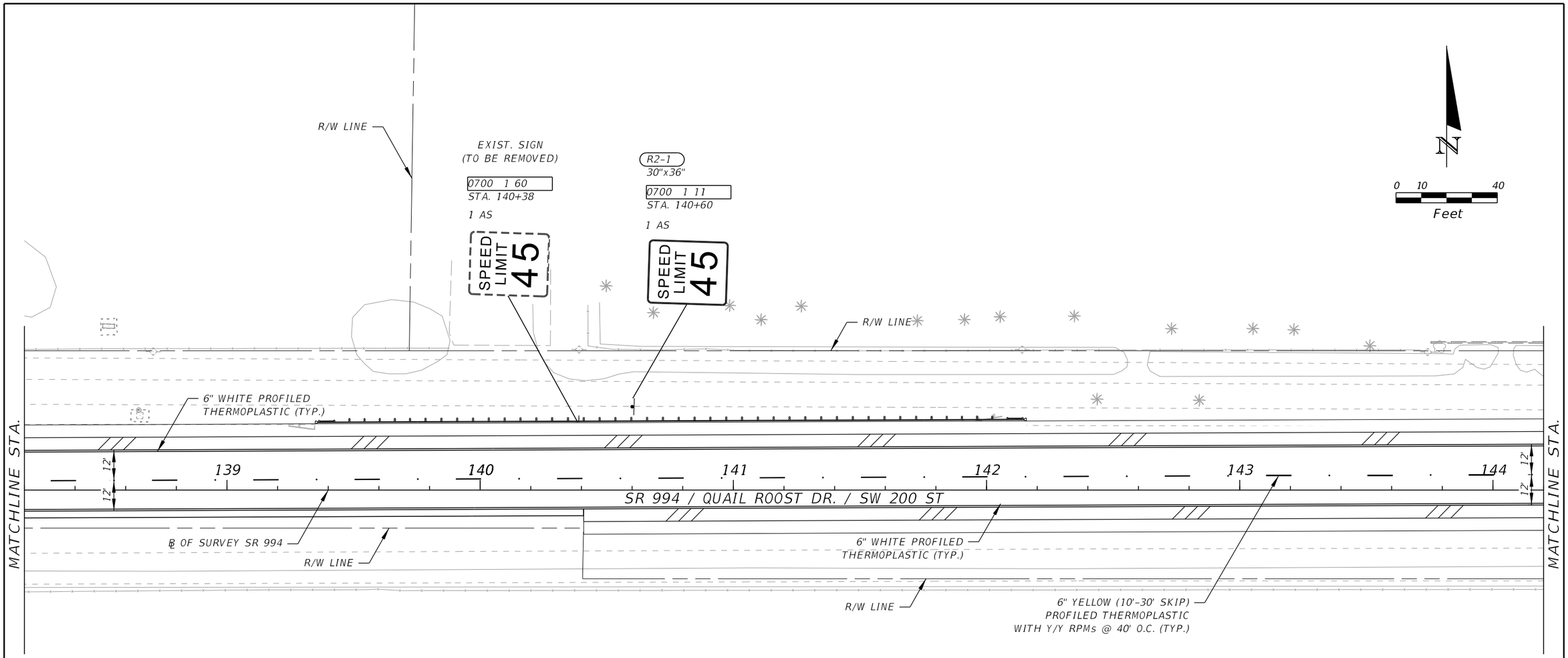

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ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-9

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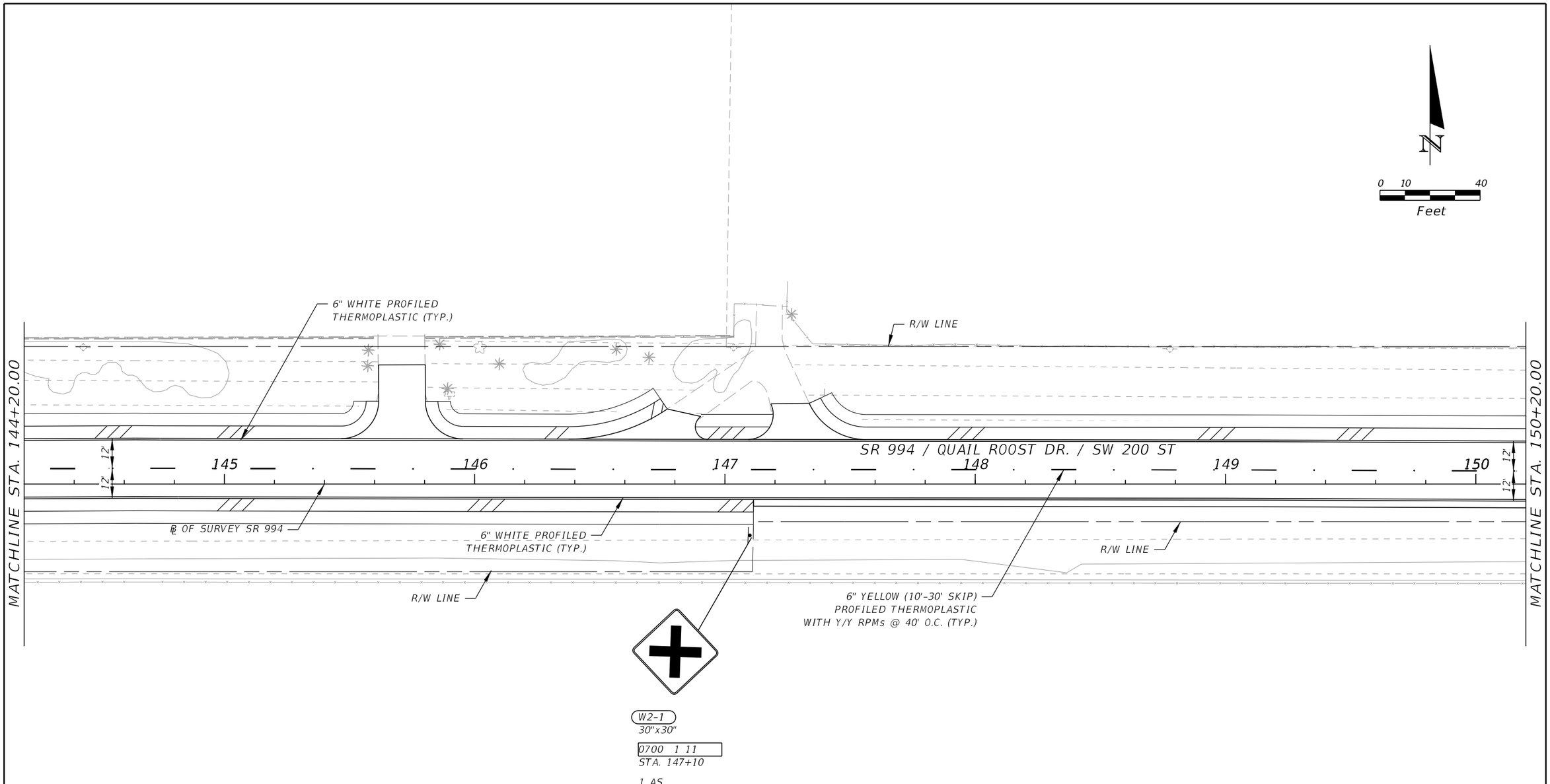

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REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SIGNING & PAVEMENT MARKING PLANS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	RAFAEL S. AGUILAR, P.E. LICENSE NUMBER 74068 CHOICE ENGINEERING CONSULTANTS, INC. 12855 SW 132nd STREET, SUITE 200 MIAMI, FLORIDA 33186	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		S-10
					SR 994	MIAMI-DADE	443907-1-52-01		

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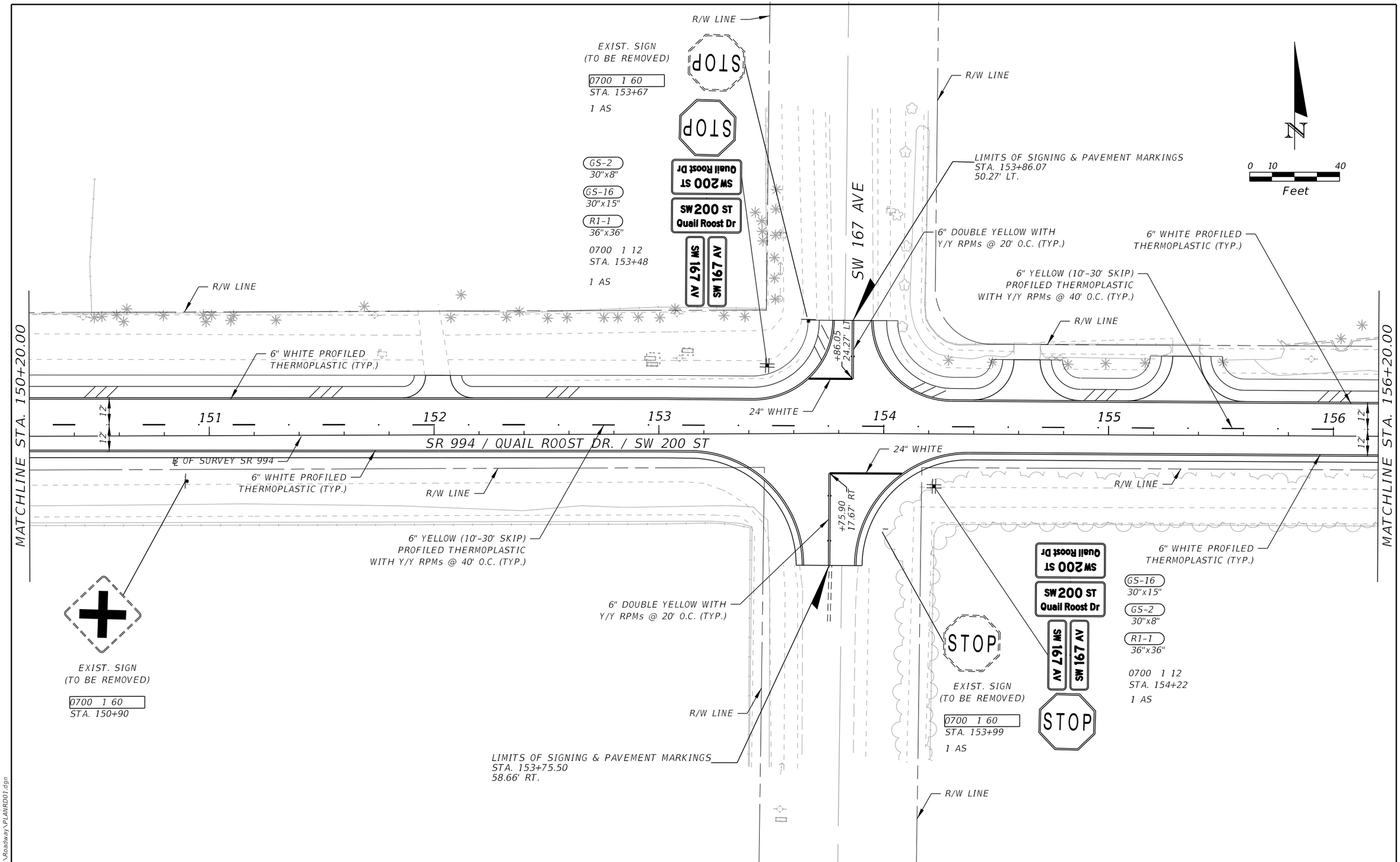

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12855 SW 132nd STREET, SUITE 200
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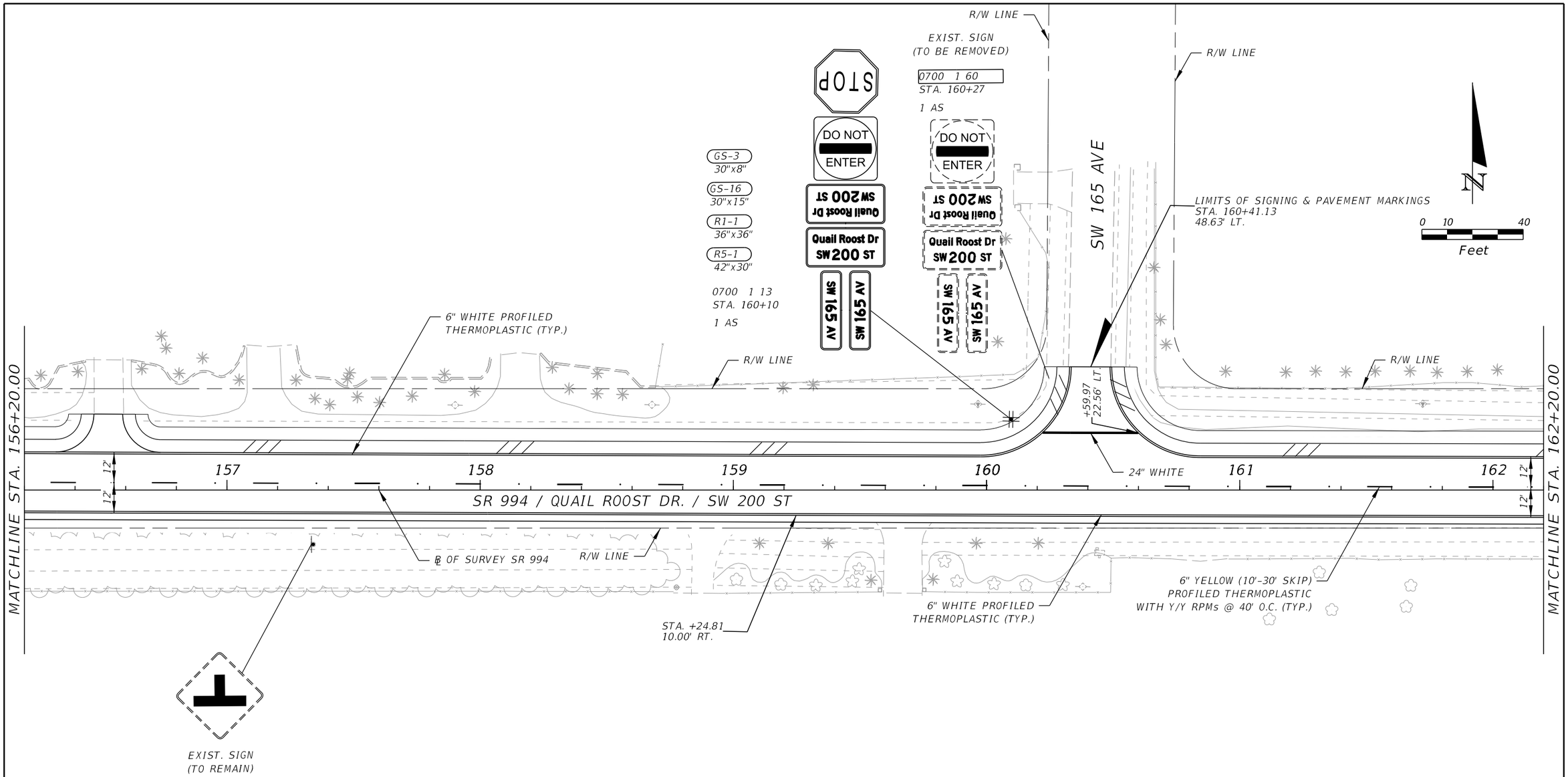
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-11



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ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

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S-12

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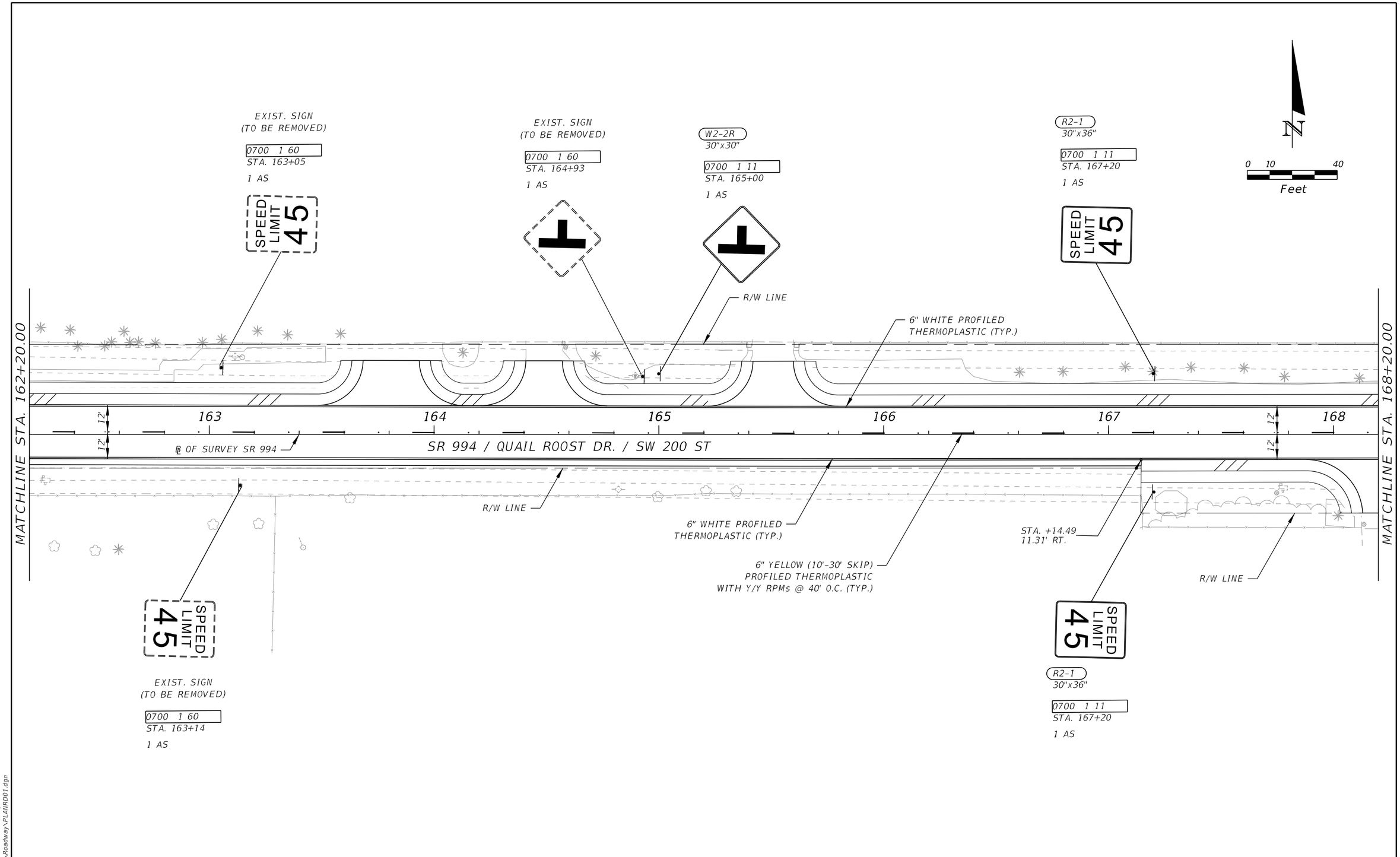

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STATE OF FLORIDA
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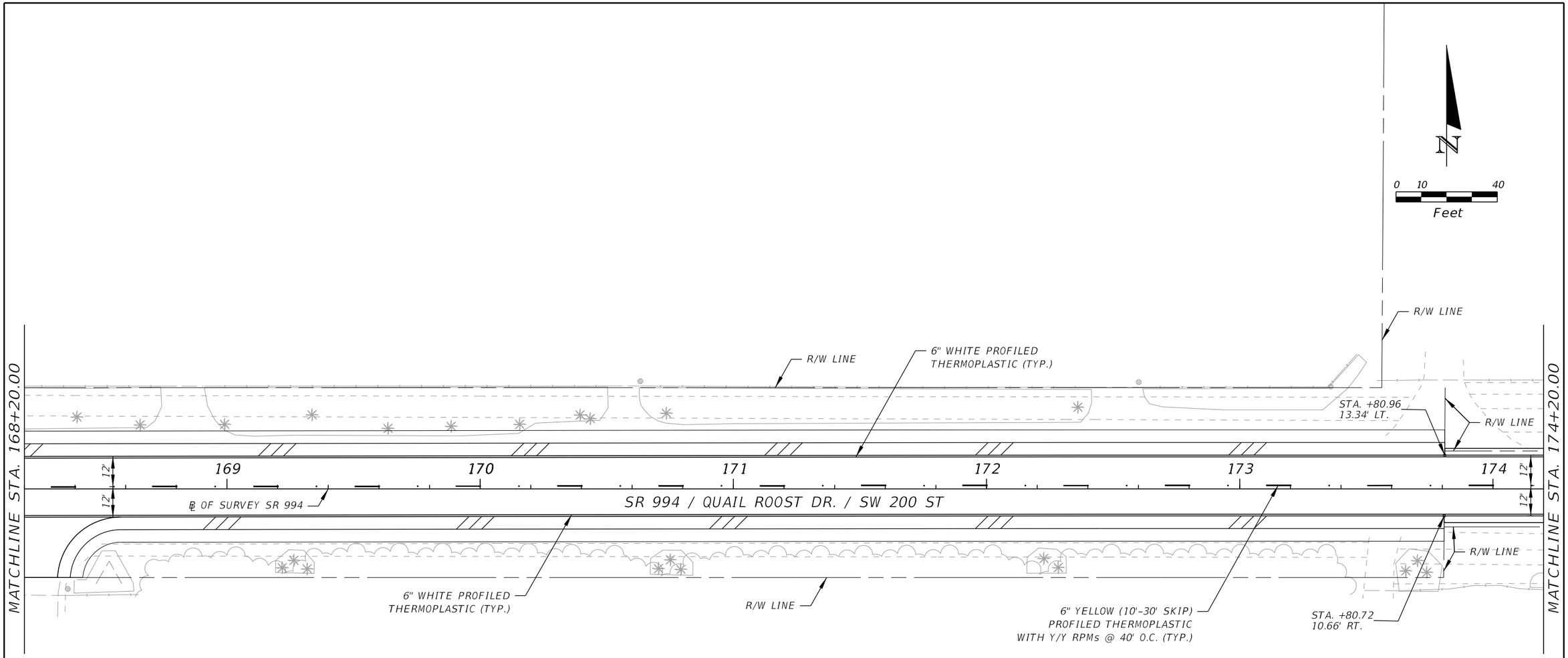
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-13



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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

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S-14

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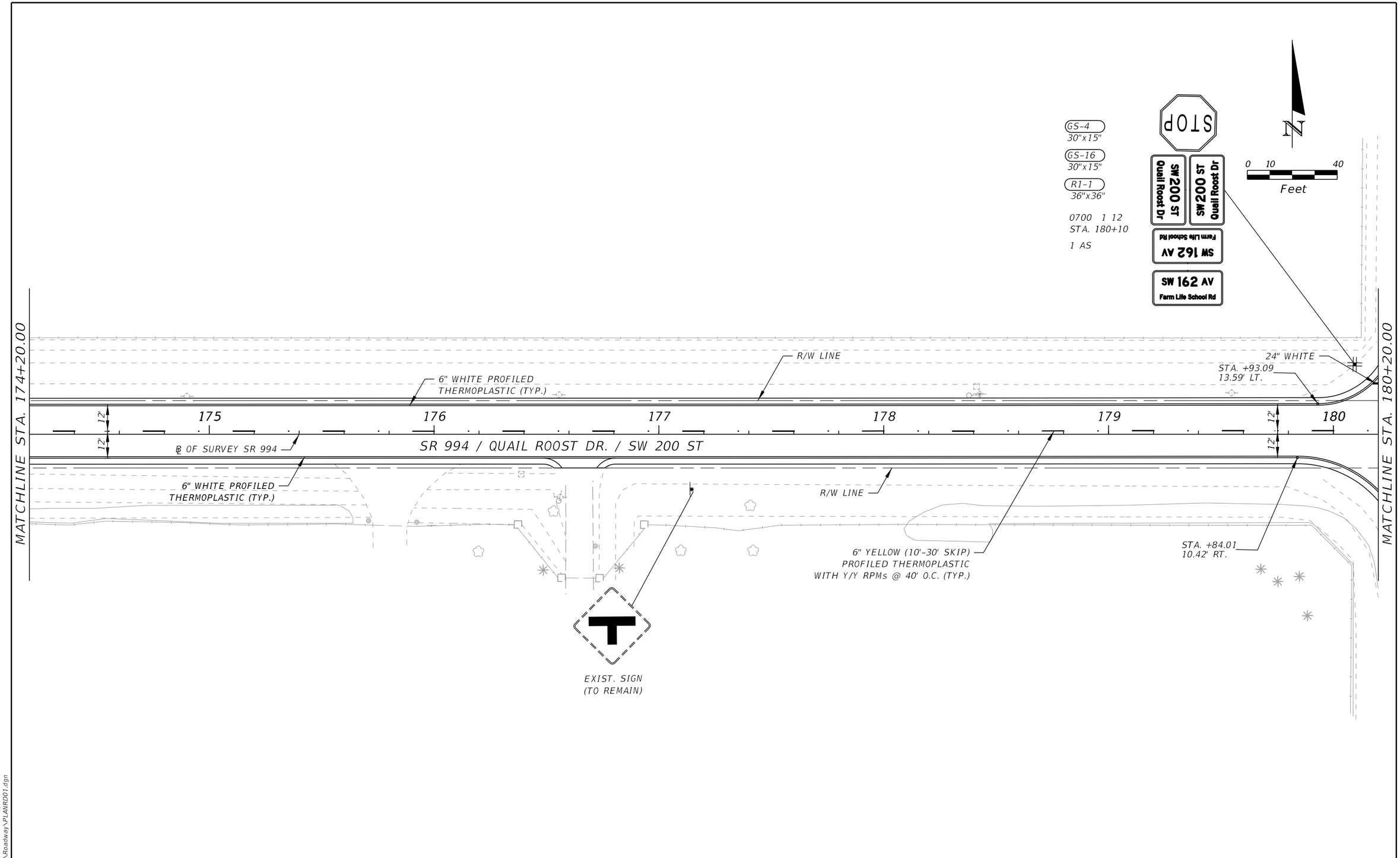

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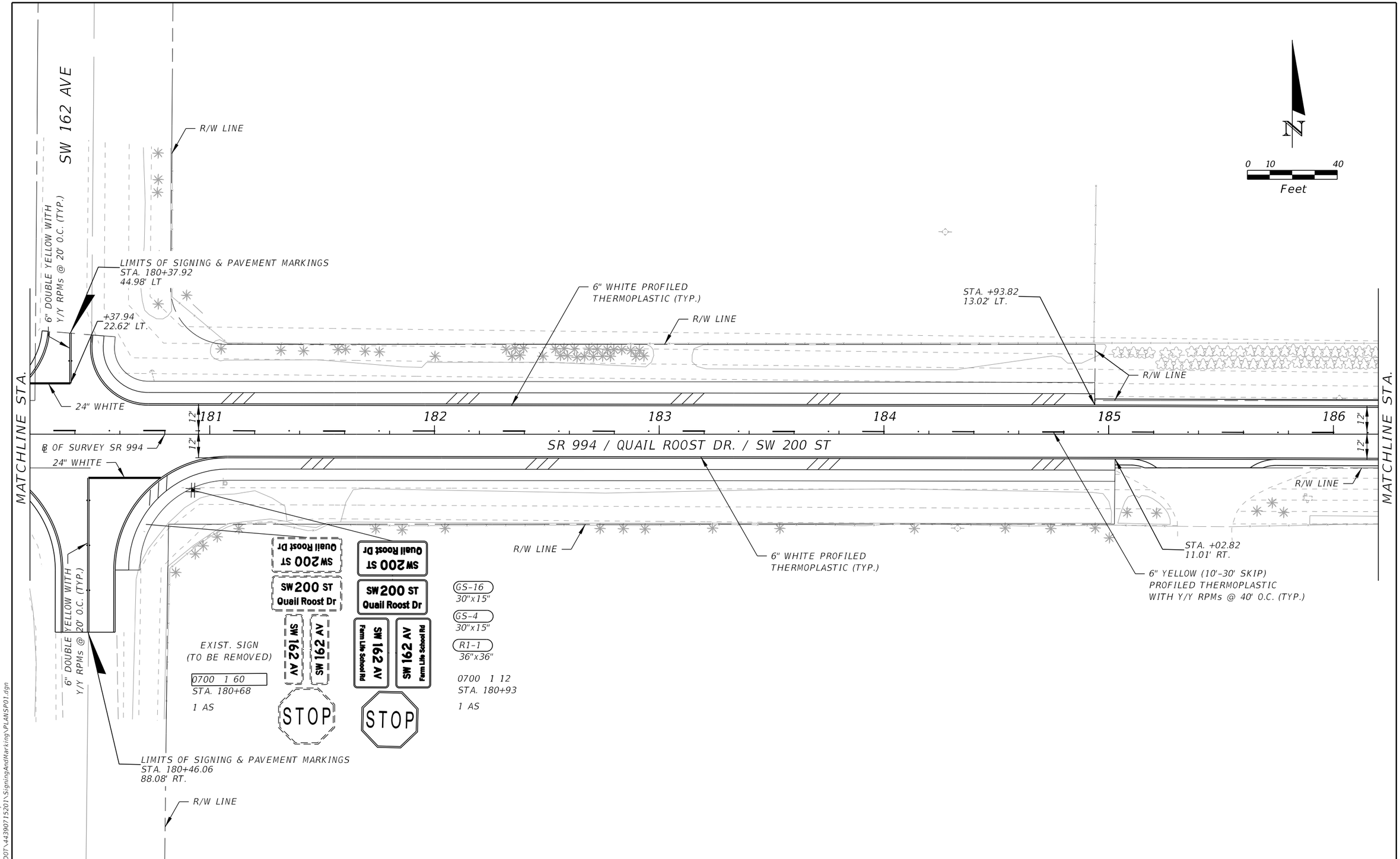
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-15



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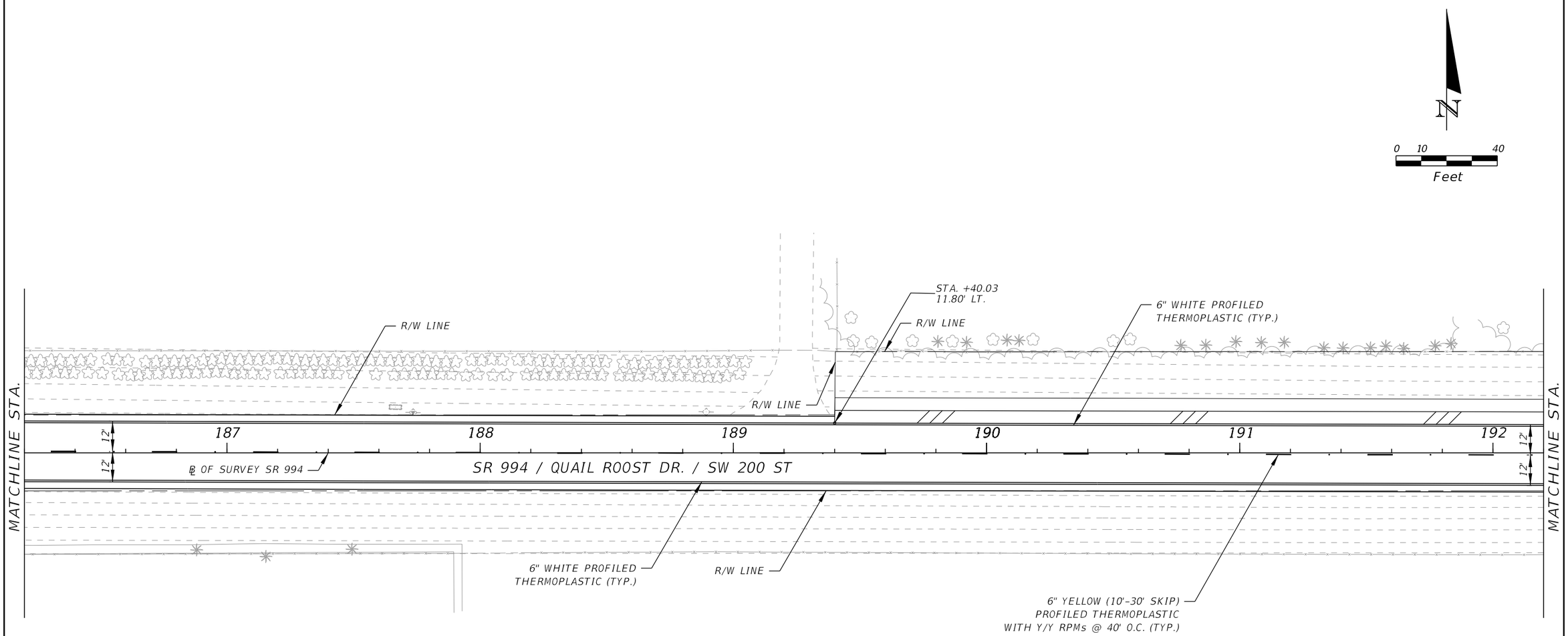
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-16



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ENGINEER OF RECORD

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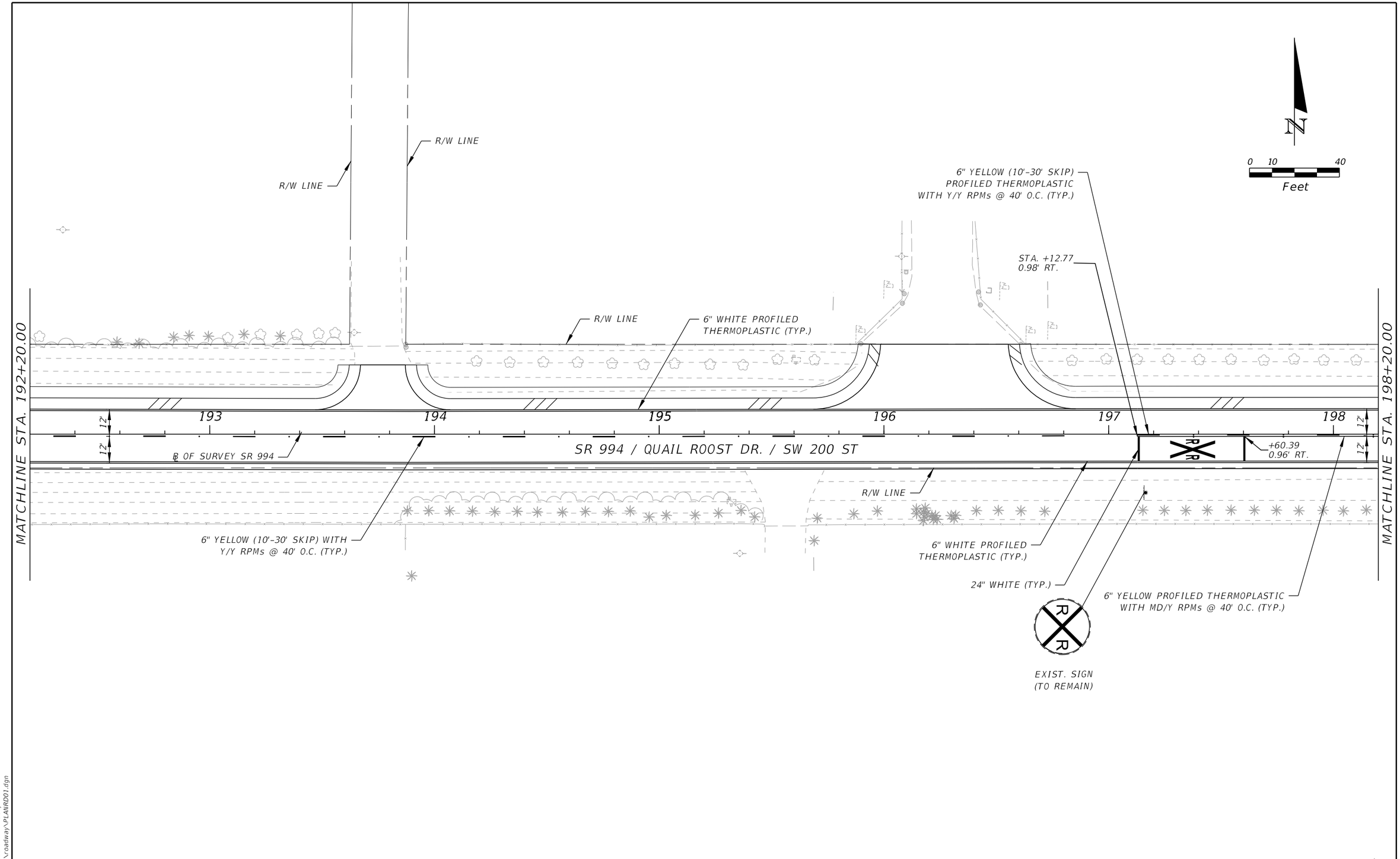
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-17



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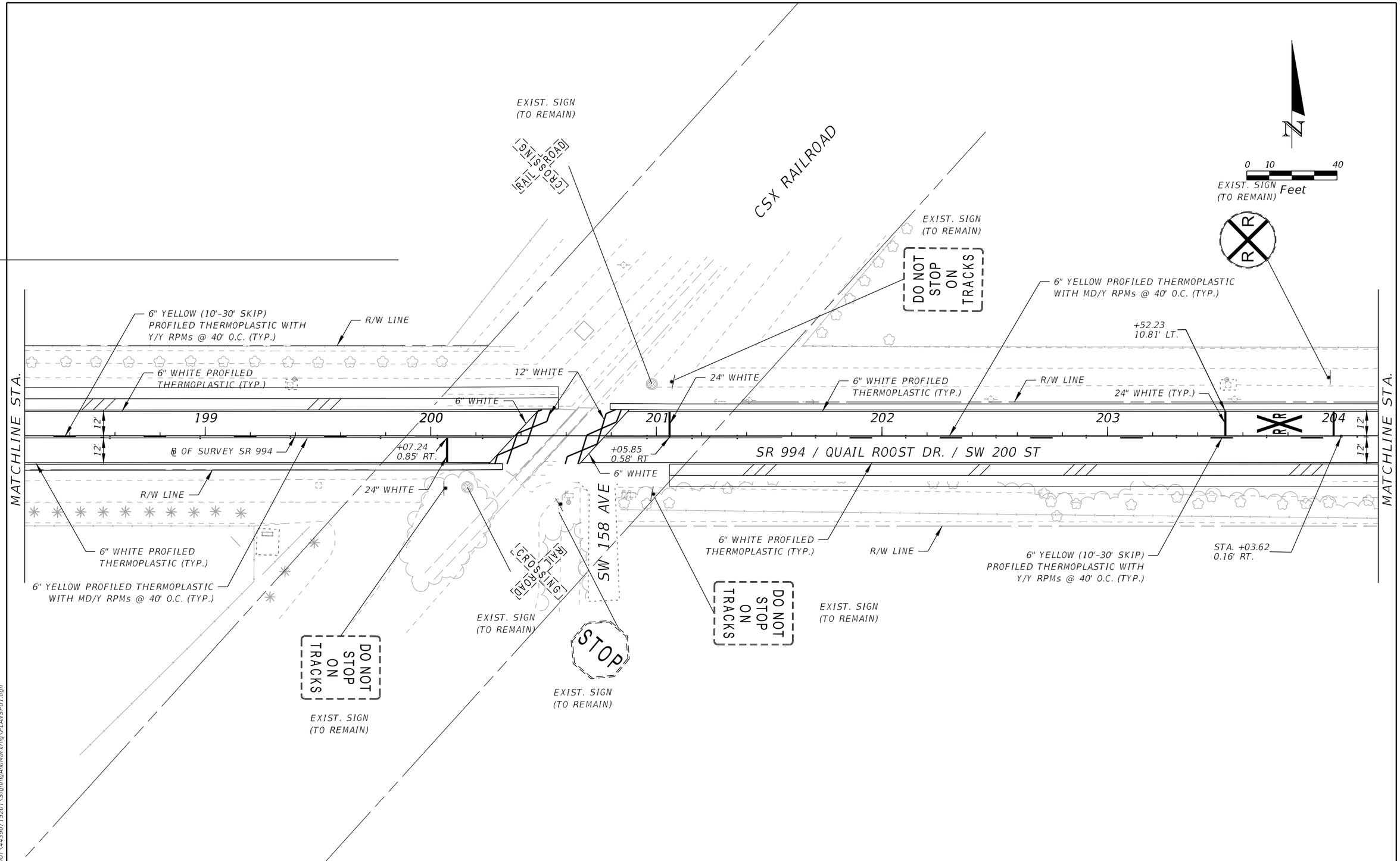
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-18



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12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

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S-19

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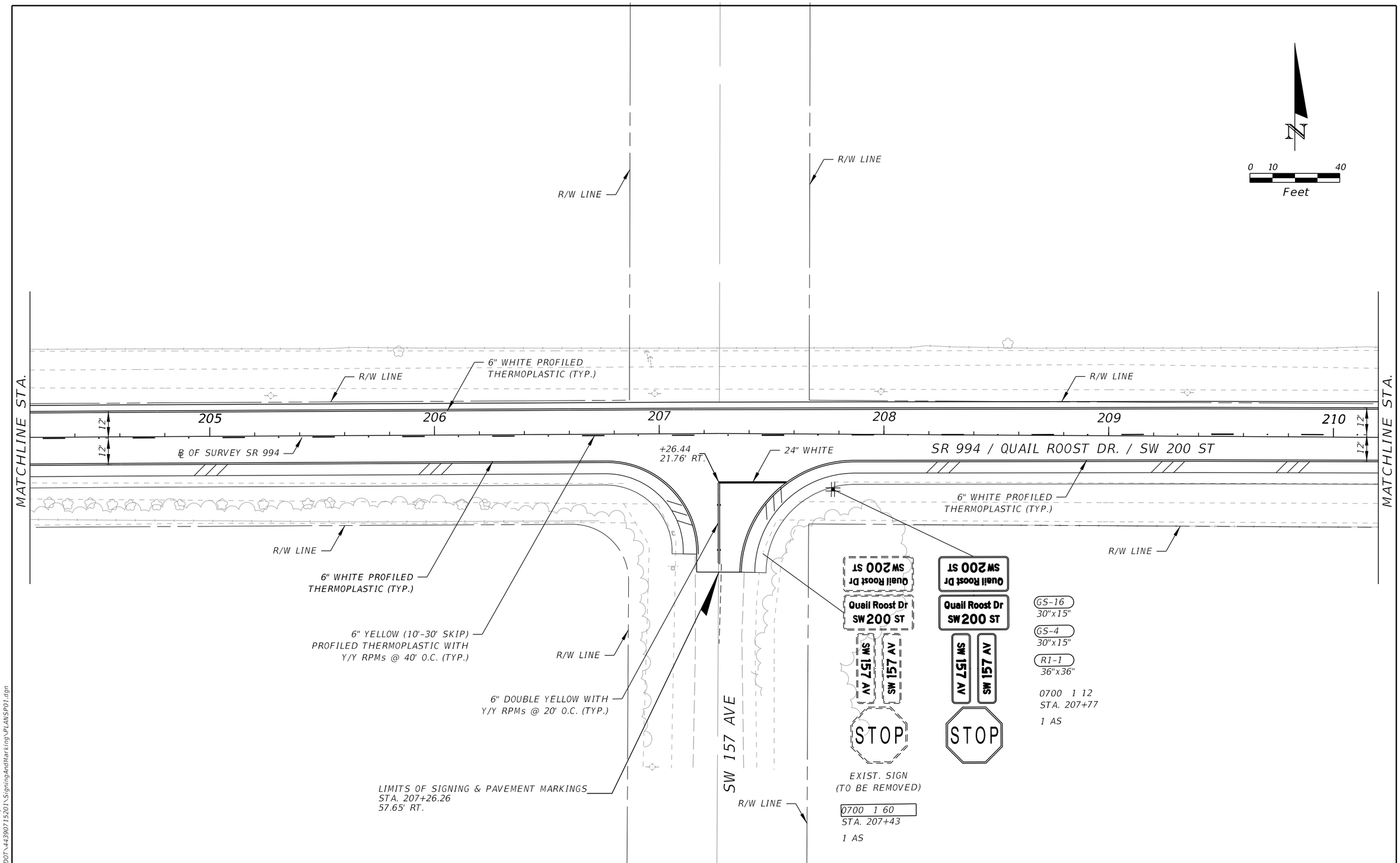

REVISIONS			
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ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-20

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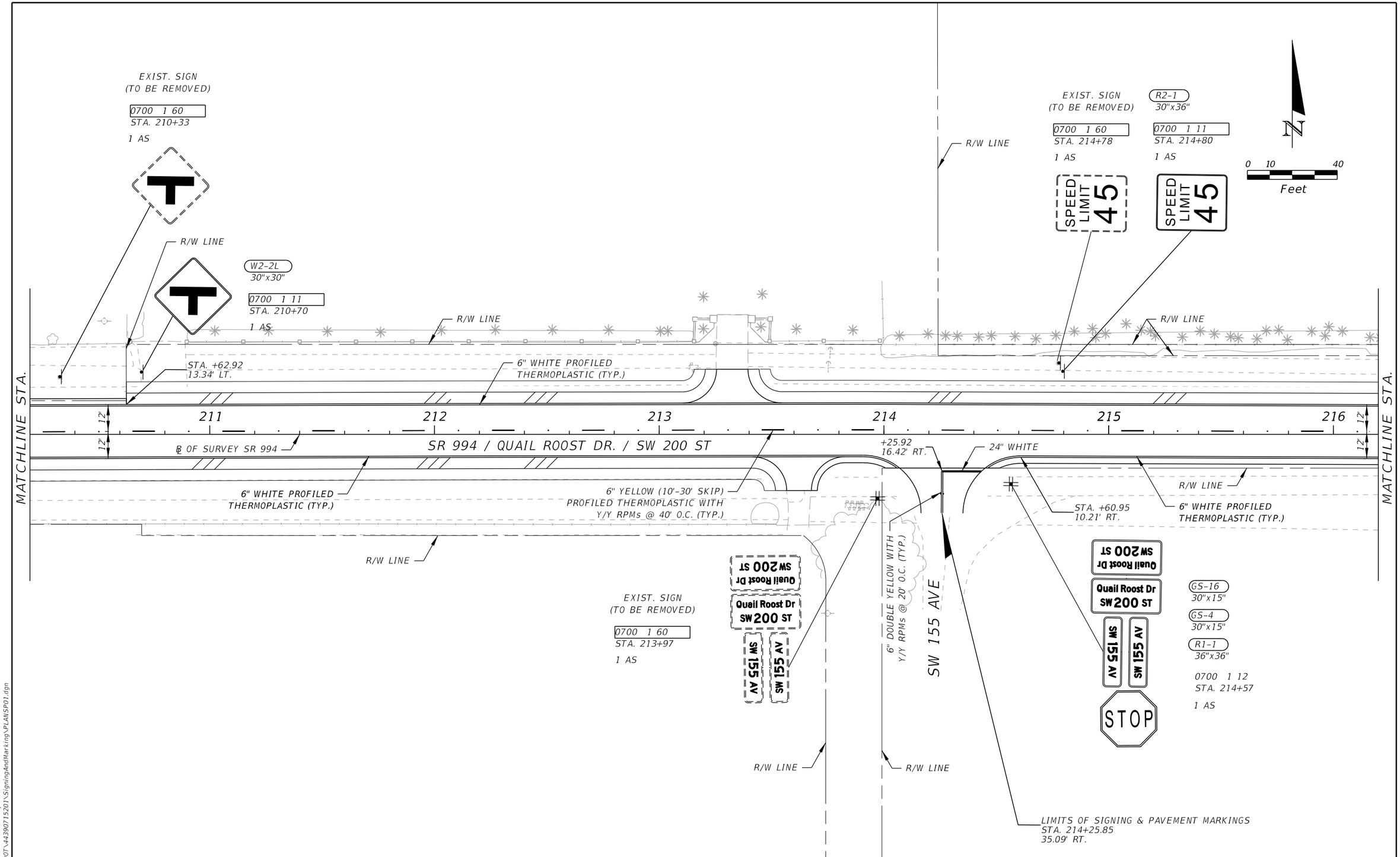

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

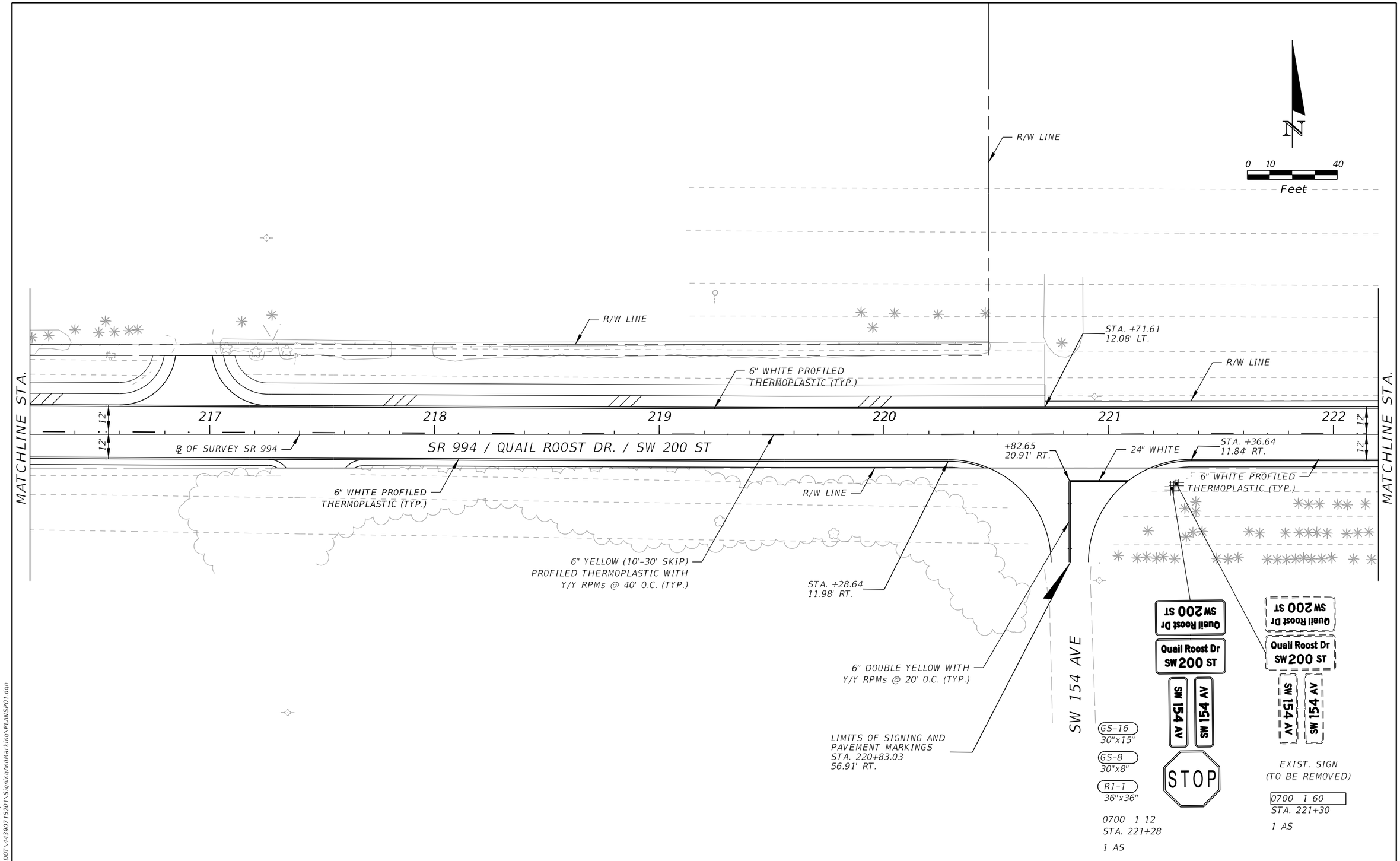
ENGINEER OF RECORD
RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-21



REVISIONS			
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ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-22

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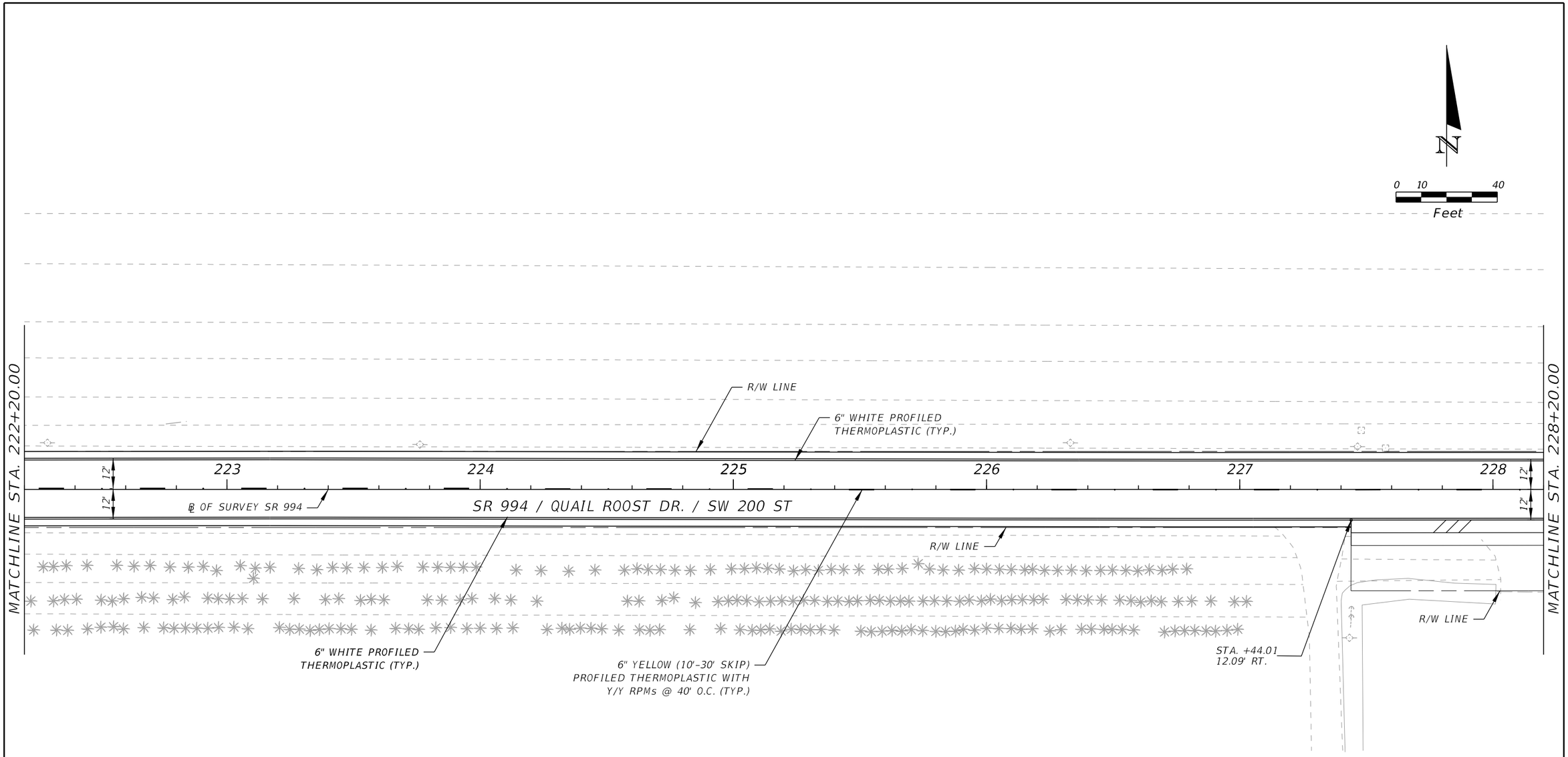

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STATE OF FLORIDA
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SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-23

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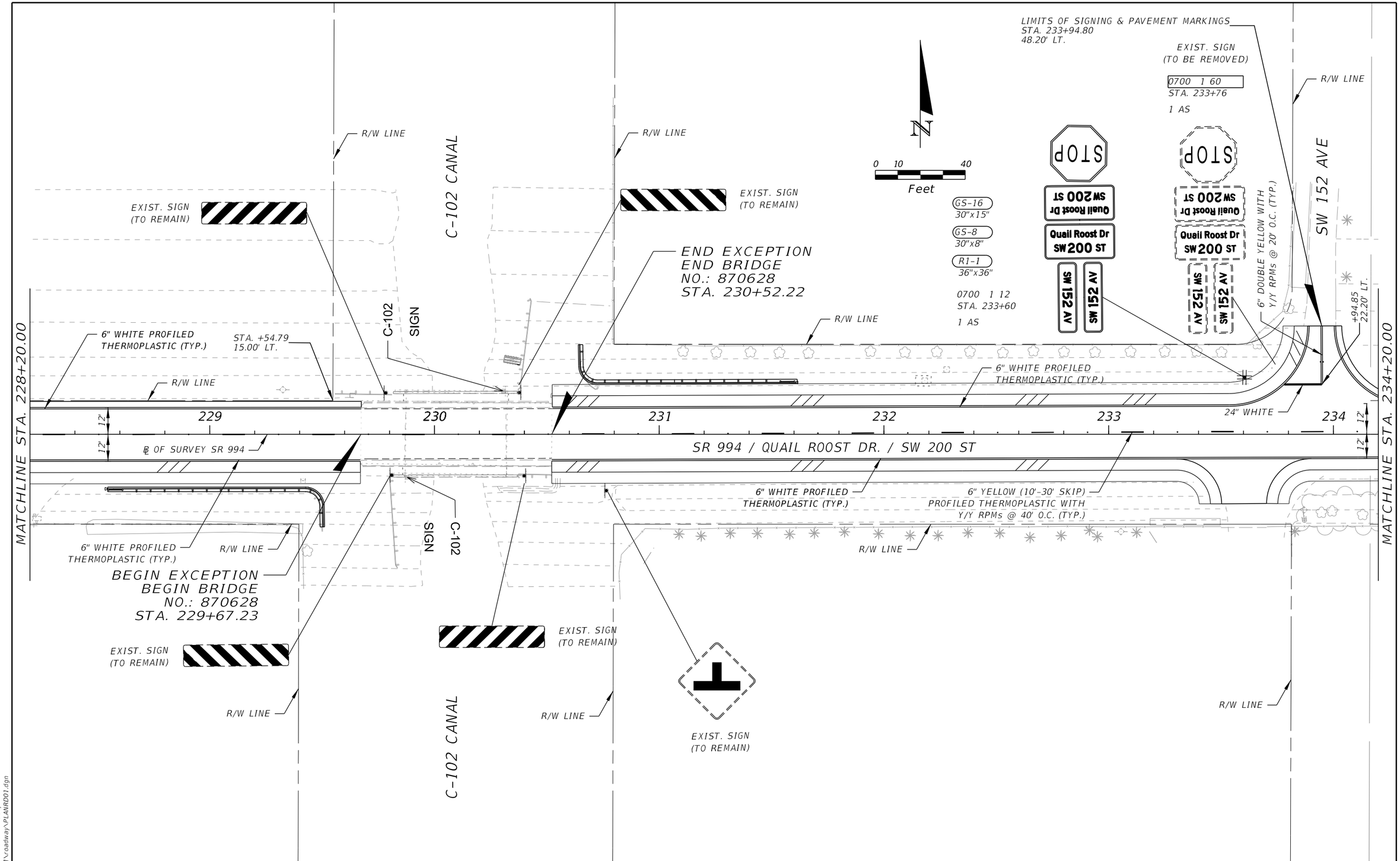

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SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-24

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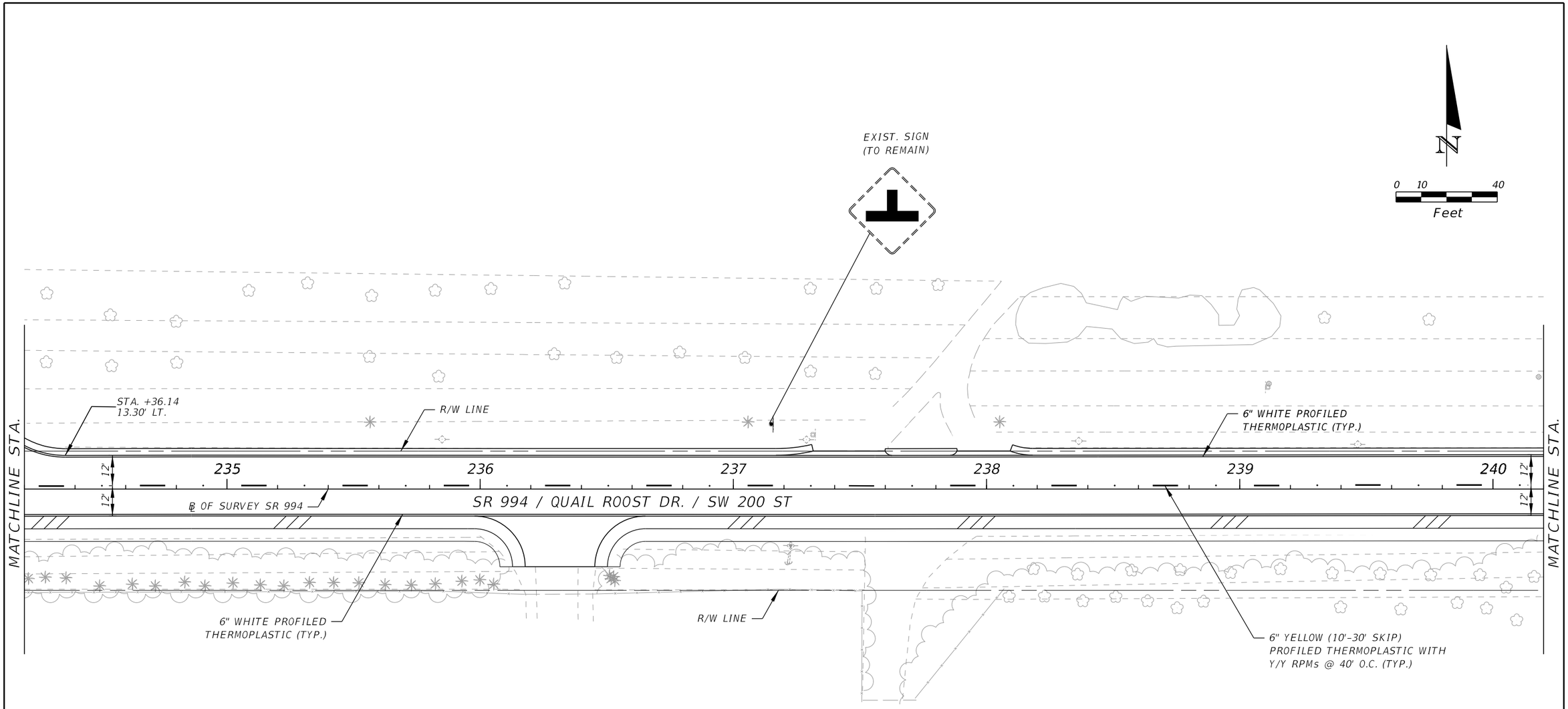

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STATE OF FLORIDA
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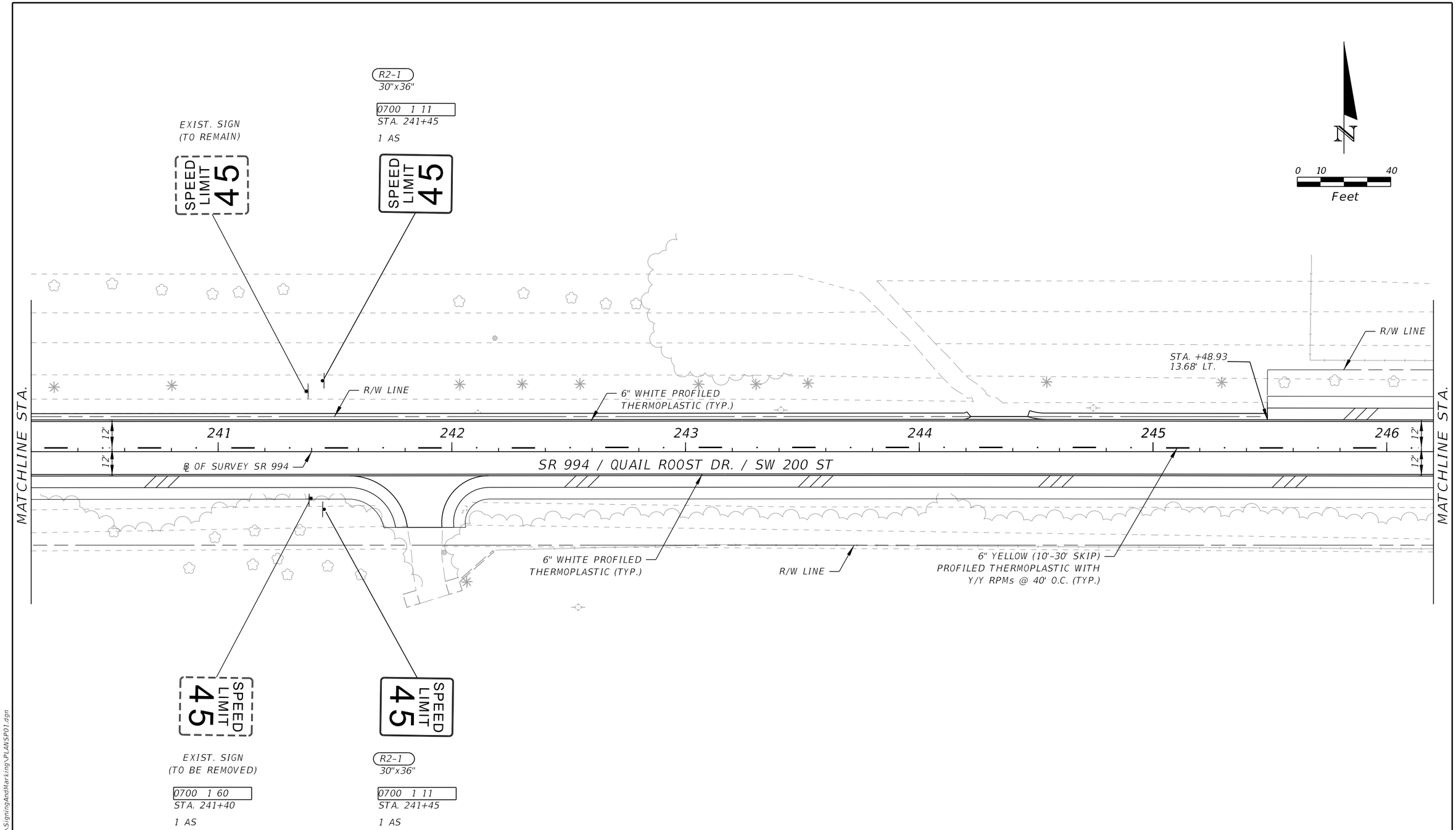
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-25



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-26

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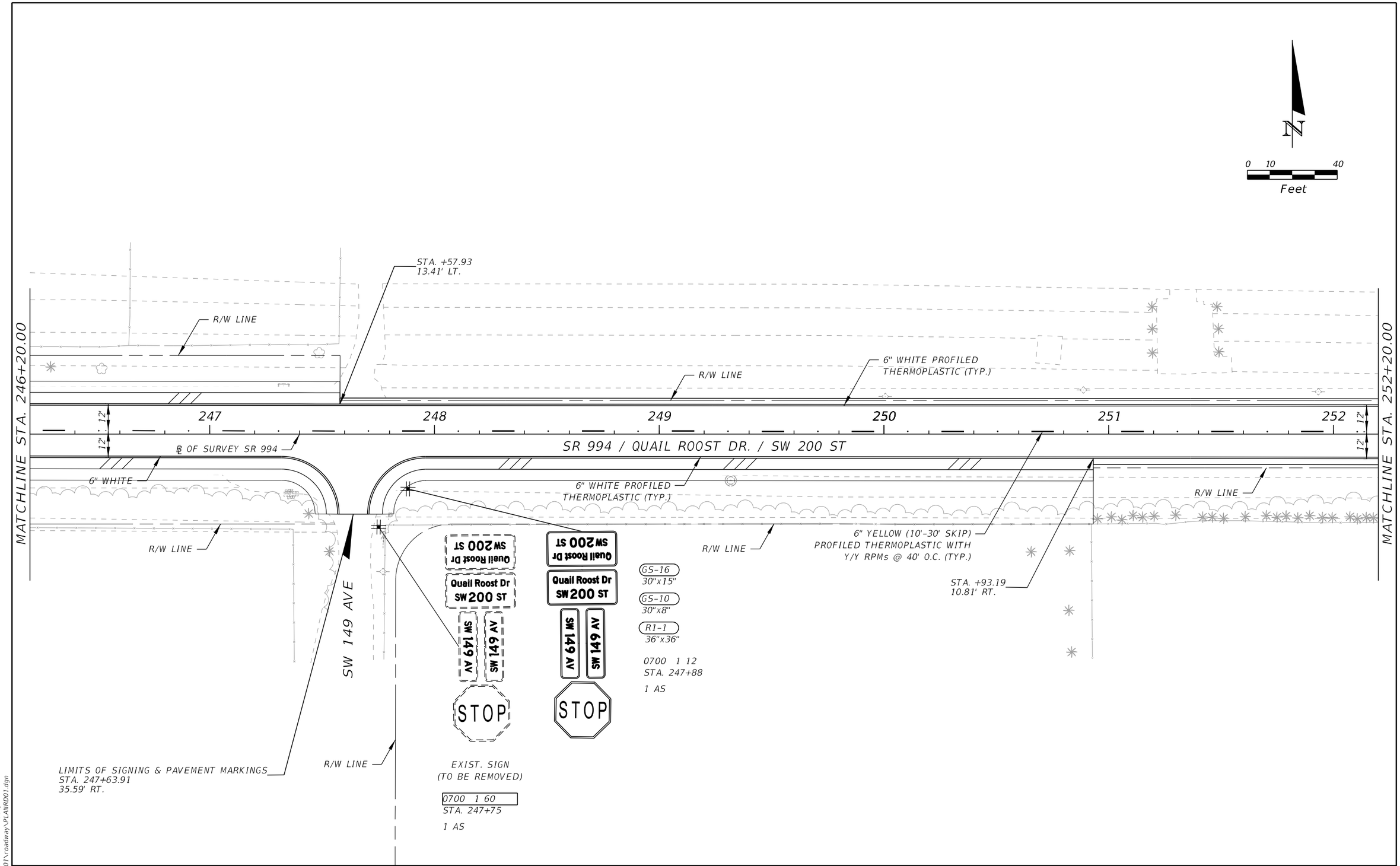

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REVISIONS			
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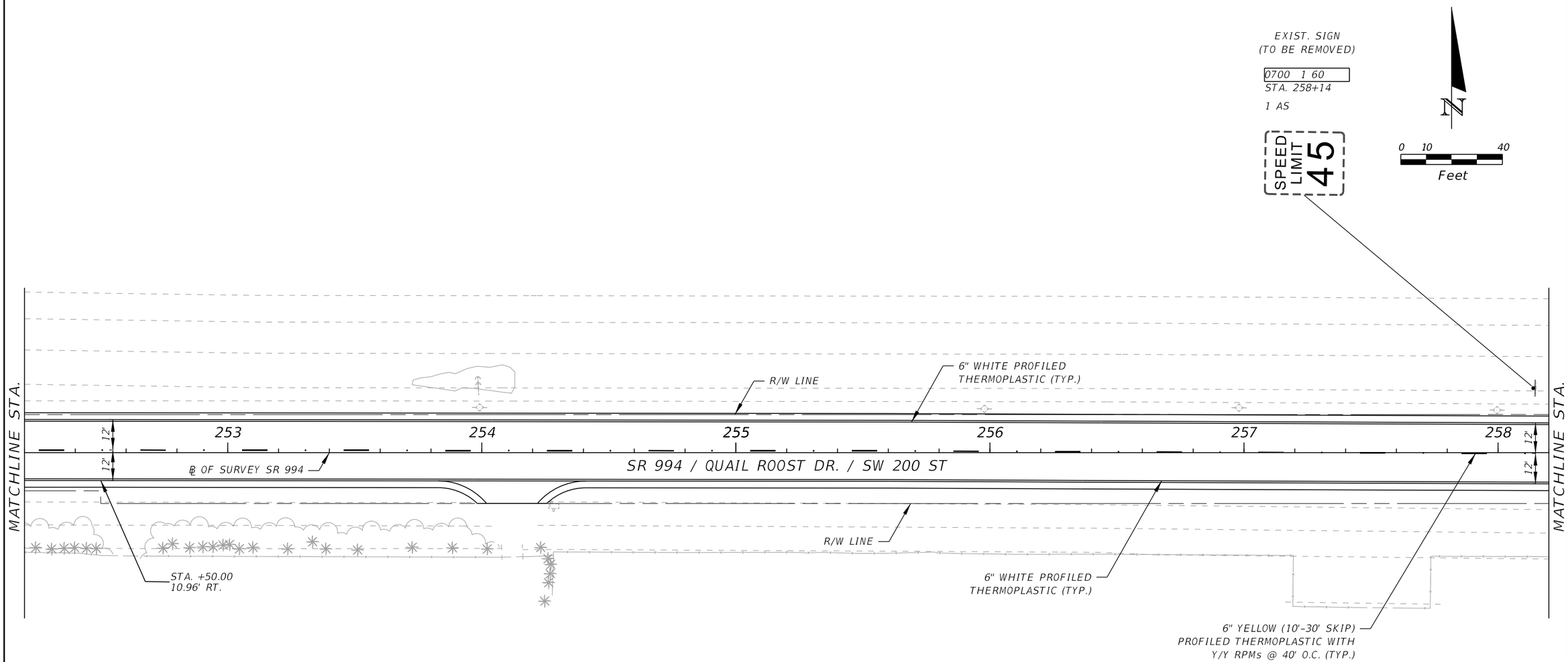
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-27



REVISIONS			
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ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-28

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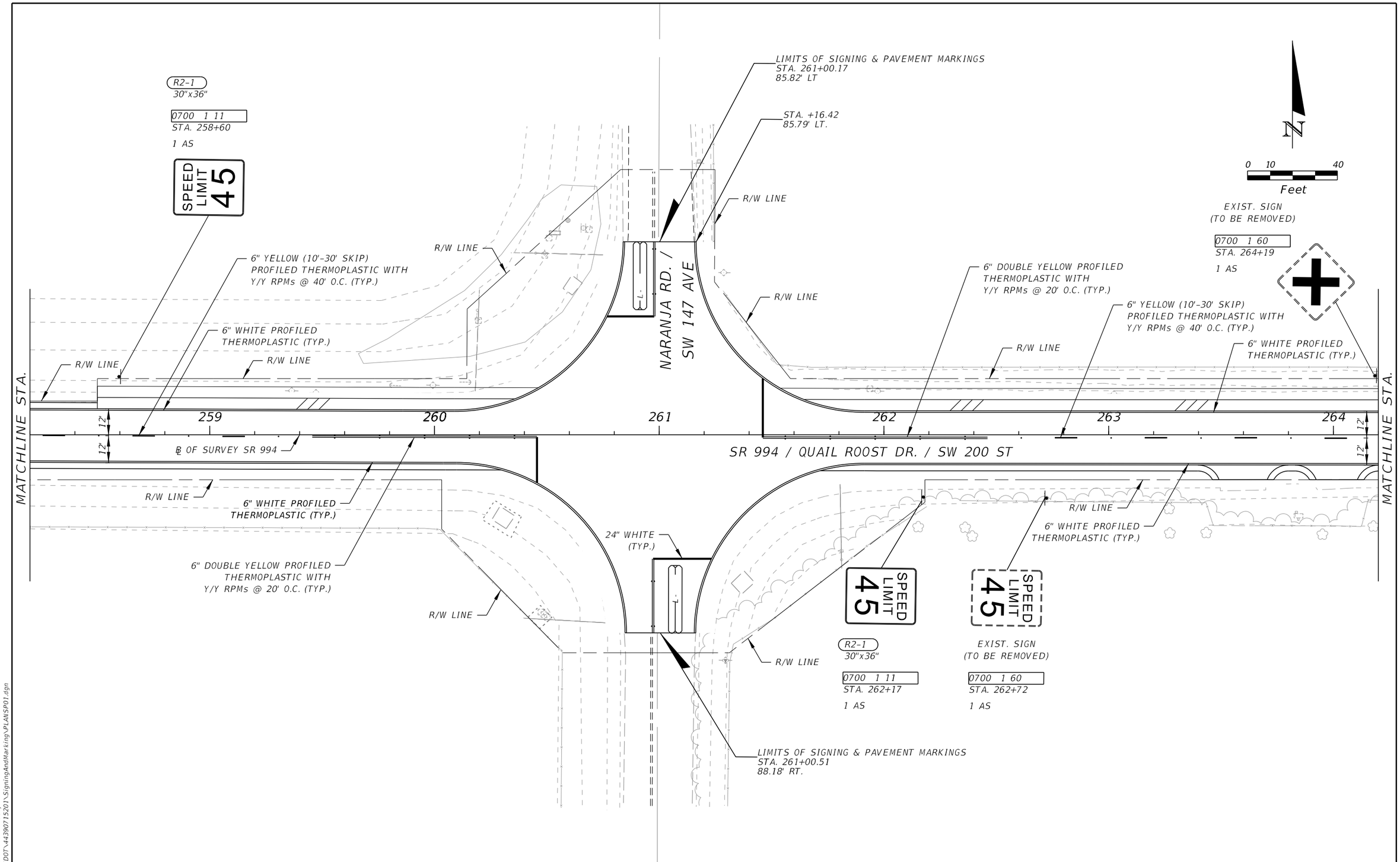

REVISIONS			
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ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-29

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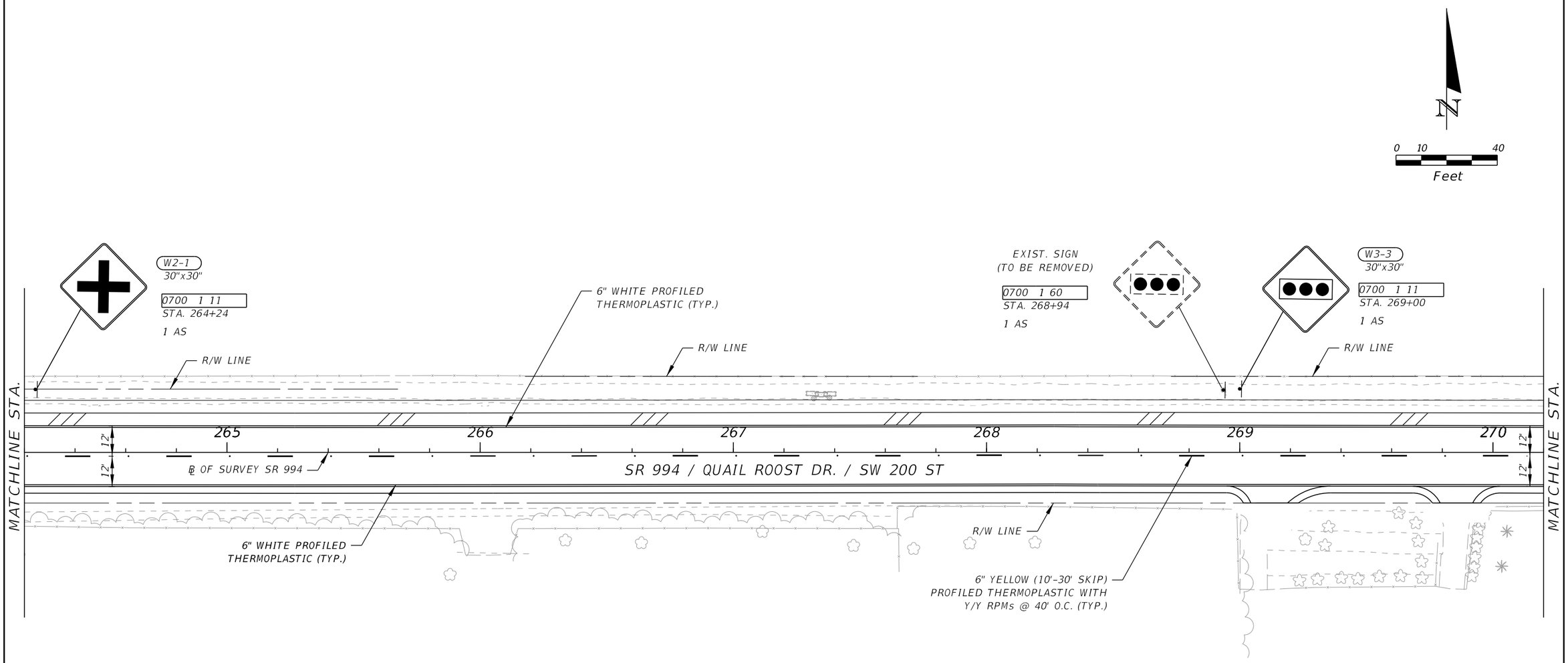

REVISIONS			
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ENGINEER OF RECORD

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CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-30

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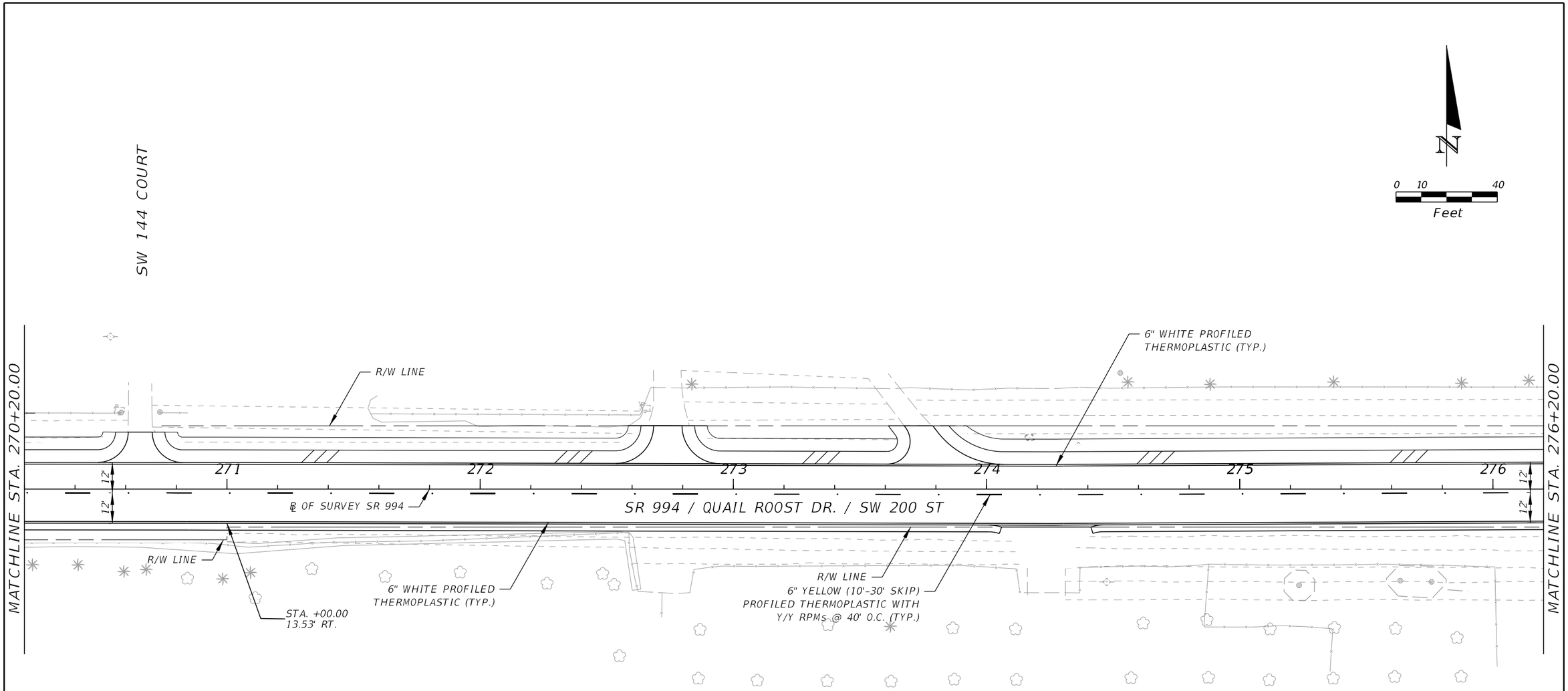

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-31

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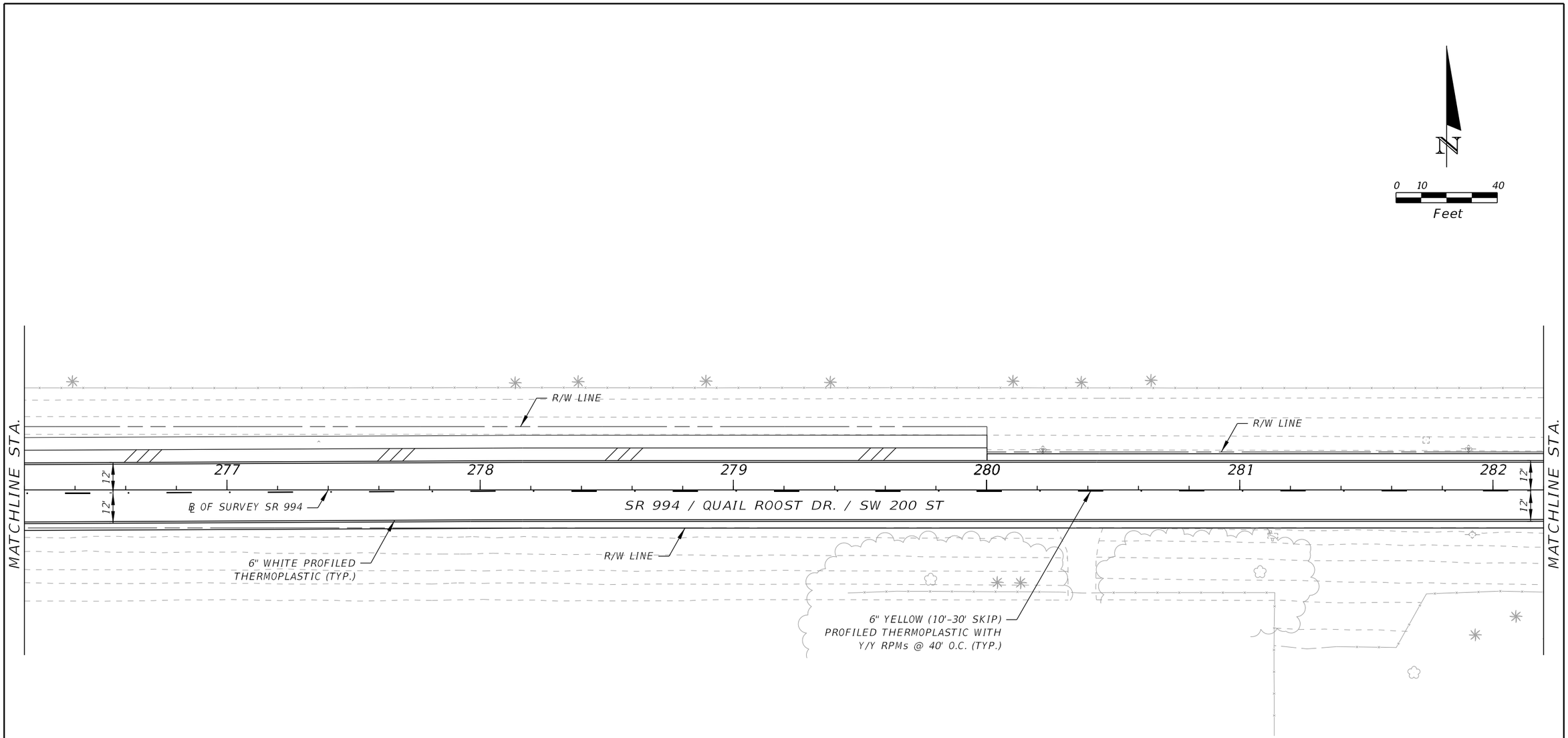

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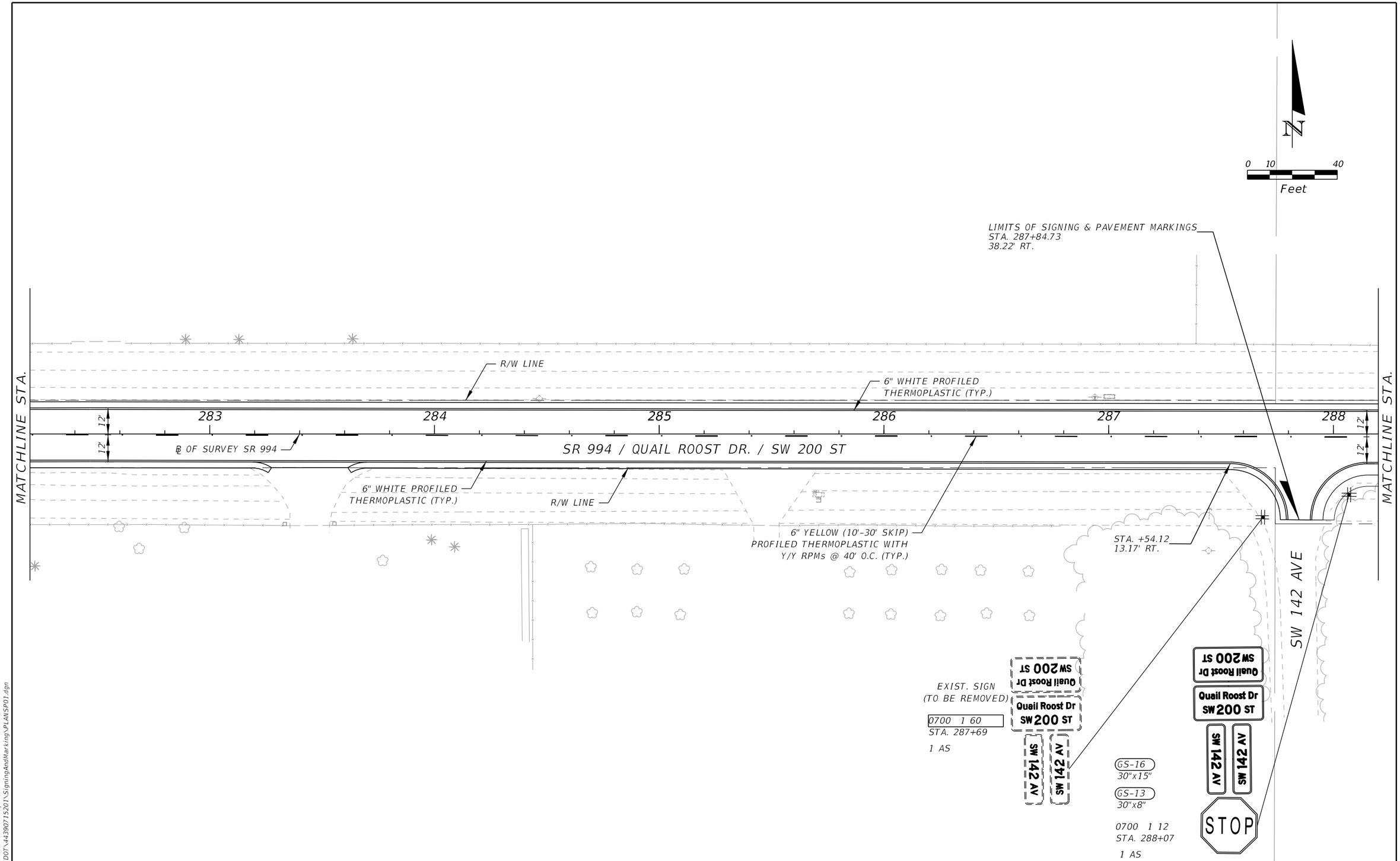
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-32



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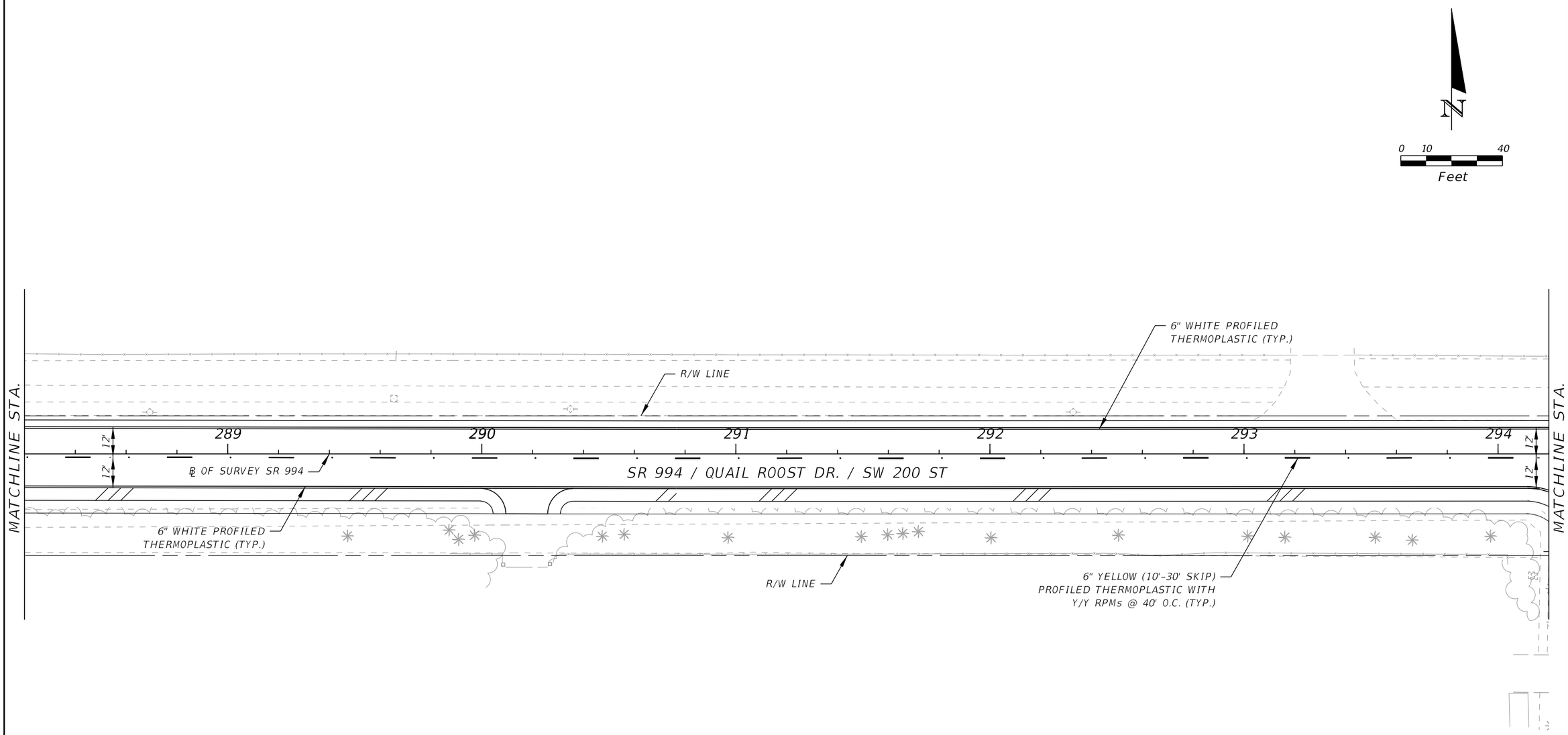
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-33



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STATE OF FLORIDA
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SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-34

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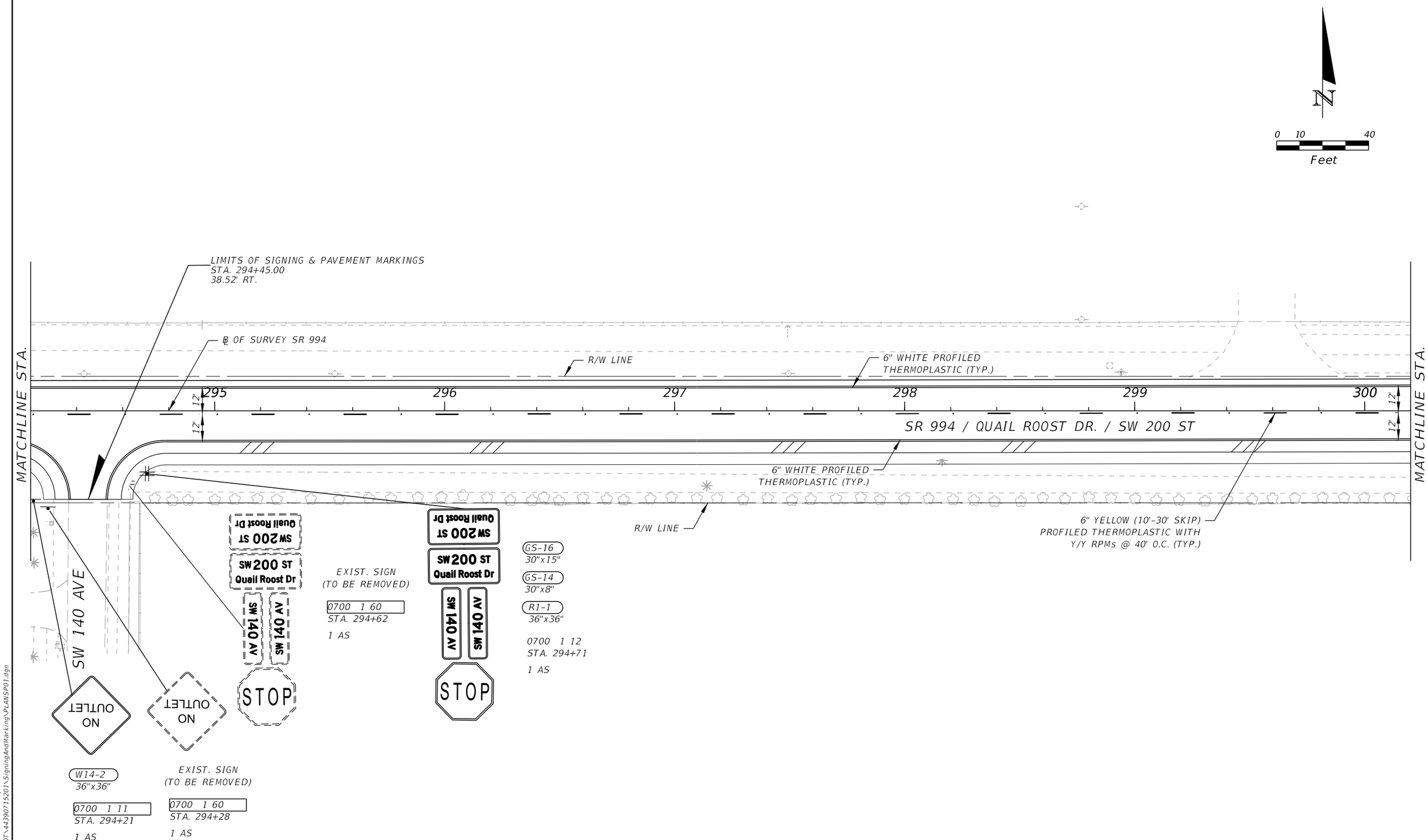

REVISIONS			
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RAFAEL S. AGUILAR, P.E.
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CHOICE ENGINEERING CONSULTANTS, INC.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-35

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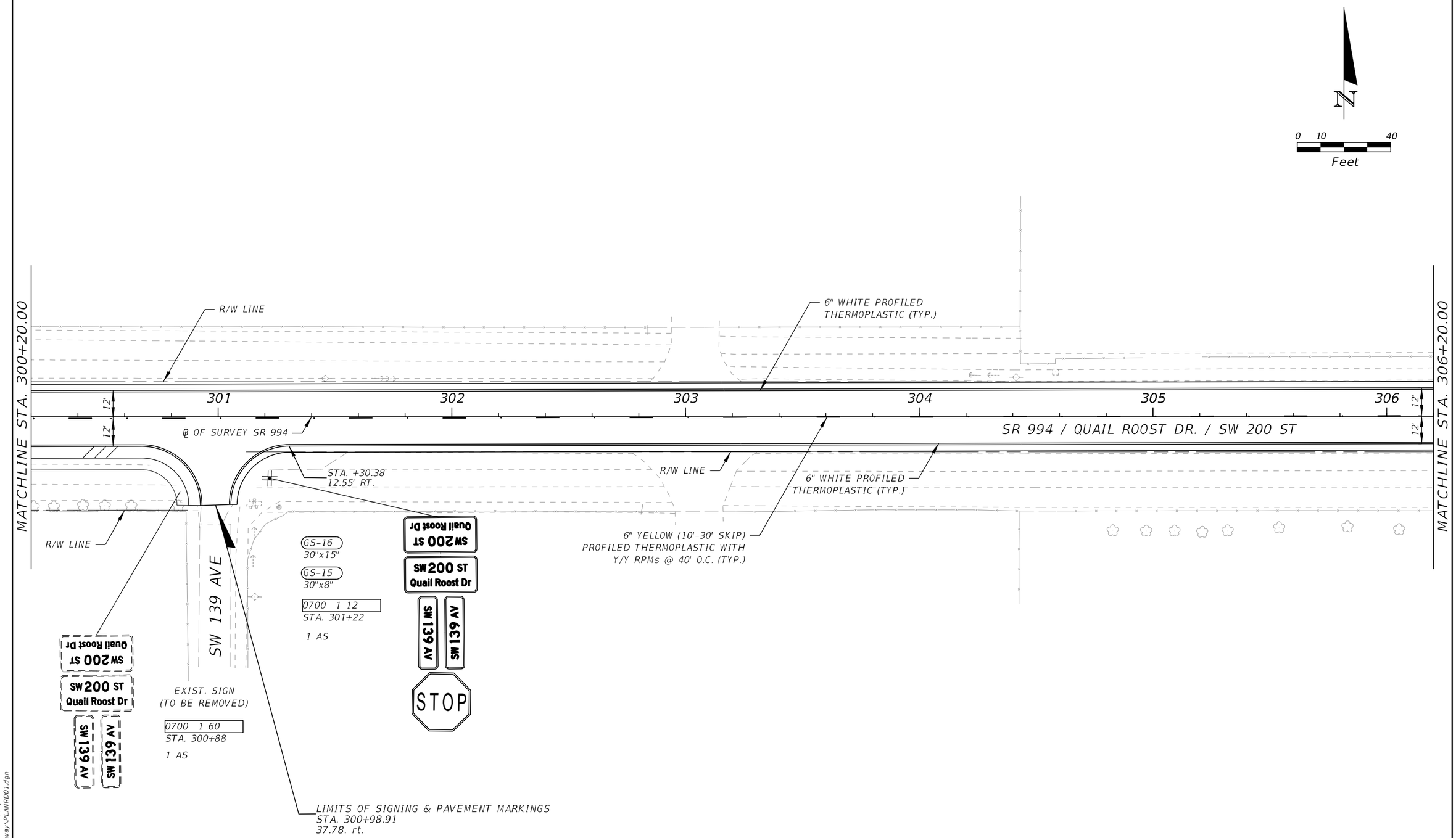

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REVISIONS			
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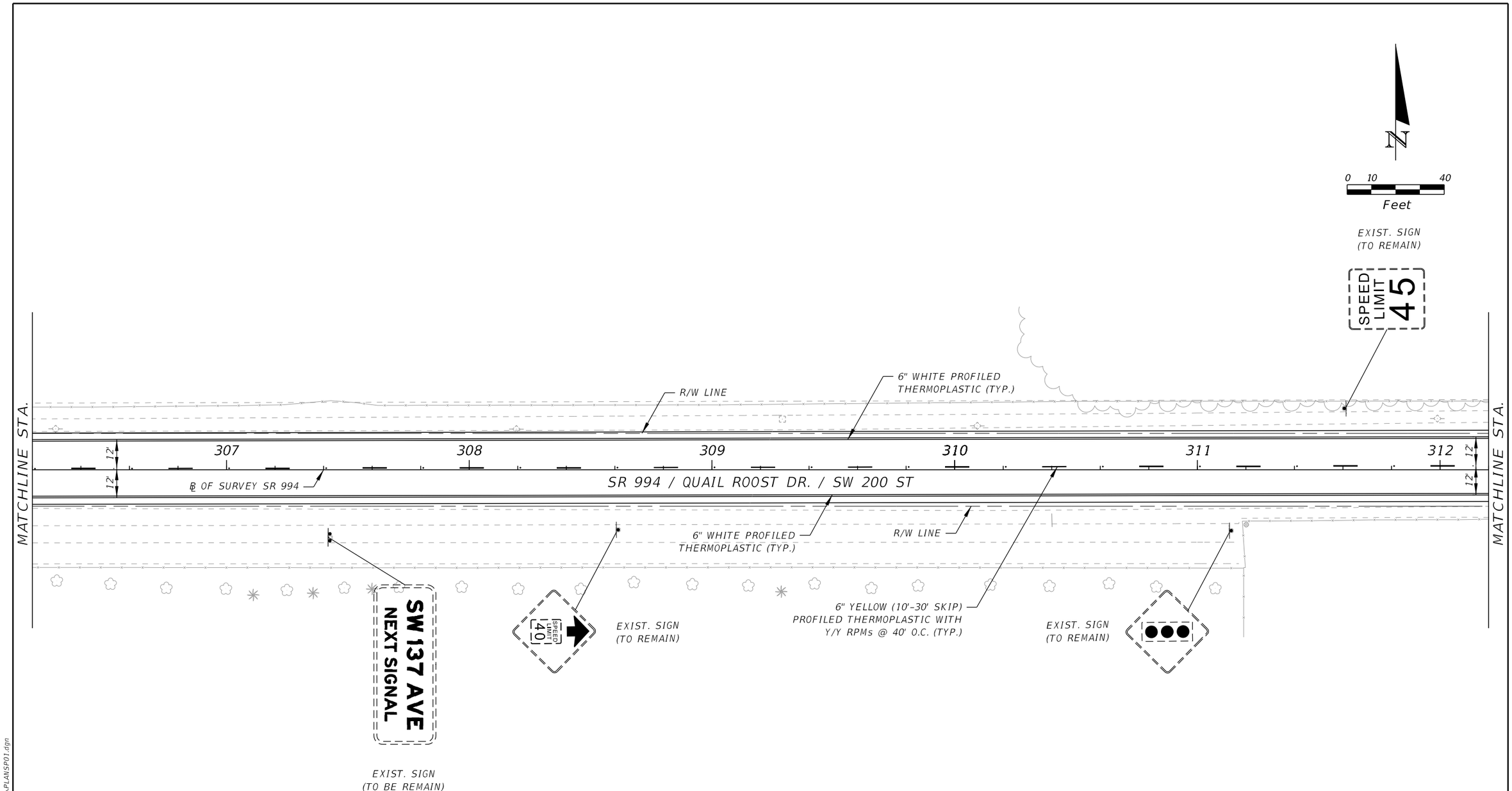
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-36



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LICENSE NUMBER 74068
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12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-37

END PROJECT
END SIGNING &
PAVEMENT MARKINGS
STA. 313+75.00
MP 4.035

6" WHITE PROFILED THERMOPLASTIC (TYP.)

6" YELLOW (10'-30' SKIP) PROFILED THERMOPLASTIC WITH Y/Y RPMs @ 40' O.C. (TYP.)

6" DOUBLE YELLOW PROFILED THERMOPLASTIC WITH Y/Y RPMs @ 20' O.C. (TYP.)

R/W LINE

STA. +16.08
2.20' LT.

MATCHLINE STA.

12'

12'

313 314 315 316 317 318

℄ OF SURVEY SR 994

SR 994 / QUAIL ROOST DR. / SW 200 ST

SR 825 / SW 137 AVE / LINDGREN RD.

ONLY

R/W LINE

6" WHITE PROFILED THERMOPLASTIC (TYP.)

0 10 40
Feet

N

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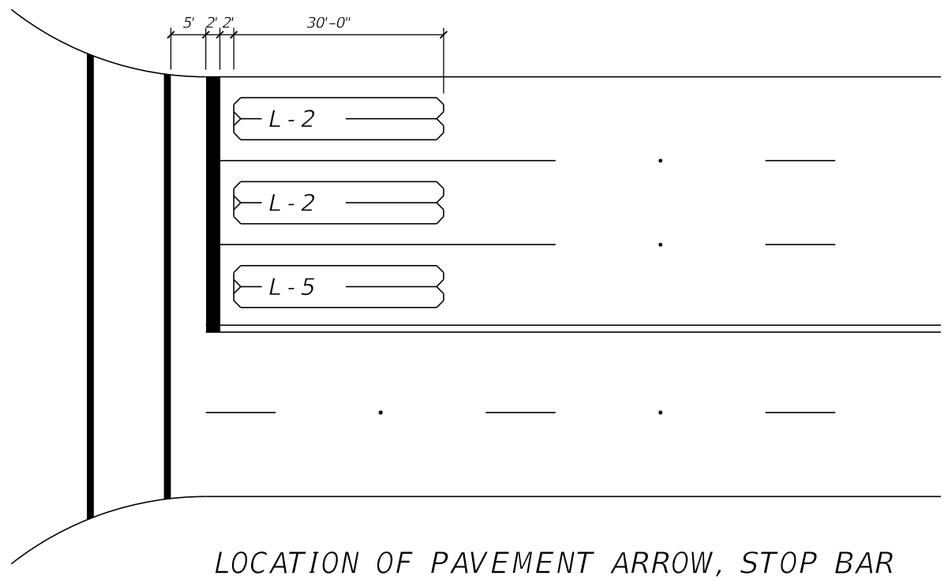
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

SIGNING & PAVEMENT MARKING PLANS

SHEET NO.
S-38



LOCATION OF PAVEMENT ARROW, STOP BAR AND LOOPS AT SIGNALIZED INTERSECTIONS

(NOTE: PAVEMENT ARROWS SHALL NOT OVERLAP LOOPS)
(N.T.S.)

1 Drawing
000 CUSTOM 1:1.949672

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12855 SW 132nd STREET, SUITE 200
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

LOOP DETAIL AND INSTRUCTIONS

SHEET NO.
S-39

SIGN NAME	GS-01	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH

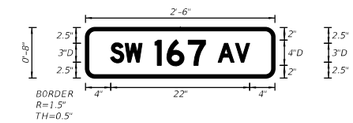
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		5																			
"	1	7	2		L																		
"	11.1	12.8	16.2		7.9																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-02	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



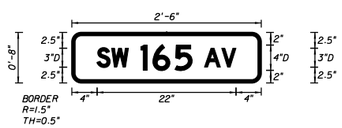
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		5																			
"	1	6	7		L																		
"	11	12.9	16.3		8																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-03	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



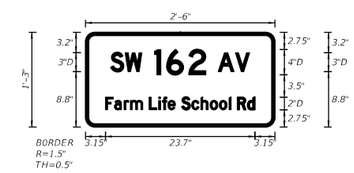
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		5																			
"	1	6	5		L																		
"	10.9	12.8	16.3		8.1																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-04	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	1'-3"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	6	2		L																		
"	10.9	12.8	16.3		8.1																		
"	A	V		L																			
"	21	23.7		5																			
"	F	a	r	m		L	i	f	e		S	c	h	o	o	l		R	d		L		
"	3.2	4.6	6.1	7.1	9.1	10.1	11.6	12.2	13.1	14.2	15.2	16.8	18.3	19.7	21.2	22.7	23.1	24.1	25.6		23.7		
"																							
"																							
"																							
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"																							
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ENGINEER OF RECORD
RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

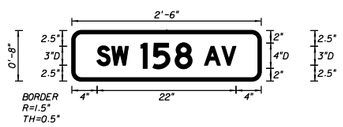
GUIDE SIGN WORK SHEET AND DETAILS

SHEET NO.
S-40

SIGN NAME	GS-05	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



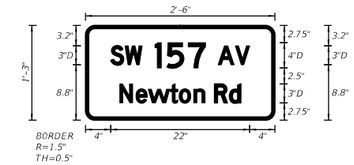
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		5																			
"	1	5	8		L																		
"	10.9	12.8	16.3		8.1																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-06	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	1'-3"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



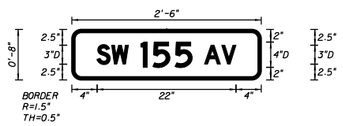
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	5	7		L																		
"	11	12.9	16.3		8																		
"	A	V		L																			
"	21	23.7		5																			
"	N	e	w	t	o	n		R	d		L												
"	5.4	8	9.9	13.4	14.8	17.1	18.9	20.4	22.8		19.2												
"																							
"																							
"																							
"																							

SIGN NAME	GS-07	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



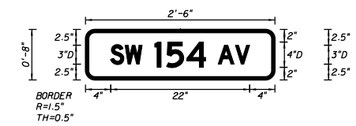
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	5	5		L																		
"	10.9	12.8	16.3		8.1																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-08	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	5	4		L																		
"	11	12.8	16		8.1																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

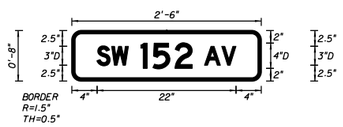
GUIDE SIGN WORK SHEET AND DETAILS

SHEET NO.
S-41

SIGN NAME	GS-09	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



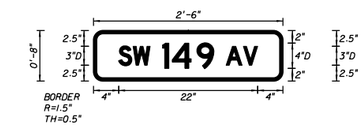
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	5	2		L																		
"	10.9	12.8	16.3		8.1																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-10	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



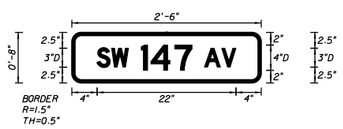
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	4	9		L																		
"	10.9	12.5	16.4		8.2																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-11	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



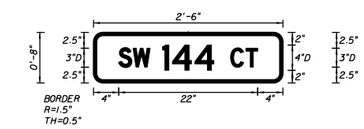
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	4	7		L																		
"	11	12.5	16.3		8																		
"	A	V		L																			
"	21	23.7		5																			
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME	GS-12	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

"	S	W		L																			
"	4	6.3		4.9																			
"	1	4	4		L																		
"	10.9	12.5	16.1		8.1																		
"	C	T		L																			
"	21.7	24.1		4.3																			
"																							
"																							
"																							
"																							
"																							
"																							

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

GUIDE SIGN WORK SHEET AND DETAILS

SHEET NO.
S-42

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SIGN NAME	GS-13	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH

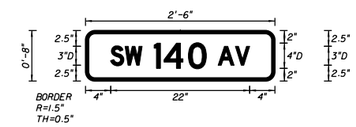
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

	S	W		L																			
	4	6.3		5																			
	1	4	2		L																		
	10.9	12.5	16.4		8.2																		
	A	V		L																			
	21	23.7		5																			

SIGN NAME	GS-14	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



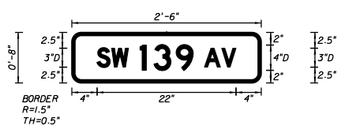
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

	S	W		L																			
	4	6.3		5																			
	1	4	0		L																		
	10.9	12.4	16.3		8.3																		
	A	V		L																			
	21	23.7		5																			

SIGN NAME	GS-15	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	0'-8"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



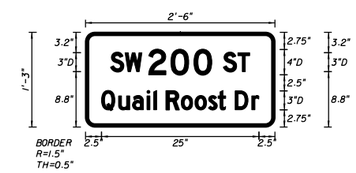
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

	S	W		L																			
	4	6.3		5																			
	1	3	9		L																		
	10.8	13	16.5		8.4																		
	A	V		L																			
	21	23.7		5																			

SIGN NAME	GS-16	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	2'-6"	WIDTH	0.5"		
HEIGHT	1'-3"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

	S	W		L																			
	4	6.3		5																			
	2	0	0		L																		
	10	13.5	17.2		10																		
	S	T		L																			
	21.9	24.1		4.1																			
	Q	u	a	l	l		R	o	o	s	t		D	r		L							
	2.5	5.2	7.4	9.7	10.8	11.3	12.8	15.2	17.3	19.5	21	22.2	23.7	26.3		25							

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

GUIDE SIGN WORK SHEET AND DETAILS

SHEET NO.
S-43

SIGN NAME	GS-17	QTY	1	SIGN NO.	STATION(S)
PANEL		BORDER			none
WIDTH	9'-0"	WIDTH	2"		
HEIGHT	5'-0"	RADII	8"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

"	S	W		1	7	7		A	V	E		L											
"	9.1	19.4	30.7	36	41.4	51.8	60.4	65.8	77.5	89.2		88.1											
"	K	R	O	M	E		A	V	E		L												
"	9.1	19.5	30	41.5	54.4	62.3	67.7	79.3	91		89.8												
"	N	E	X	T		S	I	G	N	A	L		L										
"	15.7	24.3	31.4	39.2	45.2	49.2	57.3	60.6	68.9	76.8	86.3		76.6										
"																							
"																							
"																							
"																							
"																							
"																							

SIGN NAME		QTY		SIGN NO.	STATION(S)
PANEL		BORDER			
WIDTH		WIDTH			
HEIGHT		RADII			
LEGEND		COLOR			
COLOR					

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

"																							
"																							
"																							
"																							
"																							
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"																							
"																							
"																							
"																							
"																							

SIGN NAME		QTY		SIGN NO.	STATION(S)
PANEL		BORDER			
WIDTH		WIDTH			
HEIGHT		RADII			
LEGEND		COLOR			
COLOR					

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NO.	NO. OF POSTS	EDGE OF LANE CLEARANCE	COLUMN SIZE		AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

"																							
"																							
"																							
"																							
"																							
"																							
"																							
"																							
"																							
"																							
"																							
"																							

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RAFAEL S. AGUILAR, P.E.
LICENSE NUMBER 74068
CHOICE ENGINEERING CONSULTANTS, INC.
12855 SW 132nd STREET, SUITE 200
MIAMI, FLORIDA 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	443907-1-52-01

GUIDE SIGN WORK SHEET AND DETAILS

SHEET NO.
S-44

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SConnor 9:41:35 AM 7/17/2020

PLANS FOR PROPOSED IMPROVEMENTS TO

SW 137 AVENUE

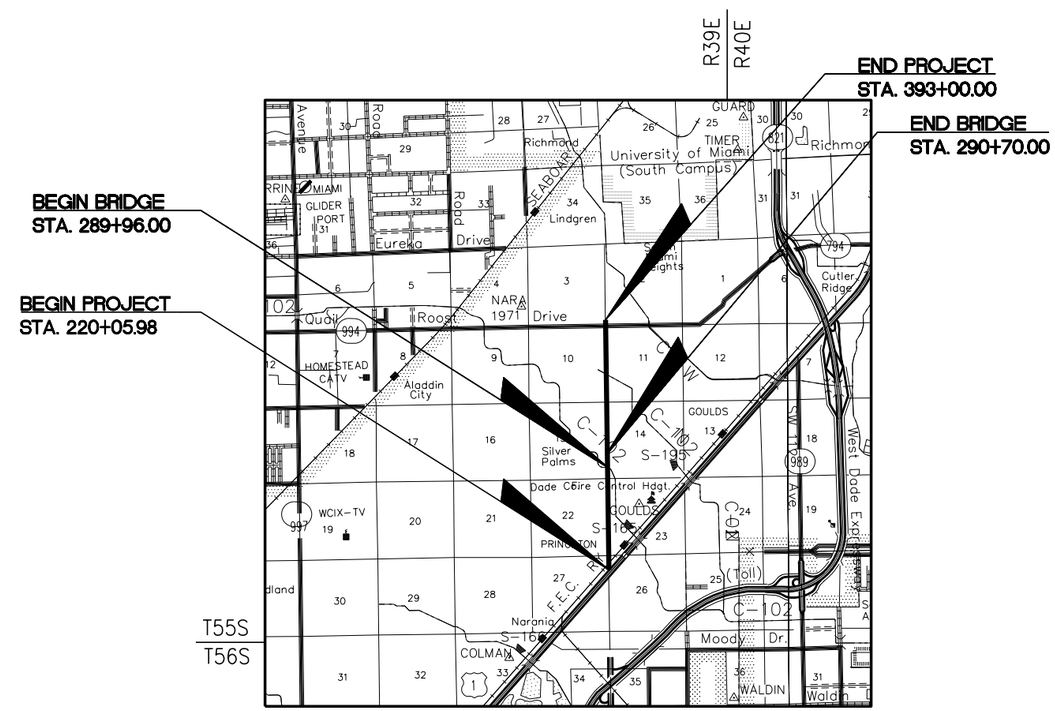
FROM US-1 TO SW 200 STREET

MIAMI-DADE COUNTY PROJECT NO. 20040343

PTP FUNDS

INDEX OF SHEETS

SHT. No.	SHEET DESCRIPTION
1	COVER SHEEET
SS-1	SIGNATURE SHEET
DM-1, DM-6	DRAINAGE MAP
2, 4	TYPICAL SECTION
7 - 8	GENERAL NOTES
9, 37	PLAN AND PROFILE
41	INTERSECTING STREET PLAN
47	INTERSECTING STREET PROFILE
48, 57, 58	INTERSECTION DETAILS
59 - 60	DRAINAGE STRUCTURES
79	SWPPP GENERAL NOTES
80	STORM WATER POLLUTION PREVENTION PLAN
102	CROSS SECTIONS
124	MAINTENANCE OF TRAFFIC GENERAL NOTES
125, 127	TRAFFIC CONTROL TYPICAL SECTION
128, 142	TREE INVENTORY PLAN
S-7	SIGNING AND PAVEMENT MARKING GENERAL NOTES
S-8, S-36	SIGNING AND PAVEMENT MARKING PLAN
S-40	SIGNING AND PAVEMENT MARKING DETAILS
T-2	SIGNALIZATION GENERAL NOTES
T-3, T-3A, T-6	SIGNALIZATION PLAN
T-7	MAST ARM TABULATION
T-9	SIGNALIZATION MAST ARM ASSEMBLY DATA TABLE
T-10	SIGNALIZATION GUIDE SIGN WORKSHEET
T-13	ELECTRIC POWER SERVICE DETAIL
L-4	LIGHTING GENERAL NOTES
L-5	LIGHTING POLE DATA
L-6	LIGHTING POLE LEGEND
L-7	LIGHTING PLAN
L-36	LIGHTING POLE DETAIL (1)
L-38	SERVICE POINT DETAIL



NOTE;

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

SUBMIT SHOP DRAWINGS TO:

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72ND AVENUE
MIAMI, FL 33155
TEL (305) 667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
LIC. NO. 74718

0 1 2
MILES

LENGTH OF JOB		
	LIN. FT.	MILES
ROADWAY	19296.84	3.655
BRIDGE	74.000	0.014
GROSS LENGTH OF JOB	19370.84	3.669
EXCEPTIONS		
NET LENGTH OF JOB	19370.84	3.669

FOR FDOT PERMIT REVIEW

PREPARED FOR

MIAMI-DADE COUNTY

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION

STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE MIAMI-DADE COUNTY PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS PARTS 1, 2 AND 3 (REV. 02/1999). THE MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS (2016). THE FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS (2017-2018), AND THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (2017), AS AMENDED BY CONTRACT DOCUMENTS.

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NEW MILLENNIUM
DESIGN CONSULTANTS, INC.

ENGINEER OF RECORD:

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72ND AVENUE
MIAMI, FL 33155
TEL (305) 667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
LIC. NO. 74718

APPROVED _____ COUNTY ENGINEER
RECOMMENDED _____ ASSISTANT DIRECTOR
SUBMITTED _____ HIGHWAY DIVISION

PROPOSED _____ CHECK _____
DESIGN _____ DRAWN _____
DATE _____ SHEET 1 OF 144

CHRISTOPHER P. MESZLER
LICENSE
No 74718
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

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NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72ND AVENUE
MIAMI, FLORIDA, 33155
CERTIFICATE OF AUTHORIZATION: 27017
CHRISTOPHER P. MESZLER, P.E. NO. 74718

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEEET
SS-1	SIGNATURE SHEET
DM-1, DM-6	DRAINAGE MAP
2, 4	TYPICAL SECTION
7 - 8	GENERAL NOTES
9, 37, 41	PLAN AND PROFILE
41	INTERSECTING STREET PLAN
47	INTERSECTING STREET PROFILE
48, 57, 58	INTERSECTION DETAILS
59 - 60	DRAINAGE STRUCTURES
79	SWPPP GENERAL NOTES
80	STORM WATER POLLUTION PREVENTION PLAN
102	CROSS SECTIONS
124	MAINTENANCE OF TRAFFIC GENERAL NOTES
125, 127	TRAFFIC CONTROL TYPICAL SECTION
128, 142	TREE INVENTORY PLAN
S-7	SIGNING AND PAVEMENT MARKING GENERAL NOTES
S-8, S-36	SIGNING AND PAVEMENT MARKING PLAN
S-40	SIGNING AND PAVEMENT MARKING DETAILS
L-4	LIGHTING GENERAL NOTES
L-5	LIGHTING POLE DATA
L-6	LIGHTING POLE LEGEND
L-7	LIGHTING PLAN
L-36	LIGHTING POLE DETAIL (1)
L-38	SERVICE POINT DETAIL

KATHY LAJO
LICENSE
No 63068
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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4868 SW 72ND AVENUE
MIAMI, FLORIDA, 33155
CERTIFICATE OF AUTHORIZATION: 27017
KATHY LAJO, P.E. NO. 63068

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SHEET NO.	SHEET DESCRIPTION
SS-1	SIGNATURE SHEET
T-2	SIGNALIZATION GENERAL NOTES
T-3, T-3A, T-6	SIGNALIZATION PLAN
T-7	MAST ARM TABULATION
T-9	SIGNALIZATION MAST ARM ASSEMBLY DATA TABLE
T-10	SIGNALIZATION GUIDE SIGN WORKSHEET
T-13	ELECTRIC POWER SERVICE DETAIL

7/17/2020 9:41:36 AM SConnor

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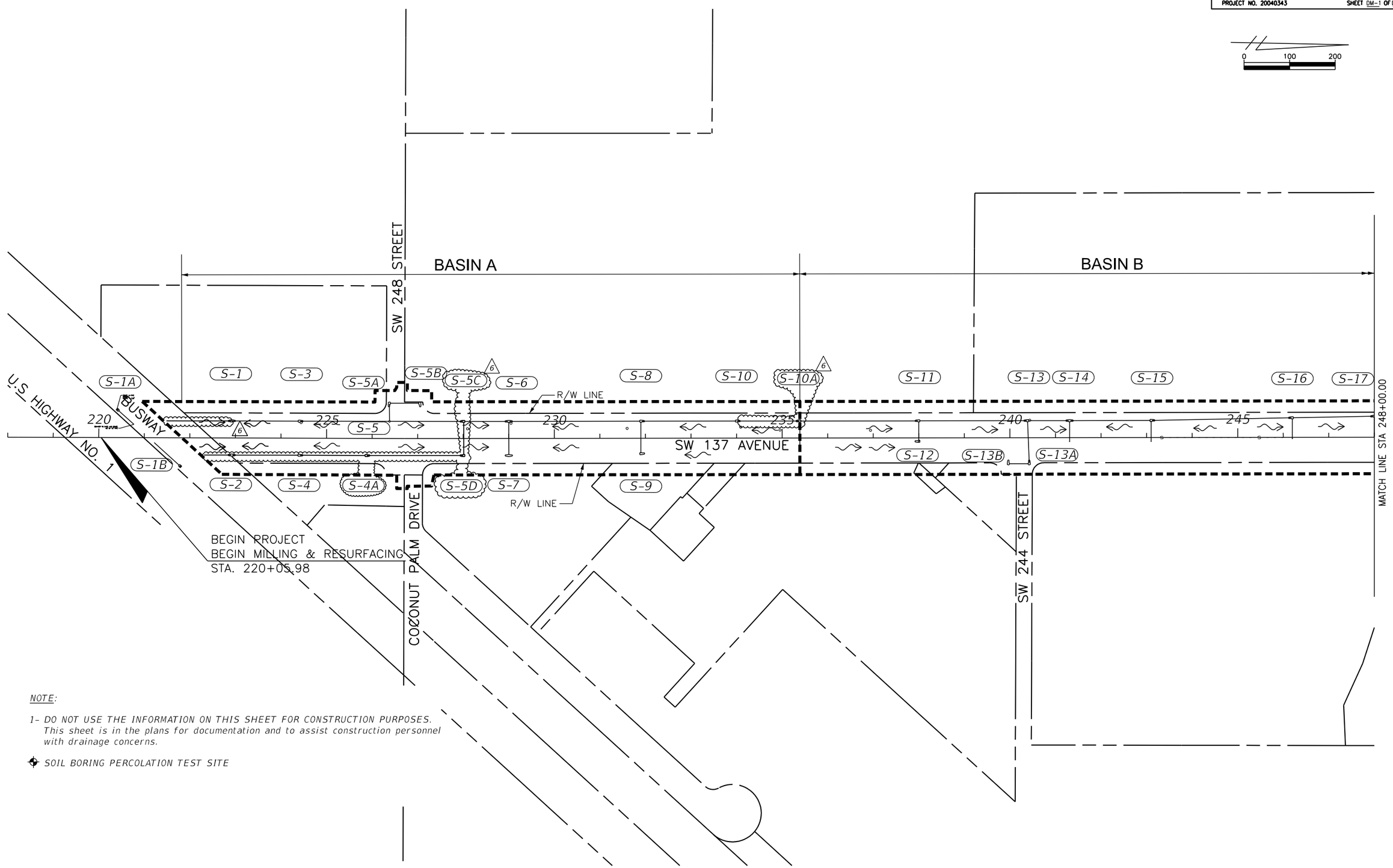
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET DM-1 OF DM-6



NOTE:

1- DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. This sheet is in the plans for documentation and to assist construction personnel with drainage concerns.

SOIL BORING PERCOLATION TEST SITE

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/24/20	CM	6 REVISED DRAINAGE MAP						

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

DRAINAGE MAP

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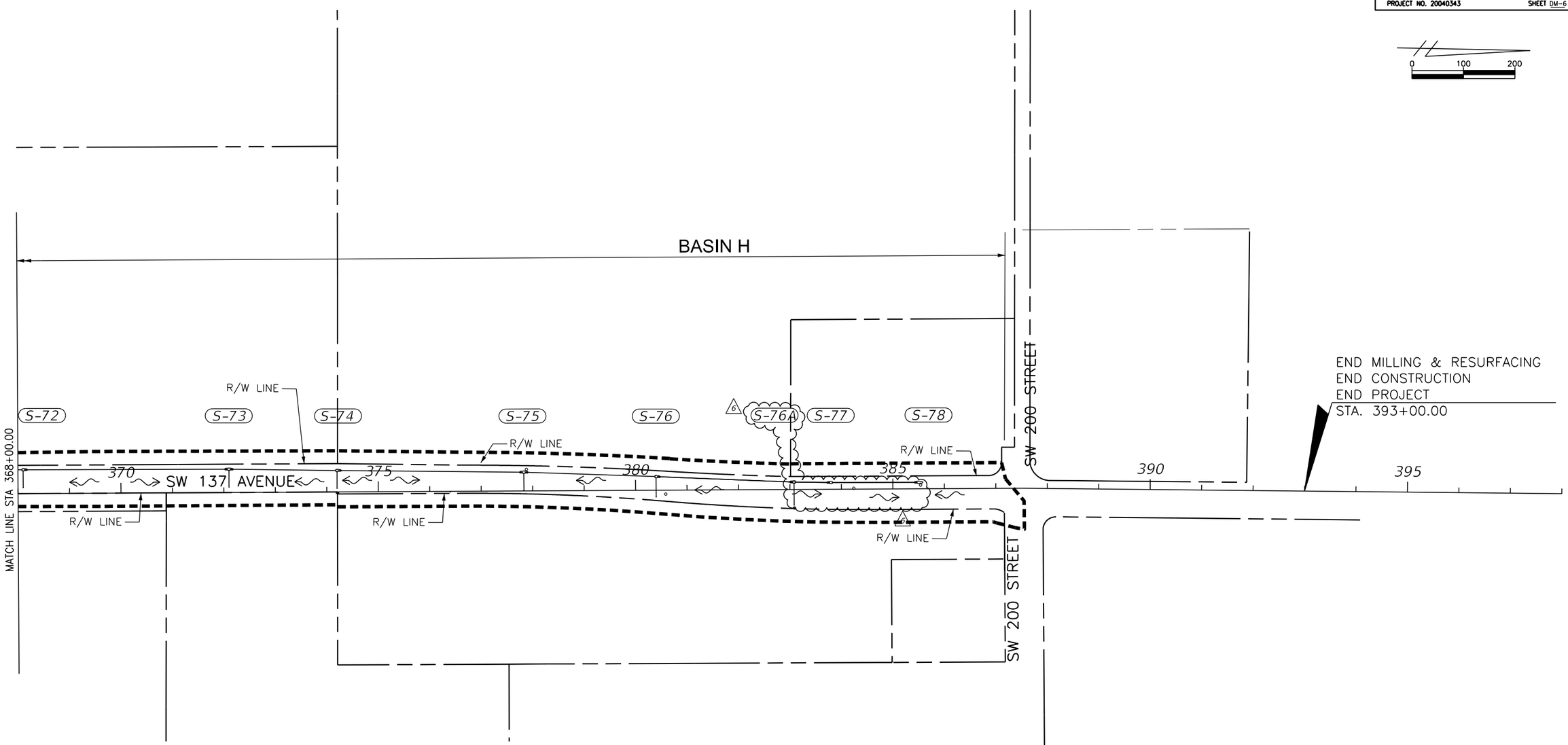
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET DM-6 OF DM-6



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SOIL BORING PERCOLATION TEST SITE

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DRAINAGE MAP

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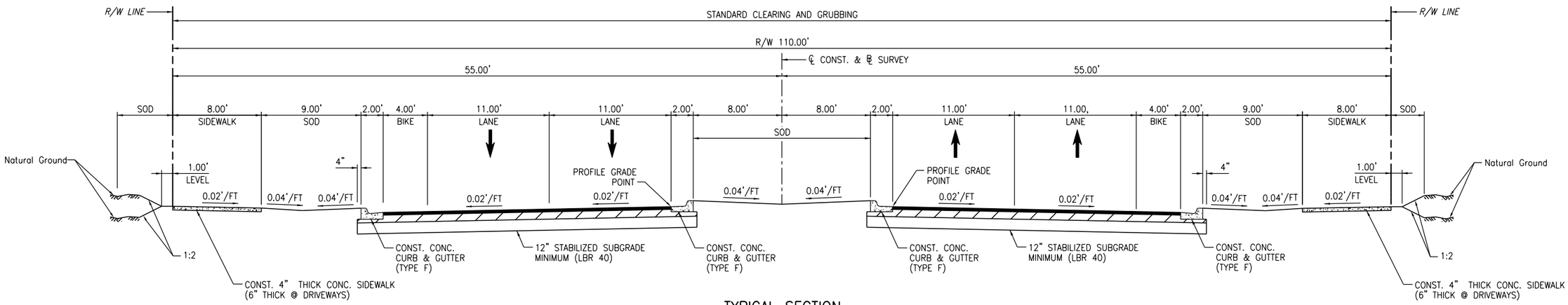


TYPICAL SECTION

SW 137 AVENUE

STA. 220+05.98 TO STA. 230+30.00

MILLING

MILL EXISTING ASPHALT PAVEMENT (1" AVG. DEPTH)

RESURFACING

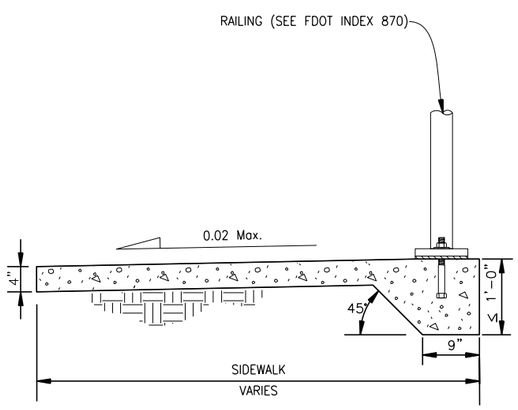
ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-9.5, PG 76-22 (1" THICK) (110 LBS/SY)

NEW CONSTRUCTION

LIMEROCK BASE (8") (PRIMED) WITH
TYPE SP-12.5 SUPERPAVE ASPHALTIC CONCRETE
STRUCTURAL COURSE (TRAFFIC C) (2")
AND ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C,
FC-9.5, PG 76-22 (1" THICK) (110 LBS/SY)

TYPICAL SECTION NOTES:

1. ALL EXISTING LIMEROCK BASE THAT IS REMOVED IS TO BE INCORPORATED INTO THE STABILIZED PORTION OF THE SUBGRADE AND IS NOT TO BE USED IN CONSTRUCTION OF THE PROPOSED BASE.
2. EXTEND LIMEROCK BASE (8" THICK) 6" OUTSIDE EDGES OF PAVEMENT AT ALL CONNECTIONS AND INTERSECTIONS TO COUNTY STREETS AND ROADS.
3. STABILIZE ALL TURNOUTS AND INTERSECTIONS TO COUNTY ROADS AND STREETS TO A DEPTH OF 12" (MIN LBR OF 30) AND 12" OUTSIDE EDGES OF PAVEMENT, 4" BACK OF CURB.



CONCRETE SIDEWALK WITH THICKENED EDGE DETAIL

NOTES:

1. THIS DETAIL TO BE USED WHEN PROPERTY OWNERS DO NOT ALLOW ACCESS TO PRIVATE PROPERTY FOR SLOPE HARMONIZATION FROM SIDEWALK OR ROADWAY CONSTRUCTION.
2. SIDEWALK SHALL BE CONSTRUCTED USING A THICKENED EDGE PER FDOT STANDARD INDEX 310.
3. DROP-OFFS FROM BACK OF SIDEWALK GREATER THAN 10 INCHES REQUIRE GUIDERAIL PER FDOT INDEX 870.
4. DROP-OFFS GREATER THAN 1 FOOT FROM BACK OF SIDEWALK REQUIRE GRAVITY WALL PER FDOT INDEX 6011, AND GUIDERAIL PER FDOT INDEX 870.
5. WHERE THERE IS NO SIDEWALK, SLOPE HARMONIZATION FROM ROADWAY CONSTRUCTION SHALL STOP AT RIGHT-OF-WAY LINE WITH GRAVITY WALL PER FDOT INDEX 6011. GRAVITY WALL LOCATIONS SHALL BE PROTECTED USING GUARDRAIL PER FDOT INDEX 400.

DESIGN SPEED 45 MPH

REVISIONS								
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MIAMI-DADE COUNTY
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TYPICAL SECTION

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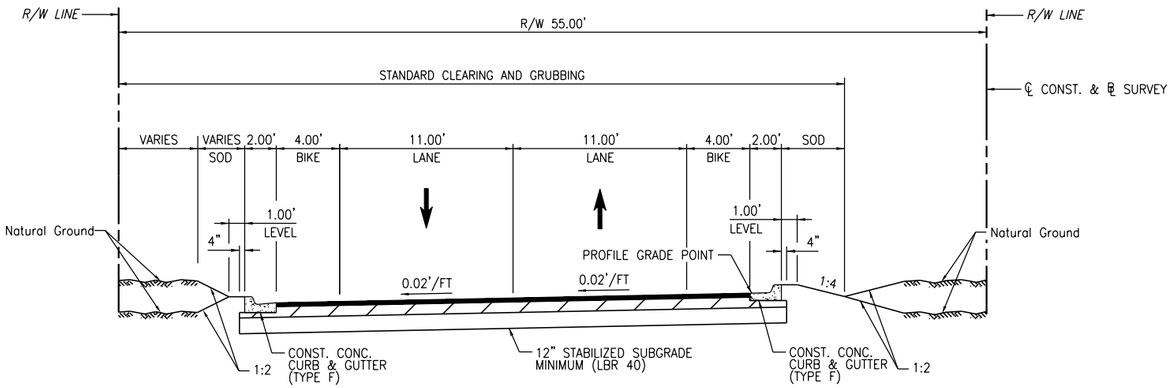

TYPICAL SECTION

SW 137 AVENUE

STA. 261+13.87 TO STA. 393+00.00

MILLING

MILL EXISTING ASPHALT PAVEMENT (1" AVG. DEPTH)

RESURFACING

ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-9.5, PG 76-22 (1" THICK) (110 LBS/SY)

NEW CONSTRUCTION

LIMEROCK BASE (8") (PRIMED) WITH
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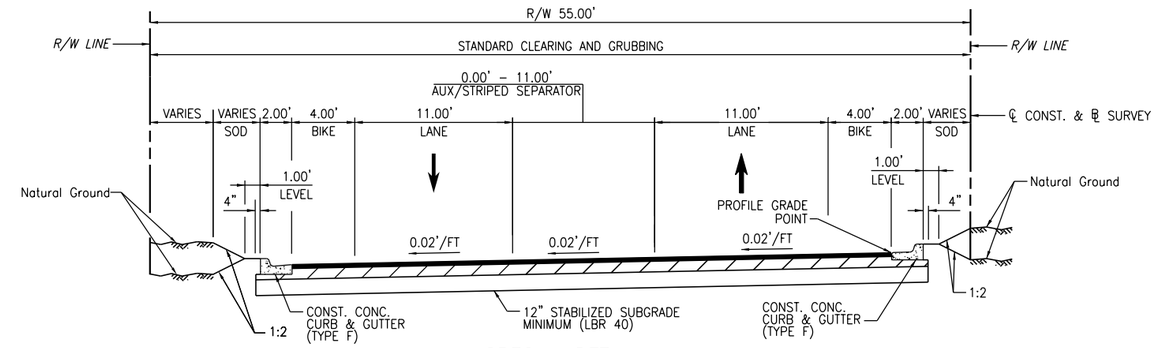
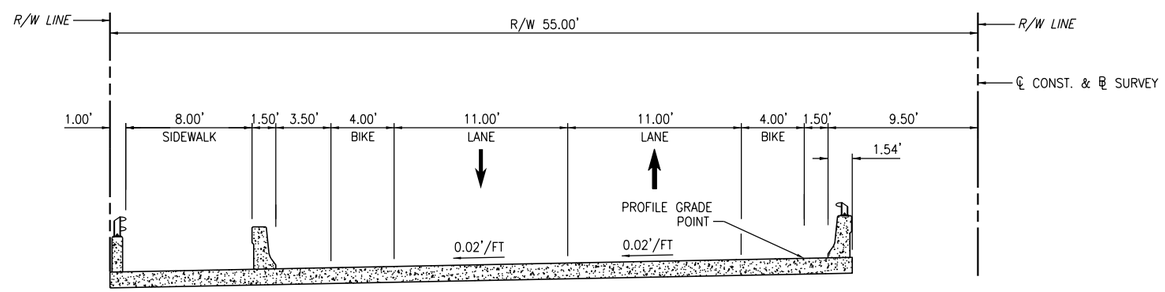


SPECIAL DETAIL

TRANSITION TO/FROM INTERSECTION

STA. 253+58.00 TO STA. 261+13.87
STA. 271+90.00 TO STA. 276+00.00
STA. 282+00.00 TO STA. 285+98.97
STA. 305+66.42 TO STA. 320+80.71
STA. 325+42.48 TO STA. 341+99.49

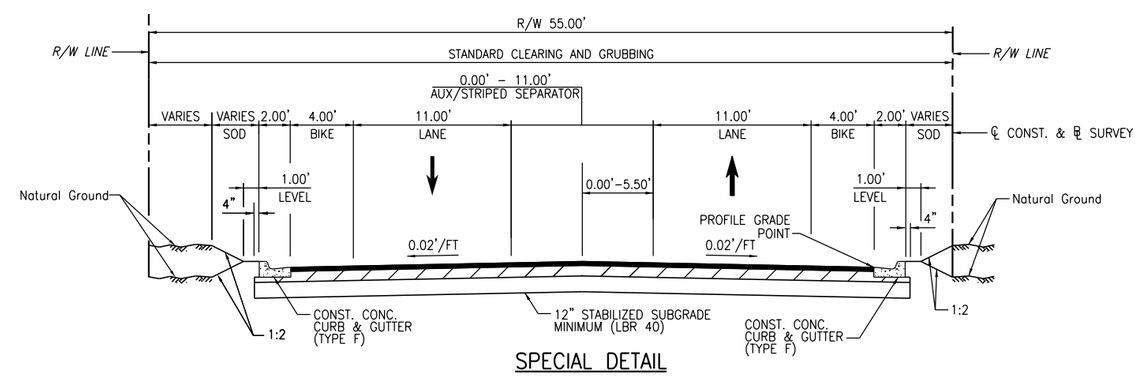


TYPICAL SECTION

SW 137 AVENUE BRIDGE

OVER CANAL C-102

(REFER TO BRIDGE PLANS
B1-1 TO B1-28)



SPECIAL DETAIL

STA. 276+00.00 TO STA. 282+00.00

DESIGN SPEED 45 MPH

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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MIAMI, FLORIDA 33128

TYPICAL SECTION

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7/17/2020 9:41:39 AM SConnor

GENERAL NOTES

1. BENCHMARK DATA IS NATIONAL GEODETIC VERTICAL DATUM OF 1929 (N.G.V.D.-29).

2. ANY N.G.V.D. BENCH MARK MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED AND PROPERLY REFERENCED BY A REGISTERED-LAND SURVEYOR IN ACCORDANCE WITH THE MINIMUM TECHNICAL STANDARDS OF THE FLORIDA BOARD OF PROFESSIONAL LAND SURVEYORS PRIOR TO BEGINNING WORK AT THE SITE. IF ANY MONUMENT IS IN DANGER OF DAMAGE, THE PROJECT ENGINEER SHALL NOTIFY RON TAYLOR, FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION (FDEP) SURVEYING AND MAPPING, 3900 COMMONWEALTH BLVD., MAIL STATION 105, TALLAHASSEE, FLORIDA 32399-3000 TELEPHONE (850) 245-2606.

3. ALL PUBLIC LAND CORNERS AND MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED BY THE CONTRACTOR AS FOLLOWS: CORNERS AND MONUMENTS IN CONFLICT WITH THE WORK AND IN DANGER OF BEING DAMAGED, DESTROYED, OR COVERED SHALL BE PROPERLY REFERENCED BY A REGISTERED-LAND SURVEYOR IN ACCORDANCE WITH THE MINIMUM TECHNICAL STANDARDS OF THE FLORIDA BOARD OF PROFESSIONAL LAND SURVEYORS PRIOR TO BEGINNING WORK AT THE SITE. THE CONTRACTOR SHALL RETAIN THE LAND SURVEYOR TO REFERENCE, AND RESTORE UPON COMPLETION OF THE WORK, ALL SUCH CORNERS AND MONUMENTS AND SHALL FURNISH TO MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS A SIGNED AND SEALED COPY OF THE LAND SURVEYOR'S REFERENCE DRAWING.

4. ALL STATIONS AND OFFSETS REFER TO CENTERLINE OF CONSTRUCTION ALONG SW 137 AVE, UNLESS OTHERWISE STATED.

5. ALL GRADES SHOWN IN PLAN ARE FINISHED GRADES.

6. THE CONTRACTOR SHALL PAINT ALL STATIONS WITH STENCILED NUMBERS ON THE FACE OF CURB:
   A. FROM THE BEGINNING OF THE PROJECT WHERE THE CURB IS TO REMAIN.
   B. AT NEW CURB NOT LATER THAN 72 HOURS AFTER BEING POURED.
   THE CONTRACTOR SHALL MAINTAIN STATIONING WITH SURVEYING STAKES.
   CONTRACTOR SHALL MAINTAIN THE STATION MARKS VISIBLE UNTIL FINAL INSPECTION.

7. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, AND ANY OTHER STATE OR LOCAL AGENCY WITH JURISDICTION. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.

8. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE EPA AND THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)

9. BASELINE CONTROL SURVEY CONDUCTED BY MIAMI-DADE COUNTY. PLEASE CALL MR. SCOTT RIGGS AT 305-375-2657 CONCERNING SURVEY RELATED QUESTIONS.

10. EXISTING TOPOGRAPHIC INFORMATION WAS OBTAINED FROM SURVEY PREPARED BY MIAMI-DADE COUNTY AND MANUEL G. VERA & ASSOCIATES INC.

11. CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE-CALL AT 1-(800)-432-4770 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY DIGGING TO VERIFY THE EXACT LOCATION OF EXISTING UTILITIES. A CONTRACTOR'S REPRESENTATIVE MUST BE PRESENT WHEN UTILITY COMPANIES LOCATE THEIR FACILITIES.

12. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF OVERHEAD AND UNDERGROUND UTILITIES.

13. THE LOCATION AND SIZE OF THE UTILITIES SHOWN IN THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE ONLY. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHODS AND BY PRE-TRENCHING IN COORDINATION WITH ALL UTILITY COMPANIES, PRIOR TO BEGINNING ANY CONSTRUCTION OPERATION. ANY AND ALL CONFLICTS OF EXISTING UTILITIES WITH PROPOSED IMPROVEMENTS MUST BE RESOLVED BY THE ENGINEER AND THE OWNER. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

14. MIAMI-DADE WATER AND SEWER DEPARTMENT REQUIRES THAT ACCESS TO ALL WATER AND SEWER VALVES, SANITARY MANHOLES, AND OTHER CONTROL MECHANISMS BE MAINTAINED THROUGHOUT CONSTRUCTION IN THE EVENT OF AN EMERGENCY TO ENSURE THE PUBLIC HEALTH AND SAFETY. COVERING VALVE BOXES AND MANHOLES CAN BE CONSIDERED UNAUTHORIZED OBSTRUCTION OF AND TAMPERING WITH DEPARTMENT UTILITIES. ALL REQUESTS FOR UTILITY ADJUSTMENTS MUST BE MADE IN WRITING AT LEAST TWO (2) WEEKS IN ADVANCE. FOR MANHOLE AND VALVES, CONTACT THE CONSTRUCTION MANAGEMENT SECTION, PUMP STATIONS UNIT, 3071 SW 38 AVENUE, FAX NO. 305-668-3626. THE DEPARTMENT WILL MAKE ONE FINAL AND PERMANENT ADJUSTMENT AT NO COST TO THE REQUESTING AGENCY. FOR THE ADJUSTMENT OF WATER METERS, CONTACT THE CHIEF OF METER OPERATIONS AND MAINTENANCE, FAX NO. 305-545-3482. FOR ANY FIRE HYDRANTS THAT ARE DAMAGED OR BUMPED DURING CONSTRUCTION, CONTACT THE MDWASD HYDRANT SHOP AT 305-805-4575 BEFORE POURING CONCRETE FOR THE SIDEWALK. IN THE EVENT OF A WATER OR SEWER EMERGENCY, CONTACT MIAMI DADE WATER AND SEWER DEPARTMENT AT 305-274-9272. THIS LINE IS OPEN 24 HOURS, 7 DAYS A WEEK.

15. KNOWN UTILITY COMPANIES IN THE PROJECT LIMITS INCLUDE, BUT ARE NOT LIMITED TO:

UTILITY OWNER	TELEPHONE
AT&T-BELLSOUTH UNDERGROUND COMMUNICATIONS	786-464-1400
AT&T-TCG	407-578-8000
COMCAST	954-534-7380
FLORIDA CITY GAS	305-835-3632
FPL	305-442-5140
CROWN CASTLE FIBER	786-610-7073
LEVEL 3 COMMUNICATIONS	512-742-1433
MIAMI-DADE WATER AND SEWER DEPARTMENT	305-665-7471
XO COMMUNICATIONS	305-356-3160

16. THE CONTRACTOR IS ADVISED THAT PROPERTIES ADJACENT TO THE PROJECT HAVE ELECTRIC, TELEPHONE, GAS, WATER, AND/OR SEWER SERVICE LATERALS WHICH MAY NOT BE SHOWN IN PLANS. THE CONTRACTOR MUST REQUEST THE LOCATION OF THESE LATERAL SERVICES FROM THE UTILITY COMPANIES. THE ADDITIONAL COST OF EXCAVATING, INSTALLING, BACKFILLING, AND COMPACTING AROUND THESE LATERAL SERVICES SHALL BE INCLUDED IN THE COST OF THE BID ITEM FOR THE WORK BEING DONE. BID ITEMS INCLUDE 120-1 AND 120-6.

17. ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY SHALL BE RESTORED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

18. ANY ENCROACHMENT WITHIN THE LIMITS OF CONSTRUCTION SHALL BE RELOCATED OR PROTECTED BY THE ADJACENT PROPERTY OWNER AT THEIR EXPENSE.

19. CLEARING AND GRUBBING, GRADING AND OTHER INCIDENTAL WORK NECESSARY FOR HARMONIZATION OUTSIDE R/W SHALL BE INCLUDED IN THE COST OF THE BID ITEM FOR THE WORK BEING DONE. BID ITEMS INCLUDE 110-1-1B AND 120-6.

20. ALL GRASS AREAS AFFECTED BY CONSTRUCTION SHALL BE RESTORED.

21. THE CONTRACTOR SHOULD TAKE SPECIAL NOTE OF SOIL CONDITIONS THROUGHOUT THIS PROJECT. ANY SPECIAL SHORING, SHEETING OR OTHER PROCEDURES NECESSARY TO PROTECT ADJACENT PROPERTY, PUBLIC OR PRIVATE, DURING THE EXCAVATION OF SUBSOIL MATERIAL AND EXFILTRATION TRENCH, OR FILLING OF ANY AREA, OR FOR ANY OPERATION DURING CONSTRUCTION, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

22. IF SHEETING, SHORING, OR DEWATERING, INCLUDING WELL POINTS ARE NECESSARY, THE CONTRACTOR MUST MONITOR AND CONTROL ALL WORK THAT MAY CAUSE CRACKING TO ANY ADJACENT BUILDING, STRUCTURE, OR PROPERTY AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY THESE OPERATIONS. COST OF SHEETING, SHORING, OR DEWATERING SHALL BE INCLUDED IN THE COST OF THE BID ITEM FOR THE WORK BEING DONE. BID ITEMS INCLUDE INLETS, MANHOLES, PIPE CULVERT, AND FRENCH DRAIN AS WELL AS 120-1, 400-0-11, AND 455-133-3.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE DEWATERING PERMIT. COST OF THE PERMIT AND DEWATERING SHALL BE INCLUDED IN THE COST OF THE BID ITEM FOR THE WORK BEING DONE. BID ITEMS INCLUDE INLET, MANHOLE, PIPE CULVERT, AND FRENCH DRAIN BID ITEMS AS WELL AS 120-1, 400-0-11, AND 455-133-3.

24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WELL PLUGGING PERMIT. COST OF PERMIT AND PLUGGING OF WELL SHALL BE INCLUDED IN THE COST OF THE BID ITEM 110-5A.

25. THE CONTRACTOR WILL RESTRICT PERSONNEL, THE USE OF EQUIPMENT, AND THE STORAGE OF MATERIALS TO AREAS WITHIN THE LIMITS OF CONSTRUCTION AND DESIGNATED STAGING AREA.

26. EXPLORATORY DIGGING OR PRE-TRENCHING IN THE ALIGNMENT AND GRADE OF PROPOSED PIPES STRUCTURES, FRENCH DRAINS, CONDUITS, POLE FOUNDATIONS AND/OR SUB-GRADE SHALL BE PERFORMED SEVEN DAYS IN ADVANCE OF ITS CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE UNDERGROUND UTILITY OWNERS AND THE DEPARTMENT WITH IMMEDIATE NOTIFICATION OF ANY CONFLICT WITH PROPOSED CONSTRUCTION. THIS NOTIFICATION SHALL PROVIDE SURVEY INFORMATION ABOUT EXISTING UTILITY ALIGNMENT, GRADE AND POSSIBLE CONFLICTS. PAYMENT FOR EXPLORATORY OR PRE-TRENCHING, SURVEY AND BACKFILLING SHALL BE INCLUDED IN THE COST OF THE BID ITEM FOR THE WORK BEING DONE. BID ITEMS INCLUDE 120-1 AND 120-6.

27. ALL EXCAVATIONS SHALL BE PERFORMED IN FULL COMPLIANCE WITH THE PROVISIONS OF THE TRENCH SAFETY ACT.

28. ALL EXCESS MATERIAL, AS DESIGNATED BY THE ENGINEER, IS TO BE DISPOSED BY THE CONTRACTOR IN LEGAL AREAS PROVIDED BY HIM WITHIN 72 HOURS OF BEING DEPOSITED IN THE CONSTRUCTION AREA AND AT THE CONTRACTOR'S EXPENSE. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL.

29. ALL DISPOSAL OF MATERIALS, RUBBISH, AND DEBRIS SHALL BE MADE AT A LEGAL DISPOSAL SITE OR BY OTHER PRIOR APPROVED MANNER. MATERIAL CLEARED FROM THE SITE AND DEPOSITED ON ADJACENT OR NEARBY PROPERTY WILL NOT BE CONSIDERED AS HAVING BEEN DISPOSED OF SATISFACTORILY.

30. ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL FOUND ON THE PROJECT BY THE CONTRACTOR SHALL BE IMMEDIATELY REPORTED TO THE PROJECT ENGINEER, WHO SHALL DIRECT THE CONTRACTOR TO PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. THE ENGINEER WILL ARRANGE FOR INVESTIGATION, IDENTIFICATION, AND REMEDIATION OF THE HAZARDOUS MATERIAL. THE CONTRACTOR SHALL NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY THE PROJECT ENGINEER.

31. EXISTING ABOVE GROUND FEATURES ARE SHOWN ACCORDING TO THE BEST AVAILABLE DATA AND MAY NOT ACCURATELY REFLECT PRESENT CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH CURRENT SITE CONDITIONS, AND SHALL REPORT DISCREPANCIES TO THE ENGINEER PRIOR TO STARTING WORK

32. CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING TREES, STRUCTURES AND UTILITIES, WHICH MAY NOT BE SHOWN ON PLANS. ANY STRUCTURE, PAVEMENT, TREES OR OTHER EXISTING IMPROVEMENT NOT SPECIFIED FOR REMOVAL WHICH IS DAMAGED, EXPOSED OR IN ANY WAY DISTURBED BY CONSTRUCTION PERFORMED UNDER THIS CONTRACT, SHALL BE REPAIRED, PATCHED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.

33. CONTRACTOR SHALL AVOID DAMAGE TO AND PROTECT EXISTING TREES TO REMAIN.

34. THE CONTRACTOR SHALL USE A STREET SWEEPER IN ACTIVE TRAVEL LANES USING WATER OR OTHER EQUIPMENT CAPABLE OF CONTROLLING AND REMOVING DUST. APPROVAL OF THE USE OF SUCH EQUIPMENT IS CONTINGENT UPON ITS DEMONSTRATED ABILITY TO PERFORM THE WORK.

35. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL ITEMS USED IN THIS PROJECT.

36. WHEN DISSIMILAR MATERIAL CONNECTIONS ARE MADE, SUCH AS CONCRETE TO METAL, THE DISSIMILAR MATERIAL SHALL BE SEPARATED BY COATING THE CONTACT SURFACE WITH BITUMASTIC MATERIAL.

37. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING EXISTING AND NEW INLETS CLEAN OF MILLING MATERIAL, LIMEROCK, DEBRIS, ETC. DURING THE CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER. ALL LINES AND STRUCTURES SHALL BE CLEANED PRIOR TO FINAL INSPECTION AND ACCEPTANCE.

38. CAST IRON PRODUCTS: HEAVY-DUTY CLASSIFICATION SUITABLE FOR HIGHWAY TRAFFIC LOADS OR 16,000 LBS WHEEL LOADS.

39. STEEL GRATING AND COVERS: TRAFFIC CLASSIFICATION H-20; 16,000 LBS OVER 8"X20" AREA.

40. EXISTING DRAINAGE STRUCTURES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED UNLESS OTHERWISE NOTED.

41. EXISTING STORM SEWER MANHOLES AND INLETS SCHEDULED TO REMAIN SHALL BE THOROUGHLY CLEANED BY REMOVING ALL DEBRIS AND SEDIMENTS, AND THE INTERIOR SHALL BE SEALED WITH AN APPROVED NON-TOXIC BITUMASTIC SEALANT.

42. PRIOR TO CONSTRUCTION THE CONTRACTOR WILL INSPECT ALL EXISTING STRUCTURES WHICH ARE TO REMAIN AND NOTIFY THE ENGINEER OF ANY STRUCTURAL DEFICIENCIES.

43. CONTRACTOR SHALL ADJUST ALL EXISTING CATCH BASINS, GRATES, AND STORM SEWER MANHOLE COVERS TO MEET NEW GRADES WHERE APPLICABLE.

44. ELEVATIONS AND OFFSETS SHOWN AT DRAINAGE STRUCTURES REFER TO EDGE OF PAVEMENT FOR CURB INLETS, TOP OF MANHOLES FOR MANHOLES, AND GRATE ELEVATIONS FOR DITCH BOTTOM INLETS.

45. PRIOR TO CONSTRUCTION, THE CONTRACTOR WILL VERIFY INVERT ELEVATIONS OF ALL PIPES WHICH ARE TO REMAIN AND NOTIFY THE ENGINEER OF ANY ELEVATION DEVIATIONS.

46. THERE SHALL BE NO MORE THAN THREE LATERAL DRAINAGE INSTALLATIONS WITHOUT BACKFILLING. BACKFILLING OF LATERAL DRAINAGE SHALL NOT LAG MORE THAN 72 HOURS BEHIND THE START OF EXCAVATION.

47. SPECIAL ATTENTION IS DIRECTED TO THE FACT THAT PORTIONS OF SOME DRAINAGE STRUCTURES EXTEND INTO THE STABILIZED PORTION OF THE ROADBED AND EXTREME CAUTION SHOULD BE USED IN THE STABILIZING OPERATIONS AT THESE LOCATIONS.

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GENERAL NOTES

48. INSTALLATIONS OF NEW PULL BOXES SHALL BE PERFORMED BY A QUALIFIED ELECTRICAL CONTRACTOR. WHEN A NEW PULL BOX REPLACES AN EXISTING PULL BOX, THE CONTRACTOR SHALL ADJUST CONDUITS AND CABLES TOFIT THE NEW PULL BOX LOCATION AND ELEVATION. COST OF ADJUSTMENTS, INCLUDING ANY CONDUIT AND CONDUCTOR NEEDED FOR ADJUSTMENT, IS INCLUDED IN THE PULL BOX PAY ITEM (635-2-11). FOR PAY ITEM (635-2-11) QUANTITIES, SEE SHEETS L-1 AND T-1.

49. RADII ON CURB RETURNS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

50. STANDARD 3'-0 CURB AND GUTTER ENDING TRANSITIONS SHALL BE PROVIDED AT ALL TERMINATIONS THAT DO NOT MEET EXISTING CURB AND GUTTER.

51. WHERE NEW PAVEMENT MEETS EXISTING, CONNECTION SHALL BE MADE IN A NEAT STRAIGHT LINE AND FLUSH WITH THE EXISTING PAVEMENT.

52. THE LOCATION OF SOME DRIVEWAYS IS APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION AND DIMENSIONS.

53. EXISTING DRIVEWAYS WITHIN THE LIMITS OF THIS PROJECT ARE TO BE REPLACED AT THE SAME LOCATION AND WIDTH, UNLESS OTHERWISE SHOWN IN PLANS.

54. CONTRACTOR SHALL INSTALL ½" PREFORMED EXPANSION JOINT WHEN PROPOSED SIDEWALK IMPROVEMENTS ARE IMMEDIATELY ADJACENT TO EXISTING CONCRETE SLAB, WALL AND/OR BUILDING.

55. THE SIDEWALK AT DRIVEWAY TURNOUTS SHALL BE 6" CONCRETE. SIDEWALKS SHALL BE CONSTRUCTED PER FDOT INDEXES 304, 310. DRIVEWAYS SHALL BE CONSTRUCTED PER FDOT STANDARD INDEX 515.

56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION, INSTALLATION, AND MAINTENANCE OF ALL TRAFFIC CONTROL AND SAFETY DEVICES, IN ACCORDANCE WITH SPECIFICATIONS OUTLINED IN THE PUBLIC WORKS DEPARTMENT MANUAL, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND THE FDOT DESIGN STANDARDS.

57. ALL BUS STOP SIGNS TO BE FURNISHED BY MIAMI-DADE TRANSIT. ENGINEER TO CONTACT MIAMI-DADE COUNTY TRANSIT AT (305)637-3753 ONE (1) WEEK PRIOR TO POURING SIDEWALKS AND COORDINATE THE REMOVAL AND REPLACEMENT OF BUS STOP SIGNS AND BENCHES.

58. COMPLETE AS-BUILT INFORMATION RELATIVE TO LOCATION AND DEPTH OF PIPES, MANHOLES, ETC. SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL ELEVATIONS SHALL BE TAKEN BY A FLORIDA REGISTERED SURVEYOR AND SHOWN ON THE RECORD DRAWINGS.

59. DESIGN WATER TABLE ELEVATION: OCTOBER WATER LEVEL +4.50 FEET N.G.V.D.

60. MIAMI-DADE COUNTY FLOOD CRITERIA ELEVATION:+7.00 FEET N.G.V.D.

61. EXFILTRATION TRENCH AND DRAINAGE STRUCTURES SHALL MEET OR EXCEED MIAMI-DADE COUNTY STANDARDS INCLUDING, BUT NOT LIMITED TO: SD-1.1, SD-2.6, SD-2.7, SD-3.3, SD-3.4, SD-3.6, SD-4.4.

62. CONTRACTOR SHALL PLACE GUARDRAIL AND END TREATMENTS IN ACCORDANCE WITH FDOT INDEX 400.

63. AT BEGIN AND END GRAVITY WALL LOCATIONS, TOP OF WALL SHALL MATCH EXISTING GROUND WITH NO HARMONIZATION PERMITTED OUTSIDE OF THE RIGHT-OF-WAY. GRAVITY WALL SHALL BE CONSTRUCTED ACCORDING TO FDOT INDEX 6011 UNLESS OTHERWISE MARKED IN THE PLANS.

64. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH WILL BE ENCOUNTERED DURING THE COURSE OF WORK. THE CONTRACTORS ARE DIRECTED TO CONDUCT ANY INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSION REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED.

65. CONTRACTOR IS RESPONSIBLE FOR SITE RESTORATION AT NO ADDITIONAL COST. SITE MUST BE RESTORED TO THE ORIGINAL CONDITION OR BETTER AND TO THE SATISFACTION OF THE ENGINEER.

66. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL INSTALL SHALLOW MONITORING WELLS APPROXIMATELY ONE THOUSAND (1000) FEET APART ALONG THE LENGTH OF THE PROJECT BEGINNING AT STA. 254+00 (45.00' LT) AND ENDING AT STRUCTURE S-78 (STA. 385+50 (11.00' LT)). ALL SHALLOW MONITORING WELLS ARE TO BE PLACED ON THE LEFT SIDE OF THE PROJECT WHERE PROPOSED DRAINAGE STRUCTURES OR EXFILTRATION TRENCH WILL BE LOCATED. ADDITIONALLY, A SHALLOW MONITORING WELL SHALL BE INSTALLED AT THE LOCATION OF STRUCTURE S-3 (STA. 224+40 (41.00' LT)). THE WELLS SHALL BE INSTALLED IN ACCORDANCE WITH FDEP SOP PCS-006 (DESIGN, INSTALLATION, AND PLACEMENT OF MONITORING WELLS, DATED MAY 2, 2005) AND MIAMI- DADE COUNTY - RER'S RISK BASED CORRECTIVE ACTION GUIDANCE DOCUMENT 7A (DATED MARCH 11, 2003) AND SAMPLED IN ACCORDANCE WITH THE STANDARD OPERATING PROCEDURES (SOP) PROVIDED IN CHAPTER 62-160, FAC, AS AMENDED. ALL WORK REQUIRED FOR THE INSTALLATION OF THE SHALLOW MONITORING WELLS TO BE INCLUDED IN BID ITEM 125-4-5.

67. CONTRACTOR MAY BE REQUIRED TO SUPPLEMENT GROUNDWATER ASSESSMENT DONE BY THE COUNTY FOR SHALLOW MONITORING WELLS. SAMPLING PARAMETERS MAY INCLUDE THE FOLLOWING:
    a. AMMONIA, NITRATES/NITRITES/NOX
    b. MANGANESE, ARSENIC, CHROMIUM, COPPER, LEAD AND IRON
    c. PESTICIDES (ORGANOCHLORINE AND ORGANOPHOSPHORUS, EPA METHODS 8081 & 8141 OR EQUIVALENT)

    ALL ASSESSMENT SHALL BE COORDINATED WITH THE ENVIRONMENTAL MONITORING AND RESTORATION DIVISION OF RER. IN THE EVENT CONTAMINATION IS FOUND AT ANY OF THE SHALLOW MONITORING WELLS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER. DRAINAGE CONSTRUCTION ACTIVITIES IN THE AREA OF GROUNDWATER CONTAMINATION SHALL BE POSTPONED AND THE PROPOSED DRAINAGE SYSTEM MUST BE RE-EVALUATED AND RE-DESIGNED BY THE ENGINEER. COST TO BE INCLUDED IN BID ITEM 125-4-5.

68. ALL CONTAMINATED SOILS EXCAVATED DURING CONSTRUCTION SHALL BE REUSED WITHIN THE BOUNDARIES OF THE PROJECT WHEN POSSIBLE. REUSED CONTAMINATED SOILS SHALL BE PLACED UNDER AN IMPERVIOUS SURFACE AND AT LEAST 1 FOOT ABOVE THE SEASONAL HIGH GROUNDWATER TABLE OF 4.5 FT. ANY EXCESS CONTAMINATED SOILS SHALL REQUIRE PROPER CHARACTERIZATION FOR PROPER DISPOSAL. COST TO BE INCLUDED IN BID ITEM 125-4-2.

69. WHEN ENCOUNTERING OR EXPOSING ANY ABNORMAL CONDITION INDICATING THE PRESENCE OF A HAZARDOUS OR TOXIC WASTE, OR CONTAMINANTS, CEASE OPERATIONS IMMEDIATELY IN THE VICINITY AND NOTIFY THE ENGINEER. THE PRESENCE OF TANKS OR BARRELS; DISCOLORED EARTH, METAL, WOOD, GROUND WATER, ETC.; VISIBLE FUMES; ABNORMAL ODORS; EXCESSIVELY HOT EARTH; SMOKE; THE PRESENCE OF A SHEEN OR FREE PRODUCT; OR OTHER CONDITIONS THAT APPEAR ABNORMAL MAY INDICATE HAZARDOUS OR TOXIC WASTES OR CONTAMINANTS AND MUST BE TREATED WITH EXTREME CAUTION. MAKE EVERY EFFORT TO MINIMIZE THE SPREAD OF CONTAMINATION INTO UNCONTAMINATED AREAS. IMMEDIATELY PROVIDE FOR THE HEALTH AND SAFETY OF ALL WORKERS AT THE JOB SITE AND MAKE PROVISION NECESSARY FOR THE HEALTH AND SAFETY OF THE PUBLIC THAT MAY BE EXPOSED TO ANY POTENTIALLY HAZARDOUS CONDITIONS. PROVISIONS SHALL MEET ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS, RULES, REGULATIONS OR CODES COVERING HAZARDOUS CONDITIONS AND WILL BE IN A MANNER COMMENSURATE WITH THE GRAVITY OF THE CONDITIONS. THE CONTRACTOR WILL COORDINATE AND MOBILIZE A QUALIFIED CONTAMINATION ASSESSMENT/REMEDIATION (CAR) SPECIALIST. QUALIFICATIONS OF SUCH CAR SPECIALIST SHALL INCLUDE, BUT NOT BE LIMITED TO: EXPERIENCE AND PERSONNEL TO PREPARE CONTAMINATION ASSESSMENT PLANS, CONDUCT CONTAMINATION ASSESSMENTS, PREPARE SITE ASSESSMENT REPORTS, REMEDIATION PLANS, IMPLEMENT REMEDIAL ACTION PLANS, RISK BASED CORRECTIVE ACTIONS, STORAGE TANKS SYSTEM REMOVAL, HIGHWAY SPILL RESPONSE AS WELL AS EXPERIENCE WITH INFRASTRUCTURE/CONSTRUCTION ACTIVITIES WITHIN CONTAMINATION AREAS SPECIFIC TO TRANSPORTATION SYSTEMS. ALL THE WORK PERFORMED BY THE CAR SPECIALIST SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS GOVERNING WORKER SAFETY AND ENVIRONMENTAL REGULATIONS. THIS IS TO INCLUDE OCCUPATIONAL EXPOSURE TO CONTAMINATED SOILS, GROUNDWATER, WASTES AND ATMOSPHERE DURING THE CONSTRUCTION OF ALL FEATURES INCLUDED IN THE CONSTRUCTION PLANS. IN ADDITION, THE CAR SPECIALIST MUST BE STAFFED WITH FLORIDA LICENSED TECHNICAL PROFESSIONALS (GEOLOGISTS AND ENGINEERS) WHO WILL BE INVOLVED WITH THE PROJECT AND KNOWLEDGEABLE OF THE WORK ACTIVITIES CONDUCTED WITHIN CONTAMINATED AREAS AND WHO WOULD SIGN AND SEAL PROJECT REPORTS AS REQUIRED FOR SUBMITTAL TO THE APPROPRIATE ENVIRONMENTAL REGULATORY AGENCIES. THE ENGINEER WILL NOTIFY JAQUELYN LLANO, P.E. OF THE POLLUTION REMEDIATION SECTION AT (305) 372-6700 (DERMPCD@MIAMIDADE.GOV) AFTER ENCOUNTERING UNIDENTIFIED AREAS OF CONTAMINATION. PRELIMINARY INVESTIGATION BY THE CAR SPECIALIST WILL DETERMINE THE COURSE OF ACTION NECESSARY FOR SITE SECURITY AND THE STEPS NECESSARY UNDER APPLICABLE LAWS, RULES, AND REGULATIONS FOR ADDITIONAL ASSESSMENT AND/OR REMEDIATION WORK TO RESOLVE THE CONTAMINATION ISSUE. FOLLOWING COMPLETION OF THE PROJECT, THE CAR SPECIALIST SHALL BE REQUIRED TO PROVIDE COPIES OF ALL REPORTS SUBMITTED TO REGULATORY AGENCIES, WASTE MATERIAL PROFILES, MANIFESTS AND/OR DISPOSAL RECEIPTS FOR THE HANDLING OF ALL CONTAMINATED MEDIA INCLUDING BUT NOT LIMITED TO GROUND WATER, WASTE WATER, SOILS, SOLID WASTES, SLUDGE, HAZARDOUS WASTES, AIR MONITORING RECORDS, AND SAMPLE RESULTS FOR ALL MATERIALS TESTED AND ANALYZED TO THE ENGINEER, AND TO THE DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT (DERM). COST OF CONTAMINATION ASSESSMENT/REMEDIATION SPECIALIST TO BE PAID UNDER 125-4-5.

70. CONTRACTOR SHALL REFER TO THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWC) GOPHER TORTOISE PERMITTING GUIDELINES (REVISED JANUARY 2017) http://www.myfwc.com/license/wildlife/gopher-tortoise-permits/ FOR SURVEY METHODOLOGY AND PERMITTING GUIDANCE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL CONTACT ERIC SECKINGER WITH ANY QUESTIONS REGARDING GOPHER TORTOISE PERMITTING BY PHONE AT (850) 921-1029 OR AT ERIC.SECKINGER@MYFWC.COM

LEGEND:

- ⊕ SYMBOL REPRESENTS SOIL BORING LOCATIONS.
- (CR G) SYMBOL REPRESENTS ALPHA-NUMBERIC IDENTIFICATION OF CURB RAMPS AS PER FDOT DESIGN STANDARD INDEX 304.
- (G #) SYMBOLS REPRESENT ALPHA-NUMBERIC IDENTIFICATION OF DRIVEWAY TYPE AS PER FDOT DESIGN STANDARD INDEX 515.
- △ SYMBOL REPRESENTS PIPE END CAP LOCATIONS.
- ○ SYMBOL REPRESENTS TEST MONITORING WELL (TMW) LOCATIONS. (△)

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/24/20	CM	(△) ADDED TEST MONITORING WELL SYMBOL						

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

	NAME	DATE		NAME	DATE
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CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

GENERAL NOTES (2 OF 2)

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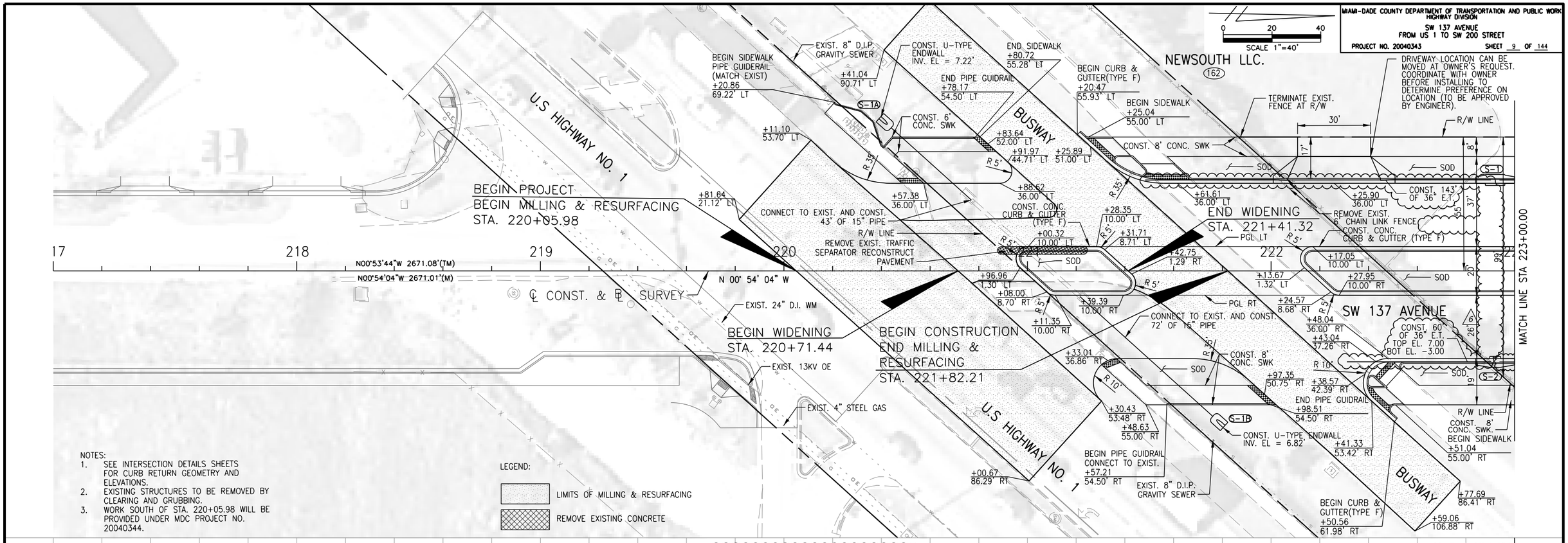

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/24/20	CM	6 REVISED DRAINAGE STRUCTURES, PIPES, AND LABELS						

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PLAN AND PROFILE

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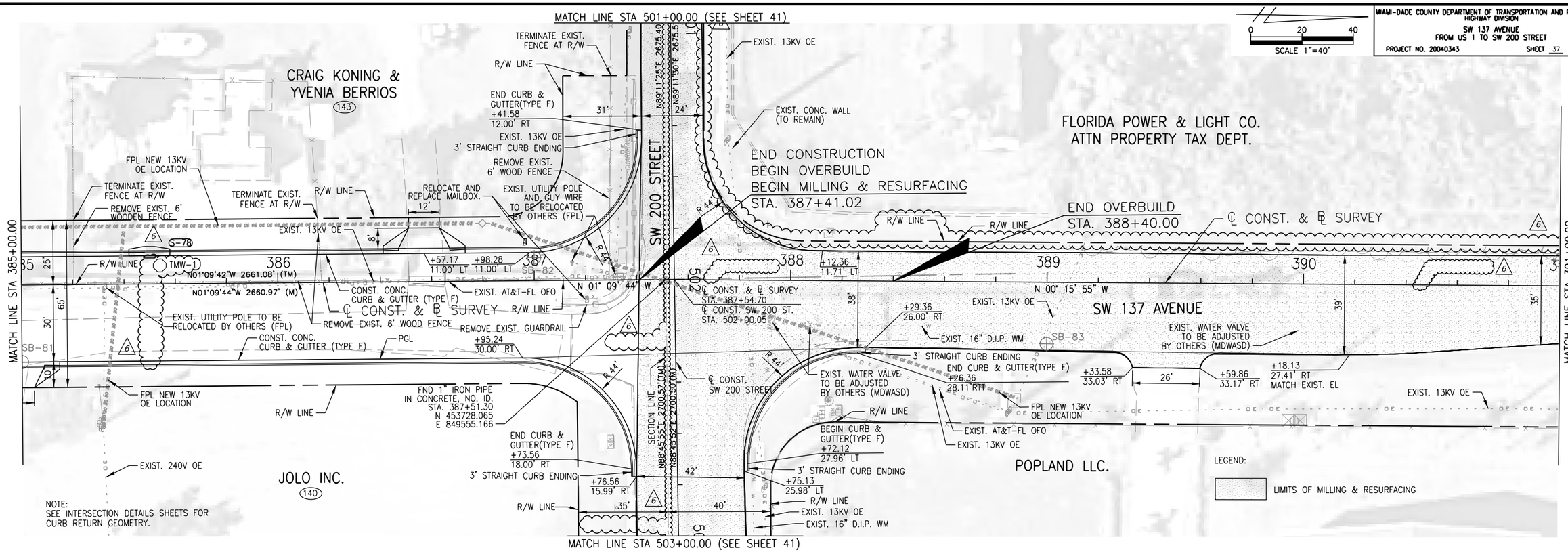
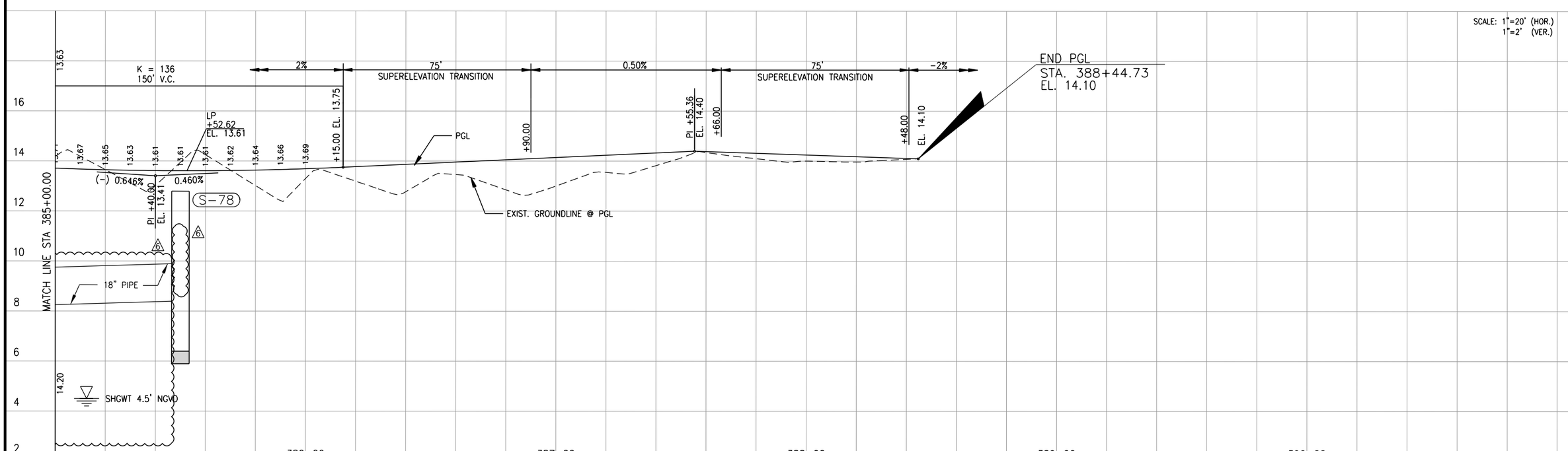
SCALE 1"=40'





REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/24/20	CM	6 REVISED DRAINAGE STRUCTURES, PIPES, LABELS, AND REVISED R/W LINE						

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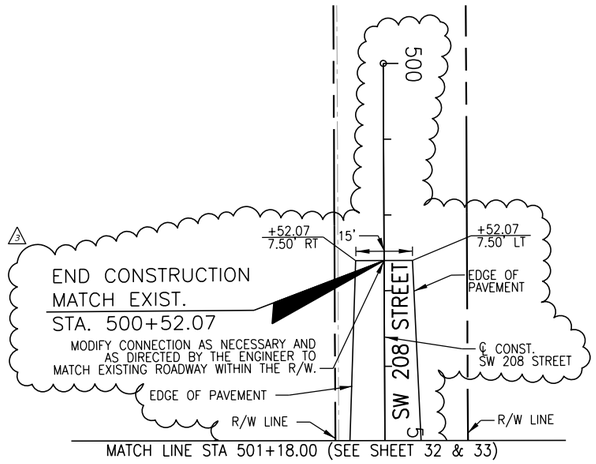
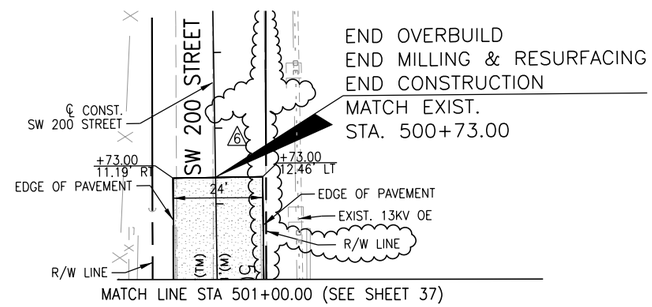
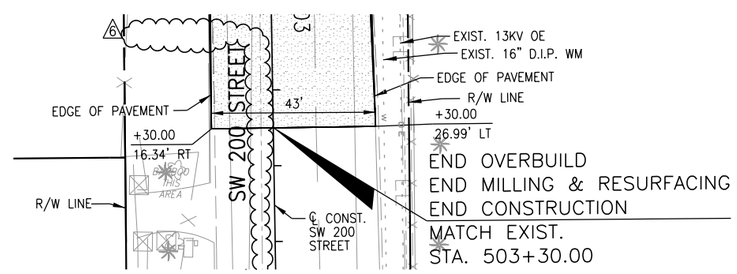
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET 41 OF 144



INTERSECTION SW 208 STREET



MATCH LINE STA 503+00.00 (SEE SHEET 37)



INTERSECTION SW 200 STREET

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
10/30/19	CM	△MOVED SW 208 ST AND CENTERLINE TO THE NORTH.	3/24/20	CM	△REVISED R/W LINE			

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INTERSECTING STREET PLAN

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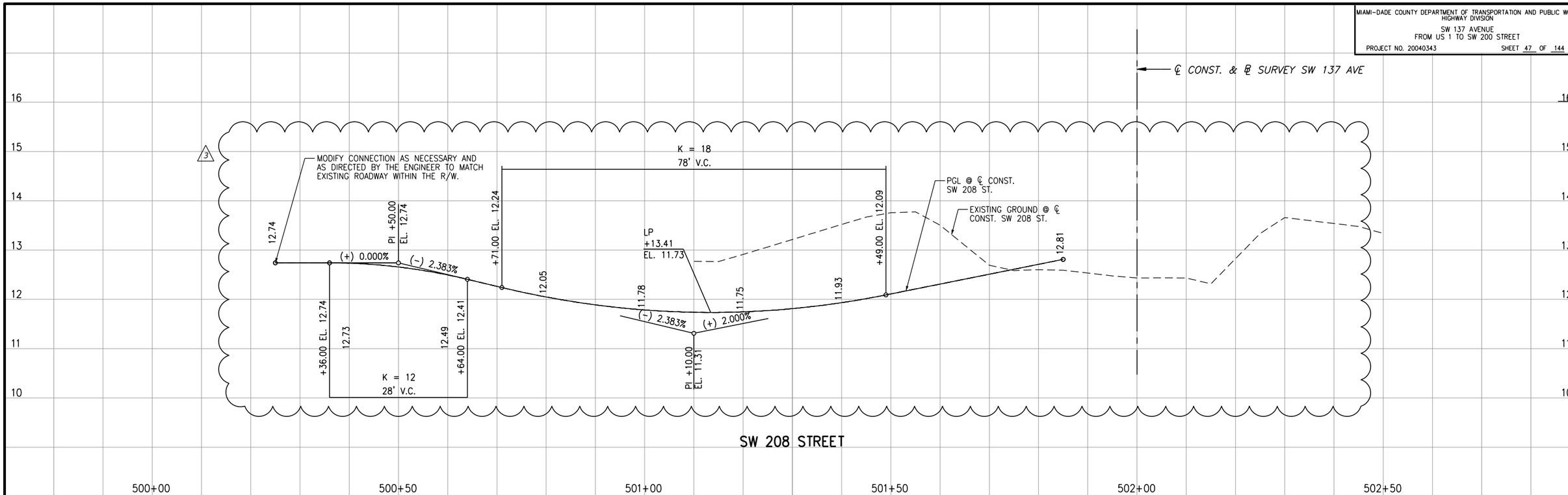
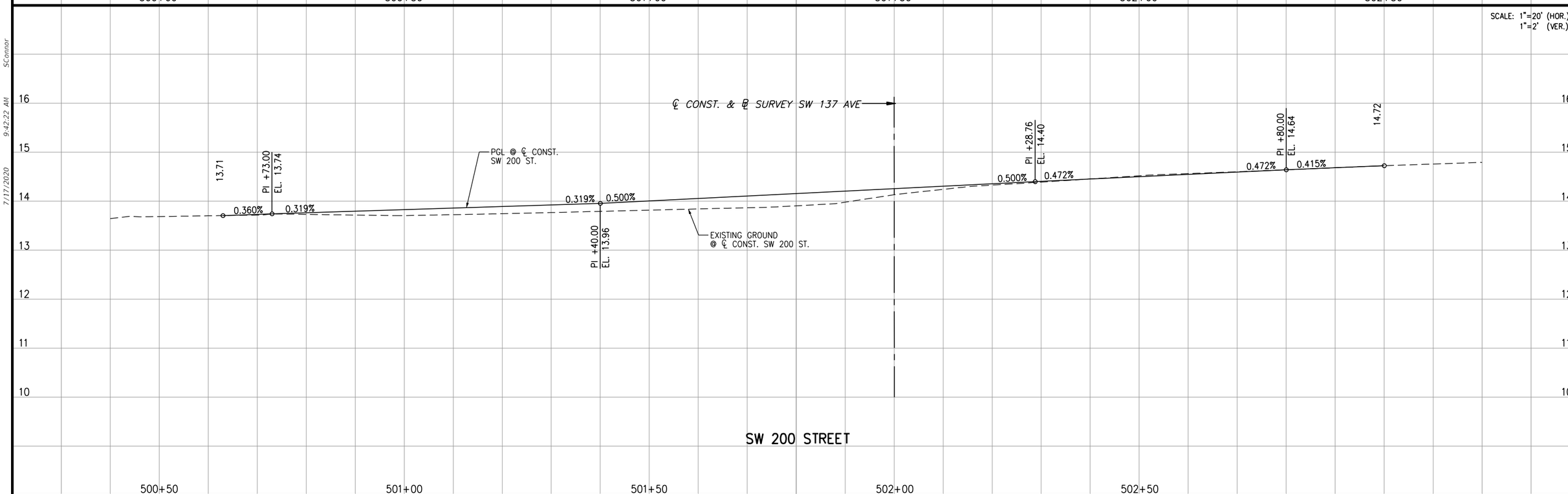


SCALE: 1"=20' (HOR.)
1"=2' (VER.)



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REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
10/30/19	CM	△1 REVISED PROFILE						

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HIGHWAY DIVISION
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INTERSECTING STREET PROFILE

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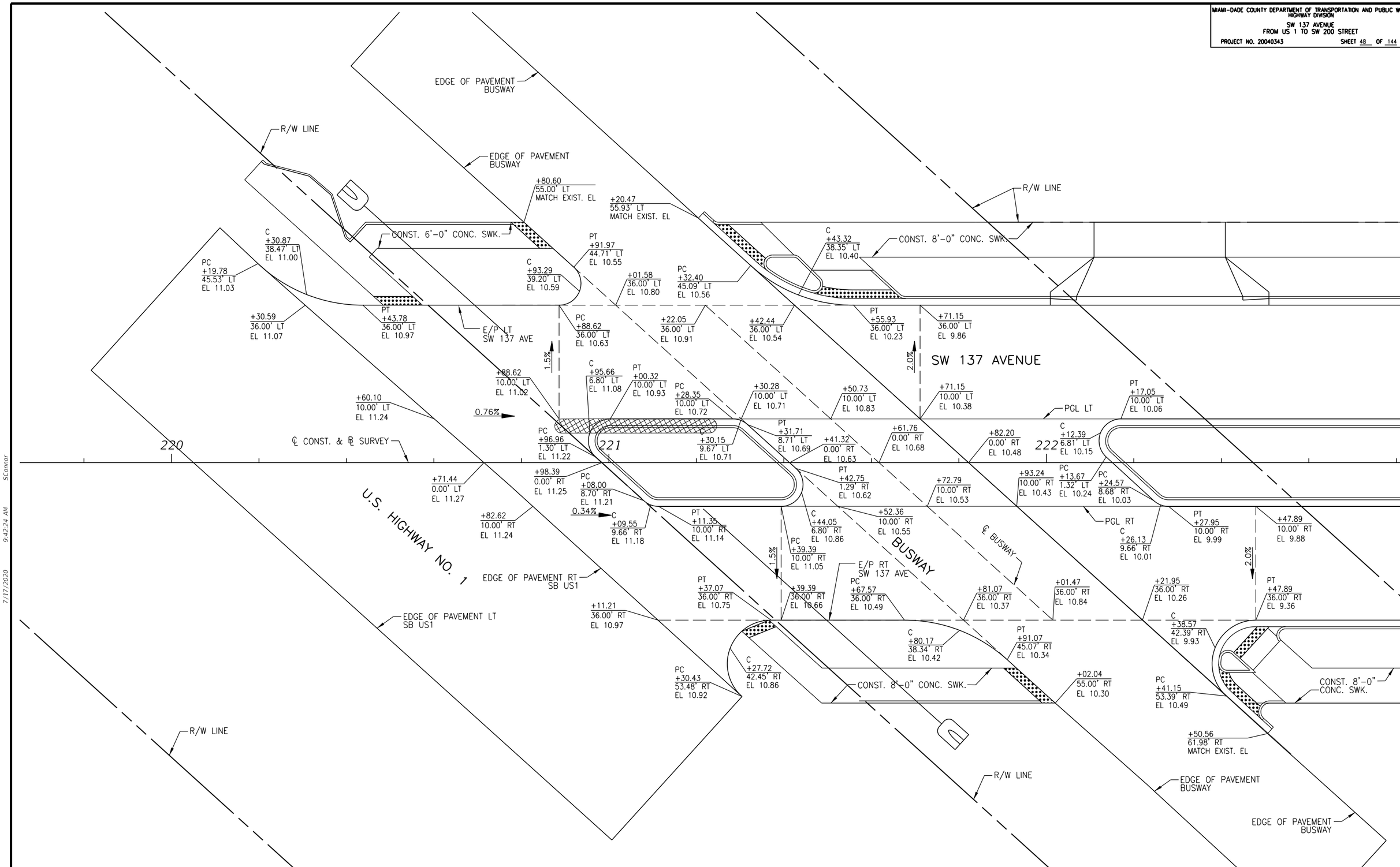

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
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INTERSECTION DETAILS

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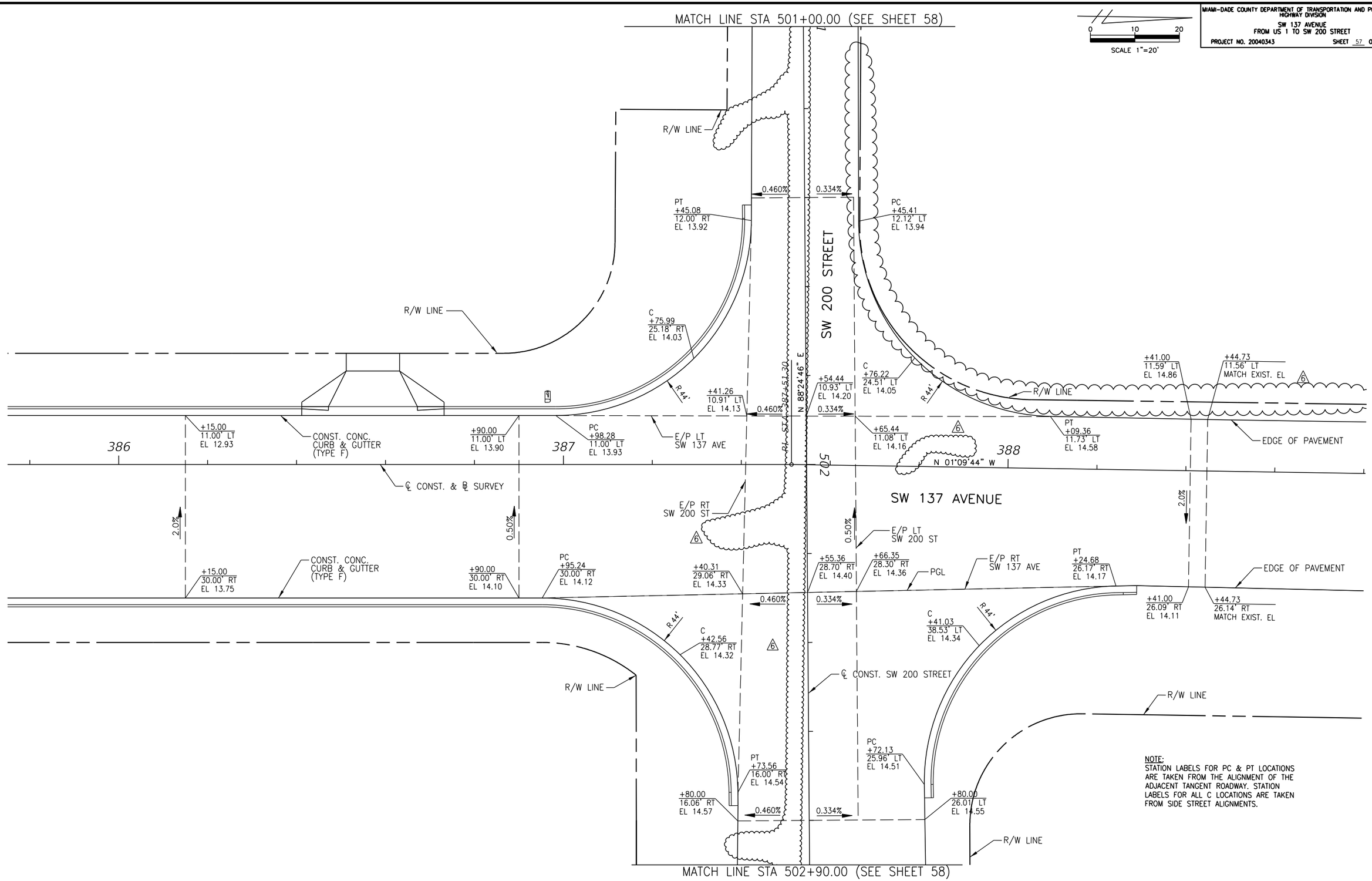

NOTE:
STATION LABELS FOR PC & PT LOCATIONS ARE TAKEN FROM THE ALIGNMENT OF THE ADJACENT TANGENT ROADWAY. STATION LABELS FOR ALL C LOCATIONS ARE TAKEN FROM SIDE STREET ALIGNMENTS.

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET 57 OF 144

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
3/24/20	CM	6 REVISED R/W LINE						

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

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CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

INTERSECTION DETAILS

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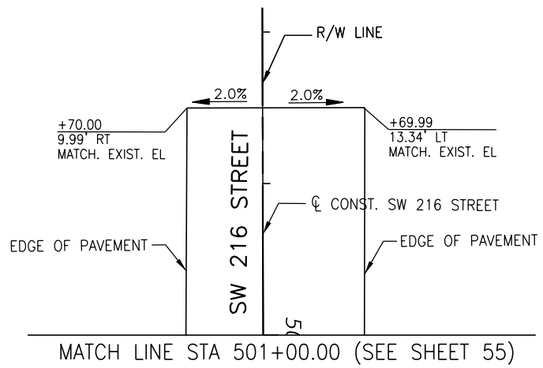

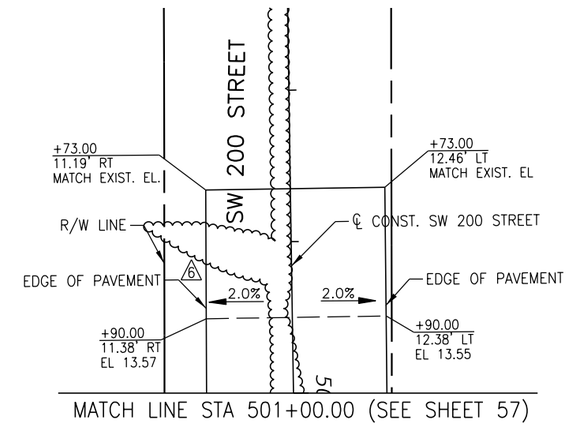

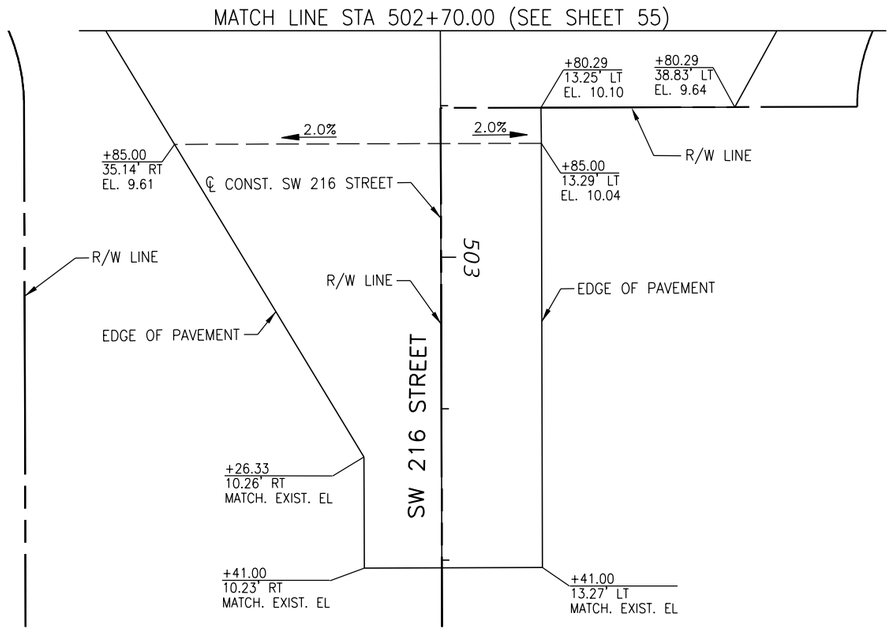

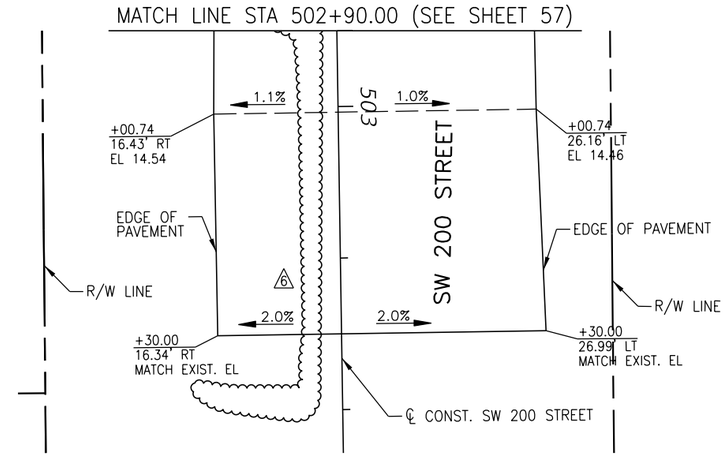

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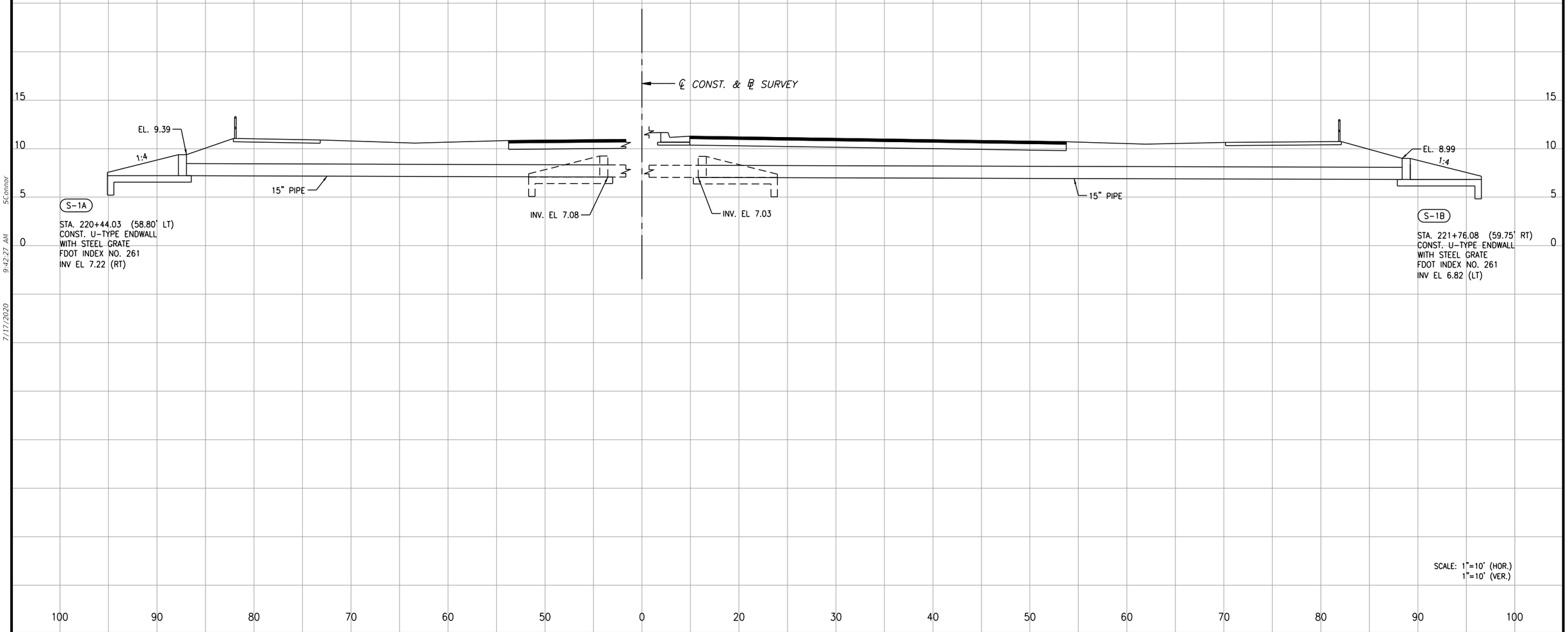

REVISIONS								
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3/24/20	CM	1 REVISED STRUCTURES, PIPES, AND LABELS						

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DRAINAGE STRUCTURES

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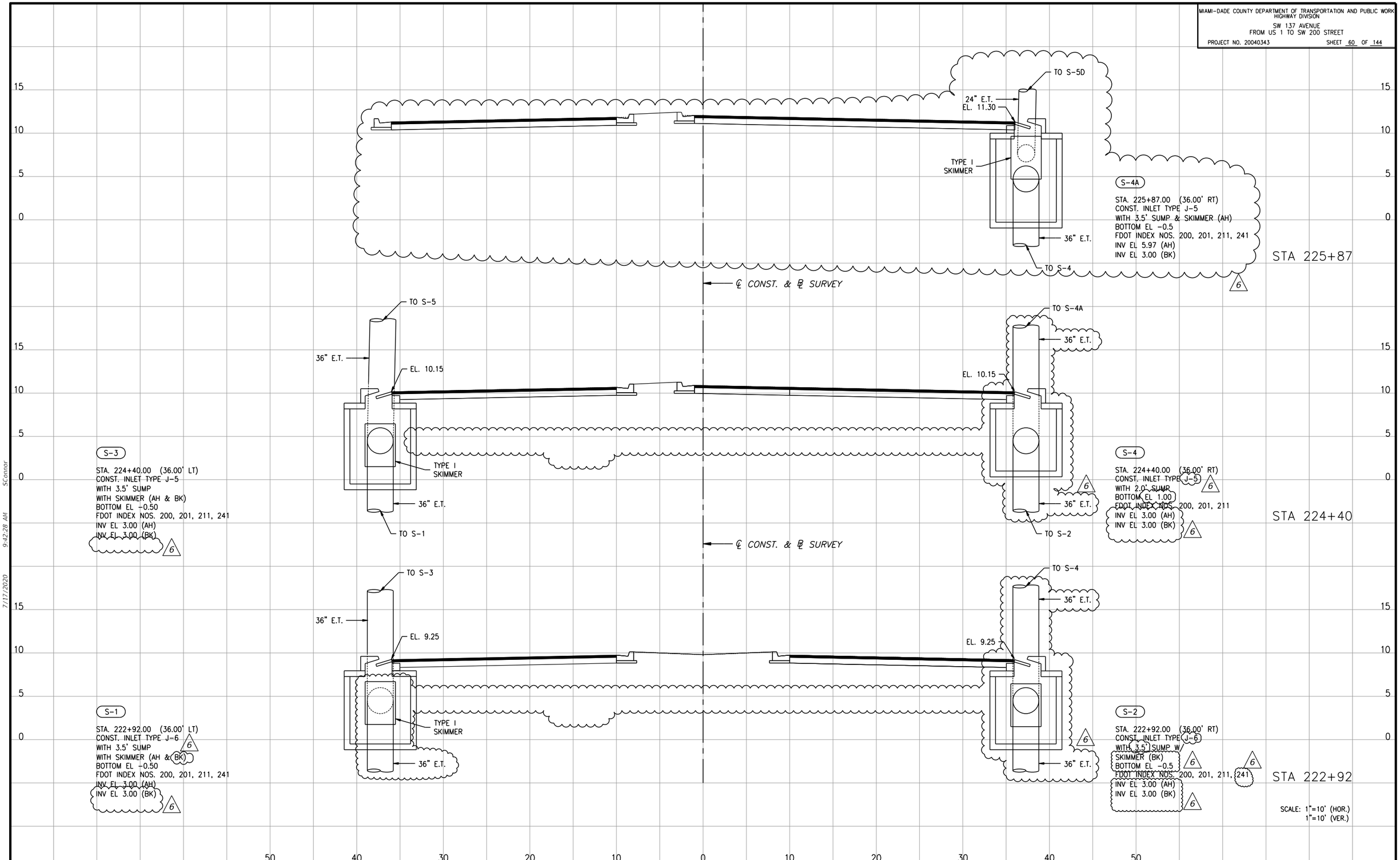

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
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MIAMI-DADE COUNTY

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DRAINAGE STRUCTURES

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1. SITE DESCRIPTION

A. NATURE OF CONSTRUCTION ACTIVITY

PROJECT LIMITS: SW 137 AVENUE FROM US1 TO SW 200 STREET

PROJECT DESCRIPTION: THE PROJECT CONSISTS OF 3.655 MILES OF ROADWAY CONSTRUCTION. ROADWAY CONSTRUCTION PROVIDES FOR A NEW (2) LANE ROADWAY ON A STRAIGHT ALIGNMENT ALONG ONE SIDE OF THE RIGHT-OF-WAY WHICH SHALL INCLUDE SIDEWALKS, CURB AND GUTTER, A CONTINUOUS STORM DRAINAGE SYSTEM, SIGNALIZATION, PAVEMENT MARKINGS AND SIGNAGE, A STANDARD ROADWAY LIGHTING SYSTEM, BICYCLE FACILITIES, LANDSCAPING, A BRIDGE CROSSING OVER CANAL C-102, A CULVERT CROSSING AT CANAL C-102N, AND FILLING OF THE BORROW PIT AT SW 240 STREET WITHIN THE RIGHT OF WAY LIMITS.

B. SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:
1. CLEARING AND GRUBBING
2. EXCAVATION
3. EMBANKMENT
4. ROADWAY STABILIZATION AND BASE
5. ROADWAY CONNECTION TO EXISTING FACILITIES
6. GRADING AND LANDSCAPING WHERE NECESSARY

C. AREA ESTIMATES

1. TOTAL PROJECT AREA:	43.24 AC
2. TOTAL AREA TO BE DISTURBED:	31.90 AC
3. EXISTING IMPERVIOUS AREA:	3.13 AC
4. TOTAL PROPOSED IMPERVIOUS AREA:	17.51 AC
5. EXISTING PERVIOUS AREA:	40.11 AC
6. TOTAL PROPOSED PERVIOUS AREA:	25.73 AC

D. RUNOFF DATA

RUNOFF COEFFICIENTS FOR:

PERVIOUS AREAS:	C = 0.20
IMPERVIOUS AREAS:	C = 0.95
DISTURBED AREAS DURING CONSTRUCTION:	C =

WEIGHTED RUNOFF COEFFICIENTS:

BEFORE CONSTRUCTION:	C = .25
DURING CONSTRUCTION:	C =
AFTER CONSTRUCTION:	C = .50

OUTFALL INFORMATION:
EMERGENCY OUTFLOW TO C-102 & C102N FOR STORM EVENTS EXCEEDING 100-YEAR/24HR STORM..

E. SITE MAP:
A LOCATION MAP IS SHOWN ON THE KEY SHEET OF THE ROADWAY PLANS.
1. DRAINAGE PATTERNS:
RUNOFF WILL BE COLLECTED VIA CURB INLETS AND CONVEYED INTO AN INTERCONNECTED SYSTEM OF 36" DIAMETER EX-FILTRATION TRENCHES.
2. APPROXIMATE SLOPES:
THE SLOPES OF THE SITE CAN BE SEEN IN THE TYPICAL SECTION AND CROSS-SECTION SHEETS. 1:4 SLOPES ARE TYPICAL.
3. AREAS OF SOIL DISTURBANCE:
THE AREAS TO BE DISTURBED ARE INDICATED ON THE PLAN AND PROFILE SHEETS. MAJOR SOIL DISTURBANCE WILL BE ASSOCIATED WITH THE STANDARD CLEARING AND GRUBBING OPERATION. ALL AREAS WHERE PERMANENT FEATURES ARE SHOWN TO BE CONSTRUCTED, ABOVE OR BELOW GROUND, WILL BE DISTURBED.
4. AREAS THAT SHALL NOT BE DISTURBED:
ALL AREAS OUTSIDE THE CLEARING AND GRUBBING AND THE LIMITS OF CONSTRUCTION WILL NOT BE DISTURBED.
5. LOCATIONS OF TEMPORARY CONTROLS IDENTIFIED IN THE PLAN:
TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AT ALL LOCATIONS WHERE DISTURBANCE OF SOLIDS WILL OCCUR.
6. THE LOCATIONS OF PERMANENT CONTROLS: PERMANENT SEDIMENT CONTROL DEVICES ARE LOCATED IN THE DRAINAGE STRUCTURE SHEETS.

7. AREAS TO BE STABILIZED:
ALL DISTURBED AREAS WILL BE STABILIZED WITH TURF AND/OR LANDSCAPING. WIDENING AREAS ARE STABILIZED WITH PAVEMENT AND CONCRETE CURB AND GUTTER.

F. DISCHARGE POINT(S): EMERGENCY OVERFLOWS ARE LOCATED ON THE WEST SIDE OF THE BRIDGE & CULVERT.

2. CONTROLS

A. EROSION AND SEDIMENT CONTROLS:
1. STABILIZATION PRACTICES:
A. TEMPORARY: INCLUDES SOD, MULCH, SYNTHETIC BALES, AND ARTIFICIAL COVERINGS.
B. PERMANENT: INCLUDES ASPHALT OR CONCRETE SURFACE, SOD, ROADSIDE DITCH, AND RIP-RAP.
2. STRUCTURAL PRACTICES:
A. TEMPORARY: INCLUDES SILT FENCE, SYNTHETIC BALES, ROCK BAGS, AND TURBIDITY BARRIERS, AND SOIL TRACKING PREVENTION DEVICES.
B. PERMANENT: INCLUDES ROADSIDE DITCH, RIP-RAP, AND SOD.

B. PERMANENT STORM WATER MANAGEMENT:
STORM WATER WILL BE CONVEYED ALONG CURB AND GUTTER TO THE EX-FILTRATION TRENCH AND WILL INFILTRATE INTO THE GROUND. DRAINAGE STRUCTURES WITHIN THE CORRIDOR CONSIST OF CURB INLETS, DITCH BOTTOM INLETS, MANHOLES, AND EX-FILTRATION TRENCH.

C. OTHER CONTROLS:
THE CONTRACTOR SHALL PRACTICE GOOD HOUSEKEEPING BY INSTITUTING A CLEAN AND ORDERLY CONSTRUCTION SITE. THE FOLLOWING CONTROLS SHALL BE IMPLEMENTED TO FURTHER REDUCE POLLUTION AT THE PROJECT SITE.

1. DISCHARGE OF MATERIALS TO SURFACE WATERS
NO CONSTRUCTION MATERIAL SHALL BE DISCHARGED TO WATERS OF THE STATE UNLESS AUTHORIZED BY A SECTION 404 PERMIT AND/OR THE STATE OF FLORIDA ENVIRONMENTAL RESOURCE PERMIT. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN AN APPROVED UPLAND LOCATION. BUILDING MATERIAL SHALL NOT BE DISPOSED OF IN WETLANDS OR BURIED ON-SITE.

2. OFF-SITE VEHICLE TRACKING & DUST CONTROL
THE CONTRACTOR SHALL TAKE MEASURES TO INSURE THE CLEANUP OF SEDIMENTS THAT HAVE BEEN TRACKED BY VEHICLES OR HAVE BEEN TRANSPORTED BY WIND OR STORM WATER ABOUT THE SITE OR ONTO NEARBY ROADWAYS. STABILIZED CONSTRUCTION ENTRANCES AND CONSTRUCTION ROADS, IF APPROPRIATE, SHALL BE IMPLEMENTED IN ORDER TO REDUCE OFF-SITE TRACKING. LOADED HAUL TRUCKS SHALL BE COVERED WITH TARPAULIN. EXCESS DIRT ON THE ROAD SHALL BE REMOVED DAILY.

3. WASTE DISPOSAL
THE CONTRACTOR SHALL DEMONSTRATE THE PROPER DISPOSAL OF ALL CONSTRUCTION WASTE GENERATED WITHIN THE PROJECT LIMITS. WASTE MAY INCLUDE, BUT NOT BE LIMITED TO, VEGETATION FROM CLEARING AND GRUBBING ACTIVITIES, PACKAGING MATERIALS, SCRAP BUILDING MATERIALS, LITTER FROM TRAVELING PUBLIC, SEWAGE FROM SANITARY FACILITIES, HERBICIDES AND PESTICIDES AND THEIR CONTAINERS, AND HYDROCARBON PRODUCTS. THE CONTRACTOR SHALL DESIGNATE A WASTE COLLECTION AREA ON SITE AND DELINEATE THE AREA ON THE SWPP SITE MAP. SANITARY/SEPTIC FACILITIES SHALL BE PROVIDED AND MAINTAINED IN A NEAT AND SANITARY CONDITION FOR THE USE OF THE CONTRACTOR'S EMPLOYEES, AS NECESSARY. TO COMPLY WITH THE REQUIREMENTS AND REGULATIONS OF THE STATE AND LOCAL BOARDS OF HEALTH, A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR AS REQUIRED BY STATE REGULATIONS WILL COLLECT ALL SANITARY WASTE FROM PORTABLE UNITS. THE CONTRACTOR WILL PROVIDE LETTER CONTROL AND COLLECTION WITHIN THE PROJECT LIMITS DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL PROVIDE AN ADEQUATE NUMBER OF LITTER CONTAINERS WITH LIDS AT THE STAGING, STOCKPILE, AND FIELD OFFICE AREAS. WASTE COLLECTION WILL BE SCHEDULED SO THAT CONTAINERS ARE EMPTIED PRIOR TO OVERFLOW. SPILLED LITTER CONTAINERS WILL BE CLEANED UP IMMEDIATELY.

4. FERTILIZERS AND PESTICIDES
THE APPLICATION AND HANDLING OF HERBICIDES AND PESTICIDES SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDED METHOD AND IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. HERBICIDES AND PESTICIDES SHALL BE STORED IN THEIR ORIGINAL CONTAINERS WITH PRODUCT LABEL INTACT.

5. TOXIC SUBSTANCES
THE CONTRACTOR SHALL PROVIDE EQUIPMENT NECESSARY TO CONTAIN AND CLEAN UP SPILLS OF HAZARDOUS MATERIALS, INCLUDING PETROLEUM PRODUCTS. SPILLS SHALL BE CONTAINED AND CLEANED UP IMMEDIATELY AFTER THEY OCCUR. SPILLED MATERIALS AND EQUIPMENT USED TO CLEAN UP THE SPILL SHALL NOT COME IN CONTACT WITH SURFACE WATERS OR BE INTRODUCED INTO STORM WATER. DISPOSAL OF SURPLUS PRODUCT WILL BE DONE ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS. THE CONTRACTOR SHALL PROVIDE A PROJECT SPECIFIC HAZARDOUS MATERIAL SPILL CONTROL PLAN IN ORDER TO ADDRESS THE HANDLING OF HYDROCARBON AND HAZARDOUS MATERIALS. PETROLEUM PRODUCTS SHALL BE STORED IN COVERED AREAS WITH SECONDARY CONTAINMENT SURROUNDING CONTAINERS. TOXIC/HAZARDOUS MATERIALS EXPOSED DURING CONSTRUCTION ACTIVITIES SHALL BE HANDLED AS PER THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

D. STOCKPILE AND STAGING AREAS
THE CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL FOR STOCKPILE AND STAGING AREAS THAT CONFORM TO NPDES REQUIREMENTS. ALL STOCKPILE AND STAGING AREAS MUST BE APPROVED AND COORDINATED WITH THE ENGINEER.

3. MAINTENANCE
THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIRS OF EROSION AND SEDIMENT CONTROL DEVICES AS PER SECTION 104 OF FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2017 AND EROSION CONTROL MATERIALS AS PER SECTION 981 OF FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2017. THE MAINTENANCE OF THESE DEVICES AND MATERIALS WILL OCCUR UNTIL THE PROJECT ENGINEER HAS DEEMED AN AREA PERMANENTLY STABILIZED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ONCE THEY HAVE SERVED THEIR PURPOSE. THE CONTRACTOR SHALL INSTALL AND MAINTAIN RAIN GAUGES ON THE PROJECT SITE, TO BE INCLUDED IN THE (PAY ITEM NUMBER: 101.1)
ALL DEVICES AND MATERIALS WILL BE MAINTAINED IN GOOD WORKING ORDER AND CONDITION. IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT. MAINTENANCE AND REPAIR REQUIRED FOR THE EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS SHALL BE INCLUDED IN RELATED PAY ITEMS (104-10-3), (104-11A), OR (104-15-1).

THE FOLLOWING PRACTICES WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROL DEVICES AND MATERIALS:
SYNTHETIC BALES WILL BE INSPECTED FOR BUILT-UP SEDIMENT, WASHOUTS, AND DETERIORATION. REPLACE THE BALES WHEN EITHER SEDIMENT REACHES ONE-THIRD THE HEIGHT OF THE BALES. THE BALES WILL BE IN PLACE NO LONGER THAN THREE MONTHS. REPAIRS MADE WILL BE INCLUDED IN THE COST OF SEDIMENT BARRIER (PAY ITEM NUMBER: 104-11A).
STAKED SILT FENCES WILL BE INSPECTED FOR BUILT-UP SEDIMENT, WASHOUTS, AND DETERIORATION. REMOVE SEDIMENT FROM SILT FENCE WHEN SEDIMENT REACHES ONE-THIRD THE HEIGHT OF THE STAKED SILT FENCE. REPLACE STAKED SILT FENCE IF IT WASHES OUT, OR BECOMES SO DETERIORATED THAT IT IS NO LONGER FUNCTIONING AS A BARRIER. STAKED SILT FENCES WILL BE IN PLACE NO LONGER THAN ONE YEAR. REPAIRS MADE WILL BE INCLUDED IN THE COST OF SEDIMENT BARRIER (PAY ITEM NUMBER: 104-11A).
SODDING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH. REPAIRS WILL BE MADE FOR BARE SPOTS AND WASHOUTS TO BE INCLUDED IN THE COST OF SODDING (PAY ITEM NUMBER: 570-1-2).

4. INSPECTIONS:
THE CONTRACTOR SHALL BE REQUIRED TO CONDUCT DAILY VISUAL INSPECTIONS OF ALL TEMPORARY AND PERMANENT STABILIZATION MEASURES ALONG THE PROJECT CORRIDOR. THE CONTRACTOR IS EXPECTED TO REPAIR AND/OR REPLACE THESE ITEMS AS NECESSARY.
THE CONTRACTOR SHALL HAVE AN INSPECTOR REVIEW THE PROJECT'S TEMPORARY AND PERMANENT EROSION CONTROL MEASURES FOR THE ITEMS LISTED BELOW AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND/OR WITHIN 24 HOURS OF THE END OF A STORM THAT DEPOSITS 0.5 INCHES OR MORE OF RAIN INTO ANY OF THE FOLLOWING:
1. POINTS OF DISCHARGE TO WATERS OF THE UNITED STATES
2. POINTS OF DISCHARGE TO MUNICIPAL SEPARATE STORM SEWER SYSTEMS
3. DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED
4. AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION
5. STRUCTURAL CONTROLS
6. STORM WATER MANAGEMENT SYSTEMS
7. LOCATIONS WHERE VEHICLES ENTER OR EXIT THIS SITE

THE CONTRACTOR SHALL INITIATE REPAIRS WITHIN 24 HOURS OF INSPECTIONS THAT INDICATE ITEMS ARE NOT IN GOOD WORKING ORDER.
WHERE INSPECTIONS INDICATE THAT THE INSTALLED STABILIZATION AND STRUCTURAL PRACTICES ARE NOT SUFFICIENT TO MINIMIZE EROSION, RETAIN SEDIMENT, AND PREVENT DISCHARGING POLLUTANTS, THE CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES, AS APPROVED BY THE ENGINEER. THE CONTRACTOR IS TO CEASE OPERATIONS IN THAT AREA UNTIL THE ADDITIONAL MEASURES ARE IN PLACE..

5. CONTRACTOR'S SUBMITTAL
FOR EACH MEASURE IDENTIFIED IN THE SWPPP, CONTRACTOR AND/OR SUBCONTRACTOR(S) THAT WILL IMPLEMENT THE MEASURE MUST SIGN A COPY OF THE CERTIFICATION STATEMENT, PRIOR TO CONDUCTING ANY CONSTRUCTION ACTIVITIES AT THE SITE.

SWPPP GENERAL NOTES

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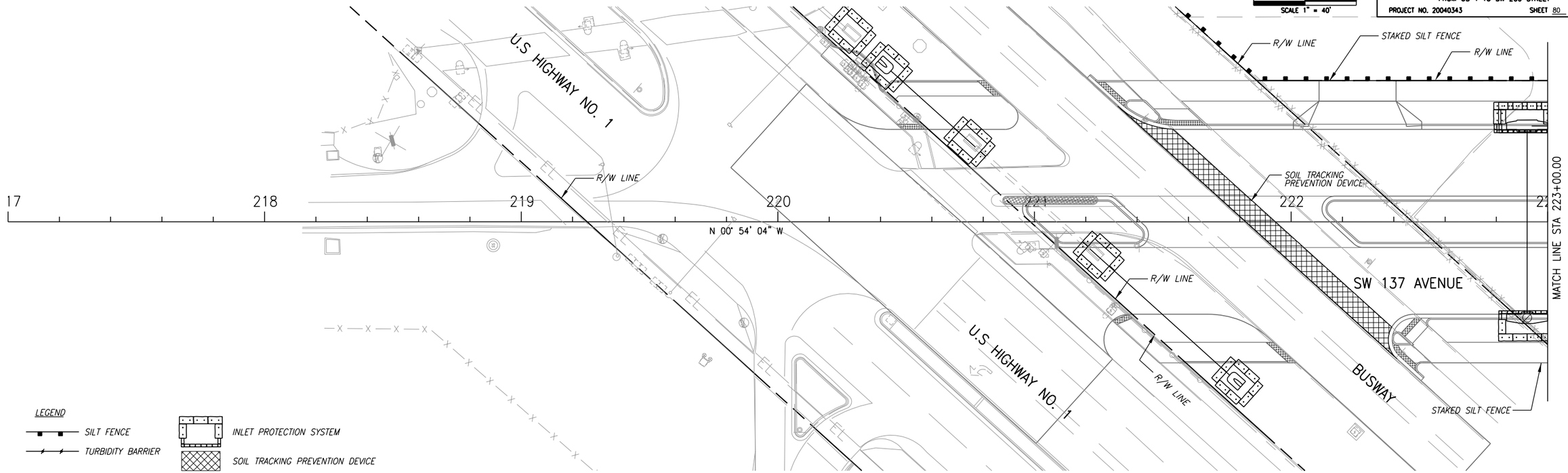
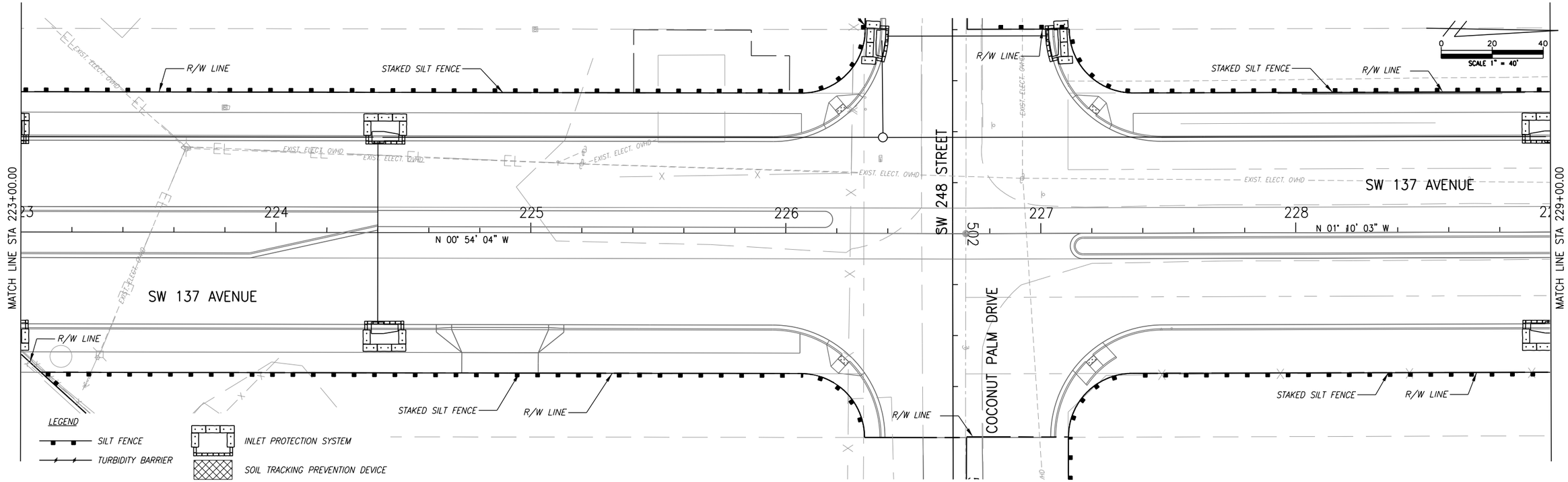
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET 80 OF 144

SCALE 1" = 40'





SCALE 1" = 40'

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STORM WATER POLLUTION PREVENTION PLAN

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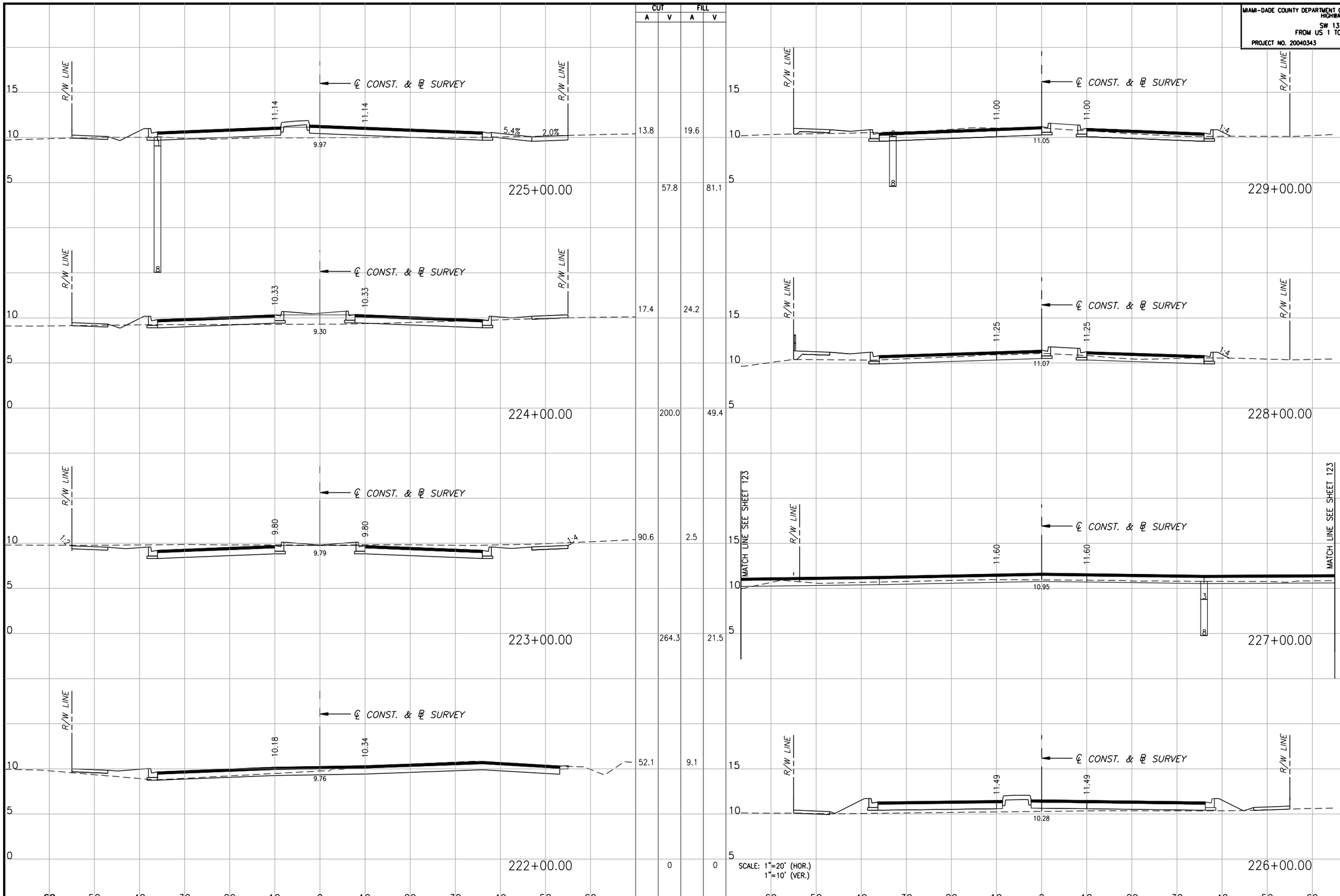

	CUT A	CUT V	FILL A	FILL V
225+00.00	13.8	57.8	19.6	81.1
224+00.00	17.4	200.0	24.2	49.4
223+00.00	90.6	264.3	2.5	21.5
222+00.00	52.1	0	9.1	0
229+00.00	54.5	164.3	10.5	50.2
228+00.00	34.2	131.9	16.6	45.2
227+00.00	37.0	69.4	7.8	85.4
226+00.00	0.5	26.5	38.3	107.2

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CROSS SECTIONS

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MAINTENANCE OF TRAFFIC GENERAL NOTES:

1. TRAFFIC CONTROLS SHALL BE IN ACCORDANCE WITH THE PROJECT PLANS, THE MIAMI-DADE COUNTY PUBLIC WORKS MANUAL AS PERTAINS TO MAINTENANCE OF TRAFFIC, THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS (600 SERIES), THE STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS MINIMUM CRITERIA.

2. TEMPORARY PAVEMENT SHALL CONSIST OF A MINIMUM OF 6 INCH LIMEROCK BASE, PRIME COAT AND 1-1/2 INCHES TYPE S ASPHALTIC CONCRETE. THE BASE LAYER SHALL BE PLACED OVER A FIRM, UNYIELDING, WELL-COMPACTED SUBGRADE. COST OF CONSTRUCTION AND REMOVAL OF TEMPORARY PAVEMENT TO BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

3. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ALL POTHOLES THAT DEVELOP WITHIN THE PROJECT LIMITS AND WILL MAINTAIN A SUPPLY OF COLD MIX ON THE PROJECT SITE TO EXPEDITE THOSE REPAIRS. COST OF REPAIR TO BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

4. NOTIFICATION OF LANE CLOSURES OR TEMPORARY DETOURS SHALL BE ACCOMPLISHED 14 WORKING DAYS PRIOR TO CLOSURE OR DETOUR BY COORDINATING WITH MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS AND MIAMI-DADE COUNTY TRAFFIC OPERATIONS.

5. THE CONTRACTOR SHALL NOTIFY LAW ENFORCEMENT AND FIRE PROTECTION SERVICES TWENTY-FOUR (24) HOURS IN ADVANCE OF A DETOUR IN ACCORDANCE WITH SECTION 336.07 OF THE FLORIDA STATUTES.

6. AT THE DISCRETION OF THE ENGINEER, IF A LANE CLOSURE CAUSES EXTENDED CONGESTION OR DELAY, THE CONTRACTOR SHALL BE DIRECTED TO REOPEN THE CLOSED LANE(S) UNTIL SUCH TIME THAT THE TRAFFIC FLOW HAS RETURNED TO AN ACCEPTABLE LEVEL.

7. THE TRAFFIC AND TRAVEL WAYS SHALL NOT BE ALTERED BY THE CONTRACTOR TO CREATE A WORK ZONE UNTIL ALL LABOR AND MATERIALS ARE AVAILABLE FOR THE CONSTRUCTION IN THAT AREA.

8 LANE CLOSURE SHALL OCCUR ONLY DURING NON-PEAK HOURS ON NONEVENT DAYS/NIGHTS. NO INTERRUPTION TO TRAFFIC IS PERMITTED FROM MONDAY-FRIDAY 7-9 A.M. AND 4-6 P.M. NO INTERRUPTION PERMITTED FROM 8 A.M. - 8 P.M. ON WEEKENDS AND HOLIDAYS.

9. REGULATORY SPEED ESTABLISHED WITHIN THE WORK ZONE TRAVEL WAYS SHALL NOT BE MORE THAN 10 M.P.H. REDUCED FROM POSTED SPEED AND REGULATORY SPEED SIGNS SHALL BE INSTALLED ON SEPARATE POSTS IN ACCORDANCE WITH THE STANDARD INDICES.

10. CONTRACTOR SHALL MAINTAIN ACCESS (IF EXISTING) TO PRIVATE PROPERTY DURING ALL PHASES OF CONSTRUCTION. LOCAL RESIDENTS WITHIN THE AREA OF CONSTRUCTION SHALL BE GIVEN ACCESS TO THEIR PROPERTY DURING ALL PHASES OF CONSTRUCTION. LOCAL RESIDENTS INCLUDE ALL COMMERCIAL ESTABLISHMENTS, BUSINESSES, AND HOMEOWNERS.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REMOVAL OF STORM WATER FROM ROADWAYS UTILIZED FOR MAINTAINING TRAFFIC IN A MANNER APPROVED BY THE ENGINEER. COST FOR REMOVING THE WATER SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

12. THE CONTRACTOR SHALL FURNISH AND MAINTAIN VARIABLE MESSAGE SIGNS IN ACCORDANCE WITH THE STANDARDS AND AS DIRECTED BY THE ENGINEER. MESSAGES FOR THE VMS SHALL BE AS DIRECTED BY THE ENGINEER. THE VMS SHALL BE IN PLACE TWO WEEKS BEFORE THE START OF WORK. TO BE INCLUDED IN THE PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

13. THE CONTRACTOR MUST PROVIDE A FLASHING ARROW BOARD FOR ANY LANE THAT IS CLOSED OR DIVERTED.

14. TRAFFIC SHALL BE MAINTAINED ON A PAVED, DUST FREE SURFACE AT ALL TIMES.

15. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING EROSION CONTROL MEASURES TO PREVENT SEDIMENT FROM ENTERING EXISTING AND PROPOSED DRAINAGE STRUCTURES AND SEDIMENT INTRUSION ON WATERWAYS DURING CONSTRUCTION. THESE MEASURES SHALL BE APPROVED BY THE ENGINEER AND CONFORM TO THE CURRENT EDITION OF THE FDOT DESIGN STANDARDS FOR EROSION CONTROL (100 SERIES).

16. CONTRACTOR MUST MAINTAIN DRAINAGE AT ALL TIMES. THE EXISTING DRAINAGE SYSTEM SHALL BE KEPT OPERATIONAL OR TEMPORARY DRAINAGE PROVIDED WHILE THE PROPOSED DRAINAGE SYSTEM IS BEING CONSTRUCTED. THE CONTRACTOR SHALL PROVIDE THE NECESSARY TEMPORARY DRAINAGE AS APPROVED BY THE ENGINEER. ALL COSTS SHALL BE INCLUDED IN THE PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

17. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ROADWAY LIGHTING ILLUMINATION LEVELS DURING CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN EXISTING LIGHTING OR SUPPLY TEMPORARY LIGHTING UNTIL THE PROPOSED SYSTEM IS IN OPERATION. THE CONTRACTOR SHALL SUBMIT A COMPLETE PROPOSED METHOD OF MAINTAINING LIGHTING FOR APPROVAL BY COUNTY ENGINEER PRIOR TO BEGINNING WORK. REFER TO ROADWAY LIGHTING PLANS AND OTHER APPLICABLE DRAWINGS FOR INFORMATION ON EXISTING AND PROPOSED ROADWAY LIGHTING AND DETAIL OF ROADWAY CONSTRUCTION. IF ANY PART OF THE SYSTEM IS OWNED BY F.P.&L., COORDINATE CLOSELY WITH F.P.&L.

18. FOR THE US-1 AND SW 137TH AVENUE INTERSECTION, WORK SHALL BE DONE DURING NIGHTTIME HOURS FROM 9:00 PM TO 5:30AM.

19. TEMPORARY LIGHTING SHALL BE PROVIDED AT ALL FLAGGER STATIONS USED DURING NIGHTTIME HOURS. △1

SIGNING AND MARKINGS:

1. ALL TEMPORARY SIGNS, PAVEMENT MARKING, TRAFFIC CONTROL DEVICES AND ATTENUATORS SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC WHEN SEPARATE PAY ITEM DOES NOT EXIST.

2. SIGNS ARE TO BE LOCATED BEFORE EACH BUSINESS OR SHOPPING PLAZA ENTRANCE WHERE CONSTRUCTION NEGATIVELY IMPACTS THE ACCESS TO THE BUSINESS OR AS DIRECTED BY THE ENGINEER TWO SIGNS WILL TYPICALLY BE REQUIRED AT EACH ENTRANCE. SIGNS ARE TO BE DISPLAYED AS DESCRIBED IN INDEX 600 OF THE ROADWAY AND TRAFFIC DESIGN STANDARDS.

3. AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL COVER WORK ZONE SIGNS WHEN CONDITIONS NO LONGER WARRANT THEIR USE. COST OF COVERING AND UNCOVERING THE SIGNS SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL REMOVE, RELOCATE, OR COVER ANY EXISTING OR PROPOSED SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLANS. WHEN THE CONFLICT NO LONGER EXISTS, THE CONTRACTOR SHALL RESTORE THE SIGNS TO THEIR ORIGINAL POSITION. COST OF TEMPORARILY REMOVING, RELOCATING, COVERING, AND RESTORING THE SIGNS SHALL BE INCLUDED IN THE PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

5. EACH EXISTING STREET NAME AND TRAFFIC SIGN AFFECTED BY CONSTRUCTION SHALL BE RELOCATED AND MAINTAINED IN AN APPROPRIATE LOCATION FOR THE DURATION OF THE PROJECT. WHEN NO LONGER AFFECTED BY CONSTRUCTION, THESE SIGNS SHALL BE RESTORED IN THEIR ORIGINAL POSITION. COST OF TEMPORARILY RELOCATING AND RESTORING THE SIGNS SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

6. DURING ASPHALT CONSTRUCTION OPERATIONS, NO MORE THAN 1-1/4" DROP-OFF BETWEEN ADJACENT TRAVEL LANES OR AT TRANSVERSE JOINTS SHALL BE ALLOWED WHEN LANES ARE OPEN TO TRAFFIC. WHERE DROP OFF CONDITIONS EXIST, THE SIGNING FOR UNEVEN PAVEMENT SHALL BE INSTALLED FOR THE DURATION OF THE CONDITION (W8-9AP).

7. THE CONTRACTOR IS TO PLACE TEMPORARY OR REMOVABLE PAVEMENT MARKINGS BETWEEN EACH LAYER OF PAVEMENT, AND IS RESPONSIBLE FOR THE TEMPORARY RELOCATION OF STOP BARS & STOP SIGNS AS APPLICABLE. PAVEMENT MARKINGS AND BARRICADE PLACEMENT SHALL BE APPROPRIATELY COORDINATED.

8. THE CONTRACTOR SHALL REMOVE ANY EXISTING OR TEMPORARY PAVEMENT MARKINGS THAT CONFLICT WITH THE TRAFFIC CONTROL PLANS. COST OF REMOVAL OF TEMPORARY PAVEMENT MARKINGS, REGARDLESS OF METHOD, IS INCLUDED IN THE MAINTENANCE OF TRAFFIC PAY ITEMS. USE OF BLACK PAINT TO COVER EXISTING AND/OR TEMPORARY PAVEMENT MARKINGS IS PROHIBITED.

9. TEMPORARY LANE TRANSITIONS, SHIFTS, AND CROSSOVERS SHALL HAVE SOLID LANE AND EDGE LINES FOR THE LENGTH OF THE TRANSITION, SHIFT OR CROSSOVER. IN ADDITION, SOLID LANE AND EDGE LINES SHALL EXTEND 100 FT. ON THE TANGENT SECTION BEYOND EACH END OF THESE CROSSOVERS OR TRANSITION AREAS. COST OF THE TEMPORARY RPMS SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

10. TEMPORARY RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED ON THE EDGE, CENTER, AND LANE LINES OF ALL CROSS-OVERS, TRANSITIONS, AND TANGENT SECTIONS WITHIN THE WORK ZONE WHERE THE VEHICLE PATHS ARE ALTERED. THE SPACING FOR THESE RPMS SHALL BE 40 FT. ON CENTERS FOR TANGENT SECTIONS AND 5 FT FOR TRANSITIONS, CURVES, AND CROSSOVERS. THE RPMS SHALL EXTEND 100 FT. ON THE TANGENT SECTION BEYOND EACH END OF THESE CROSSOVERS OR TRANSITION AREAS. COST OF THE TEMPORARY RPMS SHALL BE INCLUDED IN THE PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

SIGNALS:

1. CONTRACTOR SHALL NOTIFY MIAMI-DADE COUNTY TRAFFIC SIGNS AND SIGNALS DIVISION LOCATED AT 7100 NW 36 STREET, MIAMI, FLORIDA 33166 AND PHONE NO. (305) 592-8925, 48 HOURS PRIOR TO ANY MODIFICATION OF AN EXISTING TRAFFIC SIGNAL SYSTEM. THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR THE MAINTENANCE OF THE EXISTING OR TEMPORARY TRAFFIC SIGNAL(S) WITHIN THE PROJECT LIMITS. COST OF RELOCATING TRAFFIC SIGNAL HEADS, PROVIDING AND REMOVING TEMPORARY SIGNALS, AND MAINTAINING THE EXISTING TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

2. THE PROPOSED SIGNALS SHALL BE INSTALLED AND OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING SYSTEM AND SHALL BE ADJUSTED TO THE TRAFFIC NEEDS FOR EACH CONSTRUCTION PHASE.

3. THE CONTRACTOR SHALL MAINTAIN ON-LINE COMMUNICATION OF EXISTING OR TEMPORARY SIGNALIZATION VIA INTERCONNECT OR PHONE LINE CONSTRUCTION. CONTRACTORS SHALL PROVIDE TEMPORARY LINES AND CONNECTIONS IF NECESSARY. COST OF MAINTAINING COMMUNICATION, INCLUDING TEMPORARY LINES AND CONNECTIONS SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

INTERSECTIONS:

1. INTERSECTIONS TO BE RECONSTRUCTED SHALL BE CONSTRUCTED BY WORKING ON A CONTINUOUS DAILY BASIS UNTIL COMPLETE AND UNTIL STRUCTURAL COURSE IS IN PLACE.

2. ADJACENT INTERSECTIONS SHALL NOT BE CONSTRUCTED SIMULTANEOUSLY UNLESS DIRECTED BY THE ENGINEER. FOR EVERY BLOCK, CONSTRUCTION OF DRAINAGE AND SIDEWALK SHALL BE CONCURRENT WITH ROADWAY CONSTRUCTION.

3. AT ALL INTERSECTING STREETS, NO LESS THAN ONE (ROAD CONSTRUCTION AHEAD) SIGN AND ONE (END CONSTRUCTION) SIGN MUST BE INSTALLED. (TWO EACH FOR STREETS WITH MEDIAN.)

4. MOT TRANSITIONS AND TEMPORARY INTERSECTION CROSSOVERS WHERE CONSTRUCTION HAS CAUSED GRADE DIFFERENCES BETWEEN THE EXISTING AND NEW ROADWAYS SHALL BE CONSTRUCTED USING A 1:20 TYPE S ASPHALT CONCRETE SLOPE TO ACCOMMODATE VEHICULAR TRAFFIC FROM ANY DIRECTION. ALL MATERIAL, WORK, INCLUDING ITS REMOVAL, SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

5. PAVED TEMPORARY CONNECTIONS SHALL BE PROVIDED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

PEDESTRIANS, BICYCLES AND WHEELCHAIRS

1. AT THE END OF EACH WORK DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE, ANY DROP OFF GREATER THAN 6 INCHES (150 MM) ADJACENT TO THE PEDESTRIAN, BICYCLE, AND WHEELCHAIR TRAVEL PATHS SHALL BE BACKFILLED FLUSH WITH SAID PATHS OR PROTECTED WITH TEMPORARY FENCE, CONCRETE BARRIER WALL OR APPROVED HANDRAIL. COST SHALL BE INCLUDED IN THE PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

2. EXISTING PEDESTRIAN, BICYCLE, AND WHEELCHAIR TRAFFIC SHALL BE MAINTAINED AND GUIDED USING APPROVED WARNING LIGHTS, SIGNING, AND DELINEATION DEVICES ON AT LEAST ONE SIDE OF THE PROJECT AT ALL TIMES THROUGHOUT THE PROJECT LIMITS. THE TRAVEL PATH SHALL BE A MINIMUM OF 4 FT. WIDE WITH A SMOOTH SURFACE THAT IS NOT SLICK AND IT SHOULD BE RAMPED AS NECESSARY FOR CONTINUITY. COST SHALL BE INCLUDED IN THE PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
7/16/20	CM	△1 ADDED NOTES FOR FDOT PERMIT.						

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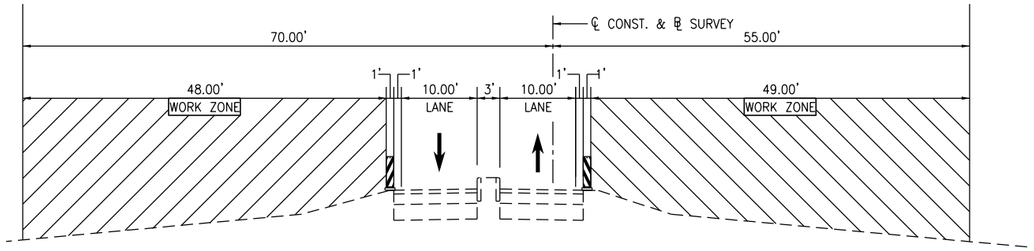
	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

MAINTENANCE OF TRAFFIC GENERAL NOTES

PHASE IA

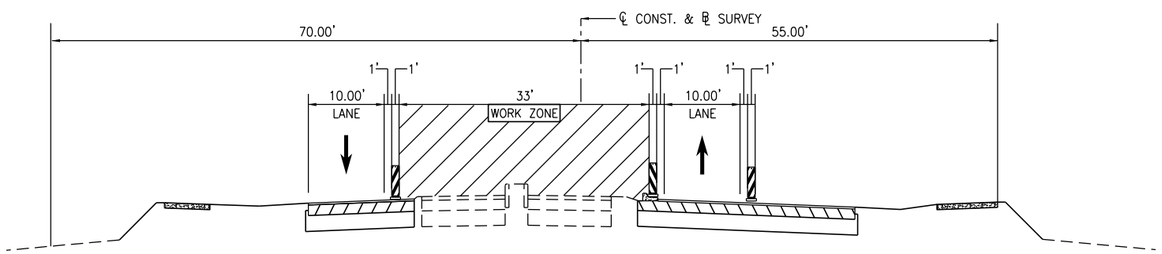


SW 137 AVENUE
STA. 220+05.98 TO STA. 221+82.26

PHASE IA : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 601, 602, 603, 612, 613, 615, AND 616.
2. CLOSE SIDEWALKS IN ACCORDANCE WITH FDOT STANDARD INDEX 660. SIDEWALK CLOSURES SHALL BE ACCOMPANIED BY A PEDESTRIAN DETOUR ROUTE INCLUDING "SIDEWALK CLOSED AHEAD CROSS HERE" SIGN AT A CROSSWALK. SIDEWALK CLOSURES SHALL NOT OCCUR CONCURRENTLY AT CONSECUTIVE INTERSECTIONS.
3. CONSTRUCT WIDENING, CURB & GUTTER, UTILITY ADJUSTMENTS, INSTALL DRAINAGE, INSTALL SIGNALS, INSTALL LIGHTING, AND OTHER IMPROVEMENTS ON SW 137 AVENUE. IN WIDENING AREAS CONSTRUCT STABILIZATION, BASE, AND STRUCTURAL COURSE ONLY (FRICTION COURSE WILL BE PLACED IN LATER PHASE).

PHASE IB



SW 137 AVENUE
STA. 220+05.98 TO STA. 221+82.26

PHASE IB : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 601, 602, 603, 613, 615, 616, AND 617.
2. MAINTAIN SIDEWALK CLOSURES IN ACCORDANCE WITH FDOT STANDARD INDEX 660. SIDEWALK CLOSURES SHALL BE ACCOMPANIED BY A PEDESTRIAN DETOUR ROUTE INCLUDING "SIDEWALK CLOSED AHEAD CROSS HERE" SIGN AT A CROSSWALK. SIDEWALK CLOSURES SHALL NOT OCCUR CONCURRENTLY AT CONSECUTIVE INTERSECTIONS.
3. CONSTRUCT WIDENING, CURB AND GUTTER, MEDIAN, INSTALL DRAINAGE, AND OTHER IMPROVEMENTS ON SW 137 AVENUE. IN WIDENING AREAS CONSTRUCT STABILIZATION, BASE, AND STRUCTURAL COURSE ONLY (FRICTION COURSE WILL BE PLACED IN LATER PHASE).

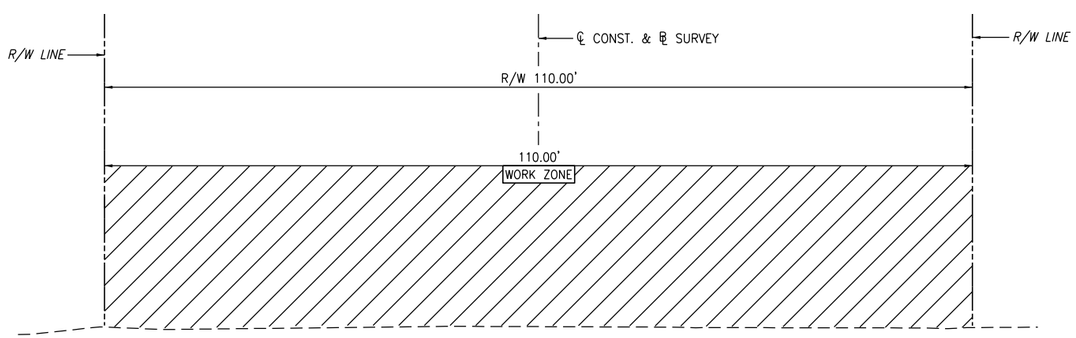
PHASE II : MILLING AND RESURFACING

DURING OFF-PEAK HOURS MAINTAIN TRAFFIC LANES IN ACCORDANCE WITH FDOT STANDARD INDEX 613, 615, AND 616. MILL BUSWAY AND SW 137 AVENUE, PLACE FRICTION COURSE IN MILLED AND WIDENENED AREAS, AND PLACE TEMPORARY MARKINGS IN FINAL ALIGNMENT. (TYPICAL SECTION NOT SHOWN)

PHASE III : PAVEMENT MARKINGS

APPLY FINAL PAVEMENT MARKINGS UTILIZING FDOT STANDARD INDEX 619 (TYPICAL SECTION NOT SHOWN).

PHASE I



SW 137 AVENUE
STA. 221+82.26 TO STA. 226+53.27

PHASE I : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 601, 602, 603, 604, AND 605.
2. CONSTRUCT ROADWAY, CURB AND GUTTER, SIDEWALK, UTILITY ADJUSTMENTS, INSTALL DRAINAGE, INSTALL SIGNALS, INSTALL LIGHTING AND OTHER IMPROVEMENTS ON SW 137 AVENUE.

PHASE II : PAVEMENT MARKINGS

APPLY FINAL PAVEMENT MARKINGS UTILIZING FDOT STANDARD INDEX 619 (TYPICAL SECTION NOT SHOWN).

LEGEND

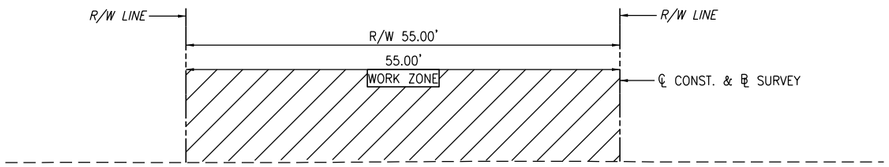
CHANNELIZATION DEVICE

WORK ZONE

TRAFFIC CONTROL
TYPICAL SECTION

7/17/2020 9:42:46 AM SConnor

PHASE I

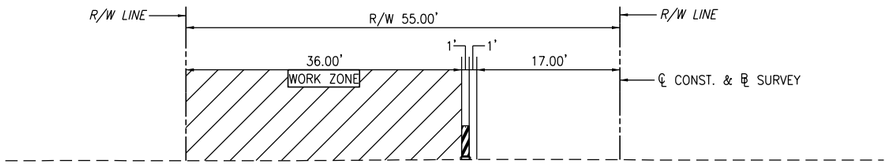


SW 137 AVENUE
STA. 253+58.00 TO STA. 387+41.00

PHASE I : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC ON INTERSECTING STREETS IN ACCORDANCE WITH FDOT STANDARD INDEX, 603, 604, AND 605.
2. ALL WORK FROM STA. 253+58.00 TO STA. 387+41.00 SHALL BE CONSTRUCTED IN ONE PHASE EXCEPT FOR THE LOCATIONS SHOWN IN FOLLOWING TYPICALS.
3. COORDINATE DRIVEWAY ACCESS WITH OWNERS THROUGH THE ENGINEER WHERE PROPOSED CONSTRUCTION IMPACTS PROPERTY ACCESS.

PHASE IA

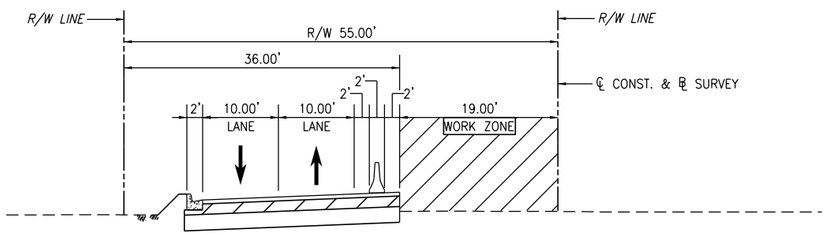


SW 137 AVENUE
STA. 317+20.00 TO STA. 334+80.00
STA. 381+00.00 TO STA. 387+41.00

PHASE IA : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 603, 604, AND 605.
2. CONSTRUCT ROADWAY, CURB AND GUTTER, SIDEWALK, UTILITY ADJUSTMENTS, INSTALL DRAINAGE, INSTALL LIGHTING AND OTHER IMPROVEMENTS IN WORK ZONE AREA.
3. COORDINATE DRIVEWAY ACCESS WITH OWNERS THROUGH THE ENGINEER WHERE PROPOSED CONSTRUCTION IMPACTS PROPERTY ACCESS.

PHASE IB



SW 137 AVENUE
STA. 317+20.00 TO STA. 334+80.00
STA. 378+62.48 TO STA. 387+41.00

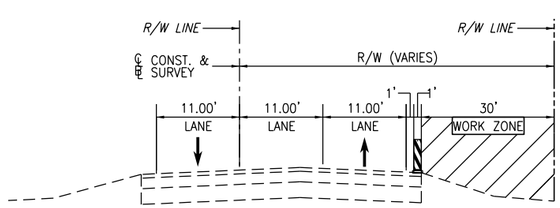
PHASE IB : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 603, 604, AND 605.
2. CONSTRUCT ROADWAY, CURB AND GUTTER, SIDEWALK, UTILITY ADJUSTMENTS, INSTALL DRAINAGE, AND OTHER IMPROVEMENTS IN WORK ZONE AREA.
3. COORDINATE DRIVEWAY ACCESS WITH OWNERS THROUGH THE ENGINEER WHERE PROPOSED CONSTRUCTION IMPACTS PROPERTY ACCESS.

PHASE II : PAVEMENT MARKINGS

APPLY FINAL PAVEMENT MARKINGS UTILIZING FDOT STANDARD INDEX 619
(TYPICAL SECTION NOT SHOWN).

PHASE I

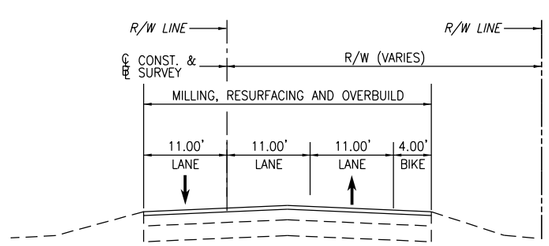


SW 137 AVENUE
STA. 387+41.00 TO STA. 393+00.00

PHASE I : NEW CONSTRUCTION ON SW 137 AVENUE

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 602, 603, 604, AND 606.
2. CONSTRUCT , CURB AND GUTTER, UTILITY ADJUSTMENTS, INSTALL SIGNALS, AND OTHER IMPROVEMENTS IN WORK ZONE AREA.
3. COORDINATE DRIVEWAY ACCESS WITH OWNERS THROUGH THE ENGINEER WHERE PROPOSED CONSTRUCTION IMPACTS PROPERTY ACCESS.

PHASE II



SW 137 AVENUE
STA. 387+41.00 TO STA. 393+00.00

PHASE II : MILLING, RESURFACING, AND OVERBUILD ON SW 137 AVENUE.

1. MAINTAIN VEHICULAR TRAFFIC IN ACCORDANCE WITH FDOT STANDARD INDEX 603, 604, AND 605.
2. MILL AND RESURFACE ONE LANE AT A TIME. BIKE LANE MAY BE MILLED AND RESURFACED CONCURRENTLY WITH OUTSIDE LANE.
3. PLACE TEMPORARY PAVEMENT MARKINGS AFTER EXISTING MARKINGS ARE REMOVED.

PHASE III : PAVEMENT MARKINGS.

APPLY FINAL PLACEMENT MARKINGS UTILIZING FDOT STANDARD INDEX 619. (TYPICAL SECTION NOT SHOWN)

LEGEND

- CHANNELIZATION DEVICE
- CONCRETE BARRIER
- WORK ZONE

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
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CA 27017
CHRISTOPHER P. MESZLER, P.E.
Llc. No. 74718

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

TRAFFIC CONTROL
TYPICAL SECTION

7/17/2020 9:42:46 AM SConnor

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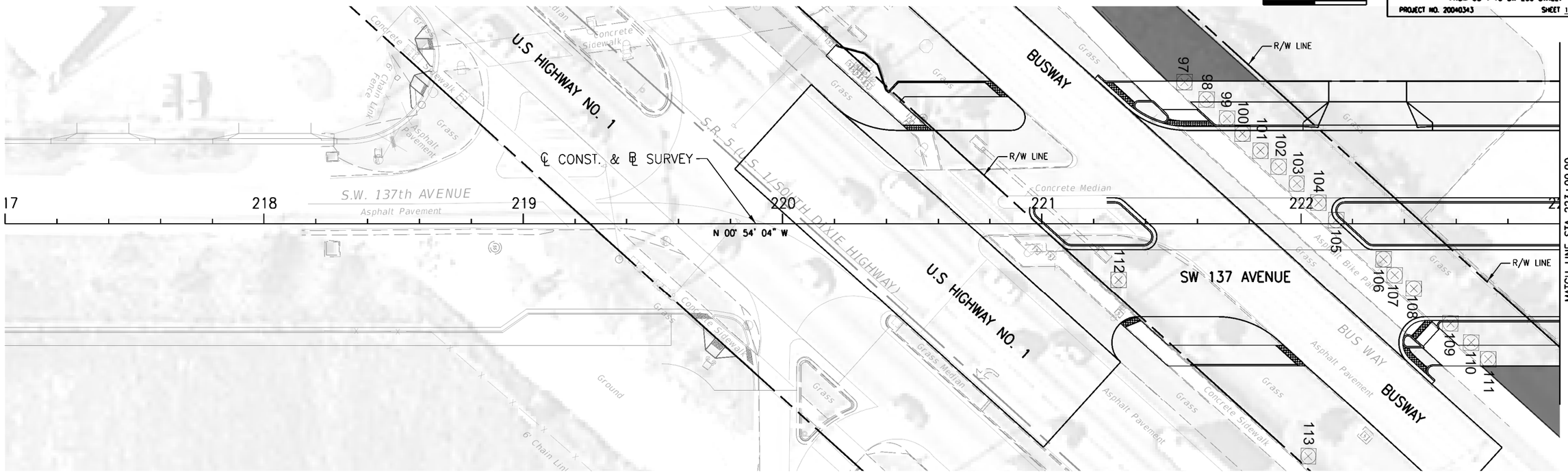
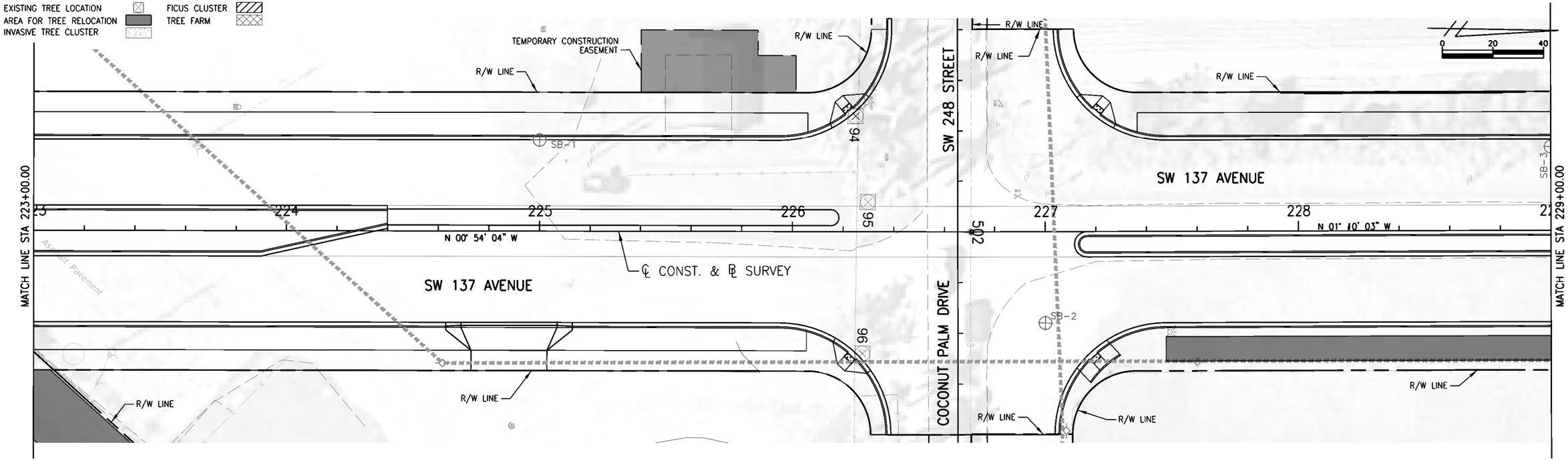


LEGEND:

EXISTING TREE LOCATION
AREA FOR TREE RELOCATION
INVASIVE TREE CLUSTER
FICUS CLUSTER
TREE FARM



REVISIONS								
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CHECKED BY		CHECKED BY		
SUPERVISED BY:				

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

TREE INVENTORY PLAN

7/17/2020 9:43:09 AM SConnor

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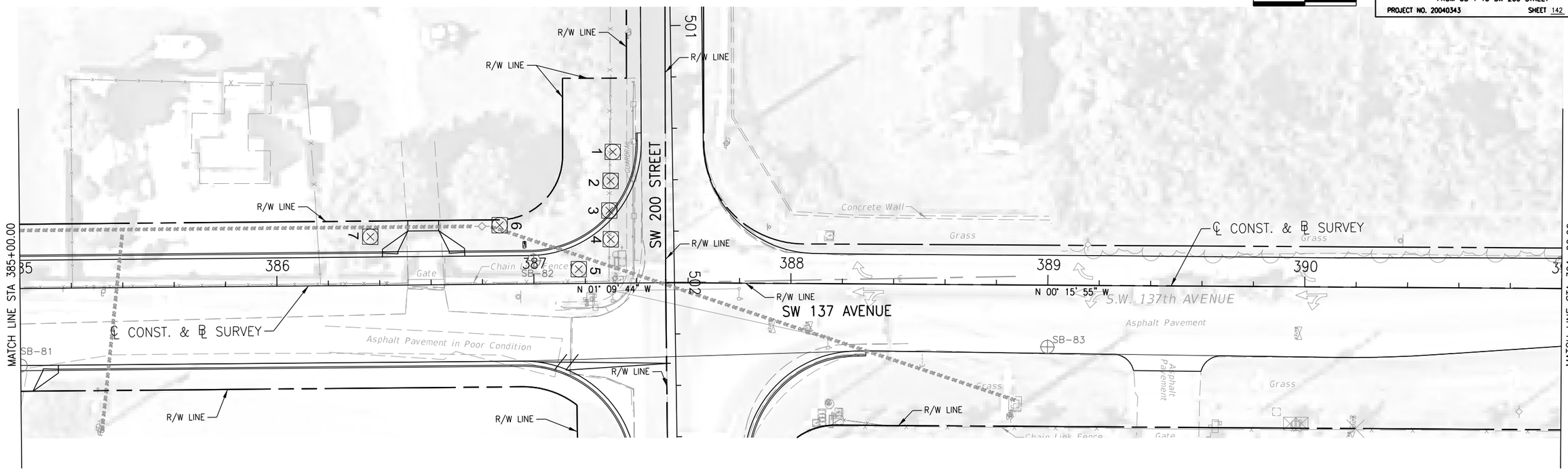
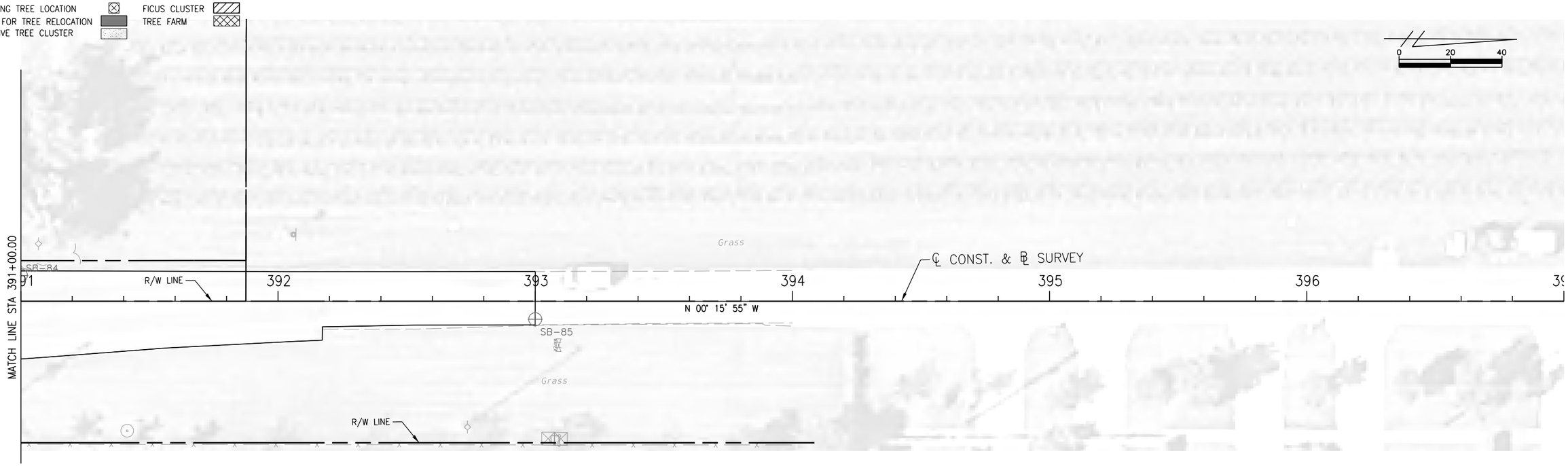
7/17/2020 9:43:43 AM SConnor

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET 142 OF 144



LEGEND:

EXISTING TREE LOCATION
AREA FOR TREE RELOCATION
INVASIVE TREE CLUSTER
FICUS CLUSTER
TREE FARM



REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

TREE INVENTORY PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

7/17/2020 9:43:43 AM SConnor

GENERAL NOTES

1. ALL SIGNING AND PAVEMENT MARKINGS SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS.

2. ALL EXISTING SIGNS ARE TO REMAIN UNLESS OTHERWISE SPECIFIED. BEFORE STARTING THE PROJECT, THE CONTRACTOR SHALL REVIEW EXISTING SIGNS SHOWN ON THE PLANS TO BE RELOCATED OR TO REMAIN. THE CONTRACTOR SHALL DOCUMENT THE REVIEW AND PROVIDE AN INVENTORY TO THE ENGINEER. THE CONTRACTOR WILL NOTIFY IN WRITING TO THE PROJECT ENGINEER OF ANY MISSING SIGNS BEFORE CONSTRUCTION STARTS. SIGNS DAMAGED BY THE CONTRACTOR'S OPERATIONS WILL BE REPLACED AT NO COST TO THE DEPARTMENT. IF EXISTING SIGNS TO BE RELOCATED HAVE A DAMAGED POLE OR A POLE NOT MEETING HEIGHT SPECIFICATION REQUIREMENTS, THE COST OF A NEW POLE WILL BE INCLUDED IN THE RELOCATION BID ITEM 700-46-21A.

3. THE CONTRACTOR SHALL RELOCATE ALL EXISTING POST-MOUNTED STREET NAME AND STOP SIGNS TO A VISIBLE AREA UNDISTURBED BY THE CONSTRUCTION SO AS TO MINIMIZE DAMAGE TO THE SIGNS. NEW STREET NAME SIGNS WILL BE ATTACHED AT THE TOP OF THE NEW STOP SIGNS ON MINOR SIDE STREETS AT THE END OF CONSTRUCTION.

4. EXTRUDED ALUMINUM SIGN SUPPORT CLAMPS ARE NOT ACCEPTABLE. ALL RELOCATED SIGNS MUST COMPLY WITH THE DESIGN STANDARDS AS IF THEY WERE NEW SIGNS. IF EXISTING CLAMPS, BRACKETS, POLES, ETC. NEED TO BE REPLACED THE COST SHALL BE INCLUDED IN THE RELOCATION PAY ITEM 700-46-21A.

5. SIGN ASSEMBLY LOCATIONS SHOWN ON PLANS WHICH ARE IN CONFLICT WITH LIGHTING, UTILITIES, DRIVEWAYS, WHEELCHAIR RAMPS, ETC. MAY BE ADJUSTED SLIGHTLY AS DIRECTED BY THE ENGINEER. EXTREME LOCATION CHANGES MUST BE APPROVED BY THE ENGINEER AND MIAMI-DADE SIGNALS AND SIGNS DIVISION.

6. ANY SIGNING MATERIALS, INCLUDING SUPPORTS, TO BE REMOVED AS NOTED ON PLAN SHEETS, SHALL BE DELIVERED BY THE CONTRACTOR IN EXISTING CONDITION, IN CARE OF THE STOREKEEPER AT THE MIAMI-DADE COUNTY MAINTENANCE YARD, 7100 NW 36 STREET, MIAMI, FL 33166.

7. ALL CROSSWALKS SHALL BE 10' WIDE UNLESS OTHERWISE NOTED IN THE PLAN.

8. ALL FINAL PAVEMENT MARKINGS, MESSAGES, AND ARROWS SHALL BE THERMOPLASTIC UNLESS OTHERWISE NOTED.

9. BICYCLIST SYMBOLS, BIKE LANE ARROWS, AND 24" LONGITUDINAL BARS IN SPECIAL EMPHASIS CROSSWALKS SHALL BE PREFORMED THERMOPLASTIC.

10. BIKE LANE GREEN COLORED BACKGROUND SHALL BE THERMOPLASTIC BIKE LANE GREEN AS APPOINTED BY FHWA.

11. REFLECTIVE PAVEMENT MARKERS ARE TO BE PLACED ALONG THE ENTIRE LENGTH OF THE PROJECT PER FDOT STANDARD INDEX NO 17352.

12. MATCH EXISTING PAVEMENT MARKINGS AT THE BEGINNING AND AT THE END OF THE PROJECT AND AT ALL SIDE STREETS WITHOUT JOGS OR OFFSETS.

13. THE CONTRACTOR SHALL REMOVE EXISTING MARKINGS BY APPROVED METHOD WITHOUT DAMAGE TO THE FRICTION COURSE IF REMOVAL IS NECESSARY OUTSIDE OF MILLING AND RESURFACING AREA.

14. INCORRECTLY PLACED THERMOPLASTIC OR PAINT MARKINGS OVER FRICTION COURSE WILL BE REMOVED BY MILLING AND REPLACING THE FRICTION COURSE A MINIMUM WIDTH OF 18 IN AT THE CONTRACTOR'S EXPENSE. THE ENGINEER MAY APPROVE AN ALTERNATIVE METHOD IF IT CAN BE DEMONSTRATED TO COMPLETELY REMOVE THE MARKINGS WITHOUT DAMAGING THE ASPHALT.

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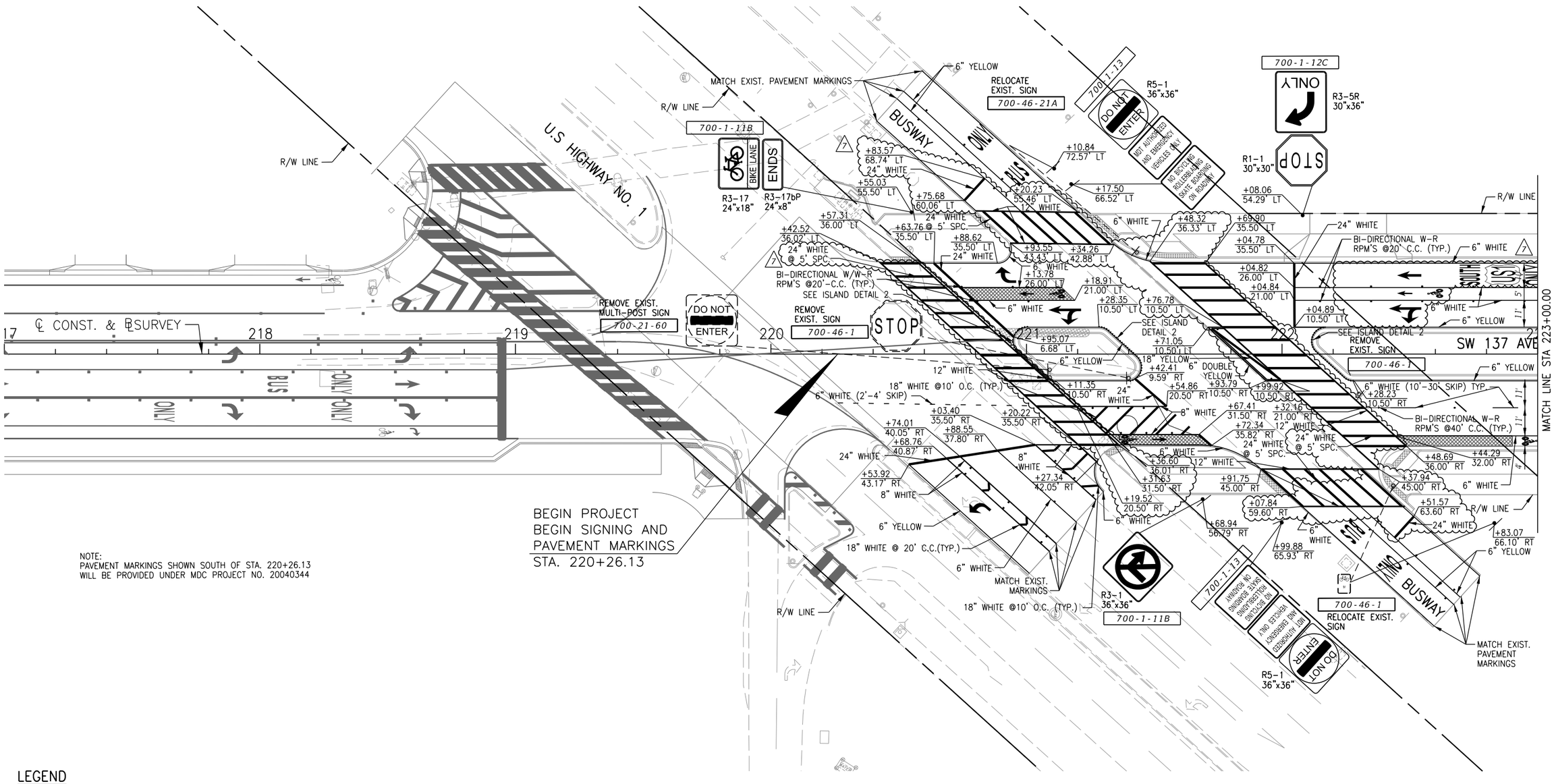
7/17/2020 9:43:48 AM SConnor

0 20 40
SCALE 1"=40'

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET S-8 OF S-41



NOTE:
PAVEMENT MARKINGS SHOWN SOUTH OF STA. 220+26.13 WILL BE PROVIDED UNDER MDC PROJECT NO. 20040344

LEGEND

GREEN COLORED BACKGROUND

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
07/16/20	CM	△1 REVISED MARKINGS FOR FDOT PERMIT						

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Lic. No. 74718

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

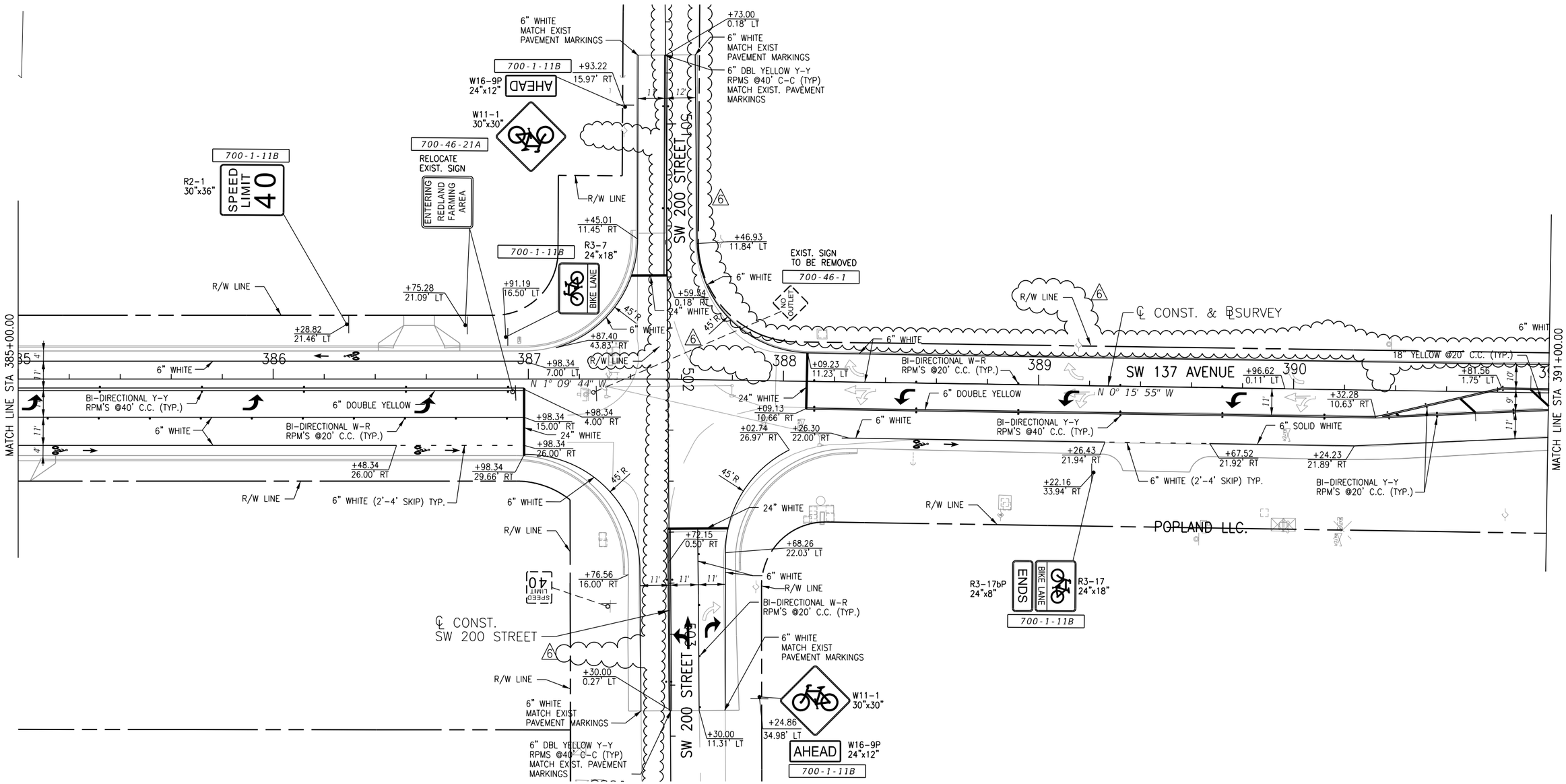
MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

SIGNING AND PAVEMENT MARKING PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

SConnor 9:43:50 AM 7/17/2020

0 20 40
SCALE 1"=40'



REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
03/24/20	CM	1 REVISED R/W LINE						
07/16/20	CM	2 REVISED MARKINGS FOR FDOT PERMIT						

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SIGNING AND PAVEMENT MARKING PLAN

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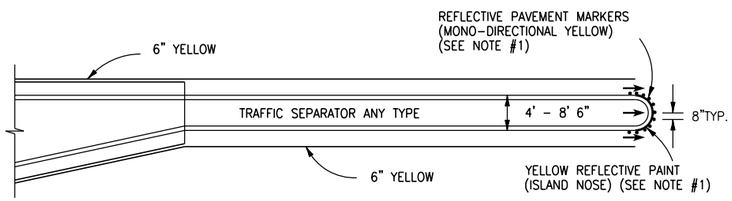
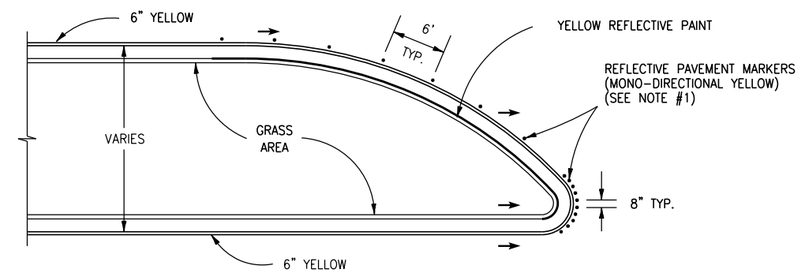
7/17/2020 9:43:50 AM SConnor

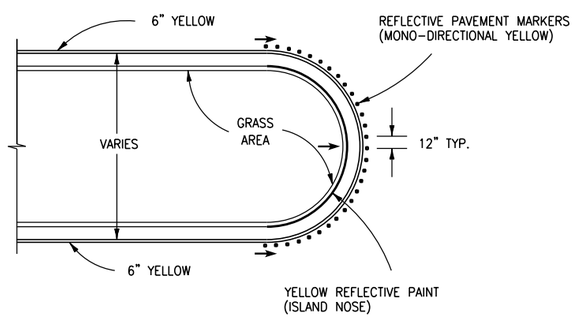
→ INDICATES ORIENTATION OF RPM'S.



DETAIL 1

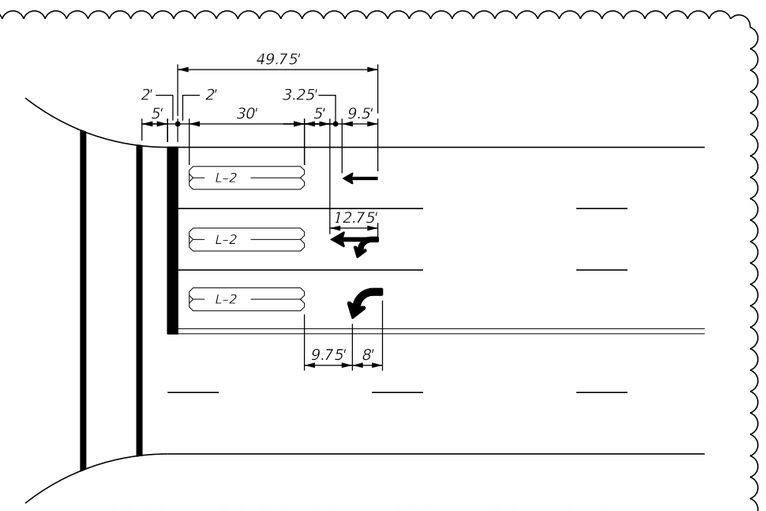


DETAIL 5



DETAIL 7

7



LOCATION OF PAVEMENT ARROW, STOP BAR AND LOOPS AT SIGNALIZED INTERSECTIONS

(NOTE: PAVEMENT ARROWS SHALL NOT OVERLAP LOOPS)
(N.T.S.)

NOTES:

1. FURNISH AND INSTALL REFLECTIVE PAINT ON THE FACE OF CURB FOR THE LIMITS SHOWN IN THE ABOVE DETAILS.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
2/27/20	CM	7 REMOVED LOOP DETAIL						
7/16/20	CM	7 ADDED LOOP DETAIL FOR FDOT PERMIT						

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Miami, Florida 33155
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CHRISTOPHER P. MESZLER, P.E.
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DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

SIGNING AND PAVEMENT MARKING DETAILS

SIGNALIZATION GENERAL NOTES

1. THE CONTRACTOR SHALL PERFORM AN INVENTORY OF THE EXISTING INTERSECTIONS PRIOR TO THE BEGINNING OF CONSTRUCTION ACTIVITIES, AND SUBMIT (2) COPIES OF THE INVENTORY REPORT, LISTING ALL OPERABLE AND INOPERABLE SIGNAL ITEMS (INCLUDING BUT NOT LIMITED TO SIGNS ON SIGNAL STRUCTURES) TO THE ENGINEER. ALL DAMAGED ITEMS SHOULD BE CLEARLY IDENTIFIED IN THE REPORT.

2. INTERCONNECT CONDUIT AT CROSSING INTERSECTIONS OR CORRIDORS SHALL BE TIED INTO THE CONTROLLER CABINETS.

3. THE CONTRACTOR SHALL USE LIGHT EMITTING DIODE (LED) FOR THE RED, YELLOW AND GREEN INDICATIONS AND INTERNALLY ILLUMINATED STREET NAME SIGNS ON MAST ARMS. THE INTERNALLY ILLUMINATED SIGNS MUST BE APPROVED BY THE ENGINEER AND CONCURRED WITH MIAMI-DADE COUNTY.

4. THE SIGNAL MAINTAINING AGENCY IS MIAMI DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS (DTPW) TRAFFIC SIGNALS & SIGNS DIVISION. THE CONTACT TELEPHONE NUMBER FOR THE DTPW, TRAFFIC SIGNALS & SIGNS DIVISION, IS: (305) 592-3470.

5. EXISTING COMMUNICATIONS OR COMMAND WIRE CONNECTIONS SHALL BE MAINTAINED AT ALL SIGNALIZED LOCATIONS DURING CONSTRUCTION. THIS SHALL INCLUDE INTERCONNECT, RAILROAD FLASHING BEACONS, RAILROAD PRE-EMPTION, FIRE PREEMPTION AND SCHOOL ZONE FLASHERS. CONTRACTOR SHALL PROVIDE TEMPORARY LINES AND CONNECTIONS IF NECESSARY. COST OF MAINTAINING COMMUNICATION, INCLUDING TEMPORARY LINES AND CONNECTIONS SHALL BE INCLUDED IN PAY ITEM 102-1A, MAINTENANCE OF TRAFFIC.

6. THE CONTRACTOR SHALL NOTIFY THE MAINTAINING AGENCY AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY WORK TO BE CARRIED OUT AT ANY SIGNAL RELATED INSTALLATION.

7. TWO FULL BUSINESS DAYS PRIOR TO DIGGING THE CONTRACTOR SHALL CALL SUNSHINE STATE ONE CALL OF FLORIDA, TELEPHONE NUMBER 811 or 1-800-432-4770, AND THE UTILITY OWNER AND REQUEST UTILITY LOCATIONS. A CONTRACTOR'S REPRESENTATIVE MUST BE PRESENT DURING UTILITY COMPANY LOCATIONS OF THEIR FACILITIES.

8. MAST ARM POLE CONCRETE FOUNDATION IS TO BE POURED IN ONE SINGLE POUR WITH ITS TOP AT THE GRADE AND SLOPE OF THE FINISHED SIDEWALK. FOUNDATIONS NOT IN COMPLIANCE WITH THESE REQUIREMENTS SHALL BE COMPLETELY REMOVED AND POURED AGAIN AT THE CONTRACTOR'S EXPENSE. FOR MAST ARM FOUNDATIONS PROPOSED WHERE THERE IS NO SIDEWALK, THE TOP OF FOUNDATION IS TO BE POURED IN ONE SINGLE POUR WITH ITS TOP AT A MINIMUM OF SIX (6) INCHES ABOVE FINISH GRADE. REFER TO MAST ARM TABULATION SHEETS FOR TOP OF FOUNDATION ELEVATIONS.

9. EACH MAST ARM POLE FOUNDATION SHALL INCLUDE A SPARE CONDUIT THAT IS TERMINATED IN THE ASSOCIATED PULL BOX. A MINIMUM OF TWO CONDUITS HAVE TO BE PROVIDED TO EACH POLE.

10. PULL BOXES, MAST ARM FOUNDATIONS AND CONTROLLER FOUNDATIONS SHALL HAVE A MINIMUM 4" CLEARANCE FROM ALL JOINTS AND EDGE OF SIDEWALK. THERE SHALL BE NO EXPANSION MATERIAL AROUND PULL BOXES, MAST ARM FOUNDATIONS AND CONTROLLER FOUNDATIONS. PULL BOXES WITH NEW CONDUIT RUNS SHALL NOT BE PLACED IN PEDESTRIAN RAMPS.

11. CONTRACTOR WILL PROVIDE THREE (3) SETS OF AS-BUILT DRAWINGS, AS REQUIRED BY SPEC.611-2.3.1 AND ONE SET OF THE SIGNALIZATION INSPECTION PACKAGE AS REQUIRED BY THE MIAMI-DADE COUNTY TECHNICAL SPECIAL PROVISIONS FOR TRAFFIC SIGNALS, 3 WORKING DAYS PRIOR TO THE INSPECTION FOR FINAL ACCEPTANCE.

12. CONTRACTOR WILL PROVIDE ONE SET OF THE COMPLETED SIGNAL INSPECTION REPORT FORM(S), CERTIFIED BY THE IMSA TRAFFIC SIGNAL INSPECTOR AT THE TIME OF THE INSPECTION FOR FINAL ACCEPTANCE.

13. CONTRACTOR SHALL SEQUENCE THE WORK AND DISPOSE OF MATERIAL SO AS NOT TO INTERFERE WITH THE OPERATIONS OF OTHER CONTRACTORS ENGAGED UPON ADJACENT WORK (SUCH AS ADJACENT PROJECT MDC PROJECT NO. 20180064, SW 137TH AVENUE FROM HEFT TO US 1).

14. DELIVER SALVAGEABLE MATERIAL TO THE MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, TRAFFIC SIGNALS & SIGNS DIVISION:
    7100 NW 36TH STREET
    MIAMI, FLORIDA 33166

    RECEIPTS MUST BE OBTAINED FROM THE ABOVE AGENCY AND SUBMITTED TO THE PROJECT ENGINEER TO RECEIVE PAYMENT FOR REMOVAL ITEMS. COST TO BE INCLUDED IN REMOVAL PAY ITEMS.

    SIGNAL EQUIPMENT CONSIDERED SALVAGEABLE IS AS FOLLOWS: CONTROLLERS, CONTROLLER CABINETS, CONTROLLER HARDWARE AND SOFTWARE, FLASHERS, COMMUNICATION DEVICES AND HARDWARE, SIGNAL HEADS, MAST-ARM POLES AND ASSOCIATED HARDWARE, MOUNTED MAST ARM SIGNAL HEADS, MAST-ARM POLES AND ASSOCIATED HARDWARE, MOUNTED MAST ARM SIGNS, PEDESTRIAN DETECTORS, PEDESTRIAN SIGNAL HEADS. ALL OTHER EQUIPMENT SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

15. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT IN WRITING, NO LESS THAN 14 WORKING DAYS IN ADVANCE OF THE NEED OF ELECTRICAL POWER SERVICE HOOKUPS OF SIGNALIZATION / STREET LIGHTING FACILITIES. THE CONTRACTOR SHALL SUBMIT A LETTER OF REQUEST ALONG WITH AN AFFIDAVIT OF GENERAL ELECTRICAL WORK, SIGNED AND CERTIFIED BY A MASTER ELECTRICIAN.

16. INSTALLATIONS OF NEW PULL BOXES SHALL BE PERFORMED BY A QUALIFIED FLORIDA LICENSED ELECTRICAL CONTRACTOR. WHEN A NEW PULL BOX IS REPLACING EXISTING PULL BOX, THE CONTRACTOR SHALL ADJUST CONDUITS AND CABLES TO FIT THE NEW PULL BOX ELEVATION. COST OF ADJUSTMENTS IS INCLUDED IN THE PULL BOX PAY ITEM 635-2-11.

17. THE CONTRACTOR SHALL CONSTRUCT CONCRETE SLABS AROUND ALL PULL BOXES; CONTROLLERS AND SERVICE POINTS LOCATED IN UNPAVED/GRASS AREA. SEE INDEX 17500 FOR DETAIL AND NOTES. COST OF THE SLAB CONSTRUCTION, INCLUDING REINFORCED STEEL FABRIC, SHALL BE INCLUDED IN THE RELATED PAY ITEMS FOR PULL BOXES; CONTROLLERS AND SERVICE POINTS.

18. ALL LOUVERED BACKPLATES SHALL BE PROVIDED WITH A REFLECTORIZED BORDER.

19. THE CONTRACTOR SHALL RESPOND TO ALL TROUBLE CALL DISPATCHES AND REPORTED MALFUNCTIONS OF TRAFFIC SIGNAL WITHIN (2) HOURS, AND SHALL RESTORE ALL MALFUNCTIONING TRAFFIC SIGNAL EQUIPMENT TO ITS LEVEL OF OPERATION WITHIN TWELVE (12) HOURS. IMMEDIATELY AFTER CLEAR THE DISPATCHES WITH THE TRAFFIC CONTROL CENTER (TCC) OPERATOR OR TIMING ENGINEER AT (305) 592-8925 EXT. 248. DURING DOWN TIME THE CONTRACTOR SHALL PROVIDE AT HIS EXPENSE TEMPORARY TRAFFIC CONTROL DEVICES, FLAGMAN PERSONNEL AND LAW ENFORCEMENT PERSONNEL AS NECESSARY TO MAINTAIN SAFE AND EFFICIENT FLOW OF TRAFFIC AT THE AFFECTED SIGNALIZED INTERSECTIONS.

20. THE CONTRACTOR SHALL PROVIDE WRITTEN AND VERBAL NOTIFICATION TO DTPW TRAFFIC SIGNALS & SIGNS DIVISION:
    A. TEN (10) BUSINESS DAYS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, MODIFICATION, OR REPAIR OF ANY COMPONENT WITHIN THE MIAMI-DADE COUNTY TRAFFIC CONTROL SYSTEM.
    B. FIVE (5) BUSINESS DAYS PRIOR TO THE COMMENCEMENT OF JOB THAT INCLUDE OVERHEAD OR UNDERGROUND WORK WITHIN MIAMI-DADE COUNTY ROADWAYS OR OTHER ROADWAYS WITHIN THE COUNTY WHOSE TRAFFIC CONTROL DEVICES ARE MAINTAINED BY MIAMI-DADE COUNTY.
    C. NOTIFICATION IS PROVIDED AT:
       MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
       TRAFFIC SIGNALS AND SIGNS DIVISION (ATTN: WRITTEN NOTIFICATION)
       7100 NW 36TH STREET
       MIAMI, FLORIDA 33166
       PHONE NO. 305-592-3580
    D. CONTRACTOR SHALL PROVIDE IMMEDIATE VERBAL NOTIFICATION FOLLOWED BY WRITTEN NOTIFICATION TO DTPW TRAFFIC SIGNALS & SIGNS DIVISION UPON THE DISCOVERY OF ANY DAMAGE, MALFUNCTIONS, OR IRREGULARITIES PERTAINING TO ANY MIAMI-DADE COUNTY TRAFFIC CONTROL SYSTEM COMPONENT.

PAY ITEM NOTE:
670-5-121: COST OF FURNISHING AND INSTALLING A WIRELESS COMMUNICATION SYSTEM, INCLUDING BUT NOT LIMITED TO: WIRELESS ROUTER, POWER SUPPLY, ETHERNET CABLE, CELLULAR ANTENNAS, AND ALL ADDITIONAL CABLES TO BE INCLUDED IN PAY ITEM 670-5-121, TRAFFIC CONTROLLER ASSEMBLY, F&I, 170, 1 PREEMPTION PLAN

UTILITY OWNER	TELEPHONE
AT&T-BELLSOUTH UNDERGROUND COMMUNICATIONS	786-464-1400
AT&T-TCG	407-578-8000
COMCAST	954-534-7380
FLORIDA CITY GAS	305-835-3632
FPL	305-442-5140
FPL-FIBERNET	305-552-2411
LEVEL 3 COMMUNICATIONS	512-742-1433
MIAMI-DADE WATER AND SEWER DEPARTMENT	305-665-7471
XO COMMUNICATIONS	305-356-3160

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7/17/2020 9:43:51 AM SConnor

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
KATHY LAJO, P.E.
Lic. No. 63068

	NAME	DATE		NAME	DATE
DESIGNED BY	K.L.	07-2018	DRAWN BY	V.E.	07-2018
CHECKED BY	K.V.	07-2018	CHECKED BY	K.L.	07-2018

SUPERVISED BY: KENNETH VORCE, P.E.

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

SIGNALIZATION GENERAL NOTES

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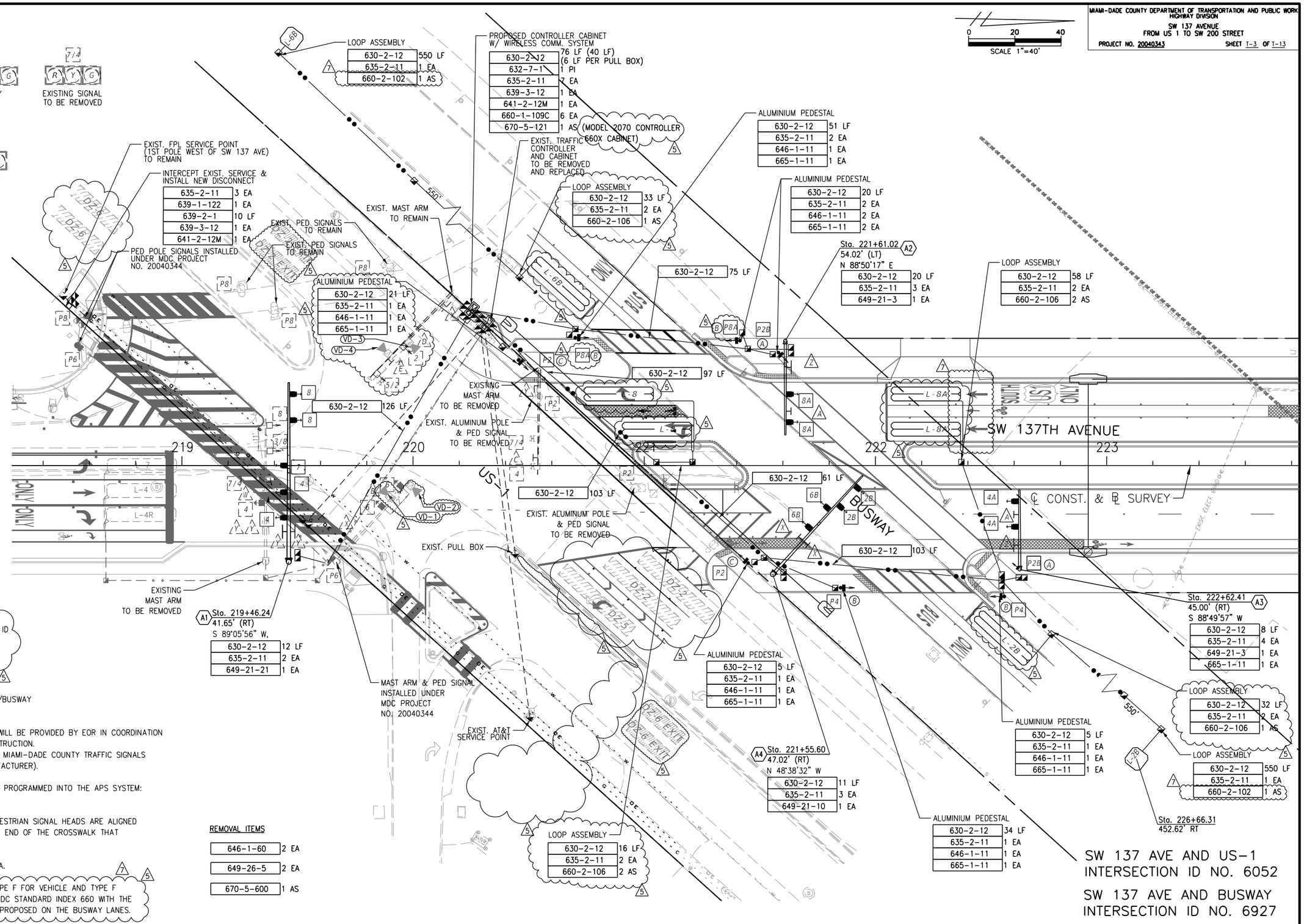
7/17/2020 9:44:04 AM SConnor

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET T-3 OF T-13

SCALE 1"=40'

SIGNAL DETAILS

- 2 6 — R Y G — 3-SECT., 1-WAY TO REMAIN
- 5/2 — R Y KY KG G — 5-SECT., 1-WAY TO REMAIN
- 7/4 — R Y G — EXISTING SIGNAL TO BE REMOVED
- 4 8 — R Y G — EXISTING SIGNAL TO BE REMOVED
- 3/8 — R Y KG G — 4-SECT., 1-WAY TO BE REMOVED
- 2B 4 6B 8A — R Y G — 3-SECT., 1-WAY — 650-1-14 — 8 AS
- 4A 8 — R Y G — 3-SECT., 1-WAY, PROGRAMMABLE — 650-1-44 — 4 AS
- 7 — KR KY KG — 3-SECT., 1-WAY, LEFT TURN ONLY — 650-1-18 — 1 AS



LEGENDS

- VD-# EXISTING VIDEO DETECTION CAMERA ID
- EXISTING VIDEO DETECTION CAMERA

GENERAL NOTES

1. MAJOR STREET: US-1 / DIXIE HWY/BUSWAY
   MINOR STREET: SW 137 AVE
2. SIGNAL TIMING AND APS SETTINGS WILL BE PROVIDED BY EOR IN COORDINATION WITH MDC DTPW TSS, DURING CONSTRUCTION. (INSTRUCTIONS TO BE PROVIDED BY MIAMI-DADE COUNTY TRAFFIC SIGNALS AND SIGNS DIVISION OR APS MANUFACTURER).
3. THE FOLLOWING MESSAGE SHALL BE PROGRAMMED INTO THE APS SYSTEM: "WAIT TO CROSS SW 137 AVE".
4. CONTRACTOR TO ENSURE THAT PEDESTRIAN SIGNAL HEADS ARE ALIGNED WITH THE CENTER OF THE FAR SIDE END OF THE CROSSWALK THAT THEY SERVE.
5. WORK THIS SHEET WITH SHEET T-3A.
6. ALL INDUCTIVE LOOPS SHALL BE TYPE F FOR VEHICLE AND TYPE F MODIFIED FOR BICYCLE AND MEET MDC STANDARD INDEX 660 WITH THE EXCEPTION OF TWO TYPE B LOOPS PROPOSED ON THE BUSWAY LANES.

REMOVAL ITEMS

646-1-60	2 EA
649-26-5	2 EA
670-5-600	1 AS

SW 137 AVE AND US-1
INTERSECTION ID NO. 6052

SW 137 AVE AND BUSWAY
INTERSECTION ID NO. 6927

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02/27/2020	KL	5 TSS COMMENTS						
07/16/2020	KL	7 FDOT PERMIT COMMENTS						

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KATHY LAJO, P.E.
Lic. No. 63068

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CHECKED BY	K.V.	07-2018	CHECKED BY	K.L.	07-2018

SUPERVISED BY: KENNETH VORCE, P.E.

MIAMI-DADE COUNTY
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SIGNALIZATION PLAN

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7/17/2020 9:44:05 AM SConnor

0 20 40
SCALE 1"=40'

SIGNAL DETAILS

EXISTING SIGN TO REMAIN

EXISTING SIGN TO BE REMOVED

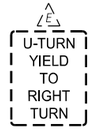
700-5-21
2 EA

700-5-21
2 EA

P2

PED. SIGNAL POLE 1-SECT., 1-WAY
EXIST. PED SIGNAL TO BE REMOVED

646-1-60
_2_EA_



EXISTING SIGN TO REMAIN

EXISTING SIGN TO REMAIN

EXISTING SIGN TO REMAIN

(24"x30")
700-3-201
2 EA

P6 P8

PED. SIGNAL COUNT-DOWN 1-SECT., 1-WAY
EXIST. PED SIGNAL TO REMAIN
(INSTALLED UNDER MDC PROJECT NO. 20040344)

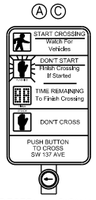
(30"x30")
EXISTING SIGN TO BE REMOVED

(30"x30")
EXISTING SIGN TO BE REMOVED
700-3-601
1 EA

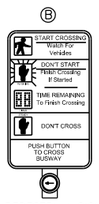
P2 P2B

PED. SIGNAL COUNT-DOWN 1-SECT., 1-WAY

653-1-11
4 AS



AUDIBLE PEDESTRIAN SIGNAL (APS) AND DETECTOR
PEDESTRIAN DETECTOR SIGN (LED OPTION) COMBINATION
R10-3E
COUNTY MODIFIED
(9"x15")
COST INCLUDED IN ITEM 665-1-11
4 AS



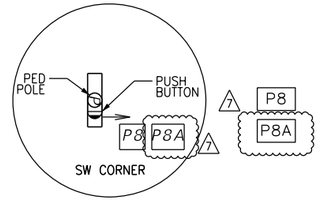
AUDIBLE PEDESTRIAN SIGNAL (APS) AND DETECTOR
PEDESTRIAN DETECTOR SIGN (LED OPTION) COMBINATION
R10-3E
COUNTY MODIFIED
(9"x15")
COST INCLUDED IN ITEM 665-1-11
4 AS

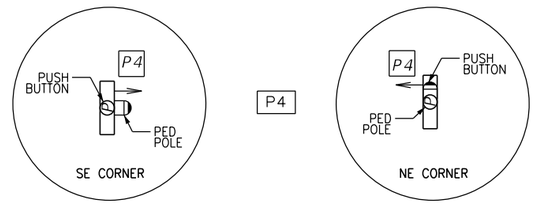
P4 P8

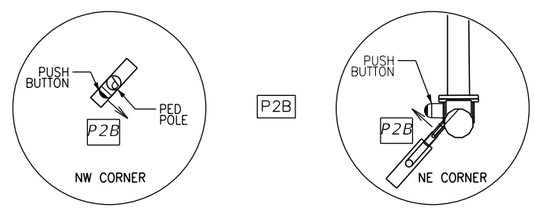
PED. SIGNAL COUNT-DOWN 1-SECT., 1-WAY

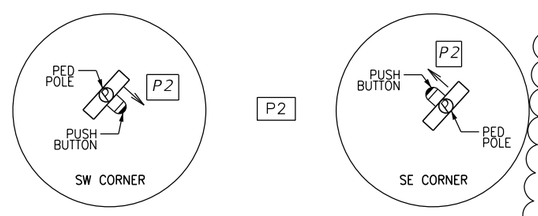
653-1-11
4 AS

PEDESTRIAN SIGNALS



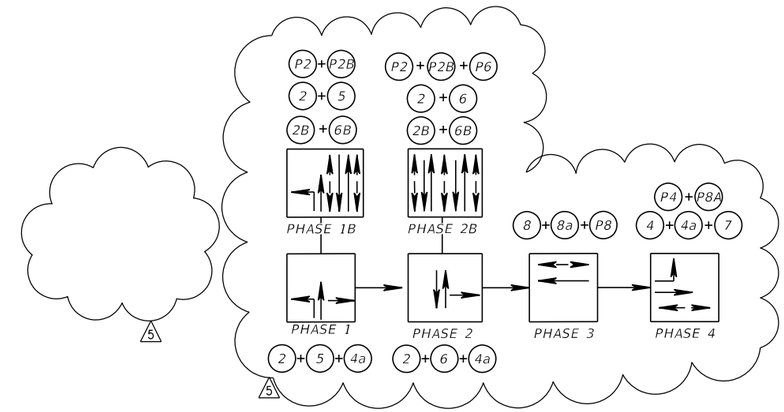


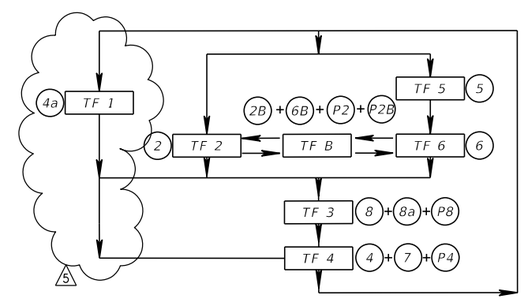




SIGNAL OPERATION PLAN

SPECIAL S.O.P.





DETECTORS FOR LOOPS

LOOP	NO. OF LOOPS	NO. OF NEW DETS.	NO. OF EXIST. DETS.
L-2B	2	1	
L-6B	2	1	
L-8	2	1	1
L-8A	2	1	

5

VIDEO VEHICLE DETECTION ASSIGNMENTS

VIDEO DITECTION CAMERA NO.	DETECTION ZONE LOCATION NO.	DELAY TIME (SECONDS)
VD-1	DZ-6	
VD-2	DZ-6 (EXIT)	
VD-3	DZ-2, DZ-5	
VD-4	DZ-2 (EXIT)	

5

CONTROLLER TIMING

	CONTROLLER PHASE	1	1B	2	2B	3	4
FUNCTION	APPROACH POSTED SPEED (MPH)	45	45	45	45	45	45
FUNCTION	ALL RED DISTANCE (FEET)	88	152	181	181	145	174
FUNCTION	YELLOW CLEARANCE	4.8	4.8	4.8	4.8	4.8	4.8
FUNCTION	ALL RED	2.2	2.6	3.1	3.1	2.5	3.0
	PEDESTRIAN MOVEMENT		P2+P2B		P2+P2B +P6	P8	P4+P8A
FUNCTION	PEDESTRIAN CROSSING DISTANCE (FEET)		116		133	56	42
FUNCTION	PEDESTRIAN WALK		7		7	7	7
FUNCTION	PEDESTRIAN FALSHING DON'T WALK		33		38	16	16

TIMINGS ARE INITIAL AND MAY REQUIRE FIELD ADJUSTMENT AS DIRECTED BY PROJECT ENGINEER

5

NOTES

1. WORK THIS SHEET WITH SHEET T-3.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02/27/2020	KL	5 TSS COMMENTS						
07/16/2020	KL	7 FDOT PERMIT COMMENTS						

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
KATHY LAJO, P.E.
Lic. No. 63068

	NAME	DATE		NAME	DATE
DESIGNED BY	K.L.	07-2018	DRAWN BY	V.E.	07-2018
CHECKED BY	K.V.	07-2018	CHECKED BY	K.L.	07-2018

SUPERVISED BY: KENNETH VORCE, P.E.

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

SIGNALIZATION PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

7/17/2020 9:44:17 AM SConnor

0 20 40
SCALE 1"=40'

SIGNAL DETAILS

1/6 4/7 3/8 — R Y Y G G

5-SECT., 1-WAY

650-1-18

3 AS

2 4 6 8 — R Y G

3-SECT., 1-WAY

650-1-14

5 AS

SIGN DETAILS

X: SW 137 Av / Tallahassee Rd

700-5-21

1 EA

Y: SW 200 St / Quail Roost Dr

700-5-21

1 EA

X: SW 137 Av / Tallahassee Rd

699-1-41

TO BE RELOCATED
1 EA

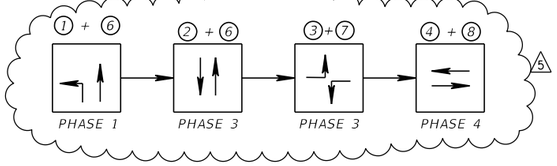
Y: SW 200 St / Quail Roost Dr

699-1-41

TO BE RELOCATED
1 EA

SIGNAL OPERATION PLAN

S.O.P. SPECIAL



DETECTORS FOR LOOPS		
LOOP	NO. OF LOOPS	NO. OF NEW DETS.
L-2	2	1
L-3	1	1
L-4	1	1
L-4B	1	1
L-6	1	1
L-7	1	1
L-8	1	1

CONTROLLER TIMING									
	VEHICLE MOVEMENT	1	2	3	4	5	6	7	8
FUNCTION	APPROACH DIRECTION	EBL	WBT	SBL	NBT		EBT	NBL	SBT
	APPROACH POSTED SPEED (MPH)	40	40	45	45	–	40	45	45
	ALL RED DISTANCE (FEET)	70	70	70	80	–	70	80	70
	YELLOW CLEARANCE	4.4	4.4	4.8	4.8	–	4.4	4.8	4.8
	ALL RED	2	2	2	2	–	2	2	2

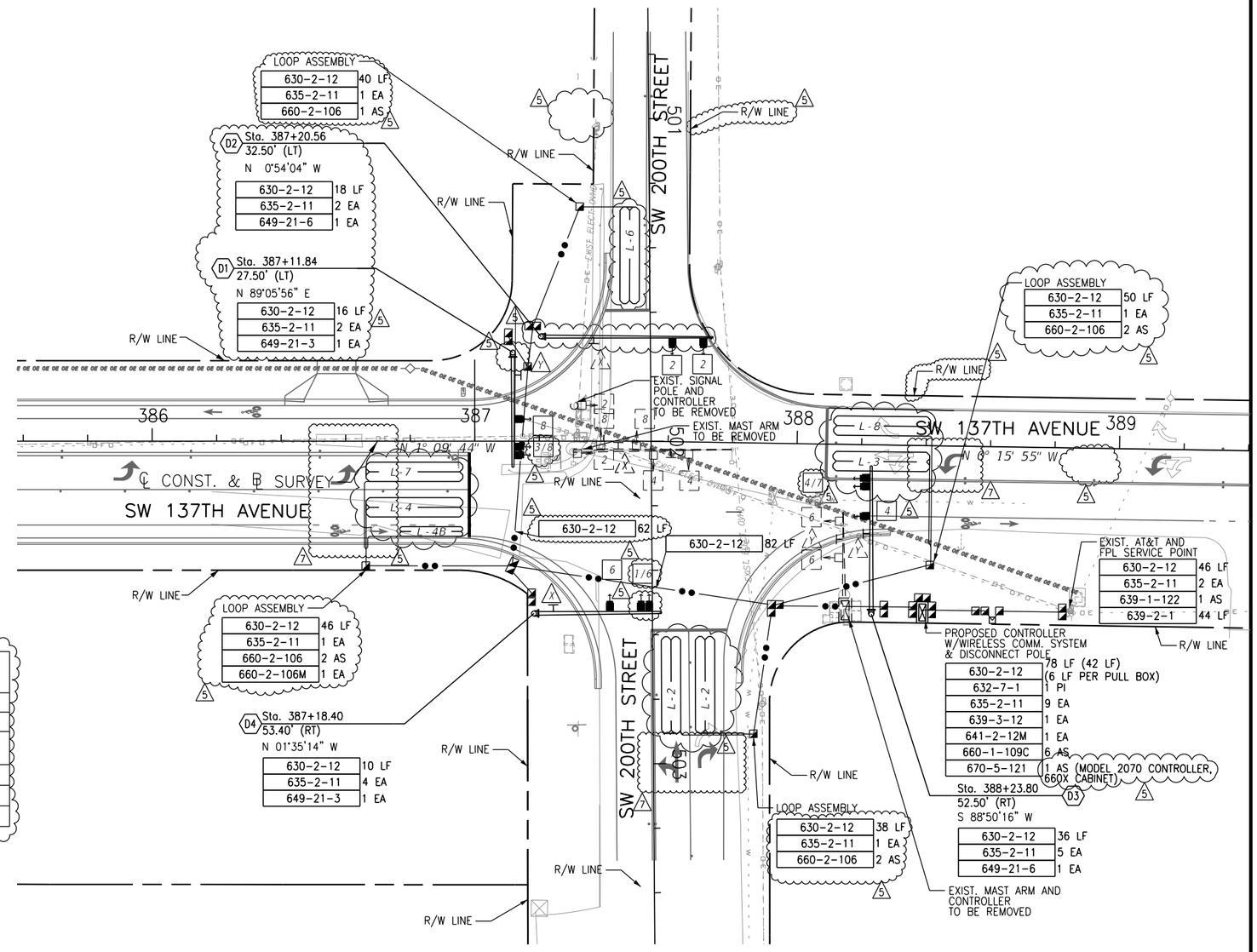
TIMINGS ARE INITIAL AND MAY REQUIRE FIELD ADJUSTMENT AS DIRECTED BY PROJECT ENGINEER

NOTES:

1. MAJOR STREET: SR 994/SW 200 ST. (QUAIL ROOST RD.)
   MINOR STREET: SW 137 AVE.
2. MOVEMENTS 2 AND 6 TO FLASH YELLOW AND ALL OTHER MOVEMENTS TO FLASH RED DURING FLASHING OPERATION.
3. SIGNAL TIMING WILL BE PROVIDED BY THE EOR, IN COORDINATION WITH MDC DTPW TSS, DURING CONSTRUCTION.
4. ALL INDUCTIVE LOOPS SHALL BE TYPE F FOR VEHICLE AND TYPE F MODIFIED FOR BICYCLE AND MEET MDC STANDARD INDEX 660.

REMOVAL ITEMS

649-26-5	2 EA
670-5-600	1 AS
700-1-60	1 EA



SW 137 AVE AND SW 200 ST
INTERSECTION ID NO. 6507

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02/27/2020	KL	6 TSS COMMENTS						
07/16/2020	KL	7 FDOT PERMIT COMMENTS						

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Llc. No. 63068

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CHECKED BY	K.V.	07-2018	CHECKED BY	K.L.	07-2018

SUPERVISED BY: KENNETH VORCE, P.E.

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
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SIGNALIZATION PLAN

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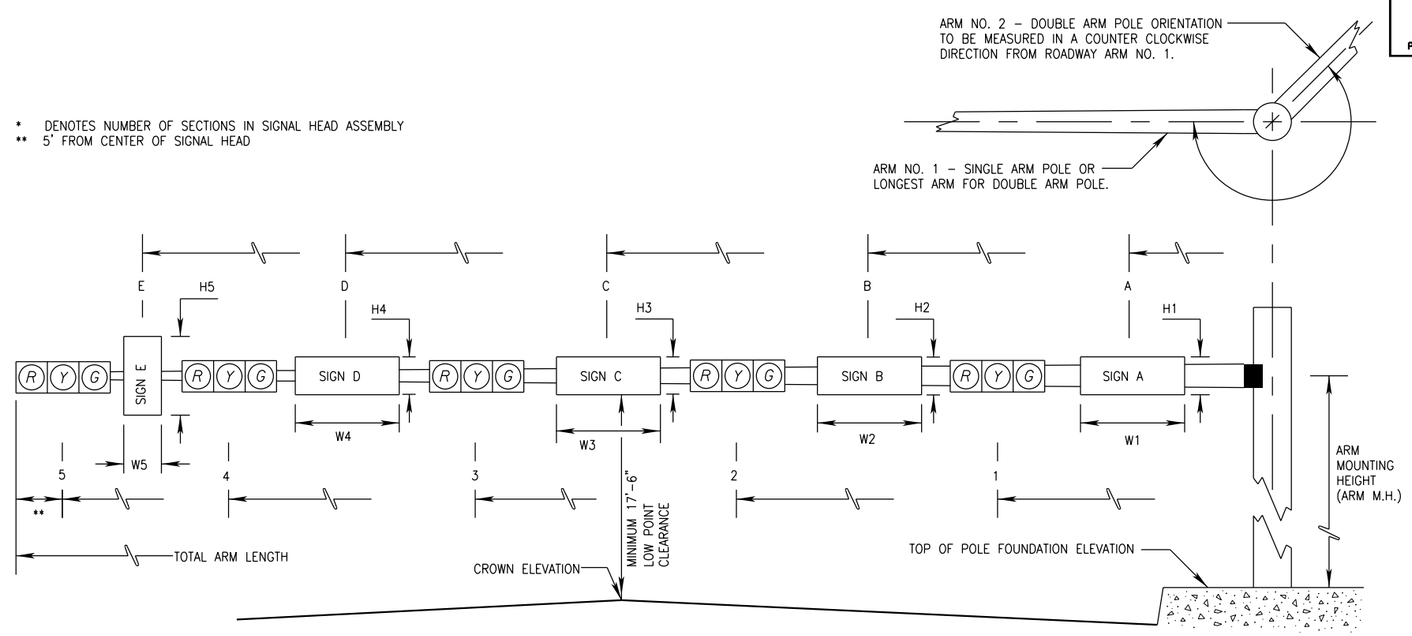
7/17/2020 9:44:18 AM SConnor



SPECIAL INSTRUCTIONS

ID NO.	PED. BUTTON		PED. SIGNALS		HANDHOLE LOCATION
A3	90	-	45	-	
B1	90	-	90	-	270

NOTES:
1. DEGREES ARE MEASURED COUNTERCLOCKWISE FROM ARM.
2. HANDHOLE LOCATION IS 90° FROM ARM #1, FACING AWAY FROM TRAFFIC,UNLESS OTHERWISE NOTED
3. SIGN LOCATION INCLUDES TWO SIGN PANELS, ONE ON EACH FACE OF MAST ARM.

						SIGNAL DATA																SIGN DATA																
ID NO.	SHEET NO.	LOCATION BY STA.	TOP OF FOUND. ELEVATION	RDWY ARM NO.	CROWN ELEV.	SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	DISTANCE FROM POLE										TOTAL ARM LENGTH	ARM M.H.	ANGLE BETWEEN DUAL ARMS 90/270	DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN															PAINT COLOR
									1	*	2	*	3	*	4	*	5	*				A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	E	H5	W5	
A1	T-3	219+46.24	11.59	1	11.08	H	Y	N	19'-0"	3	30'-0"	3	41'-0"	3	61'-3"	3	72'-6"	3	77'-6"	18'-3"		13'-0"	2'-0"	6'-0"	SEE NOTE 3													
---	-----	----------	-------	2																	-----																
A2	T-3	221+61.02	10.64	1	10.93	H	Y	N	23'-0"	3	35'-0"	3							40'-0"	19'-6"		11'-6"	2'-0"	6'-0"	30'-6"	2'-6"	2'-0"											
---	-----	----------	-------	2																	-----																
A3	T-3	222+62.41	10.44	1	9.82	H	Y	Y	18'-3	3	29'-6"	3							34'-6"	18'-6"		10'-6"	2'-0"	6'-0"	24'-9"	2'-6"	2'-0"											
---	-----	----------	-------	2																	-----																
A4	T-3	221+55.60	11.00	1	10.74	H	Y	N	25'-6"	3	36'-9"	3	41'-3"	3	52'-3"	3			57-6"	20'-0"		19'-6"	2'-0"	6'-0"	SEE NOTE 3													
---	-----	----------	-------	2																	-----																
B1	T-4	226+11.05	12.15	1	11.52	H	Y	Y	20'-6"	3	32'-0"	3	42'-9"	5					48'-9"	18'-6"		15'-6"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
B2	T-4	227+17.09	11.86	1	11.36	H	Y	N	38'-9"	3	49'-9"	3							54'-9"	19'-0"		31'-3"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
B3	T-4	227+31.61	12.14	1	11.48	H	Y	N	20'-6"	3	32'-3"	3	42'-9'	5					48'-9"	18'-6"		14'-6"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
B4	T-4	226+24.71	12.18	1	11.64	H	Y	N	27'-6"	3	39'-3"	3							44'-6"	18'-6"		20'-6"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
C1	T-5	333+17.88	10.95	1	10.52	H	Y	N	10'-6"	3	20'-8"	5							26'-8"	19'-0"		5'-3"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
C2	T-5	334+53.08	11.01	1	10.57	H	Y	N	46'-6"	3	57'-6"	3							62'-6"	19'-0"		30'-9"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
C3	T-5	334+67.81	11.60	1	10.52	H	Y	N	42'-6"	3	53'-6"	5							59'-6"	18'-0"		30'-0"	2'-0"	6'-0"														
---	-----	----------	-------	2																	-----																
C4	T-5	333+22.50	11.64	1	10.52	H	Y	N	55'-3"	3	66'-3"	3							71'-6"	18'-0"		41'-3"	2'-0"	6'-0"														
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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02/27/2020	KL	5 TSS COMMENTS						

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SUPERVISED BY: KENNETH VORCE, P.E.					

MIAMI-DADE COUNTY
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111 NW 1 ST
MIAMI, FLORIDA 33128

MAST ARM TABULATION

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STANDARD MAST ARM ASSEMBLIES DATA TABLE

STRUCTURE ID NUMBERS	DESIGNATION	FIRST ARM		SECOND ARM		UF (deg)	LL (deg)	POLE			SPECIAL DRILLED SHAFT					
		ARM ID	(1, 7) FAA (ft.)	ARM ID	(1) SAA (ft.)			POLE ID	(2) UAA (ft.)	UB (ft.)	DA (ft.)	DB (ft.)	RA	RB	RC	RD (in.)
A1	A78/S-P6/S-DS/18/5.0	A78/S	38.5					P6/S	25	22	18	5.0	14	18	12	8
A2	A40/S-P2/S-DS/12/4.5	A40/S						P2/S	22.5	19.5	12	4.5	11	16	12	8
A3	A40/S-P2/S-DS/12/4.5	A40/S	34.5					P2/S	21.5	18.5	12	4.5	11	16	12	8
A4	A60/S-P4/S-DS/14/5.0	A60/S	33					P4/S	24	21	14	5.0	11	18	12	8
B1	A50/S-P3/S-DS/14/4.5	A50/S	30.25					P3/S	21.5	18.5	14	4.5	11	16	12	8
B2	A60/S-P4/S-DS/14/5.0	A60/S	29.25					P4/S	22	19	14	5.0	14	18	12	8
B3	A50/S-P3/S-DS/14/4.5	A50/S	30.25					P3/S	21.5	18.5	14	4.5	11	16	12	8
B4	A50/S-P3/S-DS/14/4.5	A50/S	26					P3/S	21.5	18.5	14	4.5	11	16	12	8
C1	A30/S-P1/S-DS/12/4.0	A30/S	26.7					P1/S	22	19	12	4.0	11	14	12	12
C2	A70/S-P5/S-DS/16/5.0	A70/S	29.5					P5/S	22	19	16	5.0	14	18	12	8
C3	A60/S-P4/S-DS/14/5.0	A60/S	28					P4/S	21	18	14	5.0	14	18	12	8
C4	A78/S-P6/S-DS18/5.0	A78/S	31.5					P6/S	21	18	18	5.0	14	18	12	8
D1	A40/S-P2/S-DS/12/4.5	A40/S	35.5					P2/S	21.5	18.5	12	4.5	11	16	12	8 5
D2	A60/S-P4/S-DS/14/5.0	A60/S	27.83					P4/S	21.5	18.5	14	5.0	11	18	12	8 5
D3	A50/S-P3/S-DS/14/4.5	A50/S	28.5					P3/S	21.5	18.5	14	4.5	11	16	12	8
D4	A40/S-P2/S-DS/12/4.5	A40/S	39.5					P2/S 5	21.5	18.5	12	4.5	11	16	8	12

NOTES:

1. IF AN ENTRY APPEARS IN COLUMN FAA, A SHORTER ARM IS REQUIRED. THIS IS OBTAINED BY REMOVING LENGTH FROM THE ARM TIP AND THE ARM LENGTH SHORTENED FROM FA TO FAA. SAA SIMILAR.
2. IF AN ENTRY APPEARS IN COLUMN UAA, A SHORTER POLE IS REQUIRED. THIS IS OBTAINED BY REMOVING LENGTH FROM THE POLE TIP AND THE POLE HEIGHT SHORTENED FROM UA TO UAA.
3. ARM MOUNTING HEIGHT UB MUST BE BETWEEN 18-22 FEET.
4. POLE TYPES P2 AND LARGER REQUIRE A MINIMUM 4.5 FOOT DIAMETER DRILLED SHAFT, POLE TYPES P5 AND LARGER REQUIRE A MINIMUM 5.0 FOOT DIAMETER DRILLED SHAFT.
5. WORK THIS SHEET WITH THE SIGNAL DESIGNER'S "MAST ARM TABULATION". SEE "MAST ARM TABULATION" FOR SPECIAL INSTRUCTIONS THAT INCLUDE NON-STANDARD HANDHOLE LOCATION, PAINT COLOR, TERMINAL COMPARTMENT REQUIREMENT, AND PEDESTRIAN FEATURES.
6. WORK WITH INDEX 17743 AND 17745.
7. FOR ALL MAST ARMS LONGER THAN 40'-0", WHERE A VALUE OF FAA IS REPORTED, THE MAST ARM SPLICE LENGTH PROVIDED IS 2'-0"

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02/27/2020	KL	5 TSS COMMENTS						

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SIGNALIZATION MAST ARM ASSEMBLY DATA TABLE

SDATES STIMES SUSERS

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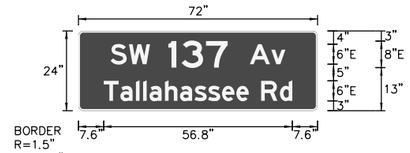
SIGN NAME	X	QTY	5	SIGN NUMBER	STATION(S)
PANEL		BORDER			none
WIDTH	6'-0"	WIDTH	0.5"		
HEIGHT	2'-0"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	White				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



Panel Style: Street Name 8-6in-1.ssi
M.U.T.C.D.: 2009 Edition

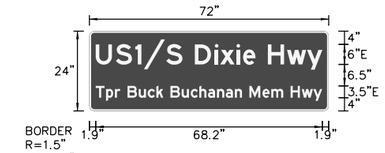
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY	S	W									A	v		L										
SPACE	9.7	15.2	21.6	25.3	29.1	32.8	36.6	40.3	44.1	47.8	51.6	58.1		52.6										
COPY						1	3	7		L														
SPACE	29.1	32.8	36.6	40.3	44.1	27.1	31.1	38.4		21														
COPY	T	a	l	l	a	h	a	s	s	e	e		R	d		L								
SPACE	7.6	12.6	17.3	19.5	21.4	26.1	30.6	35	39	43.2	47.6	51.3	55	60.7		56.8								
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

SIGN NAME	Y (T-3)	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			none
WIDTH	6'-0"	WIDTH	0.5"		
HEIGHT	2'-0"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



Panel Style: street name 8-6in-MSD-2.ssi
M.U.T.C.D.: 2009 Edition

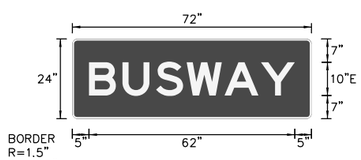
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY	U	S	–	1	/	S		D	i	x	i	e		H	w	y		L						
SPACE	0.7	6.7	12.2	15.1	17.6	24.4	29.2	33	39	40.6	45.5	47.5	51.2	55	60.7	66.7		70.7						
COPY	T	p	r		B	u	c	k		B	u	c	h	a	n	a	n		M	e	m		H	
SPACE	1.9	5	7.7	9.3	11.5	14.8	17.5	20.1	22.2	24.4	27.8	30.5	33.1	35.7	38.4	41	43.8	45.9	48.1	52.1	54.7	58.3	60.5	
COPY	H	w	y		L																			
SPACE	60.5	63.9	67.4		68.2																			
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

SIGN NAME	Z (T-3)	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			none
WIDTH	6'-0"	WIDTH	0.5"		
HEIGHT	2'-0"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



Panel Style: street name 8-6in-MSD-2.ssi
M.U.T.C.D.: 2009 Edition

NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY	B	U	S	W	A	Y		L																
SPACE	5	15.1	25.2	34.4	45.8	56.8		62																
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

SIGN NAME	Y (T-4)	QTY	2	SIGN NUMBER	STATION(S)
PANEL		BORDER			none
WIDTH	6'-0"	WIDTH	0.5"		
HEIGHT	2'-0"	RADII	1.5"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH

Panel Style: Street Name 8-6in-1.ssi
M.U.T.C.D.: 2009 Edition

NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY	S	W											S	t		L								
SPACE	7.3	12.8	19.1	22.9	26.6	30.4	34.1	37.9	41.6	45.4	49.1	52.9	56.6	62		57.5								
COPY	2	4	8								L													
SPACE	24.6	32	40.9	26.6	30.4	34.1	37.9	41.6	45.4		26.8													
COPY	C	o	c	o	n	u	t		P	a	l	m		D	r		L							
SPACE	3	8.8	13.4	17.6	22.4	27.1	31.4	34.1	37.9	43.3	48	50.1	56.4	60.1	66.1		65.9							
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
KATHY LAJO, P.E.
Lic. No. 63068

	NAME	DATE		NAME	DATE
DESIGNED BY	K.L.	07-2018	DRAWN BY	V.E.	07-2018
CHECKED BY	K.V.	07-2018	CHECKED BY	K.L.	07-2018
SUPERVISED BY:	KENNETH VORCE, P.E.				

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

SIGNALIZATION GUIDE SIGN WORKSHEET

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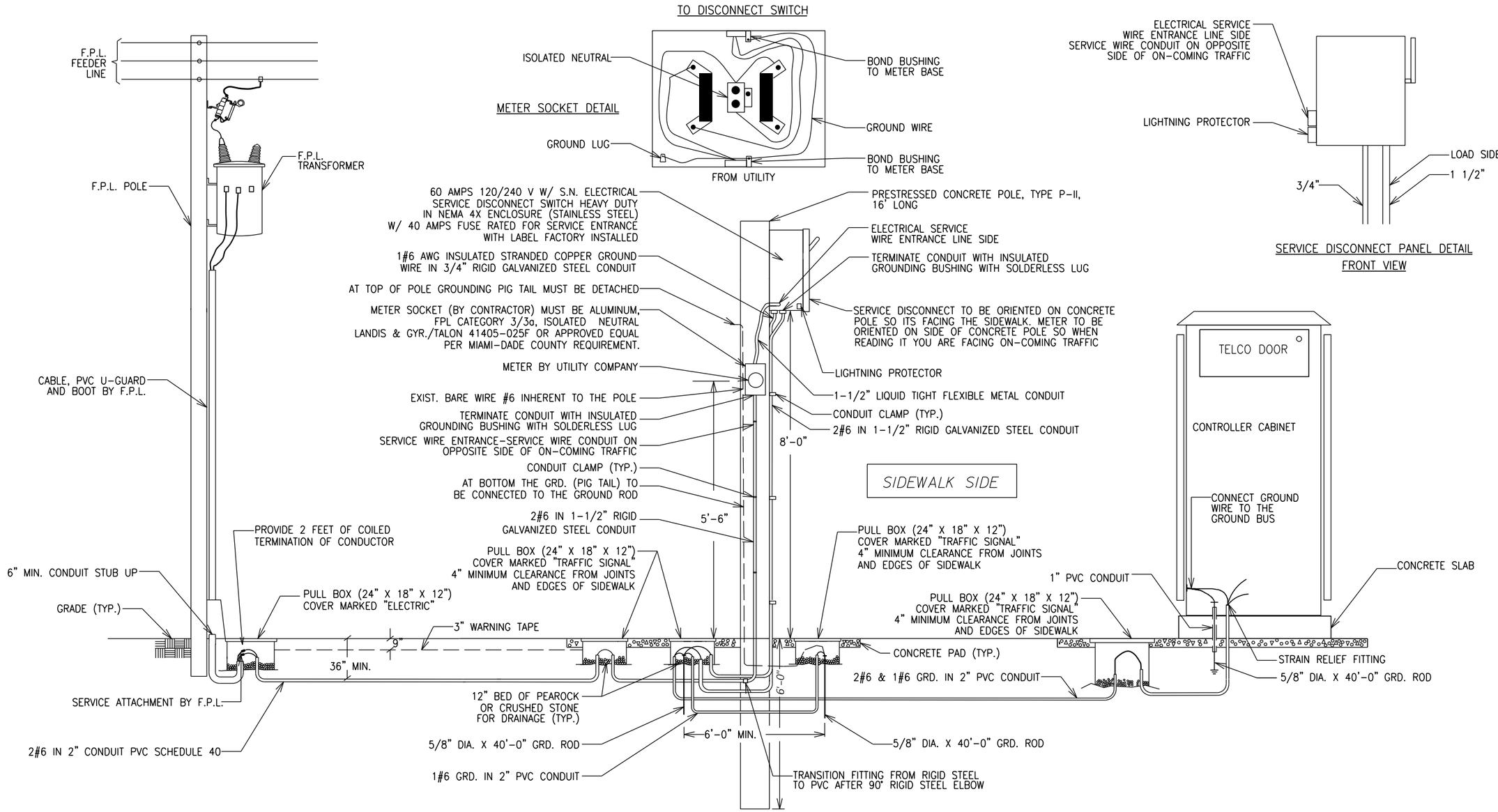


SERVICE POINT DETAIL
N.T.S

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
KATHY LAJO, P.E.
Lic. No. 63068

	NAME	DATE		NAME	DATE
DESIGNED BY	K.L.	07-2018	DRAWN BY	V.E.	07-2018
CHECKED BY	K.V.	07-2018	CHECKED BY	K.L.	07-2018
SUPERVISED BY: KENNETH VORCE, P.E.					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

ELECTRICAL POWER SERVICE DETAIL

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

7/17/2020 9:44:20 AM SConnor

THE FOLLOWING PLAN NOTES HAVE BEEN COMPILED THROUGH THE COOPERATIVE EFFORTS OF CONSTRUCTION, LIGHTING DESIGN, TRAFFIC OPERATIONS AND MIAMI-DADE COUNTY LIGHTING DIVISION. THE LIGHTING PLAN NOTES PREPARED FOR DISTRICT SIX HAVE REQUIREMENTS IN ADDITION TO, AND DIFFERENT FROM FDOT STANDARDS WHEN THE PROJECT IS WITHIN THE JURISDICTION OF MIAMI-DADE COUNTY AS THE MAINTAINING AGENCY. IT IS HOPEFUL THAT THESE NOTES WILL REDUCE FIELD PROBLEMS AND IMPROVE CONSTRUCTABILITY.

1. GOVERNING STANDARDS AND SPECIFICATIONS ARE: THE 2017 DESIGN STANDARDS, THE FLORIDA DEPARTMENT OF TRANSPORTATION 2017 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, THE MIAMI-DADE COUNTY STANDARD SPECIFICATIONS FOR ROADWAY LIGHTING, THE 2014 NATIONAL ELECTRIC CODE, NATIONAL ELECTRICAL SAFETY CODE OR LATER EDITION AND LOCAL CODES WHICH EXCEED THESE SPECIFICATIONS.

2. ENDS OF CONDUITS SHALL BE SEALED WITH POLYURETHANE FOAM AFTER WIRING IS COMPLETE. FOAM SEAL SHALL NOT BE USED AS A MEANS TO PROTECT CONDUCTORS FROM ABRASION IN RACEWAYS. GALVANIZED RIGID METAL CONDUIT DIAMETER SHALL HAVE PROPER FITTINGS TO PROTECT CONDUCTORS FROM ABRASION.

3. DEVICE SUPPORT IN PULL BOXES: THE PREFERRED METHOD OF ATTACHMENT OF LIGHTNING ARRESTERS AND OTHER DEVICES LIKELY TO BE SUPPORTED IN PULL BOXES, IS BY MEANS OF A SELF-TAPPING SCREW OR BY A MASONRY SCREW. CARE SHOULD BE EXERCISED WHEN UTILIZING THIS METHOD NOT TO BREAK THE SUPPORTING TABS; SCREWS SHOULD BE FIRM BUT NOT SNUG AGAINST THE SUPPORTING TABS. OTHER APPROVED AND LISTED METHODS MAY BE USED, IF THEY ARE FOUND SUITABLE FOR THE CONDITIONS.

4. SPLICES AND CONNECTIONS MADE IN PULL BOXES SHALL BE ACCOMPLISHED WITH THE USE OF GEL CAPS.

5. GROUND RODS ARE TO BE LOCATED AT EACH PULL BOX ASSOCIATED WITH A LIGHT POLE OR ELECTRICAL LOAD CENTER. THE MIAMI-DADE PUBLIC WORKS LIGHTING STANDARDS REQUIRES TWO 5/8 " X 20' LONG COPPER CLAD STEEL GROUNDING ELECTRODES AT EACH SERVICE POINT. THEY MUST BE SPACED A MINIMUM OF SIX FEET AND SIX INCHES FROM EACH OTHER WHEN INSTALLED AS AN ARRAY. WHEN THE GROUNDING ELECTRODE CONDUCTOR IS ENCLOSED IN A METAL RACEWAY, BOTH ENDS OF THE RACEWAYS AND ALL INTERVENING RACEWAYS AND METALLIC ENCLOSURES CONTAINING THE GROUNDING ELECTRODE CONDUCTOR MUST BE BONDED TO THE GROUNDING ELECTRODE CONDUCTOR.

6. SLUGS: WHERE THE POLE CABLE DISTRIBUTION IS EMPLOYED (MG SQUARE, DOT 3), AND WHERE THE POWER SOURCE IS GROUNDED TYPE (GROUNDED NEUTRAL CONDUCTOR), EXAMPLE 480 VAC TO GROUND. A SLUG SHALL BE INSERTED IN THE GROUNDED (NEUTRAL SIDE) REPLACING THE FACTORY INSTALLED FUSE, IN THE MALE DISTRIBUTION PLUG AT THE TIME OF INSTALLATION.

7. ALL GROUNDING CONNECTIONS SHALL BE EXOTHERMICALLY WELDED AS PER F.D.O.T. SPECIFICATIONS SECTION 715-11 AND MIAMI-DADE COUNTY MAINTENANCE AGENCY NEW SPECIFICATIONS. WHERE THE POLE CABLE DISTRIBUTION SYSTEM IS EMPLOYED (MG SQUARE, DOT 3), GROUNDING CONNECTIONS TO THE DISTRIBUTION BLOCK AND LIGHTNING ARRESTER OR OTHER DEVICES CONTAINING LEADS SMALLER THAN # 8 AWG, SHALL BE DONE BY MECHANICAL CONNECTIONS OR OTHER APPROVED MEANS.

8. GROUND CONDUCTOR SHALL HAVE A GREEN JACKET, TYPE RHW-XLP, AND SHALL NOT BE SMALLER THAN NO. 6 AWG. IF CONDUCTORS ARE LARGER THAN NO. 6 AWG THEN THE GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

9. THE CONTRACTOR SHALL CHECK THE CONTINUITY OF GROUNDING CONDUCTOR USING MEGGER OR EQUAL LOW RESISTANCE / HIGH CAPACITY OHMMETER CALIBRATED WITHIN THE PAST 180 DAYS. A NEUTRAL / GROUND LOOP RESISTANCE OF MORE THAN 0.5 OHMS-PER THOUSAND FEET SHALL BE CONSIDERED INADEQUATE.

10. CONCRETE PULL BOX SHALL HAVE EXTERIOR DIMENSIONS OF 27 1/2 " X 18" X 12". POLYMER CONCRETE PULL BOXES REINFORCED BY HEAVY-WEAVE FIBERGLASS SHALL HAVE EXTERIOR DIMENSIONS OF 25" X 15 1/2" X 12". COVERS SHALL BE OF HEAVY-DUTY POLYMER COMPOSITE AND LABELED "STREET LIGHTING".

11. ONLY LINE CONDUCTORS WILL BE PERMITTED IN SERVICE PULL BOX. NO GROUND RODS OR ANY OTHER ITEMS OR DEVICES SHALL BE ALLOWED.

12. NO UNNECESSARY SPLICING WILL BE PERMITTED IN PULL BOXES.

13. THE CONTRACTOR SHALL CONSTRUCT CONCRETE SLABS AROUND ALL PULL BOXES AND SERVICE POINTS LOCATED IN UNPAVED/GRASS AREA. SEE INDEX 17500 FOR DETAILS AND NOTES. COST OF THE SLAB CONSTRUCTION, INCLUDING REINFORCED STEEL FABRIC, SHALL BE INCLUDED IN THE RELATED PAY ITEMS FOR PULL BOXES AND SERVICE POINTS.

14. PULL BOX COVER SHALL BE BOLTED TO THE PULL BOX USING A TAMPER PROOF BOLT.

15. INSTALLATIONS OF NEW PULL BOXES SHALL BE PERFORMED BY A QUALIFIED ELECTRICAL CONTRACTOR. WHEN NEW PULL BOX IS REPLACING EXISTING PULL BOX, THE CONTRACTOR SHALL ADJUST CONDUITS AND CABLES TO FIT THE NEW PULL BOX ELEVATION. COST OF ADJUSTMENTS IS INCLUDED IN THE PULL BOX PAY ITEM.

16. LIGHT POLE FOUNDATION SHALL BE CONCRETE AS PER INDEX 17515 SHEET #4. (SCREW TYPE POLE BASE IS NOT ALLOWED).

17. LIGHT POLE FOUNDATIONS SHALL BE INSTALLED AT A GRADE THAT IS FLUSH WITH THE ADJACENT AND SURROUNDING SIDEWALK.

18. THE POLE FOUNDATION CONDUITS SHALL EXTEND FROM 1" TO 2" INSIDE THE POLE BASE.

19. RACEWAYS: RACEWAYS CONTAINING # 4 AWG OR LARGER CONDUCTORS MUST BE PROTECTED BY AN INSULATING FITTING, UNLESS THE CONDUCTORS ARE SEPARATED FROM THE FITTING OR RACEWAY BY SUBSTANTIAL INSULATING MATERIAL THAT IS SECURELY FASTENED IN PLACE.

20. WHERE THE CONCRETE POLE FOUNDATION MAY COME IN DIRECT CONTACT WITH THE SIDEWALK, AN EXPANSION MATERIAL SHALL BE EMPLOYED TO EFFECTIVELY AVOID OR PREVENT THIS OCCURRENCE. COST INCIDENTAL TO LIGHT POLE PAY ITEM NUMBER.

21. POLE CABLE DISTRIBUTION SYSTEM USED SHALL BE (MG SQUARE DOT 3), THE ONLY ACCEPTABLE SPLICING DEVICE ACCEPTABLE TO THE MIAMI-DADE PUBLIC WORKS LIGHTING STANDARD, IS THE MOLDED SPLICE KIT TYCO-RAYCHEM CATALOG # GELCAP-SL-2/0-3 HOLE. PULL BOXES CONTAINING # 4 AWG OR LARGER CONDUCTORS CONTAINING SPLICES OR U PULLS, THE DISTANCE BETWEEN RACEWAYS SHALL BE INCREASED. THE DISTANCE BETWEEN RACEWAYS SHALL BE INCREASED SIX TIMES THE TRADE SIZE DIAMETER OF THE LARGEST RACEWAY.

22. ALL DISTRIBUTION BLOCKS SHALL HAVE THE MIAMI-DADE COUNTY NUMBER MDC/PW 715-500 MOLDED ONTO IT.

23. PAYMENT FOR CONDUIT SHALL BE BASED ON THE HORIZONTAL PATH OF THE INSTALLED CONDUIT AS MEASURED BETWEEN THE CENTER OF PULL BOXES, POLES, JUNCTION BOXES, ETC. NO ALLOWANCES SHALL BE MADE FOR SWEEPS OR VERTICAL DISTANCES ABOVE OR BELOW GROUND.

24. ALL CONDUCTORS SHALL BE TYPE RHW-XLP AS SPECIFIED IN THE FDOT SPECIFICATION SECTION 992 AND AS PER MIAMI-DADE COUNTY MAINTENANCE AGENCY. OTHER TYPE OF CABLE IS NOT ALLOWED.

25. ALL SALVAGEABLE LIGHTING EQUIPMENT THAT IS REMOVED MUST BE DISASSEMBLED, DELIVERED AND UNLOADED AT THE MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS, LIGHTING DIVISION. 7100 N.W. 36TH STREET, MIAMI, FLORIDA 33166. LIGHTING EQUIPMENT CONSIDERED SALVAGEABLE IS AS FOLLOWS: LIGHTING POLES ALUMINUM, LUMINARIES, CABLE DISTRIBUTION SYSTEMS THAT ARE INTACT. ALL OTHER EQUIPMENT SHALL BE DISPOSED AT THE CONTRACTOR'S EXPENSE. COST TO BE INCLUDED IN THE REMOVAL PAY ITEMS.

26. CONTRACTOR SHALL VERIFY UTILITY LOCATIONS WITH UTILITY COMPANIES PRIOR TO CONSTRUCTION. SEE UTILITY CONTACTS BELOW.

UTILITY OWNER	TELEPHONE
AT&T-BELLSOUTH UNDERGROUND COMMUNICATIONS	786-464-1400
AT&T-TCG	407-578-8000
COMCAST	954-534-7380
FLORIDA CITY GAS	305-835-3632
FPL	305-442-5140
CROWN CASTLE FIBER	786-610-7073
LEVEL 3 COMMUNICATIONS	512-742-1433
MIAMI-DADE WATER AND SEWER DEPARTMENT	305-665-7471
XO COMMUNICATIONS	305-356-3160

27. SUBMITTAL DATA PRIOR TO ANY PROCUREMENT ORDER THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, EQUIPMENT SPECIFICATIONS OR DESIGN DATA FOR ALL MATERIALS PROPOSED FOR THE PROJECT AND SHALL INCLUDE, BUT NOT LIMITED TO:

A. SHOP DRAWINGS FOR THE LUMINARIES, POLES AND BASES.

B. CONDUCTORS, CONDUIT, GROUND RODS AND PULL BOXES.

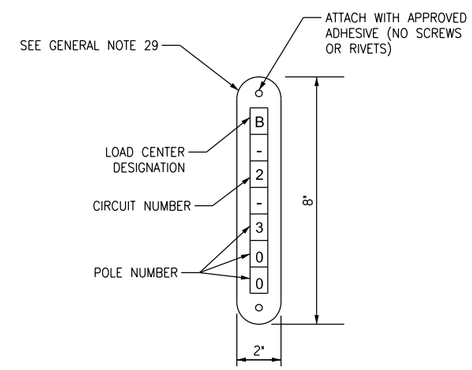
C. FUSES, FUSE HOLDERS, SURGE PROTECTORS AND POLE DISTRIBUTION SYSTEMS.

D. SAFETY SWITCHES, PANELS, CIRCUIT BREAKERS, AND OTHER MAJOR SERVICE POINT COMPONENTS.

E. SEVEN COPIES OF THE SHOP DRAWINGS AND DESIGN DATA SHALL BE SUBMITTED TO THE ENGINEER WITH A COPY OF THE SUBMITTAL LETTER SENT TO THE DEPARTMENT'S RESIDENT CONSTRUCTION ENGINEER IN CHARGE OF THE PROJECT. ALLOW A 45 DAY TURNAROUND FOR SUBMITTALS.

28. FURNISH AND INSTALL AN ALUMINUM IDENTIFICATION TAG ON EACH ROADWAY LIGHT POLE. TAGS SHALL BE 2" X 8" IN SIZE WITH BLACK LETTERS ON YELLOW BACKGROUND, ATTACHED WITH RIVETS (NO SCREWS). NUMBERS SHALL BE AS SHOWN ON THE POLE IDENTIFICATION TAG DETAIL. COST OF TAGS SHALL BE INCLUDED IN THE BID ITEMS FOR LIGHT POLE COMPLETE. TAG SHALL BE PLACED 5 FEET ABOVE GRADE.

29. LIGHT POLE POSITIONS AND CONDUIT ROUTING MAY BE ADJUSTED, AS APPROVED BY THE ENGINEER, TO PREVENT CONFLICTS WITH EXISTING/PROPOSED UTILITY AND DRAINAGE STRUCTURES NOT INDICATED.



POLE IDENTIFICATION TAG (2"x8")

NOT TO SCALE

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

LIGHTING GENERAL NOTES

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POLE DATA

POLE NO.	CIRCUIT	ARM/TILT	LUMINAIRE WATTAGE	MOUNTING HEIGHT	STATION AND OFFSET	PAY ITEM	PROJECT NUMBER
1	EXIST. CKT.	EXIST.	EXIST.	EXIST.	STA 221+40.5, 41' RT	715-460	20040343
2	A-1	10'	400	45'	STA 222+83.5, 69' RT	715-4-112	20040343
3	A-1				STA 220+71.0, 141' LT		20040343
4	A-1				STA 222+98.0, 54' LT		20040343
5	A-1	15'		35'	STA 224+02.0, 54' RT	715-4-32	20040343
6	A-1	10'		45'	STA 225+04.4, 54' LT	715-4-112	20040343
7	A-1	15'		35'	STA 227+26.0, 55' RT	715-4-32	20040343
8	A-1	10'		45'	STA 228+73.2, 54' LT	715-4-112	20040343
9	A-1	15'		35'	STA 229+75.0, 54' RT	715-4-32	20040343
10	A-1	10'		45'	STA 230+78.3, 54' LT	715-4-112	20040343
11	A-1				STA 232+88.3, 54' LT		20040343
12	A-1				STA 235+05.4, 54' LT		20040343
13	A-1				STA 237+13.4, 54' LT		20040343
14	A-1				STA 239+73.5, 54' LT		20040343
15	A-1				STA 242+34.5, 54' LT		20040343
16	A-1				STA 244+94.6, 54' LT		20040343
17	A-2				STA 247+54.6, 54' LT		20040343
18	A-2				STA 250+18.7, 54' LT		20040343
19	A-2				STA 252+80.0, 52' LT		20040343
20	A-2				STA 255+40.0, 54' LT		20040343
21	A-2				STA 258+00.9, 54' LT		20040343
22	A-2				STA 260+61.9, 54' LT		20040343
23	A-2				STA 263+22.0, 54' LT		20040343
24	A-2				STA 265+83.0, 54' LT		20040343
25	A-2				STA 268+44.1, 54' LT		20040343
26	A-2				STA 271+03.0, 54' LT		20040343
27	A-2				STA 273+62.3, 54' LT		20040343
28	A-2				STA 276+24.3, 54' LT		20040343
29	A-2				STA 278+86.3, 54' LT		20040343
30	B-1				STA 281+20.0, 54' LT		20040343
31	B-1				STA 283+90.0, 54' LT		20040343
32	B-1				STA 286+55.0, 54' LT		20040343
33	B-1				STA 289+20.0, 54' LT		20040343
34	B-1				STA 291+82.5, 54' LT		20040343
35	B-1				STA 294+42.5, 54' LT		20040343
36	B-1				STA 297+03.5, 54' LT		20040343
37	B-1				STA 299+63.5, 54' LT		20040343
38	B-1				STA 302+23.5, 54' LT		20040343
39	B-1				STA 304+83.5, 54' LT		20040343
40	B-1				STA 307+53.0, 54' LT		20040343
41	B-1	15'		35'	STA 309+60.0, 54' LT	715-4-32	20040343
42	B-2				STA 311+45.0, 54' LT		20040343
43	B-2				STA 313+30.0, 54' LT		20040343
44	B-2				STA 315+15.0, 54' LT		20040343
45	B-2				STA 317+00.0, 54' LT		20040343
46	B-2				STA 318+85.0, 54' LT		20040343
47	B-2				STA 320+70.0, 54' LT		20040343
48	B-2				STA 322+55.0, 54' LT		20040343
49	B-2				STA 324+40.0, 54' LT		20040343
50	C-1				STA 326+25.0, 54' LT		20040343
51	C-1	10'		45'	STA 328+40.1, 54' LT	715-4-112	20040343
52	C-1				STA 330+97.0, 54' LT		20040343
53	C-2				STA 333+23.0, 54' LT		20040343
54	C-2				STA 336+01.0, 54' LT		20040343
55	C-2				STA 338+66.0, 54' LT		20040343
56	C-2				STA 341+31.0, 54' LT		20040343
57	C-2				STA 343+96.0, 54' LT		20040343
58	C-2				STA 346+62.2, 54' LT		20040343

POLE DATA

POLE NO.	CIRCUIT	ARM/TILT	LUMINAIRE WATTAGE	MOUNTING HEIGHT	STATION AND OFFSET	PAY ITEM	PROJECT NUMBER
59	C-2	10'	400	45'	STA 349+36.0, 54' LT	715-4-112	20040343
60	C-2				STA 351+29.2, 54' LT		20040343
61	D-1				STA 354+82.0, 54' LT		20040343
62	D-1				STA 356+85.3, 54' LT		20040343
63	D-1				STA 359+46.3, 54' LT		20040343
64	D-1				STA 362+06.8, 54' LT		20040343
65	D-1				STA 364+67.9, 54' LT		20040343
66	D-1				STA 367+31.9, 54' LT		20040343
67	D-1				STA 369+93.0, 54' LT		20040343
68	D-1				STA 372+53.0, 54' LT		20040343
69	D-1				STA 375+14.0, 48' LT		20040343
70	D-1				STA 377+74.9, 44' LT		20040343
71	D-1	15'		35'	STA 379+80.0, 37' LT	715-4-32	20040343
72	D-1				STA 381+60.0, 27' LT		20040343
73	D-2				STA 383+40.0, 21' LT		20040343
74	D-2				STA 385+20.0, 20' LT		20040343
75	D-2				STA 387+00.0, 20' LT		20040343

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

LIGHTING POLE DATA

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7/17/2020 9:44:21 AM SConnor

CONVENTIONAL LIGHTING DESIGN CRITERIA

AVERAGE INITIAL INTENSITY	1.0 (H.F.C.)
UNIFORMITY RATIO AVG/MIN	4:1 OR LESS
UNIFORMITY RATIO MAX/MIN	10:1 OR LESS
WIND SPEED	150 MPH

LEGEND

SYMBOLS	DESCRIPTION
	400 WATT HIGH-PRESSURE SODIUM LUMINAIRE. INTERNAL REGULATOR TYPE BALLAST WIRED FOR 480 VOLT OPERATION. POLE MOUNTING HEIGHT IS 45 FEET. DESIGNED FOR SEMI-CUTOFF TYPE III DISTRIBUTION. LUMINAIRE IS GE M-400A POWER DOOR LUMINAIRE (PHOTOMETRIC CURVE GE 35-451008).
	400 WATT HIGH-PRESSURE SODIUM LUMINAIRE. INTERNAL REGULATOR TYPE BALLAST WIRED FOR 480 VOLT OPERATION. NOMINAL POLE MOUNTING HEIGHT IS 35'-0" WITH 18'-7" OVERALL POLE HEIGHT AND 45° BRACKET ARM. DESIGNED FOR SEMI-CUTOFF TYPE III DISTRIBUTION. LUMINAIRE IS GE M-400A POWER/DOOR (PHOTOMETRIC CURVE GE 35-451008).
	RELOCATE EXISTING LUMINAIRE AND POLE
	EXISTING LUMINAIRE AND POLE
	REMOVE EXISTING UNDERGROUND LIGHTING CONDUIT & CONDUCTORS
	2" SCHEDULE 40 PVC CONDUIT (UNDERPAVEMENT, OR OPEN TRENCH) WITH THREE RHW-2/XLP CONDUCTORS INSIDE THE CONDUIT: ONE WITH RED INSULATION, ONE WITH BLACK INSULATION, AND ONE GROUND WITH GREEN INSULATION INSIDE THE CONDUIT. (NUMBER AND SIZE OF CONDUCTORS AS SHOWN ON PLAN SHEETS).
	2" HIGH DENSITY POLYETHYLENE (HDPE) CONDUIT (DIRECTIONAL BORE) WITH THREE RHW-2/XLP CONDUCTORS INSIDE THE CONDUIT: ONE WITH RED INSULATION, ONE WITH BLACK INSULATION, AND ONE NEUTRAL WITH WHITE INSULATION. (NUMBER AND SIZE OF CONDUCTORS AS SHOWN ON PLAN SHEETS.)
	PULL BOX (EMBEDDED IN SIDEWALK)
	PULL BOX WITH CONCRETE SLAB. SEE FDOT INDEX 17500 FOR DETAILS.
	PROPOSED LOAD CENTER "A" (480V TO GROUND, 1 PHASE, 3 WIRE) (SEE "SERVICE POINT DETAIL " SHEET)
	FPL SERVICE POINT, FPL TO PROVIDE NEW TRANSFORMER WITH 480V TO GROUND, 1 PHASE, 3 WIRE SERVICE. COORDINATE WITH FPL PRIOR TO CONNECTION (SEE "SERVICE POINT DETAIL " SHEET)
	CONCRETE SLAB FOR POLE AND PULL BOX LOCATIONS. SEE FDOT INDEX 17500 FOR DETAILS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
CA 27017
CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

LIGHTING POLE LEGEND

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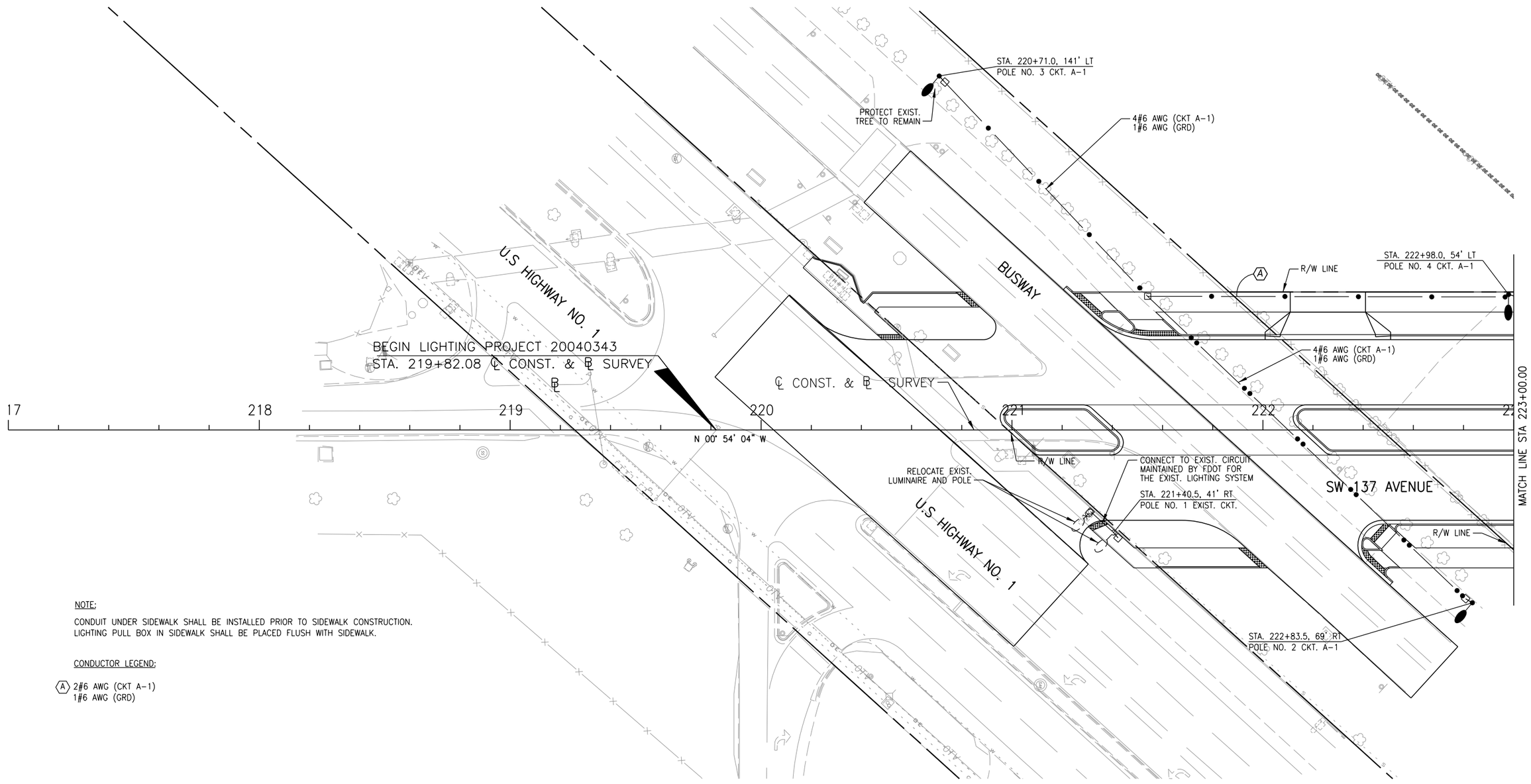
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORK
HIGHWAY DIVISION
SW 137 AVENUE
FROM US 1 TO SW 200 STREET
PROJECT NO. 20040343 SHEET L-07 OF L-40

0 20 40
SCALE 1"=40'



NOTE:

CONDUIT UNDER SIDEWALK SHALL BE INSTALLED PRIOR TO SIDEWALK CONSTRUCTION. LIGHTING PULL BOX IN SIDEWALK SHALL BE PLACED FLUSH WITH SIDEWALK.

CONDUCTOR LEGEND:

(A) 2#6 AWG (CKT A-1)
1#6 AWG (GRD)

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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SUPERVISED BY:					

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

LIGHTING PLAN

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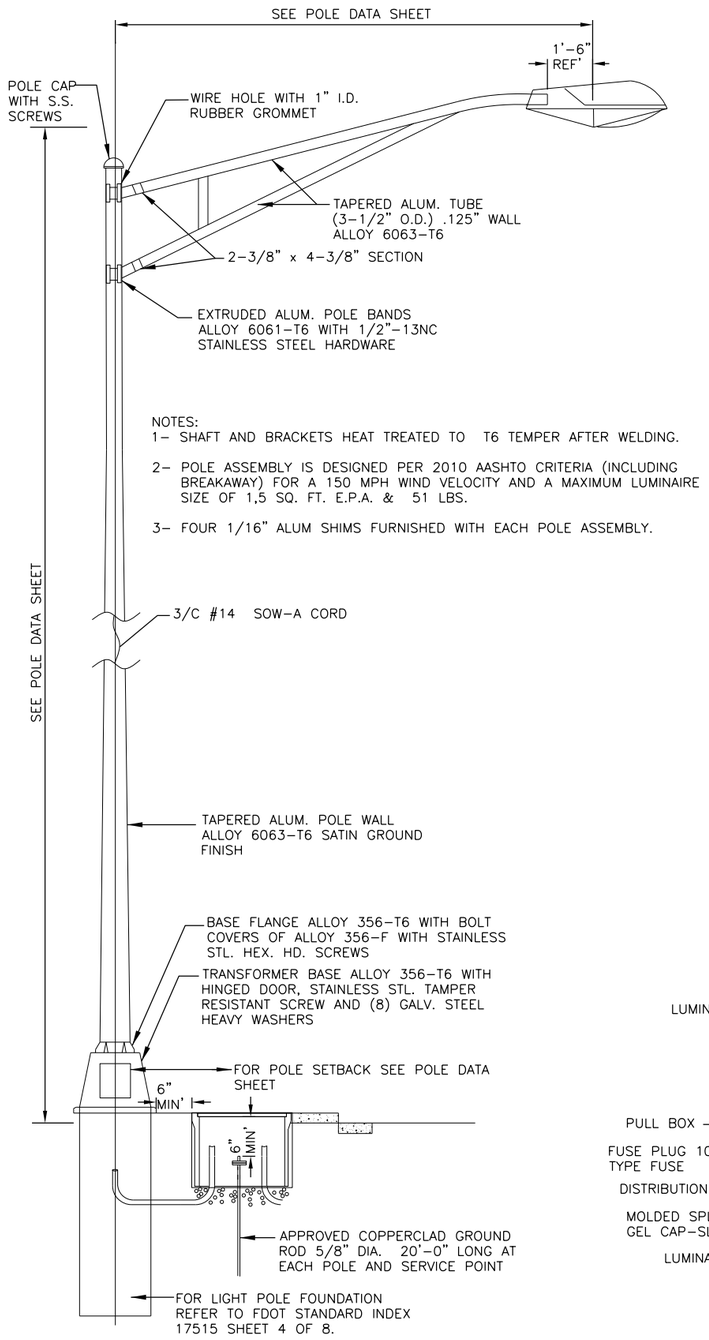
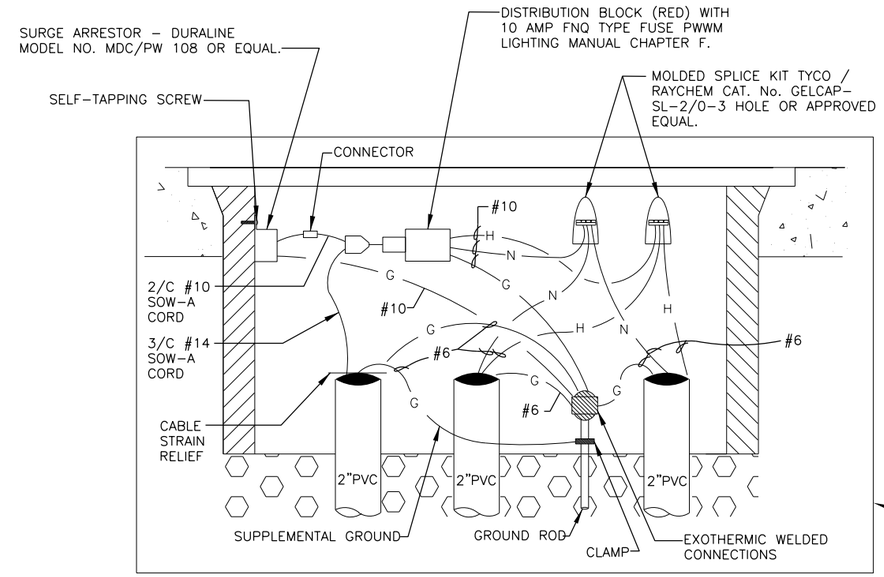
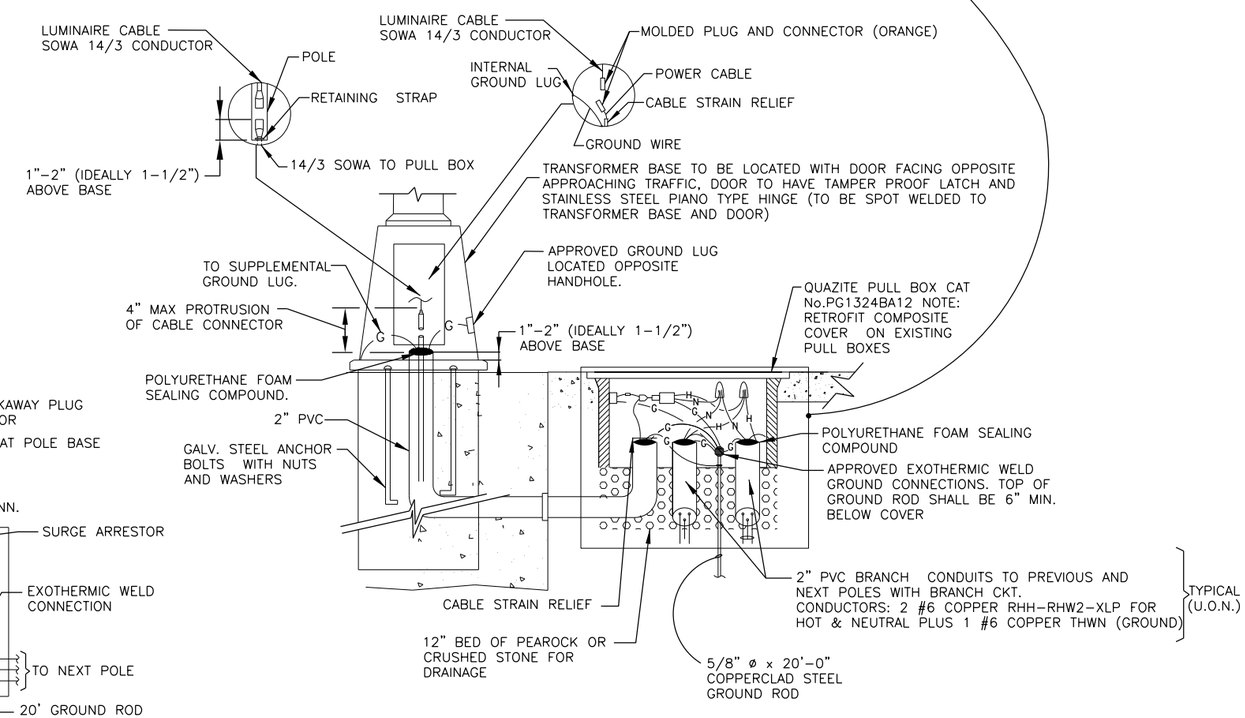


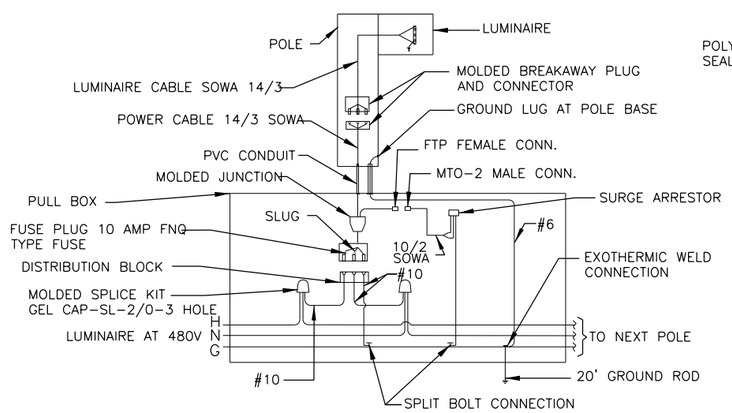
NOTES:
1- SHAFT AND BRACKETS HEAT TREATED TO T6 TEMPER AFTER WELDING.
2- POLE ASSEMBLY IS DESIGNED PER 2010 AASHTO CRITERIA (INCLUDING BREAKAWAY) FOR A 150 MPH WIND VELOCITY AND A MAXIMUM LUMINAIRE SIZE OF 1.5 SQ. FT. E.P.A. & 51 LBS.
3- FOUR 1/16" ALUM SHIMS FURNISHED WITH EACH POLE ASSEMBLY.

TYPICAL METAL POLE INSTALLATION DETAIL
N.T.S.





POLE WIRING DETAIL WITH PULL BOX
N.T.S.



WIRING DIAGRAM (POLE CABLE DISTRIBUTION)
N.T.S.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
4868 SW 72nd Avenue
Miami, Florida 33155
Tel (305)667-4772
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CHRISTOPHER P. MESZLER, P.E.
Lic. No. 74718

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MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

LIGHTING POLE DETAIL (1)

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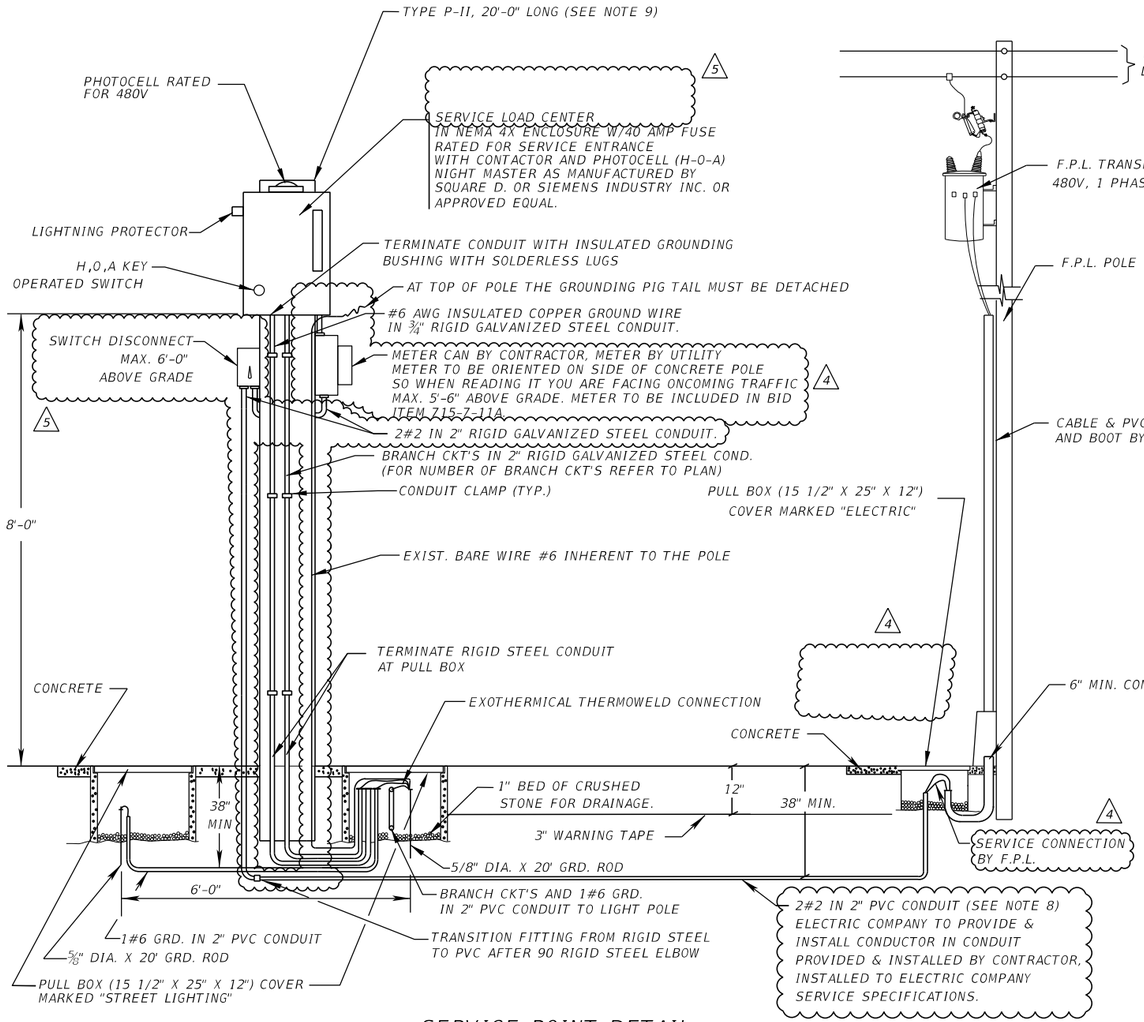
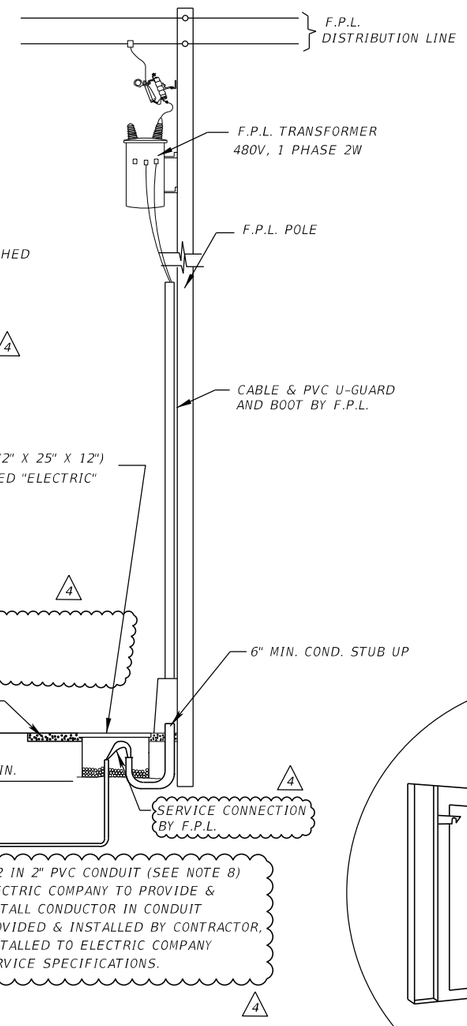
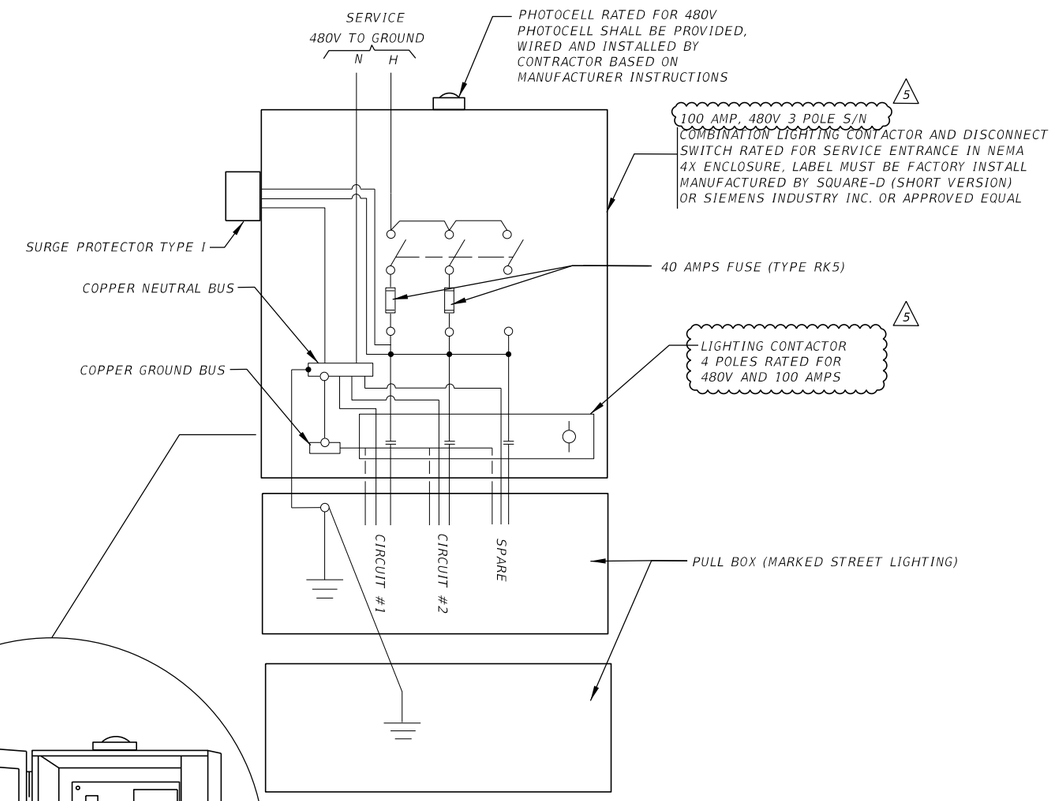
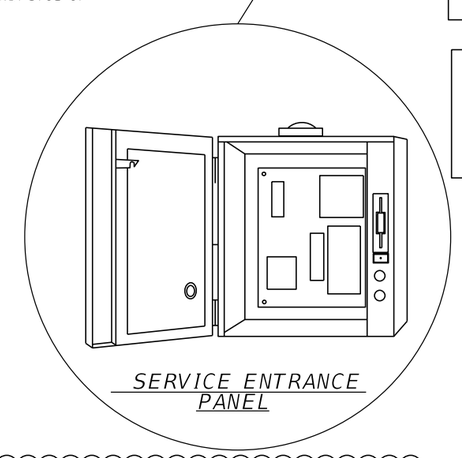


SERVICE POINT DETAIL
N.T.S.

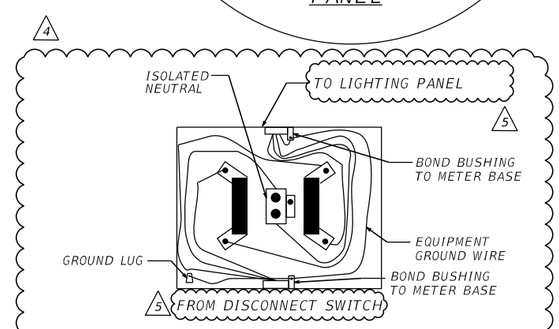




WIRING DIAGRAM
N.T.S



SERVICE ENTRANCE PANEL



METER SOCKET DETAIL
* METER CAN SHALL BE ALUMINUM

NOTES:

1. THE ENCLOSURE SHALL BE NEMA 4X (STAINLESS STEEL), POLE MOUNTED, RIGIDLY ATTACHED TO THE POLE FACE.
2. THE ENCLOSURE DOOR SHALL BE SECURED BY LOCKABLE LATCH.
3. A 600V SURGE PROTECTOR TYPE I SHALL BE WIRED INSIDE THE ENCLOSURE. NO SPLICING IN ENCLOSURE.
4. ALL SERVICE EQUIPMENT SHALL BE U.L. APPROVED.
5. CONTRACTOR SHALL COORDINATE WITH F.P.L. ENGINEERS FOR THE INSTALLATION OF THE F.P.L. RISER WHICH INCLUDES A CONNECTION FEE. (THIS FEE SHALL BE INCLUDED IN THE FPL CONNECTION FEE ALLOWANCE)
6. ALL GROUND ROD SHALL BE INTERCONNECTED (USING #6 GROUND WIRE).
7. PROVIDE SUPPLEMENTARY GROUND ELECTRODE SPACE AT LEAST 6FT.
8. ALL CONDUCTOR SHALL BE TYPE RHH-RHW2-XLP. (OTHER TYPE OF CONDUCTOR IS NOT ALLOWED. EXCEPT GROUND WIRE WHICH SHALL BE TYPE THWN.)
9. CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS OF THE POLE, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.
10. SURGE PROTECTOR TO BE WIRED ON LOAD SIDE OF DISCONNECT SWITCH.

FUSIBLE SWITCH SCHEDULE

	CKT NO	SERVING	KVA	AMPS	FUSE	WIRE/CONDUCT
LOAD CENTER A	A1	STREET LIGHT	480	15.6	40	6
	A2	STREET LIGHT	480	13.5	40	6
LOAD CENTER B	B1	STREET LIGHT	480	12.5	40	6
	B2	STREET LIGHT	480	8.4	40	6
LOAD CENTER C	C1	STREET LIGHT	480	3.1	40	6
	C2	STREET LIGHT	480	8.4	40	6
LOAD CENTER D	D1	STREET LIGHT	480	12.5	40	6
	D2	STREET LIGHT	480	3.1	40	6

CONTINUOUS LOADS= 480 VA
25% CONT. LOAD= 120 VA
TOTAL= 600 VA

$$Amp = \frac{VA}{V} = \frac{600}{480} = 1.25$$

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
1/02/20	CM	△1 MODIFIED DETAILS AND LABELS.						
2/27/20	CM	△1 MODIFIED DETAILS AND LABELS						

NEW MILLENNIUM DESIGN CONSULTANTS, INC.
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CHRISTOPHER P. MESZLER, P.E.
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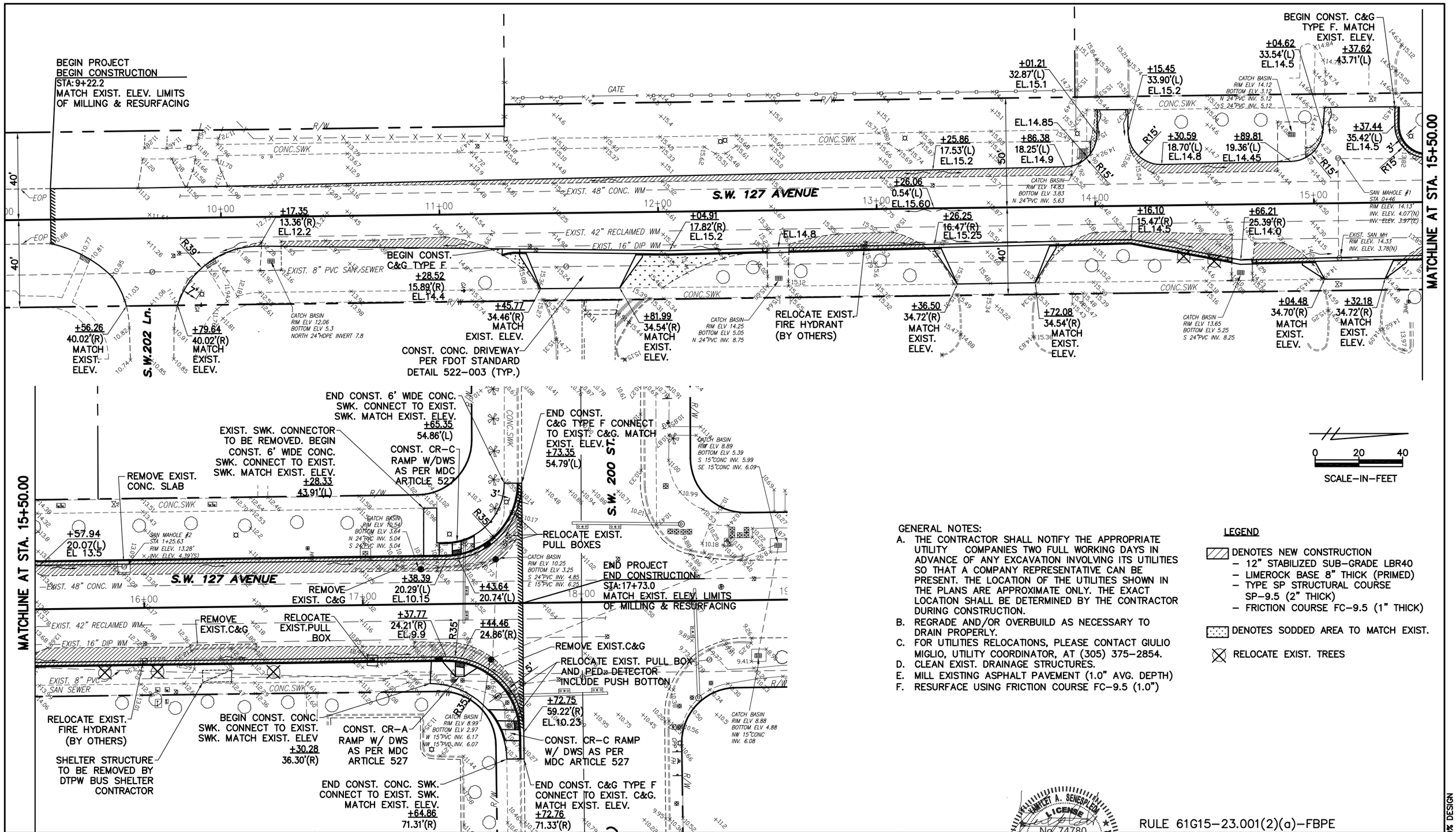
MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

SERVICE POINT DETAIL



GENERAL NOTES:

A. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANIES TWO FULL WORKING DAYS IN ADVANCE OF ANY EXCAVATION INVOLVING ITS UTILITIES SO THAT A COMPANY REPRESENTATIVE CAN BE PRESENT. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION.
B. REGRADE AND/OR OVERBUILD AS NECESSARY TO DRAIN PROPERLY.
C. FOR UTILITIES RELOCATIONS, PLEASE CONTACT GIULIO MIGLIO, UTILITY COORDINATOR, AT (305) 375-2854.
D. CLEAN EXIST. DRAINAGE STRUCTURES.
E. MILL EXISTING ASPHALT PAVEMENT (1.0" AVG. DEPTH)
F. RESURFACE USING FRICTION COURSE FC-9.5 (1.0")

LEGEND

- DENOTES NEW CONSTRUCTION
  - 12" STABILIZED SUB-GRADE LBR40
  - LIMEROCK BASE 8" THICK (PRIMED)
  - TYPE SP STRUCTURAL COURSE SP-9.5 (2" THICK)
  - FRICTION COURSE FC-9.5 (1" THICK)
- DENOTES SODDED AREA TO MATCH EXIST.
- RELOCATE EXIST. TREES

YAMILET A. SENESPLEDA LICENSE No. 74780 PROFESSIONAL ENGINEER STATE OF FLORIDA 11/25/2020

RULE 61G15-23.001(2)(a)-FBPE

100% DESIGN

REVISIONS		
DATE	REV	DESCRIPTION

MIAMI-DADE COUNTY DTPW

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION

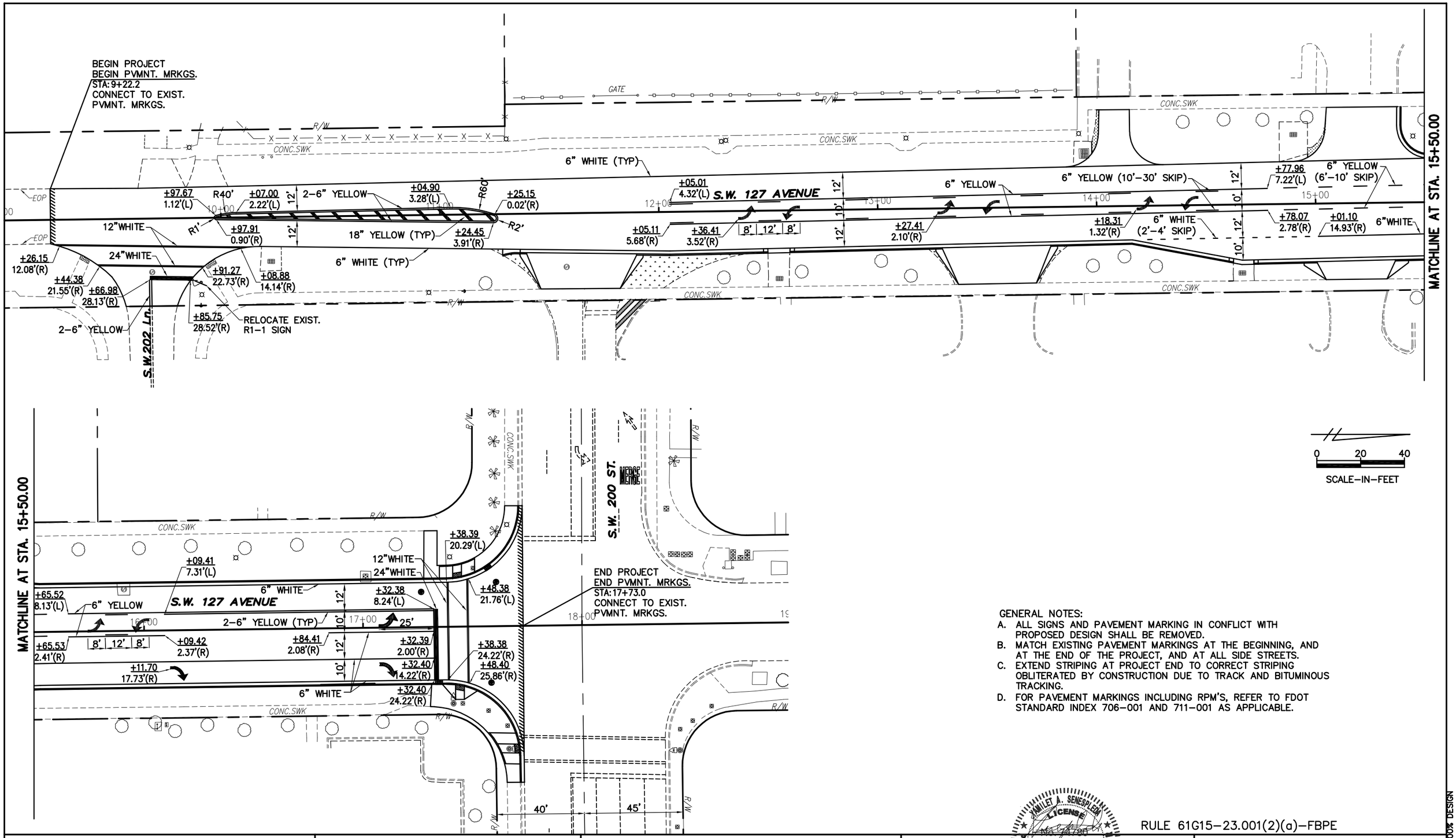
PROJECT No: 20180004 | SHEET 1 OF 3

YAMILET SENESPLEDA, P.E. 74780

SW 127 AVE & SW 200 ST
ROADWAY PLAN

G.T.	11/25/20
DESIGN	DATE

\\miamidade\nas2\PWWM2\TE-Design\Tnova\mdc\IntersectionImprovements\SW SECTION\SW 127 AVE & SW 200 ST\CADD\ SW 127 AVE & SW 200 ST 11 25 20.dwg



0 20 40
SCALE-IN-FEET

GENERAL NOTES:

A. ALL SIGNS AND PAVEMENT MARKING IN CONFLICT WITH PROPOSED DESIGN SHALL BE REMOVED.
B. MATCH EXISTING PAVEMENT MARKINGS AT THE BEGINNING, AND AT THE END OF THE PROJECT, AND AT ALL SIDE STREETS.
C. EXTEND STRIPING AT PROJECT END TO CORRECT STRIPING OBLITERATED BY CONSTRUCTION DUE TO TRACK AND BITUMINOUS TRACKING.
D. FOR PAVEMENT MARKINGS INCLUDING RPM'S, REFER TO FDOT STANDARD INDEX 706-001 AND 711-001 AS APPLICABLE.

YAMILET A. SENESPLEDA LICENSE No. 74780 PROFESSIONAL ENGINEER STATE OF FLORIDA
11/25/2020

RULE 61G15-23.001(2)(a)-FBPE

100% DESIGN

REVISIONS

DATE	REV	DESCRIPTION

MIAMI-DADE COUNTY DTPW

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION

PROJECT No: 20180004 | SHEET 2 OF 3

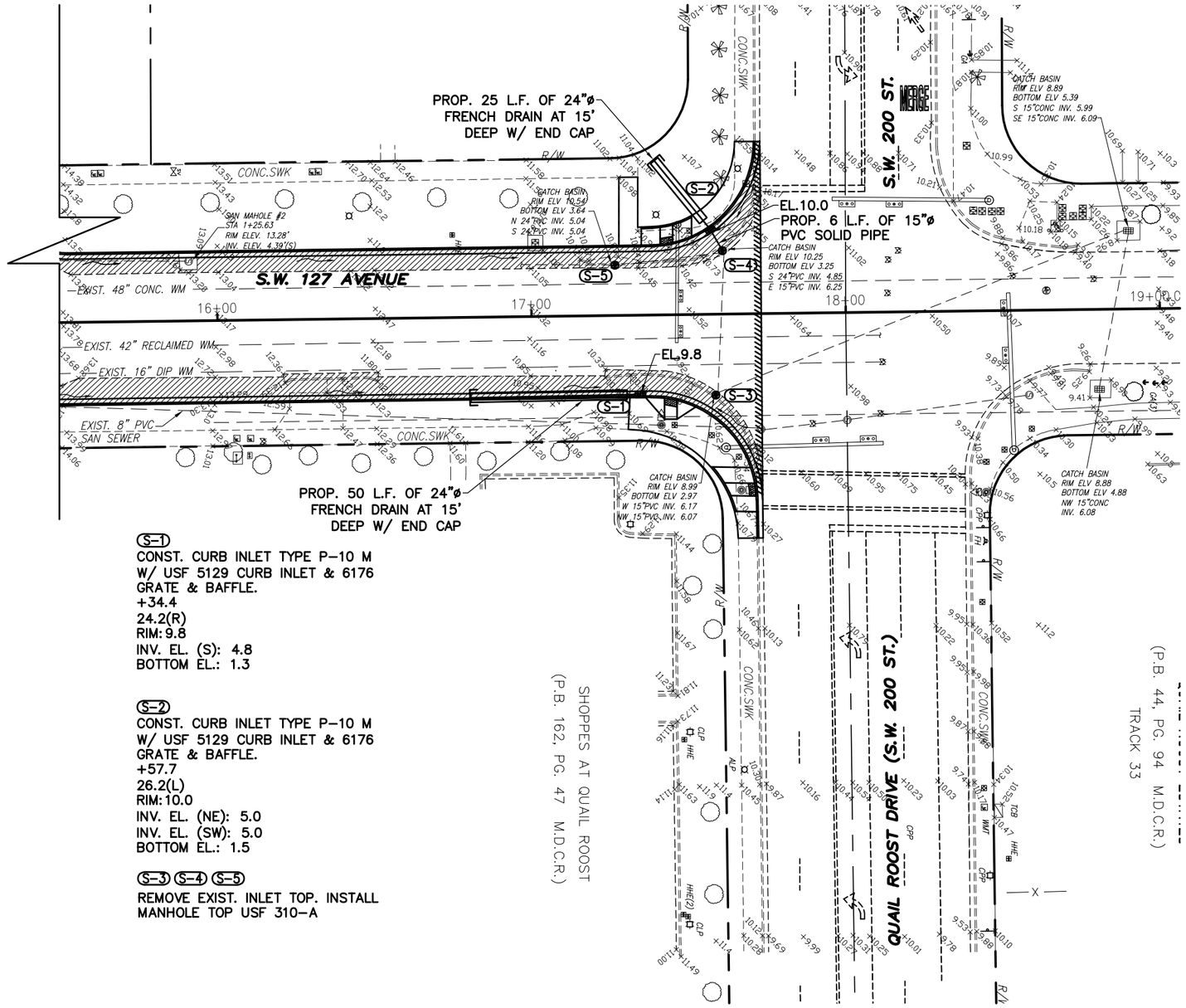
YAMILET SENESPLEDA, P.E. 74780

SW 127 AVE & SW 200 ST
PAVEMENT MARKING

G.T.	11/25/20
DESIGN	DATE

\\miamidade\nas2\PWWM2\TE-Design\Inova\mdc\IntersectionImprovements\SW SECTION\SW 127 AVE & SW 200 ST\CADD\ SW 127 AVE & SW 200 ST 11 25 20.dwg

0 20 40
SCALE-IN-FEET



S-1
CONST. CURB INLET TYPE P-10 M
W/ USF 5129 CURB INLET & 6176
GRATE & BAFFLE.
+34.4
24.2(R)
RIM: 9.8
INV. EL. (S): 4.8
BOTTOM EL.: 1.3

S-2
CONST. CURB INLET TYPE P-10 M
W/ USF 5129 CURB INLET & 6176
GRATE & BAFFLE.
+57.7
26.2(L)
RIM: 10.0
INV. EL. (NE): 5.0
INV. EL. (SW): 5.0
BOTTOM EL.: 1.5

S-3 S-4 S-5
REMOVE EXIST. INLET TOP. INSTALL
MANHOLE TOP USF 310-A

YAMILET A. SENESPLEDA
LICENSE
No. 74780
11/25/2020
STATE OF FLORIDA
PROFESSIONAL ENGINEER

RULE 61G15-23.001(2)(a)-FBPE

100% DESIGN

REVISIONS		
DATE	REV	DESCRIPTION

MIAMI-DADE COUNTY DTPW

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION
AND PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION

PROJECT No: 20180004 | SHEET 3 OF 3

YAMILET SENESPLEDA, P.E. 74780

SW 127 AVE & SW 200 ST
DRAINAGE DETAILS

G.T.	11/25/20
DESIGN	DATE

\\miamidade\nas2\PWWM2\TE-Design\Tnova\mdc\IntersectionImprovements\SW SECTION\SW 127 AVE & SW 200 ST\CADD\ SW 127 AVE & SW 200 ST 11 25 20.dwg

Appendix B: Data Collection

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 Study Segment

	EASTBOUND APPROACH				EASTBOUND DEPARTURE			
	137 AVE	134 AVE	132 AVE	127 AVE	137 AVE	134 AVE	132 AVE	127 AVE
Time	Approach	Approach	Approach	Approach	Departure	Departure	Departure	Departure
0	22	64	47	68	65	44	47	52
100	17	42	27	43	38	27	29	36
200	11	27	27	30	31	26	28	32
300	17	26	25	33	27	24	29	42
400	30	42	36	97	37	33	50	104
500	129	143	155	245	134	150	213	330
600	443	480	436	695	420	398	605	806
700	473	782	891	1183	672	740	1116	986
800	466	819	847	1072	668	795	933	929
900	348	503	485	642	496	445	558	741
1000	328	466	429	556	460	411	484	664
1100	317	496	436	569	477	416	495	643
1200	349	570	453	580	518	446	505	662
1300	362	588	521	658	590	502	572	701
1400	433	753	611	756	772	588	657	717
1500	514	863	678	815	862	637	709	822
1600	479	819	613	739	809	585	642	757
1700	563	885	658	800	880	645	696	770
1800	415	751	546	651	730	520	566	693
1900	262	550	444	538	576	427	468	562
2000	191	411	318	384	398	310	334	423
2100	94	260	196	219	270	188	190	259
2200	65	203	164	229	216	158	164	170
2300	43	115	86	120	120	89	86	99
Total	**6372**	**10659**	**9131**	**11724**	**10265**	**8603**	**10174**	**12000**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 Study Segment

	WESTBOUND APPROACH				WESTBOUND DEPARTURE			
	137 AVE	134 AVE	132 AVE	127 AVE	137 AVE	134 AVE	132 AVE	127 AVE
Time	Approach	Approach	Approach	Approach	Departure	Departure	Departure	Departure
0	40	38	74	74	23	40	38	50
100	30	23	39	43	14	30	23	28
200	24	16	30	28	10	23	16	21
300	33	23	36	34	19	33	23	32
400	68	54	73	51	33	67	53	49
500	259	194	283	154	104	254	192	164
600	577	472	648	441	262	565	467	431
700	913	918	1116	964	358	895	909	741
800	783	758	933	806	356	767	750	654
900	541	475	553	567	246	530	470	456
1000	458	406	470	555	218	449	402	431
1100	476	436	504	579	252	467	431	485
1200	521	470	572	653	271	510	466	506
1300	593	552	654	703	288	581	546	568
1400	678	643	873	949	347	664	637	700
1500	783	736	709	1053	414	767	729	912
1600	706	670	642	984	386	692	664	812
1700	615	616	696	1040	383	603	610	796
1800	558	549	870	907	325	547	544	726
1900	447	425	637	706	223	438	421	575
2000	294	282	443	492	181	288	280	397
2100	223	216	361	346	117	218	214	262
2200	127	121	220	235	80	124	119	167
2300	78	72	134	138	55	77	71	107
Total	**9825**	**9165**	**11572**	**12504**	**4965**	**9629**	**9073**	**10068**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 Study Segment

	NORTHBOUND APPROACH				NORTHBOUND DEPARTURE			
Time	137 AVE Approach	134 AVE Approach	132 AVE Approach	127 AVE Approach	137 AVE Departure	134 AVE Departure	132 AVE Departure	127 AVE Departure
0	---	17	10	32	25	6	---	17
100	---	19	4	20	15	5	---	10
200	---	15	4	16	9	4	---	5
300	---	22	6	25	25	5	---	8
400	---	36	31	73	41	9	---	20
500	---	153	135	273	155	36	---	77
600	---	262	294	725	335	75	---	236
700	---	247	367	918	497	105	---	460
800	---	211	236	817	440	91	---	391
900	---	223	173	614	340	70	---	250
1000	---	189	145	528	261	60	---	204
1100	---	160	141	531	252	58	---	234
1200	---	205	165	625	273	68	---	243
1300	---	202	173	661	299	73	---	285
1400	---	203	170	689	329	82	---	351
1500	---	195	155	692	340	89	---	347
1600	---	180	150	652	296	82	---	359
1700	---	176	145	712	291	79	---	360
1800	---	170	147	709	275	72	---	318
1900	---	130	165	536	253	55	---	293
2000	---	89	117	374	180	38	---	188
2100	---	71	88	214	124	28	---	134
2200	---	50	65	118	81	18	---	76
2300	---	32	24	63	45	11	---	38
Total	**N/A**	**3256**	**3111**	**10616**	**5182**	**1219**	**N/A**	**4901**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 Study Segment

	SOUTHBOUND APPROACH				SOUTHBOUND DEPARTURE			
	137 AVE	134 AVE	132 AVE	127 AVE	137 AVE	134 AVE	132 AVE	127 AVE
Time	Approach	Approach	Approach	Approach	Departure	Departure	Departure	Departure
0	36	0	---	25	---	27	18	62
100	21	0	---	17	---	16	8	29
200	17	1	---	8	---	13	6	18
300	15	0	---	16	---	18	5	21
400	21	1	---	26	---	22	4	18
500	74	5	---	51	---	59	17	48
600	233	13	---	166	---	139	38	178
700	373	50	---	318	---	204	68	323
800	371	92	---	348	---	226	85	351
900	276	19	---	261	---	167	62	205
1000	256	19	---	246	---	159	66	333
1100	265	15	---	288	---	165	69	379
1200	288	17	---	285	---	189	85	425
1300	328	23	---	306	---	192	80	413
1400	429	30	---	310	---	241	109	463
1500	479	49	---	384	---	329	186	617
1600	449	39	---	511	---	367	196	624
1700	489	62	---	541	---	403	230	576
1800	406	26	---	460	---	321	203	627
1900	320	20	---	329	---	236	154	540
2000	221	16	---	265	---	172	110	382
2100	150	8	---	171	---	111	85	244
2200	120	4	---	104	---	86	60	186
2300	66	2	---	61	---	57	37	118
Total	**5703**	**512**	**N/A**	**5494**	**N/A**	**3920**	**1980**	**7182**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 137 Ave
SB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	38	31	39	36
100	18	19	26	21
200	13	21	18	17
300	12	14	19	15
400	17	23	22	21
500	79	74	69	74
600	240	257	203	233
700	400	392	328	373
800	426	396	292	371
900	272	285	269	276
1000	266	254	248	256
1100	264	264	267	265
1200	281	282	299	288
1300	341	344	299	328
1400	406	452	429	429
1500	494	464	479	479
1600	456	443	449	449
1700	487	491	489	489
1800	419	392	406	406
1900	298	342	320	320
2000	225	217	221	221
2100	163	137	150	150
2200	119	121	120	120
2300	58	74	66	66
Total	**5792**	**5790**	**5527**	**5703**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 137 Ave
NB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	32	17	27	25
100	18	14	14	15
200	12	8	7	9
300	24	26	26	25
400	40	38	45	41
500	160	166	139	155
600	342	361	301	335
700	530	528	433	497
800	445	443	431	440
900	336	337	347	340
1000	257	289	238	261
1100	260	315	180	252
1200	323	312	184	273
1300	341	351	204	299
1400	384	393	210	329
1500	411	388	222	340
1600	327	359	203	296
1700	316	338	220	291
1800	310	250	265	275
1900	248	258	252	253
2000	181	176	183	180
2100	132	114	127	124
2200	84	76	83	81
2300	40	45	49	45
Total	**5553**	**5602**	**4390**	**5182**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 137 Ave
EB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	12	21	32	22
100	10	23	19	17
200	7	17	9	11
300	18	15	17	17
400	21	41	29	30
500	133	123	132	129
600	464	451	413	443
700	446	479	493	473
800	512	465	420	466
900	371	348	326	348
1000	339	295	351	328
1100	327	328	297	317
1200	341	362	345	349
1300	358	359	369	362
1400	405	420	473	433
1500	572	414	557	514
1600	513	467	458	479
1700	609	516	563	563
1800	378	451	417	415
1900	268	268	251	262
2000	178	202	194	191
2100	100	89	92	94
2200	69	59	68	65
2300	43	48	37	43
Total	**6494**	**6261**	**6362**	**6372**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 137 Ave
EB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	68	56	70	65
100	32	35	47	38
200	24	38	32	31
300	22	26	34	27
400	31	42	39	37
500	143	133	125	134
600	432	462	366	420
700	720	705	591	672
800	767	713	525	668
900	490	513	485	496
1000	478	457	446	460
1100	476	476	480	477
1200	506	508	539	518
1300	613	620	538	590
1400	731	813	772	772
1500	889	835	862	862
1600	820	798	809	809
1700	876	883	880	880
1800	755	705	730	730
1900	536	615	576	576
2000	405	391	398	398
2100	293	247	270	270
2200	214	217	216	216
2300	105	134	120	120
Total	**10426**	**10422**	**9948**	**10265**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 137 Ave
WB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	36	29	56	40
100	26	33	32	30
200	26	18	27	24
300	34	38	28	33
400	71	72	61	68
500	265	257	255	259
600	569	562	600	577
700	944	887	908	913
800	840	789	719	783
900	565	544	513	541
1000	453	461	460	458
1100	472	540	417	476
1200	521	544	497	521
1300	584	607	589	593
1400	709	700	624	678
1500	836	776	736	783
1600	764	678	676	706
1700	668	636	542	615
1800	563	582	530	558
1900	421	451	470	447
2000	277	332	273	294
2100	222	237	209	223
2200	125	141	114	127
2300	64	84	87	78
Total	**10055**	**9998**	**9423**	**9825**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 137 Ave
WB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	22	27	20	23
100	17	13	13	14
200	9	9	12	10
300	25	14	18	19
400	36	28	34	33
500	102	104	107	104
600	272	267	248	262
700	345	387	343	358
800	377	406	285	356
900	232	275	231	246
1000	220	227	208	218
1100	267	237	252	252
1200	300	242	271	271
1300	293	283	288	288
1400	328	366	347	347
1500	436	391	414	414
1600	395	376	386	386
1700	378	388	383	383
1800	352	326	297	325
1900	209	259	200	223
2000	168	196	178	181
2100	115	105	132	117
2200	81	79	80	80
2300	51	66	48	55
Total	**5030**	**5071**	**4794**	**4965**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
NB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	21	11	19	17
100	15	29	13	19
200	17	11	17	15
300	25	30	10	22
400	35	50	23	36
500	171	143	145	153
600	289	236	262	262
700	248	257	236	247
800	208	200	226	211
900	243	240	187	223
1000	209	183	174	189
1100	166	175	139	160
1200	195	200	219	205
1300	217	222	166	202
1400	186	225	199	203
1500	194	220	170	195
1600	184	194	161	180
1700	154	196	178	176
1800	185	169	156	170
1900	132	143	114	130
2000	78	105	85	89
2100	73	73	68	71
2200	49	54	46	50
2300	38	29	29	32
Total	**3331**	**3395**	**3041**	**3256**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
NB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	6	5	7	6
100	4	6	4	5
200	4	3	4	4
300	5	6	3	5
400	9	11	7	9
500	38	34	35	36
600	79	71	75	75
700	106	105	105	105
800	95	90	89	91
900	73	72	64	70
1000	63	58	59	60
1100	59	63	53	58
1200	67	70	68	68
1300	73	77	69	73
1400	81	86	79	82
1500	93	91	83	89
1600	84	83	78	82
1700	79	83	76	79
1800	73	73	69	72
1900	54	57	54	55
2000	35	42	36	38
2100	29	29	26	28
2200	18	20	17	18
2300	11	11	11	11
Total	**1238**	**1248**	**1171**	**1219**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
SB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	0	1	0	0
100	0	0	0	0
200	0	0	2	1
300	0	0	1	0
400	1	0	1	1
500	4	7	5	5
600	13	11	16	13
700	56	48	45	50
800	89	74	114	92
900	21	13	22	19
1000	14	20	22	19
1100	12	11	21	15
1200	11	26	15	17
1300	26	17	27	23
1400	33	27	31	30
1500	67	24	57	49
1600	58	25	34	39
1700	51	75	59	62
1800	25	26	28	26
1900	28	20	12	20
2000	12	22	14	16
2100	7	7	9	8
2200	6	5	2	4
2300	4	2	1	2
Total	**538**	**461**	**538**	**512**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
SB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	25	33	23	27
100	14	17	17	16
200	12	12	15	13
300	20	19	14	18
400	20	20	25	22
500	61	62	55	59
600	157	151	109	139
700	223	201	188	204
800	261	255	162	226
900	165	172	165	167
1000	166	160	151	159
1100	173	174	148	165
1200	193	192	183	189
1300	216	194	167	192
1400	247	252	225	241
1500	354	347	287	329
1600	387	377	337	367
1700	405	412	393	403
1800	330	324	308	321
1900	217	262	228	236
2000	167	159	190	172
2100	117	100	115	111
2200	94	81	84	86
2300	51	60	61	57
Total	**4075**	**4036**	**3650**	**3920**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
EB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	50	65	78	64
100	43	43	39	42
200	21	32	29	27
300	24	26	29	26
400	33	52	41	42
500	139	150	140	143
600	498	489	453	480
700	753	760	832	782
800	855	841	762	819
900	525	509	476	503
1000	471	435	493	466
1100	471	539	478	496
1200	563	599	547	570
1300	561	603	601	588
1400	755	746	757	753
1500	918	785	886	863
1600	819	840	798	819
1700	892	871	891	885
1800	723	778	752	751
1900	542	563	545	550
2000	382	441	410	411
2100	282	240	259	260
2200	211	190	207	203
2300	111	119	115	115
Total	**10642**	**10716**	**10618**	**10659**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
EB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	46	30	57	44
100	21	25	35	27
200	21	32	26	26
300	15	24	33	24
400	29	38	31	33
500	165	149	136	150
600	398	430	367	398
700	763	716	740	740
800	841	748	795	795
900	455	450	430	445
1000	427	405	400	411
1100	421	416	412	416
1200	442	434	461	446
1300	524	509	474	502
1400	631	666	466	588
1500	722	697	493	637
1600	629	574	552	585
1700	672	633	630	645
1800	540	536	485	520
1900	401	445	435	427
2000	311	303	315	310
2100	200	178	185	188
2200	155	166	152	158
2300	63	94	109	89
Total	**8892**	**8698**	**8218**	**8603**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
WB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	32	31	52	38
100	22	23	24	23
200	18	13	18	16
300	23	25	21	23
400	56	52	53	54
500	195	191	195	194
600	470	466	480	472
700	935	899	920	918
800	813	753	707	758
900	476	474	475	475
1000	398	402	417	406
1100	435	470	402	436
1200	474	499	438	470
1300	522	570	564	552
1400	670	667	593	643
1500	786	735	687	736
1600	702	654	655	670
1700	666	630	552	616
1800	550	568	529	549
1900	407	425	444	425
2000	274	313	260	282
2100	217	236	194	216
2200	115	138	109	121
2300	57	74	84	72
Total	**9313**	**9308**	**8873**	**9165**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 134 Ave
WB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	35	28	55	40
100	25	32	31	30
200	25	18	26	23
300	33	37	27	33
400	70	71	60	67
500	260	252	250	254
600	558	551	588	565
700	925	869	890	895
800	823	773	705	767
900	554	533	503	530
1000	444	452	451	449
1100	463	529	409	467
1200	511	533	487	510
1300	572	595	577	581
1400	695	686	612	664
1500	819	760	721	767
1600	749	664	662	692
1700	655	623	531	603
1800	552	570	519	547
1900	413	442	461	438
2000	271	325	268	288
2100	218	232	205	218
2200	123	138	112	124
2300	63	82	85	77
Total	**9854**	**9798**	**9235**	**9629**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 132 Ave
NB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	9	1	19	10
100	5	8	0	4
200	3	1	8	4
300	5	5	8	6
400	32	28	32	31
500	139	143	124	135
600	318	293	271	294
700	386	324	391	367
800	235	233	240	236
900	178	170	171	173
1000	135	142	157	145
1100	124	142	157	141
1200	174	162	158	165
1300	193	197	130	173
1400	194	145	170	170
1500	174	161	130	155
1600	139	162	150	150
1700	143	153	138	145
1800	164	140	138	147
1900	167	158	171	165
2000	103	152	97	117
2100	73	81	111	88
2200	57	80	57	65
2300	17	33	23	24
Total	**3168**	**3112**	**3052**	**3111**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 132 Ave
SB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	13	20	22	18
100	7	10	6	8
200	7	6	6	6
300	5	5	6	5
400	4	4	4	4
500	17	17	16	17
600	45	47	22	38
700	73	77	55	68
800	92	91	73	85
900	74	52	61	62
1000	77	73	47	66
1100	82	80	45	69
1200	96	100	58	85
1300	83	96	61	80
1400	129	136	61	109
1500	211	215	133	186
1600	211	219	157	196
1700	236	232	222	230
1800	205	217	186	203
1900	146	176	139	154
2000	112	103	114	110
2100	91	86	77	85
2200	54	64	62	60
2300	34	37	39	37
Total	**2104**	**2163**	**1672**	**1980**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 132 Ave
EB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	48	34	59	47
100	22	27	33	27
200	22	32	28	27
300	17	25	32	25
400	34	39	34	36
500	168	154	142	155
600	439	476	394	436
700	912	869	891	891
800	870	824	847	847
900	493	498	465	485
1000	450	418	420	429
1100	431	439	439	436
1200	456	443	459	453
1300	544	541	479	521
1400	647	695	492	611
1500	758	740	537	678
1600	685	592	562	613
1700	668	657	650	658
1800	569	564	505	546
1900	408	467	458	444
2000	332	311	312	318
2100	209	189	190	196
2200	158	176	158	164
2300	63	91	104	86
Total	**9403**	**9301**	**8690**	**9131**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 132 Ave
EB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	51	35	54	47
100	24	28	35	29
200	21	37	26	28
300	24	29	34	29
400	50	50	51	50
500	240	212	187	213
600	585	624	605	605
700	1121	1111	1116	1116
800	973	892	933	933
900	561	574	539	558
1000	515	461	475	484
1100	488	513	483	495
1200	507	500	507	505
1300	591	602	524	572
1400	713	735	523	657
1500	778	785	564	709
1600	710	633	584	642
1700	718	710	659	696
1800	592	585	522	566
1900	433	486	484	468
2000	346	332	323	334
2100	210	177	184	190
2200	158	173	160	164
2300	62	88	109	86
Total	**10471**	**10372**	**9680**	**10174**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 132 Ave
WB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	73	52	98	74
100	43	34	41	39
200	26	28	36	30
300	41	37	31	36
400	77	81	62	73
500	317	271	262	283
600	677	650	617	648
700	1121	1111	1116	1116
800	973	892	933	933
900	569	543	548	553
1000	476	473	462	470
1100	545	521	445	504
1200	570	659	487	572
1300	656	666	639	654
1400	911	874	833	873
1500	778	785	564	709
1600	710	633	584	642
1700	718	710	659	696
1800	915	828	866	870
1900	670	575	666	637
2000	496	423	411	443
2100	401	389	294	361
2200	222	235	204	220
2300	117	156	129	134
Total	**12102**	**11626**	**10987**	**11572**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 132 Ave
WB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	32	31	51	38
100	22	23	24	23
200	18	13	18	16
300	23	25	21	23
400	55	51	52	53
500	193	189	193	192
600	465	461	475	467
700	926	890	911	909
800	805	745	700	750
900	471	469	470	470
1000	394	398	413	402
1100	431	465	398	431
1200	469	494	434	466
1300	517	564	558	546
1400	663	660	587	637
1500	778	728	680	729
1600	695	647	648	664
1700	659	624	546	610
1800	545	562	524	544
1900	403	421	440	421
2000	271	310	257	280
2100	215	234	192	214
2200	114	137	108	119
2300	56	73	83	71
Total	**9220**	**9215**	**8784**	**9073**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
NB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	34	29	32	32
100	26	9	25	20
200	11	18	20	16
300	27	27	21	25
400	79	74	67	73
500	282	264	274	273
600	725	753	696	725
700	929	911	915	918
800	790	819	842	817
900	560	631	650	614
1000	481	492	610	528
1100	503	536	553	531
1200	569	691	615	625
1300	645	677	660	661
1400	707	693	668	689
1500	755	623	698	692
1600	620	697	640	652
1700	669	792	674	712
1800	664	706	756	709
1900	517	611	479	536
2000	394	408	319	374
2100	198	233	211	214
2200	113	112	130	118
2300	50	71	68	63
Total	**10348**	**10877**	**10623**	**10616**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
NB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	16	17	18	17
100	10	9	11	10
200	5	5	4	5
300	9	8	7	8
400	20	22	17	20
500	82	84	66	77
600	231	240	236	236
700	469	450	460	460
800	396	386	391	391
900	241	258	250	250
1000	208	200	204	204
1100	233	235	234	234
1200	247	238	243	243
1300	276	293	285	285
1400	345	357	351	351
1500	338	355	347	347
1600	384	333	359	359
1700	372	348	360	360
1800	322	287	345	318
1900	295	280	304	293
2000	165	205	194	188
2100	140	134	128	134
2200	65	82	81	76
2300	37	34	44	38
Total	**4906**	**4860**	**4936**	**4901**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
SB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	22	21	31	25
100	17	19	16	17
200	5	12	6	8
300	17	17	13	16
400	25	33	20	26
500	53	46	53	51
600	167	176	154	166
700	295	347	313	318
800	355	346	342	348
900	251	269	264	261
1000	251	237	250	246
1100	305	274	285	288
1200	294	266	296	285
1300	264	382	271	306
1400	306	375	248	310
1500	382	401	369	384
1600	488	507	539	511
1700	537	527	558	541
1800	447	467	465	460
1900	332	337	317	329
2000	257	282	255	265
2100	168	182	164	171
2200	103	108	100	104
2300	60	76	46	61
Total	**5401**	**5707**	**5375**	**5494**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
SB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	65	46	75	62
100	25	36	26	29
200	11	15	27	18
300	15	27	21	21
400	15	21	19	18
500	57	47	41	48
600	190	192	152	178
700	353	347	270	323
800	408	333	313	351
900	283	27	305	205
1000	309	296	393	333
1100	360	370	406	379
1200	388	352	536	425
1300	402	364	472	413
1400	477	478	435	463
1500	646	639	565	617
1600	646	676	550	624
1700	663	621	445	576
1800	646	639	597	627
1900	529	562	528	540
2000	384	392	370	382
2100	248	257	228	244
2200	185	200	174	186
2300	113	116	126	118
Total	**7418**	**7053**	**7074**	**7182**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
EB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	54	65	86	68
100	40	43	47	43
200	27	35	28	30
300	36	38	26	33
400	89	110	93	97
500	276	244	215	245
600	673	718	695	695
700	1189	1178	1183	1183
800	1119	1026	1072	1072
900	645	660	620	642
1000	592	530	546	556
1100	561	590	555	569
1200	583	575	583	580
1300	680	692	603	658
1400	820	845	601	756
1500	895	903	649	815
1600	817	728	672	739
1700	826	817	758	800
1800	681	673	600	651
1900	498	559	557	538
2000	398	382	371	384
2100	242	204	212	219
2200	217	233	238	229
2300	108	139	113	120
Total	**12064**	**11985**	**11123**	**11724**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
EB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	60	40	56	52
100	37	32	38	36
200	29	38	29	32
300	39	40	46	42
400	110	95	108	104
500	360	309	321	330
600	851	873	693	806
700	1011	1017	931	986
800	979	981	827	929
900	753	737	732	741
1000	703	637	652	664
1100	614	661	654	643
1200	666	621	699	662
1300	704	734	664	701
1400	709	800	643	717
1500	846	906	715	822
1600	821	751	700	757
1700	799	793	719	770
1800	686	691	701	693
1900	531	585	570	562
2000	430	423	416	423
2100	281	223	274	259
2200	152	179	179	170
2300	85	95	116	99
Total	**12256**	**12261**	**11483**	**12000**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
WB Approach

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	62	72	87	74
100	37	43	50	43
200	28	21	35	28
300	37	32	33	34
400	55	55	44	51
500	159	149	154	154
600	480	403	441	441
700	1036	942	915	964
800	883	796	739	806
900	613	541	547	567
1000	598	551	515	555
1100	638	565	535	579
1200	719	663	578	653
1300	733	709	666	703
1400	989	979	879	949
1500	1196	941	1023	1053
1600	1108	946	898	984
1700	1111	1055	954	1040
1800	988	865	868	907
1900	727	703	688	706
2000	509	523	445	492
2100	365	360	312	346
2200	234	258	213	235
2300	133	144	138	138
Total	**13438**	**12316**	**11757**	**12504**

Choice Engineering Consultants, Inc
12855 SR 132nd Street, Suite 200
Miami, FL 33186

SR 994 at SW 127 Ave
WB Departure

Time	8/31/2021	9/1/2021	9/2/2021	3-Day Avg
0	52	49	50	50
100	33	28	22	28
200	19	21	24	21
300	36	28	31	32
400	54	43	50	49
500	167	162	163	164
600	434	428	431	431
700	736	746	741	741
800	632	676	654	654
900	468	462	438	456
1000	407	455	431	431
1100	483	487	485	485
1200	531	480	506	506
1300	576	559	568	568
1400	669	730	700	700
1500	933	891	912	912
1600	818	806	812	812
1700	804	788	796	796
1800	728	723	726	726
1900	527	623	575	575
2000	423	387	380	397
2100	263	259	265	262
2200	153	176	173	167
2300	94	115	112	107
Total	**10040**	**10122**	**10043**	**10068**

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 137th Ave
Wednesday, Sept 8, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 137th Ave
Site Code : 99413701
Start Date : 9/8/2021
Page No : 1

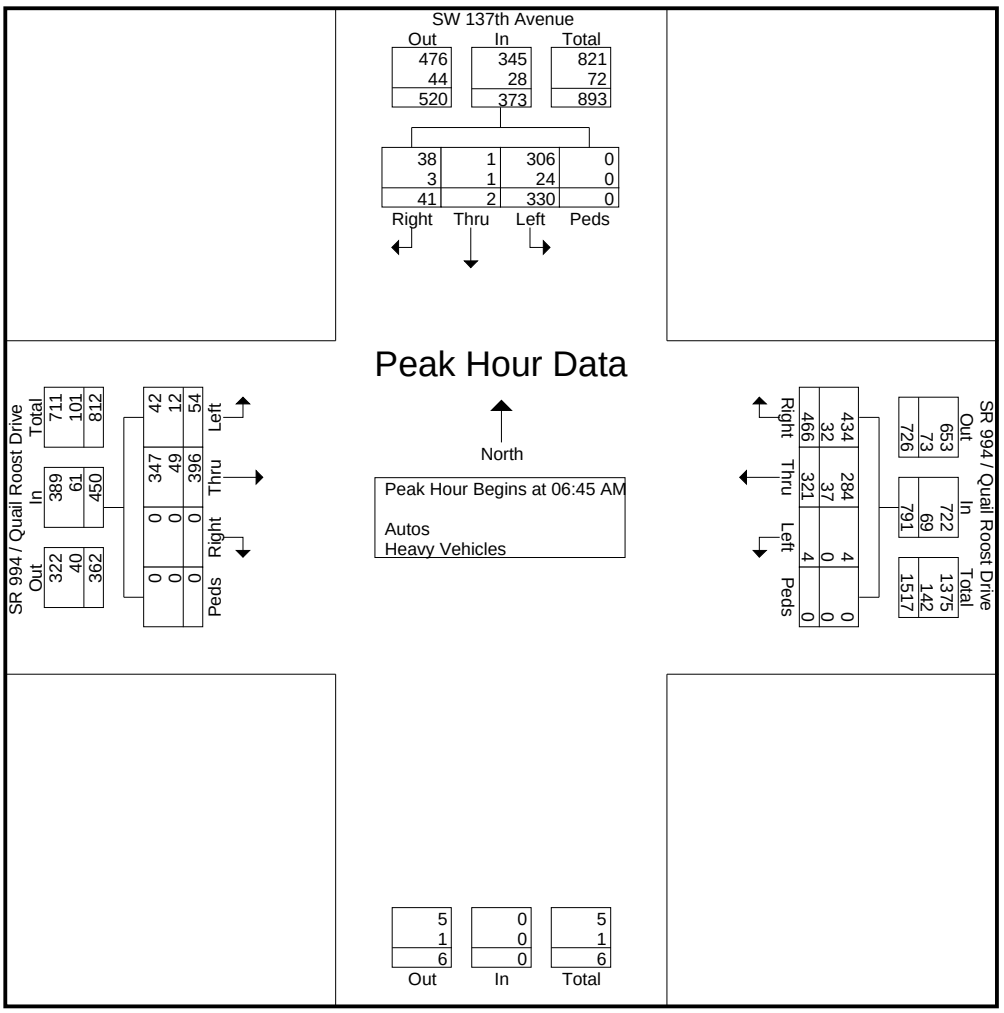
Groups Printed- Autos - Heavy Vehicles

	SW 137th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	6	0	39	0	45	93	81	0	0	174	0	0	78	9	0	87	306
06:45 AM	11	1	65	0	77	88	74	1	0	163	0	0	91	9	0	100	340
Total	17	1	104	0	122	181	155	1	0	337	0	0	169	18	0	187	646
07:00 AM	9	1	66	0	76	128	85	1	0	214	0	0	86	12	0	98	388
07:15 AM	12	0	101	0	113	122	70	1	0	193	0	0	105	17	0	122	428
07:30 AM	9	0	98	0	107	128	92	1	0	221	0	0	114	16	0	130	458
07:45 AM	10	0	51	0	61	111	83	0	0	194	0	0	66	4	0	70	325
Total	40	1	316	0	357	489	330	3	0	822	0	0	371	49	0	420	1599
08:00 AM	9	1	81	0	91	98	86	1	0	185	0	0	85	20	0	105	381
08:15 AM	7	1	99	0	107	108	91	0	0	199	0	0	110	25	0	135	441
08:30 AM	15	2	111	0	128	91	64	0	0	155	0	0	121	17	0	138	421
08:45 AM	15	0	103	0	118	104	66	1	0	171	0	0	69	11	0	80	369
Total	46	4	394	0	444	401	307	2	0	710	0	0	385	73	0	458	1612
09:00 AM	6	0	76	0	82	58	57	0	0	115	0	0	44	7	0	51	248
09:15 AM	8	0	62	0	70	92	63	0	0	155	0	0	65	12	0	77	302
*** BREAK ***																	
Total	14	0	138	0	152	150	120	0	0	270	0	0	109	19	0	128	550
*** BREAK ***																	
03:30 PM	8	2	125	0	135	78	61	0	0	139	0	0	118	9	0	127	401
03:45 PM	9	1	130	0	140	83	74	1	0	158	0	0	90	10	0	100	398
Total	17	3	255	0	275	161	135	1	0	297	0	0	208	19	0	227	799
04:00 PM	8	0	116	0	124	68	81	2	0	151	0	0	85	14	0	99	374
04:15 PM	14	0	104	0	118	61	88	0	0	149	0	0	97	7	0	104	371
04:30 PM	11	1	114	0	126	69	67	1	0	137	0	0	110	11	0	121	384
04:45 PM	15	0	107	0	122	70	79	0	0	149	0	0	130	6	0	136	407
Total	48	1	441	0	490	268	315	3	0	586	0	0	422	38	0	460	1536
05:00 PM	10	1	110	0	121	79	75	0	0	154	0	0	78	7	0	85	360
05:15 PM	12	0	123	0	135	63	85	1	0	149	0	0	118	11	0	129	413
05:30 PM	6	1	119	0	126	74	74	0	0	148	0	0	115	7	0	122	396
05:45 PM	9	0	140	0	149	66	60	0	0	126	0	0	78	9	1	88	363
Total	37	2	492	0	531	282	294	1	0	577	0	0	389	34	1	424	1532
06:00 PM	13	0	111	0	124	68	57	0	0	125	0	0	86	9	0	95	344
06:15 PM	10	0	107	0	117	71	63	0	0	134	0	0	76	9	0	85	336
Grand Total	242	12	2358	0	2612	2071	1776	11	0	3858	0	0	2215	268	1	2484	8954
Apprch %	9.3	0.5	90.3	0		53.7	46	0.3	0			0	89.2	10.8	0		
Total %	2.7	0.1	26.3	0	29.2	23.1	19.8	0.1	0	43.1	0	0	24.7	3	0	27.7	
Autos	198	7	2162	0	2367	1887	1502	8	0	3397	0	0	2001	235	1	2237	8001
% Autos	81.8	58.3	91.7	0	90.6	91.1	84.6	72.7	0	88.1	0	0	90.3	87.7	100	90.1	89.4
Heavy Vehicles	44	5	196	0	245	184	274	3	0	461	0	0	214	33	0	247	953
% Heavy Vehicles	18.2	41.7	8.3	0	9.4	8.9	15.4	27.3	0	11.9	0	0	9.7	12.3	0	9.9	10.6

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 137th Ave
Site Code : 99413701
Start Date : 9/8/2021
Page No : 2

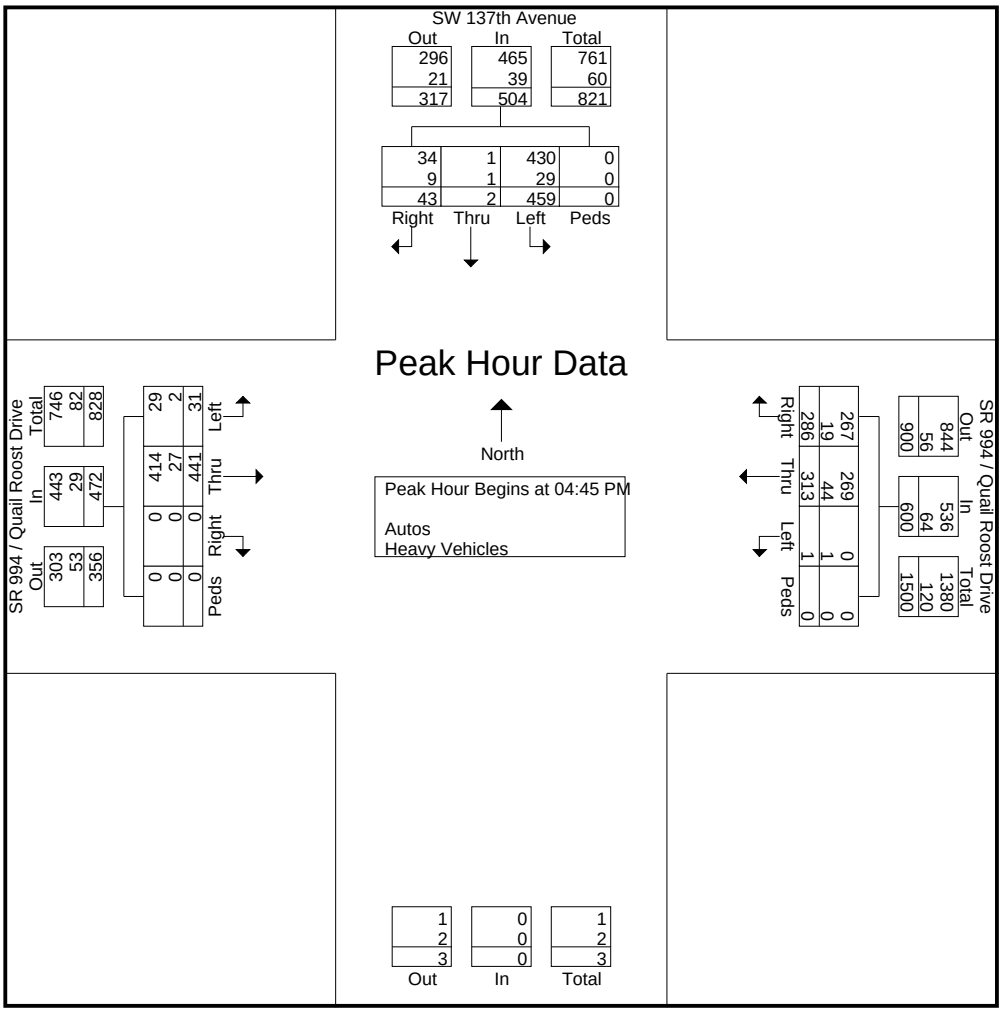
	SW 137th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	11	**1**	65	0	77	88	74	**1**	0	163	0	0	91	9	0	100	340
07:00 AM	9	1	66	0	76	**128**	85	1	0	214	0	0	86	12	0	98	388
07:15 AM	**12**	0	**101**	0	**113**	122	70	1	0	193	0	0	105	**17**	0	122	428
07:30 AM	9	0	98	0	107	128	**92**	1	0	**221**	0	0	**114**	16	0	**130**	**458**
Total Volume	41	2	330	0	373	466	321	4	0	791	0	0	396	54	0	450	1614
% App. Total	11	0.5	88.5	0		58.9	40.6	0.5	0			0	88	12	0		
PHF	.854	.500	.817	.000	.825	.910	.872	1.00	.000	.895	.000	.000	.868	.794	.000	.865	.881
Autos	38	1	306	0	345	434	284	4	0	722	0	0	347	42	0	389	1456
% Autos	92.7	50.0	92.7	0	92.5	93.1	88.5	100	0	91.3	0	0	87.6	77.8	0	86.4	90.2
Heavy Vehicles	3	1	24	0	28	32	37	0	0	69	0	0	49	12	0	61	158
% Heavy Vehicles	7.3	50.0	7.3	0	7.5	6.9	11.5	0	0	8.7	0	0	12.4	22.2	0	13.6	9.8



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 137th Ave
Site Code : 99413701
Start Date : 9/8/2021
Page No : 3

	SW 137th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**15**	0	107	0	122	70	79	0	0	149	0	0	**130**	6	0	**136**	407
05:00 PM	10	**1**	110	0	121	**79**	75	0	0	**154**	0	0	78	7	0	85	360
05:15 PM	12	0	**123**	0	**135**	63	**85**	**1**	0	149	0	0	118	**11**	0	129	**413**
05:30 PM	6	1	119	0	126	74	74	0	0	148	0	0	115	7	0	122	396
Total Volume	43	2	459	0	504	286	313	1	0	600	0	0	441	31	0	472	1576
% App. Total	8.5	0.4	91.1	0		47.7	52.2	0.2	0			0	93.4	6.6	0		
PHF	.717	.500	.933	.000	.933	.905	.921	.250	.000	.974	.000	.000	.848	.705	.000	.868	.954
Autos	34	1	430	0	465	267	269	0	0	536	0	0	414	29	0	443	1444
% Autos	79.1	50.0	93.7	0	92.3	93.4	85.9	0	0	89.3	0	0	93.9	93.5	0	93.9	91.6
Heavy Vehicles	9	1	29	0	39	19	44	1	0	64	0	0	27	2	0	29	132
% Heavy Vehicles	20.9	50.0	6.3	0	7.7	6.6	14.1	100	0	10.7	0	0	6.1	6.5	0	6.1	8.4



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 137th Ave
Wednesday, Sept 8, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 137th Ave
Site Code : 99413701
Start Date : 9/8/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 137th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	1	0	2	0	3	6	10	0	0	16	0	0	13	1	0	14	33
06:45 AM	2	1	2	0	5	7	6	0	0	13	0	0	15	1	0	16	34
Total	3	1	4	0	8	13	16	0	0	29	0	0	28	2	0	30	67
07:00 AM	0	0	6	0	6	8	6	0	0	14	0	0	7	1	0	8	28
07:15 AM	1	0	8	0	9	14	11	0	0	25	0	0	15	5	0	20	54
07:30 AM	0	0	8	0	8	3	14	0	0	17	0	0	12	5	0	17	42
07:45 AM	3	0	3	0	6	9	9	0	0	18	0	0	16	0	0	16	40
Total	4	0	25	0	29	34	40	0	0	74	0	0	50	11	0	61	164
08:00 AM	2	1	10	0	13	14	4	0	0	18	0	0	10	4	0	14	45
08:15 AM	1	1	9	0	11	7	11	0	0	18	0	0	13	2	0	15	44
08:30 AM	0	0	15	0	15	14	11	0	0	25	0	0	12	4	0	16	56
08:45 AM	4	0	12	0	16	14	13	1	0	28	0	0	14	1	0	15	59
Total	7	2	46	0	55	49	39	1	0	89	0	0	49	11	0	60	204
09:00 AM	3	0	8	0	11	8	11	0	0	19	0	0	6	0	0	6	36
09:15 AM	1	0	11	0	12	9	15	0	0	24	0	0	11	2	0	13	49
*** BREAK ***																	
Total	4	0	19	0	23	17	26	0	0	43	0	0	17	2	0	19	85
*** BREAK ***																	
03:30 PM	0	0	17	0	17	11	17	0	0	28	0	0	12	0	0	12	57
03:45 PM	4	1	11	0	16	9	17	0	0	26	0	0	6	3	0	9	51
Total	4	1	28	0	33	20	34	0	0	54	0	0	18	3	0	21	108
04:00 PM	1	0	13	0	14	4	17	0	0	21	0	0	7	2	0	9	44
04:15 PM	2	0	4	0	6	6	20	0	0	26	0	0	4	0	0	4	36
04:30 PM	1	0	8	0	9	7	14	1	0	22	0	0	4	0	0	4	35
04:45 PM	2	0	9	0	11	4	14	0	0	18	0	0	7	0	0	7	36
Total	6	0	34	0	40	21	65	1	0	87	0	0	22	2	0	24	151
05:00 PM	3	0	7	0	10	5	9	0	0	14	0	0	6	1	0	7	31
05:15 PM	2	0	7	0	9	6	12	1	0	19	0	0	7	0	0	7	35
05:30 PM	2	1	6	0	9	4	9	0	0	13	0	0	7	1	0	8	30
05:45 PM	3	0	7	0	10	6	10	0	0	16	0	0	3	0	0	3	29
Total	10	1	27	0	38	21	40	1	0	62	0	0	23	2	0	25	125
06:00 PM	4	0	7	0	11	7	7	0	0	14	0	0	4	0	0	4	29
06:15 PM	2	0	6	0	8	2	7	0	0	9	0	0	3	0	0	3	20
Grand Total	44	5	196	0	245	184	274	3	0	461	0	0	214	33	0	247	953
Apprch %	18	2	80	0		39.9	59.4	0.7	0			0	86.6	13.4	0		
Total %	4.6	0.5	20.6	0	25.7	19.3	28.8	0.3	0	48.4	0	0	22.5	3.5	0	25.9	

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SR 994/Quail Roost Dr and SW 135th Ave
Thursday, Sept 9, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 135th Ave
Site Code : 99413501
Start Date : 9/9/2021
Page No : 1

Groups Printed- Autos - Heavy Vehicles

	SW 135th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	2	0	2	1	168	0	0	169	0	0	140	0	0	140	311
06:45 AM	0	0	4	0	4	1	145	0	0	146	0	0	138	1	0	139	289
Total	0	0	6	0	6	2	313	0	0	315	0	0	278	1	0	279	600
07:00 AM	0	0	1	0	1	1	199	0	0	200	0	0	162	1	0	163	364
07:15 AM	1	0	1	0	2	1	207	0	0	208	0	0	185	0	0	185	395
07:30 AM	0	0	3	0	3	0	210	0	0	210	0	0	189	0	0	189	402
07:45 AM	1	0	2	0	3	1	201	0	0	202	0	0	142	0	0	142	347
Total	2	0	7	0	9	3	817	0	0	820	0	0	678	1	0	679	1508
08:00 AM	3	0	5	0	8	3	174	0	0	177	0	0	185	0	0	185	370
08:15 AM	0	0	1	0	1	0	198	0	0	198	0	0	226	0	0	226	425
08:30 AM	0	0	6	0	6	0	207	0	0	207	0	0	183	2	0	185	398
08:45 AM	0	0	2	0	2	3	139	0	0	142	0	0	210	0	0	210	354
Total	3	0	14	0	17	6	718	0	0	724	0	0	804	2	0	806	1547
09:00 AM	0	0	0	0	0	1	120	0	0	121	0	0	143	0	0	143	264
09:15 AM	0	0	2	0	2	0	121	0	0	121	0	0	117	0	0	117	240
09:30 AM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																	
Total	1	0	2	1	4	1	241	0	0	242	0	0	260	0	0	260	506
*** BREAK ***																	
03:30 PM	2	0	2	0	4	4	182	0	0	186	0	1	191	1	0	193	383
03:45 PM	1	0	0	0	1	1	197	0	0	198	0	0	174	0	0	174	373
Total	3	0	2	0	5	5	379	0	0	384	0	1	365	1	0	367	756
04:00 PM	1	0	2	0	3	0	162	0	0	162	0	0	201	0	0	201	366
04:15 PM	1	0	3	0	4	0	135	0	0	135	0	0	198	0	0	198	337
04:30 PM	2	0	2	0	4	1	152	0	0	153	0	0	207	1	0	208	365
04:45 PM	0	0	5	0	5	1	155	0	0	156	0	0	229	1	0	230	391
Total	4	0	12	0	16	2	604	0	0	606	0	0	835	2	0	837	1459
05:00 PM	0	0	6	0	6	1	160	0	0	161	0	0	197	0	0	197	364
05:15 PM	0	0	4	0	4	1	150	0	0	151	0	0	232	1	0	233	388
05:30 PM	0	0	4	0	4	1	162	0	0	163	0	0	225	0	0	225	392
05:45 PM	0	0	2	0	2	3	171	0	0	174	0	0	181	0	0	181	357
Total	0	0	16	0	16	6	643	0	0	649	0	0	835	1	0	836	1501
06:00 PM	0	0	2	0	2	0	156	0	0	156	0	0	206	0	0	206	364
06:15 PM	0	0	0	0	0	0	161	0	0	161	0	0	192	0	0	192	353
Grand Total	13	0	61	1	75	25	4032	0	0	4057	0	1	4453	8	0	4462	8594
Apprch %	17.3	0	81.3	1.3		0.6	99.4	0	0			0	99.8	0.2	0		
Total %	0.2	0	0.7	0	0.9	0.3	46.9	0	0	47.2	0	0	51.8	0.1	0	51.9	
Autos	12	0	60	1	73	23	3883	0	0	3906	0	1	4341	8	0	4350	8329
% Autos	92.3	0	98.4	100	97.3	92	96.3	0	0	96.3	0	100	97.5	100	0	97.5	96.9
Heavy Vehicles	1	0	1	0	2	2	149	0	0	151	0	0	112	0	0	112	265
% Heavy Vehicles	7.7	0	1.6	0	2.7	8	3.7	0	0	3.7	0	0	2.5	0	0	2.5	3.1

Choice Engineering Consultants, Inc
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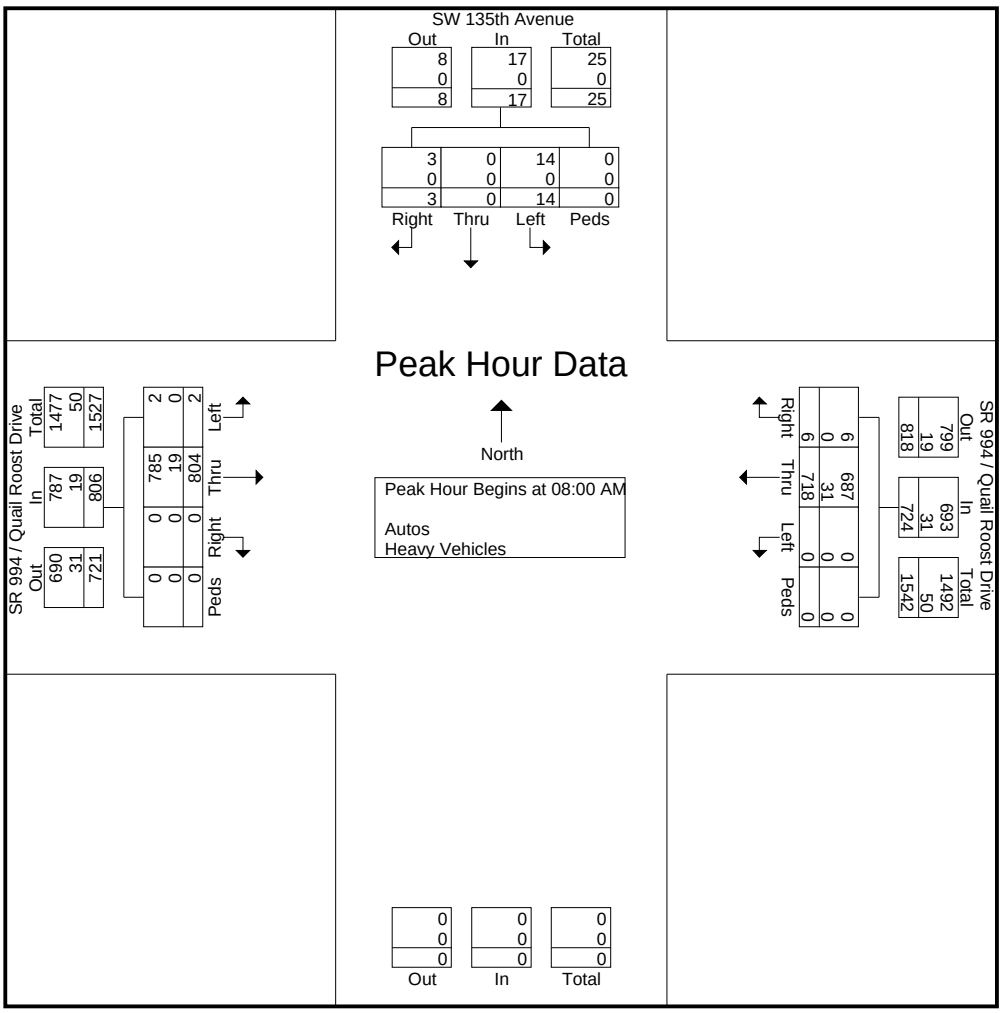
File Name : SW 135th Ave
Site Code : 99413501
Start Date : 9/9/2021
Page No : 2

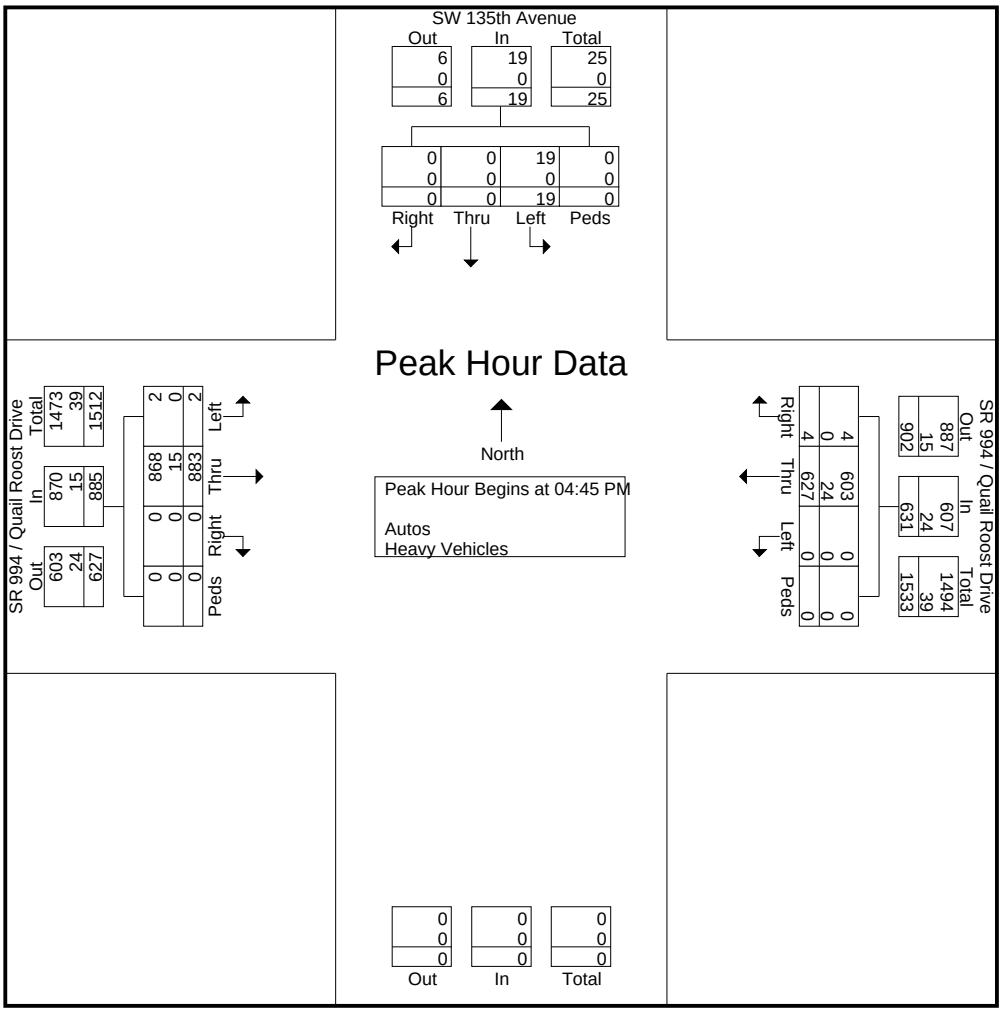
	SW 135th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**3**	0	5	0	**8**	**3**	174	0	0	177	0	0	185	0	0	185	370
08:15 AM	0	0	1	0	1	0	198	0	0	198	0	0	**226**	0	0	**226**	**425**
08:30 AM	0	0	**6**	0	6	0	**207**	0	0	**207**	0	0	183	**2**	0	185	398
08:45 AM	0	0	2	0	2	3	139	0	0	142	0	0	210	0	0	210	354
Total Volume	3	0	14	0	17	6	718	0	0	724	0	0	804	2	0	806	1547
% App. Total	17.6	0	82.4	0		0.8	99.2	0	0			0	99.8	0.2	0		
PHF	.250	.000	.583	.000	.531	.500	.867	.000	.000	.874	.000	.000	.889	.250	.000	.892	.910
Autos	3	0	14	0	17	6	687	0	0	693	0	0	785	2	0	787	1497
% Autos	100	0	100	0	100	100	95.7	0	0	95.7	0	0	97.6	100	0	97.6	96.8
Heavy Vehicles	0	0	0	0	0	0	31	0	0	31	0	0	19	0	0	19	50
% Heavy Vehicles	0	0	0	0	0	0	4.3	0	0	4.3	0	0	2.4	0	0	2.4	3.2



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 135th Ave
Site Code : 99413501
Start Date : 9/9/2021
Page No : 3

	SW 135th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	5	0	5	**1**	155	0	0	156	0	0	229	**1**	0	230	391
05:00 PM	0	0	**6**	0	**6**	1	160	0	0	161	0	0	197	0	0	197	364
05:15 PM	0	0	4	0	4	1	150	0	0	151	0	0	**232**	1	0	**233**	388
05:30 PM	0	0	4	0	4	1	**162**	0	0	**163**	0	0	225	0	0	225	**392**
Total Volume	0	0	19	0	19	4	627	0	0	631	0	0	883	2	0	885	1535
% App. Total	0	0	100	0		0.6	99.4	0	0			0	99.8	0.2	0		
PHF	.000	.000	.792	.000	.792	1.00	.968	.000	.000	.968	.000	.000	.952	.500	.000	.950	.979
Autos	0	0	19	0	19	4	603	0	0	607	0	0	868	2	0	870	1496
% Autos	0	0	100	0	100	100	96.2	0	0	96.2	0	0	98.3	100	0	98.3	97.5
Heavy Vehicles	0	0	0	0	0	0	24	0	0	24	0	0	15	0	0	15	39
% Heavy Vehicles	0	0	0	0	0	0	3.8	0	0	3.8	0	0	1.7	0	0	1.7	2.5



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 135th Ave
Thursday, Sept 9, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 135th Ave
Site Code : 99413501
Start Date : 9/9/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 135th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	9	0	0	9	11
06:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	4	0	0	4	9
Total	0	0	0	0	0	1	6	0	0	7	0	0	13	0	0	13	20
07:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	8	0	0	8	13
07:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	8	0	0	8	12
07:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	0	1	7
07:45 AM	0	0	0	0	0	0	8	0	0	8	0	0	2	0	0	2	10
Total	0	0	0	0	0	0	23	0	0	23	0	0	19	0	0	19	42
08:00 AM	0	0	0	0	0	0	11	0	0	11	0	0	2	0	0	2	13
08:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	7	0	0	7	12
08:30 AM	0	0	0	0	0	0	7	0	0	7	0	0	4	0	0	4	11
08:45 AM	0	0	0	0	0	0	8	0	0	8	0	0	6	0	0	6	14
Total	0	0	0	0	0	0	31	0	0	31	0	0	19	0	0	19	50
09:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	9	0	0	9	12
09:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	4	0	0	4	8
*** BREAK ***																	
Total	0	0	0	0	0	0	7	0	0	7	0	0	13	0	0	13	20
*** BREAK ***																	
03:30 PM	0	0	1	0	1	0	6	0	0	6	0	0	6	0	0	6	13
03:45 PM	0	0	0	0	0	0	7	0	0	7	0	0	5	0	0	5	12
Total	0	0	1	0	1	0	13	0	0	13	0	0	11	0	0	11	25
04:00 PM	0	0	0	0	0	0	12	0	0	12	0	0	6	0	0	6	18
04:15 PM	0	0	0	0	0	0	9	0	0	9	0	0	8	0	0	8	17
04:30 PM	1	0	0	0	1	1	10	0	0	11	0	0	2	0	0	2	14
04:45 PM	0	0	0	0	0	0	7	0	0	7	0	0	5	0	0	5	12
Total	1	0	0	0	1	1	38	0	0	39	0	0	21	0	0	21	61
05:00 PM	0	0	0	0	0	0	12	0	0	12	0	0	5	0	0	5	17
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	0	1	4
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	4	0	0	4	6
05:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	4	0	0	4	9
Total	0	0	0	0	0	0	22	0	0	22	0	0	14	0	0	14	36
06:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	0	1	7
06:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	0	1	4
Grand Total	1	0	1	0	2	2	149	0	0	151	0	0	112	0	0	112	265
Apprch %	50	0	50	0		1.3	98.7	0	0			0	100	0	0		
Total %	0.4	0	0.4	0	0.8	0.8	56.2	0	0	57	0	0	42.3	0	0	42.3	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 134th Ct
Thursday, Sept 9, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 134th Ct
Site Code : 99413401
Start Date : 9/9/2021
Page No : 1

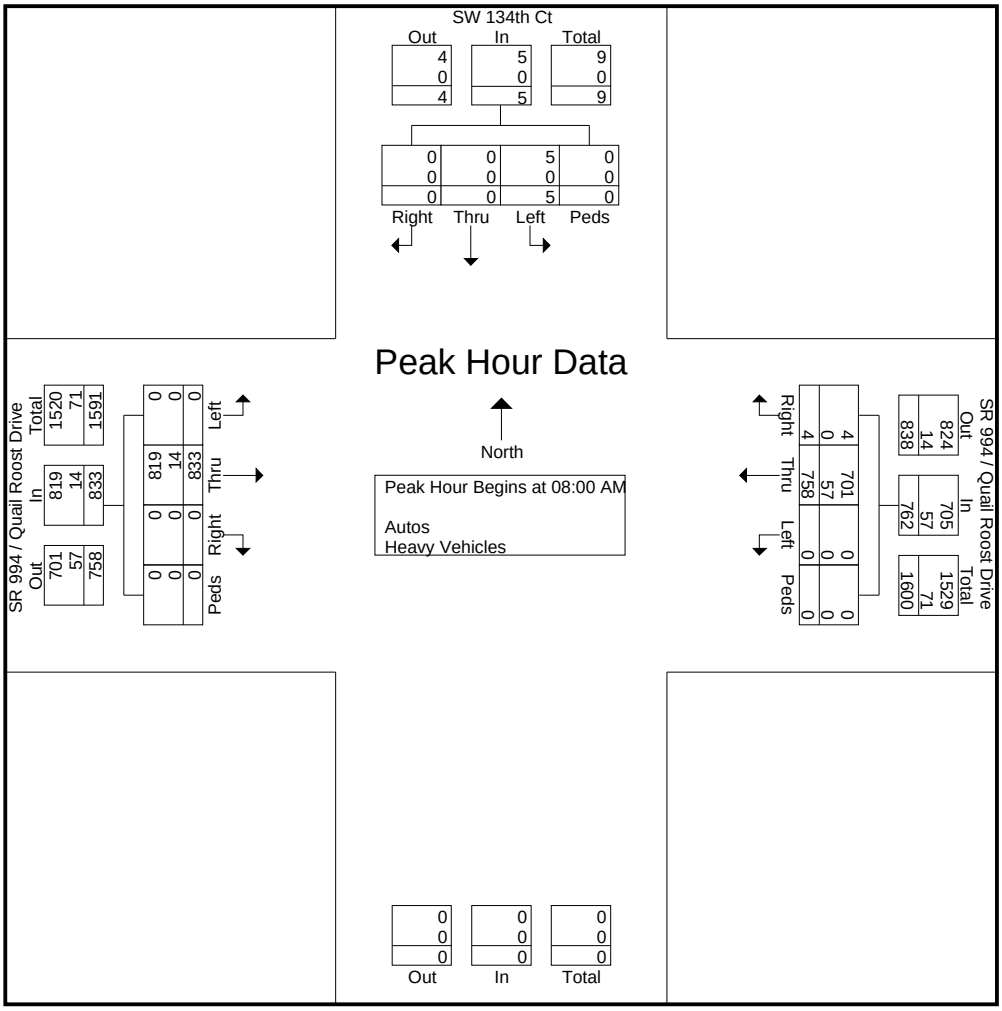
Groups Printed- Autos - Heavy Vehicles

	SW 134th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	0	1	0	1	0	159	0	0	159	0	0	132	0	0	132	292
06:45 AM	0	0	1	0	1	0	151	0	0	151	0	0	151	0	0	151	303
Total	0	0	2	0	2	0	310	0	0	310	0	0	283	0	0	283	595
07:00 AM	0	0	0	0	0	0	202	0	0	202	0	0	159	0	0	159	361
07:15 AM	0	0	3	0	3	1	189	0	0	190	0	0	192	0	0	192	385
07:30 AM	2	0	0	0	2	0	193	0	0	193	0	0	186	0	0	186	381
07:45 AM	0	0	1	0	1	1	213	0	0	214	0	0	147	0	0	147	362
Total	2	0	4	0	6	2	797	0	0	799	0	0	684	0	0	684	1489
08:00 AM	0	0	1	0	1	1	187	0	0	188	0	0	197	0	0	197	386
08:15 AM	0	0	1	0	1	1	202	0	0	203	0	0	221	0	0	221	425
08:30 AM	0	0	2	0	2	1	205	0	0	206	0	0	205	0	0	205	413
08:45 AM	0	0	1	0	1	1	164	0	0	165	0	0	210	0	0	210	376
Total	0	0	5	0	5	4	758	0	0	762	0	0	833	0	0	833	1600
09:00 AM	0	0	1	0	1	0	132	0	0	132	0	0	147	0	0	147	280
09:15 AM	0	0	3	0	3	1	119	0	0	120	0	0	133	0	0	133	256
*** BREAK ***																	
Total	0	0	4	0	4	1	251	0	0	252	0	0	280	0	0	280	536
*** BREAK ***																	
03:30 PM	0	0	0	0	0	1	182	0	0	183	0	0	191	0	0	191	374
03:45 PM	0	0	0	0	0	0	216	0	0	216	0	0	174	0	0	174	390
Total	0	0	0	0	0	1	398	0	0	399	0	0	365	0	0	365	764
04:00 PM	0	0	1	0	1	2	172	0	0	174	0	0	206	0	0	206	381
04:15 PM	0	0	1	0	1	2	141	0	0	143	0	0	214	0	0	214	358
04:30 PM	1	0	0	0	1	2	162	1	0	165	0	0	212	0	0	212	378
04:45 PM	0	0	0	0	0	0	154	0	0	154	0	0	228	0	0	228	382
Total	1	0	2	0	3	6	629	1	0	636	0	0	860	0	0	860	1499
05:00 PM	1	0	1	0	2	0	178	0	0	178	0	0	207	0	0	207	387
05:15 PM	0	0	3	0	3	1	121	0	0	122	0	0	238	0	0	238	363
05:30 PM	0	0	1	0	1	0	109	0	0	109	0	0	223	0	0	223	333
05:45 PM	0	0	0	0	0	1	134	0	0	135	0	0	200	0	0	200	335
Total	1	0	5	0	6	2	542	0	0	544	0	0	868	0	0	868	1418
06:00 PM	0	0	1	0	1	1	143	1	0	145	0	0	203	0	0	203	349
06:15 PM	1	0	0	0	1	2	165	0	0	167	0	0	195	0	0	195	363
Grand Total	5	0	23	0	28	19	3993	2	0	4014	0	0	4571	0	0	4571	8613
Apprch %	17.9	0	82.1	0		0.5	99.5	0	0			0	100	0	0		
Total %	0.1	0	0.3	0	0.3	0.2	46.4	0	0	46.6	0	0	53.1	0	0	53.1	
Autos	3	0	22	0	25	18	3728	2	0	3748	0	0	4465	0	0	4465	8238
% Autos	60	0	95.7	0	89.3	94.7	93.4	100	0	93.4	0	0	97.7	0	0	97.7	95.6
Heavy Vehicles	2	0	1	0	3	1	265	0	0	266	0	0	106	0	0	106	375
% Heavy Vehicles	40	0	4.3	0	10.7	5.3	6.6	0	0	6.6	0	0	2.3	0	0	2.3	4.4

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 134th Ct
Site Code : 99413401
Start Date : 9/9/2021
Page No : 2

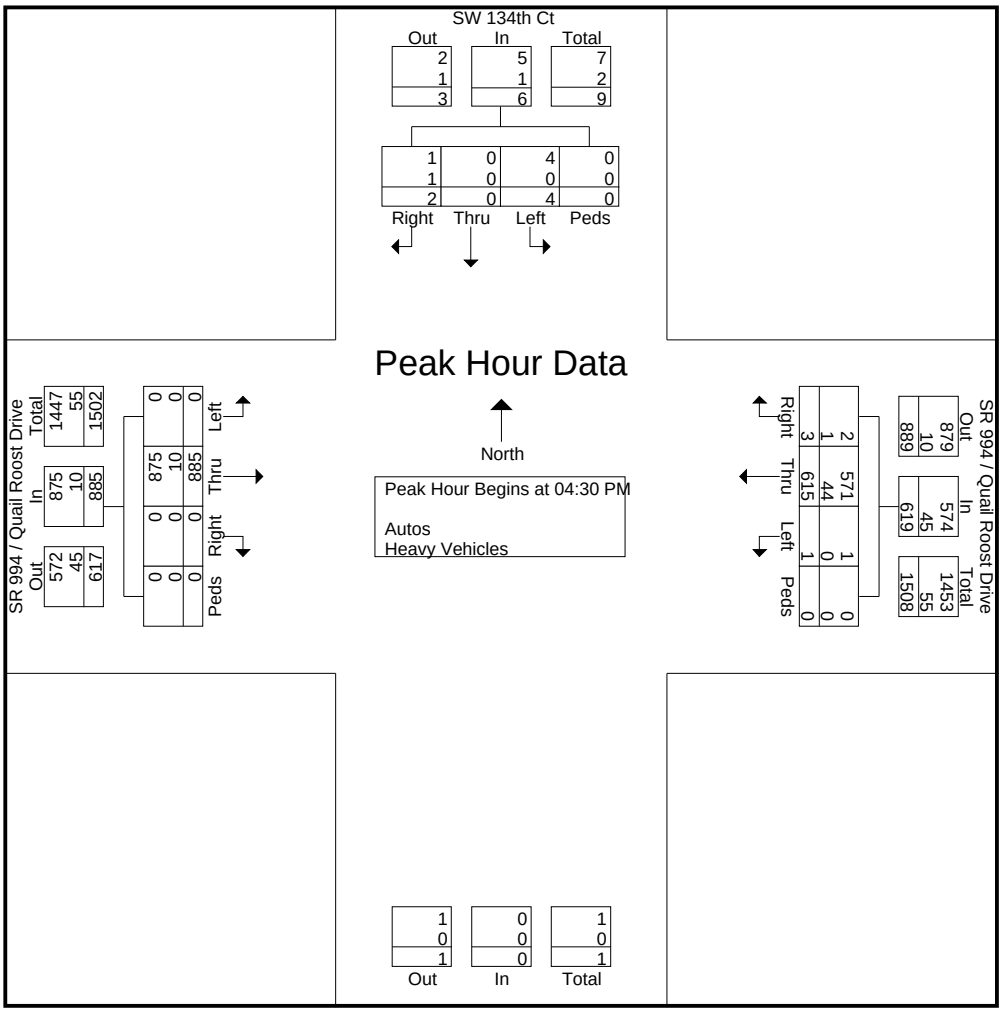
	SW 134th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	1	0	1	**1**	187	0	0	188	0	0	197	0	0	197	386
08:15 AM	0	0	1	0	1	1	202	0	0	203	0	0	**221**	0	0	**221**	**425**
08:30 AM	0	0	**2**	0	**2**	1	**205**	0	0	**206**	0	0	205	0	0	205	413
08:45 AM	0	0	1	0	1	1	164	0	0	165	0	0	210	0	0	210	376
Total Volume	0	0	5	0	5	4	758	0	0	762	0	0	833	0	0	833	1600
% App. Total	0	0	100	0		0.5	99.5	0	0			0	100	0	0		
PHF	.000	.000	.625	.000	.625	1.00	.924	.000	.000	.925	.000	.000	.942	.000	.000	.942	.941
Autos	0	0	5	0	5	4	701	0	0	705	0	0	819	0	0	819	1529
% Autos	0	0	100	0	100	100	92.5	0	0	92.5	0	0	98.3	0	0	98.3	95.6
Heavy Vehicles	0	0	0	0	0	0	57	0	0	57	0	0	14	0	0	14	71
% Heavy Vehicles	0	0	0	0	0	0	7.5	0	0	7.5	0	0	1.7	0	0	1.7	4.4



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 134th Ct
Site Code : 99413401
Start Date : 9/9/2021
Page No : 3

	SW 134th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**1**	0	0	0	1	**2**	162	**1**	0	165	0	0	212	0	0	212	378
04:45 PM	0	0	0	0	0	0	154	0	0	154	0	0	228	0	0	228	382
05:00 PM	1	0	1	0	2	0	**178**	0	0	**178**	0	0	207	0	0	207	**387**
05:15 PM	0	0	**3**	0	**3**	1	121	0	0	122	0	0	**238**	0	0	**238**	363
Total Volume	2	0	4	0	6	3	615	1	0	619	0	0	885	0	0	885	1510
% App. Total	33.3	0	66.7	0		0.5	99.4	0.2	0			0	100	0	0		
PHF	.500	.000	.333	.000	.500	.375	.864	.250	.000	.869	.000	.000	.930	.000	.000	.930	.975
Autos	1	0	4	0	5	2	571	1	0	574	0	0	875	0	0	875	1454
% Autos	50.0	0	100	0	83.3	66.7	92.8	100	0	92.7	0	0	98.9	0	0	98.9	96.3
Heavy Vehicles	1	0	0	0	1	1	44	0	0	45	0	0	10	0	0	10	56
% Heavy Vehicles	50.0	0	0	0	16.7	33.3	7.2	0	0	7.3	0	0	1.1	0	0	1.1	3.7



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 134th Ct
Thursday, Sept 9, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 134th Ct
Site Code : 99413401
Start Date : 9/9/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 134th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	0	1	0	1	0	1	0	0	1	0	0	15	0	0	15	17
06:45 AM	0	0	0	0	0	0	9	0	0	9	0	0	4	0	0	4	13
Total	0	0	1	0	1	0	10	0	0	10	0	0	19	0	0	19	30
07:00 AM	0	0	0	0	0	0	8	0	0	8	0	0	6	0	0	6	14
07:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	10	0	0	10	29
07:30 AM	1	0	0	0	1	0	13	0	0	13	0	0	7	0	0	7	21
07:45 AM	0	0	0	0	0	0	18	0	0	18	0	0	2	0	0	2	20
Total	1	0	0	0	1	0	58	0	0	58	0	0	25	0	0	25	84
08:00 AM	0	0	0	0	0	0	16	0	0	16	0	0	5	0	0	5	21
08:15 AM	0	0	0	0	0	0	12	0	0	12	0	0	5	0	0	5	17
08:30 AM	0	0	0	0	0	0	18	0	0	18	0	0	1	0	0	1	19
08:45 AM	0	0	0	0	0	0	11	0	0	11	0	0	3	0	0	3	14
Total	0	0	0	0	0	0	57	0	0	57	0	0	14	0	0	14	71
09:00 AM	0	0	0	0	0	0	13	0	0	13	0	0	4	0	0	4	17
09:15 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	9
*** BREAK ***																	
Total	0	0	0	0	0	0	22	0	0	22	0	0	4	0	0	4	26
*** BREAK ***																	
03:30 PM	0	0	0	0	0	0	15	0	0	15	0	0	6	0	0	6	21
03:45 PM	0	0	0	0	0	0	12	0	0	12	0	0	5	0	0	5	17
Total	0	0	0	0	0	0	27	0	0	27	0	0	11	0	0	11	38
04:00 PM	0	0	0	0	0	0	14	0	0	14	0	0	11	0	0	11	25
04:15 PM	0	0	0	0	0	0	13	0	0	13	0	0	7	0	0	7	20
04:30 PM	1	0	0	0	1	1	19	0	0	20	0	0	1	0	0	1	22
04:45 PM	0	0	0	0	0	0	6	0	0	6	0	0	4	0	0	4	10
Total	1	0	0	0	1	1	52	0	0	53	0	0	23	0	0	23	77
05:00 PM	0	0	0	0	0	0	14	0	0	14	0	0	3	0	0	3	17
05:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	2	0	0	2	7
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	0	2	4
05:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	2	0	0	2	7
Total	0	0	0	0	0	0	26	0	0	26	0	0	9	0	0	9	35
06:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	0	1	9
06:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5
Grand Total	2	0	1	0	3	1	265	0	0	266	0	0	106	0	0	106	375
Apprch %	66.7	0	33.3	0		0.4	99.6	0	0			0	100	0	0		
Total %	0.5	0	0.3	0	0.8	0.3	70.7	0	0	70.9	0	0	28.3	0	0	28.3	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 134th Ave
Wednesday, Sept 8, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 134th Ave
Site Code : 99413411
Start Date : 9/8/2021
Page No : 1

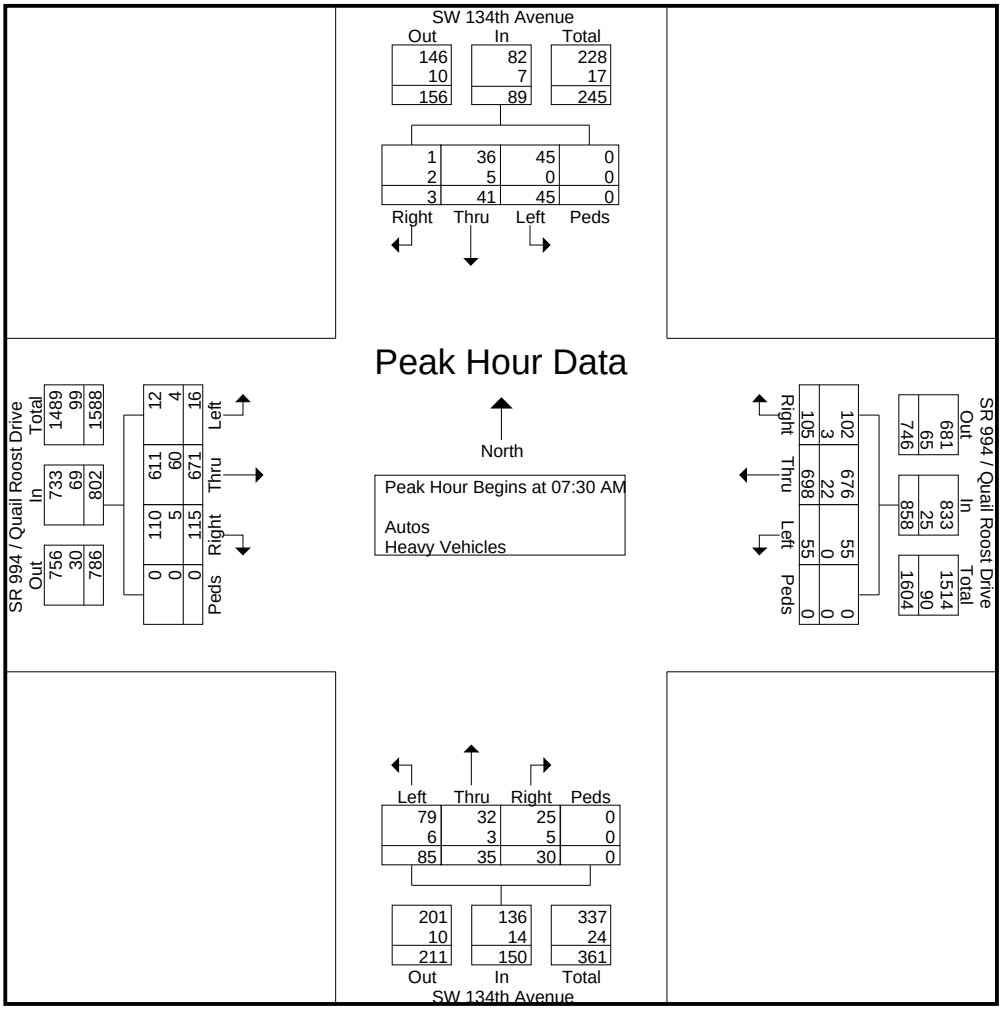
Groups Printed- Autos - Heavy Vehicles

	SW 134th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 134th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	2	1	0	3	8	146	8	0	162	6	5	28	0	39	28	67	0	0	95	299
06:45 AM	0	1	1	0	2	6	132	13	0	151	12	7	32	0	51	35	121	0	0	156	360
Total	0	3	2	0	5	14	278	21	0	313	18	12	60	0	90	63	188	0	0	251	659
07:00 AM	0	0	0	0	0	14	175	11	0	200	7	6	40	0	53	41	103	0	0	144	397
07:15 AM	0	0	0	0	0	19	169	13	0	201	4	10	24	0	38	46	167	1	0	214	453
07:30 AM	0	0	3	0	3	31	202	10	0	243	9	9	23	0	41	21	167	0	0	188	475
07:45 AM	0	10	8	0	18	36	164	19	0	219	0	6	27	0	33	25	125	0	0	150	420
Total	0	10	11	0	21	100	710	53	0	863	20	31	114	0	165	133	562	1	0	696	1745
08:00 AM	0	16	22	0	38	21	176	19	0	216	12	12	18	0	42	39	162	0	0	201	497
08:15 AM	3	15	12	0	30	17	156	7	0	180	9	8	17	0	34	30	217	16	0	263	507
08:30 AM	0	8	9	0	17	10	136	18	0	164	6	9	16	0	31	51	143	0	0	194	406
08:45 AM	0	0	1	0	1	3	129	8	0	140	8	3	36	0	47	43	127	1	0	171	359
Total	3	39	44	0	86	51	597	52	0	700	35	32	87	0	154	163	649	17	0	829	1769
09:00 AM	0	2	3	0	5	2	104	10	0	116	9	2	16	0	27	29	108	0	1	138	286
09:15 AM	0	1	0	0	1	0	97	5	0	102	16	4	36	0	56	26	111	0	0	137	296
*** BREAK ***																					
Total	0	3	3	0	6	2	201	15	0	218	25	6	52	0	83	55	219	0	1	275	582
*** BREAK ***																					
03:30 PM	0	3	11	0	14	4	140	13	0	157	8	7	24	0	39	46	203	0	0	249	459
03:45 PM	1	8	10	0	19	5	135	14	0	154	17	6	31	0	54	61	219	0	0	280	507
Total	1	11	21	0	33	9	275	27	0	311	25	13	55	0	93	107	422	0	0	529	966
04:00 PM	1	5	4	0	10	2	122	18	0	142	5	4	17	0	26	43	136	0	0	179	357
04:15 PM	0	6	5	0	11	6	115	18	0	139	9	6	11	0	26	63	99	0	0	162	338
04:30 PM	0	5	2	0	7	5	108	17	0	130	17	8	19	0	44	82	121	0	0	203	384
04:45 PM	0	2	3	0	5	11	125	30	0	166	4	1	5	0	10	65	126	0	0	191	372
Total	1	18	14	0	33	24	470	83	0	577	35	19	52	0	106	253	482	0	0	735	1451
05:00 PM	2	2	5	0	9	3	136	16	0	155	7	3	12	0	22	91	130	0	0	221	407
05:15 PM	1	2	2	0	5	5	103	17	0	125	10	1	7	0	18	69	98	0	0	167	315
05:30 PM	1	5	0	0	6	4	106	14	0	124	3	4	12	0	19	95	114	0	0	209	358
05:45 PM	0	2	2	0	4	6	92	19	0	117	4	2	3	0	9	83	122	0	2	207	337
Total	4	11	9	0	24	18	437	66	0	521	24	10	34	0	68	338	464	0	2	804	1417
06:00 PM	0	0	3	0	3	2	96	10	0	108	7	1	10	0	18	72	86	0	0	158	287
06:15 PM	0	0	1	0	1	1	95	20	0	116	4	0	9	0	13	68	70	0	0	138	268
Grand Total	9	95	108	0	212	221	3159	347	0	3727	193	124	473	0	790	1252	3142	18	3	4415	9144
Apprch %	4.2	44.8	50.9	0		5.9	84.8	9.3	0		24.4	15.7	59.9	0		28.4	71.2	0.4	0.1		
Total %	0.1	1	1.2	0	2.3	2.4	34.5	3.8	0	40.8	2.1	1.4	5.2	0	8.6	13.7	34.4	0.2	0	48.3	
Autos	7	87	108	0	202	213	3026									1196	2921				
% Autos	77.8	91.6	100	0	95.3	96.4	95.8	96.3	0	95.9	87.6	96.8	93.2	0	92.4	95.5	93	72.2	100	93.6	94.5
Heavy Vehicles																					
% Heavy Vehicles	22.2	8.4	0	0	4.7	3.6	4.2	3.7	0	4.1	12.4	3.2	6.8	0	7.6	4.5	7	27.8	0	6.4	5.5

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 134th Ave
Site Code : 99413411
Start Date : 9/8/2021
Page No : 2

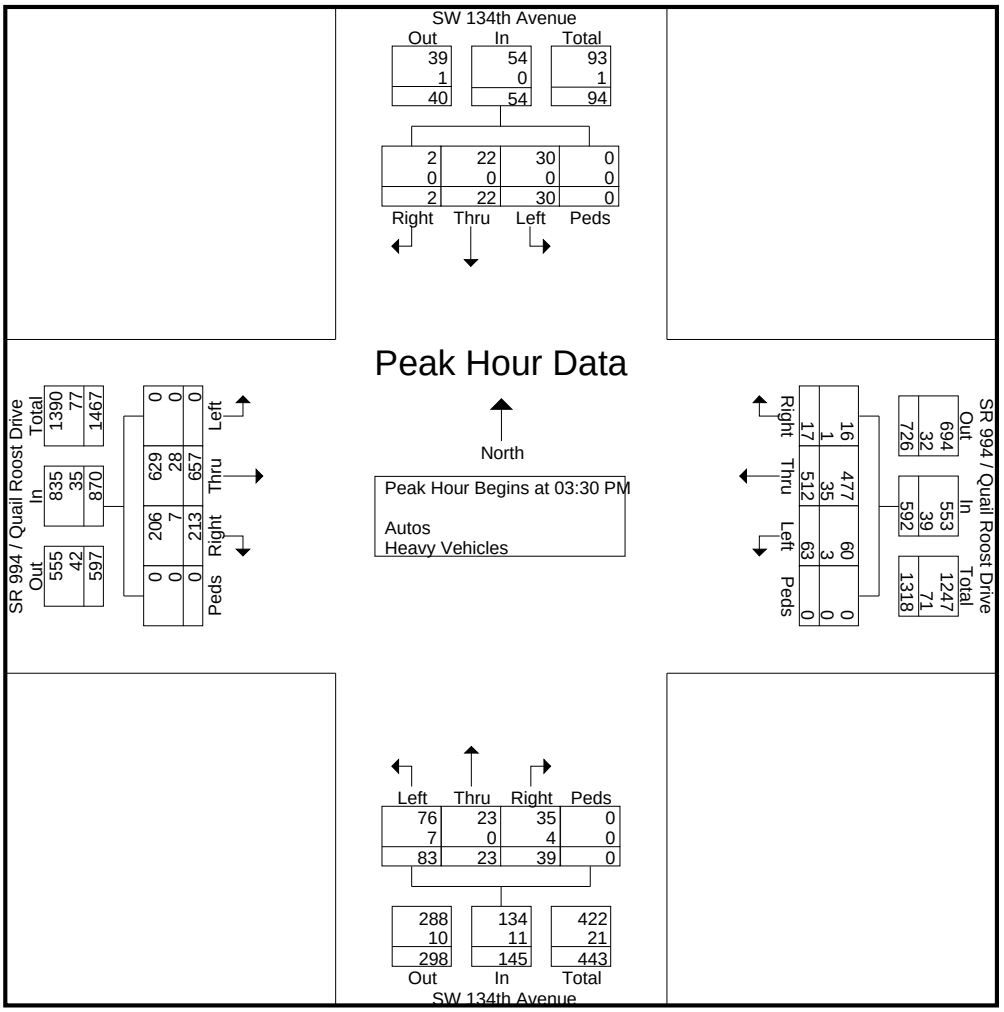
	SW 134th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 134th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	3	0	3	31	**202**	10	0	**243**	9	9	23	0	41	21	167	0	0	188	475
07:45 AM	0	10	8	0	18	**36**	164	**19**	0	219	0	6	**27**	0	33	25	125	0	0	150	420
08:00 AM	0	**16**	**22**	0	**38**	21	176	19	0	216	**12**	**12**	18	0	**42**	**39**	162	0	0	201	497
08:15 AM	**3**	15	12	0	30	17	156	7	0	180	9	8	17	0	34	30	**217**	**16**	0	**263**	**507**
Total Volume	3	41	45	0	89	105	698	55	0	858	30	35	85	0	150	115	671	16	0	802	1899
% App. Total	3.4	46.1	50.6	0		12.2	81.4	6.4	0		20	23.3	56.7	0		14.3	83.7	2	0		
PHF	.250	.641	.511	.000	.586	.729	.864	.724	.000	.883	.625	.729	.787	.000	.893	.737	.773	.250	.000	.762	.936
Autos	1	36	45	0	82	102	676	55	0	833	25	32	79	0	136	110	611	12	0	733	1784
% Autos	33.3	87.8	100	0	92.1	97.1	96.8	100	0	97.1	83.3	91.4	92.9	0	90.7	95.7	91.1	75.0	0	91.4	93.9
Heavy Vehicles																					
% Heavy Vehicles	66.7	12.2	0	0	7.9	2.9	3.2	0	0	2.9	16.7	8.6	7.1	0	9.3	4.3	8.9	25.0	0	8.6	6.1



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 134th Ave
Site Code : 99413411
Start Date : 9/8/2021
Page No : 3

	SW 134th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 134th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	3	**11**	0	14	4	**140**	13	0	**157**	8	**7**	24	0	39	46	203	0	0	249	459
03:45 PM	**1**	**8**	10	0	**19**	5	135	14	0	154	**17**	6	**31**	0	**54**	61	**219**	0	0	**280**	**507**
04:00 PM	1	5	4	0	10	2	122	**18**	0	142	5	4	17	0	26	43	136	0	0	179	357
04:15 PM	0	6	5	0	11	**6**	115	18	0	139	9	6	11	0	26	**63**	99	0	0	162	338
Total Volume	2	22	30	0	54	17	512	63	0	592	39	23	83	0	145	213	657	0	0	870	1661
% App. Total	3.7	40.7	55.6	0		2.9	86.5	10.6	0		26.9	15.9	57.2	0		24.5	75.5	0	0		
PHF	.500	.688	.682	.000	.711	.708	.914	.875	.000	.943	.574	.821	.669	.000	.671	.845	.750	.000	.000	.777	.819
Autos	2	22	30	0	54	16	477	60	0	553	35	23	76	0	134	206	629	0	0	835	1576
% Autos	100	100	100	0	100	94.1	93.2	95.2	0	93.4	89.7	100	91.6	0	92.4	96.7	95.7	0	0	96.0	94.9
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	5.9	6.8	4.8	0	6.6	10.3	0	8.4	0	7.6	3.3	4.3	0	0	4.0	5.1



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 134th Ave
Wednesday, Sept 8, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 134th Ave
Site Code : 99413411
Start Date : 9/8/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 134th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 134th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	1	0	0	1	1	4	0	0	5	2	1	1	0	4	1	14	0	0	15	25
06:45 AM	0	0	0	0	0	1	3	1	0	5	1	0	3	0	4	1	16	0	0	17	26
Total	0	1	0	0	1	2	7	1	0	10	3	1	4	0	8	2	30	0	0	32	51
07:00 AM	0	0	0	0	0	2	5	0	0	7	0	0	1	0	1	2	7	0	0	9	17
07:15 AM	0	0	0	0	0	0	7	1	0	8	0	0	2	0	2	7	15	1	0	23	33
07:30 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	1	13	0	0	14	18
07:45 AM	0	1	0	0	1	1	3	0	0	4	0	0	2	0	2	0	15	0	0	15	22
Total	0	1	0	0	1	3	18	1	0	22	1	0	5	0	6	10	50	1	0	61	90
08:00 AM	0	1	0	0	1	2	9	0	0	11	1	1	2	0	4	3	18	0	0	21	37
08:15 AM	2	3	0	0	5	0	7	0	0	7	3	2	2	0	7	1	14	4	0	19	38
08:30 AM	0	1	0	0	1	0	15	4	0	19	1	0	0	0	1	6	11	0	0	17	38
08:45 AM	0	0	0	0	0	0	10	0	0	10	0	0	3	0	3	4	12	0	0	16	29
Total	2	5	0	0	7	2	41	4	0	47	5	3	7	0	15	14	55	4	0	73	142
09:00 AM	0	1	0	0	1	0	5	0	0	5	2	0	2	0	4	0	13	0	0	13	23
09:15 AM	0	0	0	0	0	0	3	0	0	3	3	0	2	0	5	3	12	0	0	15	23
*** BREAK ***																					
Total	0	1	0	0	1	0	8	0	0	8	5	0	4	0	9	3	25	0	0	28	46
*** BREAK ***																					
03:30 PM	0	0	0	0	0	1	10	0	0	11	0	0	1	0	1	1	9	0	0	10	22
03:45 PM	0	0	0	0	0	0	10	1	0	11	4	0	4	0	8	2	12	0	0	14	33
Total	0	0	0	0	0	1	20	1	0	22	4	0	5	0	9	3	21	0	0	24	55
04:00 PM	0	0	0	0	0	0	7	2	0	9	0	0	1	0	1	3	6	0	0	9	19
04:15 PM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	1	1	1	0	0	2	11
04:30 PM	0	0	0	0	0	0	6	1	0	7	1	0	3	0	4	0	5	0	0	5	16
04:45 PM	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	3	7	0	0	10	16
Total	0	0	0	0	0	0	25	3	0	28	3	0	5	0	8	7	19	0	0	26	62
05:00 PM	0	0	0	0	0	0	3	0	0	3	1	0	1	0	2	9	4	0	0	13	18
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	1	4	0	0	5	8
05:30 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	3	0	0	4	7
05:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	2	3	0	0	5	8
Total	0	0	0	0	0	0	9	1	0	10	2	0	2	0	4	13	14	0	0	27	41
06:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	3	4	0	0	7	12
06:15 PM	0	0	0	0	0	0	0	2	0	2	1	0	0	0	1	1	3	0	0	4	7
Grand Total	2	8	0	0	10	8	133	13	0	154	24	4	32	0	60	56	221	5	0	282	506
Apprch %	20	80	0	0		5.2	86.4	8.4	0		40	6.7	53.3	0		19.9	78.4	1.8	0		
Total %	0.4	1.6	0	0	2	1.6	26.3	2.6	0	30.4	4.7	0.8	6.3	0	11.9	11.1	43.7	1	0	55.7	

Choice Engineering Consultants, Inc
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SR 994/Quail Roost Dr and SW 133rd Ct
Thursday, Sept 9, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 133rd Ct
Site Code : 99413301
Start Date : 9/9/2021
Page No : 1

Groups Printed- Autos - Heavy Vehicles

	SW 133rd Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	3	0	1	0	4	0	139	0	0	139	0	0	121	0	0	121	264
06:45 AM	0	0	0	0	0	1	145	0	0	146	0	0	118	0	0	118	264
Total	3	0	1	0	4	1	284	0	0	285	0	0	239	0	0	239	528
07:00 AM	0	0	1	0	1	0	194	0	0	194	0	0	122	3	0	125	320
07:15 AM	1	0	4	0	5	2	222	0	0	224	0	0	169	0	0	169	398
07:30 AM	3	0	2	0	5	4	247	0	0	251	0	0	157	3	0	160	416
07:45 AM	1	0	1	0	2	4	215	0	0	219	0	0	144	1	0	145	366
Total	5	0	8	0	13	10	878	0	0	888	0	0	592	7	0	599	1500
08:00 AM	0	0	1	0	1	2	242	0	0	244	0	0	196	0	0	196	441
08:15 AM	2	0	0	0	2	0	223	0	0	223	0	0	203	0	0	203	428
08:30 AM	1	0	3	0	4	0	206	0	0	206	0	0	212	0	0	212	422
08:45 AM	1	0	2	0	3	0	143	0	0	143	0	0	176	1	0	177	323
Total	4	0	6	0	10	2	814	0	0	816	0	0	787	1	0	788	1614
09:00 AM	1	0	2	0	3	0	108	0	0	108	0	0	106	0	0	106	217
09:15 AM	0	0	1	0	1	0	134	0	0	134	0	0	115	0	0	115	250
*** BREAK ***																	
Total	1	0	3	0	4	0	242	0	0	242	0	0	221	0	0	221	467
*** BREAK ***																	
03:30 PM	0	0	1	0	1	3	224	0	0	227	0	0	207	1	0	208	436
03:45 PM	2	0	2	0	4	3	225	0	0	228	0	0	113	0	0	113	345
Total	2	0	3	0	5	6	449	0	0	455	0	0	320	1	0	321	781
04:00 PM	0	0	3	0	3	3	163	0	0	166	0	0	130	1	0	131	300
04:15 PM	0	0	0	0	0	3	146	0	0	149	0	0	156	3	0	159	308
04:30 PM	0	0	1	0	1	3	177	0	0	180	0	0	156	0	0	156	337
04:45 PM	0	0	1	0	1	0	168	0	0	168	0	0	160	0	0	160	329
Total	0	0	5	0	5	9	654	0	0	663	0	0	602	4	0	606	1274
05:00 PM	1	0	0	0	1	1	158	0	0	159	0	0	150	1	0	151	311
05:15 PM	1	0	1	0	2	2	171	0	0	173	0	0	185	1	0	186	361
05:30 PM	0	0	2	0	2	2	162	0	0	164	0	0	161	0	0	161	327
05:45 PM	2	0	1	0	3	1	177	0	0	178	0	1	125	4	0	130	311
Total	4	0	4	0	8	6	668	0	0	674	0	1	621	6	0	628	1310
06:00 PM	0	0	0	0	0	1	147	0	0	148	0	0	139	0	0	139	287
06:15 PM	0	0	1	0	1	1	150	0	0	151	0	0	152	0	0	152	304
Grand Total	19	0	31	0	50	36	4286	0	0	4322	0	1	3673	19	0	3693	8065
Apprch %	38	0	62	0		0.8	99.2	0	0			0	99.5	0.5	0		
Total %	0.2	0	0.4	0	0.6	0.4	53.1	0	0	53.6	0	0	45.5	0.2	0	45.8	
Autos	15	0	28	0	43	32	3996	0	0	4028	0	1	3367	16	0	3384	7455
% Autos	78.9	0	90.3	0	86	88.9	93.2	0	0	93.2	0	100	91.7	84.2	0	91.6	92.4
Heavy Vehicles	4	0	3	0	7	4	290	0	0	294	0	0	306	3	0	309	610
% Heavy Vehicles	21.1	0	9.7	0	14	11.1	6.8	0	0	6.8	0	0	8.3	15.8	0	8.4	7.6

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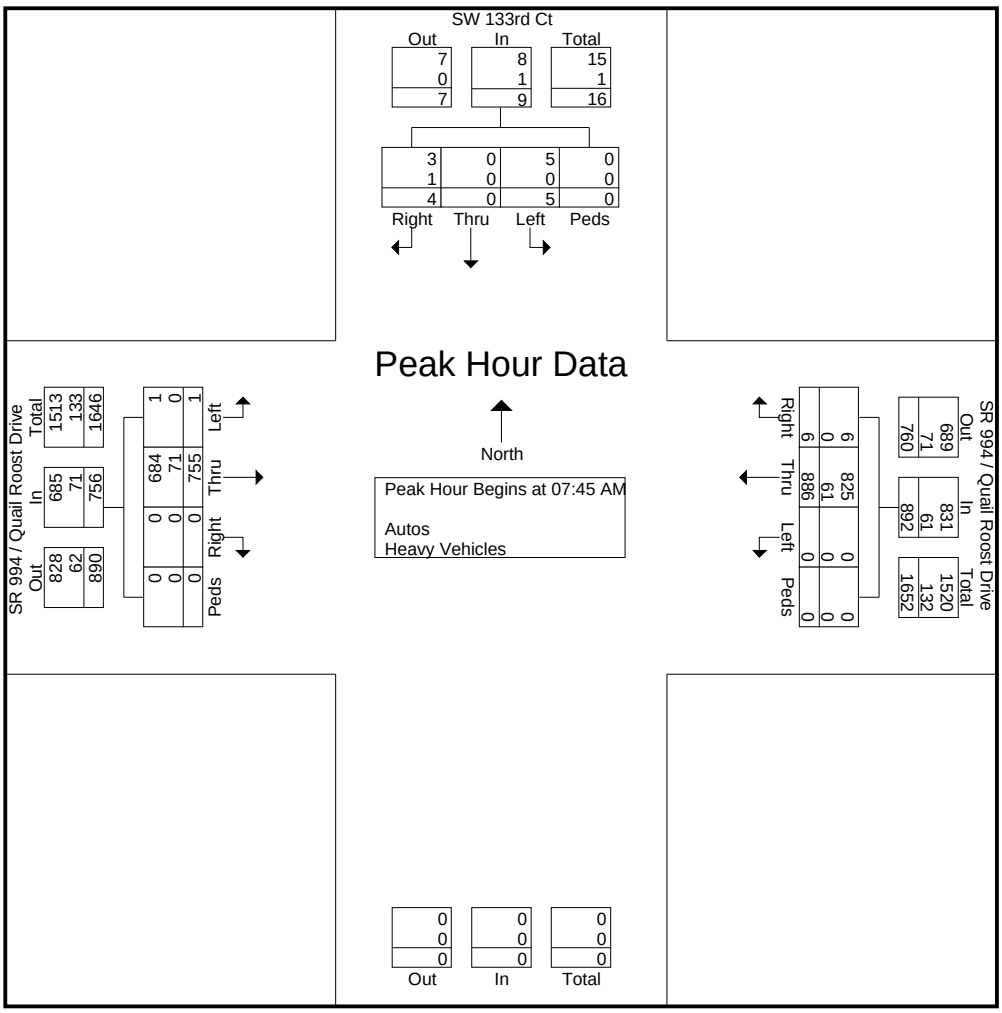
File Name : SW 133rd Ct
Site Code : 99413301
Start Date : 9/9/2021
Page No : 2

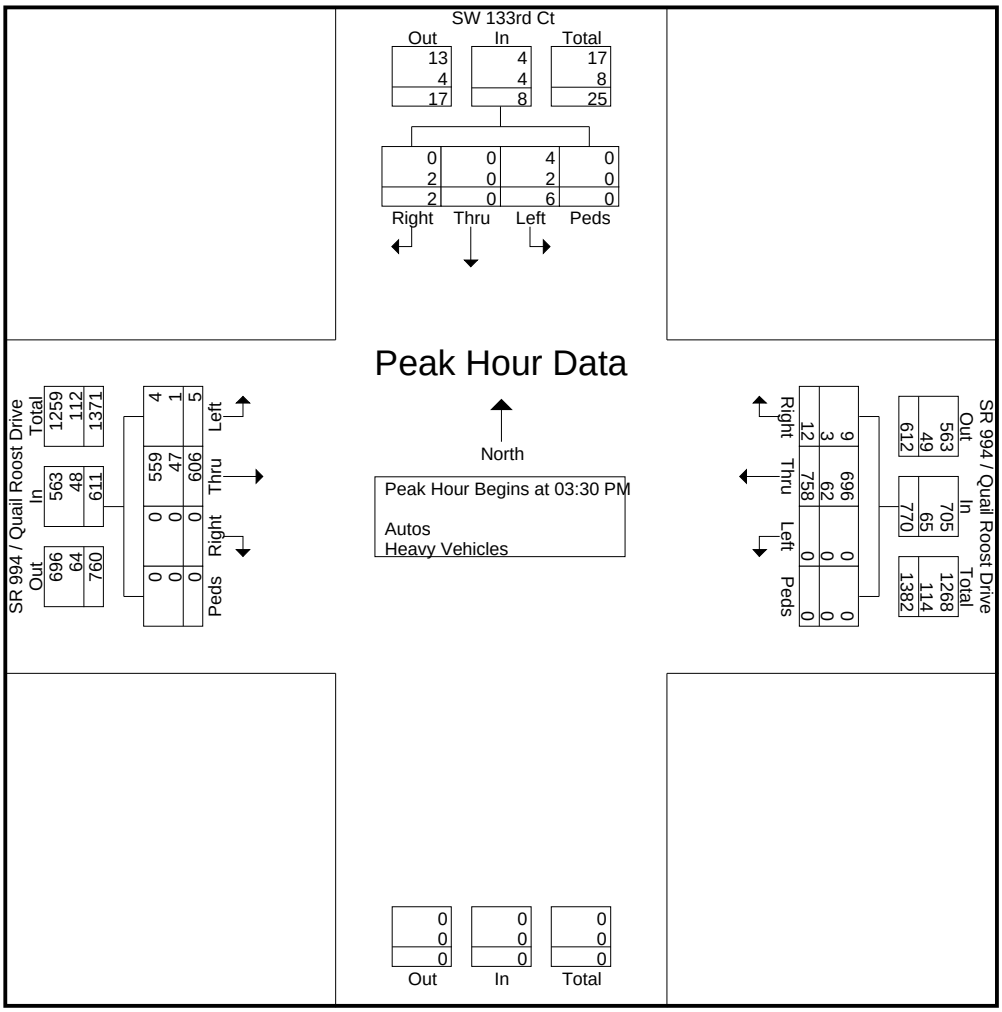
	SW 133rd Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	0	1	0	2	**4**	215	0	0	219	0	0	144	**1**	0	145	366
08:00 AM	0	0	1	0	1	2	**242**	0	0	**244**	0	0	196	0	0	196	**441**
08:15 AM	**2**	0	0	0	2	0	223	0	0	223	0	0	203	0	0	203	428
08:30 AM	1	0	**3**	0	**4**	0	206	0	0	206	0	0	**212**	0	0	**212**	422
Total Volume	4	0	5	0	9	6	886	0	0	892	0	0	755	1	0	756	1657
% App. Total	44.4	0	55.6	0		0.7	99.3	0	0			0	99.9	0.1	0		
PHF	.500	.000	.417	.000	.563	.375	.915	.000	.000	.914	.000	.000	.890	.250	.000	.892	.939
Autos	3	0	5	0	8	6	825	0	0	831	0	0	684	1	0	685	1524
% Autos	75.0	0	100	0	88.9	100	93.1	0	0	93.2	0	0	90.6	100	0	90.6	92.0
Heavy Vehicles	1	0	0	0	1	0	61	0	0	61	0	0	71	0	0	71	133
% Heavy Vehicles	25.0	0	0	0	11.1	0	6.9	0	0	6.8	0	0	9.4	0	0	9.4	8.0



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 133rd Ct
Site Code : 99413301
Start Date : 9/9/2021
Page No : 3

	SW 133rd Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	0	1	0	1	**3**	224	0	0	227	0	0	**207**	1	0	**208**	**436**
03:45 PM	**2**	0	2	0	**4**	3	**225**	0	0	**228**	0	0	113	0	0	113	345
04:00 PM	0	0	**3**	0	3	3	163	0	0	166	0	0	130	1	0	131	300
04:15 PM	0	0	0	0	0	3	146	0	0	149	0	0	156	**3**	0	159	308
Total Volume	2	0	6	0	8	12	758	0	0	770	0	0	606	5	0	611	1389
% App. Total	25	0	75	0		1.6	98.4	0	0			0	99.2	0.8	0		
PHF	.250	.000	.500	.000	.500	1.00	.842	.000	.000	.844	.000	.000	.732	.417	.000	.734	.796
Autos	0	0	4	0	4	9	696	0	0	705	0	0	559	4	0	563	1272
% Autos	0	0	66.7	0	50.0	75.0	91.8	0	0	91.6	0	0	92.2	80.0	0	92.1	91.6
Heavy Vehicles	2	0	2	0	4	3	62	0	0	65	0	0	47	1	0	48	117
% Heavy Vehicles	100	0	33.3	0	50.0	25.0	8.2	0	0	8.4	0	0	7.8	20.0	0	7.9	8.4



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 133rd Ct
Thursday, Sept 9, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 133rd Ct
Site Code : 99413301
Start Date : 9/9/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 133rd Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	7	0	0	7	0	0	25	0	0	25	32
06:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	12	0	0	12	18
Total	0	0	0	0	0	0	13	0	0	13	0	0	37	0	0	37	50
07:00 AM	0	0	0	0	0	0	13	0	0	13	0	0	14	0	0	14	27
07:15 AM	0	0	0	0	0	0	17	0	0	17	0	0	16	0	0	16	33
07:30 AM	0	0	1	0	1	1	11	0	0	12	0	0	15	0	0	15	28
07:45 AM	0	0	0	0	0	0	15	0	0	15	0	0	11	0	0	11	26
Total	0	0	1	0	1	1	56	0	0	57	0	0	56	0	0	56	114
08:00 AM	0	0	0	0	0	0	13	0	0	13	0	0	22	0	0	22	35
08:15 AM	0	0	0	0	0	0	15	0	0	15	0	0	20	0	0	20	35
08:30 AM	1	0	0	0	1	0	18	0	0	18	0	0	18	0	0	18	37
08:45 AM	0	0	0	0	0	0	10	0	0	10	0	0	16	0	0	16	26
Total	1	0	0	0	1	0	56	0	0	56	0	0	76	0	0	76	133
09:00 AM	0	0	0	0	0	0	7	0	0	7	0	0	16	0	0	16	23
09:15 AM	0	0	0	0	0	0	10	0	0	10	0	0	10	0	0	10	20
*** BREAK ***																	
Total	0	0	0	0	0	0	17	0	0	17	0	0	26	0	0	26	43
*** BREAK ***																	
03:30 PM	0	0	0	0	0	1	21	0	0	22	0	0	15	0	0	15	37
03:45 PM	2	0	0	0	2	1	13	0	0	14	0	0	7	0	0	7	23
Total	2	0	0	0	2	2	34	0	0	36	0	0	22	0	0	22	60
04:00 PM	0	0	2	0	2	1	14	0	0	15	0	0	13	1	0	14	31
04:15 PM	0	0	0	0	0	0	14	0	0	14	0	0	12	0	0	12	26
04:30 PM	0	0	0	0	0	0	15	0	0	15	0	0	7	0	0	7	22
04:45 PM	0	0	0	0	0	0	9	0	0	9	0	0	9	0	0	9	18
Total	0	0	2	0	2	1	52	0	0	53	0	0	41	1	0	42	97
05:00 PM	0	0	0	0	0	0	17	0	0	17	0	0	9	0	0	9	26
05:15 PM	1	0	0	0	1	0	7	0	0	7	0	0	9	1	0	10	18
05:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	10	0	0	10	15
05:45 PM	0	0	0	0	0	0	10	0	0	10	0	0	7	1	0	8	18
Total	1	0	0	0	1	0	39	0	0	39	0	0	35	2	0	37	77
06:00 PM	0	0	0	0	0	0	13	0	0	13	0	0	6	0	0	6	19
06:15 PM	0	0	0	0	0	0	10	0	0	10	0	0	7	0	0	7	17
Grand Total	4	0	3	0	7	4	290	0	0	294	0	0	306	3	0	309	610
Apprch %	57.1	0	42.9	0		1.4	98.6	0	0			0	99	1	0		
Total %	0.7	0	0.5	0	1.1	0.7	47.5	0	0	48.2	0	0	50.2	0.5	0	50.7	

Choice Engineering Consultants, Inc
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SR 994/Quail Roost Dr and SW 133rd Ave
Thursday, Sept 9, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 133rd Ave
Site Code : 99413301
Start Date : 9/9/2021
Page No : 1

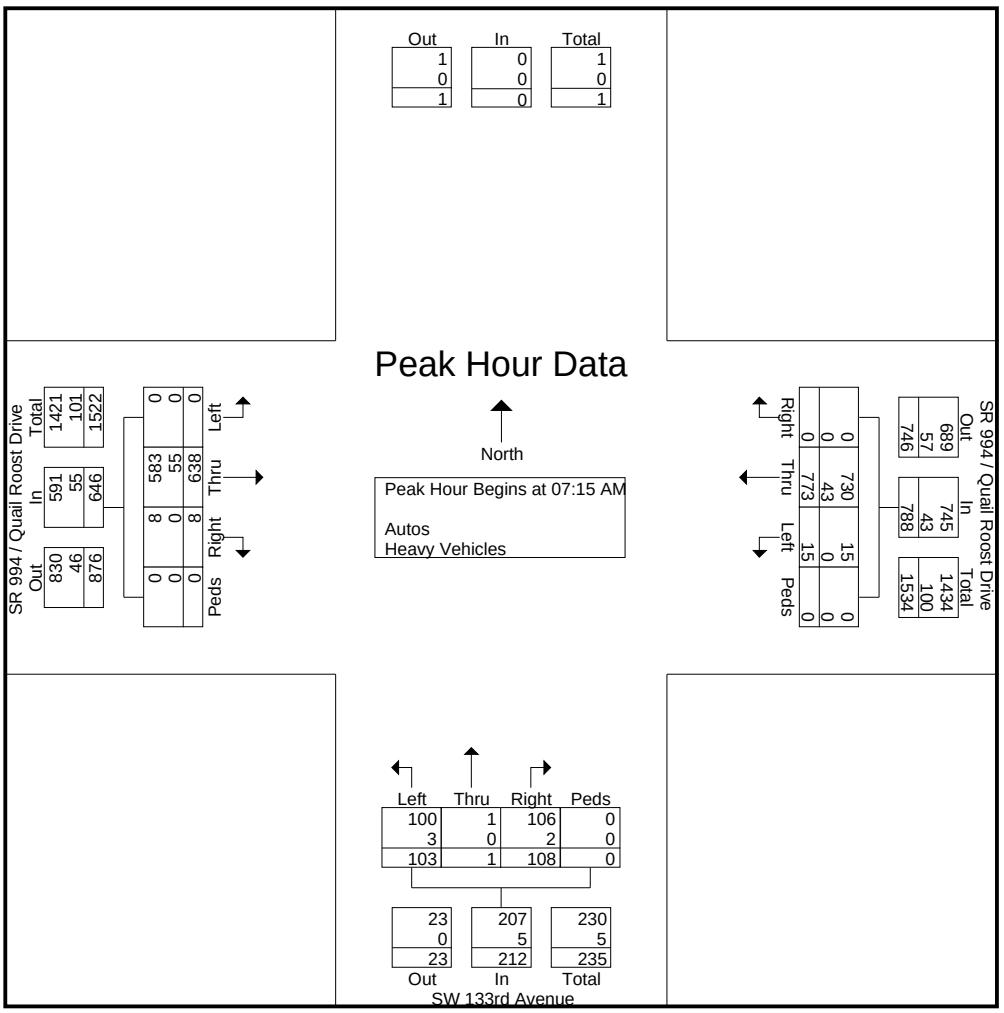
Groups Printed- Autos - Heavy Vehicles

	South bound	SR 994 / Quail Roost Drive Westbound					SW 133rd Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	137	3	0	140	9	0	6	0	15	0	126	0	0	126	281
06:45 AM	0	0	126	1	0	127	12	0	4	0	16	0	108	0	0	108	251
Total	0	0	263	4	0	267	21	0	10	0	31	0	234	0	0	234	532
07:00 AM	0	0	163	6	0	169	15	0	18	0	33	0	136	0	0	136	338
07:15 AM	0	0	194	5	0	199	35	0	24	0	59	3	159	0	0	162	420
07:30 AM	0	0	208	3	0	211	27	0	35	0	62	1	144	0	0	145	418
07:45 AM	0	0	186	2	0	188	28	0	32	0	60	1	151	0	0	152	400
Total	0	0	751	16	0	767	105	0	109	0	214	5	590	0	0	595	1576
08:00 AM	0	0	185	5	0	190	18	1	12	0	31	3	184	0	0	187	408
08:15 AM	0	0	191	3	0	194	7	0	18	0	25	7	192	0	0	199	418
08:30 AM	0	0	185	3	0	188	12	0	10	0	22	2	192	0	0	194	404
08:45 AM	0	0	112	2	0	114	4	0	5	0	9	2	190	0	0	192	315
Total	0	0	673	13	0	686	41	1	45	0	87	14	758	0	0	772	1545
09:00 AM	0	0	112	4	0	116	13	0	4	0	17	3	114	0	0	117	250
09:15 AM	0	0	97	3	0	100	7	0	4	2	13	1	106	0	0	107	220
*** BREAK ***																	
Total	0	0	209	7	0	216	20	0	8	2	30	4	220	0	0	224	470
*** BREAK ***																	
03:30 PM	0	0	180	4	0	184	11	0	6	0	17	1	155	0	0	156	357
03:45 PM	0	0	201	9	0	210	4	0	6	0	10	3	130	0	0	133	353
Total	0	0	381	13	0	394	15	0	12	0	27	4	285	0	0	289	710
04:00 PM	0	0	161	4	0	165	3	0	3	0	6	1	147	0	0	148	319
04:15 PM	0	0	142	12	0	154	3	0	2	0	5	2	146	0	0	148	307
04:30 PM	0	0	156	6	0	162	4	0	5	0	9	3	155	0	0	158	329
04:45 PM	0	0	146	4	0	150	3	0	1	0	4	2	162	0	0	164	318
Total	0	0	605	26	0	631	13	0	11	0	24	8	610	0	0	618	1273
05:00 PM	0	0	150	5	0	155	5	0	5	0	10	3	138	0	0	141	306
05:15 PM	0	0	151	11	0	162	4	0	2	0	6	4	178	0	0	182	350
05:30 PM	0	0	161	3	0	164	2	0	2	0	4	3	159	0	0	162	330
05:45 PM	0	0	171	9	0	180	5	0	1	0	6	4	126	0	0	130	316
Total	0	0	633	28	0	661	16	0	10	0	26	14	601	0	0	615	1302
06:00 PM	0	0	148	4	0	152	5	0	3	0	8	0	144	0	0	144	304
06:15 PM	0	0	156	6	0	162	4	0	3	0	7	2	133	0	0	135	304
Grand Total	0	0	3819	117	0	3936	240	1	211	2	454	51	3575	0	0	3626	8016
Apprch %		0	97	3	0		52.9	0.2	46.5	0.4		1.4	98.6	0	0		
Total %	0	0	47.6	1.5	0	49.1	3	0	2.6	0	5.7	0.6	44.6	0	0	45.2	
Autos	0	0	3589	110	0	3699	234	1	207	2	444	48	3320	0	0	3368	7511
% Autos	0	0	94	94	0	94	97.5	100	98.1	100	97.8	94.1	92.9	0	0	92.9	93.7
Heavy Vehicles	0	0	230	7	0	237	6	0	4	0	10	3	255	0	0	258	505
% Heavy Vehicles	0	0	6	6	0	6	2.5	0	1.9	0	2.2	5.9	7.1	0	0	7.1	6.3

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 133rd Ave
Site Code : 99413301
Start Date : 9/9/2021
Page No : 2

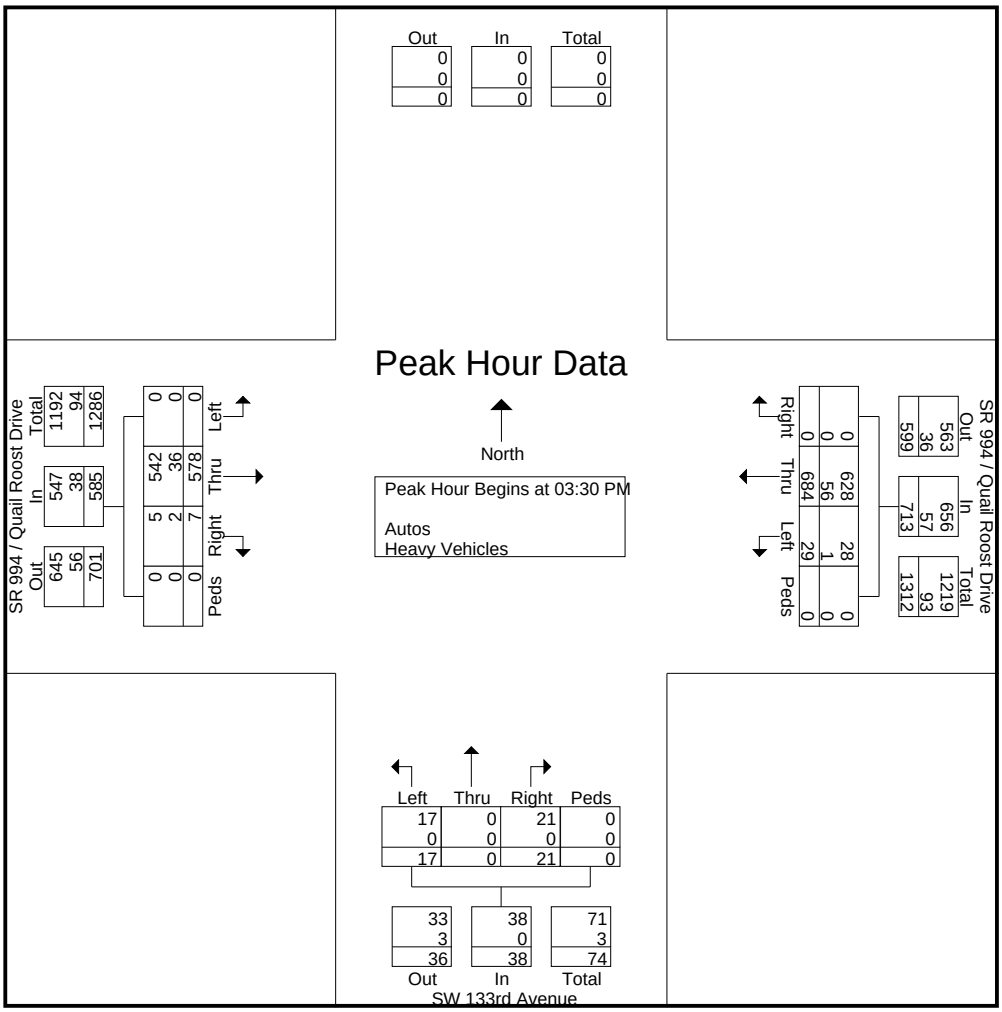
	South bound	SR 994 / Quail Roost Drive Westbound					SW 133rd Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	194	**5**	0	199	**35**	0	24	0	59	**3**	159	0	0	162	**420**
07:30 AM	0	0	**208**	3	0	**211**	27	0	**35**	0	**62**	1	144	0	0	145	418
07:45 AM	0	0	186	2	0	188	28	0	32	0	60	1	151	0	0	152	400
08:00 AM	0	0	185	5	0	190	18	**1**	12	0	31	3	**184**	0	0	**187**	408
Total Volume	0	0	773	15	0	788	108	1	103	0	212	8	638	0	0	646	1646
% App. Total		0	98.1	1.9	0		50.9	0.5	48.6	0		1.2	98.8	0	0		
PHF	.000	.000	.929	.750	.000	.934	.771	.250	.736	.000	.855	.667	.867	.000	.000	.864	.980
Autos	0	0	730	15	0	745	106	1	100	0	207	8	583	0	0	591	1543
% Autos	0	0	94.4	100	0	94.5	98.1	100	97.1	0	97.6	100	91.4	0	0	91.5	93.7
Heavy Vehicles	0	0	43	0	0	43	2	0	3	0	5	0	55	0	0	55	103
% Heavy Vehicles	0	0	5.6	0	0	5.5	1.9	0	2.9	0	2.4	0	8.6	0	0	8.5	6.3



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 133rd Ave
Site Code : 99413301
Start Date : 9/9/2021
Page No : 3

	South bound	SR 994 / Quail Roost Drive Westbound					SW 133rd Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	0	180	4	0	184	**11**	0	**6**	0	**17**	1	**155**	0	0	**156**	**357**
03:45 PM	0	0	**201**	9	0	**210**	4	0	6	0	10	**3**	130	0	0	133	353
04:00 PM	0	0	161	4	0	165	3	0	3	0	6	1	147	0	0	148	319
04:15 PM	0	0	142	**12**	0	154	3	0	2	0	5	2	146	0	0	148	307
Total Volume	0	0	684	29	0	713	21	0	17	0	38	7	578	0	0	585	1336
% App. Total		0	95.9	4.1	0		55.3	0	44.7	0		1.2	98.8	0	0		
PHF	.000	.000	.851	.604	.000	.849	.477	.000	.708	.000	.559	.583	.932	.000	.000	.938	.936
Autos	0	0	628	28	0	656	21	0	17	0	38	5	542	0	0	547	1241
% Autos	0	0	91.8	96.6	0	92.0	100	0	100	0	100	71.4	93.8	0	0	93.5	92.9
Heavy Vehicles	0	0	56	1	0	57	0	0	0	0	0	2	36	0	0	38	95
% Heavy Vehicles	0	0	8.2	3.4	0	8.0	0	0	0	0	0	28.6	6.2	0	0	6.5	7.1



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 133rd Ave
Thursday, Sept 9, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 133rd Ave
Site Code : 99413301
Start Date : 9/9/2021
Page No : 1

Groups Printed- Heavy Vehicles

	South bound	SR 994 / Quail Roost Drive Westbound					SW 133rd Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	2	1	0	3	0	0	0	0	0	0	20	0	0	20	23
06:45 AM	0	0	6	0	0	6	0	0	0	0	0	0	8	0	0	8	14
Total	0	0	8	1	0	9	0	0	0	0	0	0	28	0	0	28	37
07:00 AM	0	0	7	2	0	9	2	0	0	0	2	0	15	0	0	15	26
07:15 AM	0	0	12	0	0	12	1	0	1	0	2	0	16	0	0	16	30
07:30 AM	0	0	10	0	0	10	0	0	1	0	1	0	11	0	0	11	22
07:45 AM	0	0	10	0	0	10	0	0	1	0	1	0	10	0	0	10	21
Total	0	0	39	2	0	41	3	0	3	0	6	0	52	0	0	52	99
08:00 AM	0	0	11	0	0	11	1	0	0	0	1	0	18	0	0	18	30
08:15 AM	0	0	13	1	0	14	1	0	0	0	1	0	17	0	0	17	32
08:30 AM	0	0	10	0	0	10	0	0	0	0	0	0	14	0	0	14	24
08:45 AM	0	0	7	0	0	7	0	0	0	0	0	1	20	0	0	21	28
Total	0	0	41	1	0	42	2	0	0	0	2	1	69	0	0	70	114
09:00 AM	0	0	3	0	0	3	1	0	0	0	1	0	15	0	0	15	19
09:15 AM	0	0	5	1	0	6	0	0	1	0	1	0	6	0	0	6	13
*** BREAK ***																	
Total	0	0	8	1	0	9	1	0	1	0	2	0	21	0	0	21	32
*** BREAK ***																	
03:30 PM	0	0	18	1	0	19	0	0	0	0	0	1	8	0	0	9	28
03:45 PM	0	0	12	0	0	12	0	0	0	0	0	1	6	0	0	7	19
Total	0	0	30	1	0	31	0	0	0	0	0	2	14	0	0	16	47
04:00 PM	0	0	14	0	0	14	0	0	0	0	0	0	14	0	0	14	28
04:15 PM	0	0	12	0	0	12	0	0	0	0	0	0	8	0	0	8	20
04:30 PM	0	0	15	0	0	15	0	0	0	0	0	0	8	0	0	8	23
04:45 PM	0	0	9	0	0	9	0	0	0	0	0	0	7	0	0	7	16
Total	0	0	50	0	0	50	0	0	0	0	0	0	37	0	0	37	87
05:00 PM	0	0	13	0	0	13	0	0	0	0	0	0	9	0	0	9	22
05:15 PM	0	0	7	0	0	7	0	0	0	0	0	0	5	0	0	5	12
05:30 PM	0	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	10
05:45 PM	0	0	11	1	0	12	0	0	0	0	0	0	5	0	0	5	17
Total	0	0	35	1	0	36	0	0	0	0	0	0	25	0	0	25	61
06:00 PM	0	0	9	0	0	9	0	0	0	0	0	0	4	0	0	4	13
06:15 PM	0	0	10	0	0	10	0	0	0	0	0	0	5	0	0	5	15
Grand Total	0	0	230	7	0	237	6	0	4	0	10	3	255	0	0	258	505
Apprch %		0	97	3	0		60	0	40	0		1.2	98.8	0	0		
Total %	0	0	45.5	1.4	0	46.9	1.2	0	0.8	0	2	0.6	50.5	0	0	51.1	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 132nd Place
Tuesday, Sept 14, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 132nd Pl
Site Code : 99413201
Start Date : 9/14/2021
Page No : 1

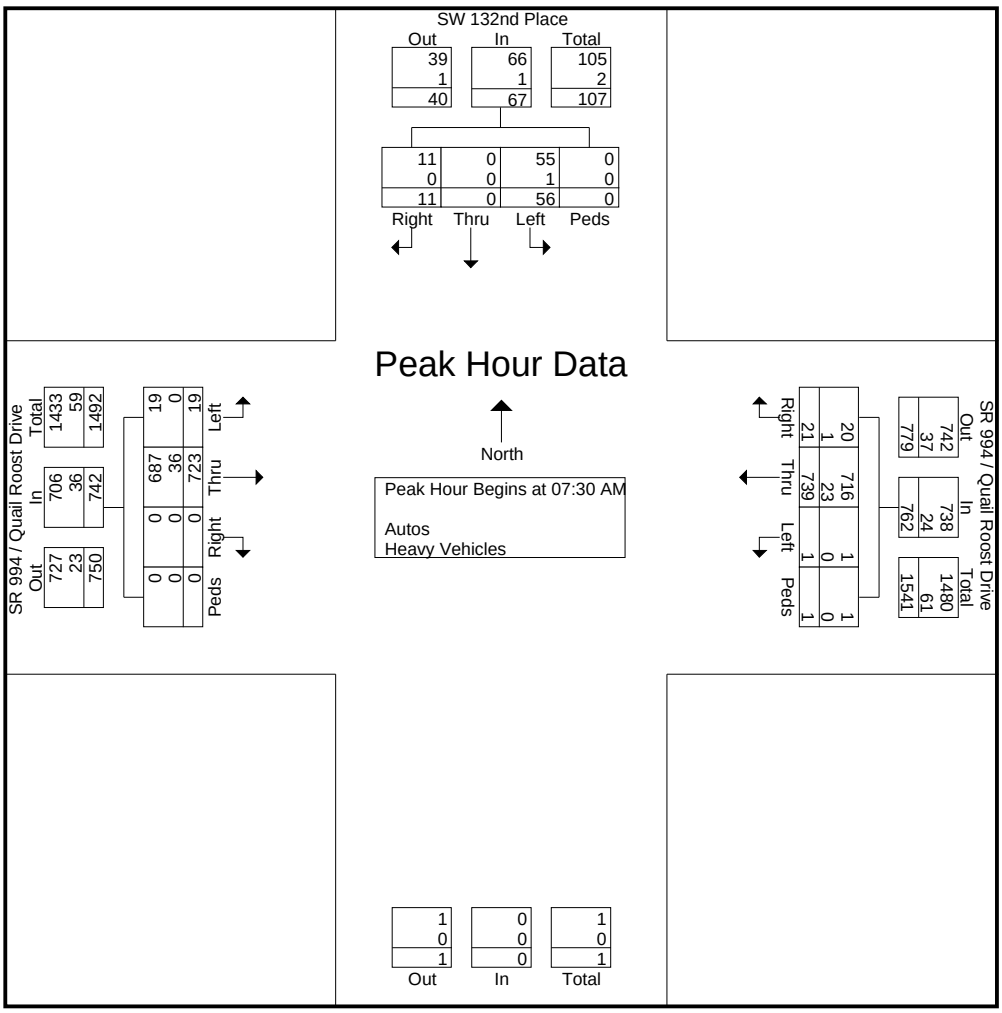
Groups Printed- Autos - Heavy Vehicles

	SW 132nd Place Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	2	0	2	0	125	0	0	125	0	0	117	0	0	117	244
06:45 AM	0	0	4	0	4	0	140	0	0	140	0	0	110	7	0	117	261
Total	0	0	6	0	6	0	265	0	0	265	0	0	227	7	0	234	505
07:00 AM	3	0	3	0	6	5	178	0	0	183	0	0	148	1	0	149	338
07:15 AM	1	0	7	0	8	1	182	0	0	183	0	0	167	5	0	172	363
07:30 AM	1	0	9	0	10	5	190	0	0	195	0	0	191	4	0	195	400
07:45 AM	4	0	19	0	23	9	173	0	0	182	0	0	151	7	0	158	363
Total	9	0	38	0	47	20	723	0	0	743	0	0	657	17	0	674	1464
08:00 AM	2	0	19	0	21	6	190	1	0	197	0	0	189	5	0	194	412
08:15 AM	4	0	9	0	13	1	186	0	1	188	0	0	192	3	0	195	396
08:30 AM	3	0	4	0	7	2	149	0	0	151	0	1	136	1	0	138	296
08:45 AM	0	0	2	0	2	2	115	0	0	117	0	0	163	1	0	164	283
Total	9	0	34	0	43	11	640	1	1	653	0	1	680	10	0	691	1387
09:00 AM	1	0	0	0	1	0	126	0	0	126	0	0	123	0	0	123	250
09:15 AM	3	0	3	0	6	0	102	0	0	102	0	0	117	0	0	117	225
*** BREAK ***																	
Total	4	0	3	0	7	0	228	0	0	228	0	0	240	0	0	240	475
*** BREAK ***																	
03:30 PM	1	0	5	0	6	2	173	0	0	175	0	0	178	0	0	178	359
03:45 PM	0	0	3	0	3	5	192	0	0	197	0	0	149	0	0	149	349
Total	1	0	8	0	9	7	365	0	0	372	0	0	327	0	0	327	708
04:00 PM	2	0	6	0	8	2	143	0	1	146	0	0	173	0	0	173	327
04:15 PM	1	0	4	0	5	3	172	0	0	175	0	0	149	0	0	149	329
04:30 PM	4	0	1	0	5	2	171	0	0	173	0	0	168	1	0	169	347
04:45 PM	3	0	3	1	7	3	165	0	0	168	0	0	166	0	0	166	341
Total	10	0	14	1	25	10	651	0	1	662	0	0	656	1	0	657	1344
05:00 PM	4	0	5	0	9	6	167	0	0	173	0	0	147	1	0	148	330
05:15 PM	2	0	5	0	7	4	149	0	0	153	0	0	172	1	0	173	333
05:30 PM	2	0	4	0	6	2	147	0	0	149	0	0	166	2	0	168	323
05:45 PM	0	0	4	0	4	2	146	0	0	148	0	0	169	1	0	170	322
Total	8	0	18	0	26	14	609	0	0	623	0	0	654	5	0	659	1308
06:00 PM	0	0	3	0	3	3	123	0	0	126	0	0	163	0	0	163	292
06:15 PM	0	0	5	0	5	5	167	0	0	172	0	0	131	1	0	132	309
Grand Total	41	0	129	1	171	70	3771	1	2	3844	0	1	3735	41	0	3777	7792
Apprch %	24	0	75.4	0.6		1.8	98.1	0	0.1			0	98.9	1.1	0		
Total %	0.5	0	1.7	0	2.2	0.9	48.4	0	0	49.3	0	0	47.9	0.5	0	48.5	
Autos	40	0	128	1	169	69	3625	1	2	3697	0	0	3625	41	0	3666	7532
% Autos	97.6	0	99.2	100	98.8	98.6	96.1	100	100	96.2	0	0	97.1	100	0	97.1	96.7
Heavy Vehicles	1	0	1	0	2	1	146	0	0	147	0	1	110	0	0	111	260
% Heavy Vehicles	2.4	0	0.8	0	1.2	1.4	3.9	0	0	3.8	0	100	2.9	0	0	2.9	3.3

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 132nd Pl
Site Code : 99413201
Start Date : 9/14/2021
Page No : 2

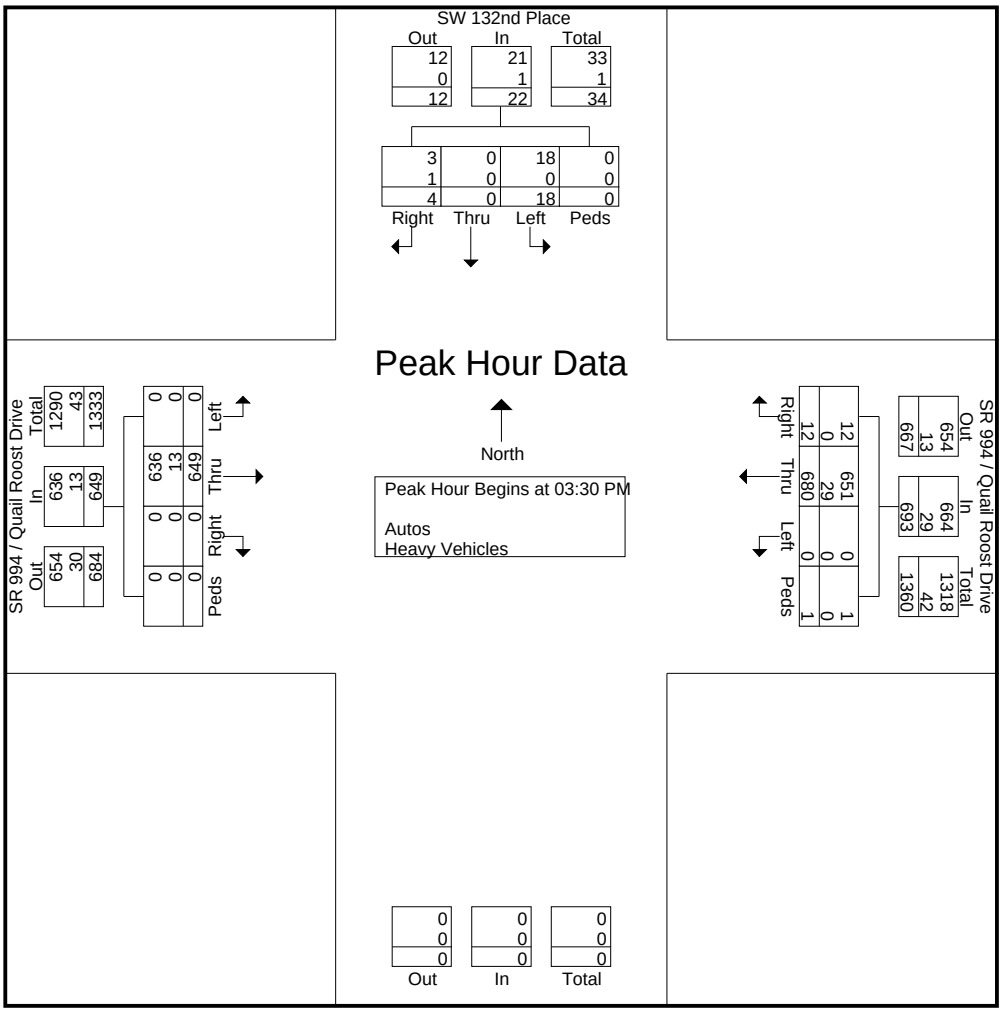
	SW 132nd Place Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	0	9	0	10	5	**190**	0	0	195	0	0	191	4	0	**195**	400
07:45 AM	**4**	0	**19**	0	**23**	**9**	173	0	0	182	0	0	151	**7**	0	158	363
08:00 AM	2	0	19	0	21	6	190	**1**	0	**197**	0	0	189	5	0	194	**412**
08:15 AM	4	0	9	0	13	1	186	0	**1**	188	0	0	**192**	3	0	195	396
Total Volume	11	0	56	0	67	21	739	1	1	762	0	0	723	19	0	742	1571
% App. Total	16.4	0	83.6	0		2.8	97	0.1	0.1			0	97.4	2.6	0		
PHF	.688	.000	.737	.000	.728	.583	.972	.250	.250	.967	.000	.000	.941	.679	.000	.951	.953
Autos	11	0	55	0	66	20	716	1	1	738	0	0	687	19	0	706	1510
% Autos	100	0	98.2	0	98.5	95.2	96.9	100	100	96.9	0	0	95.0	100	0	95.1	96.1
Heavy Vehicles	0	0	1	0	1	1	23	0	0	24	0	0	36	0	0	36	61
% Heavy Vehicles	0	0	1.8	0	1.5	4.8	3.1	0	0	3.1	0	0	5.0	0	0	4.9	3.9



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 132nd Pl
Site Code : 99413201
Start Date : 9/14/2021
Page No : 3

	SW 132nd Place Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	1	0	5	0	6	2	173	0	0	175	0	0	**178**	0	0	**178**	**359**
03:45 PM	0	0	3	0	3	**5**	**192**	0	0	**197**	0	0	149	0	0	149	349
04:00 PM	**2**	0	**6**	0	**8**	2	143	0	**1**	146	0	0	173	0	0	173	327
04:15 PM	1	0	4	0	5	3	172	0	0	175	0	0	149	0	0	149	329
Total Volume	4	0	18	0	22	12	680	0	1	693	0	0	649	0	0	649	1364
% App. Total	18.2	0	81.8	0		1.7	98.1	0	0.1			0	100	0	0		
PHF	.500	.000	.750	.000	.688	.600	.885	.000	.250	.879	.000	.000	.912	.000	.000	.912	.950
Autos	3	0	18	0	21	12	651	0	1	664	0	0	636	0	0	636	1321
% Autos	75.0	0	100	0	95.5	100	95.7	0	100	95.8	0	0	98.0	0	0	98.0	96.8
Heavy Vehicles	1	0	0	0	1	0	29	0	0	29	0	0	13	0	0	13	43
% Heavy Vehicles	25.0	0	0	0	4.5	0	4.3	0	0	4.2	0	0	2.0	0	0	2.0	3.2



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 132nd Place
Tuesday, Sept 14, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 132nd Pl
Site Code : 99413201
Start Date : 9/14/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 132nd Place Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	8	0	0	8	11
06:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	4	0	0	4	7
Total	0	0	0	0	0	0	6	0	0	6	0	0	12	0	0	12	18
07:00 AM	0	0	0	0	0	0	8	0	0	8	0	0	6	0	0	6	14
07:15 AM	0	0	0	0	0	0	9	0	0	9	0	0	9	0	0	9	18
07:30 AM	0	0	0	0	0	1	6	0	0	7	0	0	6	0	0	6	13
07:45 AM	0	0	1	0	1	0	2	0	0	2	0	0	7	0	0	7	10
Total	0	0	1	0	1	1	25	0	0	26	0	0	28	0	0	28	55
08:00 AM	0	0	0	0	0	0	8	0	0	8	0	0	13	0	0	13	21
08:15 AM	0	0	0	0	0	0	7	0	0	7	0	0	10	0	0	10	17
08:30 AM	0	0	0	0	0	0	10	0	0	10	0	1	4	0	0	5	15
08:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	4	0	0	4	7
Total	0	0	0	0	0	0	28	0	0	28	0	1	31	0	0	32	60
09:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	5	0	0	5	6
09:15 AM	0	0	0	0	0	0	10	0	0	10	0	0	6	0	0	6	16
*** BREAK ***																	
Total	0	0	0	0	0	0	11	0	0	11	0	0	11	0	0	11	22
*** BREAK ***																	
03:30 PM	0	0	0	0	0	0	8	0	0	8	0	0	5	0	0	5	13
03:45 PM	0	0	0	0	0	0	7	0	0	7	0	0	3	0	0	3	10
Total	0	0	0	0	0	0	15	0	0	15	0	0	8	0	0	8	23
04:00 PM	1	0	0	0	1	0	6	0	0	6	0	0	2	0	0	2	9
04:15 PM	0	0	0	0	0	0	8	0	0	8	0	0	3	0	0	3	11
04:30 PM	0	0	0	0	0	0	8	0	0	8	0	0	3	0	0	3	11
04:45 PM	0	0	0	0	0	0	9	0	0	9	0	0	1	0	0	1	10
Total	1	0	0	0	1	0	31	0	0	31	0	0	9	0	0	9	41
05:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	2	0	0	2	8
05:15 PM	0	0	0	0	0	0	9	0	0	9	0	0	3	0	0	3	12
05:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	2	0	0	2	6
05:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	2	0	0	2	6
Total	0	0	0	0	0	0	23	0	0	23	0	0	9	0	0	9	32
06:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	0	2	4
06:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5
Grand Total	1	0	1	0	2	1	146	0	0	147	0	1	110	0	0	111	260
Apprch %	50	0	50	0		0.7	99.3	0	0			0.9	99.1	0	0		
Total %	0.4	0	0.4	0	0.8	0.4	56.2	0	0	56.5	0	0.4	42.3	0	0	42.7	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 132nd Ave
Wednesday, Sept 8, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 132nd Ave
Site Code : 99413211
Start Date : 9/8/2021
Page No : 1

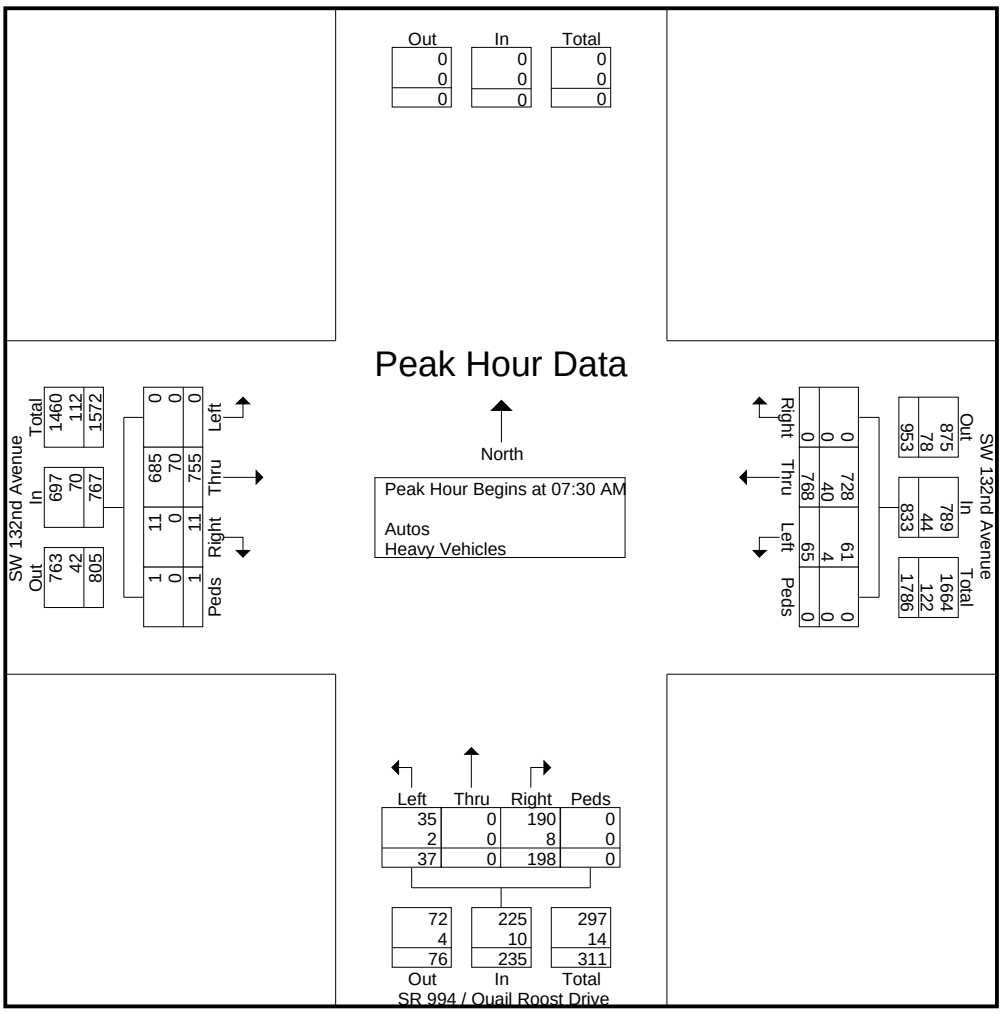
Groups Printed- Autos - Heavy Vehicles

	South bound	SW 132nd Avenue Westbound					SR 994 / Quail Roost Drive Northbound					SW 132nd Avenue Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	142	8	0	150	41	0	10	0	51	2	103	0	0	105	306
06:45 AM	0	0	137	10	0	147	50	0	11	0	61	5	139	0	0	144	352
Total	0	0	279	18	0	297	91	0	21	0	112	7	242	0	0	249	658
07:00 AM	0	0	167	12	0	179	47	0	13	0	60	4	127	0	0	131	370
07:15 AM	0	0	192	14	0	206	37	0	11	0	48	5	178	0	0	183	437
07:30 AM	0	0	210	15	0	225	77	0	10	0	87	5	162	0	1	168	480
07:45 AM	0	0	215	11	0	226	48	0	11	0	59	0	182	0	0	182	467
Total	0	0	784	52	0	836	209	0	45	0	254	14	649	0	1	664	1754
08:00 AM	0	0	177	20	0	197	40	0	8	0	48	3	192	0	0	195	440
08:15 AM	0	0	166	19	0	185	33	0	8	0	41	3	219	0	0	222	448
08:30 AM	0	0	156	19	0	175	31	0	8	0	39	6	221	0	0	227	441
08:45 AM	0	0	119	14	0	133	32	0	9	0	41	11	137	0	0	148	322
Total	0	0	618	72	0	690	136	0	33	0	169	23	769	0	0	792	1651
09:00 AM	0	0	122	4	0	126	20	0	8	0	28	4	131	0	0	135	289
09:15 AM	0	0	96	14	0	110	21	0	9	0	30	3	121	0	0	124	264
*** BREAK ***																	
Total	0	0	218	18	0	236	41	0	17	0	58	7	252	0	0	259	553
*** BREAK ***																	
03:30 PM	0	0	126	31	0	157	14	0	5	0	19	14	198	0	0	212	388
03:45 PM	0	0	159	37	0	196	13	0	8	0	21	14	170	0	0	184	401
Total	0	0	285	68	0	353	27	0	13	0	40	28	368	0	0	396	789
04:00 PM	0	0	164	38	0	202	16	0	7	0	23	14	165	0	0	179	404
04:15 PM	0	0	163	58	0	221	21	0	2	0	23	11	142	0	0	153	397
04:30 PM	0	0	127	35	0	162	14	0	5	0	19	10	148	0	0	158	339
04:45 PM	0	0	168	34	0	202	19	0	6	0	25	13	146	0	0	159	386
Total	0	0	622	165	0	787	70	0	20	0	90	48	601	0	0	649	1526
05:00 PM	0	0	169	34	0	203	17	0	6	0	23	10	135	0	0	145	371
05:15 PM	0	0	166	47	0	213	11	0	9	0	20	14	154	0	0	168	401
05:30 PM	0	0	142	40	0	182	17	0	4	0	21	11	148	0	0	159	362
05:45 PM	0	0	137	50	0	187	18	0	4	0	22	17	113	0	0	130	339
Total	0	0	614	171	0	785	63	0	23	0	86	52	550	0	0	602	1473
06:00 PM	0	0	117	36	0	153	20	0	7	0	27	21	100	0	0	121	301
06:15 PM	0	0	136	44	0	180	27	0	6	0	33	9	122	0	0	131	344
Grand Total	0	0	3673	644	0	4317	684	0	185	0	869	209	3653	0	1	3863	9049
Apprch %		0	85.1	14.9	0		78.7	0	21.3	0		5.4	94.6	0	0		
Total %	0	0	40.6	7.1	0	47.7	7.6	0	2	0	9.6	2.3	40.4	0	0	42.7	
Autos	0	0	3382	605	0	3987	650	0	173	0	823	199	3373	0	1	3573	8383
% Autos	0	0	92.1	93.9	0	92.4	95	0	93.5	0	94.7	95.2	92.3	0	100	92.5	92.6
Heavy Vehicles	0	0	291	39	0	330	34	0	12	0	46	10	280	0	0	290	666
% Heavy Vehicles	0	0	7.9	6.1	0	7.6	5	0	6.5	0	5.3	4.8	7.7	0	0	7.5	7.4

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 132nd Ave
Site Code : 99413211
Start Date : 9/8/2021
Page No : 2

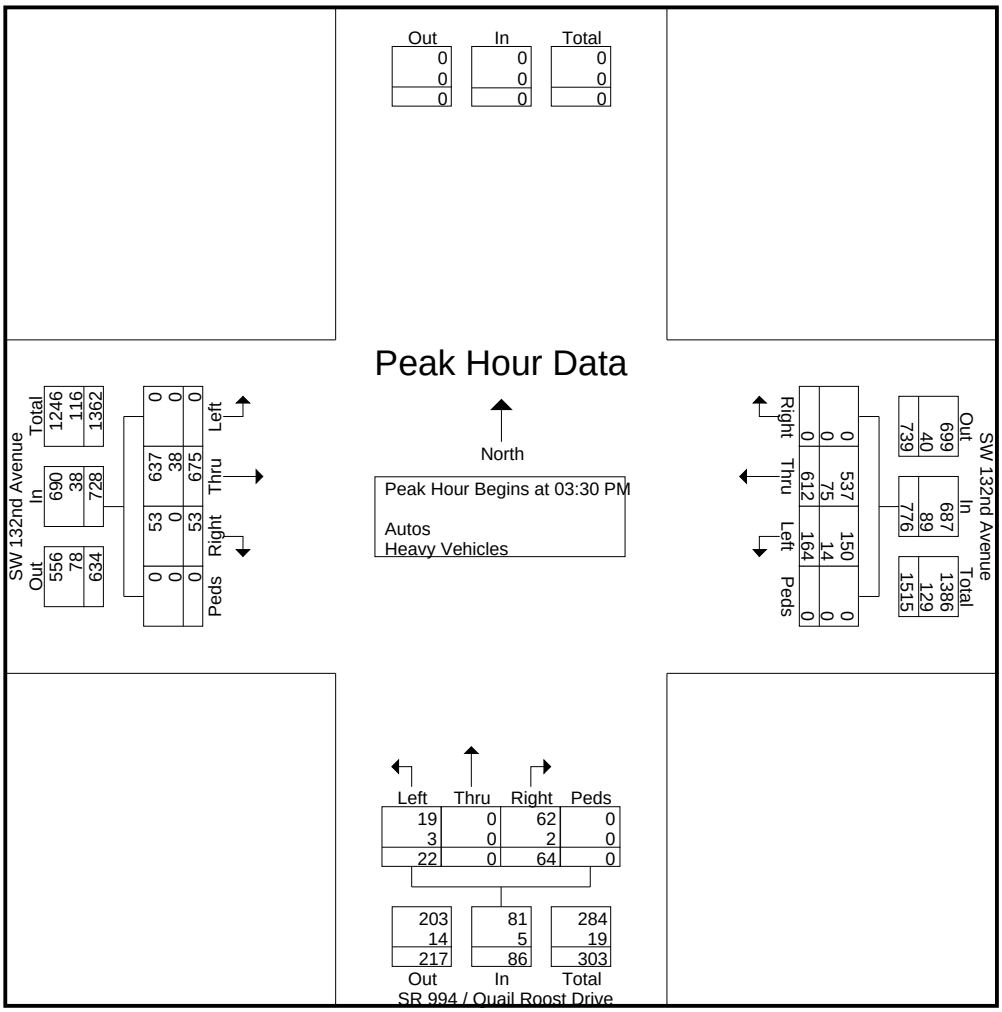
	South bound	SW 132nd Avenue Westbound					SR 994 / Quail Roost Drive Northbound					SW 132nd Avenue Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	210	15	0	225	**77**	0	10	0	**87**	**5**	162	0	**1**	168	**480**
07:45 AM	0	0	**215**	11	0	**226**	48	0	**11**	0	59	0	182	0	0	182	467
08:00 AM	0	0	177	**20**	0	197	40	0	8	0	48	3	192	0	0	195	440
08:15 AM	0	0	166	19	0	185	33	0	8	0	41	3	**219**	0	0	**222**	448
Total Volume	0	0	768	65	0	833	198	0	37	0	235	11	755	0	1	767	1835
% App. Total		0	92.2	7.8	0		84.3	0	15.7	0		1.4	98.4	0	0.1		
PHF	.000	.000	.893	.813	.000	.921	.643	.000	.841	.000	.675	.550	.862	.000	.250	.864	.956
Autos	0	0	728	61	0	789	190	0	35	0	225	11	685	0	1	697	1711
% Autos	0	0	94.8	93.8	0	94.7	96.0	0	94.6	0	95.7	100	90.7	0	100	90.9	93.2
Heavy Vehicles	0	0	40	4	0	44	8	0	2	0	10	0	70	0	0	70	124
% Heavy Vehicles	0	0	5.2	6.2	0	5.3	4.0	0	5.4	0	4.3	0	9.3	0	0	9.1	6.8



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 132nd Ave
Site Code : 99413211
Start Date : 9/8/2021
Page No : 3

	South bound	SW 132nd Avenue Westbound					SR 994 / Quail Roost Drive Northbound					SW 132nd Avenue Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	0	126	31	0	157	14	0	5	0	19	**14**	**198**	0	0	**212**	388
03:45 PM	0	0	159	37	0	196	13	0	**8**	0	21	14	170	0	0	184	401
04:00 PM	0	0	**164**	38	0	202	16	0	7	0	**23**	14	165	0	0	179	**404**
04:15 PM	0	0	163	**58**	0	**221**	**21**	0	2	0	23	11	142	0	0	153	397
Total Volume	0	0	612	164	0	776	64	0	22	0	86	53	675	0	0	728	1590
% App. Total		0	78.9	21.1	0		74.4	0	25.6	0		7.3	92.7	0	0		
PHF	.000	.000	.933	.707	.000	.878	.762	.000	.688	.000	.935	.946	.852	.000	.000	.858	.984
Autos	0	0	537	150	0	687	62	0	19	0	81	53	637	0	0	690	1458
% Autos	0	0	87.7	91.5	0	88.5	96.9	0	86.4	0	94.2	100	94.4	0	0	94.8	91.7
Heavy Vehicles	0	0	75	14	0	89	2	0	3	0	5	0	38	0	0	38	132
% Heavy Vehicles	0	0	12.3	8.5	0	11.5	3.1	0	13.6	0	5.8	0	5.6	0	0	5.2	8.3



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 132nd Ave
Wednesday, Sept 8, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 132nd Ave
Site Code : 99413211
Start Date : 9/8/2021
Page No : 1

Groups Printed- Heavy Vehicles

	South bound	SW 132nd Avenue Westbound					SR 994 / Quail Roost Drive Northbound					SW 132nd Avenue Eastbound					
Start Time	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	6	1	0	7	4	0	2	0	6	0	15	0	0	15	28
06:45 AM	0	0	9	1	0	10	1	0	0	0	1	0	14	0	0	14	25
Total	0	0	15	2	0	17	5	0	2	0	7	0	29	0	0	29	53
07:00 AM	0	0	6	2	0	8	2	0	0	0	2	1	8	0	0	9	19
07:15 AM	0	0	16	1	0	17	2	0	0	0	2	0	13	0	0	13	32
07:30 AM	0	0	8	1	0	9	2	0	0	0	2	0	11	0	0	11	22
07:45 AM	0	0	7	0	0	7	0	0	1	0	1	0	21	0	0	21	29
Total	0	0	37	4	0	41	6	0	1	0	7	1	53	0	0	54	102
08:00 AM	0	0	12	2	0	14	3	0	1	0	4	0	16	0	0	16	34
08:15 AM	0	0	13	1	0	14	3	0	0	0	3	0	22	0	0	22	39
08:30 AM	0	0	20	0	0	20	5	0	1	0	6	0	20	0	0	20	46
08:45 AM	0	0	13	1	0	14	1	0	1	0	2	1	10	0	0	11	27
Total	0	0	58	4	0	62	12	0	3	0	15	1	68	0	0	69	146
09:00 AM	0	0	15	0	0	15	2	0	1	0	3	2	21	0	0	23	41
09:15 AM	0	0	8	2	0	10	4	0	0	0	4	0	19	0	0	19	33
*** BREAK ***																	
Total	0	0	23	2	0	25	6	0	1	0	7	2	40	0	0	42	74
*** BREAK ***																	
03:30 PM	0	0	20	3	0	23	0	0	0	0	0	0	15	0	0	15	38
03:45 PM	0	0	18	6	0	24	0	0	2	0	2	0	9	0	0	9	35
Total	0	0	38	9	0	47	0	0	2	0	2	0	24	0	0	24	73
04:00 PM	0	0	17	2	0	19	2	0	1	0	3	0	10	0	0	10	32
04:15 PM	0	0	20	3	0	23	0	0	0	0	0	0	4	0	0	4	27
04:30 PM	0	0	15	1	0	16	0	0	1	0	1	1	6	0	0	7	24
04:45 PM	0	0	15	3	0	18	0	0	1	0	1	1	9	0	0	10	29
Total	0	0	67	9	0	76	2	0	3	0	5	2	29	0	0	31	112
05:00 PM	0	0	7	1	0	8	0	0	0	0	0	0	5	0	0	5	13
05:15 PM	0	0	10	2	0	12	1	0	0	0	1	1	9	0	0	10	23
05:30 PM	0	0	8	0	0	8	0	0	0	0	0	0	8	0	0	8	16
05:45 PM	0	0	11	3	0	14	1	0	0	0	1	0	3	0	0	3	18
Total	0	0	36	6	0	42	2	0	0	0	2	1	25	0	0	26	70
06:00 PM	0	0	10	1	0	11	0	0	0	0	0	3	4	0	0	7	18
06:15 PM	0	0	7	2	0	9	1	0	0	0	1	0	8	0	0	8	18
Grand Total	0	0	291	39	0	330	34	0	12	0	46	10	280	0	0	290	666
Apprch %		0	88.2	11.8	0		73.9	0	26.1	0		3.4	96.6	0	0		
Total %	0	0	43.7	5.9	0	49.5	5.1	0	1.8	0	6.9	1.5	42	0	0	43.5	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 130th Ave
Tuesday, Sept 14, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 130th Ave
Site Code : 99413001
Start Date : 9/14/2021
Page No : 1

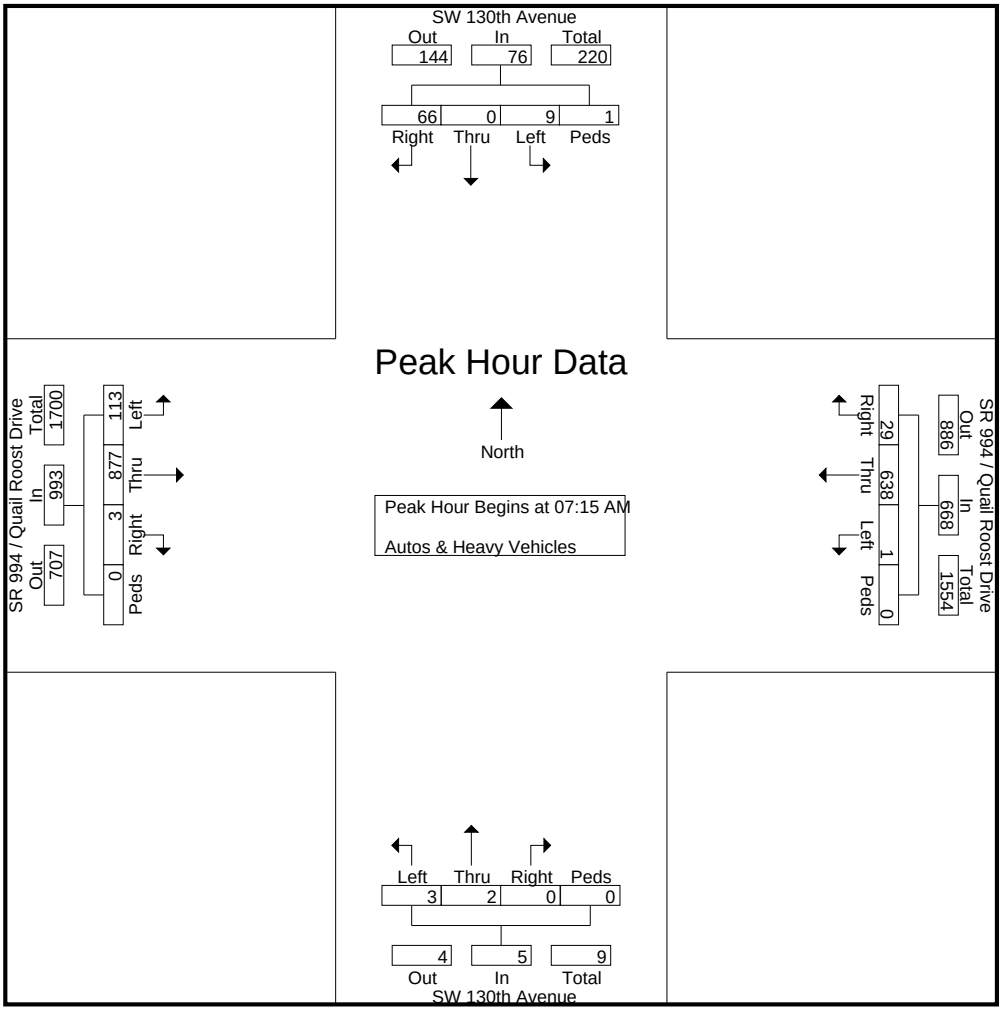
Groups Printed- Autos - Heavy Vehicles

	SW 130th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 130th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	5	0	1	0	6	2	112	1	0	115	2	0	0	0	2	0	197	6	0	203	326
06:45 AM	6	0	2	0	8	3	148	0	0	151	0	0	0	0	0	0	124	4	0	128	287
Total	11	0	3	0	14	5	260	1	0	266	2	0	0	0	2	0	321	10	0	331	613
07:00 AM	7	0	1	1	9	4	152	0	0	156	2	0	0	0	2	0	198	8	0	206	373
07:15 AM	5	0	0	0	5	9	160	1	0	170	0	2	1	0	3	0	209	16	0	225	403
07:30 AM	13	0	3	0	16	4	158	0	0	162	0	0	0	0	0	0	229	31	0	260	438
07:45 AM	28	0	5	1	34	9	164	0	0	173	0	0	0	0	0	1	226	44	0	271	478
Total	53	0	9	2	64	26	634	1	0	661	2	2	1	0	5	1	862	99	0	962	1692
08:00 AM	20	0	1	0	21	7	156	0	0	163	0	0	2	0	2	2	213	22	0	237	423
08:15 AM	12	0	2	1	15	4	151	0	0	155	0	0	1	0	1	0	189	13	0	202	373
08:30 AM	5	0	1	0	6	5	131	0	0	136	1	0	1	0	2	1	170	5	0	176	320
08:45 AM	8	0	2	0	10	0	99	7	0	106	1	0	0	0	1	0	184	4	0	188	305
Total	45	0	6	1	52	16	537	7	0	560	2	0	4	0	6	3	756	44	0	803	1421
09:00 AM	7	0	0	0	7	2	125	0	0	127	2	0	0	0	2	1	142	4	0	147	283
09:15 AM	3	0	4	0	7	4	123	1	0	128	2	0	1	0	3	1	131	3	0	135	273
*** BREAK ***																					
Total	10	0	4	0	14	6	248	1	0	255	4	0	1	0	5	2	273	7	0	282	556
*** BREAK ***																					
03:30 PM	14	1	2	0	17	5	211	0	0	216	0	0	0	0	0	1	172	14	0	187	420
03:45 PM	20	1	1	0	22	9	200	0	0	209	1	0	0	0	1	1	155	11	0	167	399
Total	34	2	3	0	39	14	411	0	0	425	1	0	0	0	1	2	327	25	0	354	819
04:00 PM	12	0	3	0	15	5	166	0	0	171	0	0	0	0	0	0	176	6	0	182	368
04:15 PM	14	1	4	0	19	9	201	0	2	212	0	0	1	0	1	2	161	8	0	171	403
04:30 PM	7	1	4	0	12	7	169	0	1	177	0	0	0	0	0	0	165	2	0	167	356
04:45 PM	8	0	2	0	10	6	192	0	0	198	0	0	1	0	1	2	194	6	0	202	411
Total	41	2	13	0	56	27	728	0	3	758	0	0	2	0	2	4	696	22	0	722	1538
05:00 PM	11	1	0	0	12	2	162	1	1	166	0	0	3	0	3	2	142	6	0	150	331
05:15 PM	4	0	3	0	7	5	187	1	1	194	0	0	0	0	0	4	177	8	0	189	390
05:30 PM	8	1	7	0	16	7	143	1	1	152	3	0	0	0	3	2	180	6	0	188	359
05:45 PM	3	1	1	0	5	5	162	0	0	167	1	0	0	0	1	1	160	3	0	164	337
Total	26	3	11	0	40	19	654	3	3	679	4	0	3	0	7	9	659	23	0	691	1417
06:00 PM	7	0	1	0	8	3	134	1	0	138	1	0	0	0	1	1	160	6	0	167	314
06:15 PM	5	0	3	1	9	8	179	0	0	187	0	1	1	0	2	2	148	6	0	156	354
Grand Total	232	7	53	4	296	124	3785	14	6	3929	16	3	12	0	31	24	4202	242	0	4468	8724
Apprch %	78.4	2.4	17.9	1.4		3.2	96.3	0.4	0.2		51.6	9.7	38.7	0		0.5	94	5.4	0		
Total %	2.7	0.1	0.6	0	3.4	1.4	43.4	0.2	0.1	45	0.2	0	0.1	0	0.4	0.3	48.2	2.8	0	51.2	
Autos	225	7	52	2	286	120	3577										3884				
% Autos	97	100	98.1	50	96.6	96.8	94.5	100	100	94.6	93.8	100	91.7	0	93.5	91.7	92.4	94.6	0	92.5	93.6
Heavy Vehicles																					
% Heavy Vehicles	3	0	1.9	50	3.4	3.2	5.5	0	0	5.4	6.2	0	8.3	0	6.5	8.3	7.6	5.4	0	7.5	6.4

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 130th Ave
Site Code : 99413001
Start Date : 9/14/2021
Page No : 2

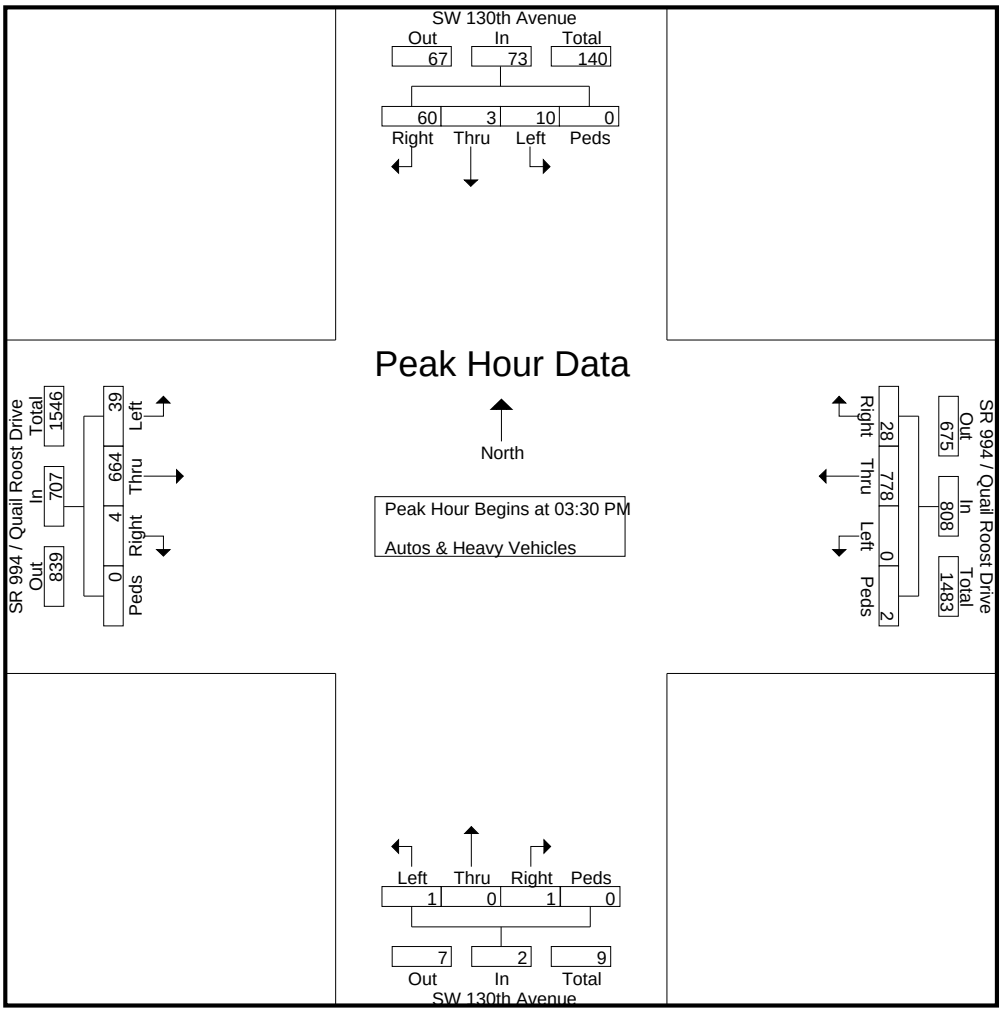
	SW 130th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 130th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	0	0	0	5	**9**	160	**1**	0	170	0	**2**	1	0	**3**	0	209	16	0	225	403
07:30 AM	13	0	3	0	16	4	158	0	0	162	0	0	0	0	0	0	**229**	31	0	260	438
07:45 AM	**28**	0	**5**	**1**	**34**	9	**164**	0	0	**173**	0	0	0	0	0	1	226	**44**	0	**271**	**478**
08:00 AM	20	0	1	0	21	7	156	0	0	163	0	0	**2**	0	2	**2**	213	22	0	237	423
Total Volume	66	0	9	1	76	29	638	1	0	668	0	2	3	0	5	3	877	113	0	993	1742
% App. Total	86.8	0	11.8	1.3		4.3	95.5	0.1	0		0	40	60	0		0.3	88.3	11.4	0		
PHF	.589	.000	.450	.250	.559	.806	.973	.250	.000	.965	.000	.250	.375	.000	.417	.375	.957	.642	.000	.916	.911



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 130th Ave
Site Code : 99413001
Start Date : 9/14/2021
Page No : 3

	SW 130th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 130th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	14	**1**	2	0	17	5	**211**	0	0	**216**	0	0	0	0	0	1	172	**14**	0	**187**	**420**
03:45 PM	**20**	1	1	0	**22**	**9**	200	0	0	209	**1**	0	0	0	**1**	1	155	11	0	167	399
04:00 PM	12	0	3	0	15	5	166	0	0	171	0	0	0	0	0	0	**176**	6	0	182	368
04:15 PM	14	1	**4**	0	19	9	201	0	**2**	212	0	0	**1**	0	1	**2**	161	8	0	171	403
Total Volume	60	3	10	0	73	28	778	0	2	808	1	0	1	0	2	4	664	39	0	707	1590
% App. Total	82.2	4.1	13.7	0		3.5	96.3	0	0.2		50	0	50	0		0.6	93.9	5.5	0		
PHF	.750	.750	.625	.000	.830	.778	.922	.000	.250	.935	.250	.000	.250	.000	.500	.500	.943	.696	.000	.945	.946



Choice Engineering Consultants, Inc
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Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 130th Ave
Tuesday, Sept 14, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 130th Ave
Site Code : 99413001
Start Date : 9/14/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 130th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 130th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	36	1	0	37	46
06:45 AM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	8	0	0	8	18
Total	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	44	1	0	45	64
07:00 AM	0	0	0	1	1	1	8	0	0	9	0	0	0	0	0	0	17	0	0	17	27
07:15 AM	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	21	1	0	22	36
07:30 AM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	16	1	0	17	29
07:45 AM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	1	28	0	0	29	37
Total	1	0	0	1	2	1	41	0	0	42	0	0	0	0	0	1	82	2	0	85	129
08:00 AM	0	0	0	0	0	2	15	0	0	17	0	0	0	0	0	0	28	4	0	32	49
08:15 AM	1	0	1	0	2	0	4	0	0	4	0	0	0	0	0	0	20	0	0	20	26
08:30 AM	1	0	0	0	1	0	9	0	0	9	0	0	0	0	0	0	10	0	0	10	20
08:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	17	0	0	17	23
Total	2	0	1	0	3	2	34	0	0	36	0	0	0	0	0	0	75	4	0	79	118
09:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	12	0	0	12	16
09:15 AM	0	0	0	0	0	0	12	0	0	12	1	0	0	0	1	0	17	1	0	18	31
*** BREAK ***																					
Total	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	0	29	1	0	30	47
*** BREAK ***																					
03:30 PM	0	0	0	0	0	1	14	0	0	15	0	0	0	0	0	0	15	2	0	17	32
03:45 PM	1	0	0	0	1	0	19	0	0	19	0	0	0	0	0	0	4	0	0	4	24
Total	1	0	0	0	1	1	33	0	0	34	0	0	0	0	0	0	19	2	0	21	56
04:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	2	0	7	12
04:15 PM	2	0	0	0	2	0	11	0	0	11	0	0	0	0	0	0	9	0	0	9	22
04:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	8	0	0	8	15
04:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	1	0	1	0	11	0	0	11	20
Total	3	0	0	0	3	0	30	0	0	30	0	0	1	0	1	0	33	2	0	35	69
05:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	5	0	0	5	13
05:15 PM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	11	0	0	11	20
05:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	1	0	6	8
Total	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	26	1	0	27	51
06:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	8	0	0	8	11
06:15 PM	0	0	0	1	1	0	8	0	0	8	0	0	0	0	0	1	2	0	0	3	12
Grand Total	7	0	1	2	10	4	208	0	0	212	1	0	1	0	2	2	318	13	0	333	557
Apprch %	70	0	10	20		1.9	98.1	0	0		50	0	50	0		0.6	95.5	3.9	0		
Total %	1.3	0	0.2	0.4	1.8	0.7	37.3	0	0	38.1	0.2	0	0.2	0	0.4	0.4	57.1	2.3	0	59.8	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 129th Ct
Tuesday, Sept 14, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 129th Ct
Site Code : 99412901
Start Date : 9/14/2021
Page No : 1

Groups Printed- Autos - Heavy Vehicles

	SW 129th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
06:30 AM	2	0	0	0	2	0	114	0	0	114	0	0	167	0	0	167	283
06:45 AM	3	0	0	0	3	1	156	0	0	157	0	0	150	0	0	150	310
Total	5	0	0	0	5	1	270	0	0	271	0	0	317	0	0	317	593
07:00 AM	0	0	0	0	0	1	194	0	0	195	0	0	192	0	0	192	387
07:15 AM	2	0	0	0	2	4	193	0	0	197	0	0	201	3	0	204	403
07:30 AM	3	0	0	0	3	8	178	1	0	187	0	0	225	1	0	226	416
07:45 AM	2	0	0	0	2	5	189	0	0	194	0	0	188	2	0	190	386
Total	7	0	0	0	7	18	754	1	0	773	0	0	806	6	0	812	1592
08:00 AM	1	0	0	0	1	6	184	0	0	190	0	0	221	1	0	222	413
08:15 AM	3	0	0	0	3	2	169	0	0	171	0	0	216	0	0	216	390
08:30 AM	0	0	0	0	0	2	171	0	0	173	0	0	180	0	0	180	353
08:45 AM	1	0	0	0	1	1	128	0	0	129	0	0	181	0	0	181	311
Total	5	0	0	0	5	11	652	0	0	663	0	0	798	1	0	799	1467
09:00 AM	0	0	0	0	0	1	188	0	0	189	0	0	147	0	0	147	336
09:15 AM	1	0	0	0	1	0	154	0	0	154	0	0	138	0	0	138	293
*** BREAK ***																	
Total	1	0	0	0	1	1	342	0	0	343	0	0	285	0	0	285	629
*** BREAK ***																	
03:30 PM	6	0	0	0	6	3	205	0	0	208	0	0	181	1	0	182	396
03:45 PM	6	0	0	0	6	2	208	0	0	210	0	0	149	1	0	150	366
Total	12	0	0	0	12	5	413	0	0	418	0	0	330	2	0	332	762
04:00 PM	4	0	0	0	4	0	177	0	0	177	0	0	177	1	0	178	359
04:15 PM	4	0	0	0	4	0	195	0	0	195	0	12	150	0	0	162	361
04:30 PM	3	0	0	0	3	2	203	0	0	205	0	0	272	0	0	272	480
04:45 PM	2	0	0	0	2	0	238	0	0	238	0	0	186	0	0	186	426
Total	13	0	0	0	13	2	813	0	0	815	0	12	785	1	0	798	1626
05:00 PM	2	0	0	0	2	2	211	0	0	213	0	0	153	0	0	153	368
05:15 PM	0	0	0	0	0	1	253	0	0	254	0	0	174	0	0	174	428
05:30 PM	3	0	0	0	3	1	238	0	0	239	0	0	179	0	0	179	421
05:45 PM	1	0	0	0	1	0	176	0	0	176	0	0	173	0	0	173	350
Total	6	0	0	0	6	4	878	0	0	882	0	0	679	0	0	679	1567
06:00 PM	7	0	0	0	7	1	175	0	0	176	0	0	155	0	0	155	338
06:15 PM	2	0	0	1	3	1	227	2	1	231	0	0	143	1	0	144	378
Grand Total	58	0	0	1	59	44	4524	3	1	4572	0	12	4298	11	0	4321	8952
Apprch %	98.3	0	0	1.7		1	99	0.1	0			0.3	99.5	0.3	0		
Total %	0.6	0	0	0	0.7	0.5	50.5	0	0	51.1	0	0.1	48	0.1	0	48.3	
Autos	57	0	0	0	57	42	4255	3	0	4300	0	12	4170	11	0	4193	8550
% Autos	98.3	0	0	0	96.6	95.5	94.1	100	0	94.1	0	100	97	100	0	97	95.5
Heavy Vehicles	1	0	0	1	2	2	269	0	1	272	0	0	128	0	0	128	402
% Heavy Vehicles	1.7	0	0	100	3.4	4.5	5.9	0	100	5.9	0	0	3	0	0	3	4.5

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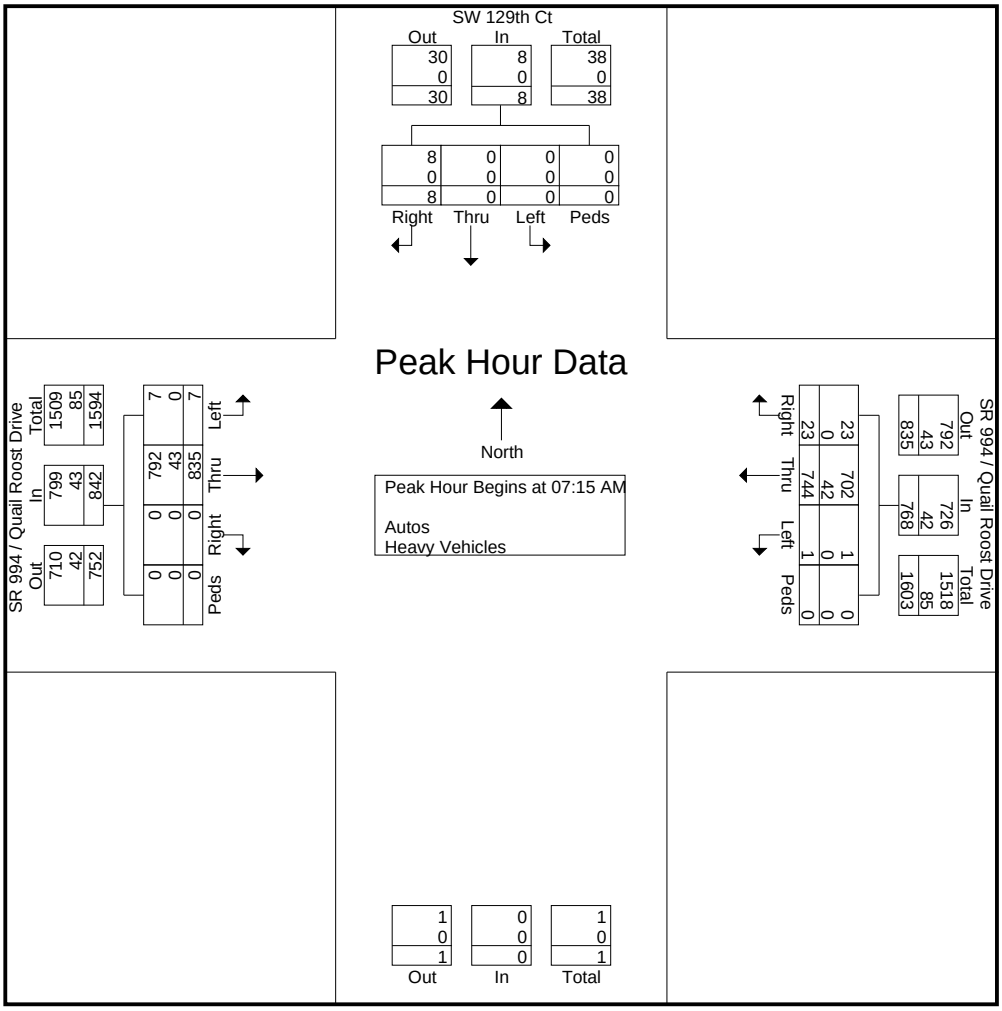
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 129th Ct
Site Code : 99412901
Start Date : 9/14/2021
Page No : 2

	SW 129th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	0	0	0	2	4	**193**	0	0	**197**	0	0	201	**3**	0	204	403
07:30 AM	**3**	0	0	0	**3**	**8**	178	**1**	0	187	0	0	**225**	1	0	**226**	**416**
07:45 AM	2	0	0	0	2	5	189	0	0	194	0	0	188	2	0	190	386
08:00 AM	1	0	0	0	1	6	184	0	0	190	0	0	221	1	0	222	413
Total Volume	8	0	0	0	8	23	744	1	0	768	0	0	835	7	0	842	1618
% App. Total	100	0	0	0		3	96.9	0.1	0			0	99.2	0.8	0		
PHF	.667	.000	.000	.000	.667	.719	.964	.250	.000	.975	.000	.000	.928	.583	.000	.931	.972
Autos	8	0	0	0	8	23	702	1	0	726	0	0	792	7	0	799	1533
% Autos	100	0	0	0	100	100	94.4	100	0	94.5	0	0	94.9	100	0	94.9	94.7
Heavy Vehicles	0	0	0	0	0	0	42	0	0	42	0	0	43	0	0	43	85
% Heavy Vehicles	0	0	0	0	0	0	5.6	0	0	5.5	0	0	5.1	0	0	5.1	5.3



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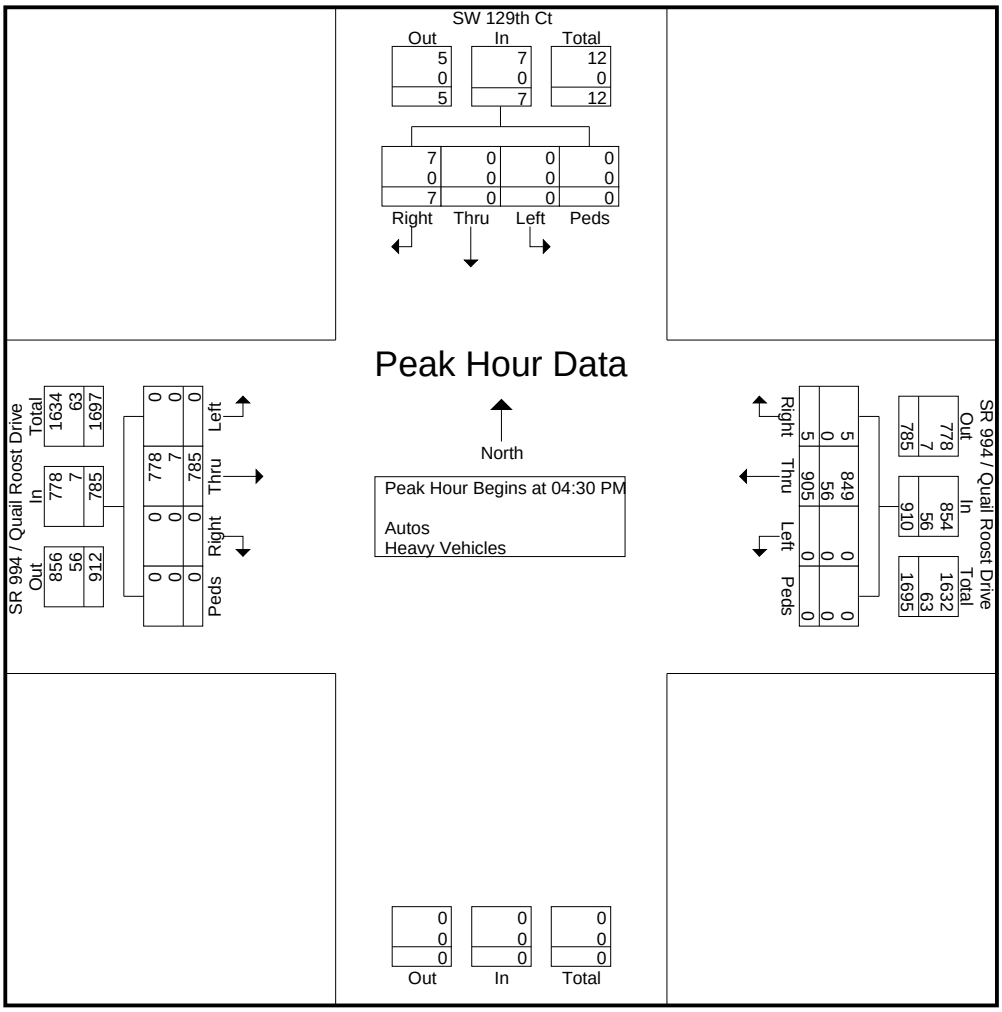
Miami, FL. 33186

File Name : SW 129th Ct
Site Code : 99412901
Start Date : 9/14/2021
Page No : 3

	SW 129th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**3**	0	0	0	**3**	**2**	203	0	0	205	0	0	**272**	0	0	**272**	**480**
04:45 PM	2	0	0	0	2	0	238	0	0	238	0	0	186	0	0	186	426
05:00 PM	2	0	0	0	2	2	211	0	0	213	0	0	153	0	0	153	368
05:15 PM	0	0	0	0	0	1	**253**	0	0	**254**	0	0	174	0	0	174	428
Total Volume	7	0	0	0	7	5	905	0	0	910	0	0	785	0	0	785	1702
% App. Total	100	0	0	0		0.5	99.5	0	0			0	100	0	0		
PHF	.583	.000	.000	.000	.583	.625	.894	.000	.000	.896	.000	.000	.722	.000	.000	.722	.886
Autos	7	0	0	0	7	5	849	0	0	854	0	0	778	0	0	778	1639
% Autos	100	0	0	0	100	100	93.8	0	0	93.8	0	0	99.1	0	0	99.1	96.3
Heavy Vehicles	0	0	0	0	0	0	56	0	0	56	0	0	7	0	0	7	63
% Heavy Vehicles	0	0	0	0	0	0	6.2	0	0	6.2	0	0	0.9	0	0	0.9	3.7



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 129th Ct
Tuesday, Sept 14, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 129th Ct
Site Code : 99412901
Start Date : 9/14/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 129th Ct Southbound					SR 994 / Quail Roost Drive Westbound					Northbound	SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	5	0	0	5	10
06:45 AM	0	0	0	0	0	0	11	0	0	11	0	0	2	0	0	2	13
Total	0	0	0	0	0	0	16	0	0	16	0	0	7	0	0	7	23
07:00 AM	0	0	0	0	0	0	9	0	0	9	0	0	6	0	0	6	15
07:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	6	0	0	6	25
07:30 AM	0	0	0	0	0	0	7	0	0	7	0	0	5	0	0	5	12
07:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	11	0	0	11	17
Total	0	0	0	0	0	0	41	0	0	41	0	0	28	0	0	28	69
08:00 AM	0	0	0	0	0	0	10	0	0	10	0	0	21	0	0	21	31
08:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	17	0	0	17	22
08:30 AM	0	0	0	0	0	1	10	0	0	11	0	0	3	0	0	3	14
08:45 AM	1	0	0	0	1	0	4	0	0	4	0	0	5	0	0	5	10
Total	1	0	0	0	1	1	29	0	0	30	0	0	46	0	0	46	77
09:00 AM	0	0	0	0	0	1	5	0	0	6	0	0	7	0	0	7	13
09:15 AM	0	0	0	0	0	0	11	0	0	11	0	0	3	0	0	3	14
*** BREAK ***																	
Total	0	0	0	0	0	1	16	0	0	17	0	0	10	0	0	10	27
*** BREAK ***																	
03:30 PM	0	0	0	0	0	0	17	0	0	17	0	0	10	0	0	10	27
03:45 PM	0	0	0	0	0	0	21	0	0	21	0	0	4	0	0	4	25
Total	0	0	0	0	0	0	38	0	0	38	0	0	14	0	0	14	52
04:00 PM	0	0	0	0	0	0	9	0	0	9	0	0	4	0	0	4	13
04:15 PM	0	0	0	0	0	0	17	0	0	17	0	0	6	0	0	6	23
04:30 PM	0	0	0	0	0	0	11	0	0	11	0	0	4	0	0	4	15
04:45 PM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	19
Total	0	0	0	0	0	0	56	0	0	56	0	0	14	0	0	14	70
05:00 PM	0	0	0	0	0	0	9	0	0	9	0	0	1	0	0	1	10
05:15 PM	0	0	0	0	0	0	17	0	0	17	0	0	2	0	0	2	19
05:30 PM	0	0	0	0	0	0	15	0	0	15	0	0	2	0	0	2	17
05:45 PM	0	0	0	0	0	0	10	0	0	10	0	0	3	0	0	3	13
Total	0	0	0	0	0	0	51	0	0	51	0	0	8	0	0	8	59
06:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	1	0	0	1	9
06:15 PM	0	0	0	1	1	0	14	0	1	15	0	0	0	0	0	0	16
Grand Total	1	0	0	1	2	2	269	0	1	272	0	0	128	0	0	128	402
Apprch %	50	0	0	50		0.7	98.9	0	0.4			0	100	0	0		
Total %	0.2	0	0	0.2	0.5	0.5	66.9	0	0.2	67.7	0	0	31.8	0	0	31.8	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 129th Ave
Tuesday, Sept 14, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 129 Ave
Site Code : 99412913
Start Date : 9/14/2021
Page No : 1

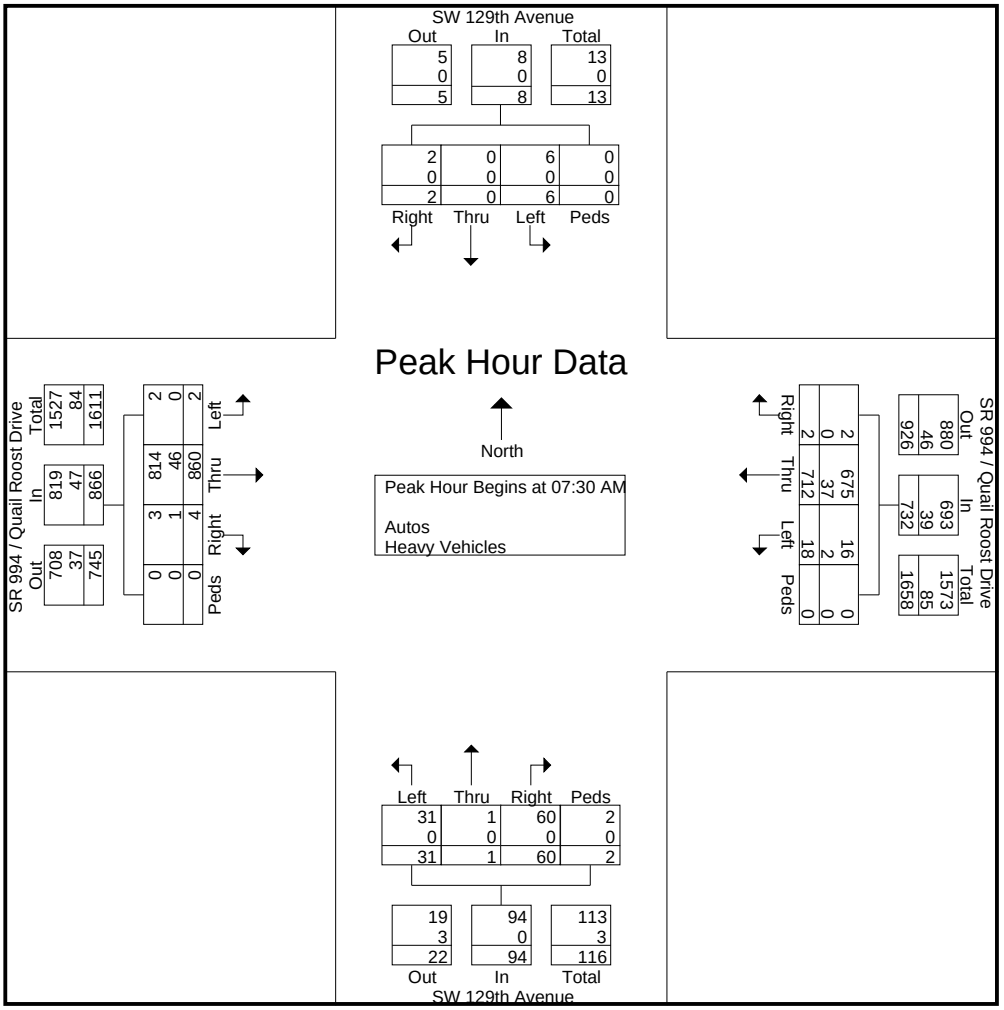
Groups Printed- Autos - Heavy Vehicles

	SW 129th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 129th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	1	110	1	0	112	9	0	5	0	14	1	164	0	0	165	291
06:45 AM	0	0	1	0	1	1	144	4	0	149	7	0	3	0	10	1	153	0	0	154	314
Total	0	0	1	0	1	2	254	5	0	261	16	0	8	0	24	2	317	0	0	319	605
07:00 AM	0	0	2	0	2	0	163	0	0	163	15	0	6	1	22	1	190	0	0	191	378
07:15 AM	0	0	1	0	1	0	185	1	0	186	10	0	9	0	19	3	199	0	0	202	408
07:30 AM	1	0	3	0	4	1	180	3	0	184	16	0	10	1	27	0	226	1	0	227	442
07:45 AM	0	0	0	0	0	1	180	0	0	181	17	1	11	0	29	1	202	0	0	203	413
Total	1	0	6	0	7	2	708	4	0	714	58	1	36	2	97	5	817	1	0	823	1641
08:00 AM	1	0	0	0	1	0	179	7	0	186	19	0	8	0	27	0	218	1	0	219	433
08:15 AM	0	0	3	0	3	0	173	8	0	181	8	0	2	1	11	3	214	0	0	217	412
08:30 AM	0	0	1	0	1	0	137	4	0	141	7	0	3	1	11	5	174	0	0	179	332
08:45 AM	0	0	1	0	1	1	101	2	0	104	4	0	6	1	11	3	175	1	0	179	295
Total	1	0	5	0	6	1	590	21	0	612	38	0	19	3	60	11	781	2	0	794	1472
09:00 AM	1	0	1	0	2	0	125	2	0	127	5	0	1	0	6	5	145	0	0	150	285
09:15 AM	0	0	0	0	0	0	113	1	0	114	5	0	0	0	5	1	136	1	0	138	257
*** BREAK ***																					
Total	1	0	1	0	2	0	238	3	0	241	10	0	1	0	11	6	281	1	0	288	542
*** BREAK ***																					
03:30 PM	0	0	1	0	1	0	206	4	0	210	4	0	2	0	6	2	179	0	0	181	398
03:45 PM	0	0	0	0	0	2	202	7	0	211	5	0	3	0	8	3	149	0	0	152	371
Total	0	0	1	0	1	2	408	11	0	421	9	0	5	0	14	5	328	0	0	333	769
04:00 PM	0	0	3	0	3	2	175	2	0	179	4	0	2	1	7	2	175	0	0	177	366
04:15 PM	1	0	0	0	1	1	193	8	0	202	3	0	0	2	5	7	153	0	0	160	368
04:30 PM	1	0	0	0	1	3	180	11	0	194	4	0	2	2	8	2	156	0	0	158	361
04:45 PM	1	0	0	0	1	0	204	6	0	210	7	0	2	0	9	2	183	0	0	185	405
Total	3	0	3	0	6	6	752	27	0	785	18	0	6	5	29	13	667	0	0	680	1500
05:00 PM	0	0	0	0	0	0	192	13	0	205	7	0	4	0	11	3	148	0	0	151	367
05:15 PM	0	1	0	0	1	0	200	5	0	205	5	0	3	1	9	6	164	0	0	170	385
05:30 PM	0	0	0	0	0	1	183	14	0	198	7	0	2	1	10	4	180	0	0	184	392
05:45 PM	0	0	0	0	0	2	167	10	0	179	5	0	1	0	6	4	168	0	0	172	357
Total	0	1	0	0	1	3	742	42	0	787	24	0	10	2	36	17	660	0	0	677	1501
06:00 PM	1	0	0	0	1	0	158	10	0	168	6	0	3	0	9	2	155	0	0	157	335
06:15 PM	0	0	1	0	1	1	187	5	0	193	6	1	3	1	11	2	141	0	0	143	348
Grand Total	7	1	18	0	26	17	4037	128	0	4182	185	2	91	13	291	63	4147	4	0	4214	8713
Apprch %	26.9	3.8	69.2	0		0.4	96.5	3.1	0		63.6	0.7	31.3	4.5		1.5	98.4	0.1	0		
Total %	0.1	0	0.2	0	0.3	0.2	46.3	1.5	0	48	2.1	0	1	0.1	3.3	0.7	47.6	0	0	48.4	
Autos	7	1	18	0	26	17	3764										3951				
% Autos	100	100	100	0	100	100	93.2	96.1	0	93.4	99.5	100	96.7	76.9	97.6	95.2	95.3	100	0	95.3	94.4
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	6.8	3.9	0	6.6	0.5	0	3.3	23.1	2.4	4.8	4.7	0	0	4.7	5.6

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 129 Ave
Site Code : 99412913
Start Date : 9/14/2021
Page No : 2

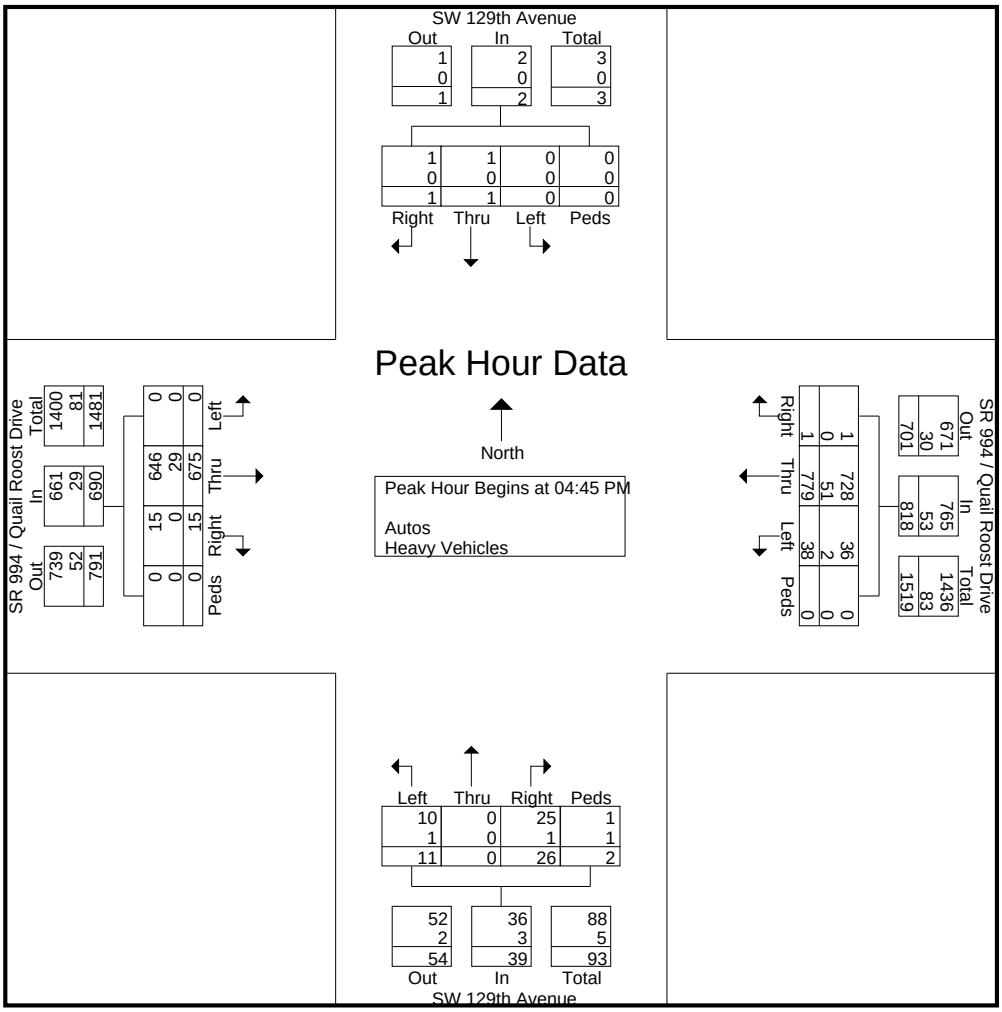
	SW 129th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 129th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**1**	0	**3**	0	**4**	**1**	**180**	3	0	184	16	0	10	**1**	27	0	**226**	**1**	0	**227**	**442**
07:45 AM	0	0	0	0	0	1	180	0	0	181	17	**1**	**11**	0	**29**	1	202	0	0	203	413
08:00 AM	1	0	0	0	1	0	179	7	0	**186**	**19**	0	8	0	27	0	218	1	0	219	433
08:15 AM	0	0	3	0	3	0	173	**8**	0	181	8	0	2	1	11	**3**	214	0	0	217	412
Total Volume	2	0	6	0	8	2	712	18	0	732	60	1	31	2	94	4	860	2	0	866	1700
% App. Total	25	0	75	0		0.3	97.3	2.5	0		63.8	1.1	33	2.1		0.5	99.3	0.2	0		
PHF	.500	.000	.500	.000	.500	.500	.989	.563	.000	.984	.789	.250	.705	.500	.810	.333	.951	.500	.000	.954	.962
Autos	2	0	6	0	8	2	675	16	0	693	60	1	31	2	94	3	814	2	0	819	1614
% Autos	100	0	100	0	100	100	94.8	88.9	0	94.7	100	100	100	100	100	75.0	94.7	100	0	94.6	94.9
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	5.2	11.1	0	5.3	0	0	0	0	0	25.0	5.3	0	0	5.4	5.1



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 129 Ave
Site Code : 99412913
Start Date : 9/14/2021
Page No : 3

	SW 129th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 129th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**1**	0	0	0	**1**	0	**204**	6	0	**210**	**7**	0	2	0	9	2	**183**	0	0	**185**	**405**
05:00 PM	0	0	0	0	0	0	192	13	0	205	7	0	**4**	0	**11**	3	148	0	0	151	367
05:15 PM	0	**1**	0	0	1	0	200	5	0	205	5	0	3	**1**	9	**6**	164	0	0	170	385
05:30 PM	0	0	0	0	0	**1**	183	**14**	0	198	7	0	2	1	10	4	180	0	0	184	392
Total Volume	1	1	0	0	2	1	779	38	0	818	26	0	11	2	39	15	675	0	0	690	1549
% App. Total	50	50	0	0		0.1	95.2	4.6	0		66.7	0	28.2	5.1		2.2	97.8	0	0		
PHF	.250	.250	.000	.000	.500	.250	.955	.679	.000	.974	.929	.000	.688	.500	.886	.625	.922	.000	.000	.932	.956
Autos	1	1	0	0	2	1	728	36	0	765	25	0	10	1	36	15	646	0	0	661	1464
% Autos	100	100	0	0	100	100	93.5	94.7	0	93.5	96.2	0	90.9	50.0	92.3	100	95.7	0	0	95.8	94.5
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	6.5	5.3	0	6.5	3.8	0	9.1	50.0	7.7	0	4.3	0	0	4.2	5.5



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 129th Ave
Tuesday, Sept 14, 2001
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 129 Ave
Site Code : 99412913
Start Date : 9/14/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 129th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 129th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	19	0	0	20	25
06:45 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	8	0	0	8	16
Total	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	1	27	0	0	28	41
07:00 AM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	10	0	0	10	20
07:15 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	1	12	0	0	13	29
07:30 AM	0	0	0	0	0	0	11	1	0	12	0	0	0	0	0	0	10	0	0	10	22
07:45 AM	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	16	0	0	16	25
Total	0	0	0	0	0	0	46	1	0	47	0	0	0	0	0	1	48	0	0	49	96
08:00 AM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	13	0	0	13	23
08:15 AM	0	0	0	0	0	0	7	1	0	8	0	0	0	0	0	1	7	0	0	8	16
08:30 AM	0	0	0	0	0	0	12	1	0	13	0	0	0	0	0	0	4	0	0	4	17
08:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	10
Total	0	0	0	0	0	0	35	2	0	37	0	0	0	0	0	1	28	0	0	29	66
09:00 AM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	13	0	0	13	20
09:15 AM	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	13	0	0	13	25
*** BREAK ***																					
Total	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	26	0	0	26	45
*** BREAK ***																					
03:30 PM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	12	0	0	12	32
03:45 PM	0	0	0	0	0	0	24	0	0	24	0	0	1	0	1	0	4	0	0	4	29
Total	0	0	0	0	0	0	44	0	0	44	0	0	1	0	1	0	16	0	0	16	61
04:00 PM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	2	0	0	2	13
04:15 PM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	5	0	0	5	23
04:30 PM	0	0	0	0	0	0	11	0	0	11	0	0	0	1	1	0	6	0	0	6	18
04:45 PM	0	0	0	0	0	0	16	2	0	18	0	0	0	0	0	0	9	0	0	9	27
Total	0	0	0	0	0	0	56	2	0	58	0	0	0	1	1	0	22	0	0	22	81
05:00 PM	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	6	0	0	6	14
05:15 PM	0	0	0	0	0	0	17	0	0	17	0	0	1	0	1	0	8	0	0	8	26
05:30 PM	0	0	0	0	0	0	11	0	0	11	0	0	0	1	1	0	6	0	0	6	18
05:45 PM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	3	0	0	3	10
Total	0	0	0	0	0	0	41	0	0	41	1	0	2	1	4	0	23	0	0	23	68
06:00 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	4	0	0	4	11
06:15 PM	0	0	0	0	0	0	12	0	0	12	0	0	0	1	1	0	2	0	0	2	15
Grand Total	0	0	0	0	0	0	273	5	0	278	1	0	3	3	7	3	196	0	0	199	484
Apprch %	0	0	0	0		0	98.2	1.8	0		14.3	0	42.9	42.9		1.5	98.5	0	0		
Total %	0	0	0	0	0	0	56.4	1	0	57.4	0.2	0	0.6	0.6	1.4	0.6	40.5	0	0	41.1	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

SR 994/Quail Roost Dr and SW 127th Ave
Wednesday, Sept 8, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 127 Ave
Site Code : 20012702
Start Date : 9/8/2021
Page No : 1

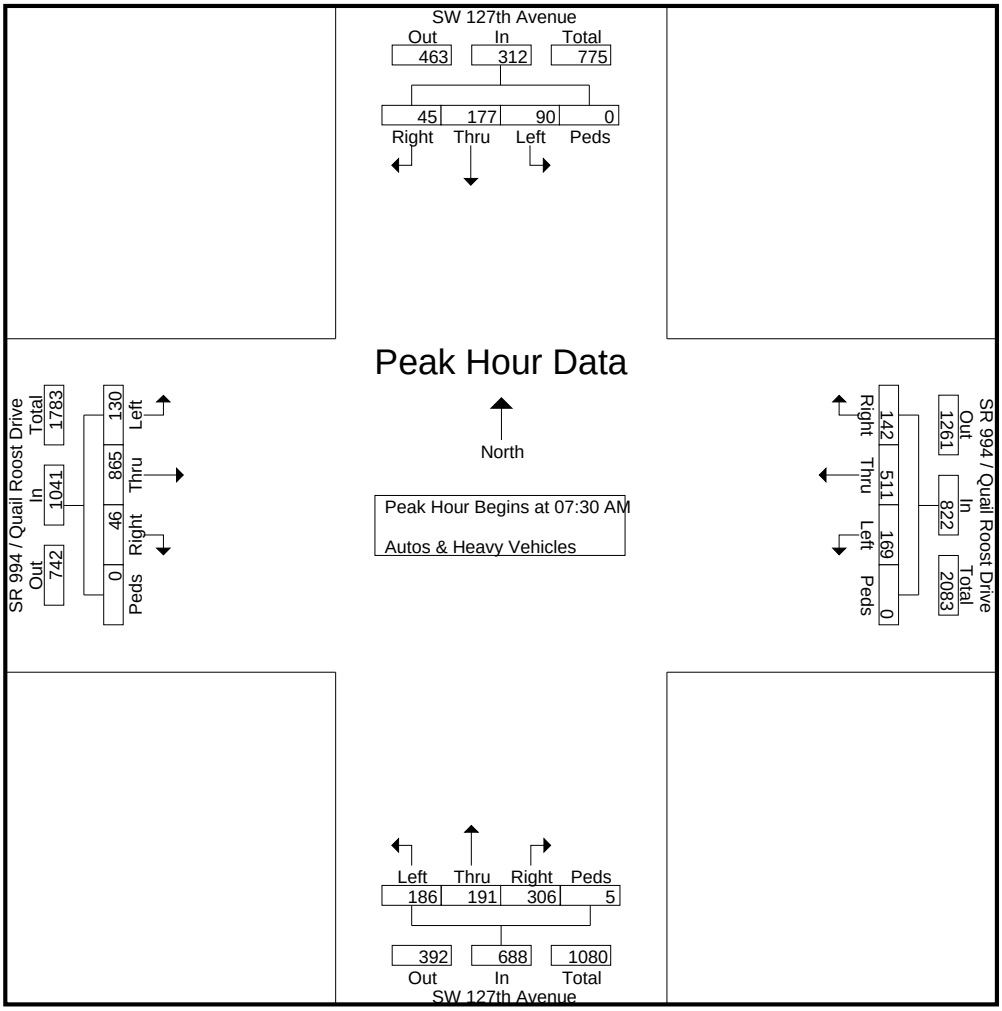
Groups Printed- Autos & Heavy Vehicles

	SW 127th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 127th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
06:30 AM	6	27	9	0	42	10	88	14	0	112	82	45	36	0	163	10	167	11	0	188	505
06:45 AM	5	33	18	0	56	24	103	22	0	149	74	52	44	0	170	7	174	20	0	201	576
Total	11	60	27	0	98	34	191	36	0	261	156	97	80	0	333	17	341	31	0	389	1081
07:00 AM	15	36	20	0	71	32	110	32	0	174	60	63	56	0	179	11	164	22	0	197	621
07:15 AM	9	42	28	0	79	53	112	23	0	188	50	76	61	0	187	10	207	27	0	244	698
07:30 AM	4	30	20	0	54	37	143	41	0	221	59	56	51	0	166	8	214	26	0	248	689
07:45 AM	17	48	23	0	88	47	121	52	0	220	95	36	65	0	196	11	195	25	0	231	735
Total	45	156	91	0	292	169	486	148	0	803	264	231	233	0	728	40	780	100	0	920	2743
08:00 AM	17	57	26	0	100	25	128	31	0	184	73	44	36	4	157	5	215	39	0	259	700
08:15 AM	7	42	21	0	70	33	119	45	0	197	79	55	34	1	169	22	241	40	0	303	739
08:30 AM	14	42	30	0	86	23	83	37	1	144	59	61	51	0	171	15	189	25	0	229	630
08:45 AM	12	40	32	0	84	14	90	31	0	135	45	37	39	0	121	18	173	15	0	206	546
Total	50	181	109	0	340	95	420	144	1	660	256	197	160	5	618	60	818	119	0	997	2615
09:00 AM	8	40	34	0	82	21	90	25	0	136	62	42	24	0	128	13	115	13	0	141	487
09:15 AM	3	25	24	1	53	17	100	24	0	141	57	27	22	1	107	15	141	11	0	167	468
*** BREAK ***																					
Total	11	65	58	1	135	38	190	49	0	277	119	69	46	1	235	28	256	24	0	308	955
*** BREAK ***																					
03:30 PM	11	41	22	0	74	21	103	47	0	171	29	37	25	0	91	15	136	13	0	164	500
03:45 PM	13	85	26	0	124	21	120	56	0	197	41	67	36	0	144	24	182	14	0	220	685
Total	24	126	48	0	198	42	223	103	0	368	70	104	61	0	235	39	318	27	0	384	1185
04:00 PM	14	80	41	0	135	28	138	62	0	228	42	41	38	0	121	21	149	6	0	176	660
04:15 PM	13	70	38	0	121	24	126	74	0	224	52	47	28	0	127	26	145	15	0	186	658
04:30 PM	17	74	30	0	121	24	159	56	0	239	36	62	37	0	135	13	169	12	0	194	689
04:45 PM	16	85	27	1	129	27	146	65	0	238	47	81	57	0	185	31	200	25	0	256	808
Total	60	309	136	1	506	103	569	257	0	929	177	231	160	0	568	91	663	58	0	812	2815
05:00 PM	12	76	37	0	125	27	144	58	0	229	19	28	25	0	72	15	78	5	0	98	524
05:15 PM	8	72	49	0	129	24	137	73	4	238	39	54	39	0	132	13	155	18	0	186	685
05:30 PM	8	79	44	0	131	26	141	70	0	237	52	39	46	0	137	17	164	10	0	191	696
05:45 PM	13	88	29	0	130	16	101	68	1	186	48	42	44	0	134	13	120	5	0	138	588
Total	41	315	159	0	515	93	523	269	5	890	158	163	154	0	475	58	517	38	0	613	2493
06:00 PM	7	74	21	0	102	23	122	55	2	202	39	58	46	1	144	21	164	6	0	191	639
06:15 PM	8	56	29	1	94	20	126	58	1	205	25	58	32	0	115	16	116	10	0	142	556
Grand Total	257	1342	678	3	2280	617	2850	1119	9	4595	1264	1208	972	7	3451	370	3973	413	0	4756	15082
Apprch %	11.3	58.9	29.7	0.1		13.4	62	24.4	0.2		36.6	35	28.2	0.2		7.8	83.5	8.7	0		
Total %	1.7	8.9	4.5	0	15.1	4.1	18.9	7.4	0.1	30.5	8.4	8	6.4	0	22.9	2.5	26.3	2.7	0	31.5	

Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 127 Ave
Site Code : 20012702
Start Date : 9/8/2021
Page No : 2

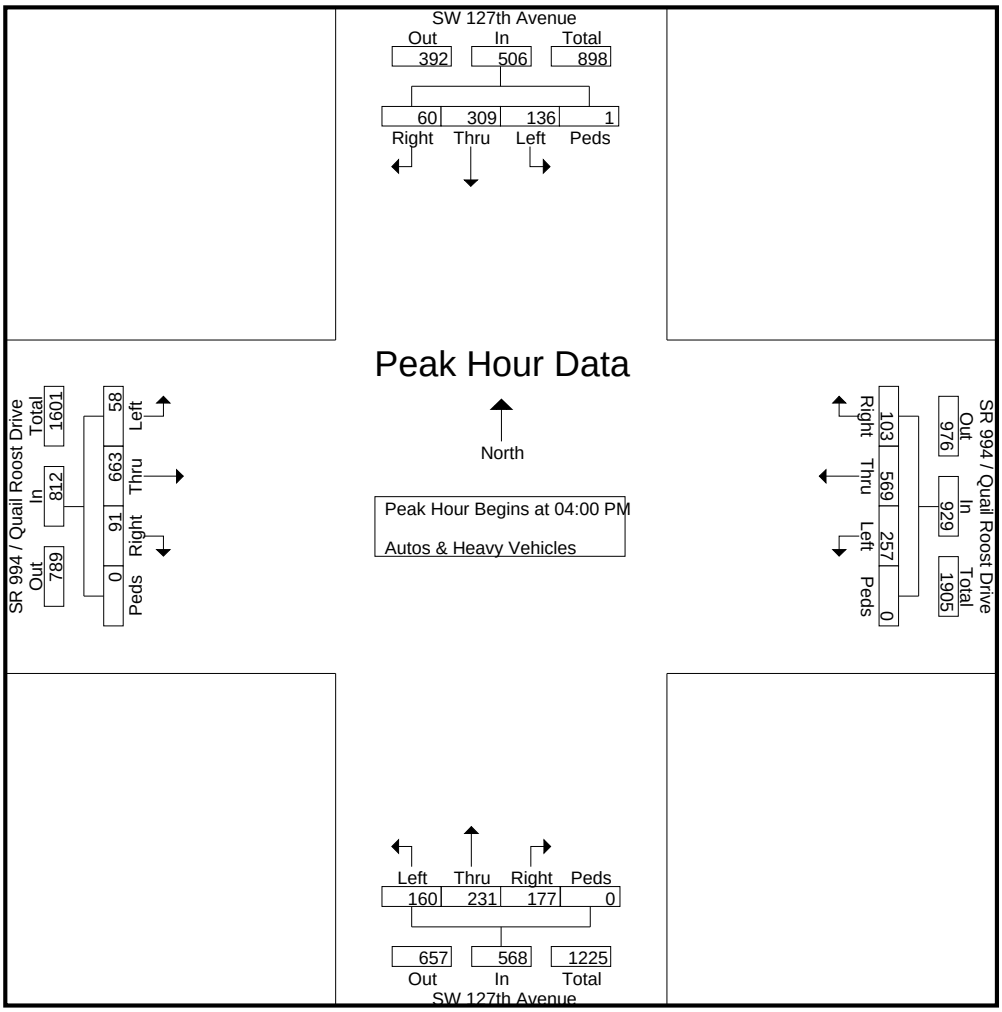
	SW 127th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 127th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	4	30	20	0	54	37	**143**	41	0	**221**	59	**56**	51	0	166	8	214	26	0	248	689
07:45 AM	**17**	48	23	0	88	**47**	121	**52**	0	220	**95**	36	**65**	0	**196**	11	195	25	0	231	735
08:00 AM	17	**57**	**26**	0	**100**	25	128	31	0	184	73	44	36	**4**	157	5	215	39	0	259	700
08:15 AM	7	42	21	0	70	33	119	45	0	197	79	55	34	1	169	**22**	**241**	**40**	0	**303**	**739**
Total Volume	45	177	90	0	312	142	511	169	0	822	306	191	186	5	688	46	865	130	0	1041	2863
% App. Total	14.4	56.7	28.8	0		17.3	62.2	20.6	0		44.5	27.8	27	0.7		4.4	83.1	12.5	0		
PHF	.662	.776	.865	.000	.780	.755	.893	.813	.000	.930	.805	.853	.715	.313	.878	.523	.897	.813	.000	.859	.969



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

File Name : SW 127 Ave
Site Code : 20012702
Start Date : 9/8/2021
Page No : 3

	SW 127th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 127th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Right	Thru	Left	Peds & Bicycles	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	14	80	**41**	0	**135**	**28**	138	62	0	228	42	41	38	0	121	21	149	6	0	176	660
04:15 PM	13	70	38	0	121	24	126	**74**	0	224	**52**	47	28	0	127	26	145	15	0	186	658
04:30 PM	**17**	74	30	0	121	24	**159**	56	0	**239**	36	62	37	0	135	13	169	12	0	194	689
04:45 PM	16	**85**	27	**1**	129	27	146	65	0	238	47	**81**	**57**	0	**185**	**31**	**200**	**25**	0	**256**	**808**
Total Volume	60	309	136	1	506	103	569	257	0	929	177	231	160	0	568	91	663	58	0	812	2815
% App. Total	11.9	61.1	26.9	0.2		11.1	61.2	27.7	0		31.2	40.7	28.2	0		11.2	81.7	7.1	0		
PHF	.882	.909	.829	.250	.937	.920	.895	.868	.000	.972	.851	.713	.702	.000	.768	.734	.829	.580	.000	.793	.871



Choice Engineering Consultants, Inc
12855 SW 132nd Street, Suite 200
Miami, FL. 33186

Trucks

SR 994/Quail Roost Dr and SW 127th Ave
Wednesday, Sept 8, 2021
Time: 6:30 AM-9:30 AM & 3:30 PM-6:30 PM
Weather: Partly Cloudy

File Name : SW 127 Ave
Site Code : 20012702
Start Date : 9/8/2021
Page No : 1

Groups Printed- Heavy Vehicles

	SW 127th Avenue Southbound					SR 994 / Quail Roost Drive Westbound					SW 127th Avenue Northbound					SR 994 / Quail Roost Drive Eastbound					
Start Time	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Right	Thru	Left	Bicycles	App. Total	Int. Total
06:30 AM	0	1	0	0	1	0	3	0	0	3	5	3	0	0	8	1	19	1	0	21	33
06:45 AM	0	0	0	0	0	1	3	0	0	4	8	1	1	0	10	1	13	2	0	16	30
Total	0	1	0	0	1	1	6	0	0	7	13	4	1	0	18	2	32	3	0	37	63
07:00 AM	0	1	1	0	2	0	3	1	0	4	2	3	1	0	6	2	8	1	0	11	23
07:15 AM	1	1	2	0	4	0	4	2	0	6	3	2	5	0	10	1	17	0	0	18	38
07:30 AM	0	0	1	0	1	0	5	1	0	6	4	1	4	0	9	2	15	0	0	17	33
07:45 AM	0	2	0	0	2	0	0	0	0	0	10	3	3	0	16	3	18	1	0	22	40
Total	1	4	4	0	9	0	12	4	0	16	19	9	13	0	41	8	58	2	0	68	134
08:00 AM	0	0	0	0	0	0	5	1	0	6	7	3	3	0	13	1	14	2	0	17	36
08:15 AM	0	2	1	0	3	1	4	0	0	5	5	5	1	0	11	2	26	1	0	29	48
08:30 AM	1	1	0	0	2	1	3	0	0	4	5	3	4	0	12	0	22	2	0	24	42
08:45 AM	1	0	0	0	1	0	3	0	0	3	1	5	2	0	8	3	12	1	0	16	28
Total	2	3	1	0	6	2	15	1	0	18	18	16	10	0	44	6	74	6	0	86	154
09:00 AM	0	1	0	0	1	0	4	0	0	4	8	3	3	0	14	2	17	0	0	19	38
09:15 AM	0	0	2	0	2	0	3	0	0	3	7	1	1	0	9	2	19	0	0	21	35
*** BREAK ***																					
Total	0	1	2	0	3	0	7	0	0	7	15	4	4	0	23	4	36	0	0	40	73
*** BREAK ***																					
03:30 PM	2	0	1	0	3	0	4	1	0	5	3	1	2	0	6	1	6	0	0	7	21
03:45 PM	2	0	0	0	2	0	4	1	0	5	3	3	1	0	7	1	10	0	0	11	25
Total	4	0	1	0	5	0	8	2	0	10	6	4	3	0	13	2	16	0	0	18	46
04:00 PM	2	3	0	0	5	1	4	0	0	5	2	2	3	0	7	1	4	0	0	5	22
04:15 PM	2	1	0	0	3	1	3	1	0	5	0	3	3	0	6	1	5	2	0	8	22
04:30 PM	1	1	2	0	4	1	2	1	0	4	2	5	3	0	10	0	15	0	0	15	33
04:45 PM	0	2	0	0	2	0	3	3	0	6	3	3	2	0	8	0	9	1	0	10	26
Total	5	7	2	0	14	3	12	5	0	20	7	13	11	0	31	2	33	3	0	38	103
05:00 PM	0	2	0	0	2	1	3	0	0	4	0	4	1	0	5	0	10	0	0	10	21
05:15 PM	0	2	0	0	2	0	0	2	0	2	2	0	0	0	2	0	8	1	0	9	15
05:30 PM	0	1	0	0	1	0	4	1	0	5	2	1	3	0	6	0	5	1	0	6	18
05:45 PM	0	1	0	0	1	0	5	3	0	8	2	1	0	0	3	1	2	0	0	3	15
Total	0	6	0	0	6	1	12	6	0	19	6	6	4	0	16	1	25	2	0	28	69
06:00 PM	0	0	0	0	0	0	1	0	1	2	1	1	3	0	5	1	5	0	0	6	13
06:15 PM	0	0	0	1	1	0	2	0	1	3	0	4	1	0	5	0	2	0	0	2	11
Grand Total	12	22	10	1	45	7	75	18	2	102	85	61	50	0	196	26	281	16	0	323	666
Apprch %	26.7	48.9	22.2	2.2		6.9	73.5	17.6	2		43.4	31.1	25.5	0		8	87	5	0		
Total %	1.8	3.3	1.5	0.2	6.8	1.1	11.3	2.7	0.3	15.3	12.8	9.2	7.5	0	29.4	3.9	42.2	2.4	0	48.5	

Appendix C: Signal Timing and Phasing

TOD Schedule Report

for 6507: Quail Roost Dr&SW 137 Av

Print Date: 10/4/2021

Print Time: 9:30 PM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
6507	Quail Roost Dr&SW 137 Av	DOW-2	TOD	Free	0	0	N/A	1	Max 1

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
EBL	WBT	-	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk (Phase Bank 1 - 2 - 3)	Don't Walk (1 - 2 - 3)	Min Initial (1 - 2 - 3)	Veh Ext (1 - 2 - 3)	Max Limit (1 - 2 - 3)	Max 2 (1 - 2 - 3)	Yellow	Red
1	EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2.5 - 2.5 - 2.5	10 - 10 - 10	15 - 15 - 15	4	2
2	WBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	35 - 40 - 40	0 - 55 - 0	4.4	2
3	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4	NBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	3.5 - 3.5 - 3.5	20 - 40 - 20	25 - 40 - 0	4.4	2
5	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6	EBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	35 - 40 - 40	0 - 55 - 0	4.4	2
7	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8	SBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	3.5 - 3.5 - 3.5	20 - 40 - 20	25 - 40 - 0	4.4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12-4-6-8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	1 EBL	2 WBT	3 -	4 NBT	5 -	6 EBT	7 -	8 SBT	Ring Offset	Offset

Local TOD Schedule

Time	Plan	DOW
0000	Flash	Su M T W Th F S
0500	Free	Su M T W Th F S

TOD Schedule Report

for 6507: Quail Roost Dr&SW 137 Av

Print Date: 10/4/2021

Print Time: 9:30 PM

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	TOD OUTPUTS	-------1	M T W ThF
0630	TOD OUTPUTS	------2-	M T W ThF
0900	TOD OUTPUTS	-------1	M T W ThF
1600	TOD OUTPUTS	------2-	M T W ThF
1900	TOD OUTPUTS	-------1	M T W ThF
2100	TOD OUTPUTS	--------	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	TOD OUTPUTS	-------1	M T W ThF
0630	TOD OUTPUTS	------2-	M T W ThF
0900	TOD OUTPUTS	-------1	M T W ThF
1600	TOD OUTPUTS	------2-	M T W ThF
1900	TOD OUTPUTS	-------1	M T W ThF
2100	TOD OUTPUTS	--------	M T W ThF

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

TOD Schedule Report

for 5751: Quail Roost Dr&SW 127 Av

Print Date: 10/4/2021

Print Time: 8:41 PM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
5751	Quail Roost Dr&SW 127 Av	DOW-2	TOD	N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk (Phase Bank 1 - 2 - 3)	Don't Walk (1 - 2 - 3)	Min Initial (1 - 2 - 3)	Veh Ext (1 - 2 - 3)	Max Limit (1 - 2 - 3)	Max 2 (1 - 2 - 3)	Yellow	Red
1 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2.5 - 2.5 - 2.5	10 - 10 - 10	15 - 15 - 15	4.4	2
2 WBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	1 - 1 - 1	45 - 35 - 45	0 - 45 - 45	4.4	2
3 SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2.5 - 2.5 - 2.5	10 - 10 - 10	15 - 15 - 15	4.4	2
4 NBT	7 - 7 - 7	20 - 20 - 20	7 - 7 - 7	3.5 - 3.5 - 3.5	50 - 35 - 50	70 - 45 - 55	4.4	2
5 WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2.5 - 2.5 - 2.5	10 - 10 - 20	15 - 15 - 18	4.4	2
6 EBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	1 - 1 - 1	45 - 35 - 45	0 - 45 - 45	4.4	2
7 NBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2.5 - 2.5 - 2.5	10 - 10 - 10	15 - 15 - 15	4.4	2
8 SBT	7 - 7 - 7	20 - 20 - 20	7 - 7 - 7	3.5 - 3.5 - 3.5	50 - 35 - 50	70 - 45 - 55	4.4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12345678
External Permit 0	--------
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

Current TOD Schedule	Plan	Cycle	Green Time 1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT	Ring Offset	Offset
	1	160	14	59	13	50	14	59	13	50	0	53
	3	70	0	44	0	14	0	44	0	14	0	24
	5	100	9	30	11	26	9	30	11	26	0	58
	6	150	9	92	11	14	9	92	11	14	0	10
	7	130	0	94	0	24	0	94	0	24	0	87
	8	100	0	65	0	23	0	65	0	23	0	65
	10	100	0	65	0	23	0	65	0	23	0	65
	12	150	11	58	11	46	16	53	11	46	0	116
	16	100	0	67	0	21	0	67	0	21	0	58
	19	100	9	34	9	24	9	34	9	24	0	55

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su S
0000	Free	M T W Th F
0500	5	M T W Th F
0630	1	M T W Th F
0900	Free	M T W Th F
1600	12	M T W Th F
1900	Free	M T W Th F

TOD Schedule Report

for 5751: Quail Roost Dr&SW 127 Av

Print Date: 10/4/2021

Print Time: 8:41 PM

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0900	TOD OUTPUTS	------2-	M T W ThF
1500	TOD OUTPUTS	-----3--	M T W ThF
1800	TOD OUTPUTS	------2-	M T W ThF
2000	TOD OUTPUTS	--------	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	TOD OUTPUTS	--------	Su S
0900	TOD OUTPUTS	------2-	M T W ThF
1500	TOD OUTPUTS	-----3--	M T W ThF
1500	TOD OUTPUTS	-------1	Su S
1800	TOD OUTPUTS	------2-	M T W ThF
1900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	--------	M T W ThF

* Settings

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

Appendix D: Existing Synchro Analysis Worksheets

ARTERIAL ANALYSIS –
EXISTING AM

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	40	25.0	19.4	44.4	0.23	18.4	C
SW 127 AVE	III	30	106.6	49.3	155.9	0.89	20.5	C
Total	III		131.6	68.7	200.3	1.11	20.0	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	37.5	71.4	0.27	13.4	E
SW1 137 AVE	III	32	99.7	15.3	115.0	0.89	28.0	B
Total	III		133.6	52.8	186.4	1.16	22.4	C

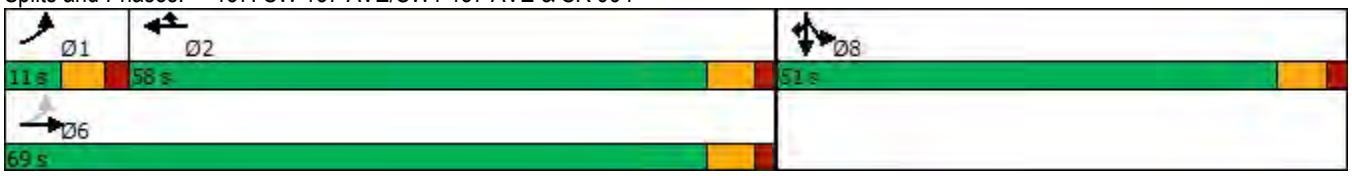
TIMINGS, QUEUES, & LOS –
EXISTING AM

Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	67	386	396	500	2	36
Future Volume (vph)	67	386	396	500	2	36
Turn Type	pm+pt	NA	NA	Prot	NA	Prot
Protected Phases	1	6	2	2	8	8
Permitted Phases	6					
Detector Phase	1	6	2	2	8	8
Switch Phase						
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	7.0
Minimum Split (s)	11.0	22.4	22.4	22.4	13.4	13.4
Total Split (s)	11.0	69.0	58.0	58.0	51.0	51.0
Total Split (%)	9.2%	57.5%	48.3%	48.3%	42.5%	42.5%
Yellow Time (s)	4.0	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	Max	Max	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 98.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	386	0	0	396	500	0	0	0	339	2	36
Future Volume (vph)	67	386	0	0	396	500	0	0	0	339	2	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4			6.4	6.4					6.4	6.4
Lane Util. Factor		1.00			1.00	1.00					1.00	1.00
Frt		1.00			1.00	0.85					1.00	0.85
Flt Protected		0.99			1.00	1.00					0.95	1.00
Satd. Flow (prot)		1663			1727	1509					1654	1380
Flt Permitted		0.87			1.00	1.00					0.95	1.00
Satd. Flow (perm)		1461			1727	1509					1654	1380
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	76	439	0	0	450	568	0	0	0	385	2	41
RTOR Reduction (vph)	0	0	0	0	0	180	0	0	0	0	0	29
Lane Group Flow (vph)	0	515	0	0	450	388	0	0	0	0	387	12
Heavy Vehicles (%)	16%	13%	0%	0%	10%	7%	0%	0%	0%	9%	97%	17%
Turn Type	pm+pt	NA			NA	Prot				Split	NA	Prot
Protected Phases	1	6			2	2				8	8	8
Permitted Phases	6											
Actuated Green, G (s)		56.4			56.4	56.4					28.8	28.8
Effective Green, g (s)		56.4			56.4	56.4					28.8	28.8
Actuated g/C Ratio		0.58			0.58	0.58					0.29	0.29
Clearance Time (s)		6.4			6.4	6.4					6.4	6.4
Vehicle Extension (s)		1.0			1.0	1.0					3.5	3.5
Lane Grp Cap (vph)		840			993	868					486	405
v/s Ratio Prot					0.26	0.26					c0.23	0.01
v/s Ratio Perm		c0.35										
v/c Ratio		0.61			0.45	0.45					0.80	0.03
Uniform Delay, d1		13.6			11.9	11.9					31.9	24.6
Progression Factor		1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2		0.9			1.5	1.7					9.0	0.0
Delay (s)		14.6			13.4	13.5					40.9	24.7
Level of Service		B			B	B					D	C
Approach Delay (s)		14.6			13.5			0.0			39.4	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	515	450	568	387	41
v/c Ratio	0.62	0.45	0.54	0.80	0.09
Control Delay	19.4	15.3	5.7	45.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	15.3	5.7	45.2	0.5
Queue Length 50th (ft)	202	154	40	205	0
Queue Length 95th (ft)	383	287	135	343	1
Internal Link Dist (ft)	1118	581		1066	
Turn Bay Length (ft)			135		250
Base Capacity (vph)	948	991	1047	765	684
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.45	0.54	0.51	0.06

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	134	891	174	526	146	192	197	93	182
Future Volume (vph)	134	891	174	526	146	192	197	93	182
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	3	7	4	3	8
Permitted Phases	6		2		2	4		8	
Detector Phase	1	6	5	2	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	28.4
Total Split (s)	20.0	65.0	20.0	65.0	19.0	19.0	56.0	19.0	56.0
Total Split (%)	12.5%	40.6%	12.5%	40.6%	11.9%	11.9%	35.0%	11.9%	35.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 53 (33%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	891	47	174	526	146	192	197	315	93	182	46
Future Volume (veh/h)	134	891	47	174	526	146	192	197	315	93	182	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	138	919	48	179	542	151	198	203	325	96	188	50
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.92
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	384	1339	70	276	1486	754	371	194	311	134	401	107
Arrive On Green	0.06	0.41	0.41	0.07	0.42	0.42	0.08	0.31	0.31	0.05	0.28	0.28
Sat Flow, veh/h	1767	3272	171	1795	3526	1598	1725	627	1004	1781	1424	379
Grp Volume(v), veh/h	138	475	492	179	542	151	198	0	528	96	0	238
Grp Sat Flow(s),veh/h/ln	1767	1692	1751	1795	1763	1598	1725	0	1630	1781	0	1802
Q Serve(g_s), s	7.2	36.9	36.9	9.2	16.8	8.8	12.6	0.0	49.6	6.1	0.0	17.5
Cycle Q Clear(g_c), s	7.2	36.9	36.9	9.2	16.8	8.8	12.6	0.0	49.6	6.1	0.0	17.5
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.62	1.00		0.21
Lane Grp Cap(c), veh/h	384	692	716	276	1486	754	371	0	505	134	0	507
V/C Ratio(X)	0.36	0.69	0.69	0.65	0.36	0.20	0.53	0.00	1.04	0.71	0.00	0.47
Avail Cap(c_a), veh/h	431	692	716	302	1486	754	371	0	505	185	0	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.5	38.8	38.8	30.2	31.6	24.6	38.7	0.0	55.2	44.1	0.0	47.6
Incr Delay (d2), s/veh	0.4	5.5	5.3	3.7	0.7	0.6	1.2	0.0	52.2	6.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	16.5	17.0	4.3	7.5	3.6	5.8	0.0	27.7	2.9	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	44.3	44.1	33.9	32.3	25.2	39.9	0.0	107.4	50.2	0.0	48.4
LnGrp LOS	C	D	D	C	C	C	D	A	F	D	A	D
Approach Vol, veh/h		1105			872			726			334	
Approach Delay, s/veh		41.9			31.4			89.0			48.9	
Approach LOS		D			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	73.9	14.4	56.0	17.7	71.9	19.0	51.4
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	13.6	58.6	12.6	49.6	13.6	58.6	12.6	49.6
Max Q Clear Time (g_c+I1), s	9.2	0.0	8.1	51.6	11.2	0.0	14.6	19.5
Green Ext Time (p_c), s	0.1	0.0	0.1	0.0	0.1	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	138	967	179	542	151	198	528	96	238
v/c Ratio	0.36	0.78	0.76	0.40	0.18	0.50	0.96	0.53	0.42
Control Delay	25.4	49.3	45.4	37.5	3.6	35.7	76.3	39.4	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	49.3	45.4	37.5	3.6	35.7	76.3	39.4	45.1
Queue Length 50th (ft)	78	474	104	219	0	133	499	60	191
Queue Length 95th (ft)	123	564	#189	278	39	196	#762	101	276
Internal Link Dist (ft)		550		1328			1420		1118
Turn Bay Length (ft)	300		225		225	120		100	
Base Capacity (vph)	404	1247	247	1346	879	397	552	208	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.78	0.72	0.40	0.17	0.50	0.96	0.46	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	774	895	3	3	2
Future Vol, veh/h	0	774	895	3	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	851	984	3	3	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	987	0	-	0	1837	986
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	851	-
Critical Hdwy	4.1	-	-	-	6.4	6.69
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.741
Pot Cap-1 Maneuver	708	-	-	-	84	246
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	422	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	84	246
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	422	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	38.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	114
HCM Lane V/C Ratio	-	-	-	-	0.048
HCM Control Delay (s)	0	-	-	-	38.2
HCM Lane LOS	A	-	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	906	8	19	808	2	35	1	62	6	0	2
Future Vol, veh/h	4	906	8	19	808	2	35	1	62	6	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	4	944	8	20	842	2	36	1	65	6	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	844	0	0	952	0	0	1840	1840	948	1872	1843	843
Stage 1	-	-	-	-	-	-	956	956	-	883	883	-
Stage 2	-	-	-	-	-	-	884	884	-	989	960	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	801	-	-	686	-	-	59	76	319	56	76	367
Stage 1	-	-	-	-	-	-	313	339	-	343	367	-
Stage 2	-	-	-	-	-	-	343	366	-	300	338	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	801	-	-	686	-	-	56	71	319	42	71	367
Mov Cap-2 Maneuver	-	-	-	-	-	-	56	71	-	42	71	-
Stage 1	-	-	-	-	-	-	310	335	-	339	347	-
Stage 2	-	-	-	-	-	-	322	346	-	236	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	65.9	83.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	56	319	801	-	-	686	-	-	54
HCM Lane V/C Ratio	0.651	0.202	0.005	-	-	0.029	-	-	0.154
HCM Control Delay (s)	148.9	19.1	9.5	0	-	10.4	0	-	83.5
HCM Lane LOS	F	C	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.7	0.7	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	116	906	3	0	809	25	4	0	0	11	0	94
Future Vol, veh/h	116	906	3	0	809	25	4	0	0	11	0	94
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	129	1007	3	0	899	28	4	0	0	12	0	104

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	927	0	0	1010	0	0	2232	2194	1009	2180	2181	913
Stage 1	-	-	-	-	-	-	1267	1267	-	913	913	-
Stage 2	-	-	-	-	-	-	965	927	-	1267	1268	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	729	-	-	694	-	-	31	46	294	32	47	331
Stage 1	-	-	-	-	-	-	209	242	-	318	355	-
Stage 2	-	-	-	-	-	-	309	350	-	200	242	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	729	-	-	694	-	-	15	27	294	22	28	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	15	27	-	22	28	-
Stage 1	-	-	-	-	-	-	125	144	-	190	355	-
Stage 2	-	-	-	-	-	-	211	350	-	119	144	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	$ 325.6	109.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	15	729	-	-	694	-	-	134
HCM Lane V/C Ratio	0.296	0.177	-	-	-	-	-	0.871
HCM Control Delay (s)	$ 325.6	11	0	-	0	-	-	109.4
HCM Lane LOS	F	B	A	-	A	-	-	F
HCM 95th %tile Q(veh)	0.8	0.6	-	-	0	-	-	5.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	24.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	822	12	67	839	40	204
Future Vol, veh/h	822	12	67	839	40	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	856	13	70	874	42	213

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	869	0	1877	863
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	1014	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	759	-	77	351
Stage 1	-	-	-	-	408	-
Stage 2	-	-	-	-	346	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	759	-	63	351
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	408	-
Stage 2	-	-	-	-	284	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	199.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	201	-	-	759	-
HCM Lane V/C Ratio	1.265	-	-	0.092	-
HCM Control Delay (s)	199.6	-	-	10.2	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	13.6	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	724	955	10	4	6
Future Vol, veh/h	4	724	955	10	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	4	770	1016	11	4	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1027	0	-	0	1800	1022
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	778	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	684	-	-	-	77	289
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	417	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	684	-	-	-	76	289
Mov Cap-2 Maneuver	-	-	-	-	76	-
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	417	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	33.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	684	-	-	-	136
HCM Lane V/C Ratio	0.006	-	-	-	0.078
HCM Control Delay (s)	10.3	0	-	-	33.7
HCM Lane LOS	B	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	21.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	650	111	57	796	108	99	36	32	46	42	3
Future Vol, veh/h	15	650	111	57	796	108	99	36	32	46	42	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	225	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	26	9	4	0	3	3	6	8	16	0	12	65
Mvmt Flow	16	691	118	61	847	115	105	38	34	49	45	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	962	0	0	691	0	0	1774	1807	691	1786	1750	905
Stage 1	-	-	-	-	-	-	723	723	-	1027	1027	-
Stage 2	-	-	-	-	-	-	1051	1084	-	759	723	-
Critical Hdwy	4.36	-	-	4.1	-	-	5	5	5	5	5	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Follow-up Hdwy	2.434	-	-	2.2	-	-	3.554	4.072	3.444	3.5	4.108	3.885
Pot Cap-1 Maneuver	627	-	-	913	-	-	183	169	547	181	178	413
Stage 1	-	-	-	-	-	-	411	422	-	285	299	-
Stage 2	-	-	-	-	-	-	269	286	-	402	416	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	627	-	-	913	-	-	119	137	547	115	144	413
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	137	-	115	144	-
Stage 1	-	-	-	-	-	-	391	402	-	271	255	-
Stage 2	-	-	-	-	-	-	188	244	-	325	396	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	208	87.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	145	627	-	-	913	-	-	130
HCM Lane V/C Ratio	1.225	0.025	-	-	0.066	-	-	0.745
HCM Control Delay (s)	208	10.9	0	-	9.2	0	-	87.4
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	10.5	0.1	-	-	0.2	-	-	4.3

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	762	893	4	11	4
Future Vol, veh/h	0	762	893	4	11	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	837	981	4	12	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	985	0	-	0	1820	983
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	837	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	709	-	-	-	86	305
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	709	-	-	-	86	305
Mov Cap-2 Maneuver	-	-	-	-	86	-
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	428	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	45.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	709	-	-	-	106
HCM Lane V/C Ratio	-	-	-	-	0.156
HCM Control Delay (s)	0	-	-	-	45.1
HCM Lane LOS	A	-	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	918	823	22	0	10
Future Vol, veh/h	0	918	823	22	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	946	848	23	0	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	860
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	359
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	359
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	359
HCM Lane V/C Ratio	-	-	-	0.029
HCM Control Delay (s)	-	-	-	15.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	777	858	22	58	12
Future Vol, veh/h	21	777	858	22	58	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	22	818	903	23	61	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	926	0	-	0	1777	915
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	862	-
Critical Hdwy	4.1	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.3
Pot Cap-1 Maneuver	746	-	-	-	91	333
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	746	-	-	-	86	333
Mov Cap-2 Maneuver	-	-	-	-	86	-
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	414	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	108.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	746	-	-	-	99
HCM Lane V/C Ratio	0.03	-	-	-	0.744
HCM Control Delay (s)	10	0	-	-	108.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	3.9

Intersection	
Int Delay, s/veh	25.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	715	13	13	857	108	82
Future Vol, veh/h	715	13	13	857	108	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	745	14	14	893	113	85

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	759	0	1673	752
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	921	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	830	-	~ 105	410
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	388	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	830	-	~ 102	410
Mov Cap-2 Maneuver	-	-	-	-	~ 102	-
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	375	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	236.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	-	-	830	-
HCM Lane V/C Ratio	1.311	-	-	0.016	-
HCM Control Delay (s)	236.4	-	-	9.4	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	12	-	-	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

ARTERIAL ANALYSIS –

EXISTING PM

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	II	40	25.0	15.8	40.8	0.23	20.0	D
SW 127 AVE	II	40	80.9	38.6	119.5	0.89	26.7	C
Total	II		105.9	54.4	160.3	1.11	25.0	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	II	40	29.3	28.5	57.8	0.27	16.6	E
SW1 137 AVE	II	39	81.5	14.8	96.3	0.89	33.4	B
Total	II		110.8	43.3	154.1	1.16	27.1	C

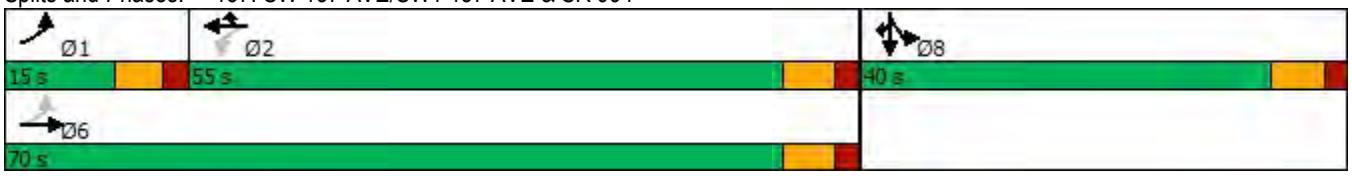
TIMINGS, QUEUES, & LOS –
EXISTING PM

Lane Group	EBL	EBT	WBL	WBT	WBR	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	41	402	4	373	355	3	40
Future Volume (vph)	41	402	4	373	355	3	40
Turn Type	pm+pt	NA	Perm	NA	Prot	NA	Prot
Protected Phases	1	6		2	2	8	8
Permitted Phases	6		2				
Detector Phase	1	6	2	2	2	8	8
Switch Phase							
Minimum Initial (s)	5.0	16.0	16.0	16.0	16.0	7.0	7.0
Minimum Split (s)	11.0	22.4	22.4	22.4	22.4	13.4	13.4
Total Split (s)	15.0	70.0	55.0	55.0	55.0	40.0	40.0
Total Split (%)	13.6%	63.6%	50.0%	50.0%	50.0%	36.4%	36.4%
Yellow Time (s)	4.0	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4		6.4	6.4	6.4	6.4
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Recall Mode	None	Max	Max	Max	Max	None	None

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	402	0	4	373	355	0	0	0	489	3	40
Future Volume (vph)	41	402	0	4	373	355	0	0	0	489	3	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4			6.4	6.4					6.4	6.4
Lane Util. Factor		1.00			1.00	1.00					1.00	1.00
Frt		1.00			1.00	0.85					1.00	0.85
Flt Protected		1.00			1.00	1.00					0.95	1.00
Satd. Flow (prot)		1760			1598	1495					1659	1380
Flt Permitted		0.93			1.00	1.00					0.95	1.00
Satd. Flow (perm)		1650			1593	1495					1659	1380
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	43	419	0	4	389	370	0	0	0	509	3	42
RTOR Reduction (vph)	0	0	0	0	0	149	0	0	0	0	0	29
Lane Group Flow (vph)	0	462	0	0	393	221	0	0	0	0	512	13
Heavy Vehicles (%)	12%	7%	0%	0%	19%	8%	0%	0%	0%	9%	32%	17%
Turn Type	pm+pt	NA		Perm	NA	Prot				Split	NA	Prot
Protected Phases	1	6			2	2				8	8	8
Permitted Phases	6			2								
Actuated Green, G (s)		63.6			63.6	63.6					33.6	33.6
Effective Green, g (s)		63.6			63.6	63.6					33.6	33.6
Actuated g/C Ratio		0.58			0.58	0.58					0.31	0.31
Clearance Time (s)		6.4			6.4	6.4					6.4	6.4
Vehicle Extension (s)		1.0			1.0	1.0					3.5	3.5
Lane Grp Cap (vph)		954			921	864					506	421
v/s Ratio Prot						0.15					c0.31	0.01
v/s Ratio Perm		c0.28			0.25							
v/c Ratio		0.48			0.43	0.26					1.01	0.03
Uniform Delay, d1		13.6			13.0	11.5					38.2	26.8
Progression Factor		1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2		0.3			1.4	0.7					43.0	0.0
Delay (s)		13.9			14.4	12.2					81.2	26.8
Level of Service		B			B	B					F	C
Approach Delay (s)		13.9			13.4			0.0			77.1	
Approach LOS		B			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	462	393	370	512	42
v/c Ratio	0.48	0.43	0.37	1.01	0.09
Control Delay	15.8	14.8	2.5	81.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	14.8	2.5	81.9	0.3
Queue Length 50th (ft)	180	146	5	~368	0
Queue Length 95th (ft)	263	218	44	#589	0
Internal Link Dist (ft)	1118	581		1066	
Turn Bay Length (ft)			135		250
Base Capacity (vph)	954	921	1013	506	486
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.43	0.37	1.01	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

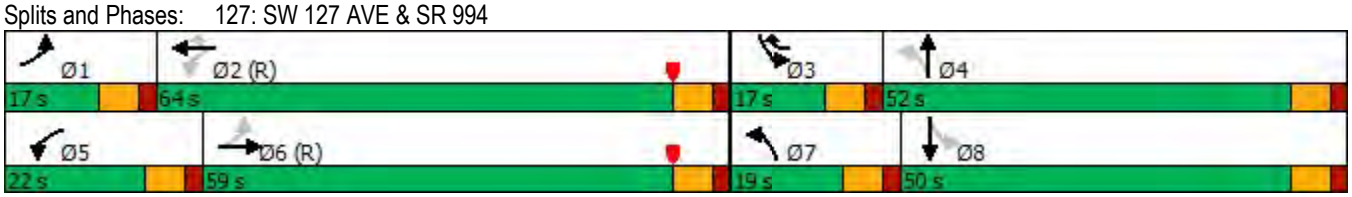
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	49	630	246	565	97	147	198	131	284
Future Volume (vph)	49	630	246	565	97	147	198	131	284
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	3	7	4	3	8
Permitted Phases	6		2		2	4		8	
Detector Phase	1	6	5	2	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	28.4
Total Split (s)	17.0	59.0	22.0	64.0	17.0	19.0	52.0	17.0	50.0
Total Split (%)	11.3%	39.3%	14.7%	42.7%	11.3%	12.7%	34.7%	11.3%	33.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 116 (77%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	630	89	246	565	97	147	198	169	131	284	65
Future Volume (veh/h)	49	630	89	246	565	97	147	198	169	131	284	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1826	1885	1856	1870	1811	1826	1826	1885	1885	1722
Adj Flow Rate, veh/h	54	692	98	270	621	107	162	218	186	144	312	71
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	4	5	1	3	2	6	5	5	1	1	12
Cap, veh/h	358	1240	176	385	1667	861	233	233	199	196	362	82
Arrive On Green	0.03	0.40	0.40	0.10	0.47	0.47	0.08	0.26	0.26	0.07	0.24	0.24
Sat Flow, veh/h	1753	3076	435	1795	3526	1585	1725	910	776	1795	1486	338
Grp Volume(v), veh/h	54	393	397	270	621	107	162	0	404	144	0	383
Grp Sat Flow(s),veh/h/ln	1753	1749	1762	1795	1763	1585	1725	0	1686	1795	0	1824
Q Serve(g_s), s	2.7	26.0	26.0	12.9	16.9	5.0	10.5	0.0	35.2	9.0	0.0	30.1
Cycle Q Clear(g_c), s	2.7	26.0	26.0	12.9	16.9	5.0	10.5	0.0	35.2	9.0	0.0	30.1
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.46	1.00		0.19
Lane Grp Cap(c), veh/h	358	705	711	385	1667	861	233	0	432	196	0	444
V/C Ratio(X)	0.15	0.56	0.56	0.70	0.37	0.12	0.70	0.00	0.94	0.73	0.00	0.86
Avail Cap(c_a), veh/h	430	705	711	394	1667	861	234	0	513	196	0	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	34.4	34.5	25.0	25.3	16.8	41.2	0.0	54.6	42.6	0.0	54.3
Incr Delay (d2), s/veh	0.1	3.2	3.2	5.0	0.6	0.3	8.1	0.0	23.2	12.7	0.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	11.6	11.7	5.9	7.2	1.9	5.0	0.0	17.7	4.7	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	37.6	37.6	29.9	25.9	17.1	49.3	0.0	77.8	55.2	0.0	66.7
LnGrp LOS	C	D	D	C	C	B	D	A	E	E	A	E
Approach Vol, veh/h		844			998			566			527	
Approach Delay, s/veh		36.8			26.1			69.6			63.6	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	77.3	17.0	44.8	21.3	66.9	18.9	42.9
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	10.6	57.6	10.6	45.6	15.6	52.6	12.6	43.6
Max Q Clear Time (g_c+I1), s	4.7	0.0	11.0	37.2	14.9	0.0	12.5	32.1
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.1	0.0	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	44.3
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	790	270	621	107	162	404	144	383
v/c Ratio	0.14	0.58	0.75	0.38	0.11	0.74	0.89	0.70	0.86
Control Delay	19.7	38.6	34.2	28.5	3.5	53.1	71.1	50.3	71.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	38.6	34.2	28.5	3.5	53.1	71.1	50.3	71.5
Queue Length 50th (ft)	25	329	140	212	0	109	356	95	352
Queue Length 95th (ft)	52	413	#233	292	32	#157	468	140	458
Internal Link Dist (ft)		550		1328			1420		1118
Turn Bay Length (ft)	300		225		225	120		100	
Base Capacity (vph)	414	1352	367	1646	967	223	532	209	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.58	0.74	0.38	0.11	0.73	0.76	0.69	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	856	732	5	2	0
Future Vol, veh/h	0	856	732	5	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	3	7	0	0	0
Mvmt Flow	0	892	763	5	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	768	0	-	0	1658	766
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	892	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	855	-	-	-	109	406
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	404	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	855	-	-	-	109	406
Mov Cap-2 Maneuver	-	-	-	-	109	-
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	38.7
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	855	-	-	-	109
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	-	-	-	38.7
HCM Lane LOS	A	-	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	677	49	22	832	5	8	0	16	4	0	2
Future Vol, veh/h	1	677	49	22	832	5	8	0	16	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	0	0	9	0	12	0	0	0	0	0
Mvmt Flow	1	720	52	23	885	5	9	0	17	4	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	890	0	0	772	0	0	1683	-	746	1691	1708	888
Stage 1	-	-	-	-	-	-	748	-	-	934	934	-
Stage 2	-	-	-	-	-	-	935	-	-	757	774	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.22	-	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.608	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	770	-	-	852	-	-	71	0	417	75	92	345
Stage 1	-	-	-	-	-	-	389	0	-	322	347	-
Stage 2	-	-	-	-	-	-	306	0	-	403	411	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	770	-	-	852	-	-	68	-	417	69	87	345
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	-	-	69	87	-
Stage 1	-	-	-	-	-	-	388	-	-	321	329	-
Stage 2	-	-	-	-	-	-	288	-	-	386	410	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	31.1	46.1
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	68	417	770	-	-	852	-	-	94
HCM Lane V/C Ratio	0.125	0.041	0.001	-	-	0.027	-	-	0.068
HCM Control Delay (s)	65.4	14	9.7	0	-	9.3	0	-	46.1
HCM Lane LOS	F	B	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.4	0.1	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	716	4	0	829	29	1	0	1	10	3	62
Future Vol, veh/h	42	716	4	0	829	29	1	0	1	10	3	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	9	5	0	0	6	3	0	0	0	0	0	5
Mvmt Flow	44	754	4	0	873	31	1	0	1	11	3	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	904	0	0	758	0	0	1767	1748	756	1734	1735	889
Stage 1	-	-	-	-	-	-	844	844	-	889	889	-
Stage 2	-	-	-	-	-	-	923	904	-	845	846	-
Critical Hdwy	4.19	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.281	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.345
Pot Cap-1 Maneuver	724	-	-	862	-	-	66	87	411	70	89	338
Stage 1	-	-	-	-	-	-	361	382	-	341	364	-
Stage 2	-	-	-	-	-	-	326	358	-	360	381	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	724	-	-	862	-	-	48	78	411	64	80	338
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	78	-	64	80	-
Stage 1	-	-	-	-	-	-	323	342	-	305	364	-
Stage 2	-	-	-	-	-	-	261	358	-	321	341	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	47.9	34.5
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	86	724	-	-	862	-	-	199
HCM Lane V/C Ratio	0.024	0.061	-	-	-	-	-	0.397
HCM Control Delay (s)	47.9	10.3	0	-	0	-	-	34.5
HCM Lane LOS	E	B	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	1.8

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	696	55	174	718	25	66
Future Vol, veh/h	696	55	174	718	25	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	92
Heavy Vehicles, %	5	0	8	10	12	3
Mvmt Flow	710	56	178	733	26	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	766	0	1827	738
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	1089	-
Critical Hdwy	-	-	4.18	-	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.272	-	3.608	3.327
Pot Cap-1 Maneuver	-	-	821	-	80	416
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	309	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	821	-	51	416
Mov Cap-2 Maneuver	-	-	-	-	51	-
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	196	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	69.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	145	-	-	821	-
HCM Lane V/C Ratio	0.671	-	-	0.216	-
HCM Control Delay (s)	69.7	-	-	10.6	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	3.8	-	-	0.8	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	713	713	12	6	2
Future Vol, veh/h	6	713	713	12	6	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	16	7	9	24	32	97
Mvmt Flow	8	891	891	15	8	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	906	0	-	0	1806	899
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	907	-
Critical Hdwy	4.26	-	-	-	6.72	7.17
Critical Hdwy Stg 1	-	-	-	-	5.72	-
Critical Hdwy Stg 2	-	-	-	-	5.72	-
Follow-up Hdwy	2.344	-	-	-	3.788	4.173
Pot Cap-1 Maneuver	696	-	-	-	73	232
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	349	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	696	-	-	-	71	232
Mov Cap-2 Maneuver	-	-	-	-	71	-
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	349	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	52.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	696	-	-	-	86
HCM Lane V/C Ratio	0.011	-	-	-	0.116
HCM Control Delay (s)	10.2	0	-	-	52.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	19.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	648	210	65	632	18	103	24	40	31	23	2
Future Vol, veh/h	0	648	210	65	632	18	103	24	40	31	23	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	225	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	4	3	5	6	6	7	0	10	0	0	0
Mvmt Flow	0	790	256	79	771	22	126	29	49	38	28	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	793	0	0	790	0	0	1745	1741	790	1769	1730	782
Stage 1	-	-	-	-	-	-	790	790	-	940	940	-
Stage 2	-	-	-	-	-	-	955	951	-	829	790	-
Critical Hdwy	4.1	-	-	4.15	-	-	5	5	5	5	5	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.563	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	837	-	-	817	-	-	188	181	503	185	183	516
Stage 1	-	-	-	-	-	-	376	404	-	319	345	-
Stage 2	-	-	-	-	-	-	304	341	-	368	404	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	837	-	-	817	-	-	140	150	503	124	151	516
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	150	-	124	151	-
Stage 1	-	-	-	-	-	-	376	404	-	319	285	-
Stage 2	-	-	-	-	-	-	225	282	-	308	404	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	183.6	54.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	171	837	-	-	817	-	-	138
HCM Lane V/C Ratio	1.191	-	-	-	0.097	-	-	0.495
HCM Control Delay (s)	183.6	0	-	-	9.9	0	-	54.3
HCM Lane LOS	F	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	11	0	-	-	0.3	-	-	2.3

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	849	727	5	7	5
Future Vol, veh/h	1	849	727	5	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	3	5	0	14	0
Mvmt Flow	1	894	765	5	7	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	770	0	-	0	1664	768
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	896	-
Critical Hdwy	4.1	-	-	-	6.54	6.2
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	2.2	-	-	-	3.626	3.3
Pot Cap-1 Maneuver	854	-	-	-	100	405
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	380	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	854	-	-	-	100	405
Mov Cap-2 Maneuver	-	-	-	-	100	-
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	380	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	32
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	854	-	-	-	146
HCM Lane V/C Ratio	0.001	-	-	-	0.087
HCM Control Delay (s)	9.2	0	-	-	32
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	727	837	5	0	21
Future Vol, veh/h	0	727	837	5	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	3	8	0	0	0
Mvmt Flow	0	782	900	5	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	903
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	339
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	339
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	339
HCM Lane V/C Ratio	-	-	-	0.067
HCM Control Delay (s)	-	-	-	16.4
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	732	730	12	19	5
Future Vol, veh/h	0	732	730	12	19	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	4	0	0	19
Mvmt Flow	0	771	768	13	20	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	781	0	-	0	1546	775
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	771	-
Critical Hdwy	4.1	-	-	-	6.4	6.39
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.471
Pot Cap-1 Maneuver	845	-	-	-	127	372
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	460	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	845	-	-	-	127	372
Mov Cap-2 Maneuver	-	-	-	-	127	-
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	460	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	34.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	845	-	-	-	147
HCM Lane V/C Ratio	-	-	-	-	0.172
HCM Control Delay (s)	0	-	-	-	34.5
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	711	8	30	706	20	22
Future Vol, veh/h	711	8	30	706	20	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	24	3	8	0	0
Mvmt Flow	781	9	33	776	22	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	790	0	1628	786
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	842	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	826	-	113	395
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	826	-	105	395
Mov Cap-2 Maneuver	-	-	-	-	105	-
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	396	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	33.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	171	-	-	826	-
HCM Lane V/C Ratio	0.27	-	-	0.04	-
HCM Control Delay (s)	33.7	-	-	9.5	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.1	-

Appendix E: Crash Summary

LOCATION INFORMATION
CONFIDENCE LEVEL COMPUTATIONS

Location:	SR 994/SW 200 Street between SW 127 Ave and SW 137 Ave		
State Section:	87091000	County:	Miami-Dade
State Road:	994	District:	6
Roadway Limits:	Between SW 127 Ave and SW 137 Ave		
Engineer:	FDOT		
Area Type:	Urban		
Spot/Segment:	Segment		
Spot Type:	2-3Ln 2Wy Undivd		
Begin Milepost:	4.075		
End Milepost:	5.212		
Begin Year:	2014		
End Year:	2018		
Number of Years:	5		

CRASH STATISTICS

Year	2014	2015	2016	2017	2018
Number of Crashes	58	67	80	88	97
Average Daily Traffic (ADT)	22,296	22,612	21,709	1,476,047	20,604
Actual Crash Rate (ACR)	6.268	7.140	8.880	0.144	11.344
District 6 Average Crash Rate (A)	5.540	6.910	8.075	9.841	10.439
Average Vehicle Exposure (M)	9.253	9.384	9.009	612.567	8.551
Critical Crash Rate (CCR)	8.032	9.681	11.135	10.257	14.017
Safety Ratio	0.780	0.738	0.797	0.014	0.809
Statistical Significance	1.011	0.330	0.908	-76.502	0.872
Confidence Level	80.00%	50.00%	80.00%	50.00%	80.00%

ADT – Average Daily Traffic

ACR – Actual Crash Rate = No. of crashes in a year / Average Vehicle Exposure (M)

M – Average Vehicle Exposure (million vehicles or million vehicles miles) = [(ADT * 365 * L) / 1,000,000]

L = Length of the Segment for Segment Analysis, 1 for Spot Analysis

A – Average Crash Rate

CCR – Critical Crash Rate = A + K * (SQRT[A/M]) - (1/[2 * M])

(Ref: FDOT Highway Safety Improvement Program Guidelines)

K = 3.291 for Urban, 1.960 for Suburban, 1.645 for Rural K = 3.291

Safety Ratio = ACR/CCR

Level of statistical significance = (ACR - A + (1/2M))/SQRT(A/M)

Confidence Level = Percent probability that the crash rate is abnormally high for the location under study, using the district-wide average as a CL Threshold = 99.95%

FDOT DISTRICT 6
EXPECTED VALUES ANALYSIS

SR 994/SW 200 Street between SW 127 Ave and SW 137 Ave Segment/Spot with No Expected Values Available		Number of Crashes Year 2014	2015	2016	2017	2018	5 Year Total Crashes	Mean Crashes Per Year	%	Expected Annual Crash Value Abnormally High Crashes per year 90th percentile	95th percentile	90 %ile	95 %ile
CRASH TYPE	Rear End	27	33	38	48	41	187	37.40	47.9%	0.00	0.00		
	Head On	1	1	1	0	2	5	1.00	1.3%	0.00	0.00		
	Angle	10	9	21	22	15	77	15.40	19.7%	0.00	0.00		
	Left Turn	8	7	9	6	10	40	8.00	10.3%	0.00	0.00		
	Right Turn	3	1	1	3	4	12	2.40	3.1%	0.00	0.00		
	Sideswipe	6	8	7	5	17	43	8.60	11.0%	0.00	0.00		
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Pedestrian	0	0	0	0	1	1	0.20	0.3%	0.00	0.00		
	Bicycle	0	0	0	1	0	1	0.20	0.3%	0.00	0.00		
	Fixed Object	1	6	3	3	5	18	3.60	4.6%	0.00	0.00		
	Other Non-Collisions	1	1	0	0	0	2	0.40	0.5%	0.00	0.00		
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Others	1	1	0	0	2	4	0.80	1.0%	0.00	0.00		
	Total Crashes	**58**	**67**	**80**	**88**	**97**	**390**	**78.00**	**100.0%**	**0.00**	**0.00**		
SEVERITY	PDO Crashes	35	48	55	54	62	254	50.80	65.1%	0.00	0.00		
	Fatal Crashes	0	0	1	0	0	1	0.20	0.3%	0.00	0.00		
	Injury Crashes	23	19	24	34	35	135	27.00	34.6%	0.00	0.00		
LIGHTING CONDITIONS	Daylight	36	51	65	58	70	280	56.00	71.8%	0.00	0.00		
	Dusk	0	1	0	4	3	8	1.60	2.1%	0.00	0.00		
	Dawn	0	0	1	1	0	2	0.40	0.5%	0.00	0.00		
	Dark	21	15	14	25	23	98	19.60	25.1%	0.00	0.00		
	Unknown	1	0	0	0	1	2	0.40	0.5%	0.00	0.00		
SURFACE CONDITIONS	Dry	44	52	67	78	80	321	64.20	82.3%	0.00	0.00		
	Wet	13	15	13	10	16	67	13.40	17.2%	0.00	0.00		
	Others	1	0	0	0	1	2	0.40	0.5%	0.00	0.00		
MONTH OF YEAR	January	7	5	5	10	8	35	7.00	9.0%	0.00	0.00		
	February	6	9	5	9	6	35	7.00	9.0%	0.00	0.00		
	March	5	4	7	8	3	27	5.40	6.9%	0.00	0.00		
	April	1	1	5	10	9	26	5.20	6.7%	0.00	0.00		
	May	0	4	12	8	3	27	5.40	6.9%	0.00	0.00		
	June	5	6	6	3	10	30	6.00	7.7%	0.00	0.00		
	July	7	3	6	5	11	32	6.40	8.2%	0.00	0.00		
	August	7	4	5	6	12	34	6.80	8.7%	0.00	0.00		
	September	5	11	7	13	11	47	9.40	12.1%	0.00	0.00		
	October	4	3	8	11	4	30	6.00	7.7%	0.00	0.00		
	November	8	9	7	1	12	37	7.40	9.5%	0.00	0.00		
	December	3	8	7	4	8	30	6.00	7.7%	0.00	0.00		
DAY OF WEEK	Monday	8	7	11	12	9	47	9.40	12.1%	0.00	0.00		
	Tuesday	9	10	11	23	18	71	14.20	18.2%	0.00	0.00		
	Wednesday	9	12	12	12	9	54	10.80	13.8%	0.00	0.00		
	Thursday	6	10	14	11	17	58	11.60	14.9%	0.00	0.00		
	Friday	12	11	19	14	22	78	15.60	20.0%	0.00	0.00		
	Saturday	6	13	8	11	12	50	10.00	12.8%	0.00	0.00		
	Sunday	8	4	5	5	10	32	6.40	8.2%	0.00	0.00		
HOUR OF DAY	00:00-06:00	7	1	2	4	6	20	4.00	5.1%	0.00	0.00		
	06:00-09:00	11	16	16	27	15	85	17.00	21.8%	0.00	0.00		
	09:00-11:00	3	8	6	10	6	33	6.60	8.5%	0.00	0.00		
	11:00-13:00	1	9	6	3	7	26	5.20	6.7%	0.00	0.00		
	13:00-15:00	7	7	4	6	9	33	6.60	8.5%	0.00	0.00		
	15:00-18:00	14	12	26	12	27	91	18.20	23.3%	0.00	0.00		
	18:00-24:00	15	14	20	26	27	102	20.40	26.2%	0.00	0.00		

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2014 TO 12/ 2014 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.037	SW 137 AVE	08/25/14	Mon	0740	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
2	4.056	SW 137 AVE	08/20/14	Wed	0830	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
3	4.071	SW 137 AVE	01/06/14	Mon	1615	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
4	4.073	SW 137 AVE	06/24/14	Tue	2048	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
5	4.073	SW 127 AVE	07/19/14	Sat	2104	Sideswipe	0	0	1	Night	Wet	Careless or Negligent Manner
6	4.075	SW 137 AVE	01/10/14	Fri	1734	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
7	4.075	SW 137 AVE	10/26/14	Sun	1018	Rear-End	0	0	1	Day	Dry	Followed too Closely
8	4.196	SW 135 AVE	03/01/14	Sat	1952	Rear-End	0	4	0	Night	Dry	Careless or Negligent Manner
9	4.200	SW 135 AVE	07/30/14	Wed	1613	Head-On	0	2	0	Day	Dry	Failed To Keep In Proper Lane
10	4.300	SW 134 AVE	11/07/14	Fri	2218	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
11	4.309	SW 134 AVE	03/07/14	Fri	1448	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
12	4.309	SW 134 AVE	06/17/14	Tue	0430	Animal	0	0	1	Night	Dry	No Contributing Action
13	4.322	SW 134 AVE	01/29/14	Wed	0825	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
14	4.322	SW 134 AVE	08/20/14	Wed	0005	Rear-End	0	0	1	Night	Dry	Other Contributing Action
15	4.328	SW 134 AVE	04/22/14	Tue	1655	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
16	4.328	SW 134 AVE	03/10/14	Mon	1000	Angle	0	0	1	Day	Dry	Improper Passing
17	4.328	SW 134 AVE	06/01/14	Sun	0310	Sideswipe	0	0	1	Night	Dry	#N/A
18	4.328	SW 134 AVE	07/16/14	Wed	1020	Right-Turn	0	0	1	Day	Dry	Ran Stop Sign
19	4.328	SW 134 AVE	09/09/14	Tue	0805	Rear-End	0	2	0	Day	Dry	Followed too Closely
20	4.328	SW 134 AVE	11/05/14	Wed	1530	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
21	4.328	SW 134 AVE	08/24/14	Sun	1855	Angle	0	4	0	Day	Dry	Ran Stop Sign
22	4.328	SW 134 AVE	09/11/14	Thu	2020	Angle	0	0	1	Night	Wet	#N/A
23	4.328	SW 134 AVE	12/28/14	Sun	0008	Angle	0	2	0	Night	Dry	#N/A
24	4.330	SW 134 AVE	02/10/14	Mon	0751	Rear-End	0	2	0	Day	Dry	No Contributing Action
25	4.425	SW 133 AVE	02/06/14	Thu	0741	Right-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
26	4.490	SW 132 PL	03/25/14	Tue	1305	Angle	0	1	0	Day	Dry	Improper Turn
27	4.490	SW 132 PL	11/08/14	Sat	1945	Rear-End	0	2	0	Night	Dry	Careless or Negligent Manner
28	4.584	SW 132 AVE	01/08/14	Wed	1448	Cargo/Equipment Loss or Shift	0	0	1	Day	Dry	Other Contributing Action
29	4.584	SW 132 AVE	08/28/14	Thu	1340	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
30	4.586	SW 132 AVE	01/30/14	Thu	1720	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
31	4.588	SW 132 AVE	12/05/14	Fri	0823	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
32	4.590	SW 132 AVE	01/13/14	Mon	1729	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
33	4.593	SW 132 AVE	02/27/14	Thu	1810	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner
34	4.711	SW 130 AVE	11/25/14	Tue	1715	Right-Turn	0	0	1	Night	Dry	Ran Stop Sign
35	4.835	SW 129 AVE	03/01/14	Sat	0530	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
36	4.835	SW 129 AVE	09/26/14	Fri	0830	Rear-End	0	0	1	Day	Wet	No Contributing Action
37	4.846	SW 129 AVE	10/18/14	Sat	1532	Rear-End	0	2	0	Day	Dry	Other Contributing Action
38	4.995	SW 127 AVE	11/14/14	Fri	2232	Angle	0	0	1	Night	Dry	Careless or Negligent Manner
39	5.071	SW 127 AVE	07/30/14	Wed	2030	Sideswipe	0	0	1	Night	Wet	Failed To Keep In Proper Lane
40	5.088	SW 127 AVE	07/29/14	Tue	1456	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
41	5.090	SW 127 AVE	02/24/14	Mon	0800	Angle	0	3	0	Day	Dry	No Contributing Action
42	5.090	SW 127 AVE	08/15/14	Fri	1722	Left-Turn	0	2	0	Day	Wet	Failed to Yield Right-Of-Way
43	5.090	SW 127 AVE	07/27/14	Sun	2200	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
44	5.090	SW 127 AVE	07/05/14	Sat	1342	Left-Turn	0	1	0	Day	Wet	Failed to Yield Right-Of-Way
45	5.090	SW 127 AVE	06/01/14	Sun	1145	Rear-End	0	0	1	Day	Dry	No Contributing Action
46	5.090	SW 127 AVE	01/10/14	Fri	0341	Tree (Standing)	0	1	0	Night	Dry	Drove too Fast for Conditions

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: **87091000** STATE ROUTE: **994**

ROADWAY LIMITS: **Between SW 127 Ave and SW 137 Ave** M.P. **4.075** TO **5.212** ENGINEER: **FDOT**

STUDY PERIOD: FROM **1/ 2014** TO **12/ 2014** COUNTY: **Miami-Dade**

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
47	5.090	SW 127 AVE	02/06/14	Thu	1719	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
48	5.090	SW 127 AVE	02/04/14	Tue	1614	Left-Turn	0	1	0	Day	Dry	Careless or Negligent Manner
49	5.090	SW 127 AVE	06/13/14	Fri	2200	Rear-End	0	0	1	Night	Other	Other Contributing Action
50	5.090	SW 127 AVE	09/19/14	Fri	0556	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
51	5.090	SW 127 AVE	10/19/14	Sun	2016	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
52	5.090	SW 127 AVE	09/22/14	Mon	0730	Angle	0	1	0	Day	Dry	Ran Stop Sign
53	5.090	SW 127 AVE	11/14/14	Fri	1630	Sideswipe	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
54	5.090	SW 127 AVE	10/27/14	Mon	2045	Angle	0	0	1	Night	Dry	Careless or Negligent Manner
55	5.090	SW 127 AVE	11/25/14	Tue	0625	Rear-End	0	1	0	Night	Dry	#N/A
56	5.090	SW 127 AVE	11/09/14	Sun	1745	Left-Turn	0	0	1	Day	Wet	Failed to Yield Right-Of-Way
57	5.092	SW 127 AVE	12/31/14	Wed	1916	Sideswipe	0	0	1	Night	Dry	Improper Passing
58	5.118	SW 127 AVE	08/29/14	Fri	1346	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner

Total No.	Fatal		Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
58	**0**		**23**	**35**	**27**	**1**	**10**	**8**	**3**	**6**	**0**	**0**	**0**	**1**	**0**	**0**
Percent	*0.00%*		*39.66%*	*60.34%*	*46.55%*	*1.72%*	*17.24%*	*13.79%*	*5.17%*	*10.34%*	*0.00%*	*0.00%*	*0.00%*	*1.72%*	*0.00%*	*0.00%*
Contrib. Cause	Day		Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**36**		**22**	**13**	**44**	**23**	**10**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**0**
Percent	*62.07%*		*37.93%*	*22.41%*	*75.86%*	*39.66%*	*17.24%*	*1.72%*	*0.00%*	*1.72%*	*3.45%*	*0.00%*	*0.00%*	*0.00%*	*1.72%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **22,296**

SEGMENT CRASH RATE: **6.268** CRASHES PER MILLION VEHICLE MILES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2015 TO 12/ 2015 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.037	SW 137 AVE	01/02/15	Fri	1740	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
2	4.056	SW 137 AVE	02/02/15	Mon	0900	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
3	4.066	SW 137 AVE	02/25/15	Wed	1207	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
4	4.068	SW 137 AVE	12/07/15	Mon	1301	Rear-End	0	2	0	Day	Wet	No Contributing Action
5	4.072	SW 137 AVE	04/29/15	Wed	2113	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
6	4.073	SW 137 AVE	06/18/15	Thu	0940	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
7	4.073	SW 137 AVE	10/04/15	Sun	1510	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
8	4.073	SW 137 AVE	12/29/15	Tue	1000	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
9	4.074	SW 137 AVE	08/23/15	Sun	1549	Rear-End	0	5	0	Day	Dry	Careless or Negligent Manner
10	4.075	SW 137 AVE	12/22/15	Tue	2255	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
11	4.075	SW 137 AVE	12/19/15	Sat	1045	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
12	4.075	SW 137 AVE	02/09/15	Mon	0655	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
13	4.075	SW 137 AVE	09/22/15	Tue	0617	Left-Turn	0	2	0	Night	Wet	No Contributing Action
14	4.075	SW 137 AVE	12/21/15	Mon	0701	Head-On	0	2	0	Night	Wet	Failed To Keep In Proper Lane
15	4.075	SW 137 AVE	06/27/15	Sat	1127	Fence	0	0	1	Day	Wet	Careless or Negligent Manner
16	4.075	SW 137 AVE	11/08/15	Sun	0100	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
17	4.084	SW 137 AVE	09/23/15	Wed	1710	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
18	4.084	SW 137 AVE	12/10/15	Thu	1717	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
19	4.170	SW 135 AVE	03/17/15	Tue	2225	Tree (Standing)	0	0	1	Night	Dry	Over-Correcting/Over-Steering
20	4.198	SW 135 AVE	06/06/15	Sat	1255	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
21	4.325	SW 134 AVE	07/17/15	Fri	1621	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
22	4.328	SW 134 AVE	12/14/15	Mon	1700	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
23	4.328	SW 134 AVE	03/07/15	Sat	0835	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
24	4.328	SW 134 AVE	05/01/15	Fri	2041	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
25	4.328	SW 134 AVE	10/03/15	Sat	1440	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
26	4.328	SW 134 AVE	02/06/15	Fri	1553	Sideswipe	0	0	1	Day	Dry	Other Contributing Action
27	4.328	SW 134 AVE	03/02/15	Mon	0716	Left-Turn	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
28	4.328	SW 134 AVE	02/25/15	Wed	1306	Right-Turn	0	0	1	Day	Dry	Careless or Negligent Manner
29	4.328	SW 134 AVE	08/19/15	Wed	2245	Rear-End	0	0	1	Night	Dry	Followed too Closely
30	4.328	SW 134 AVE	08/05/15	Wed	0605	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
31	4.397	SW 134 AVE	06/04/15	Thu	0920	Other Non-Collision	0	0	1	Day	Dry	#N/A
32	4.421	SW 133 AVE	01/24/15	Sat	2115	Other Post, Pole Or Support	0	0	1	Night	Dry	Careless or Negligent Manner
33	4.423	SW 133 AVE	09/04/15	Fri	0800	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
34	4.434	SW 132 PL	02/25/15	Wed	1332	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
35	4.457	SW 133 AVE	07/21/15	Tue	1044	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
36	4.584	SW 132 AVE	11/20/15	Fri	1225	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
37	4.584	SW 132 AVE	01/16/15	Fri	1545	Rear-End	0	0	1	Day	Dry	Followed too Closely
38	4.584	SW 132 AVE	11/15/15	Sun	1030	Fence	0	0	1	Day	Wet	Swerved Or Avoided
39	4.593	SW 132 AVE	06/27/15	Sat	1145	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
40	4.603	SW 132 AVE	09/03/15	Thu	0850	Bridge Rail	0	0	1	Day	Dry	#N/A
41	4.612	SW 132 AVE	10/14/15	Wed	0815	Rear-End	0	3	0	Day	Dry	No Contributing Action
42	4.692	SW 130 AVE	09/04/15	Fri	0730	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
43	4.692	SW 130 AVE	11/19/15	Thu	0800	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
44	4.702	SW 130 AVE	03/05/15	Thu	1925	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
45	4.709	SW 130 AVE	06/03/15	Wed	1654	Rear-End	0	0	1	Day	Dry	Followed too Closely
46	4.711	SW 130 AVE	09/10/15	Thu	1427	Angle	0	0	1	Day	Dry	Ran Stop Sign

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994

ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT

STUDY PERIOD: FROM 1/ 2015 TO 12/ 2015 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
47	4.717	SW 130 AVE	11/06/15	Fri	1723	Animal	0	0	1	Day	Dry	No Contributing Action
48	4.835	SW 129 AVE	05/05/15	Tue	0830	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
49	4.854	SW 129 AVE	09/17/15	Thu	1839	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
50	4.995	SW 127 AVE	11/12/15	Thu	0700	Sideswipe	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
51	5.052	SW 127 AVE	12/05/15	Sat	1100	Curb	0	1	0	Day	Wet	Careless or Negligent Manner
52	5.071	SW 127 AVE	11/04/15	Wed	1535	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
53	5.090	SW 127 AVE	02/10/15	Tue	0810	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
54	5.090	SW 127 AVE	01/24/15	Sat	1220	Rear-End	0	0	1	Day	Dry	Followed too Closely
55	5.090	SW 127 AVE	01/10/15	Sat	1820	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
56	5.090	SW 127 AVE	05/26/15	Tue	2131	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
57	5.090	SW 127 AVE	09/18/15	Fri	2012	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
58	5.090	SW 127 AVE	09/12/15	Sat	0850	Sideswipe	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
59	5.090	SW 127 AVE	09/12/15	Sat	1910	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
60	5.090	SW 127 AVE	11/26/15	Thu	1125	Angle	0	0	1	Day	Dry	Ran Red Light
61	5.090	SW 127 AVE	05/19/15	Tue	1430	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
62	5.090	SW 127 AVE	07/29/15	Wed	2021	Rear-End	0	0	1	Day	Dry	Other Contributing Action
63	5.090	SW 127 AVE	11/11/15	Wed	1154	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
64	5.092	SW 127 AVE	09/22/15	Tue	0600	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
65	5.118	SW 127 AVE	02/13/15	Fri	1347	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
66	5.137	SW 127 AVE	08/01/15	Sat	1045	Rear-End	0	2	0	Day	Dry	No Contributing Action
67	5.212	SW 127 AVE	02/09/15	Mon	1924	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: **87091000** STATE ROUTE: **994**

ROADWAY LIMITS: **Between SW 127 Ave and SW 137 Ave** M.P. **4.075** TO **5.212** ENGINEER: **FDOT**

STUDY PERIOD: FROM **1/ 2015** TO **12/ 2015** COUNTY: **Miami-Dade**

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE			FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)		
Total No.	Fatal		Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
67	**0**		**19**	**48**	**33**	**1**	**9**	**7**	**1**	**8**	**0**	**0**	**0**	**6**	**0**	**0**
Percent	*0.00%*		*28.36%*	*71.64%*	*49.25%*	*1.49%*	*13.43%*	*10.45%*	*1.49%*	*11.94%*	*0.00%*	*0.00%*	*0.00%*	*8.96%*	*0.00%*	*0.00%*
Contrib. Cause	Day		Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**51**		**16**	**15**	**52**	**33**	**14**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
Percent	*76.12%*		*23.88%*	*22.39%*	*77.61%*	*49.25%*	*20.90%*	*0.00%*	*1.49%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*2.99%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **22,612**

SEGMENT CRASH RATE: **7.140** CRASHES PER MILLION VEHICLE MILES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2016 TO 12/ 2016 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.018	SW 137 AVE	05/26/16	Thu	0659	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
2	4.037	SW 137 AVE	04/11/16	Mon	1755	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
3	4.066	SW 137 AVE	04/01/16	Fri	1241	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
4	4.066	SW 137 AVE	09/04/16	Sun	1912	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
5	4.070	SW 137 AVE	06/20/16	Mon	1641	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
6	4.073	SW 137 AVE	02/05/16	Fri	1525	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
7	4.075	SW 137 AVE	02/11/16	Thu	0800	Angle	0	0	1	Day	Dry	Ran Red Light
8	4.075	SW 137 AVE	11/25/16	Fri	0045	Guardrail Face	0	0	1	Night	Dry	No Contributing Action
9	4.075	SW 137 AVE	05/02/16	Mon	0605	Left-Turn	0	0	1	Night	Dry	Careless or Negligent Manner
10	4.084	SW 137 AVE	10/08/16	Sat	1020	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
11	4.084	SW 137 AVE	10/25/16	Tue	1739	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
12	4.084	SW 137 AVE	10/25/16	Tue	1739	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
13	4.094	SW 137 AVE	11/05/16	Sat	1500	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
14	4.113	SW 137 AVE	05/13/16	Fri	1700	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
15	4.113	SW 137 AVE	12/27/16	Tue	1941	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
16	4.181	SW 135 AVE	07/26/16	Tue	1618	Angle	0	0	1	Day	Dry	Improper Turn
17	4.181	SW 135 AVE	11/19/16	Sat	0555	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
18	4.228	SW 135 AVE	12/15/16	Thu	1719	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
19	4.328	SW 134 AVE	01/04/16	Mon	0645	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
20	4.328	SW 134 AVE	02/21/16	Sun	1039	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
21	4.328	SW 134 AVE	03/04/16	Fri	1300	Angle	0	0	1	Day	Dry	Ran Stop Sign
22	4.328	SW 134 AVE	08/15/16	Mon	0650	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
23	4.328	SW 134 AVE	09/08/16	Thu	1555	Angle	0	0	1	Day	Dry	#N/A
24	4.328	SW 134 AVE	12/02/16	Fri	0623	Angle	0	2	0	Day	Wet	Failed to Yield Right-Of-Way
25	4.328	SW 134 AVE	01/17/16	Sun	1254	Angle	0	0	1	Day	Dry	No Contributing Action
26	4.328	SW 134 AVE	06/15/16	Wed	1237	Angle	0	1	0	Day	Dry	Careless or Negligent Manner
27	4.328	SW 134 AVE	06/16/16	Thu	1545	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
28	4.328	SW 134 AVE	12/06/16	Tue	1645	Sideswipe	0	0	1	Day	Dry	Erratic, Reckless or Aggressive
29	4.328	SW 134 AVE	12/16/16	Fri	0647	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
30	4.406	SW 134 AVE	10/20/16	Thu	1801	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
31	4.425	SW 132 AVE	03/30/16	Wed	1900	Right-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
32	4.425	SW 133 AVE	05/28/16	Sat	1702	Tree (Standing)	0	0	1	Day	Dry	Careless or Negligent Manner
33	4.429	SW 132 PL	07/16/16	Sat	1620	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
34	4.430	SW 132 PL	11/16/16	Wed	0703	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
35	4.584	SW 132 AVE	03/20/16	Sun	2040	Left-Turn	1	0	0	Night	Wet	Other Contributing Action
36	4.584	SW 132 AVE	10/19/16	Wed	0910	Head-On	0	2	0	Day	Dry	Swerved Or Avoided
37	4.586	SW 132 AVE	06/08/16	Wed	1515	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
38	4.588	SW 132 AVE	07/18/16	Mon	2150	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner
39	4.590	SW 132 AVE	09/21/16	Wed	1600	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
40	4.591	SW 132 AVE	07/06/16	Wed	1005	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
41	4.593	SW 132 AVE	07/18/16	Mon	2130	Rear-End	0	0	1	Night	Wet	Careless or Negligent Manner
42	4.593	SW 132 AVE	11/08/16	Tue	2007	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
43	4.603	SW 130 AVE	03/04/16	Fri	0845	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
44	4.603	SW 130 AVE	03/04/16	Fri	0846	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
45	4.622	SW 132 AVE	04/21/16	Thu	1000	Rear-End	0	2	0	Day	Dry	Followed too Closely
46	4.705	SW 130 AVE	04/05/16	Tue	2019	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2016 TO 12/ 2016 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
47	4.711	SW 130 AVE	09/26/16	Mon	2025	Angle	0	0	1	Night	Dry	Ran Stop Sign
48	4.712	SW 130 AVE	08/18/16	Thu	0718	Angle	0	4	0	Day	Wet	Failed to Yield Right-Of-Way
49	4.830	SW 129 AVE	10/17/16	Mon	1733	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
50	4.835	SW 129 AVE	09/09/16	Fri	1816	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
51	4.835	SW 129 AVE	11/24/16	Thu	1230	Tree (Standing)	0	0	1	Day	Dry	Other Contributing Action
52	4.838	SW 129 AVE	10/05/16	Wed	0623	Left-Turn	0	2	0	Day	Wet	Failed to Yield Right-Of-Way
53	4.839	SW 129 AVE	06/16/16	Thu	1909	Sideswipe	0	0	1	Day	Dry	#N/A
54	4.938	SW 127 AVE	10/25/16	Tue	2240	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
55	4.995	SW 127 AVE	01/15/16	Fri	1412	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
56	5.062	SW 127 AVE	05/13/16	Fri	1500	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
57	5.071	SW 127 AVE	04/13/16	Wed	0654	Sideswipe	0	2	0	Day	Dry	Careless or Negligent Manner
58	5.081	SW 127 AVE	12/08/16	Thu	0900	Rear-End	0	0	1	Day	Dry	Followed too Closely
59	5.084	SW 127 AVE	03/28/16	Mon	2118	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
60	5.090	SW 127 AVE	06/12/16	Sun	2220	Left-Turn	0	0	1	Night	Dry	Ran Red Light
61	5.090	SW 127 AVE	05/20/16	Fri	1641	Left-Turn	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
62	5.090	SW 127 AVE	07/08/16	Fri	1150	Angle	0	0	1	Day	Dry	Ran Red Light
63	5.090	SW 127 AVE	05/31/16	Tue	1429	Angle	0	0	1	Day	Wet	Ran Red Light
64	5.090	SW 127 AVE	08/18/16	Thu	1600	Angle	0	2	0	Day	Dry	Careless or Negligent Manner
65	5.090	SW 127 AVE	09/10/16	Sat	0706	Left-Turn	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
66	5.090	SW 127 AVE	11/25/16	Fri	2320	Left-Turn	0	1	0	Night	Dry	Other Contributing Action
67	5.090	SW 127 AVE	01/14/16	Thu	1911	Angle	0	0	1	Night	Wet	Disregarded other Road Markings
68	5.090	SW 127 AVE	02/12/16	Fri	1548	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
69	5.090	SW 127 AVE	01/20/16	Wed	0724	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
70	5.090	SW 127 AVE	02/26/16	Fri	1706	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
71	5.090	SW 127 AVE	03/18/16	Fri	1512	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
72	5.090	SW 127 AVE	05/19/16	Thu	0730	Angle	0	0	1	Day	Dry	Improper Passing
73	5.090	SW 127 AVE	05/14/16	Sat	1432	Sideswipe	0	1	0	Day	Dry	Failed To Keep In Proper Lane
74	5.090	SW 127 AVE	05/18/16	Wed	1800	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
75	5.090	SW 127 AVE	08/22/16	Mon	2121	Left-Turn	0	0	1	Night	Dry	Careless or Negligent Manner
76	5.090	SW 127 AVE	09/14/16	Wed	1656	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
77	5.095	SW 127 AVE	05/17/16	Tue	1500	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
78	5.109	SW 127 AVE	05/03/16	Tue	1805	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
79	5.147	SW 127 AVE	12/02/16	Fri	1645	Rear-End	0	0	1	Day	Dry	Improper Turn
80	5.209	SW 127 AVE	08/06/16	Sat	1211	Rear-End	0	3	0	Day	Dry	Careless or Negligent Manner

Total No.	Fatal		Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
80	**1**		**24**	**55**	**38**	**1**	**21**	**9**	**1**	**7**	**0**	**0**	**0**	**3**	**0**	**0**
Percent	*1.25%*		*30.00%*	*68.75%*	*47.50%*	*1.25%*	*26.25%*	*11.25%*	*1.25%*	*8.75%*	*0.00%*	*0.00%*	*0.00%*	*3.75%*	*0.00%*	*0.00%*
Contrib. Cause	Day		Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**65**		**15**	**13**	**67**	**45**	**13**	**2**	**4**	**0**	**1**	**1**	**1**	**0**	**0**	**0**
Percent	*81.25%*		*18.75%*	*16.25%*	*83.75%*	*56.25%*	*16.25%*	*2.50%*	*5.00%*	*0.00%*	*1.25%*	*1.25%*	*1.25%*	*0.00%*	*0.00%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **21,709** SEGMENT CRASH RATE: **8.880** CRASHES PER MILLION VEHICLE MILES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2017 TO 12/ 2017 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.892	SW 129 AVE	10/15/17	Sun	0125	Other Post, Pole Or Support	0	0	1	Night	Dry	No Contributing Action
2	4.420	SW 133 AVE	06/08/17	Thu	0820	Rear-End	0	1	0	Day	Wet	Drove too Fast for Conditions
3	4.584	SW 132 AVE	01/18/17	Wed	2223	Rear-End	0	3	0	Night	Dry	Careless or Negligent Manner
4	5.185	SW 127 AVE	01/12/17	Thu	0815	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
5	4.181	SW 135 AVE	04/11/17	Tue	0715	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
6	5.090	SW 127 AVE	02/04/17	Sat	0123	Angle	0	4	0	Night	Dry	Failed to Yield Right-Of-Way
7	4.590	SW 132 PL	02/07/17	Tue	2224	Guardrail Face	0	0	1	Night	Dry	No Contributing Action
8	4.453	SW 133 AVE	03/28/17	Tue	0800	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
9	5.090	SW 127 AVE	05/06/17	Sat	0700	Right-Turn	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
10	4.195	SW 135 AVE	01/13/17	Fri	0845	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
11	4.622	SW 130 AVE	01/31/17	Tue	1733	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
12	4.584	SW 132 AVE	02/21/17	Tue	2020	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
13	4.565	SW 132 AVE	03/21/17	Tue	0804	Tree (Standing)	0	0	1	Day	Dry	Careless or Negligent Manner
14	4.774	SW 129 AVE	03/25/17	Sat	1940	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
15	4.328	SW 134 AVE	01/20/17	Fri	1032	Angle	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
16	5.067	SW 127 AVE	02/01/17	Wed	0740	Angle	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
17	4.425	SW 133 AVE	04/22/17	Sat	2145	Right-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
18	4.492	SW 129 AVE	02/23/17	Thu	2040	Rear-End	0	2	0	Night	Dry	Careless or Negligent Manner
19	4.956	SW 132 AVE	02/03/17	Fri	0819	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
20	4.170	SW 137 AVE	03/03/17	Fri	1705	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
21	5.095	SW 127 AVE	04/19/17	Wed	1753	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
22	4.328	SW 134 AVE	04/01/17	Sat	1400	Angle	0	2	0	Day	Dry	Disregarded other Road Markings
23	4.588	SW 132 AVE	04/24/17	Mon	1345	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
24	5.084	SW 127 AVE	03/14/17	Tue	1500	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
25	4.073	SW 137 AVE	05/31/17	Wed	2245	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
26	4.328	SW 134 AVE	03/24/17	Fri	0728	Angle	0	0	1	Day	Wet	Other Contributing Action
27	5.092	SW 127 AVE	03/07/17	Tue	2120	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
28	5.090	SW 127 AVE	05/14/17	Sun	0047	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
29	5.090	SW 127 AVE	05/15/17	Mon	2030	Left-Turn	0	2	0	Night	Dry	Improper Turn
30	4.463	SW 132 PL	05/06/17	Sat	1721	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
31	4.709	SW 130 AVE	04/29/17	Sat	2124	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner
32	4.328	SW 134 AVE	05/25/17	Thu	1251	Sideswipe	0	2	0	Day	Dry	Careless or Negligent Manner
33	5.090	SW 127 AVE	12/26/17	Tue	1810	Rear-End	0	2	0	Night	Dry	Failed to Yield Right-Of-Way
34	4.586	SW 132 AVE	10/31/17	Tue	1955	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
35	4.453	SW 133 AVE	05/27/17	Sat	1038	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
36	4.328	SW 134 AVE	05/29/17	Mon	0910	Angle	0	0	1	Day	Dry	Ran Stop Sign
37	5.071	SW 127 AVE	07/21/17	Fri	0940	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
38	4.434	SW 133 AVE	08/22/17	Tue	0750	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
39	4.589	SW 132 AVE	09/05/17	Tue	0945	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
40	4.072	SW 137 AVE	06/29/17	Thu	2118	Rear-End	0	2	0	Night	Wet	Careless or Negligent Manner
41	5.085	SW 127 AVE	09/26/17	Tue	1714	Sideswipe	0	0	1	Day	Dry	Other Contributing Action
42	4.589	SW 132 AVE	06/23/17	Fri	1601	Rear-End	0	3	0	Day	Dry	Careless or Negligent Manner
43	4.706	SW 130 AVE	07/24/17	Mon	2100	Pedalcycle	0	1	0	Night	Dry	Careless or Negligent Manner
44	5.090	SW 127 AVE	07/04/17	Tue	0958	Left-Turn	0	4	0	Day	Dry	Improper Turn
45	4.427	SW 133 AVE	08/29/17	Tue	0717	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
46	4.070	SW 137 AVE	11/09/17	Thu	1232	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2017 TO 12/ 2017 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
47	4.328	SW 134 AVE	10/07/17	Sat	1915	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
48	5.084	SW 127 AVE	10/10/17	Tue	1700	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
49	5.090	SW 127 AVE	09/17/17	Sun	1350	Angle	0	0	1	Day	Dry	Other Contributing Action
50	4.073	SW 137 AVE	10/24/17	Tue	1941	Rear-End	0	1	0	Night	Wet	Careless or Negligent Manner
51	4.834	SW 129 AVE	09/22/17	Fri	0720	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
52	4.546	SW 132 AVE	10/05/17	Thu	0815	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
53	4.141	SW 137 AVE	09/13/17	Wed	1530	Rear-End	0	0	1	Day	Wet	Drove too Fast for Conditions
54	5.071	SW 127 AVE	09/27/17	Wed	0605	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
55	4.328	SW 134 AVE	10/26/17	Thu	1100	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
56	5.109	SW 127 AVE	12/23/17	Sat	1848	Sideswipe	0	1	0	Night	Dry	Failed To Keep In Proper Lane
57	5.090	SW 127 AVE	01/26/17	Thu	0840	Left-Turn	0	0	1	Day	Dry	Other Contributing Action
58	4.328	SW 134 AVE	01/30/17	Mon	2052	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
59	5.090	SW 127 AVE	01/19/17	Thu	2115	Left-Turn	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
60	4.328	SW 134 AVE	04/25/17	Tue	0013	Angle	0	1	0	Night	Dry	Failed to Yield Right-Of-Way
61	4.075	SW 137 AVE	02/06/17	Mon	0825	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
62	5.090	SW 127 AVE	01/15/17	Sun	1516	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
63	5.090	SW 127 AVE	01/25/17	Wed	1015	Right-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
64	5.090	SW 127 AVE	04/28/17	Fri	0730	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
65	4.075	SW 137 AVE	03/29/17	Wed	1340	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
66	5.076	SW 127 AVE	02/06/17	Mon	1940	Sideswipe	0	0	1	Night	Dry	Other Contributing Action
67	4.835	SW 129 AVE	04/05/17	Wed	0809	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
68	4.075	SW 137 AVE	02/07/17	Tue	0619	Rear-End	0	0	1	Night	Dry	Drove too Fast for Conditions
69	5.090	SW 127 AVE	04/24/17	Mon	1927	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
70	5.090	SW 127 AVE	09/08/17	Fri	0840	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
71	4.328	SW 134 AVE	12/29/17	Fri	0908	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
72	4.319	SW 134 AVE	10/25/17	Wed	1627	Rear-End	0	3	0	Day	Dry	Careless or Negligent Manner
73	4.328	SW 134 AVE	10/02/17	Mon	1924	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
74	5.090	SW 127 AVE	07/20/17	Thu	1435	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
75	5.090	SW 127 AVE	07/04/17	Tue	2100	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
76	5.071	SW 127 AVE	10/01/17	Sun	1913	Angle	0	0	1	Night	Dry	No Contributing Action
77	4.328	SW 134 AVE	08/07/17	Mon	1714	Angle	0	0	1	Day	Dry	Improper Turn
78	5.090	SW 127 AVE	09/01/17	Fri	1932	Rear-End	0	0	1	Day	Dry	No Contributing Action
79	5.090	SW 127 AVE	08/12/17	Sat	1035	Rear-End	0	0	1	Day	Dry	Followed too Closely
80	4.711	SW 130 AVE	08/30/17	Wed	1854	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
81	4.328	SW 134 AVE	08/28/17	Mon	0745	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
82	4.084	SW 137 AVE	10/04/17	Wed	0730	Angle	0	1	0	Day	Wet	Careless or Negligent Manner
83	5.156	SW 127 AVE	09/25/17	Mon	1420	Rear-End	0	0	1	Day	Wet	Followed too Closely
84	4.995	SW 127 AVE	09/05/17	Tue	0740	Rear-End	0	0	1	Day	Dry	Followed too Closely
85	4.328	SW 134 AVE	09/19/17	Tue	0845	Angle	0	1	0	Day	Dry	Ran Stop Sign
86	4.328	SW 134 AVE	09/01/17	Fri	0640	Angle	0	1	0	Day	Dry	Improper Turn
87	5.090	SW 127 AVE	09/12/17	Tue	1019	Angle	0	0	1	Day	Dry	Ran Stop Sign
88	5.090	SW 127 AVE	12/29/17	Fri	0650	Rear-End	0	3	0	Day	Dry	Careless or Negligent Manner

Total No.	Fatal		Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
88	**0**		**34**	**54**	**48**	**0**	**22**	**6**	**3**	**5**	**0**	**1**	**0**	**3**	**0**	**0**
Percent	*0.00%*		*38.64%*	*61.36%*	*54.55%*	*0.00%*	*25.00%*	*6.82%*	*3.41%*	*5.68%*	*0.00%*	*1.14%*	*0.00%*	*3.41%*	*0.00%*	*0.00%*

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: **87091000** STATE ROUTE: **994**

ROADWAY LIMITS: **Between SW 127 Ave and SW 137 Ave** M.P. **4.075** TO **5.212** ENGINEER: **FDOT**

STUDY PERIOD: FROM **1/ 2017** TO **12/ 2017** COUNTY: **Miami-Dade**

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE			FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)			
Contrib. Cause	Day		Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**58**		**30**	**10**	**78**	**45**	**18**	**4**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**
Percent	*65.91%*		*34.09%*	*11.36%*	*88.64%*	*51.14%*	*20.45%*	*4.55%*	*0.00%*	*3.41%*	*0.00%*	*1.14%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*

TOTAL ENTERING VEHICLES/ADT: **21,709**

SEGMENT CRASH RATE: **8.880** CRASHES PER MILLION VEHICLE MILES

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2018 TO 12/ 2018 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
1	4.018	SW 137 AVE	08/28/18	Tue	0818	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
2	4.070	SW 137 AVE	06/29/18	Fri	1523	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
3	4.075	SW 137 AVE	04/17/18	Tue	1531	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
4	4.075	SW 137 AVE	06/03/18	Sun	1828	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
5	4.075	SW 137 AVE	09/04/18	Tue	2150	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
6	4.075	SW 137 AVE	08/17/18	Fri	2040	Angle	0	0	1	Night	Dry	Other Contributing Action
7	4.081	SW 137 AVE	03/02/18	Fri	1835	Rear-End	0	0	1	Night	Wet	#N/A
8	4.086	SW 137 AVE	11/09/18	Fri	0625	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
9	4.094	SW 137 AVE	05/01/18	Tue	1500	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
10	4.103	SW 137 AVE	12/25/18	Tue	0104	Rear-End	0	1	0	Night	Dry	Drove too Fast for Conditions
11	4.105	SW 137 AVE	08/31/18	Fri	1500	Rear-End	0	4	0	Day	Dry	Careless or Negligent Manner
12	4.122	SW 137 AVE	09/28/18	Fri	2105	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
13	4.200	SW 135 AVE	10/20/18	Sat	0554	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
14	4.209	SW 135 AVE	02/22/18	Thu	0653	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
15	4.264	SW 134 AVE	03/26/18	Mon	2309	Animal	0	1	0	Night	Dry	No Contributing Action
16	4.325	SW 137 AVE	11/02/18	Fri	1645	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
17	4.328	SW 134 AVE	08/07/18	Tue	1350	Right-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
18	4.328	SW 134 AVE	08/15/18	Wed	1730	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
19	4.328	SW 134 AVE	09/03/18	Mon	0045	Angle	0	1	0	Night	Wet	Ran Stop Sign
20	4.328	SW 134 AVE	02/08/18	Thu	2115	Tree (Standing)	0	0	1	Night	Dry	No Contributing Action
21	4.328	SW 134 AVE	02/01/18	Thu	1948	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
22	4.328	SW 134 AVE	01/25/18	Thu	0813	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
23	4.328	SW 134 AVE	04/26/18	Thu	1742	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
24	4.328	SW 134 AVE	06/12/18	Tue	1800	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
25	4.328	SW 134 AVE	09/29/18	Sat	1959	Left-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
26	4.328	SW 134 AVE	11/29/18	Thu	1550	Left-Turn	0	0	1	Day	Dry	Careless or Negligent Manner
27	4.328	SW 134 AVE	12/15/18	Sat	2137	Tree (Standing)	0	0	1	Night	Dry	Careless or Negligent Manner
28	4.328	SW 134 AVE	11/11/18	Sun	1917	Sideswipe	0	0	1	Night	Dry	Careless or Negligent Manner
29	4.328	SW 134 AVE	11/25/18	Sun	1245	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
30	4.328	SW 134 AVE	12/31/18	Mon	1418	Right-Turn	0	0	1	Day	Dry	Ran Stop Sign
31	4.328	SW 134 AVE	11/15/18	Thu	0820	Left-Turn	0	6	0	Day	Wet	Failed to Yield Right-Of-Way
32	4.328	SW 134 AVE	12/21/18	Fri	1240	Left-Turn	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
33	4.330	SW 134 AVE	09/01/18	Sat	1525	Other Fixed Object	0	2	0	Day	Dry	Failed to Yield Right-Of-Way
34	4.337	SW 134 AVE	08/11/18	Sat	2300	Concrete Traffic Barrier	0	0	1	Night	Wet	Careless or Negligent Manner
35	4.356	SW 134 AVE	04/29/18	Sun	0000	Mailbox	0	1	0	Unknown	Other	Other Contributing Action
36	4.416	SW 134 AVE	08/23/18	Thu	1609	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
37	4.499	SW 132 PL	09/18/18	Tue	0747	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
38	4.584	SW 132 AVE	07/23/18	Mon	2040	Right-Turn	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
39	4.598	SW 132 AVE	07/11/18	Wed	0721	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
40	4.603	SW 132 AVE	06/08/18	Fri	1645	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
41	4.603	SW 132 AVE	04/28/18	Sat	1528	Rear-End	0	2	0	Day	Dry	Careless or Negligent Manner
42	4.622	SW 132 AVE	01/24/18	Wed	1723	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
43	4.679	SW 130 AVE	06/29/18	Fri	1545	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
44	4.679	SW 130 AVE	08/14/18	Tue	0958	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
45	4.679	SW 130 AVE	08/03/18	Fri	1747	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
46	4.702	SW 130 AVE	04/30/18	Mon	1820	Sideswipe	0	0	1	Day	Dry	Swerved Or Avoided

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: 87091000 STATE ROUTE: 994
ROADWAY LIMITS: Between SW 127 Ave and SW 137 Ave M.P. 4.075 TO 5.212 ENGINEER: FDOT
STUDY PERIOD: FROM 1/ 2018 TO 12/ 2018 COUNTY: Miami-Dade

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
47	4.706	SW 130 AVE	06/01/18	Fri	1900	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
48	4.711	SW 130 AVE	12/25/18	Tue	2124	Angle	0	3	0	Night	Dry	Ran Stop Sign
49	4.826	SW 129 AVE	04/25/18	Wed	1500	Head-On	0	1	0	Day	Dry	Careless or Negligent Manner
50	4.826	SW 129 AVE	06/03/18	Sun	0215	Animal	0	0	1	Night	Dry	No Contributing Action
51	4.833	SW 129 AVE	07/16/18	Mon	1748	Rear-End	0	0	1	Day	Wet	Followed too Closely
52	4.835	SW 129 AVE	04/17/18	Tue	0756	Right-Turn	0	1	0	Day	Dry	Failed to Yield Right-Of-Way
53	4.844	SW 129 AVE	06/20/18	Wed	1407	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
54	4.873	SW 129 AVE	08/08/18	Wed	1500	Head-On	0	1	0	Day	Dry	Careless or Negligent Manner
55	5.052	SW 127 AVE	02/02/18	Fri	1806	Sideswipe	0	0	1	Night	Dry	Careless or Negligent Manner
56	5.052	SW 127 AVE	10/20/18	Sat	1400	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
57	5.062	SW 127 AVE	07/01/18	Sun	2240	Sideswipe	0	2	0	Night	Dry	Failed To Keep In Proper Lane
58	5.076	SW 127 AVE	12/04/18	Tue	0832	Angle	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
59	5.079	SW 127 AVE	09/30/18	Sun	0927	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
60	5.081	SW 127 AVE	11/09/18	Fri	1412	Sideswipe	0	0	1	Day	Dry	Other Contributing Action
61	5.085	SW 127 AVE	09/28/18	Fri	2038	Rear-End	0	3	0	Night	Wet	Careless or Negligent Manner
62	5.090	SW 127 AVE	01/08/18	Mon	2210	Angle	0	1	0	Night	Dry	Other Contributing Action
63	5.090	SW 127 AVE	11/03/18	Sat	1210	Left-Turn	0	0	1	Day	Dry	Failed to Yield Right-Of-Way
64	5.090	SW 127 AVE	02/09/18	Fri	1620	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
65	5.090	SW 127 AVE	01/12/18	Fri	1558	Angle	0	1	0	Day	Dry	Careless or Negligent Manner
66	5.090	SW 127 AVE	01/09/18	Tue	1856	Rear-End	0	0	1	Night	Dry	Careless or Negligent Manner
67	5.090	SW 127 AVE	01/18/18	Thu	0850	Rear-End	0	0	1	Day	Dry	No Contributing Action
68	5.090	SW 127 AVE	02/01/18	Thu	1217	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
69	5.090	SW 127 AVE	04/07/18	Sat	1000	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
70	5.090	SW 127 AVE	05/25/18	Fri	0841	Sideswipe	0	0	1	Day	Dry	Other Contributing Action
71	5.090	SW 127 AVE	08/29/18	Wed	1620	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
72	5.090	SW 127 AVE	07/01/18	Sun	1920	Left-Turn	0	0	1	Day	Dry	Ran Red Light
73	5.090	SW 127 AVE	07/12/18	Thu	1235	Rear-End	0	0	1	Day	Dry	No Contributing Action
74	5.090	SW 127 AVE	07/01/18	Sun	1335	Rear-End	0	0	1	Day	Wet	Followed too Closely
75	5.090	SW 127 AVE	07/05/18	Thu	1257	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
76	5.090	SW 127 AVE	07/25/18	Wed	1900	Sideswipe	0	1	0	Day	Dry	Careless or Negligent Manner
77	5.090	SW 127 AVE	09/22/18	Sat	1354	Left-Turn	0	0	1	Day	Dry	Improper Turn
78	5.090	SW 127 AVE	08/22/18	Wed	0738	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
79	5.090	SW 127 AVE	09/21/18	Fri	1217	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
80	5.090	SW 127 AVE	10/02/18	Tue	0725	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
81	5.090	SW 127 AVE	11/01/18	Thu	0835	Angle	0	0	1	Day	Dry	Careless or Negligent Manner
82	5.090	SW 127 AVE	11/18/18	Sun	1900	Angle	0	0	1	Night	Dry	Failed to Yield Right-Of-Way
83	5.090	SW 127 AVE	11/06/18	Tue	1558	Sideswipe	0	1	0	Day	Dry	Other Contributing Action
84	5.090	SW 127 AVE	11/29/18	Thu	1640	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
85	5.090	SW 127 AVE	12/07/18	Fri	1940	Rear-End	0	0	1	Night	Dry	Followed too Closely
86	5.090	SW 127 AVE	12/13/18	Thu	1041	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane
87	5.095	SW 127 AVE	06/07/18	Thu	1546	Rear-End	0	0	1	Day	Wet	Careless or Negligent Manner
88	5.095	SW 127 AVE	06/26/18	Tue	0958	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
89	5.098	SW 127 AVE	10/12/18	Fri	1445	Sideswipe	0	0	1	Day	Dry	Careless or Negligent Manner
90	5.099	SW 127 AVE	01/26/18	Fri	2329	Rear-End	0	1	0	Night	Dry	Careless or Negligent Manner
91	5.106	SW 127 AVE	09/04/18	Tue	0636	Rear-End	0	1	0	Day	Wet	Careless or Negligent Manner
92	5.128	SW 127 AVE	07/21/18	Sat	1500	Sideswipe	0	0	1	Day	Dry	Failed To Keep In Proper Lane

State of Florida Department of Transportation
CRASH SUMMARY

SECTION: **87091000** STATE ROUTE: **994**

ROADWAY LIMITS: **Between SW 127 Ave and SW 137 Ave** M.P. **4.075** TO **5.212** ENGINEER: **FDOT**

STUDY PERIOD: FROM **1/ 2018** TO **12/ 2018** COUNTY: **Miami-Dade**

NO.	MILE POST	INTERSECTION	DATE	DAY	TIME	CRASH TYPE	FATAL	INJURIES	PROP DAM	DAY / NIGHT	WET / DRY	CONTRIBUTING CAUSE (VEHICLE ONLY)
93	5.147	SW 127 AVE	05/14/18	Mon	0530	Pedestrian	0	1	0	Night	Wet	No Contributing Action
94	5.185	SW 127 AVE	04/24/18	Tue	1737	Left-Turn	0	0	1	Day	Dry	Careless or Negligent Manner
95	5.193	SW 127 AVE	01/04/18	Thu	1541	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner
96	5.193	SW 127 AVE	07/23/18	Mon	0930	Rear-End	0	0	1	Day	Dry	Careless or Negligent Manner
97	5.210	SW 127 AVE	03/17/18	Sat	1415	Rear-End	0	1	0	Day	Dry	Careless or Negligent Manner

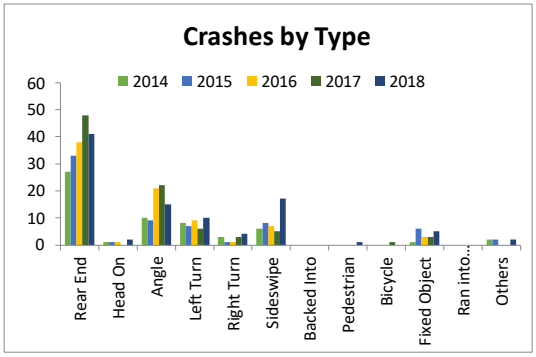
Total No.	Fatal		Injury	PDO	Rear-End	Head-On	Angle	Left-Turn	Right-Turn	Sideswipe	Backed Into	Ped/Bike	Parked Car	Fixed Object	Ran into Water	Other
97	**0**		**35**	**62**	**41**	**2**	**15**	**10**	**4**	**17**	**0**	**1**	**0**	**5**	**0**	**0**
Percent	*0.00%*		*36.08%*	*63.92%*	*42.27%*	*2.06%*	*15.46%*	*10.31%*	*4.12%*	*17.53%*	*0.00%*	*1.03%*	*0.00%*	*5.15%*	*0.00%*	*0.00%*
Contrib. Cause	Day		Night	Wet	Dry	Careless Driving	FTYRW	Improper Turn	Ran Red Light	Exceeded Speed	Improper Passing	Disreg Cntl Dev	Erratic/ Aggress	Ran off Road	DUI	Wrong Way
Total	**70**		**26**	**16**	**80**	**53**	**15**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**
Percent	*72.16%*		*26.80%*	*16.49%*	*82.47%*	*54.64%*	*15.46%*	*1.03%*	*1.03%*	*1.03%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*1.03%*	*0.00%*

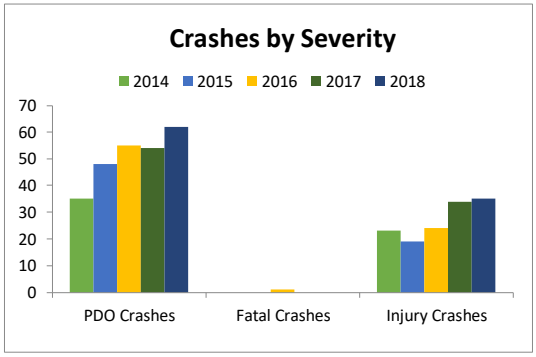
TOTAL ENTERING VEHICLES/ADT: **21,709**

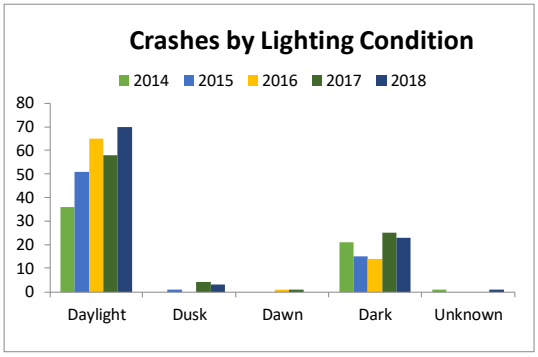
SEGMENT CRASH RATE: **8.880** CRASHES PER MILLION VEHICLE MILES

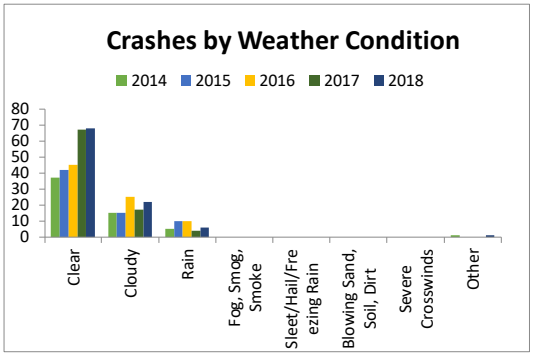
CRASH HISTOGRAMS

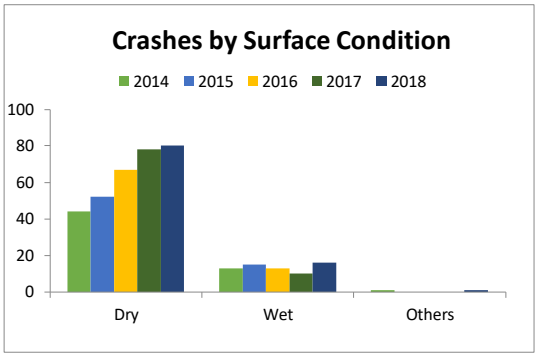
SR 994/SW 200 Street between SW 127 Ave and SW 137 Ave

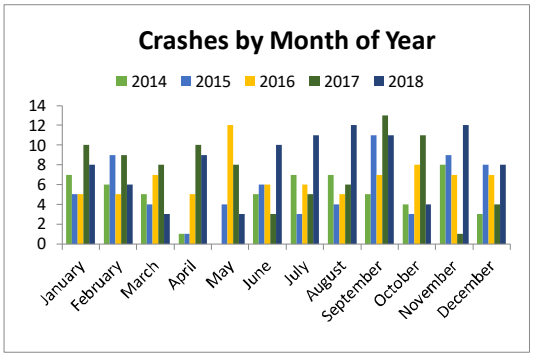


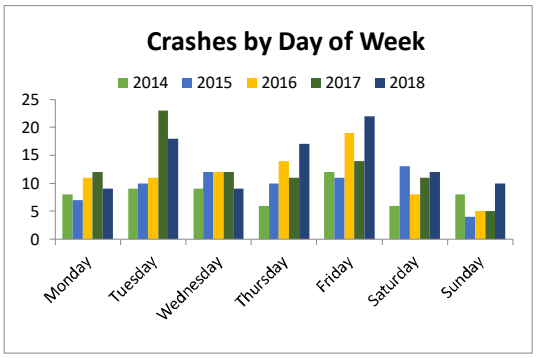


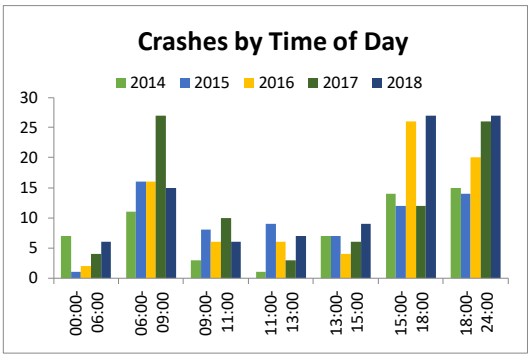












SR 994/Quail Roost Drive/ SW 200 St		Study Segment								SW 137 Ave							
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%	Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year								Year							
		2014	2015	2016	2017	2018				2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	27	33	38	48	41	187	37.40	47.9%	6	12	10	9	10	47	9.40	75.8%
	Head On	1	1	1	0	2	5	1.00	1.3%	0	1	0	0	0	1	0.20	1.6%
	Angle	10	9	21	22	15	77	15.40	19.7%	0	1	2	1	2	6	1.20	9.7%
	Left Turn	8	7	9	6	10	40	8.00	10.3%	0	2	2	0	0	4	0.80	6.5%
	Right Turn	3	1	1	3	4	12	2.40	3.1%	0	0	0	0	0	0	0.00	0.0%
	Sideswipe	6	8	7	5	17	43	8.60	11.0%	0	1	0	0	1	2	0.40	3.2%
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	1	1	0.20	0.3%	0	0	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	1	0	1	0.20	0.3%	0	0	0	0	0	0	0.00	0.0%
	Fixed Object	1	6	3	3	5	18	3.60	4.6%	0	1	1	0	0	2	0.40	3.2%
	Other Non-Collisions	1	1	0	0	0	2	0.40	0.5%	0	0	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Others	1	1	0	0	2	4	0.80	1.0%	0	0	0	0	0	0	0.00	0.0%
	Total Crashes	**58**	**67**	**80**	**88**	**97**	**390**	**78.00**	**100.0%**	**6**	**18**	**15**	**10**	**13**	**62**	**12.40**	**100.0%**
SEVERITY	PDO Crashes	35	48	55	54	62	254	50.80	65.1%	5	11	12	6	9	43	8.60	69.4%
	Fatal Crashes	0	0	1	0	0	1	0.20	0.3%	0	0	0	0	0	0	0.00	0.0%
	Injury Crashes	23	19	24	34	35	135	27.00	34.6%	1	7	3	4	4	19	3.80	30.6%
LIGHTING CONDITIONS	Daylight	36	51	65	58	70	280	56.00	71.8%	5	13	12	6	8	44	8.80	71.0%
	Dusk	0	1	0	4	3	8	1.60	2.1%	0	0	0	0	1	1	0.20	1.6%
	Dawn	0	0	1	1	0	2	0.40	0.5%	0	0	1	0	0	1	0.20	1.6%
	Dark	21	15	14	25	23	98	19.60	25.1%	1	5	2	4	4	16	3.20	25.8%
	Unknown	1	0	0	0	1	2	0.40	0.5%	0	0	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	44	52	67	78	80	321	64.20	82.3%	4	11	15	6	11	47	9.40	75.8%
	Wet	13	15	13	10	16	67	13.40	17.2%	2	7	0	4	2	15	3.00	24.2%
	Others	1	0	0	0	1	2	0.40	0.5%	0	0	0	0	0	0	0.00	0.0%
HOUR OF DAY	00:00-06:00	7	1	2	4	6	20	4.00	5.1%	0	1	1	0	1	3	0.60	4.8%
	06:00-09:00	11	16	16	27	15	85	17.00	21.8%	2	3	3	3	2	13	2.60	21.0%
	09:00-11:00	3	8	6	10	6	33	6.60	8.5%	1	4	1	0	0	6	1.20	9.7%
	11:00-13:00	1	9	6	3	7	26	5.20	6.7%	0	2	1	1	0	4	0.80	6.5%
	13:00-15:00	7	7	4	6	9	33	6.60	8.5%	0	1	0	1	0	2	0.40	3.2%
	15:00-18:00	14	12	26	12	27	91	18.20	23.3%	2	5	7	2	5	21	4.20	33.9%
	18:00-24:00	15	14	20	26	27	102	20.40	26.2%	1	2	2	3	5	13	2.60	21.0%

SR 994/Quail Roost Drive/ SW 200 St		SW 135 Ave								SW 134 Ave							
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%	Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year								Year							
		2014	2015	2016	2017	2018				2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	1	1	1	2	2	7	1.40	63.6%	6	3	4	2	1	16	3.20	21.6%
	Head On	1	0	0	0	0	1	0.20	9.1%	0	0	0	0	0	0	0.00	0.0%
	Angle	0	0	1	0	0	1	0.20	9.1%	5	3	7	12	5	32	6.40	43.2%
	Left Turn	0	0	1	0	0	1	0.20	9.1%	0	2	0	1	6	9	1.80	12.2%
	Right Turn	0	0	0	0	0	0	0.00	0.0%	1	1	0	0	2	4	0.80	5.4%
	Sideswipe	0	0	0	0	0	0	0.00	0.0%	1	1	1	1	1	5	1.00	6.8%
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Fixed Object	0	1	0	0	0	1	0.20	9.1%	0	0	0	0	5	5	1.00	6.8%
	Other Non-Collisions	0	0	0	0	0	0	0.00	0.0%	0	1	0	0	0	1	0.20	1.4%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Others	0	0	0	0	0	0	0.00	0.0%	1	0	0	0	1	2	0.40	2.7%
	Total Crashes	**2**	**2**	**3**	**2**	**2**	**11**	**2.20**	**100.0%**	**14**	**11**	**12**	**16**	**21**	**74**	**14.80**	**100.0%**
SEVERITY	PDO Crashes	0	2	3	1	0	6	1.20	54.5%	8	8	7	9	14	46	9.20	62.2%
	Fatal Crashes	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Injury Crashes	2	0	0	1	2	5	1.00	45.5%	6	3	5	7	7	28	5.60	37.8%
LIGHTING CONDITIONS	Daylight	1	1	3	2	1	8	1.60	72.7%	8	8	12	13	12	53	10.60	71.6%
	Dusk	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Dark	1	1	0	0	1	3	0.60	27.3%	6	3	0	3	8	20	4.00	27.0%
	Unknown	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	1	1	0.20	1.4%
SURFACE CONDITIONS	Dry	2	2	3	2	1	10	2.00	90.9%	12	10	9	15	17	63	12.60	85.1%
	Wet	0	0	0	0	1	1	0.20	9.1%	2	1	3	1	3	10	2.00	13.5%
	Others	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	1	1	0.20	1.4%
HOUR OF DAY	00:00-06:00	0	0	1	0	1	2	0.40	18.2%	4	0	0	1	2	7	1.40	9.5%
	06:00-09:00	0	0	0	2	1	3	0.60	27.3%	2	3	4	4	2	15	3.00	20.3%
	09:00-11:00	0	0	0	0	0	0	0.00	0.0%	2	1	1	3	0	7	1.40	9.5%
	11:00-13:00	0	1	0	0	0	1	0.20	9.1%	0	0	2	2	2	6	1.20	8.1%
	13:00-15:00	0	0	0	0	0	0	0.00	0.0%	1	2	1	1	2	7	1.40	9.5%
	15:00-18:00	1	0	2	0	0	3	0.60	27.3%	2	3	3	2	5	15	3.00	20.3%
	18:00-24:00	1	1	0	0	0	2	0.40	18.2%	3	2	1	3	8	17	3.40	23.0%

SR 994/Quail Roost Drive/ SW 200 St		SW 133 Ave								SW 132 Pl							
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%	Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year								Year							
		2014	2015	2016	2017	2018				2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	0	1	0	5	0	6	1.20	54.5%	1	1	2	1	1	6	1.20	75.0%
	Head On	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Angle	0	1	0	0	0	1	0.20	9.1%	1	0	0	0	0	1	0.20	12.5%
	Left Turn	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Right Turn	1	0	0	1	0	2	0.40	18.2%	0	0	0	0	0	0	0.00	0.0%
	Sideswipe	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Fixed Object	0	1	1	0	0	2	0.40	18.2%	0	0	0	1	0	1	0.20	12.5%
	Other Non-Collisions	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Others	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Total Crashes	**1**	**3**	**1**	**6**	**0**	**11**	**2.20**	**100.0%**	**2**	**1**	**2**	**2**	**1**	**8**	**1.60**	**100.0%**
SEVERITY	PDO Crashes	1	2	1	4	0	8	1.60	72.7%	0	1	1	2	0	4	0.80	50.0%
	Fatal Crashes	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Injury Crashes	0	1	0	2	0	3	0.60	27.3%	2	0	1	0	1	4	0.80	50.0%
LIGHTING CONDITIONS	Daylight	1	2	1	5	0	9	1.80	81.8%	1	1	2	1	1	6	1.20	75.0%
	Dusk	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Dark	0	1	0	1	0	2	0.40	18.2%	1	0	0	1	0	2	0.40	25.0%
	Unknown	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	1	3	1	4	0	9	1.80	81.8%	2	1	2	2	0	7	1.40	87.5%
	Wet	0	0	0	2	0	2	0.40	18.2%	0	0	0	0	1	1	0.20	12.5%
	Others	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
HOUR OF DAY	00:00-06:00	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	06:00-09:00	1	1	0	4	0	6	1.20	54.5%	0	0	1	0	1	2	0.40	25.0%
	09:00-11:00	0	1	0	1	0	2	0.40	18.2%	0	0	0	0	0	0	0.00	0.0%
	11:00-13:00	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	13:00-15:00	0	0	0	0	0	0	0.00	0.0%	1	1	0	0	0	2	0.40	25.0%
	15:00-18:00	0	0	1	0	0	1	0.20	9.1%	0	0	1	1	0	2	0.40	25.0%
	18:00-24:00	0	1	0	1	0	2	0.40	18.2%	1	0	0	1	0	2	0.40	25.0%

SR 994/Quail Roost Drive/ SW 200 St		SW 132 Ave								SW 130 Ave Rd							
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%	Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year								Year							
		2014	2015	2016	2017	2018				2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	5	3	7	8	4	27	5.40	75.0%	0	4	1	2	4	11	2.20	57.9%
	Head On	0	0	1	0	0	1	0.20	2.8%	0	0	0	0	0	0	0.00	0.0%
	Angle	0	1	0	0	0	1	0.20	2.8%	0	1	2	0	1	4	0.80	21.1%
	Left Turn	0	0	1	0	0	1	0.20	2.8%	0	0	0	0	0	0	0.00	0.0%
	Right Turn	0	0	1	0	1	2	0.40	5.6%	1	0	0	0	0	1	0.20	5.3%
	Sideswipe	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	1	1	0.20	5.3%
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0	0	0.00	0.0%	0	0	0	1	0	1	0.20	5.3%
	Fixed Object	0	2	0	1	0	3	0.60	8.3%	0	0	0	0	0	0	0.00	0.0%
	Other Non-Collisions	1	0	0	0	0	1	0.20	2.8%	0	0	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Others	0	0	0	0	0	0	0.00	0.0%	0	1	0	0	0	1	0.20	5.3%
	Total Crashes	**6**	**6**	**10**	**9**	**5**	**36**	**7.20**	**100.0%**	**1**	**6**	**3**	**3**	**6**	**19**	**3.80**	**100.0%**
SEVERITY	PDO Crashes	3	4	4	3	2	16	3.20	44.4%	1	5	1	1	4	12	2.40	63.2%
	Fatal Crashes	0	0	1	0	0	1	0.20	2.8%	0	0	0	0	0	0	0.00	0.0%
	Injury Crashes	3	2	5	6	3	19	3.80	52.8%	0	1	2	2	2	7	1.40	36.8%
LIGHTING CONDITIONS	Daylight	5	6	6	5	4	26	5.20	72.2%	0	5	1	1	5	12	2.40	63.2%
	Dusk	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	Dark	1	0	4	4	1	10	2.00	27.8%	1	1	2	2	1	7	1.40	36.8%
	Unknown	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	4	4	6	8	5	27	5.40	75.0%	1	5	2	2	4	14	2.80	73.7%
	Wet	2	2	4	1	0	9	1.80	25.0%	0	1	1	1	2	5	1.00	26.3%
	Others	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
HOUR OF DAY	00:00-06:00	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%
	06:00-09:00	1	2	0	2	1	6	1.20	16.7%	0	2	1	0	0	3	0.60	15.8%
	09:00-11:00	0	1	3	1	0	5	1.00	13.9%	0	0	0	0	1	1	0.20	5.3%
	11:00-13:00	0	2	0	0	0	2	0.40	5.6%	0	0	0	0	0	0	0.00	0.0%
	13:00-15:00	2	0	0	1	0	3	0.60	8.3%	0	1	0	0	0	1	0.20	5.3%
	15:00-18:00	2	1	2	1	3	9	1.80	25.0%	1	2	0	0	2	5	1.00	26.3%
	18:00-24:00	1	0	5	4	1	11	2.20	30.6%	0	1	2	3	3	9	1.80	47.4%

SR 994/Quail Roost Drive/ SW 200 St		SW 129 Ave								SW 127 Ave									
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%	Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%	90 %ile	95 %ile
		Year								Year									
		2014	2015	2016	2017	2018				2014	2015	2016	2017	2018					
CRASH TYPE	Rear End	2	2	1	4	2	11	2.20	52.4%	5	6	9	14	17	51	10.20	35.9%		
	Head On	0	0	0	0	2	2	0.40	9.5%	0	0	0	0	0	0	0.00	0.0%		
	Angle	0	0	1	0	0	1	0.20	4.8%	4	2	8	8	7	29	5.80	20.4%		
	Left Turn	1	0	1	0	0	2	0.40	9.5%	7	3	5	5	4	24	4.80	16.9%	X	X
	Right Turn	0	0	0	0	1	1	0.20	4.8%	0	0	0	2	0	2	0.40	1.4%		
	Sideswipe	0	0	1	0	0	1	0.20	4.8%	4	6	5	4	14	33	6.60	23.2%	X	X
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%		
	Pedestrian	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	1	1	0.20	0.7%		
	Bicycle	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%		
	Fixed Object	0	0	1	1	0	2	0.40	9.5%	1	1	0	0	0	2	0.40	1.4%		
	Other Non-Collisions	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%		
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%		
	Others	0	0	0	0	1	1	0.20	4.8%	0	0	0	0	0	0	0.00	0.0%		
	Total Crashes	**3**	**2**	**5**	**5**	**6**	**21**	**4.20**	**100.0%**	**21**	**18**	**27**	**33**	**43**	**142**	**28.40**	**100.0%**	**X**	
SEVERITY	PDO Crashes	2	1	4	3	2	12	2.40	57.1%	14	14	20	24	31	103	20.60	72.5%		
	Fatal Crashes	0	0	0	0	0	0	0.00	0.0%	0	0	0	0	0	0	0.00	0.0%		
	Injury Crashes	1	1	1	2	4	9	1.80	42.9%	7	4	7	9	12	39	7.80	27.5%	X	X
LIGHTING CONDITIONS	Daylight	2	2	5	2	5	16	3.20	76.2%	12	13	21	21	34	101	20.20	71.1%	X	
	Dusk	0	0	0	0	0	0	0.00	0.0%	0	1	0	3	2	6	1.20	4.2%	X	X
	Dawn	0	0	0	0	0	0	0.00	0.0%	0	0	0	1	0	1	0.20	0.7%		
	Dark	1	0	0	3	1	5	1.00	23.8%	8	4	6	8	7	33	6.60	23.2%		
	Unknown	0	0	0	0	0	0	0.00	0.0%	1	0	0	0	0	1	0.20	0.7%	X	X
SURFACE CONDITIONS	Dry	2	0	4	5	5	16	3.20	76.2%	15	16	23	32	37	123	24.60	86.6%	X	
	Wet	1	2	1	0	1	5	1.00	23.8%	5	2	4	1	6	18	3.60	12.7%	X	
	Others	0	0	0	0	0	0	0.00	0.0%	1	0	0	0	0	1	0.20	0.7%		
HOUR OF DAY	00:00-06:00	1	0	0	1	1	3	0.60	14.3%	2	0	0	2	1	5	1.00	3.5%		
	06:00-09:00	1	1	1	2	1	6	1.20	28.6%	3	4	4	9	7	27	5.40	19.0%	X	X
	09:00-11:00	0	0	0	0	0	0	0.00	0.0%	0	1	1	4	5	11	2.20	7.7%		
	11:00-13:00	0	0	1	0	0	1	0.20	4.8%	1	4	2	0	5	12	2.40	8.5%		
	13:00-15:00	0	0	0	0	1	1	0.20	4.8%	3	2	3	3	6	17	3.40	12.0%		
	15:00-18:00	1	0	1	0	3	5	1.00	23.8%	5	1	9	5	9	29	5.80	20.4%		
	18:00-24:00	0	1	2	2	0	5	1.00	23.8%	7	6	8	10	10	41	8.20	28.9%	X	X

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      CCCCCCCCCC      AAAAAAAAAA       RRRRRRRRR
     CCCCCCCCCC     AAAAAAAAAA       RRRRRRRRRR
    CCC             AAA     AAA       RRR      RRR
   CCC             AAA     AAA       RRR      RRR
  CCC             AAAAAAAAAA       RRRRRRRRRRR
 CCC             AAAAAAAAAA      RRRRRRRRRRR
CCC             AAA     AAA      RRR      RRR
CCC            AAA     AAA      RRR       RRR
CCCCCCCCCCC    AAA     AAA      RRR       RRRR
CCCCCCCCCCC    AAA     AAA      RRR       RRRRRR
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C R A S H R E P O R T I N G S Y S T E M

N O T I C E: THE INFORMATION CONTAINED IN THIS DOCUMENT (REPORT, SCHEDULE, LIST, OR DATA) HAS BEEN COMPILED FROM INFORMATION COLLECTED FOR THE PURPOSE OF IDENTIFYING, EVALUATING, OR PLANNING SAFETY ENHANCEMENTS. THIS PRODUCT IDENTIFIES INFORMATION USED FOR THE PURPOSE OF DEVELOPING HIGHWAY SAFETY CONSTRUCTION IMPROVEMENT PROJECTS WHICH MAY BE IMPLEMENTED UTILIZING FEDERAL-AID HIGHWAY FUNDS. ANY DOCUMENT DISPLAYING THIS NOTICE SHALL BE USED ONLY FOR THOSE PURPOSES DEEMED APPROPRIATE BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. SEE TITLE 23, UNITED STATES CODE, SECTION 409.

```
I/O NAME: ..............  CARI122
PROGRAM ID: ............  CARPJ122
REPORT NUMBER: .........  01
RUN CLASS: .............  A
MESSAGE CLASS: .........  Q
PRINTER DEST: ..........  LOCAL
# COPIES: ..............  01
ACCOUNT #: .............  5565945
SUBMIT W/HOLD? .........  N
USERID: ................  KNCHOEL
DETAIL SORT ORDER: .....  1 - SORT BY ROADWAY, MILE POINT
PRINT SEGMENTS? ........  Y
PRINT INTERSECTIONS? ...  N
SUMMARY FORMAT: ........  2 - TOP LINE ALL BREAKS
OVERRIDE VALUES:
 MAX # OF BREAKS: ......  06
 CRASH RATE CATEGORY: ...
 AVERAGE DAILY TRAFFIC:..
 # OF LEGS: ............
```

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILEPOINT	NEAR AOR	STATE ROAD	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRASH SEVERITY	ALCOHOL	HAZMAT RELATED	MOTOR VEHICLE	LIGHT CONDITION	WEATHER	RAMP	ROAD OCCUPIED	DAY OF WEEK	ACCIDENT	VEHICLE 1	VEHICLE 1	VEHICLE FORM 1U	VEHICLE MAKE 1A	VEHICLE MODEL 1C	VEHICLE YEAR 1A	VEHICLE 2	VEHICLE 2N	VEHICLE 2M	VEHICLE MAKE	VEHICLE MODEL	NUMBER OF VEHICLES	VEHICLE 2N	#	#	#
853219020	87091000	04.018	2946	994	007100	16	05	26	06	R-2UN	0	14	01	01	02	01	01	01	R	1	E	01	01	01	02	19	E	01	01	13	01	47	3	0	02
872825840	87091000	04.018	2946	994	008500	18	08	28	08	R-2UN	0	14	01	01	02	01	01	01	R	1	E	01	01	01	02	35	E	01	01	13	01	30	3	0	02
838100430	87091000	04.037	2946	994	007200	14	08	25	07	R-2UN	0	14	01	01	01	01	01	03	R	1	E	01	01	01	02	19	E	02	01	13	01	52	2	0	00
845513230	87091000	04.037	2946	994	007200	15	01	02	17	R-2UN	0	14	01	01	01	01	01	01	R	2	E	16	01	01	02	46	E	16	01	77	01	42	3	0	00
852268660	87091000	04.037	2946	994	007100	16	04	11	17	R-2UN	0	14	01	01	01	01	01	01	R	1	E	03	01	01	02	57	E	01	01	13	01	29	2	0	01
837614740	87091000	04.056	2946	994	007200	14	08	20	08	R-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	22	E	02	01	13	01	46	2	0	00
845542650	87091000	04.056	2946	994	007200	15	02	02	09	R-2UN	0	14	01	01	01	01	01	03	R	1	E	01	01	01	02	19	E	01	01	13	01	23	2	0	00
845538250	87091000	04.066	2946	994	007200	15	02	25	12	R-2UN	0	14	01	01	01	01	01	02	R	1	E	02	01	01	02	54	E	03	01	13	01	41	3	0	00
853032130	87091000	04.066	2946	994	007100	16	04	01	12	R-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	23	E	16	01	13	01	70	2	0	02
866998440	87091000	04.066	2946	994	007100	16	09	04	19	R-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	28	W	01	01	03	01	33	2	0	00
852256840	87091000	04.068	2946	994	007200	15	12	07	13	R-2UN	0	14	01	01	03	02	01	02	R	1	E	01	01	01	01	66	E	01	01	13	01	69	2	0	02
853506010	87091000	04.070	2946	994	007100	16	06	20	16	R-2UN	0	14	01	01	02	01	01	03	R	1	E	16	01	01	02	25	E	02	01	13		00	2	0	00
855715260	87091000	04.070	2946	994	007100	17	11	09	12	R-2UN	0	14	01	01	01	01	01	03	R	1	E	03	01	01	02	61	E	01	01	13	01	58	2	0	00
871877830	87091000	04.070	2946	994	008500	18	06	29	15	R-2UN	0	14	01	01	02	02	01	03	R	1	E	16	01	01	02	59	E	03	01	13	01	29	2	0	01
837327670	87091000	04.071	2946	994	007200	14	01	06	16	R-2UN	0	14	01	01	02	02	01	02	R	1	E	03	01	01	02	38	E	01	01	13	01	22	2	0	00
845626860	87091000	04.072	2946	994	007200	15	04	29	21	R-2UN	0	14	01	05	02	02	01	02	R	1	E	03	01	01	02	36	E	01	01	03	01	29	2	0	00
855421400	87091000	04.072	2946	994	007100	17	06	29	21	R-2UN	0	14	01	04	02	02	01	03	R	1	E	01	01	01	02	50	E	01	01	13	01	31	2	0	02
843674580	87091000	04.073	2946	994	007200	14	06	24	20	R-2UN	0	14	01	05	02	02	01	02	R	1	E	03	01	01	02	42	E	01	01	13	01	61	2	0	00
844831150	87091000	04.073	2946	994	007200	14	07	19	21	R-2UN	0	14	88	04	02	02	01	02	R	2	E	01	01	05	02	26	E	01	01	01	01	58	2	0	00
851204490	87091000	04.073	2946	994	007200	15	06	18	09	R-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	47	E	01	01	01	01	66	3	0	01
851881750	87091000	04.073	2946	994	007200	15	10	04	15	R-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	14	02	25	E	01	01	13	01	48	2	0	01
852410130	87091000	04.073	2946	994	007200	15	12	29	10	R-2UN	0	14	01	01	01	01	01	02	R	1	E	16	01	01	02	39	E	01	01	13	01	63	2	0	01
852385100	87091000	04.073	2946	994	007100	16	02	05	15	R-2UN	0	14	01	01	02	01	01	03	R	1	E	16	01	01	02	39	E	03	01	13	01	46	2	0	00
854922250	87091000	04.073	2946	994	007100	17	05	31	22	R-2UN	0	14	01	05	01	01	01	03	R	1	E	03	01	01	02	24	E	16	01	13	01	53	2	0	00
855871830	87091000	04.073	2946	994	007100	17	10	24	19	R-2UN	0	14	01	05	02	02	01	01	R	1	E	01	01	14	02	26	E	01	01	13	01	44	2	0	01
851810590	87091000	04.074	2946	994	007200	15	08	23	15	R-2UN	1	14	01	01	01	01	01	02	R	1	E	16	01	01	02	42	E	16	01	13	01	52	4	0	05
843461020	87091000	04.075	2946	994	007200	14	01	10	17	R-2UN	0	14	01	01	01	01	01	02	R	1	E	02	01	01	02	81	E	01	01	13	01	48	2	0	02
843811800	87091000	04.075	2946	994	007200	14	10	26	10	R-2UN	0	14	01	01	01	01	01	02	T	1	S	01	01	01	10	19	S	03	01	01	01	50	2	0	00
845095870	87091000	04.075	2946	994	007200	15	02	09	06	R-2UN	0	14	01	01	03	02	01	02	T	1	S	01	01	01	02	16	S	03	01	13	01	47	2	0	00
856670910	87091000	04.075	2946	994	007200	15	06	27	11	R-2UN	0	37	77	01	03	02	01	02	R	S	S	03	01	01	02	49	S	03	01	08		00	3	0	00
851956080	87091000	04.075	2946	994	007200	15	09	22	06	R-2UN	0	14	03	06	02	02	01	02	R	1	E	01	01	03	01	60	W	16	01	01	01	22	2	0	02
860005010	87091000	04.075	2946	994	007200	15	11	08	01	R-2UN	0	14	03	05	01	01	01	02	R	1	S	01	01	03	03	25	E	16	01	01	01	23	2	0	00
843445240	87091000	04.075	2946	994	007200	15	12	19	10	R-2UN	0	14	03	01	01	01	01	02	L	1	E	20	01	03	03	57	W	16	01	01	01	68	2	0	00
852362580	87091000	04.075	2946	994	007200	15	12	21	07	R-2UN	0	14	02	06	03	02	01	02	R	1	W	11	01	01	25	63	E	02	01	01	01	23	2	0	02
843363810Y	87091000	04.075	2946	994	007200	15	12	22	22	R-2UN	0	14	01	05	02	02	10	03	T	L	S	01	88	01	02	00	S	01	01	13	01	46	2	0	00
852410430	87091000	04.075	2946	994	007100	16	02	11	08	R-2UN	0	14	03	01	01	01	01	02	I	M	W	01	01	01	11	35	S	03	01	03	01	38	2	0	00
865115230	87091000	04.075	2946	994	007100	16	05	02	06	R-2UN	0	14	03	03	02	01	01	03	T	L	N	01	01	03	02	77	S	01	01	01	01	30	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	STATE ROAD	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRASH SEVERITY	ALCOHOL	HAZMAT RVME FNUTL	MOTOR VEHICLE NOTE	LIGHT CONDITION	WEATHER CONDITION	RAMP DIRECTION	ROAD OWNER	DAYS TO INVOICE	DAYS TO LAST STATUS	ALCOHOL TEST	ALCOHOL RESULT	VEHICLE 1 DRIVER INJURED	VEHICLE 1 DRIVER EXTENT	VEHICLE 1 DRIVER YEAR	VEHICLE 1 DRIVER MAKE	VEHICLE 2 DRIVER INJURED	VEHICLE 2 DRIVER EXTENT	VEHICLE 2 DRIVER YEAR	VEHICLE 2 DRIVER MAKE	VEHICLE NUMBER	VEHICLE MAKE	# OF VEHICLES	# OF KILLED	# OF INJURED
853732670	87091000	04.075	2946	994	007100	16	11	25	00	R-2UN	0	27	03	04	01	01	01	02	R	S	W	03	01	01	01	30	S	16	01	03		00	2	0	00
868833630Y	87091000	04.075	2946	994	007100	17	02	06	08	R-2UN	0	14	01	01	01	01	01	03	T	L	S	03	01	01	02	54	S	03	01	13	01	34	2	0	00
869008030Y	87091000	04.075	2946	994	007100	17	02	07	06	R-2UN	0	14	01	04	01	01	01	03	T	L	S	01	01	01	12	48	S	01	01	13	01	28	2	0	00
868969840	87091000	04.075	2946	994	007100	17	03	29	13	R-2UN	0	14	01	01	01	01	01	03	T	1	S	19	01	01	02	29	S	01	01	01	01	42	2	0	00
876335850Y	87091000	04.075	2946	994	008500	18	04	17	15	R-2UN	0	14	03	01	01	01	01	04	T	R	S	01	01	03	03	34	S	03	01	01	01	72	2	0	00
876394270Y	87091000	04.075	2946	994	008500	18	06	03	18	R-2UN	0	14	04	01	01	01	01	03	T	1	S	16	01	11	25	18	S	16	01	01	01	74	2	0	00
876489450	87091000	04.075	2946	994	008500	18	08	17	20	R-2UN	0	14	03	04	01	01	01	02	I	M	E	01	01	01	77	19	S	01	01	01	77	22	2	0	00
876473560	87091000	04.075	2946	994	008500	18	09	04	21	R-2UN	0	14	01	04	01	01	01	03	T	1	S	01	01	01	02	45	S	01	01	01	01	79	2	0	00
871551740	87091000	04.081	2946	994	019700	18	03	02	18	S-2UN	0	14	01	02	03	02	10	03	L	1	W	00	01	01		00	W	01	01	13	01	68	2	0	00
851881580	87091000	04.084	2946	994	017900	15	09	23	17	S-2UN	0	14	03	01	01	01	01	02	L	1	W	01	01	06	25	25	W	03	01	01	01	58	2	0	00
852424860	87091000	04.084	2946	994	017900	15	12	10	17	S-2UN	0	14	01	01	02	01	01	02	L	1	E	03	01	01	02	24	E	01	01	13	01	30	3	0	00
853844170	87091000	04.084	2946	994	018500	16	10	08	10	S-2UN	0	14	02	01	01	01	01	03	L	L	E	16	01	03	02	19	W	01	01	13	01	57	2	0	00
854154670	87091000	04.084	2946	994	018500	16	10	25	17	S-2UN	0	14	01	01	02	01	01	03	R	1	E	03	01	01	02	45	E	02	01	13	01	35	2	0	00
854154680	87091000	04.084	2946	994	018500	16	10	25	17	S-2UN	0	14	01	01	02	01	01	03	R	1	E	02	01	01	02	44	E	03	01	13	01	45	3	0	00
873215840	87091000	04.084	2946	994	018700	17	10	04	07	S-2UN	0	14	03	01	03	02	01	03	R	1	E	21	01	05	02	57	E	03	01	01	01	58	2	0	01
876602770	87091000	04.086	2946	994	019700	18	11	09	06	S-2UN	0	14	01	01	01	01	01	01	R	1	E	16	01	01	02	71	E	01	01	01	01	31	2	0	00
854166150	87091000	04.094	2946	994	018500	16	11	05	15	S-2UN	0	14	01	01	01	01	01	03	L	1	W	01	01	01	02	29	W	01	01	13	01	64	2	0	00
872227850	87091000	04.094	2946	994	019700	18	05	01	15	S-2UN	0	14	01	01	02	01	01	01	R	1	E	03	01	01	02	22	E	01	01	13	01	33	2	0	00
880270260	87091000	04.103	2946	994	019700	18	12	25	01	S-2UN	0	14	01	05	01	01	01	03	L	1	W	88	01	01	12	00	W	02	01	01	01	49	2	0	01
872836060	87091000	04.105	2946	994	019700	18	08	31	15	S-2UN	0	14	01	01	01	01	01	01	R	2	E	01	01	01	02	32	E	16	01	14	01	40	2	0	04
853164430	87091000	04.113	2946	994	018500	16	05	13	17	S-2UN	0	14	01	01	01	01	01	03	L	2	W	16	01	01	02	28	W	16	01	13	01	22	3	0	00
868826890	87091000	04.113	2946	994	018500	16	12	27	19	S-2UN	0	14	01	04	01	01	01	03	L	1	W	01	01	01	02	38	W	16	01	13	01	48	2	0	00
880055240	87091000	04.122	2946	994	019700	18	09	28	21	S-2UN	0	14	05	05	01	01	01	03	L	1	W	01	01	01	02	30	W	01	01	13	01	43	2	0	00
855938290	87091000	04.141	6805	994	018700	17	09	13	15	S-2UN	0	14	01	01	03	02	01	01	L	1	W	01	01	01	12	21	W	17	01	13	01	28	2	0	00
856514400	87091000	04.170	6805	994	017900	15	03	17	22	S-2UN	0	32	77	04	01	01	01	01	L	S	W	01	01	01	29	24							1	0	00
854768310	87091000	04.170	6805	994	018700	17	03	03	17	S-2UN	0	14	01	01	01	01	01	01	L	2	W	02	01	01	02	24	W	03	01	13	01	52	2	0	01
853546330	87091000	04.181	6805	994	018500	16	07	26	16	S-2UN	0	14	03	01	01	01	01	03	R	1	E	01	01	10	06	39	E	03	01	01	01	26	2	0	00
854253020	87091000	04.181	6805	994	018500	16	11	19	05	S-2UN	0	14	03	01	01	01	01	03	R	1	W	17	01	03	03	57	E	03	01	01	01	49	2	0	00
854253540	87091000	04.181	6805	994	018700	17	04	11	07	S-2UN	0	14	01	01	01	01	01	01	L	2	W	03	01	01	02	43	W	01	01	13	01	50	3	0	00
854428740	87091000	04.195	6805	994	018700	17	01	13	08	S-2UN	0	14	01	01	01	01	01	03	R	2	E	20	01	01	02	30	E	16	01	14	01	40	3	0	02
843530490	87091000	04.196	6805	994	017500	14	03	01	19	S-2UN	1	14	01	05	01	01	01	02	R	1	E	16	88	01	02	49	E	01	01	13	01	30	4	0	04
851128500	87091000	04.198	6805	994	017900	15	06	06	12	S-2UN	0	14	01	01	01	01	01	02	R	1	E	16	01	01	02	55	E	16	01	13	01	53	3	0	00
837193210	87091000	04.200	6805	994	017500	14	07	30	16	S-2UN	0	14	02	01	02	01	01	02	R	1	W	16	01	01	25	18	E	02	01	01	01	35	4	0	02
876550530	87091000	04.200	6805	994	019700	18	10	20	05	S-2UN	1	14	01	05	01	01	01	02	R	1	E	11	01	01	02	22	E	01	03	01	01	29	2	0	01
871783090	87091000	04.209	6805	994	019700	18	02	22	06	S-2UN	0	14	01	01	03	02	01	01	L	2	W	01	01	01	02	37	W	01	01	13	01	58	2	0	01
867143420	87091000	04.228	6805	994	018500	16	12	15	17	S-2UN	0	14	01	01	01	01	01	03	L	1	W	01	01	01	02	19	W	01	01	01	01	47	2	0	00
876198900	87091000	04.264	6804	994	019700	18	03	26	23	S-2UN	0	13	77	05	01	01	01	02	L	1	W	11	01	01	01	46							1	0	01

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF CRASH	SEVERITY	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE HSGY	ALCOHOL INVOLV	HAZ MATERIAL INVOLV	MOTOR VEHICLE COLLISION	LIGHT CONDITION	WEATHER CONDITION	RD SURFACE CONDITION	RD CONTOUR CONDITION	DEFECT LOCATION	ROAD CHARACTER	ALIGNMENT	VEHICLE 1	VEHICLE 1	VEHICLE FORM 1U	VEHICLE MOVEMENT 1A	VEHICLE ACTION 1C	VEHICLE 1A	VEHICLE 2	VEHICLE 2N	VEHICLE 2M	VEHICLE NUMBER 2N	VEHICLE MAKE	# NON MOTORIST	# FATALITIES	# INJURIES
838044830	87091000	04.300	3335	994	017500	14	11	07	22	S-2UN	0	14	03	05	01	01	01	02	L	1	N	16	01	03	03	17	E	03	01	01	01	49	2	0	00
837631670	87091000	04.309	3335	994	017500	14	03	07	14	S-2UN	0	14	01	01	01	01	01	03	R	1	E	02	01	01	02	46	E	01	01	13	01	27	2	0	01
838019590	87091000	04.309	3335	994	017500	14	06	17	04	S-2UN	0	13	77	05	02	01	01	03	L	1	W	01	01	01	01	42							1	0	00
871129720	87091000	04.319	3335	994	018700	17	10	25	16	S-2UN	0	14	01	01	01	01	01	03	R	2	E	16	01	01	02	20	E	01	01	13	01	19	4	0	03
837181130	87091000	04.322	3335	994	017500	14	01	29	08	S-2UN	0	14	01	01	03	02	01	02	R	1	E	01	01	01	02	25	E	03	01	13	01	23	2	0	01
843456940	87091000	04.322	3335	994	017500	14	08	20	00	S-2UN	0	14	01	05	01	01	01	02	R	1	E	01	88	01	77	00	E	01	01	01	01	53	2	0	00
851214760	87091000	04.325	3335	994	017900	15	07	17	16	S-2UN	0	14	01	01	03	02	01	02	R	1	E	01	01	01	02	88	E	01	01	13	01	26	2	0	00
880134830	87091000	04.325	3335	994	019700	18	11	02	16	S-2UN	0	14	01	01	01	01	01	01	L	1	W	01	01	01	02	35	W	03	01	14	01	59	2	0	00
836736050	87091000	04.328	3335	994	017500	14	03	10	10	S-2UN	0	14	03	01	01	01	01	02	R	1	W	01	01	11	15	21	N	01	01	01	01	34	2	0	00
831471890	87091000	04.328	3335	994	017500	14	04	22	16	S-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	36	E	01	01	01	01	41	2	0	01
837181500	87091000	04.328	3335	994	017500	14	06	01	03	S-2UN	0	14	05	05	02	01	01	02	R	1	W	00	01	01		00	E	01	01	01	01	24	2	0	00
838003880	87091000	04.328	3335	994	017500	14	07	16	10	S-2UN	0	14	03	01	01	01	01	02	I	M	N	01	01	05	13	82	E	01	01	01	01	85	2	0	00
844755760	87091000	04.328	3335	994	017500	14	08	24	18	S-2UN	0	14	03	01	01	01	01	02	L	1	S	01	01	03	13	47	W	01	01	03	01	21	3	0	04
843757050	87091000	04.328	3335	994	017500	14	09	09	08	S-2UN	0	14	01	01	01	01	01	02	S	1	N	16	01	01	10	24	N	01	01	13	01	33	2	0	02
845075540	87091000	04.328	3335	994	017500	14	09	11	20	S-2UN	0	14	03	04	03	02	01	02	S	1	E	01	01	05		00	N	01	01	13	01	24	2	0	00
843809170	87091000	04.328	3335	994	017500	14	11	05	15	S-2UN	0	14	01	01	01	01	01	02	S	1	N	01	01	01	02	19	N	01	01	13	01	40	2	0	00
845537310	87091000	04.328	3335	994	017500	14	12	28	00	S-2UN	0	14	03	04	01	01	01	02	R	1	0	00	01	00		00	E	01	01	01	01	22	2	0	02
856571260Y	87091000	04.328	3335	994	017900	15	02	06	15	S-2UN	0	14	03	01	01	01	01	04	S	1	S	01	01	77	77	19	S	03	01	05	01	40	2	0	00
856605140	87091000	04.328	3335	994	017900	15	02	25	13	S-2UN	0	14	03	01	01	01	01	02	S	1	E	03	01	05	02	70	N	01	01	13	01	43	2	0	00
856604800	87091000	04.328	3335	994	017900	15	03	02	07	S-2UN	0	14	03	01	01	01	01	02	R	1	S	17	01	03	03	43	E	01	01	01	01	27	3	0	01
845537460	87091000	04.328	3335	994	017900	15	03	07	08	S-2UN	0	14	03	01	01	01	01	02	L	1	N	01	01	01	03	73	W	20	01	01	01	45	2	0	02
848895560	87091000	04.328	3335	994	017900	15	05	01	20	S-2UN	0	14	01	05	02	01	01	02	R	1	E	01	01	01	02	22	E	01	01	13	01	24	2	0	00
859783330	87091000	04.328	3335	994	017900	15	08	05	06	S-2UN	0	14	02	05	01	01	01	02	I	M	N	01	01	03	03	44	S	16	01	03	06	24	2	0	00
856682400	87091000	04.328	3335	994	017900	15	08	19	22	S-2UN	0	14	01	05	01	01	01	02	S	1	N	01	88	88	10	00	N	01	01	01	01	45	2	0	00
851642360	87091000	04.328	3335	994	017900	15	10	03	14	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	01	03	21	E	16	01	01	01	31	2	0	02
843405290	87091000	04.328	3335	994	017900	15	12	14	17	S-2UN	0	14	03	01	01	01	01	02	I	M	N	01	01	03	03	25	S	01	01	01	01	20	2	0	00
851241330	87091000	04.328	3335	994	018500	16	01	04	06	S-2UN	0	14	01	01	03	02	01	02	S	1	N	03	01	01	02	25	N	02	01	13	01	41	2	0	00
859729140	87091000	04.328	3335	994	018500	16	01	17	12	S-2UN	0	14	03	01	01	01	01	01	L	S	W	01	03	01	01	50	N	01	01	03	03	76	2	0	00
852780800	87091000	04.328	3335	994	018500	16	02	21	10	S-2UN	0	14	03	01	02	01	01	02	I	M	N	01	01	03	03	49	E	01	01	01	01	49	2	0	02
852899300	87091000	04.328	3335	994	018500	16	03	04	13	S-2UN	0	14	03	01	02	01	01	02	R	1	N	01	01	03	13	22	E	16	01	01	01	52	2	0	00
865140440	87091000	04.328	3335	994	018500	16	06	15	12	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	03	02	18	E	03	01	01	01	56	2	0	01
865148430	87091000	04.328	3335	994	018500	16	06	16	15	S-2UN	0	14	01	01	01	01	01	02	S	1	N	01	01	01	02	17	N	02	01	01	01	34	2	0	00
853277280	87091000	04.328	3335	994	018500	16	08	15	06	S-2UN	0	14	03	01	01	01	01	02	L	1	N	01	01	03	03	19	W	01	01	01	01	59	2	0	01
853726990	87091000	04.328	3335	994	018500	16	09	08	15	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	01		00	E	16	01	01	01	43	2	0	00
854337040	87091000	04.328	3335	994	018500	16	12	02	06	S-2UN	0	14	03	01	03	02	01	02	R	2	N	16	01	01	03	56	E	16	01	01	01	69	2	0	02
867142370	87091000	04.328	3335	994	018500	16	12	06	16	S-2UN	0	14	05	01	01	01	01	03	S	1	S	03	00	01	31	06	N	16	01	01	01	40	2	0	00
867158020	87091000	04.328	3335	994	018500	16	12	16	06	S-2UN	0	14	01	01	01	01	01	03	T	1	S	16	01	01	02	42	S	02	01	13	01	48	2	0	01

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	STATE ROAD	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE HSG IVNOR Y	ALCOHOL	HAZARD MENTIONED	MOTOR VEHICLE INVOLVED	LIGHT CONDITION	WEATHER CONDITION	RELATION TO ROADWAY	RAMP OCCUPANT DOA	DRIVER LICENSE TYPE	DRIVER ALCOHOL	CITATION	VEHICLE 1	VEHICLE 1 DRIVER INJURED	VEHICLE 1 SPECIAL USE	VEHICLE 1 DRIVER EJECTED	VEHICLE 2	VEHICLE 2 DRIVER INJURED	VEHICLE 2 SPECIAL USE	VEHICLE 2 DRIVER EJECTED	NUMBER OF VEHICLES	NUMBER OF MOTORCYCLES	# OF VEHICLES	# OF KILLED	# OF INJURED
854624000	87091000	04.328	3335	994	018700	17	01	20	10	S-2UN	0	14	03	01	02	01	01	02	L	1	N	01	01	03	03	49	W	01	01	01	01	26	2	0	02
867083090Y	87091000	04.328	3335	994	018700	17	01	30	20	S-2UN	0	14	01	05	01	01	01	03	S	1	N	01	01	14	02	20	N	01	01	13	01	19	2	0	00
854924770	87091000	04.328	3335	994	018700	17	03	24	07	S-2UN	0	14	03	01	02	02	01	02	L	1	N	88	01	01	77	00	W	01	01	01	01	53	3	0	00
854900890	87091000	04.328	3335	994	018700	17	04	01	14	S-2UN	0	14	03	01	02	01	01	02	I	M	E	16	01	01	28	38	N	03	01	01	01	22	2	0	02
867159950	87091000	04.328	3335	994	018700	17	04	25	00	S-2UN	0	14	03	04	01	01	01	02	R	1	N	01	01	03	03	19	E	01	01	01	01	56	2	0	01
855193880	87091000	04.328	3335	994	018700	17	05	25	12	S-2UN	0	14	03	01	02	01	01	02	L	1	W	16	01	01	02	75	W	01	01	03	01	30	2	0	02
855353820	87091000	04.328	3335	994	018700	17	05	29	09	S-2UN	0	14	03	01	01	01	01	02	R	1	N	03	01	03	13	53	E	01	01	01	01	21	2	0	00
873137730	87091000	04.328	3335	994	018700	17	08	07	17	S-2UN	0	14	03	01	01	01	01	02	L	1	N	16	01	03	06	46	W	01	01	03	01	47	2	0	00
873213430	87091000	04.328	3335	994	018700	17	08	28	07	S-2UN	0	14	03	01	01	01	01	02	R	1	N	16	01	01	02	47	E	01	01	01	01	28	2	0	00
873241660Y	87091000	04.328	3335	994	018700	17	09	01	06	S-2UN	0	14	03	01	01	01	01	01	S	1	S	16	01	03	06	49	N	03	01	13	01	38	2	0	01
873240060	87091000	04.328	3335	994	018700	17	09	19	08	S-2UN	0	14	03	01	01	01	01	02	I	M	N	01	01	01	13	56	W	20	01	01	01	40	3	0	01
873094700	87091000	04.328	3335	994	018700	17	10	02	19	S-2UN	0	14	03	04	01	01	01	02	I	M	E	03	01	03	03	42	E	03	01	01	01	52	2	0	00
855787540	87091000	04.328	3335	994	018700	17	10	07	19	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	03	03	23	E	01	01	01	01	33	2	0	00
855962300	87091000	04.328	3335	994	018700	17	10	26	11	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	01	03	60	E	16	01	01	01	52	2	0	00
871073660	87091000	04.328	3335	994	018700	17	12	29	09	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	01	03	61	E	01	01	01	01	62	2	0	00
876241370	87091000	04.328	3335	994	019700	18	01	25	08	S-2UN	0	14	03	01	01	01	01	02	R	1	N	03	01	03	03	46	E	01	01	01	01	49	2	0	00
876236070	87091000	04.328	3335	994	019700	18	02	01	19	S-2UN	0	14	01	04	01	01	01	02	R	1	W	01	01	03	03	20	E	01	01	01	01	28	2	0	00
873291700Y	87091000	04.328	3335	994	019700	18	02	08	21	S-2UN	0	32	77	05	01	01	01	01	S	1	S	01	01	01	01	27							1	0	00
876337400	87091000	04.328	3335	994	019700	18	04	26	17	S-2UN	0	14	03	01	01	01	01	02	R	1	N	16	01	01	03	22	E	01	01	01	01	34	2	0	00
876407230	87091000	04.328	3335	994	019700	18	06	12	18	S-2UN	0	14	03	01	01	01	01	02	I	M	N	01	01	03	03	33	S	03	01	01	01	29	2	0	00
872152180	87091000	04.328	3335	994	019700	18	08	07	13	S-2UN	0	14	03	01	01	01	01	02	R	1	N	03	01	05	03	47	E	01	01	01	01	66	2	0	00
872504440	87091000	04.328	3335	994	019700	18	08	15	17	S-2UN	0	14	03	01	01	01	01	02	R	1	S	00	01	01	02	00	E	01	01	01	01	92	2	0	00
872639170	87091000	04.328	3335	994	019700	18	09	03	00	S-2UN	0	14	03	05	03	02	01	02	L	1	W	01	01	01	13	19	N	02	01	01	01	32	2	0	01
876529260	87091000	04.328	3335	994	019700	18	09	29	19	S-2UN	0	14	02	05	01	01	01	02	R	1	W	01	01	03	03	23	E	01	01	01	01	54	2	0	00
876610450	87091000	04.328	3335	994	019700	18	11	11	19	S-2UN	0	14	03	05	01	01	01	03	S	1	S	01	01	05	02	27	N	01	01	13	01	20	2	0	00
880312290	87091000	04.328	3335	994	019700	18	11	15	08	S-2UN	0	14	03	01	02	02	01	02	R	1	W	16	01	03	03	63	E	03	01	01	01	43	3	0	06
876626110	87091000	04.328	3335	994	019700	18	11	25	12	S-2UN	0	14	03	01	01	01	01	02	R	1	W	02	01	01	02	00	N	16	01	01	01	71	2	0	00
876546760	87091000	04.328	3335	994	019700	18	11	29	15	S-2UN	0	14	03	01	01	01	01	02	I	M	N	16	01	03	02	37	S	03	01	01	01	49	2	0	00
876595630Y	87091000	04.328	3335	994	019700	18	12	15	21	S-2UN	0	32	77	05	01	01	01	01	S	S	S	01	01	01	02	49							1	0	00
880587760	87091000	04.328	3335	994	019700	18	12	21	12	S-2UN	0	14	03	01	02	01	01	02	R	1	W	01	01	03	03	27	E	01	01	01	01	54	2	0	02
880227240	87091000	04.328	3335	994	019700	18	12	31	14	S-2UN	0	14	03	01	01	01	01	02	L	1	S	03	01	05	13	24	W	01	01	01	01	17	2	0	00
837198920	87091000	04.330	3335	994	017500	14	02	10	07	S-2UN	0	14	01	01	01	01	01	02	L	1	W	02	01	01	01	61	W	01	01	13	01	41	2	0	02
872869210	87091000	04.330	3335	994	019700	18	09	01	15	S-2UN	0	39	77	01	02	01	01	03	R	S	N	01	01	03	03	24	E	16	01	01	01	16	2	0	02
872639030	87091000	04.337	3335	994	019700	18	08	11	23	S-2UN	0	30	77	05	02	02	01	03	R	S	E	01	01	05	02	49							1	0	00
876199850	87091000	04.356	3335	994	019700	18	04	29	00	S-2UN	0	38	88	88	77	88	88	01	L	S	U	77	88	88	77	00							1	0	01
848677070	87091000	04.397	8551	994	017900	15	06	04	09	S-2UN	0	09	77	01	02	01	01	03	L	S	W	01	00	77		00	W	01	01	01	01	27	2	0	00
867057730	87091000	04.406	8551	994	018500	16	10	20	18	S-2UN	0	14	01	01	03	02	01	03	L	1	W	01	01	01	02	32	W	03	01	01	01	56	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF CRASH	SEVERITY	ADT	VARIANCE	YEAR	MONTH	DAY	HOUR	CRASH SEVERITY	ALCOHOL	HAZ MAT	MOTOR VEHICLE	LIGHT CONDITION	WEATHER	ROAD SURFACE	ROAD OBJECT	DAMAGE LOCATION	DRIVER LICENSE	ACCIDENT TYPE	VEHICLE 1	VEHICLE 1	VEHICLE 1 DRIVER	VEHICLE 1 DRIVER	VEHICLE 1 DRIVER	VEHICLE 2	VEHICLE 2 DRIVER	VEHICLE 2	VEHICLE 2 DRIVER	VEHICLE 2 DRIVER	NUMBER OF VEHICLES	NUMBER OF PERSONS	# OF VEHICLES	# OF KILLED	# OF INJURED
872481230	87091000	04.416	8551	994	019700	18	08	23	16	S-2UN	0	14	01	01	01	01	01	01	L	2	W	01	01	01	02	16	W	01	01	13	01	70	2	0	01
852699290	87091000	04.420	8551	994	018700	17	06	08	08	S-2UN	0	14	01	01	03	02	01	01	L	2	W	01	01	01	12	16	W	01	01	13	01	64	3	0	01
845450470	87091000	04.421	8551	994	017900	15	01	24	21	S-2UN	0	36	77	04	01	01	01	02	R	S	E	01	01	01	02	59							1	0	00
851233630	87091000	04.423	8551	994	017900	15	09	04	08	S-2UN	0	14	01	01	01	01	01	02	R	1	E	01	01	01	02	49	E	16	01	14	01	29	2	0	00
843475620	87091000	04.425	8551	994	017500	14	02	06	07	S-2UN	0	14	04	01	01	01	01	02	R	1	N	01	01	05	03	31	E	01	01	01	01	16	2	0	00
852713670	87091000	04.425	8551	994	018500	16	03	30	19	S-2UN	0	14	01	01	01	01	01	02	R	1	N	01	01	05	03	56	E	02	01	01	01	38	2	0	00
852917760	87091000	04.425	8551	994	018500	16	05	28	17	S-2UN	0	32	77	01	02	01	01	02	R	S	E	03	01	01	02	64							1	0	00
854728440	87091000	04.425	8551	994	018700	17	04	22	21	S-2UN	0	14	77	04	02	01	01	02	I	M	E	02	01	10	03	67	E	16	01	01	01	60	2	0	00
855714920	87091000	04.427	8551	994	018700	17	08	29	07	S-2UN	0	14	01	01	01	01	01	03	L	1	W	02	01	01	02	50	W	16	01	13	01	40	2	0	00
853335350	87091000	04.429	8551	994	018500	16	07	16	16	S-2UN	0	14	01	01	02	01	01	03	L	1	W	01	01	01	02	27	W	01	01	14	01	19	2	0	00
854226150	87091000	04.430	8551	994	018500	16	11	16	07	S-2UN	0	14	01	01	01	01	01	03	L	1	W	16	01	01	02	60	W	01	01	13	01	43	2	0	02
845281810	87091000	04.434	8551	994	017900	15	02	25	13	S-2UN	0	14	01	01	02	01	01	02	L	2	W	16	01	01	02	20	W	16	01	13	01	30	3	0	00
855354250	87091000	04.434	8551	994	018700	17	08	22	07	S-2UN	0	14	01	01	02	02	01	03	L	2	W	01	01	01	02	28	W	01	01	14	01	28	2	0	01
854374270	87091000	04.453	8552	994	018700	17	03	28	08	S-2UN	0	14	01	01	02	01	01	03	L	1	W	01	01	01	02	40	W	01	01	14	01	44	2	0	00
855306620	87091000	04.453	8552	994	018700	17	05	27	10	S-2UN	0	14	01	01	01	01	01	04	L	1	W	01	01	01	02	33	W	01	01	01	01	69	2	0	00
859804910	87091000	04.457	8552	994	017900	15	07	21	10	S-2UN	0	14	03	01	01	01	01	02	R	1	N	03	01	03	03	26	E	01	01	01	01	35	2	0	01
855146510	87091000	04.463	8552	994	018700	17	05	06	17	S-2UN	0	14	01	01	01	01	01	03	R	1	E	16	01	01	02	25	E	01	01	13	01	47	2	0	00
843557550	87091000	04.490	8553	994	017500	14	03	25	13	S-2UN	0	14	03	01	01	01	01	02	L	1	E	01	01	03	06	20	S	03	01	14	01	56	2	0	01
845021000	87091000	04.490	8553	994	017500	14	11	08	19	S-2UN	0	14	01	04	01	01	01	02	L	1	W	01	01	01	02	20	W	03	01	01	01	56	2	0	02
854768210	87091000	04.492	8553	994	018700	17	02	23	20	S-2UN	0	14	01	04	01	01	01	01	L	1	W	01	01	01	02	37	W	16	01	13	01	47	4	0	02
872948500	87091000	04.499	8553	994	019700	18	09	18	07	S-2UN	0	14	01	01	02	02	01	03	L	1	W	02	01	01	02	30	W	01	01	13	01	39	3	0	01
855915850	87091000	04.546	3376	994	018700	17	10	05	08	S-2UN	0	14	01	01	03	02	01	01	R	1	E	01	01	01	02	69	E	01	01	01	01	58	2	0	00
854536810	87091000	04.565	3376	994	018700	17	03	21	08	S-2UN	0	32	77	01	01	01	01	03	R	S	E	03	01	01	02	29							1	0	00
837513480	87091000	04.584	3376	994	017500	14	01	08	14	S-2UN	0	05	77	01	02	01	01	02	L	1	W	20	01	13	77	46	W	01	01	13	01	40	2	0	00
844905170	87091000	04.584	3376	994	017500	14	08	28	13	S-2UN	0	14	01	01	02	01	01	02	L	1	W	16	01	01	02	28	W	01	01	13	01	18	2	0	02
856560690	87091000	04.584	3376	994	017900	15	01	16	15	S-2UN	0	14	01	01	01	01	01	03	R	1	N	01	03	01	10	49	N	16	01	01	01	50	2	0	00
859959690	87091000	04.584	3376	994	017900	15	11	15	10	S-2UN	0	37	77	01	03	02	01	02	T	S	W	03	01	77	30	70							1	0	00
851956670	87091000	04.584	3376	994	017900	15	11	20	12	S-2UN	0	14	03	01	01	01	01	02	R	1	N	01	01	03	03	18	E	12	01	01	01	64	2	0	01
852268560	87091000	04.584	3376	994	018500	16	03	20	20	S-2UN	0	14	03	04	03	02	01	02	R	1	E	11	01	01	77	24	W	16	01	03	01	49	2	1	00
853877170	87091000	04.584	3376	994	018500	16	10	19	09	S-2UN	0	14	02	01	01	01	01	02	R	1	W	01	01	01	30	25	E	01	01	01	01	45	2	0	02
854155290	87091000	04.584	3376	994	018700	17	01	18	22	S-2UN	0	14	01	05	01	01	01	02	R	1	W	01	01	01	02	19	W	01	01	13	01	19	3	0	03
854460650	87091000	04.584	3376	994	018700	17	02	21	20	S-2UN	0	14	01	04	01	01	01	02	L	1	W	16	01	01	02	29	W	01	01	13	01	46	2	0	00
872635920	87091000	04.584	3376	994	019700	18	07	23	20	S-2UN	0	14	03	04	01	01	01	02	R	1	N	01	01	05	03	23	E	16	01	01	01	76	2	0	00
837046460	87091000	04.586	3376	994	017500	14	01	30	17	S-2UN	0	14	01	01	03	02	01	02	L	2	W	16	01	01	02	41	W	01	01	13	01	53	2	0	00
852917840	87091000	04.586	3376	994	018500	16	06	08	15	S-2UN	0	14	01	01	03	02	01	03	L	1	W	03	01	01	02	40	W	16	01	13	01	64	2	0	00
855305660	87091000	04.586	3376	994	018700	17	10	31	19	S-2UN	0	14	01	04	01	01	01	03	L	2	W	01	01	01	02	21	W	01	01	13	01	37	2	0	01
845191090	87091000	04.588	3376	994	017500	14	12	05	08	S-2UN	0	14	01	01	01	01	01	02	L	2	W	01	01	01	02	20	W	03	01	13	01	41	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	STATE ROAD	ADT VAL EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRASH SEVERITY	ALCOHOL	HAZ MATERIAL	MOTOR VEHICLE	LIGHT CONDITION	WEATHER CONDITION	RD SURFACE	RD OBSTACLE	DAY OF WEEK	LANE DIRECTION	ACCIDENT	VEHICLE 1	VEHICLE 1 DRIVER	VEHICLE FAILURE 1	VEHICLE MOVEMENT 1	VEHICLE ACTION 1	VEHICLE CONDITION 1	VEHICLE 2	VEHICLE 2 DRIVER	VEHICLE MOVEMENT 2	VEHICLE ACTION 2	VEHICLE CONDITION 2	NON MOTORIST 2	NON MOTORIST MOVEMENT	NON MOTORIST AGE	# VEHICLES	# KILLED	# INJURED
853647190	87091000	04.588	3376	994	018500	16	07	18	21	S-2UN	0	14	01	05	03	02	01	03	L	1	W	01	01	01	02	30	W	03	01	14	01		45	2	0	01
854901100	87091000	04.588	3376	994	018700	17	04	24	13	S-2UN	0	14	01	01	01	01	01	01	L	1	W	01	01	01	02	57	W	16	01	13	01		40	2	0	01
855504910	87091000	04.589	3376	994	018700	17	06	23	16	S-2UN	0	14	01	01	01	01	01	03	L	2	W	01	01	01	02	20	W	03	01	13	01		34	2	0	03
855354420	87091000	04.589	3376	994	018700	17	09	05	09	S-2UN	0	14	01	01	02	01	01	03	L	1	W	16	01	01	02	30	W	03	01	14	01		61	2	0	01
843443950	87091000	04.590	3376	994	017500	14	01	13	17	S-2UN	0	14	01	01	01	01	01	02	L	1	W	01	01	01	02	20	W	16	01	13	01		74	2	0	01
853797870	87091000	04.590	3376	994	018500	16	09	21	16	S-2UN	0	14	01	01	01	01	01	03	L	1	W	16	01	01	02	29	W	01	01	13	01		30	3	0	00
854333960	87091000	04.590	3376	994	018700	17	02	07	22	S-2UN	0	27	77	04	01	01	01	03	R	S	E	01	01	01	01	44								1	0	00
853513620	87091000	04.591	3376	994	018500	16	07	06	10	S-2UN	0	14	01	01	02	01	01	02	L	1	W	03	01	01	02	67	W	03	01	13	01		18	2	0	01
843525610	87091000	04.593	3376	994	017500	14	02	27	18	S-2UN	0	14	01	04	02	02	01	02	L	1	W	01	01	01	02	26	W	01	01	13	01		30	3	0	01
848677150	87091000	04.593	3376	994	017900	15	06	27	11	S-2UN	0	14	01	01	03	02	01	02	L	1	W	01	01	01	02	53	W	01	01	14	01		31	3	0	00
853335430	87091000	04.593	3376	994	018500	16	07	18	21	S-2UN	0	14	01	05	03	02	01	03	L	1	W	01	01	01	02	22	W	01	01	13	01		49	2	0	00
854154780	87091000	04.593	3376	994	018500	16	11	08	20	S-2UN	0	14	01	05	02	01	01	03	L	1	W	01	01	01	02	27	W	01	01	14	01		21	2	0	01
872580130	87091000	04.598	3376	994	019700	18	07	11	07	S-2UN	0	14	01	01	02	01	01	03	L	1	W	02	01	01	02	43	W	03	01	13	01		32	2	0	02
851233620	87091000	04.603	3376	994	017900	15	09	03	08	S-2UN	0	22	77	01	02	01	01	01	L	S	W	00	01	11		00	W	19	01	01	01		43	2	0	00
852338810	87091000	04.603	3376	994	018500	16	03	04	08	S-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	31	E	01	01	13	01		22	3	0	00
852338820	87091000	04.603	3376	994	018500	16	03	04	08	S-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	34	E	01	01	14	01		31	2	0	00
876344630	87091000	04.603	3376	994	019700	18	04	28	15	S-2UN	0	14	01	01	01	01	01	01	R	1	W	03	01	01	02	54	W	01	01	13	01		26	3	0	02
872420220	87091000	04.603	3376	994	019700	18	06	08	16	S-2UN	0	14	01	01	01	01	01	03	L	2	W	01	01	01	02	27	W	16	01	14	01		19	3	0	00
852034690	87091000	04.612	3376	994	017900	15	10	14	08	S-2UN	0	14	01	01	02	01	01	03	L	1	W	16	01	01	01	26	W	03	01	13	01		30	3	0	03
852699190	87091000	04.622	3336	994	018500	16	04	21	10	S-2UN	0	14	01	01	01	01	01	03	L	2	W	01	01	01	10	57	W	03	01	13	01		54	2	0	02
854455170	87091000	04.622	3336	994	018700	17	01	31	17	S-2UN	0	14	01	02	01	01	01	01	R	2	E	16	01	01	02	34	E	01	01	77	01		70	3	0	01
871130180	87091000	04.622	3336	994	019700	18	01	24	17	S-2UN	0	14	01	01	01	01	01	03	L	2	W	01	01	01	02	61	W	01	01	13	01		45	2	0	01
872151930	87091000	04.679	7385	994	019700	18	06	29	15	S-2UN	0	14	01	01	03	02	01	01	L	2	W	01	01	01	02	21	W	16	01	01	01		53	2	0	00
872481100	87091000	04.679	7385	994	019700	18	08	03	17	S-2UN	0	14	01	01	01	01	01	01	L	2	W	16	01	01	02	63	W	03	01	13	01		65	2	0	01
872414630	87091000	04.679	7385	994	019700	18	08	14	09	S-2UN	0	14	01	01	02	02	01	01	R	2	E	16	01	01	02	22	E	01	01	13	01		52	3	0	00
851233640	87091000	04.692	3337	994	017900	15	09	04	07	S-2UN	0	14	01	01	01	01	01	03	R	1	E	20	01	01	02	56	E	01	01	14	01		29	3	0	01
852121180	87091000	04.692	3337	994	017900	15	11	19	08	S-2UN	0	14	01	01	02	02	01	03	R	1	E	16	01	01	02	51	E	01	01	14	01		17	2	0	00
845399670	87091000	04.702	3337	994	017900	15	03	05	19	S-2UN	0	14	01	05	01	01	01	02	L	1	W	16	01	01	02	38	W	01	01	13	01		28	3	0	00
872148300	87091000	04.702	3337	994	019700	18	04	30	18	S-2UN	0	14	01	01	01	01	01	01	L	1	E	03	01	16	30	36	W	01	01	01	01		36	2	0	00
852687820	87091000	04.705	3337	994	018500	16	04	05	20	S-2UN	0	14	01	05	01	01	01	03	R	1	E	03	01	01	02	29	E	01	01	13	01		23	3	0	01
855505110	87091000	04.706	3337	994	018700	17	07	24	21	S-2UN	0	11	01	05	01	01	01	03	R	2	E	03	01	01	02	61	*	03	05	03	01	00	16	1	0	01
872062900	87091000	04.706	3337	994	019700	18	06	01	19	S-2UN	0	14	01	01	01	01	01	03	R	2	E	01	01	01	02	40	E	01	01	13	01		22	2	0	00
859745270	87091000	04.709	3337	994	017900	15	06	03	16	S-2UN	0	14	01	01	01	01	01	02	R	1	E	03	01	01	10	72	E	01	01	14	01		40	2	0	00
855149020	87091000	04.709	3337	994	018700	17	04	29	21	S-2UN	0	14	01	05	02	02	01	03	R	2	E	01	01	01	02	20	E	01	01	13	01		21	2	0	01
845025960	87091000	04.711	3337	994	017500	14	11	25	17	S-2UN	0	14	03	04	01	01	01	02	L	1	S	01	01	05	13	23	W	03	01	01	01		40	2	0	00
851798710	87091000	04.711	3337	994	017900	15	09	10	14	S-2UN	0	14	03	01	02	01	01	02	L	1	S	01	01	03	13	27	W	16	01	01	01		45	2	0	00
853506560	87091000	04.711	3337	994	018500	16	09	26	20	S-2UN	0	14	03	05	01	01	01	02	R	1	N	01	01	01	13	21	E	03	01	01	01		40	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	STATE ROAD	ADT	YEAR	MONTH	DAY	HOUR	CRASH SEVERITY	ALCOHOL INVOLVED	HAZARDOUS MATERIAL	MOTOR VEHICLE INVOLVED	LIGHT CONDITION	WEATHER CONDITION	RAMP	ROAD OCCUPIED	DAYLIGHT SAVING TIME	CRASH DATE	DAY OF WEEK	ACCIDENT TYPE	VEHICLE 1	VEHICLE 1 DRIVER	VEHICLE FAULT 1	VEHICLE MOVEMENT 1A	VEHICLE ACTION 1C	VEHICLE DIRECTION 1A	VEHICLE DEFECT 2	VEHICLE 2	VEHICLE 2 DRIVER	VEHICLE MOVEMENT 2	VEHICLE ACTION 2	NUMBER OF VEHICLES	NUMBER OF PERSONS	# VEHICLES	# KILLED	# INJURED
873203150	87091000	04.711	3337	994	018700	17	08	30	18	S-2UN	0	14	01	01	01	01	01	03	S	1	N	16	01	01	02	24	N	01	01	13	01	23	2	0	00
880321190	87091000	04.711	3337	994	019700	18	12	25	21	S-2UN	0	14	03	05	01	01	01	02	L	1	S	03	01	01	13	39	W	01	01	01	01	30	2	0	03
853686100	87091000	04.712	3337	994	018500	16	08	18	07	S-2UN	0	14	03	01	03	02	01	02	L	1	S	16	01	01	03	90	W	01	01	01	01	53	2	0	04
859961520	87091000	04.717	3337	994	017900	15	11	06	17	S-2UN	0	13	77	01	01	01	01	02	L	1	W	16	01	01	01	63							1	0	00
854551140	87091000	04.774	9395	994	018700	17	03	25	19	S-2UN	0	14	01	05	02	01	01	02	L	2	W	01	01	01	02	25	W	16	01	13	01	63	2	0	01
871767230	87091000	04.826	3374	994	019700	18	04	25	15	S-2UN	0	14	02	01	01	01	01	03	R	1	W	16	01	16	02	18	E	16	01	01	01	53	2	0	01
872213190	87091000	04.826	3374	994	019700	18	06	03	02	S-2UN	0	13	77	05	01	01	01	03	R	1	W	01	01	01	01	28							1	0	00
853506660	87091000	04.830	3374	994	018500	16	10	17	17	S-2UN	0	14	01	01	01	01	01	03	L	1	W	02	01	01	02	40	W	03	01	13	01	63	3	0	00
876431530	87091000	04.833	3374	994	019700	18	07	16	17	S-2UN	0	14	01	01	03	02	01	03	R	1	W	01	01	01	10	21	W	02	01	01	01	33	2	0	00
855915750	87091000	04.834	3374	994	018700	17	09	22	07	S-2UN	0	14	01	01	02	01	01	03	R	1	E	01	01	01	02	61	E	03	01	13	01	53	2	0	00
837181260	87091000	04.835	3374	994	017500	14	03	01	05	S-2UN	0	14	02	05	02	01	01	02	R	1	W	01	01	03	03	23	E	01	01	01	01	51	2	0	00
844866520	87091000	04.835	3374	994	017500	14	09	26	08	S-2UN	0	14	01	01	02	02	01	02	R	1	E	01	01	01	01	41	E	02	01	13	01	39	2	0	00
845542800	87091000	04.835	3374	994	017900	15	05	05	08	S-2UN	0	14	01	01	03	02	01	02	L	1	W	17	01	01	02	42	W	16	01	13	01	35	2	0	00
853647690	87091000	04.835	3374	994	018500	16	09	09	18	S-2UN	0	14	03	01	02	01	01	02	L	1	S	01	01	03	03	17	W	02	01	01	01	36	2	0	00
867121100	87091000	04.835	3374	994	018500	16	11	24	12	S-2UN	0	32	01	01	01	01	01	03	S	M	W	01	01	01	77	71							1	0	00
868988650	87091000	04.835	3374	994	018700	17	04	05	08	S-2UN	0	14	01	01	01	01	01	03	S	2	S	01	01	01	02	28	N	16	01	13	01	31	2	0	00
872156410	87091000	04.835	3374	994	019700	18	04	17	07	S-2UN	0	14	03	01	02	01	01	02	R	1	N	01	01	05	03	47	E	01	01	01	01	49	2	0	01
854060260	87091000	04.838	3374	994	018500	16	10	05	06	S-2UN	0	14	03	01	02	02	01	02	L	1	E	01	01	03	03	25	W	16	01	01	01	32	2	0	02
831602150	87091000	04.839	3374	994	018500	16	06	16	19	S-2UN	0	14	04	01	02	01	01	03	L	1	W	01	01	01		00	W	16	01	13	01	27	2	0	00
871669520	87091000	04.844	3374	994	019700	18	06	20	14	S-2UN	0	14	01	01	01	01	01	03	L	1	W	20	01	01	02	24	W	01	01	01	01	56	2	0	01
845120900	87091000	04.846	3374	994	017500	14	10	18	15	S-2UN	0	14	01	01	01	01	01	01	L	1	W	01	01	77	77	22	W	16	01	77	77	39	3	0	02
851881520	87091000	04.854	3374	994	017900	15	09	17	18	S-2UN	0	14	01	01	03	02	01	03	L	2	W	01	01	01	02	20	W	01	01	13	01	38	2	0	01
872152200	87091000	04.873	3374	994	019700	18	08	08	15	S-2UN	0	14	02	01	01	01	01	01	L	1	E	01	01	01	02	78	W	03	01	01	01	80	2	0	01
848597630	87091000	04.892	3374	994	018700	17	10	15	01	S-2UN	0	36	77	04	01	01	01	01	R	2	E	16	01	01	01	53							1	0	00
853902780	87091000	04.938	3374	994	018500	16	10	25	22	S-2UN	0	14	01	04	01	01	01	01	R	2	E	03	01	01	02	18	E	03	01	13	01	24	2	0	00
854753790	87091000	04.956	3374	994	018700	17	02	03	08	S-2UN	0	14	01	01	01	01	01	01	L	1	W	02	01	01	02	25	W	03	01	13	01	45	2	0	02
843789390	87091000	04.995	3375	994	038000	14	11	14	22	U-2DP	0	14	03	04	01	01	01	04	L	1	S	02	01	10	02	53	W	01	03	01	01	41	2	0	00
850885870	87091000	04.995	3375	994	034500	15	11	12	07	U-2DP	0	14	04	01	01	01	01	01	L	U	W	01	01	77	03	62	W	08	12	01	01	41	2	0	00
856597440	87091000	04.995	3375	994	035000	16	01	15	14	U-2DP	0	14	01	01	03	02	01	01	R	2	E	02	01	01	02	71	E	01	01	01	01	39	2	0	00
873231990	87091000	04.995	3375	994	032000	17	09	05	07	U-2DP	0	14	01	01	01	01	01	01	R	1	E	01	01	01	10	27	E	01	01	01	01	31	2	0	00
852338530	87091000	05.052	3375	994	034500	15	12	05	11	U-2DP	1	24	77	01	03	02	01	03	R	S	E	03	01	01	02	58							1	0	01
873267170	87091000	05.052	3375	994	019700	18	02	02	18	U-2DP	0	14	03	02	01	01	01	01	L	1	W	01	01	10	02	00	W	01	01	01	01	42	2	0	00
880207690	87091000	05.052	3375	994	019700	18	10	20	14	U-2DP	0	14	04	01	01	01	01	01	L	1	W	01	01	06	25	21	W	01	01	01	01	53	2	0	00
853050190	87091000	05.062	3375	994	035000	16	05	13	15	U-2DP	0	14	01	01	02	01	01	01	R	2	E	01	01	01	02	23	E	01	01	13	01	49	2	0	00
872112220	87091000	05.062	3375	994	019700	18	07	01	22	U-2DP	0	14	05	05	01	01	01	04	L	1	E	01	01	01	25	43	W	16	01	01	01	48	2	0	02
854667230	87091000	05.067	3375	994	032000	17	02	01	07	U-2DP	0	14	03	01	01	01	01	03	R	L	E	01	01	05	03	29	E	01	01	01	01	19	2	0	01
838016870	87091000	05.071	3375	994	038000	14	07	30	20	U-2DP	0	14	04	04	02	02	01	01	R	1	W	16	01	06	25	36	W	01	01	01	01	46	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	STATE ROAD	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRASH SEVERITY	ALCOHOL	HIT AND RUN	MOTOR VEHICLE	LIGHT CONDITION	WEATHER	RAMP	ROAD OCCUPIED	DAY OF WEEK	LOCATION	ACCIDENT	VEHICLE 1	VEHICLE 1	VEHICLE 1 DRIVER	VEHICLE 1 DRIVER	VEHICLE 1 DRIVER	VEHICLE 2	VEHICLE 2 DRIVER	VEHICLE 2 DRIVER	VEHICLE 2 DRIVER	VEHICLE 1 MOTOR	VEHICLE 2 MOTOR	NUMBER OF VEHICLES	VEHICLE MAKE	# CRASH	# VEHICLE	# KILLED	# INJURED
852233960	87091000	05.071	3375	994	034500	15	11	04	15	U-2DP	0	14	01	01	02	01	01	01	R	2	E	11	01	01	02	24	E	01	01	14	01		28	2	0	01
853032220	87091000	05.071	3375	994	035000	16	04	13	06	U-2DP	0	14	03	01	01	01	01	01	L	1	W	01	01	03	02	51	W	01	01	01	01		28	2	0	02
855354110	87091000	05.071	3375	994	032000	17	07	21	09	U-2DP	0	14	03	01	02	01	01	01	M	T	N	16	01	03	03	49	E	01	01	01	01		65	2	0	00
855962070	87091000	05.071	3375	994	032000	17	09	27	06	U-2DP	0	14	03	04	01	01	01	04	R	1	N	01	01	17	03	21	E	16	01	01	01		40	2	0	00
873135710	87091000	05.071	3375	994	032000	17	10	01	19	U-2DP	0	14	03	02	01	01	01	01	L	1	W	03	01	01	01	57	W	01	01	01	01		27	2	0	00
868984090	87091000	05.076	3375	994	032000	17	02	06	19	U-2DP	0	14	04	02	01	01	01	03	R	2	E	02	01	01	77	63	E	16	01	01	77		17	2	0	00
880381440	87091000	05.076	3375	994	019700	18	12	04	08	U-2DP	0	14	03	01	02	01	01	04	R	1	N	01	01	03	03	00	E	01	01	01	01		36	2	0	00
876548780	87091000	05.079	3375	994	019700	18	09	30	09	U-2DP	0	14	04	01	01	01	01	01	L	1	W	03	88	06	02	00	W	16	01	01	01		47	2	0	00
866910500	87091000	05.081	3375	994	035000	16	12	08	09	U-2DP	0	14	01	01	02	01	01	03	R	1	E	08	12	01	10	37	E	01	01	03	01		25	2	0	00
880226890	87091000	05.081	3375	994	019700	18	11	09	14	U-2DP	0	14	04	01	01	01	01	03	L	1	W	01	01	06	77	31	W	20	01	01	01		38	2	0	00
865108870	87091000	05.084	3375	994	035000	16	03	28	21	U-2DP	0	14	03	04	01	01	01	04	R	1	N	01	01	03	03	34	E	11	01	01	01		18	2	0	00
854914640	87091000	05.084	3375	994	032000	17	03	14	15	U-2DP	0	14	01	01	01	01	01	03	R	2	E	03	01	01	02	35	E	16	01	13	01		41	2	0	00
855787580	87091000	05.084	3375	994	032000	17	10	10	17	U-2DP	0	14	01	01	01	01	01	03	R	2	E	01	01	01	02	28	E	01	01	13	01		30	2	0	00
855421770	87091000	05.085	3375	994	032000	17	09	26	17	U-2DP	0	14	04	01	01	01	01	01	L	1	W	16	01	88	77	39	W	01	01	88	77		24	2	0	00
872481450	87091000	05.085	3375	994	019700	18	09	28	20	U-2DP	0	14	01	04	02	02	01	03	R	2	E	01	01	01	02	72	E	16	01	13	01		27	3	0	03
844841310	87091000	05.088	3375	994	038000	14	07	29	14	U-2DP	0	14	01	01	02	02	01	02	R	1	E	03	01	01	02	58	E	16	01	13	01		54	2	0	00
843443320	87091000	05.090	3375	994	038000	14	01	10	03	U-2DP	0	32	01	04	01	01	01	02	L	S	W	03	01	03	12	47								1	0	01
843496340	87091000	05.090	3375	994	038000	14	02	04	16	U-2DP	0	14	02	01	01	01	01	02	L	1	N	01	01	03	02	62	S	01	01	01	01		31	2	0	01
843469960	87091000	05.090	3375	994	038000	14	02	06	17	U-2DP	0	14	01	01	01	01	01	02	T	1	N	01	01	01	02	22	N	01	01	14	01		70	2	0	00
837199070	87091000	05.090	3375	994	038000	14	02	24	08	U-2DP	0	14	03	01	01	01	01	02	R	1	E	16	01	01	01	26	N	16	01	01	01		39	2	0	03
838084980	87091000	05.090	3375	994	038000	14	06	01	11	U-2DP	0	10	01	01	01	01	01	02	R	1	N	03	01	01	01	51	N	03	01	13	01		50	2	0	00
843598620	87091000	05.090	3375	994	038000	14	06	13	22	U-2DP	0	14	88	88	77	88	88	02	R	2	U	77	01	88	77	00	U	01	01	01	01		20	2	0	00
838079770	87091000	05.090	3375	994	038000	14	07	05	13	U-2DP	0	14	03	01	03	02	01	02	R	2	W	01	01	03	03	35	E	02	01	01	01		30	2	0	01
838003960	87091000	05.090	3375	994	038000	14	07	27	22	U-2DP	0	14	03	04	01	01	01	02	L	1	E	16	01	03	03	35	W	01	01	01	01		48	2	0	00
838000850	87091000	05.090	3375	994	038000	14	08	15	17	U-2DP	0	14	03	01	02	02	01	02	R	1	W	03	01	03	03	70	E	01	01	01	01		20	2	0	02
843710990	87091000	05.090	3375	994	038000	14	09	19	05	U-2DP	0	14	03	01	01	01	01	02	L	1	E	01	01	03	03	34	W	01	01	01	01		23	2	0	00
843775620	87091000	05.090	3375	994	038000	14	09	22	07	U-2DP	0	14	03	01	01	01	01	02	R	1	S	02	01	01	13	26	W	03	01	01	01		53	3	0	01
843763630	87091000	05.090	3375	994	038000	14	10	19	20	U-2DP	0	14	05	04	01	01	01	02	I	M	S	01	01	03	03	43	N	01	01	01	01		20	2	0	00
844970900	87091000	05.090	3375	994	038000	14	10	27	20	U-2DP	0	14	03	04	01	01	01	02	S	1	N	03	01	05	02	41	N	01	01	13	01		21	2	0	00
845199220	87091000	05.090	3375	994	038000	14	11	09	17	U-2DP	0	14	03	01	03	02	01	02	I	M	N	16	01	03	03	73	S	03	01	01	01		56	2	0	00
843844790Y	87091000	05.090	3375	994	038000	14	11	14	16	U-2DP	0	14	04	01	01	01	01	03	T	1	S	01	01	06	03	21	S	03	01	01	01		34	3	0	00
845019210	87091000	05.090	3375	994	038000	14	11	25	06	U-2DP	0	14	01	04	01	01	01	02	S	1	N	01	01	01		00	N	01	01	13	01		54	2	0	01
845566410	87091000	05.090	3375	994	034500	15	01	10	18	U-2DP	0	14	03	04	01	01	01	02	R	3	W	01	01	03	03	69	E	01	01	01	01		28	2	0	00
843809950	87091000	05.090	3375	994	034500	15	01	24	12	U-2DP	0	14	01	01	02	01	01	02	S	1	S	03	01	01	10	50	S	16	01	14	01		52	2	0	00
843413720Y	87091000	05.090	3375	994	034500	15	02	10	08	U-2DP	0	14	03	01	01	01	01	04	S	S	N	01	01	77	25	19	N	01	01	05	01		26	2	0	00
856675690	87091000	05.090	3375	994	034500	15	05	19	14	U-2DP	0	14	04	01	01	01	01	02	S	L	N	01	01	01	02	63	N	02	01	01	01		64	2	0	00
848873630	87091000	05.090	3375	994	034500	15	05	26	21	U-2DP	0	14	01	04	01	01	01	02	L	1	S	01	01	03	03	24	N	01	01	01	01		52	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF CRASH	SEVERITY	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE HSGO RY	ALCINV	HAZARD MENFUTL 1	MOTOR VEHICLE NCEOTRL	LIGHT CONDITION	WEATHER	RDWY SURFACE	RDWY OCCUPIED	DIVIDED	LANE DESIGN	RAMP CONDITION	ACCESS CONTROL	VEHICLE 1	VEHICLE 1	VEHICLE 1 DRIVER	VEHICLE 1 INJURY SEVERITY	VEHICLE 1 UNIT TYPE	VEHICLE 1 MAKE	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	VEHICLE 2	NUMBER OF VEHICLES	NUMBER OF PERSONS	# # #
859812810	87091000	05.090	3375	994	034500	15	07	29	20	U-2DP	0	14	01	01	01	01	01	02	S	1	N	03	01	01	77	00	N	03	01	13	01		46	2	0	00
851204970	87091000	05.090	3375	994	034500	15	09	12	08	U-2DP	0	14	04	01	01	01	01	02	L	2	W	01	01	05	03	51	W	01	01	01	01		23	2	0	00
851881480	87091000	05.090	3375	994	034500	15	09	12	19	U-2DP	0	14	03	02	01	01	01	02	R	2	W	03	01	03	03	69	E	01	01	01	01		19	2	0	00
850884050	87091000	05.090	3375	994	034500	15	09	18	20	U-2DP	0	14	04	01	01	01	01	02	S	1	N	20	01	06	02	36	N	08	12	77	01		52	2	0	00
859952230Y	87091000	05.090	3375	994	034500	15	11	11	11	U-2DP	0	14	04	01	01	01	01	03	S	1	N	16	01	01	02	63	N	01	01	01	01		50	2	0	00
851985020	87091000	05.090	3375	994	034500	15	11	26	11	U-2DP	0	14	03	01	01	01	01	02	L	2	W	01	01	01	11	45	N	01	01	01	01		41	3	0	00
856582310	87091000	05.090	3375	994	035000	16	01	14	19	U-2DP	0	14	02	04	03	02	01	02	I	M	S	01	01	13	28	29	N	03	01	03	01		32	2	0	00
859807280Y	87091000	05.090	3375	994	035000	16	01	20	07	U-2DP	0	14	04	01	01	01	01	03	S	L	N	01	01	01	02	20	N	01	01	01	01		33	2	0	00
859797590	87091000	05.090	3375	994	035000	16	02	12	15	U-2DP	0	14	03	01	01	01	01	04	L	2	W	01	01	01	03	57	S	01	01	01	01		33	2	0	00
863303030	87091000	05.090	3375	994	035000	16	02	26	17	U-2DP	0	14	04	01	01	01	01	03	L	L	S	01	01	06	02	47	S	01	01	01	01		31	2	0	00
863315260	87091000	05.090	3375	994	035000	16	03	18	15	U-2DP	0	14	77	01	01	01	01	04	L	1	E	01	01	01	03	18	S	01	01	01	01		16	2	0	00
865180930	87091000	05.090	3375	994	035000	16	05	14	14	U-2DP	0	14	05	01	01	01	01	02	S	1	S	12	01	05	25	51	N	01	01	13	01		75	2	0	01
865192380Y	87091000	05.090	3375	994	035000	16	05	18	18	U-2DP	0	14	01	01	01	01	01	03	S	1	S	02	01	01	02	30	S	01	01	13	30		45	2	0	00
865093790Y	87091000	05.090	3375	994	035000	16	05	19	07	U-2DP	0	14	03	01	01	01	01	04	S	1	N	01	01	11	15	27	W	01	01	01	03		20	2	0	00
852917660	87091000	05.090	3375	994	035000	16	05	20	16	U-2DP	0	14	03	01	01	01	01	02	R	2	W	01	01	03	03	22	E	03	01	01			00	2	0	01
853334800	87091000	05.090	3375	994	035000	16	05	31	14	U-2DP	0	14	03	01	02	02	01	02	R	2	E	01	01	01	11	34	S	01	01	01	01		30	2	0	00
852899970	87091000	05.090	3375	994	035000	16	06	12	22	U-2DP	0	14	03	04	01	01	01	02	R	1	E	01	01	01	11	17	W	01	01	03	01		50	2	0	00
853277040	87091000	05.090	3375	994	035000	16	07	08	11	U-2DP	0	14	03	01	01	01	01	02	R	2	E	16	01	01	11	74	S	16	01	01	01		38	2	0	00
853482210	87091000	05.090	3375	994	035000	16	08	18	16	U-2DP	0	14	77	01	02	01	01	02	R	2	E	16	01	01	02	26	S	03	01	01	02		33	2	0	02
865250850	87091000	05.090	3375	994	035000	16	08	22	21	U-2DP	0	14	02	04	01	01	01	03	S	1	N	01	01	03	02	18	S	01	01	01	01		28	2	0	00
853632400	87091000	05.090	3375	994	035000	16	09	10	07	U-2DP	0	14	03	01	01	01	01	02	R	2	W	01	01	03	03	49	E	19	01	01	01		28	3	0	02
866988300Y	87091000	05.090	3375	994	035000	16	09	14	16	U-2DP	0	14	03	01	01	01	01	03	T	L	S	16	01	06	02	53	S	01	01	13	01		44	2	0	00
854067420	87091000	05.090	3375	994	035000	16	11	25	23	U-2DP	0	14	03	04	01	01	01	02	L	2	W	01	01	03	77	20	E	01	01	01	01		24	2	0	01
868846210	87091000	05.090	3375	994	032000	17	01	15	15	U-2DP	0	14	01	01	01	01	01	01	L	1	S	01	01	01	02	53	S	01	01	01	01		59	2	0	00
867137170	87091000	05.090	3375	994	032000	17	01	19	21	U-2DP	0	14	03	04	01	01	01	02	I	M	E	03	01	03	03	72	W	02	01	01	01		20	2	0	01
868862090Y	87091000	05.090	3375	994	032000	17	01	25	10	U-2DP	0	14	03	01	01	01	01	04	S	1	W	01	01	05	03	61	N	01	01	01	01		35	2	0	00
866911550	87091000	05.090	3375	994	032000	17	01	26	08	U-2DP	0	14	03	01	01	01	01	02	R	1	W	08	01	03	77	00	E	01	01	01	01		34	2	0	00
854333940	87091000	05.090	3375	994	032000	17	02	04	01	U-2DP	0	14	03	04	01	01	01	02	L	2	S	16	01	01	03	32	W	16	01	01	01		42	2	0	04
869030320Y	87091000	05.090	3375	994	032000	17	04	24	19	U-2DP	0	14	03	04	01	01	01	01	T	1	W	03	01	03	03	50	N	01	01	01	01		59	2	0	00
868927970	87091000	05.090	3375	994	032000	17	04	28	07	U-2DP	0	14	01	01	01	01	01	03	S	1	N	16	01	01	02	26	N	01	01	01	01		48	2	0	00
854374290	87091000	05.090	3375	994	032000	17	05	06	07	U-2DP	0	14	03	01	02	01	01	02	R	2	E	00	01	01	03	00	N	01	01	05	01		22	2	0	01
855029520	87091000	05.090	3375	994	032000	17	05	14	00	U-2DP	0	14	03	04	01	01	01	02	I	M	N	01	01	03	03	38	S	01	01	01	01		22	2	0	00
855100500	87091000	05.090	3375	994	032000	17	05	15	20	U-2DP	0	14	03	04	01	01	01	02	L	L	W	16	01	03	06	42	E	01	01	01	01		59	2	0	02
855511140	87091000	05.090	3375	994	032000	17	07	04	09	U-2DP	0	14	03	01	02	01	01	02	L	L	W	01	01	03	06	37	E	01	01	01	01		47	2	0	04
873128700	87091000	05.090	3375	994	032000	17	07	04	21	U-2DP	0	14	01	04	01	01	01	03	S	1	N	16	01	01	02	70	N	16	01	13	01		73	2	0	00
873126940	87091000	05.090	3375	994	032000	17	07	20	14	U-2DP	0	14	04	01	01	01	01	03	S	L	N	16	01	01	25	56	N	02	01	01	25		70	2	0	00
873193290Y	87091000	05.090	3375	994	032000	17	08	12	10	U-2DP	0	14	01	01	01	01	01	03	T	1	S	02	01	01	10	24	S	01	01	13	01		22	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NEAR AOR	STATE ROAD	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRASH RALATIVE SEVERITY	ALCOHOL INVOLVED	HIT AND RUN	MOTOR VEHICLE	LIGHT CONDITION	WEATHER CONDITION	RAMP DIRECTION	ROAD OCCUPIED DURING TCA	DAYLIGHT SAVING TIME	LOCATION	DIRECTION	ACCIDENT	VEHICLE 1	VEHICLE 1	VEHICLE 1U SCOPE	VEHICLE 1A NUMBER	VEHICLE 1C DIRECTION	VEHICLE 1A GEOMETRY	VEHICLE 2 DIRECTION	VEHICLE 2N BODY	VEHICLE 2N FUEL	VEHICLE 2M MOTION	VEHICLE NOT RAGE	VEHICLE 2M CONTACT	NUMBER OF VEHICLES	VEHICLE 2N DAMAGE	# VEHICLES	# KILLED	# INJURED
873170380	87091000	05.090	3375	994	032000	17	09	01	19	U-2DP	0	14	01	01	01	01	01	03	S	1	N	01	01	05	01	36	N	01	01	03	01		66	2	0	00
869030740Y	87091000	05.090	3375	994	032000	17	09	08	08	U-2DP	0	14	03	01	01	01	01	04	S	D	E	02	01	01	03	37	S	16	01	01	01		52	2	0	00
873250920	87091000	05.090	3375	994	032000	17	09	12	10	U-2DP	0	14	03	01	01	01	01	02	L	1	W	03	01	01	13	39	N	01	01	01	01		74	2	0	00
855835950	87091000	05.090	3375	994	032000	17	09	17	13	U-2DP	0	14	03	01	01	01	01	02	R	2	S	88	01	01	77	00	N	16	01	01	01		87	2	0	00
855221440	87091000	05.090	3375	994	032000	17	12	26	18	U-2DP	0	14	77	03	01	01	01	02	R	1	E	01	01	03	03	69	E	01	01	01	01		25	2	0	02
873297640Y	87091000	05.090	3375	994	032000	17	12	29	06	U-2DP	0	14	01	01	01	01	01	03	S	1	N	16	01	01	02	52	N	01	01	01	01		60	3	0	03
871501960	87091000	05.090	3375	994	019700	18	01	08	22	U-2DP	0	14	03	04	01	01	01	02	R	1	E	01	01	01	77	21	S	01	01	01	01		31	2	0	01
876208880Y	87091000	05.090	3375	994	019700	18	01	09	18	U-2DP	0	14	01	04	01	01	01	03	T	1	S	01	01	01	02	42	S	03	01	13	01		63	2	0	00
873306120	87091000	05.090	3375	994	019700	18	01	12	15	U-2DP	0	14	03	01	01	01	01	02	I	M	E	01	01	01	02	22	S	01	01	01	01		50	2	0	01
876218430Y	87091000	05.090	3375	994	019700	18	01	18	08	U-2DP	0	14	01	01	01	01	01	01	T	1	N	16	01	01	01	45	N	01	01	13	01		37	2	0	00
876230120	87091000	05.090	3375	994	019700	18	02	01	12	U-2DP	0	14	01	01	01	01	01	03	T	1	S	16	01	01	02	38	S	01	01	13	01		52	2	0	00
873273000	87091000	05.090	3375	994	019700	18	02	09	16	U-2DP	0	14	04	01	01	01	01	03	S	1	N	16	01	01	02	20	N	16	01	01	01		37	2	0	00
876321810	87091000	05.090	3375	994	019700	18	04	07	10	U-2DP	0	14	04	01	01	01	01	03	T	1	S	20	01	05	25	54	S	01	01	13	01		25	2	0	00
876384980	87091000	05.090	3375	994	019700	18	05	25	08	U-2DP	0	14	04	01	02	01	01	03	S	1	N	88	01	01	77	00	N	02	01	01	01		23	2	0	00
876425660	87091000	05.090	3375	994	019700	18	07	01	19	U-2DP	0	14	02	01	01	01	01	02	I	M	S	01	01	01	11	18	N	01	01	03	11		60	2	0	00
876432120Y	87091000	05.090	3375	994	019700	18	07	01	13	U-2DP	0	14	01	01	02	02	01	01	S	1	S	01	01	01	10	39	S	01	01	13	01		40	2	0	00
876436670	87091000	05.090	3375	994	019700	18	07	05	12	U-2DP	0	14	03	01	01	01	01	03	T	1	N	16	01	05	02	62	S	16	01	13	01		54	2	0	00
876431260	87091000	05.090	3375	994	019700	18	07	12	12	U-2DP	0	14	01	01	01	01	01	03	S	2	N	19	01	01	01	39	N	03	01	01	01		59	2	0	00
876459520	87091000	05.090	3375	994	019700	18	07	25	19	U-2DP	0	14	01	01	01	01	01	03	T	1	0	16	01	06	02	36	S	01	01	13	01		38	2	0	01
876491660	87091000	05.090	3375	994	019700	18	08	22	07	U-2DP	0	14	01	01	01	01	01	03	T	1	S	16	01	01	02	40	S	01	01	13	01		45	2	0	00
876397170Y	87091000	05.090	3375	994	019700	18	08	29	16	U-2DP	0	14	77	01	01	01	01	04	S	1	O	03	01	03	02	57	N	01	01	01	01		29	2	0	00
876531220	87091000	05.090	3375	994	019700	18	09	21	12	U-2DP	0	14	04	01	01	01	01	03	T	1	S	01	01	01	02	18	S	16	01	13	01		28	2	0	00
876460290	87091000	05.090	3375	994	019700	18	09	22	13	U-2DP	0	14	03	01	01	01	01	02	R	2	W	03	01	03	06	31	E	03	01	01	01		22	2	0	00
876533540	87091000	05.090	3375	994	019700	18	10	02	07	U-2DP	0	14	01	01	03	02	01	03	S	1	S	16	01	01	02	31	N	01	01	01	01		36	2	0	00
876559570Y	87091000	05.090	3375	994	019700	18	11	01	08	U-2DP	0	14	03	01	01	01	01	04	S	1	W	01	01	01	02	34	S	01	01	01	01		18	2	0	00
872880130	87091000	05.090	3375	994	019700	18	11	03	12	U-2DP	0	14	03	01	01	01	01	02	I	M	S	03	01	03	03	50	N	16	01	01	01		41	2	0	00
876598490Y	87091000	05.090	3375	994	019700	18	11	06	15	U-2DP	0	14	04	01	01	01	01	01	S	1	0	77	88	88	77	00	N	01	01	13	01		45	2	0	01
876562040Y	87091000	05.090	3375	994	019700	18	11	18	19	U-2DP	0	14	03	04	01	01	01	04	S	1	O	01	01	01	03	40	S	01	01	01	01		47	2	0	00
876633590	87091000	05.090	3375	994	019700	18	11	29	16	U-2DP	0	14	01	01	01	01	01	03	S	3	N	01	01	01	02	45	N	16	01	13	01		33	2	0	00
876634720Y	87091000	05.090	3375	994	019700	18	12	07	19	U-2DP	0	14	01	02	01	01	01	01	S	1	S	01	01	01	10	50	S	16	01	14	01		39	2	0	00
876652290	87091000	05.090	3375	994	019700	18	12	13	10	U-2DP	0	14	03	01	02	01	01	03	S	L	N	16	01	01	25	54	N	16	01	13	01		28	2	0	00
845232330	87091000	05.092	3375	994	038000	14	12	31	19	U-4DP	0	14	04	04	01	01	01	02	L	R	W	16	01	06	15	52	W	01	01	13	01		32	2	0	00
851881560	87091000	05.092	3375	994	034500	15	09	22	06	U-4DP	0	14	01	04	01	01	01	02	L	L	W	01	01	01	02	22	W	03	01	13	01		49	2	0	00
854939180	87091000	05.092	3375	994	032000	17	03	07	21	U-4DP	0	14	01	04	01	01	01	03	L	1	W	01	01	01	02	56	W	01	01	13	01		50	2	0	00
852917610	87091000	05.095	3375	994	035000	16	05	17	15	U-4DP	0	14	01	01	02	01	01	03	L	R	W	16	01	01	02	67	W	01	01	14	01		24	2	0	00
854850520	87091000	05.095	3375	994	032000	17	04	19	17	U-4DP	0	14	01	01	01	01	01	03	L	2	W	16	01	01	02	54	W	01	01	13	01		21	2	0	00
871876750	87091000	05.095	3375	994	034000	18	06	07	15	U-4DP	0	14	01	01	02	02	01	03	L	1	W	01	01	01	02	31	W	16	01	13	01		74	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

CRASH NUMBER	ROADWAY ID	MILE POINT	NATURE OF CRASH	SEVERITY	ADT VAR EIA RLF AYF GIE	YEAR	MONTH	DAY	HOUR	CRASH RALATED ATATUS SESE HSGO RY	ALCOHOL INVOLVED	HAZARDOUS MEDIUM FNUTL 1	MOTOR VEHICLE NCEOTRL L	LIGHT CONDITION HNTDITNN GS	WEATHER ECHDETRN S	RAILROAD UNIT FRS	RAILROAD OCCUPANCY AOTN	DRIVERS LICENSE STATE DLS	RACE OF DRIVER 1 ACN	AGE OF DRIVER 1 AD	VEHICLE 1 DRIVER INJURED LNR	VEHICLE 1 TYPE IDOTYPE	VEHICLE 2 DRIVER INJURED WDY	VEHICLE 2 TYPE IDOTYPE	VEHICLE 1 MAKE VINNUM	VEHICLE 1 MODEL YEAR	VEHICLE 2 MAKE VINNUM	VEHICLE 2 MODEL YEAR	VEHICLE 1 DAMAGE	VEHICLE 2 DAMAGE	VEHICLE NUMBER 1	VEHICLE NUMBER 2	NUMBER OF VEHICLES	# DRIVERS	# VEHICLES	# INJURIES
872340250	87091000	05.095 3375	994	034000	18	06	26	09	U-4DP	0	14	01	01	02	01	01	03	L	1	W	03	01	01	02	26	W	01	01	13	01	71	3	0	01
876553630	87091000	05.098 3375	994	034000	18	10	12	14	U-4DP	0	14	04	01	02	01	01	03	L	L	W	01	01	06	02	74	W	16	01	13	01	48	2	0	00
873242880	87091000	05.099 3375	994	034000	18	01	26	23	U-4DP	0	14	01	04	01	01	01	01	R	1	E	01	01	01	02	18	E	01	01	14	01	26	2	0	01
872948390	87091000	05.106 3375	994	034000	18	09	04	06	U-4DP	0	14	01	01	02	02	01	03	L	1	W	01	01	01	02	40	W	01	01	13	01	23	2	0	01
852917470	87091000	05.109 3375	994	035000	16	05	03	18	U-4DP	0	14	01	01	02	02	01	01	R	2	E	01	01	01	02	20	E	01	01	13	01	60	2	0	00
856068310	87091000	05.109 3375	994	032000	17	12	23	18	U-4DP	0	14	04	02	01	01	01	03	L	1	W	01	01	06	25	17	W	16	01	01	01	45	2	0	01
843732310	87091000	05.118 3375	994	038000	14	08	29	13	U-4DP	0	14	04	01	01	01	01	03	R	1	E	01	01	06	02	18	E	01	03	01	01	36	2	0	00
856570450	87091000	05.118 3375	994	034500	15	02	13	13	U-4DP	0	14	03	01	01	01	01	03	L	1	W	01	01	06	02	18	W	01	01	01	01	47	2	0	00
872228560	87091000	05.128 3375	994	034000	18	07	21	15	U-4DP	0	14	04	01	01	01	01	03	L	1	W	16	01	06	25	25	W	03	01	06	25	53	2	0	00
851369260	87091000	05.137 3375	994	034500	15	08	01	10	U-4DP	0	14	01	01	02	01	01	04	R	2	E	01	01	01	01	17	E	01	01	05	01	30	2	0	02
867137270	87091000	05.147 7386	994	035000	16	12	02	16	U-4DP	0	14	01	01	01	01	01	04	R	2	E	16	01	05	06	20	E	16	01	01	01	40	2	0	00
871868040	87091000	05.147 7386	994	034000	18	05	14	05	U-4DP	0	10	77	05	02	02	01	01	R	2	E	01	01	01	01	00	*	01	77	01	03	00 68	1	0	01
873231780	87091000	05.156 7386	994	032000	17	09	25	14	U-4DP	0	14	01	01	02	02	01	04	R	S	N	03	01	01	10	31	N	01	01	05	01	47	2	0	00
854253300	87091000	05.185 7386	994	032000	17	01	12	08	U-4DP	0	14	01	01	01	01	01	01	R	2	E	01	01	01	02	34	E	01	01	14	01	34	2	0	00
876335160	87091000	05.185 7386	994	034000	18	04	24	17	U-4DP	0	14	03	01	01	01	01	01	R	1	W	01	01	10	02	27	E	03	01	01	01	51	2	0	00
871551370	87091000	05.193 7386	994	034000	18	01	04	15	U-4DP	0	14	01	01	01	01	01	03	R	2	E	19	01	01	02	52	E	16	01	13	01	65	2	0	01
872638910	87091000	05.193 7386	994	034000	18	07	23	09	U-4DP	0	14	01	01	02	01	01	03	R	2	E	01	01	01	02	22	E	01	01	14	01	29	2	0	00
853591910	87091000	05.209 3377	994	035000	16	08	06	12	U-4DP	0	14	03	01	02	01	01	02	R	1	E	01	01	01	02	72	E	01	01	13	01	44	3	0	03
871693670	87091000	05.210 3377	994	034000	18	03	17	14	U-4DP	0	14	01	01	01	01	01	03	R	2	E	01	01	01	02	22	W	16	01	05	01	29	2	0	01
845437370	87091000	05.212 3377	994	034500	15	02	09	19	U-4DP	0	14	01	04	02	02	01	04	R	2	E	01	01	01	02	50	E	01	01	05	01	48	2	0	01
880207700	87091000	05.212 3377	994	034000	18	10	21	18	U-4DP	0	14	77	01	01	01	01	02	L	2	S	01	01	03	03	36	W	01	01	01	01	46	2	0	03
880227090	87091000	05.212 3377	994	034000	18	12	02	20	U-4DP	0	14	03	04	01	01	01	02	R	2	W	01	01	03	03	47	E	03	01	01	01	29	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2014 TO 12/31/2018 RAMPS INCL
FROM CO/SEC/SUB: 87 091 000 MP: 004.000 INFL INCL
TO CO/SEC/SUB: 87 091 000 MP: 005.212 CR/OS INCL

FOR YEAR	FATAL CRASH STATISTICS			INJURY CRASH STATS		PROPERTY DAMAGE ONLY	TOTALS			INFLUENCE CRASHES OCCURRING ON INTERSECTING RDWYS	
	CRASHES	FATALITIES	INJURIES	CRASHES	INJURIES	CRASHES	CRASHES	FATALITIES	INJURIES	AT INT.	INFL AREA
2014	0	0	0	23	40	35	58	0	40	7	1
2015	0	0	0	19	31	48	67	0	31	8	4
2016	1	1	0	24	40	55	80	1	40	8	4
2017	0	0	0	34	57	54	88	0	57	7	9
2018	0	0	0	36	56	63	99	0	56	14	12
TOTAL	1	1	0	136	224	255	392	1	224	44	30

N O T I C E: THE INFORMATION CONTAINED IN THIS DOCUMENT (REPORT, SCHEDULE, LIST, OR DATA) HAS BEEN COMPILED FROM INFORMATION COLLECTED FOR THE PURPOSE OF IDENTIFYING, EVALUATING, OR PLANNING SAFETY ENHANCEMENTS. THIS PRODUCT IDENTIFIES INFORMATION USED FOR THE PURPOSE OF DEVELOPING HIGHWAY SAFETY CONSTRUCTION IMPROVEMENT PROJECTS WHICH MAY BE IMPLEMENTED UTILIZING FEDERAL-AID HIGHWAY FUNDS. ANY DOCUMENT DISPLAYING THIS NOTICE SHALL BE USED ONLY FOR THOSE PURPOSES DEEMED APPROPRIATE BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. SEE TITLE 23, UNITED STATES CODE, SECTION 409.

*** REPORT TOTALS ***

CUMULATIVE TOTALS FOR ALL LOCATIONS SUBMITTED - OVERLAPPING OR INTERSECTING LOCATIONS MAY RESULT IN CRASHES COUNTED MORE THAN ONCE

FOR YEAR	FATAL CRASH STATISTICS			INJURY CRASH STATS		PROPERTY DAMAGE ONLY	TOTALS			INFLUENCE CRASHES OCCURRING ON INTERSECTING RDWYS	
	CRASHES	FATALITIES	INJURIES	CRASHES	INJURIES	CRASHES	CRASHES	FATALITIES	INJURIES	AT INT.	INFL AREA
2014	0	0	0	23	40	35	58	0	40	7	1
2015	0	0	0	19	31	48	67	0	31	8	4
2016	1	1	0	24	40	55	80	1	40	8	4
2017	0	0	0	34	57	54	88	0	57	7	9
2018	0	0	0	36	56	63	99	0	56	14	12
TOTAL	1	1	0	136	224	255	392	1	224	44	30

N O T I C E: THE INFORMATION CONTAINED IN THIS DOCUMENT (REPORT, SCHEDULE, LIST, OR DATA) HAS BEEN COMPILED FROM INFORMATION COLLECTED FOR THE PURPOSE OF IDENTIFYING, EVALUATING, OR PLANNING SAFETY ENHANCEMENTS. THIS PRODUCT IDENTIFIES INFORMATION USED FOR THE PURPOSE OF DEVELOPING HIGHWAY SAFETY CONSTRUCTION IMPROVEMENT PROJECTS WHICH MAY BE IMPLEMENTED UTILIZING FEDERAL-AID HIGHWAY FUNDS. ANY DOCUMENT DISPLAYING THIS NOTICE SHALL BE USED ONLY FOR THOSE PURPOSES DEEMED APPROPRIATE BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. SEE TITLE 23, UNITED STATES CODE, SECTION 409.

Appendix F: Signal Warrant Analysis for SW 134 Avenue

1. Traffic Data

1.1 72-HOUR TRAFFIC VOLUME COUNTS

Seventy-two hourly traffic volume counts were collected on all approaches to the study intersection from Tuesday, August 31, 2021, to Thursday, September 2, 2021. **Table 1** summarizes the daily hourly volumes and the average of the three-day, 72-hour counts. The graph in **Figure 1** shows the variation of the average three-day hourly traffic volumes versus time of day. Based on this data, the study intersection experienced a morning peak period between 6:30 AM and 8:30 AM and an afternoon peak period between 2:00 PM and 4:00 PM. This AM peak period corresponds to the AM peak period identified in the previous study effort (FPID No. 249726-4-32-01). However, the PM peak period was previously identified as 4:00 PM to 6:00 PM. Details of the traffic data collected, in 15-minute intervals is included in **Appendix B**.

Table 1: Summary of Traffic Volume Counts by Intersection Approach

Time	Eastbound SR 994 / Quail Roost Dr	Westbound SR 994 / Quail Roost Dr	Northbound SW 134 Ave	Southbound SW 134 Ave	Average Intersection	Total Intersection
0:00	64	38	17	0	30	119
1:00	42	23	19	0	21	84
2:00	27	16	15	1	15	59
3:00	26	23	22	0	18	71
4:00	42	54	36	1	33	133
5:00	143	194	153	5	124	495
6:00	480	472	262	13	307	1227
7:00	782	918	329	50	520	2079
8:00	819	758	235	92	476	1904
9:00	503	475	223	19	305	1220
10:00	466	406	189	19	270	1080
11:00	496	436	160	15	277	1107
12:00	570	470	205	17	316	1262
13:00	588	552	202	23	341	1365
14:00	753	643	203	30	407	1629
15:00	863	736	195	49	461	1843
16:00	819	670	180	39	427	1708
17:00	885	616	176	62	435	1739
18:00	751	549	170	26	374	1496
19:00	550	425	130	20	281	1125
20:00	411	282	89	16	200	798
21:00	260	216	71	8	139	555
22:00	203	121	50	4	95	378
23:00	115	72	32	2	55	221
Total	10,658	9,165	3,363	511	5,927	23,697

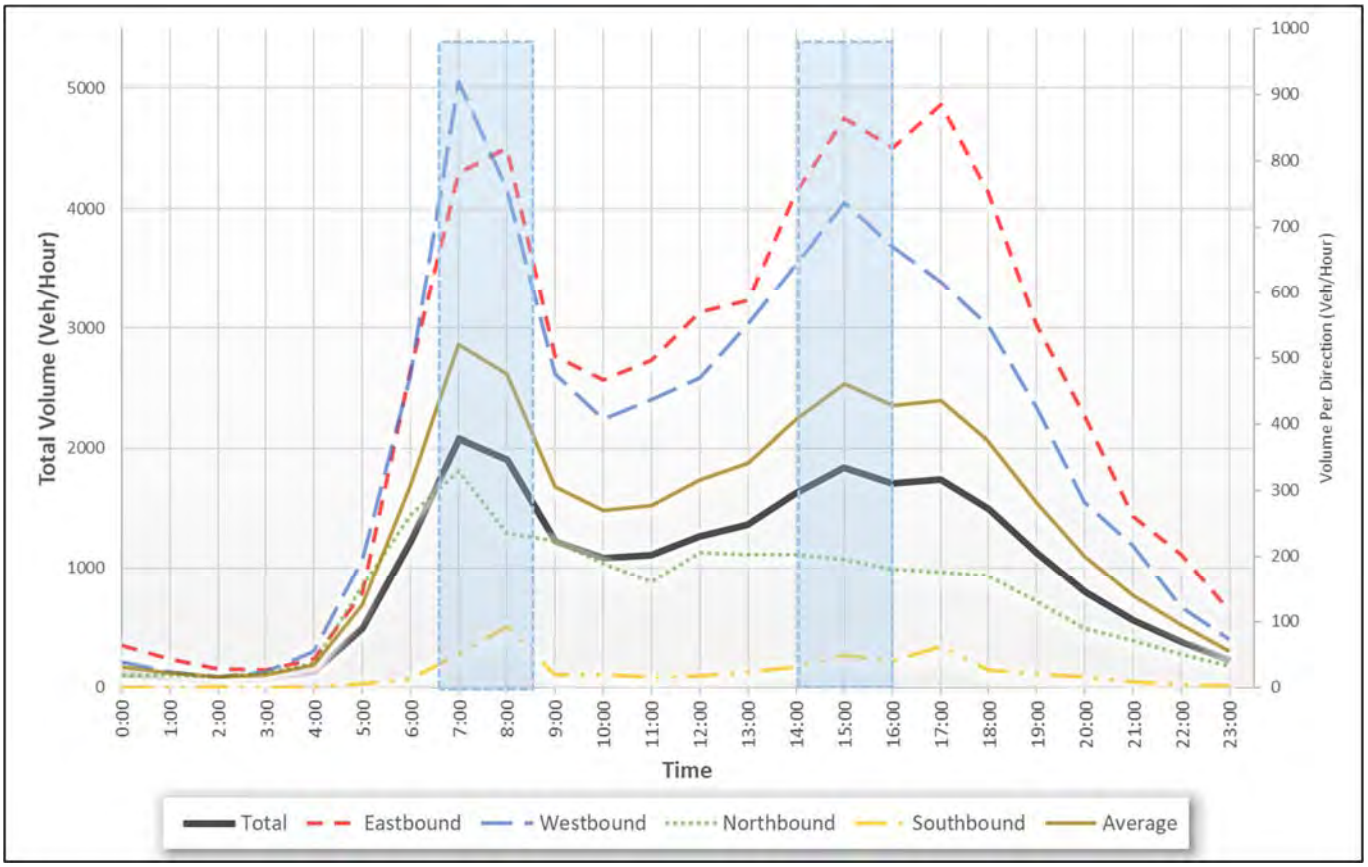

Figure 1: Hourly Traffic Volumes vs Time of Day

1.2 TURNING MOVEMENT COUNTS

Six-hour turning movement counts (TMCs) were collected in 15-minute intervals at the study intersection on Wednesday, September 8, 2021, from 6:30 AM to 9:30 AM and from 3:30 PM to 6:30 PM. The data collection periods correspond to the peak periods identified in the 72-hour volume counts. **Table 2** summarizes the TMCs for the peak hours which occurred between 7:30 AM and 8:30 AM during the morning period and 3:30 PM to 4:30 PM during the afternoon period. Detailed results of the six-hour TMCs are included in **Appendix B**.

Table 2: Summary of Turning Movement Counts

Study Period	Eastbound				Westbound				Northbound				Southbound				Intersection	
	SR 994 / Quail Roost Dr				SR 994 / Quail Roost Dr				SW 134 Avenue				SW 134 Avenue					
		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	PHF	Total Volume
Weekday AM Peak Hour (7:30 AM - 8:30 AM)	Veh+ Trucks	16	671	115	Veh+ Trucks	55	698	105	Veh+ Trucks	85	35	30	Veh+ Trucks	45	41	3	0.94	1899
	Trucks	4	60	5	Trucks	0	22	3	Trucks	6	3	5	Trucks	0	5	2		
	%T	25%	9%	4%	%T	0%	3%	3%	%T	7%	9%	17%	%T	0%	12%	67%		
		802				858				150				89				
		% of Intersection				% of Intersection				% of Intersection				% of Intersection				
		42.2%				45.2%				7.9%				4.7%				
Weekday PM Peak Hour (3:30 PM - 4:30 PM)	Veh+ Trucks	0	657	213	Veh+ Trucks	63	512	17	Veh+ Trucks	83	23	39	Veh+ Trucks	30	22	2	0.82	1661
	Trucks	0	28	7	Trucks	3	35	1	Trucks	7	0	4	Trucks	0	0	0		
	%T	0%	4%	3%	%T	5%	7%	6%	%T	8%	0%	10%	%T	0%	0%	0%		
		870				592				145				54				
		% of Intersection				% of Intersection				% of Intersection				% of Intersection				
		52.4%				35.6%				8.7%				3.3%				

1.3 INTERSECTION DELAY STUDY

An intersection delay study was not conducted for this study effort. As part of the previous study effort (FPID No. 249726-4-32-01), vehicle delay data was collected on Tuesday, November 29, 2016, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM for the northbound and southbound approaches at the study intersection. A summary of the vehicle delay data is shown in **Table 3**.

Table 3: Vehicle Delay Summary

	SR 994 / Quail Roost Dr and SW 134 Avenue			
	Northbound Approach		Southbound Approach	
	7:00 to 9:00 AM	4:00 to 6:00 PM	7:00 to 9:00 AM	4:00 to 6:00 PM
Total Vehicles	392	280	52	74
Average Stopped Time (in seconds)	222.89	80.25	58.21	80.07
Maximum Stopped Time (in seconds)	548	271	171	239
Average Queue (in vehicles)	11.89	3.02	0.53	0.84
Maximum Queue (in vehicles)	22	16	5	8

Overall, the highest volumes occurred on the northbound approach during both peak periods observed. The longest stopped time was experienced on the northbound approach during the AM peak period with an average stopped time of approximately 4 minutes and a maximum stopped time of approximately 9 minutes. Additionally, the northbound approach experienced a maximum queue of at least 16 vehicles in both peak periods.

2. CRASH REVIEW AND SUMMARY

Crash data for the five most recent years (from January 2014 to December 2018) was downloaded from the FDOT's Crash Analysis Reporting System (CARS) on-line database. The crash data includes crashes along SR 994 (Section 87091000) that occurred within 500-feet east (MP 4.233) and west (MP 4.423) of the study intersection (MP 4.328). A crash summary for the study intersection is provided in **Table 4**.

There was a total of 74 crashes that occurred at the study intersection during the referenced five-year period with 14 crashes in 2014, 11 crashes in 2015, 12 crashes in 2016, 16 crashes in 2017, and 21 crashes in 2018. The leading crash types consisted of Angle with 32 (43%) crashes, Rear-end with 16 (22%) crashes, and Left-turn with 9 (12%) crashes. The leading contributing causes for all crashes included "failed to yield right-of way" with 24 (32%) crashes, "careless or negligent manner" with 23 (31%) crashes, and "other contributing action" with 9 (12%) crashes. Based on crash severity, 46 (62%) crashes were property damaged only (PDO) and 28 (38%) were injury type crashes; no fatal crashes were reported during the referenced five-year period. There were no Pedestrian and Bicycle related crash that occurred within the five-year period. There were 20 (27%) night/dusk/dawn crashes which is lower than the 2014-2018 Districtwide average for all roadways of 29%. There were 10 (14%) crashes that occurred under wet/slippery pavement conditions which is slightly greater than the 2014-2018 Districtwide average for all roadways of 12%.

An Expected Values Analysis (EVA) was not performed at the study intersection because there are no statistics available for other District-wide spots to compare with similar geometric features. Based on the confidence level analysis performed, the study intersection is considered to have an abnormally high number of crashes for year 2018, as presented in **Table 5**. The Highway Safety Improvement Program identifies urban intersections and segments within a confidence level of 99.95% or greater to be locations with abnormally high crashes. Based on the Department's high crash lists for segments and intersections for the crash period, the study intersection is considered a high crash intersection and belongs to a high crash segment from MP 4.075 to MP 4.961.

Table 4: Crash Summary (2014-2018)

SR 994/Quail Roost Dr at SW 134 Avenue Segment/Spot with No Expected Values Available		Number of Crashes Year 2014	2015	2016	2017	2018	5 Year Total Crashes	Mean Crashes Per Year	%	Expected Annual Crash Value Abnormally High Crashes per year 90th percentile	95th percentile	90 %ile	95 %ile
CRASH TYPE	Rear End	6	3	4	2	1	16	3.20	21.6%	0.00	0.00		
	Head On	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Angle	5	3	7	12	5	32	6.40	43.2%	0.00	0.00		
	Left Turn	0	2	0	1	6	9	1.80	12.2%	0.00	0.00		
	Right Turn	1	1	0	0	2	4	0.80	5.4%	0.00	0.00		
	Sideswipe	1	1	1	1	1	5	1.00	6.8%	0.00	0.00		
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Pedestrian	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Bicycle	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Fixed Object	0	0	0	0	5	5	1.00	6.8%	0.00	0.00		
	Other Non-Collisions	0	1	0	0	0	1	0.20	1.4%	0.00	0.00		
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Others	1	0	0	0	1	2	0.40	2.7%	0.00	0.00		
	Total Crashes	**14**	**11**	**12**	**16**	**21**	**74**	**14.80**	**100.0%**	**0.00**	**0.00**		
SEVERITY	PDO Crashes	8	8	7	9	14	46	9.20	62.2%	0.00	0.00		
	Fatal Crashes	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Injury Crashes	6	3	5	7	7	28	5.60	37.8%	0.00	0.00		
LIGHTING CONDITIONS	Daylight	8	8	12	13	12	53	10.60	71.6%	0.00	0.00		
	Dusk	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Dawn	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Dark	6	3	0	3	8	20	4.00	27.0%	0.00	0.00		
	Unknown	0	0	0	0	1	1	0.20	1.4%	0.00	0.00		
SURFACE CONDITIONS	Dry	12	10	9	15	17	63	12.60	85.1%	0.00	0.00		
	Wet	2	1	3	1	3	10	2.00	13.5%	0.00	0.00		
	Others	0	0	0	0	1	1	0.20	1.4%	0.00	0.00		

Table 5. Crash Statistics

Year	2014	2015	2016	2017	2018
Number of Crashes	14	11	12	16	21
Average Daily Traffic (ADT)	17,500	17,900	18,500	18,700	19,700
Actual Crash Rate (ACR)	2.192	1.684	1.777	2.344	2.921
District 6 Average Crash Rate (A)	1.291	0.858	1.036	1.291	1.280
Average Vehicle Exposure (M)	6.388	6.534	6.753	6.826	7.191
Critical Crash Rate (CCR)	2.693	1.974	2.251	2.649	2.600
Safety Ratio	0.814	0.853	0.789	0.885	1.123
Statistical Significance	2.177	2.490	2.081	2.589	4.051
Confidence Level	97.50%	99.00%	97.50%	99.50%	99.99%

2.1 COLLISION DIAGRAM

Figure 4 represents the collision diagram for SW 134 Avenue, originally prepared for the SR 994 PD&E Traffic Report, to identify any abnormal crash characteristics or patterns at the study intersection that may have occurred during the five years of interest (2014 through 2018).

Based on a review of the crash types, Angle type crashes accounted for 32 (43%) of total crashes. Of the 32 Angle crashes reported, 12 (38%) were injury crashes and 21 (62%) were PDO crashes. Most angle crashes, 16 (50%) out of 32, involved a northbound through vehicle and an eastbound through vehicle, followed by 6 (19%) of the 32 angle crashes which involved a northbound through vehicle and a westbound through vehicle.

Rear-end collisions were identified as the second leading crash type with 16 (22%) crashes. Of the 16 Rear-end crashes reported, 8 (50%) were injury crashes and 8 (50%) were PDO crashes. There was a pattern for Rear-end collision identified along the eastbound approach, with 7 (44%) of the 16 Rear-end crashes, and along the northbound approach with 6 (38%) of the 16 Rear-end crashes.

Left-turn collisions were identified as the third leading crash type with 9 (12%) crashes. Of the 9 Left-turn crashes reported, 4 (44%) were injury crashes and 5 (56%) were PDO crashes. There was a pattern for Left-turn crashes identified between westbound left-turning vehicles and eastbound through vehicles with 6 (67%) of the 9 Left-turn crashes.

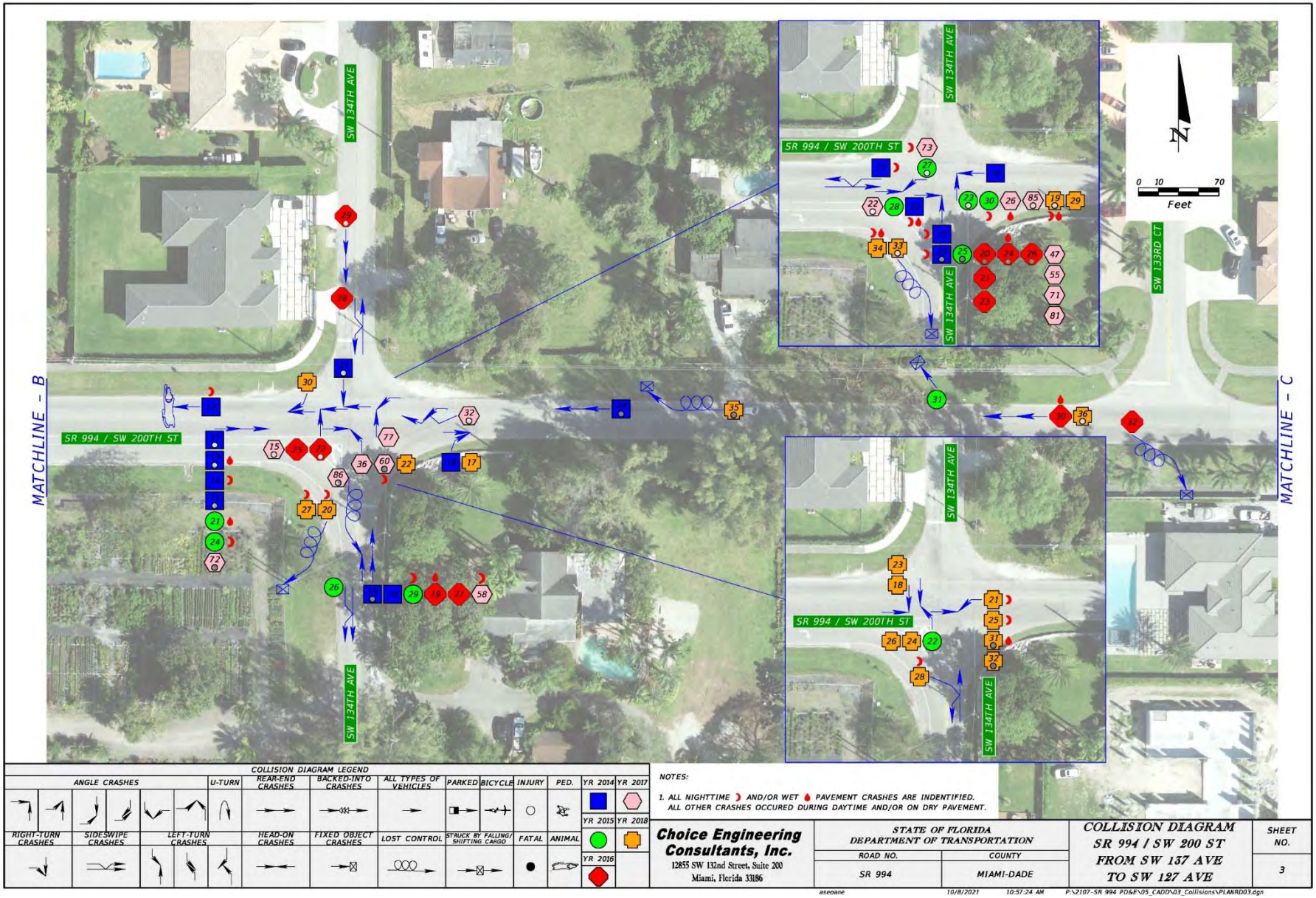

Figure 4. SW 134 Avenue Collision Diagram

3. SIGNAL WARRANT ANALYSIS

The *Manual on Uniform Traffic Control Devices* (MUTCD) is the national standard published by the FHWA that defines the use and application of traffic control devices. The MUTCD (2009 Edition) defines nine warrants for a traffic signal control. At a minimum, one or more of these warrants must be satisfied to justify the installation of a new traffic signal. However, as indicated in Section 4C.01 of the MUTCD, "*the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal*". Delay, congestion, confusion, or other evidence of the need for right-of-way assignment must be shown. Alternative improvements which may eliminate the need for a signal should also be considered. The nine MUTCD warrants are as follows:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

The analysis of the signal warrants was conducted by completing the Traffic Signal Warrant Summary Forms provided in the Department's Manual on Uniform Traffic Studies (MUTS). These forms provide a useful tool for evaluating the signal warrants. The complete forms are attached at the end of this section and results are summarized below. The signal warrant analysis was performed using traffic and pedestrian data for weekday conditions. For analysis of Warrants 1, 2 and 7, SR 994/Quail Roost Drive was treated as the major street with 2 travel lanes and SW 134 Avenue was treated as the minor street with 2 travel lanes.

3.1 WARRANT 1 – EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 covers the eight-hour vehicular volume for conditions A and B. The Minimum Vehicular Volume (Condition A) is intended where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal. The Interruption of Continuous Traffic (Condition B) is intended where traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. An assessment of the basic minimum hourly volume threshold (100%) for Warrant 1 is shown in **Table 6** for a typical weekday which indicates that Condition A and Condition B were met at the 100% volume threshold. As a result, **Warrant 1 is satisfied** for the study intersection.

Table 6: Warrant 1 (100%) Summary

No.	Time (hr)	Total of Both Approaches on Major Street	Highest Approach Volume on Minor Street (NB)	Condition A is met at 100% ?			Condition B is met at 100% ?			Warrant 1 is met by meeting Condition A or B for at least 8 hours?
				Requirement		Hourly Volume Met?	Requirement		Hourly Volume Met?	
				Major Street (1 Lane)	Minor Street (1 lane)		Major Street (1 Lane)	Minor Street (1 lane)		
1	12:00 AM	102	17	500	150	NO	750	75	NO	Yes, it does meet Conditions A and B at 100% for at least 8 hours in a 24-hour period
2	1:00 AM	65	19	500	150	NO	750	75	NO	
3	2:00 AM	43	15	500	150	NO	750	75	NO	
4	3:00 AM	49	22	500	150	NO	750	75	NO	
5	4:00 AM	96	36	500	150	NO	750	75	NO	
6	5:00 AM	337	153	500	150	NO	750	75	NO	
7	6:00 AM	952	262	500	150	YES	750	75	YES	
8	7:00 AM	1700	329	500	150	YES	750	75	YES	
9	8:00 AM	1577	235	500	150	YES	750	75	YES	
10	9:00 AM	978	223	500	150	YES	750	75	YES	
11	10:00 AM	872	189	500	150	YES	750	75	YES	
12	11:00 AM	932	160	500	150	YES	750	75	YES	
13	12:00 PM	1040	205	500	150	YES	750	75	YES	
14	1:00 PM	1140	202	500	150	YES	750	75	YES	
15	2:00 PM	1396	203	500	150	YES	750	75	YES	
16	3:00 PM	1599	195	500	150	YES	750	75	YES	
17	4:00 PM	1489	180	500	150	YES	750	75	YES	
18	5:00 PM	1501	176	500	150	YES	750	75	YES	
19	6:00 PM	1300	170	500	150	YES	750	75	YES	
20	7:00 PM	975	130	500	150	NO	750	75	YES	
21	8:00 PM	693	89	500	150	NO	750	75	NO	
22	9:00 PM	476	71	500	150	NO	750	75	NO	
23	10:00 PM	324	50	500	150	NO	750	75	NO	
24	11:00 PM	187	32	500	150	NO	750	75	NO	

3.2 WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

Warrant 2, the four-hour vehicular volume warrant, is intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic signal. An assessment of the basic minimum hourly volume threshold (100%) for Warrant 2 is shown in **Table 7** for a typical weekday which indicates that the minor street volumes does exceed the minimum thresholds for at least 4 hours. As a result, **Warrant 2 is satisfied** for the study intersection on the basis that the condition is met for at least 4 hours at a 100% volume threshold.

Table7: Warrant 2 (100%) Summary

No.	Time (hr)	Total of Both Approaches on Major Street	Highest Approach Volume on Minor Street (NB)	Hourly Volume Met? (Minimum threshold for NB is 80 veh)*	Warrant 2 is met by meeting the minimum threshold for at least 4 hours?
1	12:00 AM	102	17	NO	Yes, the minimum threshold is met for at least 4 hours.
2	1:00 AM	65	19	NO	
3	2:00 AM	43	15	NO	
4	3:00 AM	49	22	NO	
5	4:00 AM	96	36	NO	
6	5:00 AM	337	153	NO	
7	6:00 AM	952	262	YES	
8	7:00 AM	1700	329	YES	
9	8:00 AM	1577	235	YES	
10	9:00 AM	978	223	YES	
11	10:00 AM	872	189	YES	
12	11:00 AM	932	160	YES	
13	12:00 PM	1040	205	YES	
14	1:00 PM	1140	202	YES	
15	2:00 PM	1396	203	YES	
16	3:00 PM	1599	195	YES	
17	4:00 PM	1489	180	YES	
18	5:00 PM	1501	176	YES	
19	6:00 PM	1300	170	YES	
20	7:00 PM	975	130	YES	
21	8:00 PM	693	89	NO	
22	9:00 PM	476	71	NO	
23	10:00 PM	324	50	NO	
24	11:00 PM	187	32	NO	

Note: *80 vph applies as the lower threshold volume for a minor-street approach with one lane and a major street volume (total of both approaches) of approximately 1100 vph or greater as shown in Figure 4C-1 of the MUTCD, 2009 Edition.

3.3 WARRANT 3 – PEAK HOUR VOLUME

Warrant 3 is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. The MUTCD stipulates that this warrant must only be used for unusual cases such as office complexes, manufacturing plants, industrial complexes or other high-occupancy vehicle facilities that attract or discharge copious amounts of vehicles over a short time. Warrant 3 is satisfied under one of the following conditions:

A) If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:
   1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and
   2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
   3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B) The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 (MUTCD) for the existing combination of approach lanes.

Based on a review of the immediate surrounding land uses, **Warrant 3 is not applicable** for the study intersection.

3.4 WARRANT 4 – PEDESTRIAN VOLUME

Warrant 4 is intended for applications where the traffic volume on a major street is so heavy that pedestrians experience excessive delays in crossing the major street. Additionally, 70% volume threshold (Figure 4C-6 and Figure 4C-8, MUTCD) can be applied as a result of the major street having a posted speed limit exceeding 35 MPH (Posted Speed Limit is 40 MPH). Warrant 4 is satisfied under one of the following conditions:

A) For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the threshold represented by Figure 4C-5 (MUTCD) or Figure 4C-6. For Figure 4C-5 the absolute minimum pedestrian volume is 107 pedestrians per hour and for Figure 4C-6 the absolute minimum pedestrian volume is 75 pedestrian per hour.

B) For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the threshold represented by Figure 4C-7 (MUTCD) or Figure 4C-8. For Figure 4C-7 the absolute minimum pedestrian volume is 133 pedestrians per hour and for Figure 4C-8 the absolute minimum pedestrian volume is 93 pedestrian per hour.

Based on the traffic count data collected (see Section 3.1 and **Appendix B**) and in concurrence with the field observations (Section 3.2), **Warrant 4 is not applicable** for the study intersection due to the low pedestrian activity observed crossing the major street during the observed peak periods.

3.5 WARRANT 5 – SCHOOL CROSSING

Warrant 5 is applicable when the fact that school children crossing the major street is the principal reason to consider installing a traffic control signal. Based on a review of the surrounding land developments, there are no schools at or in the immediate vicinity of the study intersection and no school children were observed crossing at or near the study intersection during the field observations. Therefore, **Warrant 5 is not applicable** for the study intersection.

3.6 WARRANT 6 – COORDINATED SIGNAL SYSTEM

Warrant 6 is applicable when progressive movement in a coordinated system necessitates installing a traffic signal to maintain proper platooning of vehicles. The MUTCD indicates that this warrant is met if on a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation. **Warrant 6 is not applicable** for the study intersection.

3.7 WARRANT 7 – CRASH EXPERIENCE

Warrant 7 is examined when the crashes experienced at an intersection is the principal reason to consider installing a traffic control signal. This warrant is satisfied when the following three criteria are met:

A) Adequate trials of other remedial measures have failed to reduce crash frequency.

B) Traffic volumes at the study intersection meet 80% of Condition A or B under Warrant 1 or pedestrian volumes meet 80% of Warrant 4. The traffic volumes measured at the intersection satisfy this condition.

C) Five or more reported crashes, of types susceptible to correction by the installation of a traffic control signal, have occurred within a 12-month period – see **Table 8**.

Table 8: Warrant 7 Summary

Crash Type Susceptible to Correction by a Traffic Control Signal	2014	2015	2016	2017	2018	% of All Crashes
Angle	5	3	7	12	5	44.0 %
Left turn	0	2	0	1	6	12.0%
Total	**5**	**5**	**7**	**13**	**11**	**56.0%**

Traffic volumes at the study location satisfy Condition 2 and crash statistics satisfy Condition 3 (summarized in **Table 8**). Additionally, Condition 1, the implementation of less restrictive measures, is not satisfied at this time. Consequently, **Warrant 7 is not satisfied** for the study intersection.

3.8 WARRANT 8 – ROADWAY NETWORK

Warrant 8 is appropriate where installing a traffic signal might be justified to encourage concentration/organization of traffic flow on a roadway network and when two or more major routes intersect. A major route as used/defined in this signal warrant shall have at least one of the following characteristics:

A) It is part of the street or highway system that serves as the principal roadway network for through traffic flow.

B) It includes rural or suburban highways outside, entering, or traversing a city.

C) It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Therefore, as per the MUTCD Warrant 8 guidance SW 134 Avenue is not considered a major road and consequently, **Warrant 8 is not applicable** for the study intersection.

3.9 WARRANT 9 – INTERSECTION NEAR A GRADE CROSSING

Warrant 9 is appropriate where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal. Based on a review of the surrounding area, there are no grade crossings at or in the immediate vicinity of the study intersection. Consequently, **Warrant 9 is not applicable** for the study intersection.

3.10 WARRANT ANALYSIS SUMMARY

Table 9 is a compiled summary of the warrant analysis. Of the nine minimum warrants reviewed, three are applicable, and two are satisfied.

Table 92: Warrant Analysis Summary

Warrant 1	**Satisfied √**	**Warrant 6**	Not Applicable
Warrant 2	**Satisfied √**	**Warrant 7**	**Not Satisfied ×**
Warrant 3	Not Applicable	**Warrant 8**	Not Applicable
Warrant 4	Not Applicable	**Warrant 9**	Not Applicable
Warrant 5	Not Applicable		

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ MAY ☐ 70% ☑ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

*Warrant 1 is satisfied if Condition A **or** Condition B is "100%" satisfied for eight hours.* ☑ Yes ☐ No

*Warrant 1 is also satisfied if both Condition A **and** Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems).* ☑ Yes ☐ No

*Warrant 1 is satisfied if Condition A **or** Condition B is "70%" satisfied for eight hours.* ☑ Yes ☐ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Applicable:	☑ Yes	☐ No
100% Satisfied:	☐ Yes	☑ No
80% Satisfied:	☑ Yes	☐ No
70% Satisfied:	☑ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	7:00 AM	8:00 AM	3:00 PM	5:00 PM	4:00 PM	2:00 PM	6:00 PM	1:00 PM
Major	1,700	1,577	1,599	1,501	1,489	1,396	1,300	1,140
Minor	329	235	195	176	180	203	170	202

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☐ Yes	☑ No
100% Satisfied:	☑ Yes	☐ No
80% Satisfied:	☑ Yes	☐ No
70% Satisfied:	☑ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**7:00 AM**	**8:00 AM**	**3:00 PM**	**5:00 PM**	**4:00 PM**	**2:00 PM**	**6:00 PM**	**1:00 PM**
Major	1,700	1,577	1,599	1,501	1,489	1,396	1,300	1,140
Minor	329	235	195	176	180	203	170	202

Existing Volumes

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ MAY ☐ 70% ☑ 100%

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

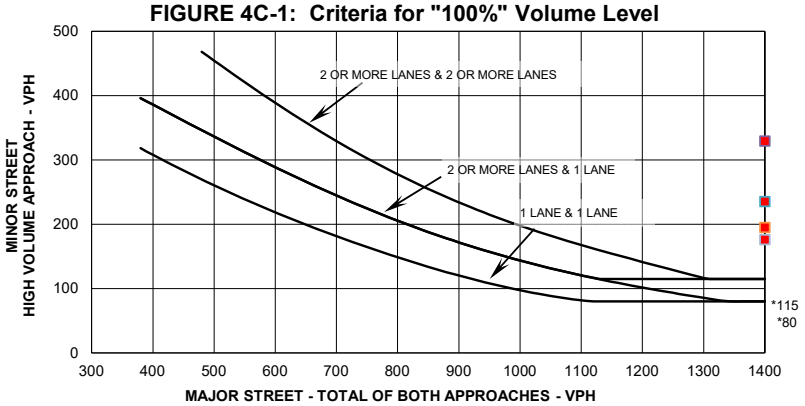
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
7:00 AM	1700	329
8:00 AM	1577	235
3:00 PM	1599	195
5:00 PM	1501	176

FIGURE 4C-1: Criteria for "100%" Volume Level



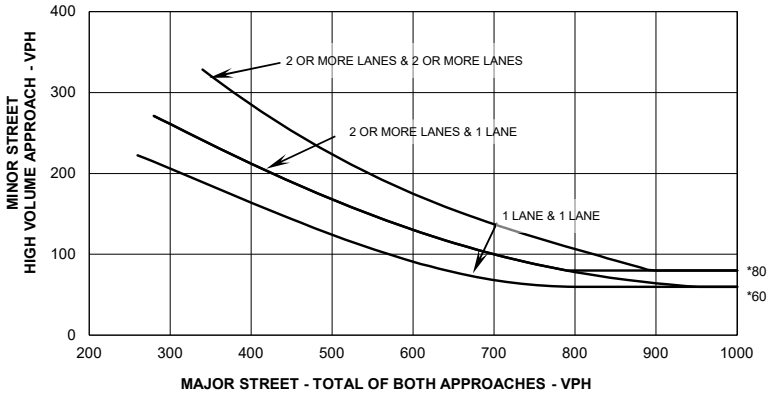
** Note: 115 ph. applies as the lower threshold volume for a minor street approach with two or more lanes and 80 mph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr. (40 mph) on Major Street)



** Note: 80 ph. applies as the lower threshold volume for a minor street approach with two or more lanes and 60 ph. applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

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Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ MAY ☐ 70% ☑ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Unusual condition justifying use of warrant:

Industrial Complex

-

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
7:00 AM	1700	329

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

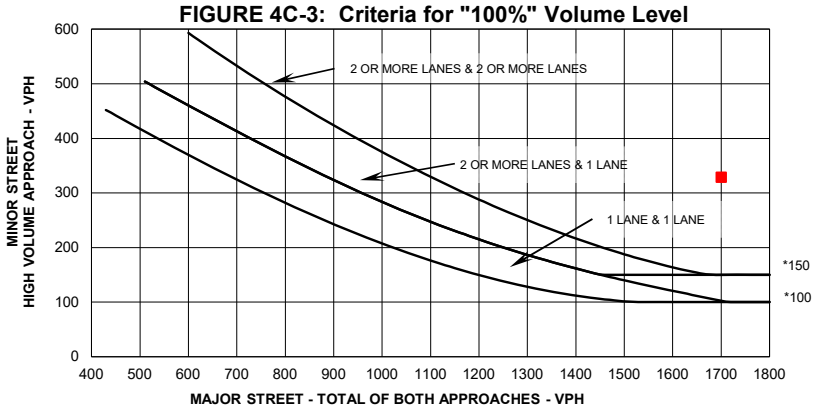
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.

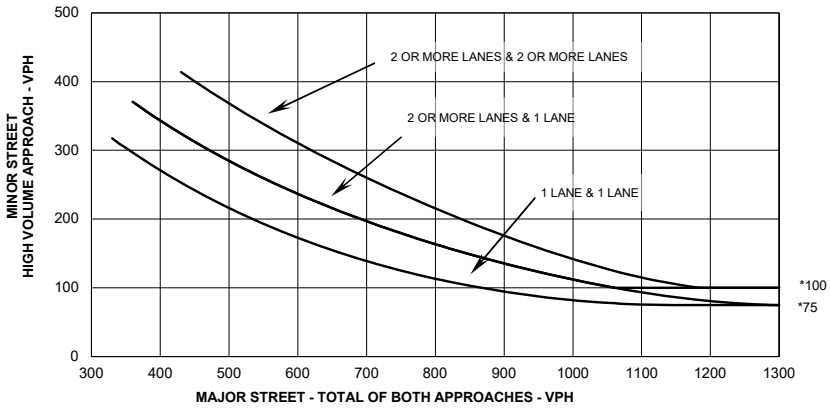
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr. (40 mph) on Major Street)



** Note: 100 ph. applies as the lower threshold volume for a minor street approach with two or more lanes and 75 phi applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pd

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 35 mph? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ MAY ☑ 70% ☐ 100%

Option

Pedestrian volume crossing the major street ***may*** *be reduced as much as 50% if the 15th-percentile crossing speed of pedestrians is less than 3.5 ft/sec.* A walking speed study was conducted which reported a pedestrian speed less than 3.5 ft/sec for the 15th percentile. ☐ Yes ☐ No

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Plot four volume combinations on the applicable figure below.

Figure 4C-5. Criteria for "100%" Volume Level

** Note: 107 pph applies as the lower threshold volume for 100% volume level*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
7:00 AM	1700	
8:00 AM	1577	
3:00 PM	1599	
5:00 PM	1501	

Figure 4C-6 Criteria for "70%" Volume Level

** Note: 75 pph applies as the lower threshold volume for 70% volume level*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

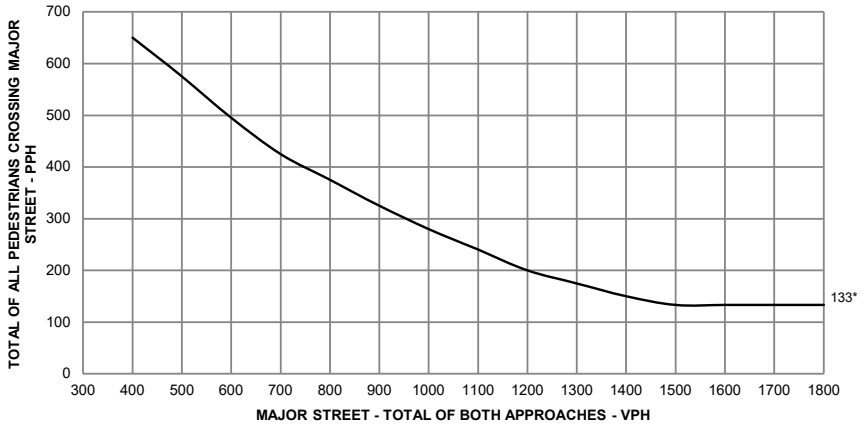
Applicable:	☐ Yes	☑ No
Satisfied:	☐ Yes	☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

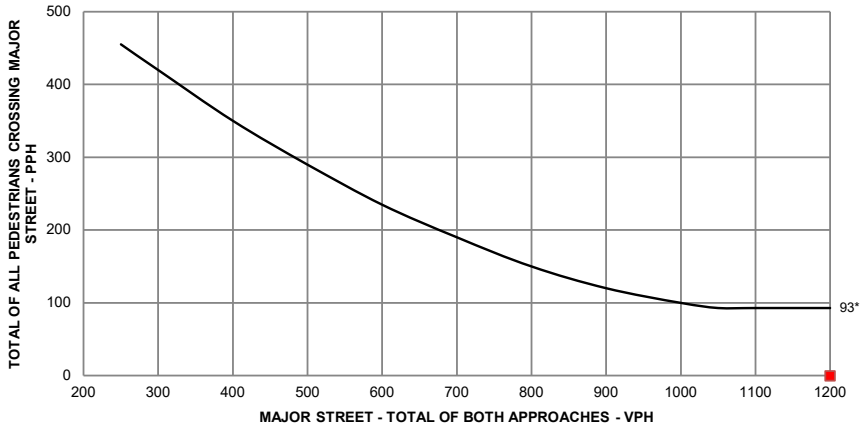


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
7:00 AM	1700	

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

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WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:			
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Major Street:	**SR 994/SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

	Criteria	Fulfilled? Yes	Fulfilled? No
1.	On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2.	On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

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Major Street:	**SR 994/SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

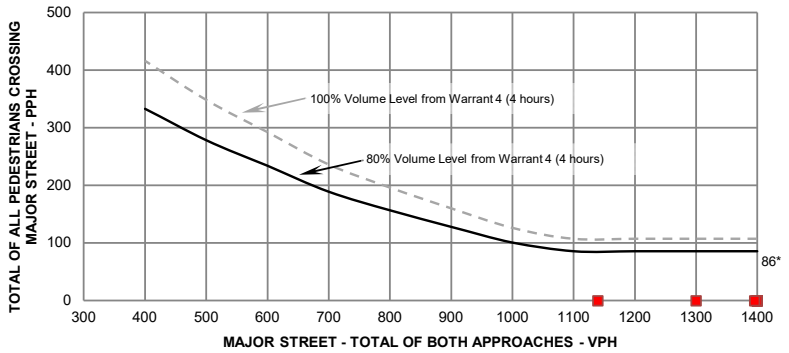
WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if ***all three*** *of the criteria are fulfilled.*

Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Criteria					Fulfilled? Yes	Fulfilled? No
1. Adequate trial of other remedial measure has failed to reduce crash frequency.	Measure tried:					X
2. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.	Observed Crash Types:	Angle and Left-turn crashes	Number of crashes per 12 months:	13	√	
3. **One of the following volume warrants is met:**				**Met?**	Yes	
Warrant 1, Condition A (80% satisfied), or				Yes		
Warrant 1, Condition B (80% satisfied), or				Yes		
Warrant 4, Pedestrian Volume satisfied at 80% of volume requirements for any 8 hours of an average day.	**Hour**	**Major Street Volume**	**Ped Crossings Volume**			
	7:00 AM	1700				
	8:00 AM	1577				
	3:00 PM	1599				
	5:00 PM	1501				
	4:00 PM	1489				
	2:00 PM	1396				
	6:00 PM	1300				
	1:00 PM	1140				

Figure 4C-5. Criteria for "100%" Volume Level



* Note: 86 pph applies as the lower threshold volume for the 80% volume threshold.

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.			Entering Volume:						
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3				
			Satisfied?:							
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour			
							←Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

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City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
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Major Street:	**SR 994/SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 134 Avenue**	Lanes:	**2**	Minor Approach Speed:	**35**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☐ 1 ☐ 2 or more

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☐ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☑
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☐

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		**Adjustment Factors from Tables**
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Approach Lane at Track Crossing		**1.00**
Enter D (feet)		
% of Tractor-Trailer Trucks on Approach Lane at Track Crossing		**0.50**

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor: D less than 70 feet	Adjustment Factor: D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

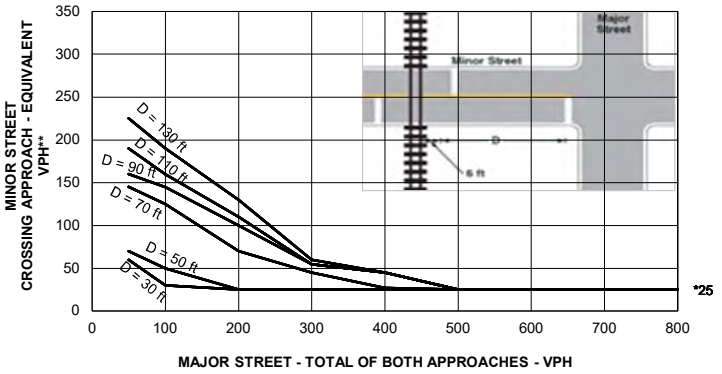
Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

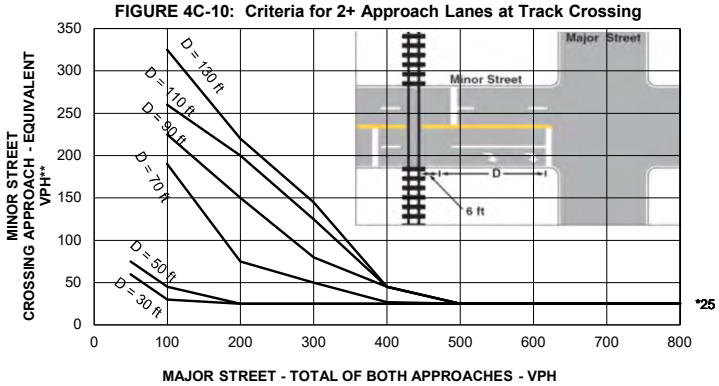
Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Form 750-020-01
TRAFFIC ENGINEERING
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MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

Remarks:

WARRANTS SATISFIED:

Warrant 1	☐ Not Applicable	☑ Met	☐ Not Met
Warrant 2	☐ Not Applicable	☑ Met	☐ Not Met
Warrant 3	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 4	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 5	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 6	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 7	☐ Not Applicable	☐ Met	☑ Not Met
Warrant 8	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 9	☑ Not Applicable	☐ Met	☐ Not Met

Appendix G: Signal Warrant Analysis for SW 132 Avenue

1. Traffic Data

1.1 72-HOUR TRAFFIC VOLUME COUNTS

Seventy-two hourly traffic volume counts were collected on all approaches to the study intersection from Tuesday, August 31, 2021, to Thursday, September 2, 2021. **Table 1** summarizes the daily hourly volumes and the average of the three-day, 72-hour counts. The graph in **Figure 1** shows the variation of the average three-day hourly traffic volumes versus time of day. Based on this data, the study intersection experienced a morning peak period between 7:00 AM and 9:00 AM and an afternoon peak period between 3:00 PM and 5:00 PM. Details of the traffic data collected, in 15-minute intervals is included in **Appendix B**.

Table 1: Summary of Traffic Volume Counts by Intersection Approach

Time	Eastbound SR 994 / Quail Roost Dr	Westbound SR 994 / Quail Roost Dr	Northbound SW 132 Ave	Average Intersection	Total Intersection
0:00	39	74	10	41	123
1:00	30	39	4	24	73
2:00	25	30	4	20	59
3:00	23	36	6	22	65
4:00	41	73	31	48	145
5:00	174	283	135	197	592
6:00	485	648	367	500	1500
7:00	977	1171	459	869	2607
8:00	1018	1050	295	788	2363
9:00	473	553	217	414	1243
10:00	422	470	181	358	1073
11:00	436	504	176	372	1116
12:00	518	572	206	432	1296
13:00	527	654	217	466	1398
14:00	648	873	212	578	1733
15:00	705	1218	194	706	2117
16:00	627	1153	188	656	1968
17:00	671	1118	181	657	1970
18:00	557	870	184	537	1611
19:00	417	637	165	406	1219
20:00	332	443	117	297	892
21:00	190	361	88	213	639
22:00	139	220	65	141	424
23:00	79	134	24	79	237
Total	9,553	13,184	3,726	8,821	26,463

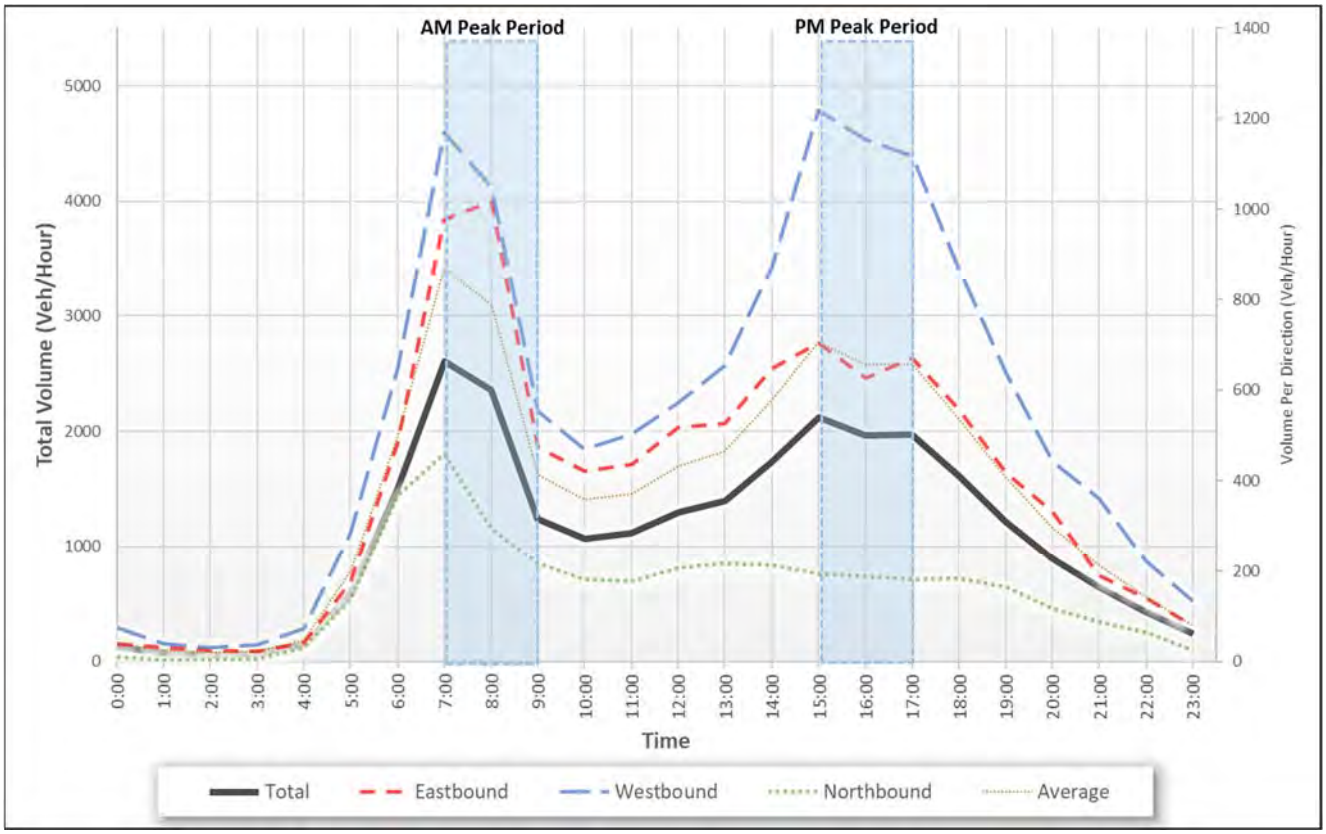

Figure 1: Hourly Traffic Volumes vs Time of Day

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1.2 TURNING MOVEMENT COUNTS

Six-hour turning movement counts (TMCs) were collected in 15-minute intervals at the study intersection on Wednesday, September 8, 2021, from 6:30 AM to 9:30 AM and from 3:30 PM to 6:30 PM. The data collection periods correspond to the peak periods identified in the 72-hour volume counts. **Table 2** summarizes the TMCs for the peak hours which occurred between 7:30 AM and 8:30 AM during the morning period and 3:30 PM to 4:30 PM during the afternoon period. Detailed results of the six-hour TMCs are included in **Appendix B**.

Table 2: Summary of Turning Movement Counts

Study Period	Eastbound				Westbound				Northbound				Intersection	
	SR 994 / Quail Roost Dr				SR 994 / Quail Roost Dr				SW 132 Avenue					
		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	PHF	Total Volume
Weekday AM Peak Hour (7:30 AM - 8:30 AM)	Veh+ Trucks	0	755	11	Veh+ Trucks	65	768	0	Veh+ Trucks	37	0	198	0.96	1834
	Trucks	0	70	0	Trucks	4	40	0	Trucks	2	0	8		
	%T	0%	9%	0%	%T	6%	5%	0%	%T	5%	0%	4%		
		766				833				235				
		% of Intersection 41.8%				% of Intersection 45.4%				% of Intersection 12.8%				
Weekday PM Peak Hour (3:30 PM - 4:30 PM)	Veh+ Trucks	0	675	53	Veh+ Trucks	164	612	0	Veh+ Trucks	22	0	64	0.98	1590
	Trucks	0	38	0	Trucks	14	75	0	Trucks	3	0	2		
	%T	0%	6%	0%	%T	9%	12%	0%	%T	14%	0%	3%		
		728				776				86				
		% of Intersection 45.8%				% of Intersection 48.8%				% of Intersection 5.4%				

2. Crash Review and Summary

Crash data for the five most recent years (from January 2014 to December 2018) was downloaded from the FDOT's Crash Analysis Reporting System (CARS) on-line database. The crash data includes crashes along SR 994 (Section 87091000) that occurred within 500-feet east (MP 4.489) and west (MP 4.679) of the study intersection (MP 4.584). A crash summary for the study intersection is provided in **Table 4**.

There was a total of 36 crashes that occurred at the study intersection during the referenced five-year period with 6 crashes in 2014, 6 crashes in 2015, 10 crashes in 2016, 9 crashes in 2017, and 5 crashes in 2018. The leading crash types consisted of Rear-end with 27 (75%) crashes, Fixed Object with 3 (8%) crashes, and Right-turn with 2 (6%) crashes. The leading contributing causes for all crashes included "careless or negligent manner" with 25 (69%) crashes, "failed to yield right-of way" with 3 (8%) crashes, and "other contributing action" with 3 (8%) crashes. Based on crash severity, 16 (44%) crashes were property damaged only, 19 (53%) were injury type crashes, and one fatal crash (3%). There were no Pedestrian related crashes, and no Bicycle crashes that occurred within the five-year period. There were 10 (28%) night/dusk/dawn crashes which is equal to the Districtwide average of 29% night-time crashes. There were 9 (25%) crashes that occurred under wet/slippery pavement conditions which is greater than the Districtwide average of 12% wet related crashes.

An Expected Values Analysis (EVA) was not performed at the study intersection because there are no statistics available for other District-wide spots to compare with similar geometric features. A confidence level analysis was not performed for years 2014, 2015, and 2018 since the total number of crashes did not meet the minimum of eight (8) crashes per year to be statistically significant. Based on the confidence level analysis performed for 2016 and 2017, the study intersection is not considered to have an abnormally high number of crashes, as presented in **Table 5**. The Highway Safety Improvement Program identifies urban intersections and segments within a confidence level of 99.95% or greater to be locations with abnormally high crashes. Based on the Department's high crash lists for segments and intersections for the crash period, the study intersection is considered a high crash intersection and belongs to a high crash segment from MP 4.075 to MP 4.961.

Table 4: Crash Summary (2014-2018)

SR 994/Quail Roost Dr at SW 132 Avenue Segment/Spot with No Expected Values Available		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%	Expected Annual Crash Value Abnormally High Crashes per year		90 %ile	95 %ile
		2014	2015	2016	2017	2018				90th percentile	95th percentile		
CRASH TYPE	Rear End	5	3	7	8	4	27	5.40	75.0%	0.00	0.00		
	Head On	0	0	1	0	0	1	0.20	2.8%	0.00	0.00		
	Angle	0	1	0	0	0	1	0.20	2.8%	0.00	0.00		
	Left Turn	0	0	1	0	0	1	0.20	2.8%	0.00	0.00		
	Right Turn	0	0	1	0	1	2	0.40	5.6%	0.00	0.00		
	Sideswipe	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Backed Into	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Pedestrian	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Bicycle	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Fixed Object	0	2	0	1	0	3	0.60	8.3%	0.00	0.00		
	Other Non-Collisions	1	0	0	0	0	1	0.20	2.8%	0.00	0.00		
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Others	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Total Crashes	**6**	**6**	**10**	**9**	**5**	**36**	**7.20**	**100.0%**	**0.00**	**0.00**		
SEVERITY	PDO Crashes	3	4	4	3	2	16	3.20	44.4%	0.00	0.00		
	Fatal Crashes	0	0	1	0	0	1	0.20	2.8%	0.00	0.00		
	Injury Crashes	3	2	5	6	3	19	3.80	52.8%	0.00	0.00		
LIGHTING CONDITIONS	Daylight	5	6	6	5	4	26	5.20	72.2%	0.00	0.00		
	Dusk	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Dawn	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
	Dark	1	0	4	4	1	10	2.00	27.8%	0.00	0.00		
	Unknown	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		
SURFACE CONDITIONS	Dry	4	4	6	8	5	27	5.40	75.0%	0.00	0.00		
	Wet	2	2	4	1	0	9	1.80	25.0%	0.00	0.00		
	Others	0	0	0	0	0	0	0.00	0.0%	0.00	0.00		

Table 5. Crash Statistics

Year	2016	2017
Number of Crashes	10	9
Average Daily Traffic (ADT)	18,500	18,700
Actual Crash Rate (ACR)	1.481	1.319
District 6 Average Crash Rate (A)	0.988	0.903
Average Vehicle Exposure (M)	6.753	6.826
Critical Crash Rate (CCR)	2.174	2.026
Safety Ratio	0.681	0.651
Statistical Significance	1.481	1.345
Confidence Level	90.00%	90.00%

2.1 COLLISION DIAGRAM

Figures 4 to **5** represent the collision diagram for SW 132 Avenue, originally prepared for the SR 994 PD&E Traffic Report, to identify any abnormal crash characteristics or patterns at the study intersection that may have occurred during the five years of interest (2014 through 2018).

Based on a review of the crash types, Rear-end type crashes accounted for 27 (75%) of total crashes. Of the 27 Rear-end crashes reported, 18 (67%) were injury crashes and 9 (33%) were PDO crashes. Most Rear-end crashes, 24 (89%) out of 27, occurred in the westbound approach prior to crossing the study intersection.

A fatality occurred on March 20, 2016, at 8:40 PM at the study intersection due to an Angle crash involving a westbound left-turning vehicle and an eastbound through dirt bike. According to the police report (Report No. 852268560), the dirt bike was operating without a head light during dark-lighting conditions. Upon impact, the driver of the dirt bike was ejected and landed on the grass shoulder on the south side of SR 994/Quail Roost Drive.

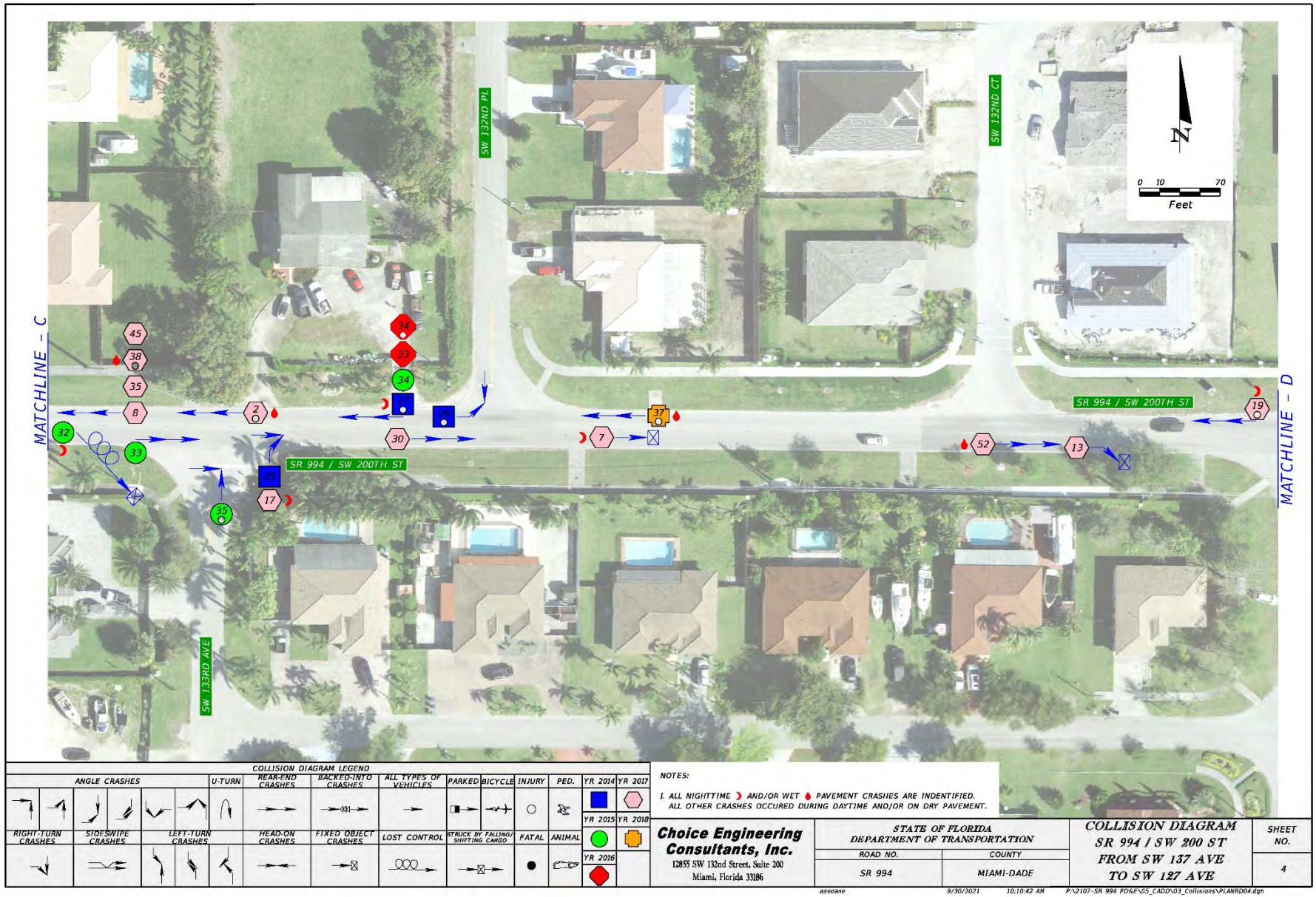


Figure 4. Collision Diagram for SW 132 Avenue (page 1 of 2)

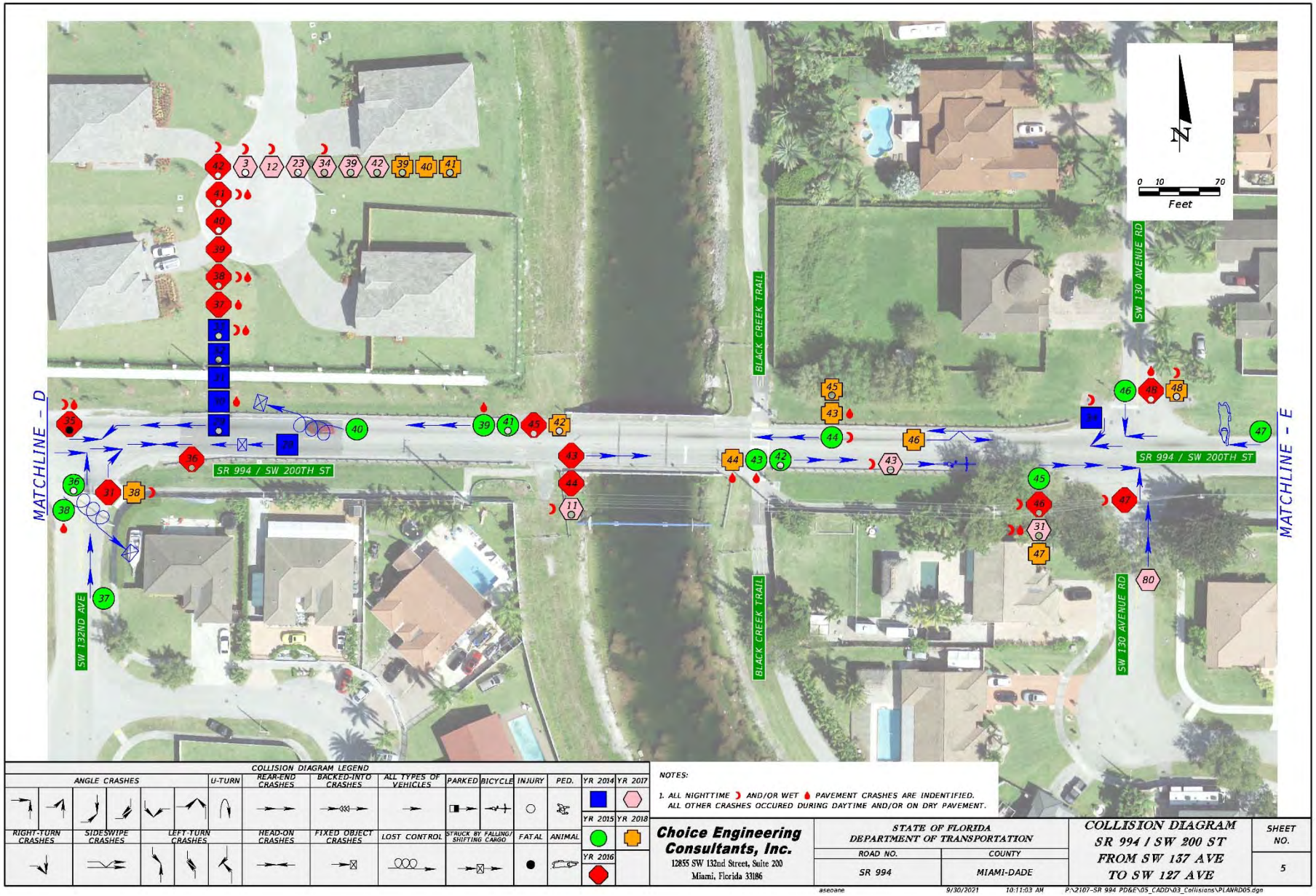


Figure 5. Collision Diagram for SW 132 Avenue (page 2 of 2)

3. SIGNAL WARRANT ANALYSIS

The *Manual on Uniform Traffic Control Devices* (MUTCD) is the national standard published by the FHWA that defines the use and application of traffic control devices. The MUTCD (2009 Edition) defines nine warrants for a traffic signal control. At a minimum, one or more of these warrants must be satisfied to justify the installation of a new traffic signal. However, as indicated in Section 4C.01 of the MUTCD, "*the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal*". Delay, congestion, confusion, or other evidence of the need for right-of-way assignment must be shown. Alternative improvements which may eliminate the need for a signal should also be considered. The nine MUTCD warrants are as follows:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

The analysis of the signal warrants was conducted by completing the Traffic Signal Warrant Summary Forms provided in the Department's Manual on Uniform Traffic Studies (MUTS). These forms provide a useful tool for evaluating the signal warrants. The complete forms are attached at the end of this section and results are summarized below. The signal warrant analysis was performed using traffic and pedestrian data for weekday conditions. For analysis of Warrants 1, 2 and 7, SR 994/Quail Roost Drive was treated as the major street with 2 travel lanes and SW 132 Avenue was treated as the minor street with 2 travel lanes.

3.1 WARRANT 1 – EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 covers the eight-hour vehicular volume for conditions A and B. The Minimum Vehicular Volume (Condition A) is intended where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal. The Interruption of Continuous Traffic (Condition B) is intended where traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. An assessment of the basic minimum hourly volume threshold (100%) for Warrant 1 is shown in **Table 6** for a typical weekday which indicates that Condition A and Condition B were met at the 100% volume threshold. As a result, **Warrant 1 is satisfied** for the study intersection.

Table 6: Warrant 1 (100%) Summary

No.	Time (hr)	Total of Both Approaches on Major Street	Highest Approach Volume on Minor Street (NB)	Condition A is met at 100% ?			Condition B is met at 100% ?			Warrant 1 is met by meeting Condition A or B for at least 8 hours?
				Requirement		Hourly Volume Met?	Requirement		Hourly Volume Met?	
				Major Street (1 Lane)	Minor Street (1 lane)		Major Street (1 Lane)	Minor Street (1 lane)		
1	12:00 AM	113	10	500	150	NO	750	75	NO	Yes, it does meet Conditions A and B at 100% for at least 8 hours in a 24-hour period
2	1:00 AM	69	4	500	150	NO	750	75	NO	
3	2:00 AM	55	4	500	150	NO	750	75	NO	
4	3:00 AM	59	6	500	150	NO	750	75	NO	
5	4:00 AM	114	31	500	150	NO	750	75	NO	
6	5:00 AM	457	135	500	150	NO	750	75	NO	
7	6:00 AM	1133	367	500	150	YES	750	75	YES	
8	7:00 AM	2148	459	500	150	YES	750	75	YES	
9	8:00 AM	2068	295	500	150	YES	750	75	YES	
10	9:00 AM	1026	217	500	150	YES	750	75	YES	
11	10:00 AM	892	181	500	150	YES	750	75	YES	
12	11:00 AM	940	176	500	150	YES	750	75	YES	
13	12:00 PM	1090	206	500	150	YES	750	75	YES	
14	1:00 PM	1181	217	500	150	YES	750	75	YES	
15	2:00 PM	1521	212	500	150	YES	750	75	YES	
16	3:00 PM	1923	194	500	150	YES	750	75	YES	
17	4:00 PM	1780	188	500	150	YES	750	75	YES	
18	5:00 PM	1789	181	500	150	YES	750	75	YES	
19	6:00 PM	1427	184	500	150	YES	750	75	YES	
20	7:00 PM	1054	165	500	150	YES	750	75	YES	
21	8:00 PM	775	117	500	150	NO	750	75	YES	
22	9:00 PM	551	88	500	150	NO	750	75	NO	
23	10:00 PM	359	65	500	150	NO	750	75	NO	
24	11:00 PM	213	24	500	150	NO	750	75	NO	

3.2 WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

Warrant 2, the four-hour vehicular volume warrant, is intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic signal. An assessment of the basic minimum hourly volume threshold (100%) for Warrant 2 is shown in **Table 7** for a typical weekday which indicates that the minor street volumes does exceed the minimum thresholds for at least 4 hours. As a result, **Warrant 2 is satisfied** for the study intersection on the basis that the condition is met for at least 4 hours at a 100% volume threshold.

Table7: Warrant 2 (100%) Summary

No.	Time (hr)	Total of Both Approaches on Major Street	Highest Approach Volume on Minor Street (NB)	Hourly Volume Met? (Minimum threshold for NB is 80 veh)*	Warrant 2 is met by meeting the minimum threshold for at least 4 hours?
1	12:00 AM	113	10	NO	Yes, the minimum threshold is met for at least 4 hours.
2	1:00 AM	69	4	NO	
3	2:00 AM	55	4	NO	
4	3:00 AM	59	6	NO	
5	4:00 AM	114	31	NO	
6	5:00 AM	457	135	NO	
7	6:00 AM	1133	367	YES	
8	7:00 AM	2148	459	YES	
9	8:00 AM	2068	295	YES	
10	9:00 AM	1026	217	YES	
11	10:00 AM	892	181	YES	
12	11:00 AM	940	176	YES	
13	12:00 PM	1090	206	YES	
14	1:00 PM	1181	217	YES	
15	2:00 PM	1521	212	YES	
16	3:00 PM	1923	194	YES	
17	4:00 PM	1780	188	YES	
18	5:00 PM	1789	181	YES	
19	6:00 PM	1427	184	YES	
20	7:00 PM	1054	165	YES	
21	8:00 PM	775	117	NO	
22	9:00 PM	551	88	NO	
23	10:00 PM	359	65	NO	
24	11:00 PM	213	24	NO	

Note: *80 vph applies as the lower threshold volume for a minor-street approach with one lane and a major street volume (total of both approaches) of approximately 1100 vph or greater as shown in Figure 4C-1 of the MUTCD, 2009 Edition.

3.3 WARRANT 3 – PEAK HOUR VOLUME

Warrant 3 is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. The MUTCD stipulates that this warrant must only be used for unusual cases such as office complexes, manufacturing plants, industrial complexes or other high-occupancy vehicle facilities that attract or discharge copious amounts of vehicles over a short time. Warrant 3 is satisfied under one of the following conditions:

A) If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:
   1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and
   2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
   3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B) The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 (MUTCD) for the existing combination of approach lanes.

Based on a review of the immediate surrounding land uses, **Warrant 3 is not applicable** for the study intersection.

3.4 WARRANT 4 – PEDESTRIAN VOLUME

Warrant 4 is intended for applications where the traffic volume on a major street is so heavy that pedestrians experience excessive delays in crossing the major street. Additionally, 70% volume threshold (Figure 4C-6 and Figure 4C-8, MUTCD) can be applied as a result of the major street having a posted speed limit exceeding 35 MPH (Posted Speed Limit is 40 MPH). Warrant 4 is satisfied under one of the following conditions:

A) For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the threshold represented by Figure 4C-5 (MUTCD) or Figure 4C-6. For Figure 4C-5 the absolute minimum pedestrian volume is 107 pedestrians per hour and for Figure 4C-6 the absolute minimum pedestrian volume is 75 pedestrian per hour.

B) For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the threshold represented by Figure 4C-7 (MUTCD) or Figure 4C-8. For Figure 4C-7 the absolute minimum pedestrian volume is 133 pedestrians per hour and for Figure 4C-8 the absolute minimum pedestrian volume is 93 pedestrian per hour.

Based on the traffic count data collected (see Section 3.1 and **Appendix B**) and in concurrence with the field observations (Section 3.2), **Warrant 4 is not applicable** for the study intersection due to the low pedestrian activity observed crossing the major street during the observed peak periods.

3.5 WARRANT 5 – SCHOOL CROSSING

Warrant 5 is applicable when the fact that school children crossing the major street is the principal reason to consider installing a traffic control signal. Based on a review of the surrounding land developments, there are no schools at or in the immediate vicinity of the study intersection and no school children were observed crossing at or near the study intersection during the field observations. Therefore, **Warrant 5 is not applicable** for the study intersection.

3.6 WARRANT 6 – COORDINATED SIGNAL SYSTEM

Warrant 6 is applicable when progressive movement in a coordinated system necessitates installing a traffic signal to maintain proper platooning of vehicles. The MUTCD indicates that this warrant is met if on a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation. **Warrant 6 is not applicable** for the study intersection.

3.7 WARRANT 7 – CRASH EXPERIENCE

Warrant 7 is examined when the crashes experienced at an intersection is the principal reason to consider installing a traffic control signal. This warrant is satisfied when the following three criteria are met:

A) Adequate trials of other remedial measures have failed to reduce crash frequency.

B) Traffic volumes at the study intersection meet 80% of Condition A or B under Warrant 1 or pedestrian volumes meet 80% of Warrant 4. The traffic volumes measured at the intersection satisfy this condition.

C) Five or more reported crashes, of types susceptible to correction by the installation of a traffic control signal, have occurred within a 12-month period – see **Table 8**.

Table 8: Warrant 7 Summary

Crash Type Susceptible to Correction by a Traffic Control Signal	2014	2015	2016	2017	2018	% of All Crashes
Angle	0	1	0	0	0	2.8 %
Left turn	0	0	1	0	0	2.8 %
Total	**0**	**1**	**1**	**0**	**0**	**5.6 %**

Traffic volumes at the study location satisfy Condition 2 but the crash statistics do not satisfy Condition 3 (summarized in **Table 8**). Additionally, Condition 1, the implementation of less restrictive measures, is not satisfied at this time. Consequently, **Warrant 7 is not satisfied** for the study intersection.

3.8 WARRANT 8 – ROADWAY NETWORK

Warrant 8 is appropriate where installing a traffic signal might be justified to encourage concentration/organization of traffic flow on a roadway network and when two or more major routes intersect. A major route as used/defined in this signal warrant shall have at least one of the following characteristics:

A) It is part of the street or highway system that serves as the principal roadway network for through traffic flow.

B) It includes rural or suburban highways outside, entering, or traversing a city.

C) It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Therefore, as per the MUTCD Warrant 8 guidance SW 132 Avenue is not considered a major road and consequently, **Warrant 8 is not applicable** for the study intersection.

3.9 WARRANT 9 – INTERSECTION NEAR A GRADE CROSSING

Warrant 9 is appropriate where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal. Based on a review of the surrounding area, there are no grade crossings at or in the immediate vicinity of the study intersection. Consequently, **Warrant 9 is not applicable** for the study intersection.

3.10 WARRANT ANALYSIS SUMMARY

Table 9 is a compiled summary of the warrant analysis. Of the nine minimum warrants reviewed, three are applicable, and two are satisfied.

Table 92: Warrant Analysis Summary

Warrant 1	**Satisfied √**	**Warrant 6**	Not Applicable
Warrant 2	**Satisfied √**	**Warrant 7**	**Not Satisfied ×**
Warrant 3	Not Applicable	**Warrant 8**	Not Applicable
Warrant 4	Not Applicable	**Warrant 9**	Not Applicable
Warrant 5	Not Applicable		

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/ SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ MAY ☐ 70% ☑ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

*Warrant 1 is satisfied if Condition A **or** Condition B is "100%" satisfied for eight hours.* ☑ Yes ☐ No

*Warrant 1 is also satisfied if both Condition A **and** Condition B are "80%" satisfied (should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems).* ☑ Yes ☐ No

*Warrant 1 is satisfied if Condition A **or** Condition B is "70%" satisfied for eight hours.* ☑ Yes ☐ No

Condition A - Minimum Vehicular Volume

Condition A is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Applicable:	☑ Yes	☐ No
100% Satisfied:	☑ Yes	☐ No
80% Satisfied:	☑ Yes	☐ No
70% Satisfied:	☑ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	Minor	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

[a] Basic Minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Street	Eight Highest Hours							
	7:00 AM	8:00 AM	3:00 PM	5:00 PM	4:00 PM	2:00 PM	5:00 PM	1:00 PM
Major	2,148	2,068	1,923	1,789	1,780	1,521	1,427	1,181
Minor	459	295	194	181	188	212	184	217

Existing Volumes

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where Condition A is not satisfied and the traffic volume on a major street is so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Applicable:	☐ Yes	☑ No
100% Satisfied:	☑ Yes	☐ No
80% Satisfied:	☑ Yes	☐ No
70% Satisfied:	☑ Yes	☐ No

Number of Lanes for moving traffic on each approach		Vehicles per hour on major-street (total of both approaches)			Vehicles per hour on minor-street (one direction only)		
Major	**Minor**	**100%[a]**	**80%[b]**	**70%[c]**	**100%[a]**	**80%[b]**	**70%[c]**
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

[a] Basic Minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Record 8 highest hours and the corresponding major-street and minor-street volumes in the Instructions Sheet.

Eight Highest Hours								
Street	**7:00 AM**	**8:00 AM**	**3:00 PM**	**5:00 PM**	**4:00 PM**	**2:00 PM**	**5:00 PM**	**1:00 PM**
Major	2,148	2,068	1,923	1,789	1,780	1,521	1,427	1,181
Minor	459	295	194	181	188	212	184	217

Existing Volumes

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/ SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ MAY ☐ 70% ☑ 100%

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

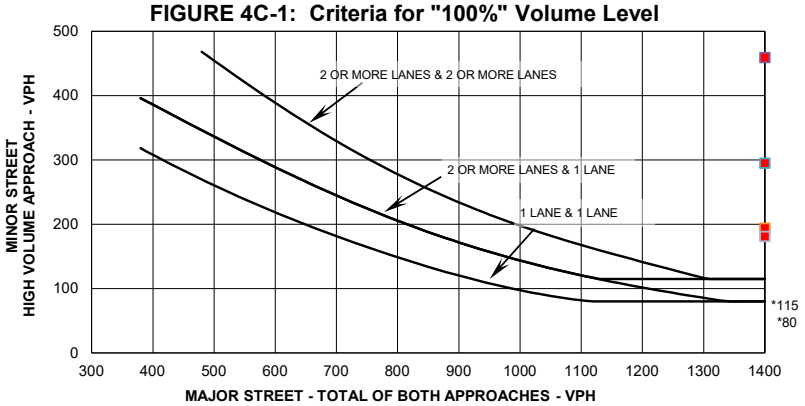
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
7:00 AM	2148	459
8:00 AM	2068	295
3:00 PM	1923	194
5:00 PM	1789	181

FIGURE 4C-1: Criteria for "100%" Volume Level



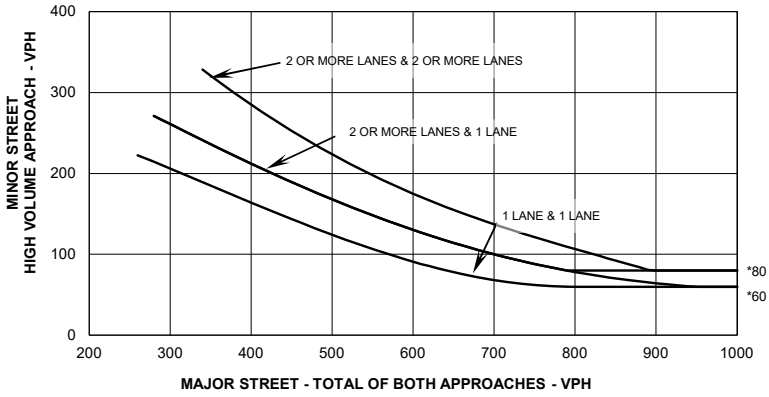
** Note: 115 ph. applies as the lower threshold volume for a minor street approach with two or more lanes and 80 mph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr. (40 mph) on Major Street)



** Note: 80 ph. applies as the lower threshold volume for a minor street approach with two or more lanes and 60 ph. applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 40 mph? ☐ Yes ☑ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☐ MAY ☐ 70% ☑ 100%

WARRANT 3 - PEAK HOUR

*If all three criteria are fulfilled **or** the plotted point lies above the appropriate line, then the warrant is satisfied.*

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Unusual condition justifying use of warrant:

Industrial Complex

-

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
7:00 AM	2148	459

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

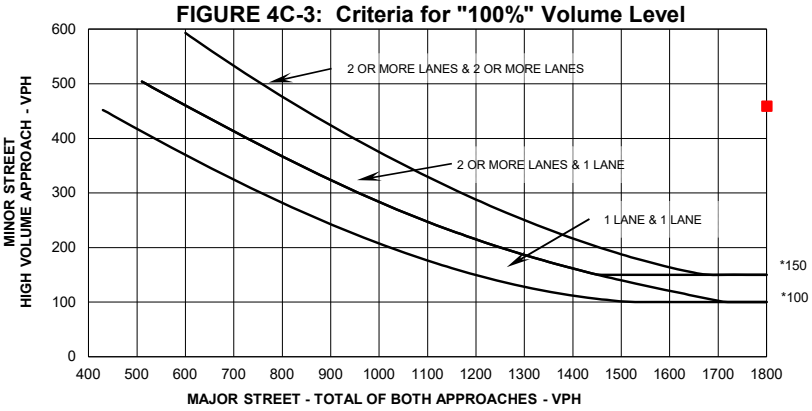
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes	☐ No

2. Volume on Minor Approach One-Direction *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	☐ Yes	☐ No

3. Total Intersection Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	☐ Yes	☐ No

Plot volume combination on the applicable figure below.

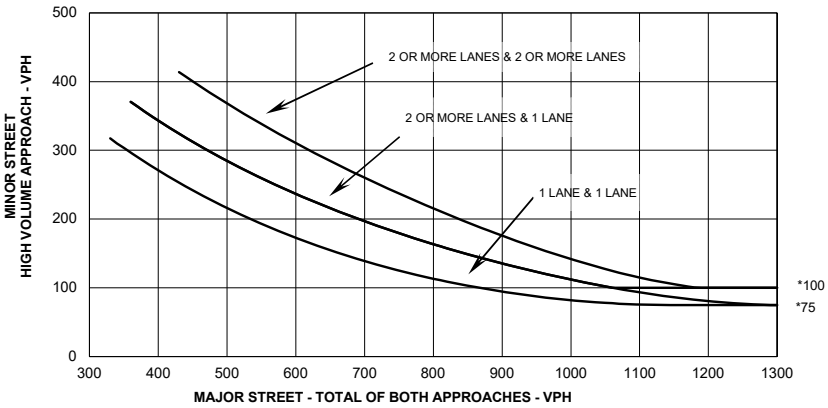
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr. (40 mph) on Major Street)



** Note: 100 ph. applies as the lower threshold volume for a minor street approach with two or more lanes and 75 phi applies as the lower threshold volume threshold for a minor street approach with one lane.*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

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Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pd

Volume Level Criteria

1. Is the posted speed or 85th-percentile of major street > 35 mph? ☑ Yes ☐ No
2. Is the intersection in a built-up area of an isolated community with a population < 10,000? ☐ Yes ☑ No

"70%" volume level **may** be used if Question 1 **or** 2 above is answered "Yes" ☑ MAY ☑ 70% ☐ 100%

Option

Pedestrian volume crossing the major street ***may*** *be reduced as much as 50% if the 15th-percentile crossing speed of pedestrians is less than 3.5 ft/sec.* A walking speed study was conducted which reported a pedestrian speed less than 3.5 ft/sec for the 15th percentile. ☐ Yes ☐ No

WARRANT 4 - PEDESTRIAN VOLUME

For each of any 4 hours of an average day, the plotted points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Plot four volume combinations on the applicable figure below.

Figure 4C-5. Criteria for "100%" Volume Level

** Note: 107 pph applies as the lower threshold volume for 100% volume level*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total
7:00 AM	2148	
8:00 AM	2068	
3:00 PM	1923	
5:00 PM	1789	

Figure 4C-6 Criteria for "70%" Volume Level

** Note: 75 pph applies as the lower threshold volume for 70% volume level*

WARRANT 4 - PEDESTRIAN VOLUME

For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point falls above the appropriate line, then the warrant is satisfied.

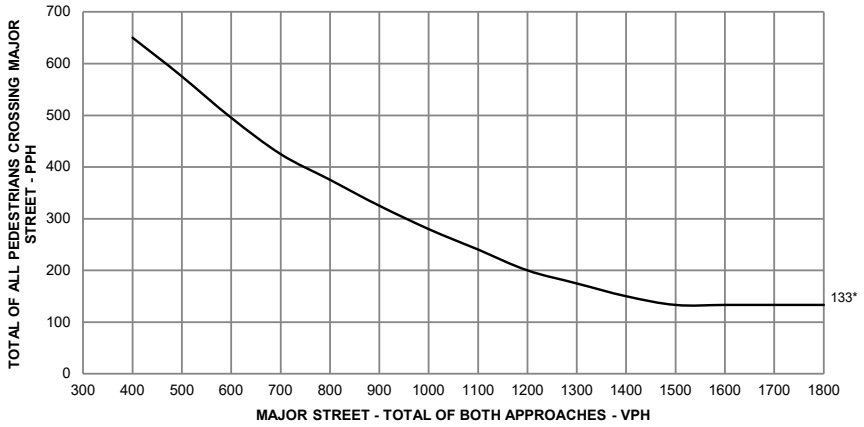
Applicable:	☐ Yes	☑ No
Satisfied:	☐ Yes	☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total

Figure 4C-7. Criteria for "100%" Volume Level - Peak Hour

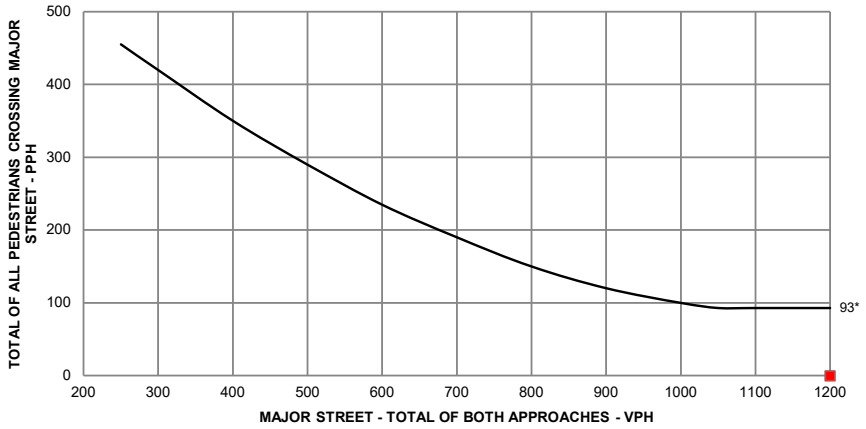


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
12:00 AM	2148	

Figure 4C-8 Criteria for "70%" Volume Level - Peak Hour



** Note: 93 pph applies as the lower threshold volume*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

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WARRANT 5 - SCHOOL CROSSING

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria				Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students:	Hour:			
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the established school crossing than the number of minutes in the same period.		Minutes:	Gaps:		
3. The nearest traffic signal along the major street is located more than 300 ft. (90 m) away, or the nearest signal is within 300 ft. (90 m) but the proposed traffic signal will not restrict the progressive movement of traffic.					

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Major Street:	**SR 994/ SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

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WARRANT 6 - COORDINATED SIGNAL SYSTEM

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft.).

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled?	
	Yes	**No**
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

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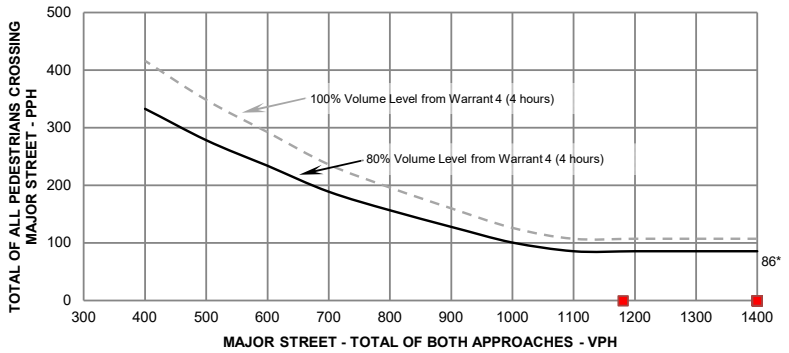
WARRANT 7 - CRASH EXPERIENCE

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if ***all three*** *of the criteria are fulfilled.*

Applicable: ☑ Yes ☐ No
Satisfied: ☐ Yes ☑ No

Criteria					Fulfilled? Yes	Fulfilled? No
1. Adequate trial of other remedial measure has failed to reduce crash frequency.	Measure tried:					X
2. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-month period.	Observed Crash Types:	Angle and Left-turn crashes	Number of crashes per 12 months:	1		X
3. **One of the following volume warrants is met:**				**Met?**	Yes	
Warrant 1, Condition A (80% satisfied), or				Yes		
Warrant 1, Condition B (80% satisfied), or				Yes		
Warrant 4, Pedestrian Volume satisfied at 80% of volume requirements for any 8 hours of an average day.	**Hour**	**Major Street Volume**	**Ped Crossings Volume**			
	7:00 AM	2148				
	8:00 AM	2068				
	3:00 PM	1923				
	5:00 PM	1789				
	4:00 PM	1780				
	2:00 PM	1521				
	5:00 PM	1427				
	1:00 PM	1181				

Figure 4C-5. Criteria for "100%" Volume Level



* Note: 86 pph applies as the lower threshold volume for the 80% volume threshold.

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

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Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

WARRANT 8 - ROADWAY NETWORK

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the Major Route characteristics listed.

Applicable: ☐ Yes ☑ No

Satisfied: ☐ Yes ☐ No

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.			Entering Volume:						
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		Warrant:	1	2	3				
			Satisfied?:							
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)							← Hour			
							←Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/ SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

Approach Lane Criteria

1. How many approach lanes are there at the track crossing? ☐ 1 ☐ 2 or more

If there is 1 lane, use Figure 4C-9 and if there are 2 or more, use Figure 4C-10. ☐ Fig 4C-9 ☐ Fig 4C-10

WARRANT 9 - INTERSECTION NEAR A GRADE CROSSING

This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing.

Indicate if both criteria are fulfilled in the boxes provided. The warrant is satisfied if both criteria are met.

Applicable: ☐ Yes ☑ No
Satisfied: ☐ Yes ☐ No

Criteria	Fulfilled? Yes	Fulfilled? No
1. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and	☐	☑
2. During the highest traffic volume hour during which the rail uses the crossing, the plotted point falls above the applicable curve for the existing combination of approach lanes over the track and the distance D (clear storage distance).	☐	☐

Use the following tables (4C-2, 4C-3, and 4C-4 to appropriately adjust the minor-street approach volume).

Inputs		**Adjustment Factors from Tables**
Occurrences of Rail traffic per day		
% of High Occupancy Buses on Approach Lane at Track Crossing		**1.00**
Enter D (feet)		
% of Tractor-Trailer Trucks on Approach Lane at Track Crossing		**0.50**

Table 4C-2. Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people

Table 4C-4. Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor: D less than 70 feet	Adjustment Factor: D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

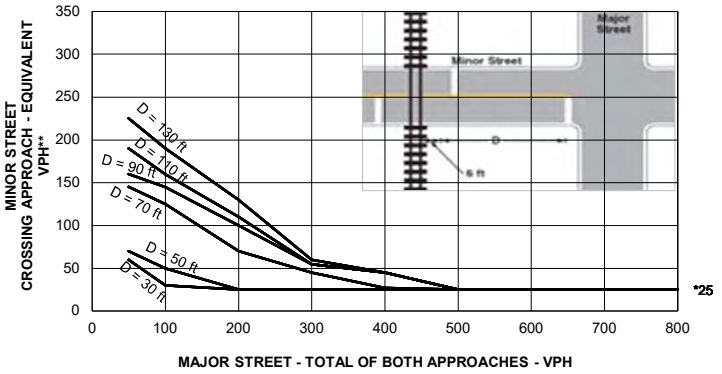
Input the major and minor street volumes before adjustment factors are applied

1 Approach Lane		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

1 Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-9: Criteria for 1 Approach Lane at the Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

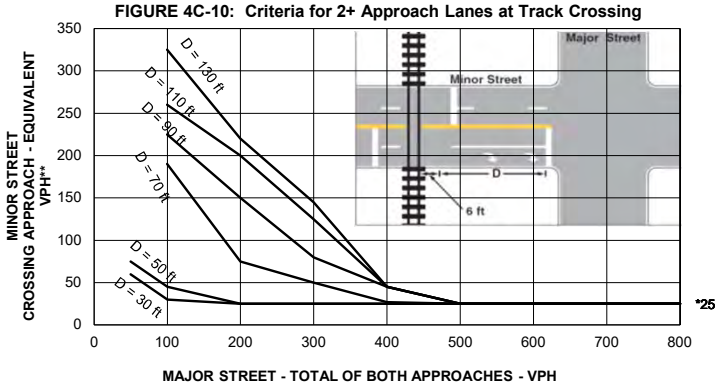
Input D and the major and minor street volumes before adjustment factors are applied

2 or more Approach Lanes		
D (ft)	Major Vol.	Minor Vol.

After adjustment factors are applied

2+ Approach Lane w/Factors		
D (ft)	Major Vol.	Minor Vol.

FIGURE 4C-10: Criteria for 2+ Approach Lanes at Track Crossing



** Note: 25 vph applies as the lower threshold volume*

** *Note: VPH after applying the adjustment factors in Tables 4C-2, 4C, and or 4C-4, if appropriate*

Form 750-020-01
TRAFFIC ENGINEERING
October 2020

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:		Engineer:	**Choice Engineering, Inc**
County:	**87 – Miami Dade**	Date:	
District:	**Six**		

Major Street:	**SR 994/ SW 200 St/Quail Roost Dr**	Lanes:	**2**	Major Approach Speed:	**40**
Minor Street:	**SW 132 Avenue**	Lanes:	**2**	Minor Approach Speed:	**30**

MUTCD Electronic Reference to Chapter 4: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part4.pdf

CONCLUSIONS

Remarks:

WARRANTS SATISFIED:

Warrant 1	☐ Not Applicable	☑ Met	☐ Not Met
Warrant 2	☐ Not Applicable	☑ Met	☐ Not Met
Warrant 3	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 4	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 5	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 6	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 7	☐ Not Applicable	☐ Met	☑ Not Met
Warrant 8	☑ Not Applicable	☐ Met	☐ Not Met
Warrant 9	☑ Not Applicable	☐ Met	☐ Not Met

Appendix H: Intersection Control Evaluation for SW 137 Avenue

DocuSign Envelope ID: 18004A6A-E69C-4901-A820-8BDF53D41949

SR 994/Quail Roost Drive at SW 137 Avenue

Financial Project No.: 445804-1-22-01

ICE STUDY

(STAGE 1)

Prepared for:

Florida Department of Transportation

District Six

Elsa Riverol, P.E.
FDOT Project Manager

Prepared By:
Choice Engineering Consultants, Inc.

January 2022

DocuSign Envelope ID: 18004A6A-E69C-4901-A820-8BDF53D41949

Date: January 5, 2022

To: Elsa Riverol, P.E., FDOT Project Manager

From: Eugenio S. Lopez, P.E.; Jessica Garcia, MSCE, E.I.

Subject: ICE Study (Stage 1) – SR 994/Quail Roost Drive at SW 137 Avenue

FPID No.: 445804-1-22-01

The Florida Department of Transportation (FDOT) District Six Traffic Operations' Office (Department) assigned Choice Engineering Consultants, Inc. to perform an Intersection Control Evaluation (ICE) to identify and select a control strategy for the intersection of SR 994/Quail Roost Drive (hereafter referred to as SR 994) at SW 137 Avenue, located in Miami-Dade County, Florida, meeting the goals and needs of the community and reflecting the overall best value. The review focuses on assessing the vehicular traffic demands based on a review of the traffic data and crash data. This study originated from the development of the PD&E scope for SR 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue. In addition, a RRR Safety Review performed at this location (FPID No. 250650-4-32-01) considered the installation of an eastbound left-turn lane.

The study location is the three-legged intersection of SR 994 (Roadway Section 87091000) at SW 137 Avenue (MP 4.075) – see **Figure 1**. However, Miami-Dade County project for SW 137 Avenue Roadway Improvements (FM No. 20040343) is currently under construction and will open the south leg of the intersection to traffic by year 2025. In addition, County Project PW168 will widen SW 137 Avenue from two lanes to four lanes from US 1 to SW 184th Street by 2045 (no plans available yet). Within the study area, SR 994 is a two-lane two-way undivided road oriented in the east to west direction with a posted speed limit of 40 MPH. The north leg of the study intersection, SW 137 Avenue, is a two-lane two-way undivided roadway oriented in the north to south direction with a posted speed limit of 40 MPH. The functional and context classification of SR 994 are Urban Minor Arterial and C3R Suburban Residential, respectively. FDOT defines this C3R context classification as "mostly residential uses within large blocks and a disconnected or sparse roadway network." Within the study area, there are no pedestrian facilities such as sidewalks or bus stops. The area immediately surrounding the study intersection includes a Calvary Pentecostal Church in the northeast corner and residential homes with agricultural lands in the northwest, southwest, and southeast corners of the study intersection.

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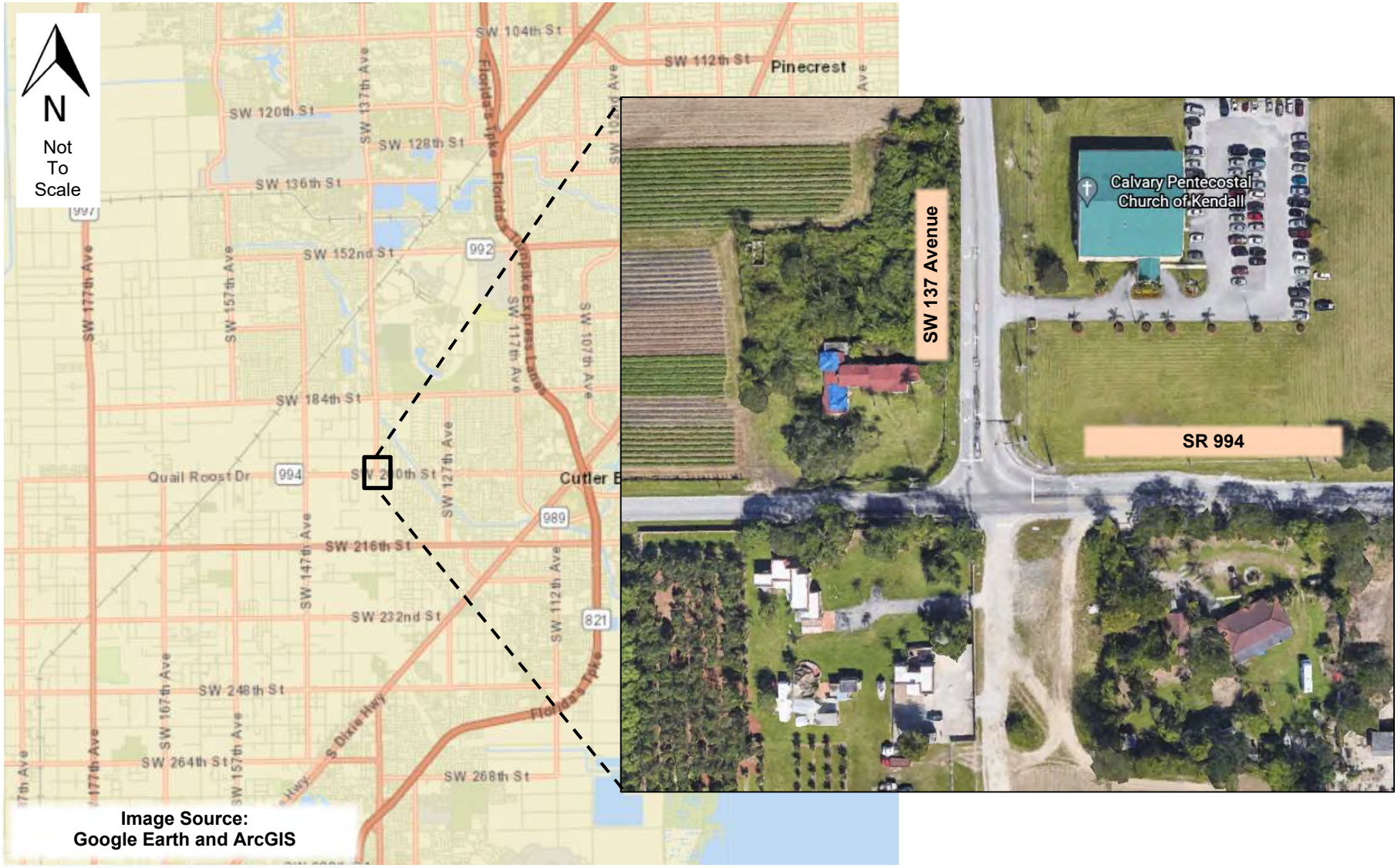

Figure 1. Study Location Map

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The ICE activities consist of three stages. This report includes the items for stage 1 (screening), which utilizes FHWA's Capacity Analysis for Planning of Junctions (CAP-X) and FHWA's Safety Performance of Intersection Control Evaluations (SPICE). The CAP-X tool intends to evaluate selected types of innovative intersection designs and the SPICE tool conducts a safety analysis.

The Stage 1 Screening ICE form was completed first to identify potential control strategies to be advanced. This evaluation was performed for SR 994 design year traffic conditions 2045. Based on the planning model for the SR 994 PD&E Study, two sets of traffic volumes were developed for 2045, No-Build and Build traffic conditions as presented in **Figure 2**. The Stage 1 Screening ICE forms were populated using these two sets of 2045 traffic volumes. The first analysis used 2045 No-Build traffic volumes and included the screening of the following alternatives: signalized intersection per Miami-Dade County projects (FM No. 20040343 and PW168); signalized intersection per SR 994 PD&E TSM Alternative; 2-lane roundabout. The second analysis (separate form populated) was conducted using the 2045 Build traffic volumes and included the screening of the SR 994 PD&E Build Alternative and the 2-lane roundabout. Two separate forms were populated due to having developed two sets of traffic volumes. The TSM Alternative was evaluated using the No Build 2045 traffic volumes, since it is more representative of the 2045 No Build intersection conditions (four-legged intersection with widened SW 137 Avenue per Miami-Dade County projects) than the Build Alternative (greater capacity along SR 994, which means higher volumes). These control strategies were then further developed through the CAP-X and SPICE forms.

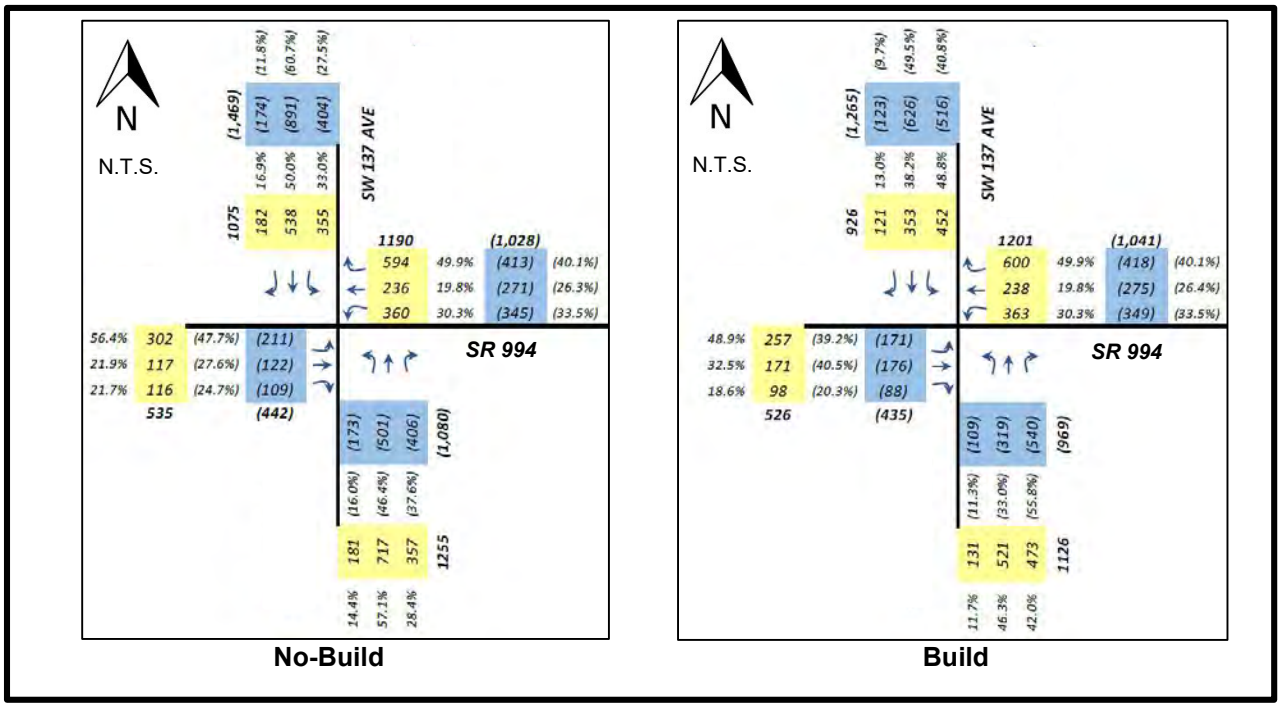

Figure 2. No-Build and Build 2045 Traffic Volumes

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The control strategies considered using the 2045 no-build traffic volumes are as follows:

- No-Build Alternative (see **Figure 3**)

Note: Intersection is converted to a four-legged intersection with additional lanes along SW 137 Avenue per Miami-Dade County projects (FM No. 20040343 and PW168).

  - Eastbound (SR 994) – 1 shared left/through/right-turn lane.
  - Westbound (SR 994) – 1 shared through/left-turn lane and 1 right-turn bay.
  - Northbound (SW 137 Avenue) – 1 left-turn bay, 1 through lane, and 1 shared through/right-turn lane.
  - Southbound (SW 137 Avenue) – 1 left-turn bay, 1 through lane, and 1 shared through/right-turn lane.
- TSM&O Alternative (see **Figure 3**)
  - Eastbound (SR 994) – 2 left-turn bays, and 1 shared through/right-turn lane.
  - Westbound (SR 994) – 2 left-turn bays, 1 through lane, and 1 right-turn bay.
  - Northbound (SW 137 Avenue) – 1 left-turn bay, 2 through lanes, and 1 right-turn bay.
  - Southbound (SW 137 Avenue) – 2 left-turn bays, 2 through lanes, and 1 right-turn bay.
- 2-lane roundabout

Note: 1-lane roundabout was excluded due to insufficient capacity.

The control strategies considered using the 2045 build traffic volumes are as follows:

- Build Alternative (see **Figure 4**)
  - Eastbound (SR 994) – 2 left-turn bays, 1 through lane, and 1 shared through/right-turn lane.
  - Westbound (SR 994) – 2 left-turn bays, 2 through lanes, and 1 right-turn bay.
  - Northbound (SW 137 Avenue) – 1 left-turn bay, 2 through lanes, and 1 right-turn bay.
  - Southbound (SW 137 Avenue) – 2 left-turn bays, 2 through lanes, and 1 right-turn bay.
- 2-lane roundabout

Note: 1-lane roundabout was excluded due to insufficient capacity.

(This area was intentionally left blank.)

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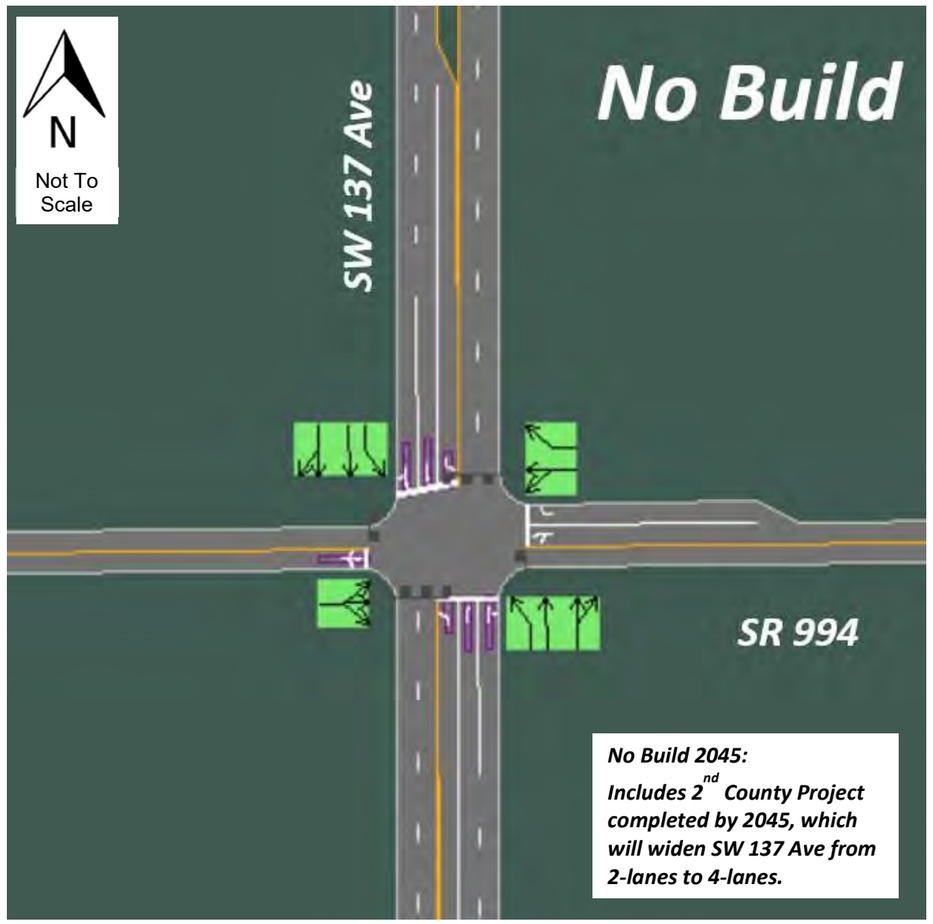

Figure 3. No-Build Volume Traffic Signal Alternatives

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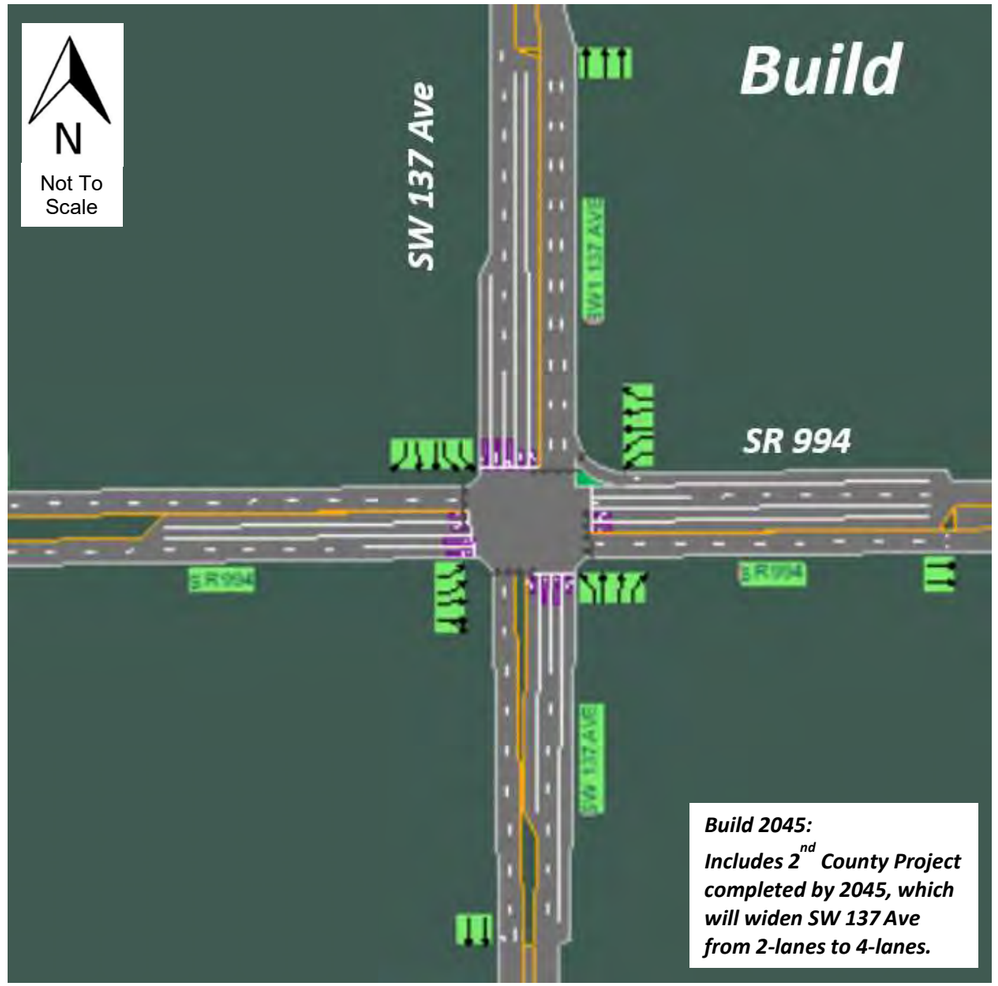

Figure 4. Build Volume Traffic Signal Alternative

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The following items are included within this document:

- Stage 1 Screening ICE forms x2 (**Attachment A**)
  - ICE Form #1 – Alternatives analyzed using No Build 2045 traffic volumes.
  - ICE Form #2 – Alternatives analyzed using Build 2045 traffic volumes.
- CAP-X forms x6 (**Attachment B**)
  - CAP-X Form #1 – AM peak period using no-build 2045 traffic volumes.
  - CAP-X Form #2 – AM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations.
  - CAP-X Form #3 – AM peak period using build 2045 traffic volumes.
  - CAP-X Form #4 – PM peak period using no-build 2045 traffic volumes.
  - CAP-X Form #5 – PM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations.
  - CAP-X Form #6 – PM peak period using build 2045 traffic volumes.
- SPICE forms x2 (**Attachment C**)
  - SPICE Form #1 –Alternatives analyzed using No Build 2045 traffic volumes.
  - SPICE Form #2 –Alternatives analyzed using Build 2045 traffic volumes.
- One FDOT traffic trend analysis worksheet for SR 994 (**Attachment D**)
  - Historic AADT was obtained from FDOT Florida Traffic Online (FTO) Station #871116
- Crash statistics (included as **Attachment E**)

Amongst the 2045 No-Build traffic volume alternatives, the TSM&O alternative exhibited the top score in the CAP-X forms with V/C ratios of 0.77 and 0.67 for the AM and PM peak periods, respectively. Amongst the 2045 Build traffic volume alternatives, the build signalized control intersection, per SR 994 PD&E, exhibited the top score in the CAP-X forms with V/C ratios of 0.76 and 0.65 for the AM and PM peak periods, respectively. The 2-lane roundabout will not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0) when analyzed using the 2045 No Build and Build traffic conditions. Additionally, the 2-lane roundabout obtained a SPICE safety ranking below the intersection's existing condition in 2045. **Figure 5** represents the ICE results for all the alternatives considered.

Upon the Department's approval of the Stage 1 screening, the project will proceed to Stage 2 for a preliminary control strategy assessment which intends to help differentiate the remaining control strategies with a more detailed vetting and conceptual designs. The strategies moving to Stage 2 are:

- SR 994 PD&E TSM&O Alternative
- SR 994 PD&E Build Alternative

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	Control Strategy Evaluation						
	Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
		CAP-X Outputs					
		V/C Ratio					
	Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Alternatives Evaluated per 2045 No-Build Traffic Volumes	Signalized Control (Miami-Dade County Project)	0.96	0.97	7.2	2	No	Strategy is not to be advanced since this would be the existing intersection condition in 2045 as per the Miami-Dade County projects.
	Roundabout (2-lane)	1.42	1.27	8.3	3	No	Strategy is not to be advanced since the AM and PM V/C ratios are above capacity (>1.0). SPICE ranking is also worse than the 2045 existing condition.
	Signalized Control (TSM&O)	0.77	0.67	7.2	1	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.

	Control Strategy Evaluation						
	Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
		CAP-X Outputs					
		V/C Ratio					
	Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Alternatives Evaluated per 2045 Build Traffic Volumes	Signalized Control (Build per SR 994 PD&E)	0.76	0.65	7.2	1	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.
	Roundabout (2-lane)	1.09	1.04	8.3	2	No	Strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0). SPICE ranking is also worse than the 2045 existing condition.

Figure 5. Summary of ICE Results

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ATTACHMENT A – ICE Forms

DocuSign Envelope ID: 18004A6A-E69C-4901-A820-8BDF53D41949

ICE Form #1

(Alternatives analyzed using No Build 2045 traffic volumes**)**

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	SR 994/Quail Roost Drive at SW 137 Avenue		FDOT Project #	445804-1-22-01	
Submitted By	Eugenio Lopez	Agency/Company	Choice Engineering Consultants	Date	1/5/2022
Email	elopez@choiceeng.com	FDOT District	District 6	County	Miami-Dade
Project Locality (*City/Town/Village*)	Redland		Project Type	Corridor Improvement Project	
Project Funding Source	Non-federal	FDOT Context Classification	C3R - Suburban Residential		
Project Purpose (*What is the catalyst for this project and why is it being undertaken?*)	This project was initiated due to the need to evaluate traffic control strategies at the intersection of SR 994/Quail Roost Drive at SW 137 Avenue as a result of major reconstruction of the existing signalized intersection as per the Miami-Dade County projects FM No. 20040343 and PW168. This ICE form considers the 2045 No-Build volumes with the alternatives of the no-build traffic signal, TSM&O traffic signal, and 2-lane roundabout.				
Project Setting Description (*Describe the area surrounding the intersection*)	The area immediately surrounding the study intersection includes a Calvary Pentecostal Church in the northeast corner and residential homes with agricultural lands in the northwest, southwest, and southeast corners of the study intersection.				
Multimodal Context (*Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns*)	The study intersection offers no sidewalks or crosswalks. There are no designated bicycle lanes or markings along SR 994/Quail Roost Drive. Low, if any, pedestrian/bicycle activity is anticipated at the study intersection. However, the proposed alternatives and Miami-Dade County project (FM No. 20040343) will include multimodal facilities such as bike lanes along SW 137 Avenue.				

Major Street Information

Route #:	87091000	Route Name(s)	SR 994/Quail Roost Drive	Milepost	4.075
Existing Control Type	Signal	Existing AADT	11,700	Design Year AADT	12,608
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)		
Primary Functional Classification	Urban Minor Arterial			Design Speed (mph)	40
Secondary Functional Classification (if app.)				Target Speed (mph) [if app.]	

Approach #1	Direction	Eastbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along	Neither side of the approach	Left-Turn					
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	302	Left	211
	Multi-Use Path?	No	Left-Through-Right	1	Through	117	Through	122
	Scheduled Bus Service?	No	Through-Right		Right	116	Right	109
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		10.7%	
Approach #2	Direction	Westbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn					
	Crosswalk on Approach?	No	Left-Through	1	Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	360	Left	345
	Multi-Use Path?	No	Left-Through-Right		Through	236	Through	271
	Scheduled Bus Service?	No	Through-Right		Right	594	Right	413
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		10.9%	

Note: The "major street" and "minor street" sections use the 2045 No-Build traffic volumes and the lane geometry for the 2045 existing traffic signal, per Miami-Dade County projects, for informational purposes.

Minor Street Information							
Route #:		Route Name(s)	SW 137 Avenue			Milepost (if app.)	
Existing Control Type	Signal		Existing AADT	20,800		Design Year AADT	22,414
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)			
Primary Functional Classification		Urban Minor Collector				Design Speed (mph)	40
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]	

Approach #1	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	1	Left	181	Left	173
	Multi-Use Path?	No	Left-Through-Right		Through	717	Through	501
	Scheduled Bus Service?	No	Through-Right	1	Right	357	Right	406
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		2.0%	
Approach #2	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	1	Left	355	Left	404
	Multi-Use Path?	No	Left-Through-Right		Through	538	Through	891
	Scheduled Bus Service?	No	Through-Right	1	Right	182	Right	174
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		10.0%	
Approach #3	Direction		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:		Left-Turn					
	Crosswalk on Approach?		Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?		Through		Left		Left	
	Multi-Use Path?		Left-Through-Right		Through		Through	
	Scheduled Bus Service?		Through-Right		Right		Right	
	Bus Stop on Approach?		Right-Turn		Daily Truck %			

Crash History (Existing Intersections Only)
Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:
There was a total of 62 crashes in the five-year period with a yearly breakdown of 6, 18, 15, 10, and 13 crashes (2014, 2015, 2016, 2017, and 2018). The leading crash types consisted of Rear-End with 47 (76%) crashes, Angle with 6 (10%) crashes, and Left-turn with 4 (7%) crashes. Based on crash severity, 43 (69%) crashes were property damaged only (PDO) and 19 (31%) were injury type crashes. Based on the 2020 FDOT's 5-year high crash lists for spots and segments, the study intersection is a high crash spot and segment (MP 4.075 to 4.961). Additionally, there were 18 (29%) nighttime crashes and 15 (24%) crashes that occured under wet/slippery pavement conditions which is above the district-wide average of 29% and 12%, respectively.

Control Strategy Evaluation						
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
	CAP-X Outputs					
	V/C Ratio					
Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Two-Way Stop-Controlled					No	An interim measure to the existing condition.
All-Way Stop-Controlled					No	An interim measure to the existing condition.
Signalized Control (Miami-Dade County Project)	0.96	0.97	7.2	2	No	Strategy is not to be advanced since this would be the existing intersection condition in 2045 as per the Miami-Dade County projects.
Roundabout (2-lane)	1.42	1.27	8.3	3	No	Strategy is not to be advanced since the AM and PM V/C ratios are above capacity (>1.0). SPICE ranking is also worse than the 2045 existing condition.
Median U-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Signalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Unsignalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
Jughandle					No	Not feasible with existing roadway geometry and insufficient R/W.
Displaced Left-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
Continuous Green Tee					No	Not feasible with existing roadway geometry and insufficient R/W.
Quadrant Roadway					No	Not feasible with existing roadway geometry and insufficient R/W.
Signalized Control (TSM&O)	0.77	0.67	7.2	1	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.
Other					No	

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DTOE Name	Meitin, Omar	Signature	DocuSigned by: Meitin, Omar CA0A65627D7244D...	Date	2/22/2022 | 3:
DDE Name	Karina Fuentes	Signature	DocuSigned by: Karina Fuentes 928260846A474B5...	Date	2/24/2022 | 1

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ICE Form #2

(Alternatives analyzed using Build 2045 traffic volumes**)**

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	SR 994/Quail Roost Drive at SW 137 Avenue		FDOT Project #	445804-1-22-01	
Submitted By	Eugenio Lopez	Agency/Company	Choice Engineering Consultants	Date	1/5/2022
Email	elopez@choiceeng.com	FDOT District	District 6	County	Miami-Dade
Project Locality (*City/Town/Village*)	Redland		Project Type	Corridor Improvement Project	
Project Funding Source	Non-federal	FDOT Context Classification	C3R - Suburban Residential		
Project Purpose (*What is the catalyst for this project and why is it being undertaken?*)	This project was initiated due to the need to evaluate traffic control strategies at the intersection of SR 994/Quail Roost Drive at SW 137 Avenue as a result of major reconstruction of the existing signalized intersection as per the Miami-Dade County projects FM No. 20040343 and PW168. This ICE form considers the 2045 Build volumes with the alternatives of the build traffic signal and 2-lane roundabout.				
Project Setting Description (*Describe the area surrounding the intersection*)	The area immediately surrounding the study intersection includes a Calvary Pentecostal Church in the northeast corner and residential homes with agricultural lands in the northwest, southwest, and southeast corners of the study intersection.				
Multimodal Context (*Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns*)	The study intersection offers no sidewalks or crosswalks. There are no designated bicycle lanes or markings along SR 994/Quail Roost Drive. Low, if any, pedestrian/bicycle activity is anticipated at the study intersection. However, the proposed alternatives and Miami-Dade County project (FM No. 20040343) will include multimodal facilities such as bike lanes along SW 137 Avenue.				

Major Street Information

Route #:	87091000	Route Name(s)	SR 994/Quail Roost Drive	Milepost	4.075
Existing Control Type	Signal	Existing AADT	11,700	Design Year AADT	12,608
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)		
Primary Functional Classification	Urban Minor Arterial			Design Speed (mph)	40
Secondary Functional Classification (if app.)				Target Speed (mph) [if app.]	

Approach #1	Direction	Eastbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along	Neither side of the approach	Left-Turn	2				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	1	Left	257	Left	171
	Multi-Use Path?	No	Left-Through-Right		Through	171	Through	176
	Scheduled Bus Service?	No	Through-Right	1	Right	98	Right	88
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		10.7%	
Approach #2	Direction	Westbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	2				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	2	Left	363	Left	349
	Multi-Use Path?	No	Left-Through-Right		Through	238	Through	275
	Scheduled Bus Service?	No	Through-Right		Right	600	Right	418
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		10.9%	

Note: The "major street" and "minor street" sections use the 2045 Build traffic volumes and the lane geometry for the 2045 build traffic signal for informational purposes.

660

Minor Street Information							
Route #:		Route Name(s)	SW 137 Avenue			Milepost (if app.)	
Existing Control Type	Signal		Existing AADT	20,800		Design Year AADT	22,414
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)			
Primary Functional Classification		Urban Minor Collector				Design Speed (mph)	40
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]	

Approach #1	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	2	Left	131	Left	109
	Multi-Use Path?	No	Left-Through-Right		Through	521	Through	319
	Scheduled Bus Service?	No	Through-Right		Right	473	Right	540
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		2.0%	
Approach #2	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	2				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	2	Left	452	Left	516
	Multi-Use Path?	No	Left-Through-Right		Through	353	Through	626
	Scheduled Bus Service?	No	Through-Right		Right	121	Right	123
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		10.0%	
Approach #3	Direction		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:		Left-Turn					
	Crosswalk on Approach?		Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?		Through		Left		Left	
	Multi-Use Path?		Left-Through-Right		Through		Through	
	Scheduled Bus Service?		Through-Right		Right		Right	
	Bus Stop on Approach?		Right-Turn		Daily Truck %			

Crash History (Existing Intersections Only)
Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:
There was a total of 62 crashes in the five-year period with a yearly breakdown of 6, 18, 15, 10, and 13 crashes (2014, 2015, 2016, 2017, and 2018). The leading crash types consisted of Rear-End with 47 (76%) crashes, Angle with 6 (10%) crashes, and Left-turn with 4 (7%) crashes. Based on crash severity, 43 (69%) crashes were property damaged only (PDO) and 19 (31%) were injury type crashes. Based on the 2020 FDOT's 5-year high crash lists for spots and segments, the study intersection is a high crash spot and segment (MP 4.075 to 4.961). Additionally, there were 18 (29%) nighttime crashes and 15 (24%) crashes that occured under wet/slippery pavement conditions which is above the district-wide average of 29% and 12%, respectively.

Control Strategy Evaluation						
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
	CAP-X Outputs					
	V/C Ratio					
Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Two-Way Stop-Controlled					No	An interim measure to the existing condition.
All-Way Stop-Controlled					No	An interim measure to the existing condition.
Signalized Control (Build per SR 994 PD&E)	0.76	0.65	7.2	1	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.
Roundabout (2-lane)	1.09	1.04	8.3	2	No	Strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0). SPICE ranking is also worse than the 2045 existing condition.
Median U-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Signalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Unsignalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
Jughandle					No	Not feasible with existing roadway geometry and insufficient R/W.
Displaced Left-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
Continuous Green Tee					No	Not feasible with existing roadway geometry and insufficient R/W.
Quadrant Roadway					No	Not feasible with existing roadway geometry and insufficient R/W.
Partial MUT					No	Not feasible with existing roadway geometry and insufficient R/W.
Other					No	

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DTOE Name		Signature		Date	
DDE Name		Signature		Date	

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ATTACHMENT B – CAP-X Forms

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CAP-X Form #1

(AM peak period using no-build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	302	117	116	13.70%	0.00%
Westbound	0	360	236	594	7.90%	0.00%
Southbound	0	355	538	182	10.00%	0.00%
Northbound	0	181	717	357	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal (Existing)	**0.96**	**1**	**7.2**	**Good**	**Good**	**Excellent**
2 X 2	**1.42**	**2**	**8.3**	**Good**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	302	117	116	13.70%	0.00%
Westbound	0	360	236	594	7.90%	0.00%
Southbound	0	355	538	182	10.00%	0.00%
Northbound	0	181	717	357	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	0		1	2	0		0	1	0		0	1	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1624	0.96	0.96	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
2 X 2	0.88	0.89		1.42	1.40		0.99	1.00		0.90	*0.60*		1.42	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #2

(AM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build_TSM&O)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	302	117	116	13.70%	0.00%
Westbound	0	360	236	594	7.90%	0.00%
Southbound	0	355	538	182	10.00%	0.00%
Northbound	0	181	717	357	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal (TSM&O)	**0.77**	**1**	**7.2**	**Good**	**Good**	**Excellent**
2 X 2	**1.42**	**2**	**8.3**	**Good**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build_TSM&O)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	302	117	116	13.70%	0.00%
Westbound	0	360	236	594	7.90%	0.00%
Southbound	0	355	538	182	10.00%	0.00%
Northbound	0	181	717	357	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	1		2	2	1		2	1	0		2	1	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1311	0.77	0.77	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
2 X 2	0.88	0.89		1.42	1.40		0.99	1.00		0.90	0.60		1.42	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #3

(AM peak period using build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	257	171	98	13.70%	0.00%
Westbound	0	363	238	600	7.90%	0.00%
Southbound	0	452	353	121	10.00%	0.00%
Northbound	0	131	521	473	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal (Build)	**0.76**	**1**	**7.2**	**Good**	**Good**	**Excellent**
2 X 2	**1.09**	**2**	**8.3**	**Good**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	257	171	98	13.70%	0.00%
Westbound	0	363	238	600	7.90%	0.00%
Southbound	0	452	353	121	10.00%	0.00%
Northbound	0	131	521	473	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	0.80	0.95		0.85		

Truck to PCE Factor		Suggested = 2.00	2.00
FDOT Context Zone	C2-Rural		
Critical Lane Volume Threshold	2-phase signal	Suggested = 1800	1800
	3-phase signal	Suggested = 1750	1750
	4-phase signal	Suggested = 1700	1700

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	1		2	2	1		2	2	0		2	2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1290	0.76	0.76	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
2 X 2	0.76	0.71		1.09	1.09		0.99	0.99		0.70	0.64		1.09	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #4

(PM peak period using no-build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	211	122	109	7.70%	0.00%
Westbound	0	345	271	413	13.80%	0.00%
Southbound	0	404	891	174	10.00%	0.00%
Northbound	0	173	501	406	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal (Existing)	**0.97**	**1**	**7.2**	**Good**	**Good**	**Excellent**
2 X 2	**1.27**	**2**	**8.3**	**Good**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	211	122	109	7.70%	0.00%
Westbound	0	345	271	413	13.80%	0.00%
Southbound	0	404	891	174	10.00%	0.00%
Northbound	0	173	501	406	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	0		1	2	0		0	1	0		0	1	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1655	0.97	0.97	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
2 X 2	1.26	1.27		0.95	0.95		0.80	0.81		0.89	0.82		1.27	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #5

(PM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build__TSM&O)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	211	122	109	7.70%	0.00%
Westbound	0	345	271	413	13.80%	0.00%
Southbound	0	404	891	174	10.00%	0.00%
Northbound	0	173	501	406	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal (TSM&O)	**0.67**	**1**	**7.2**	**Good**	**Good**	**Excellent**
2 X 2	**1.27**	**2**	**8.3**	**Good**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build__TSM&O)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	211	122	109	7.70%	0.00%
Westbound	0	345	271	413	13.80%	0.00%
Southbound	0	404	891	174	10.00%	0.00%
Northbound	0	173	501	406	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	1		2	2	1		2	1	0		2	1	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1140	0.67	0.67	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
2 X 2	1.26	1.27		0.95	0.95		0.80	0.81		0.89	0.82		1.27	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #6

(PM peak period using build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	171	176	88	7.70%	0.00%
Westbound	0	349	275	418	13.80%	0.00%
Southbound	0	516	626	123	10.00%	0.00%
Northbound	0	109	319	540	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Traffic Signal (Build)	**0.65**	**1**	**7.2**	**Good**	**Good**	**Excellent**
2 X 2	**1.04**	**2**	**8.3**	**Good**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 137 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	171	176	88	7.70%	0.00%
Westbound	0	349	275	418	13.80%	0.00%
Southbound	0	516	626	123	10.00%	0.00%
Northbound	0	109	319	540	2.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	2	1		2	2	1		2	2	0		2	2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1112	0.65	0.65	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
2 X 2	1.03	1.04		0.73	0.75		0.77	0.86		0.75	0.71		1.04	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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ATTACHMENT C – SPICE Forms

DocuSign Envelope ID: 18004A6A-E69C-4901-A820-8BDF53D41949

SPICE Form #1

(Alternatives analyzed using No Build 2045 traffic volumes**)**

DocuSign Envelope ID: 18004A6A-E69C-4901-A820-8BDF53D41949

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 994/Quail Roost Drive PD&E	**Intersection Type**	At-Grade Intersections
Intersection:	SR 994/Quail Roost Drive at SW 137 Avenue (No-Build)	**Opening Year**	2025
Agency:	FDOT	**Design Year**	2045
Project Reference:	445804-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Miami-Dade County	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/29/2021	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	Choice Engineering Consultants	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal (Existing)	Total	6.68	9.85	173.07	2	Yes	Calibrated SPF
	Fatal & Injury	2.15	3.23	56.30			
Traffic Signal (TSM&O)	Total	5.00	7.37	129.60	1	Yes	Calibrated SPF
	Fatal & Injury	1.62	2.43	42.38			
2-lane Roundabout	Total	13.51	19.60	347.17	3	No	Uncalibrated SPF
	Fatal & Injury	2.48	3.73	65.00			

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SPICE Form #2

(Alternatives analyzed using Build 2045 traffic volumes**)**

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Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 994/Quail Roost Drive PD&E	**Intersection Type**	At-Grade Intersections
Intersection:	SR 994/Quail Roost Drive at SW 137 Avenue (Build)	**Opening Year**	2025
Agency:	FDOT	**Design Year**	2045
Project Reference:	445804-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Miami-Dade County	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/29/2021	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	Choice Engineering Consultants	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal (Build)	Total	5.00	6.92	124.95	1	Yes	Calibrated SPF
	Fatal & Injury	1.62	2.27	40.83			
2-lane Roundabout	Total	13.51	17.59	326.31	2	No	Uncalibrated SPF
	Fatal & Injury	2.48	3.31	60.69			

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ATTACHMENT D – FDOT Traffic Trend Analysis

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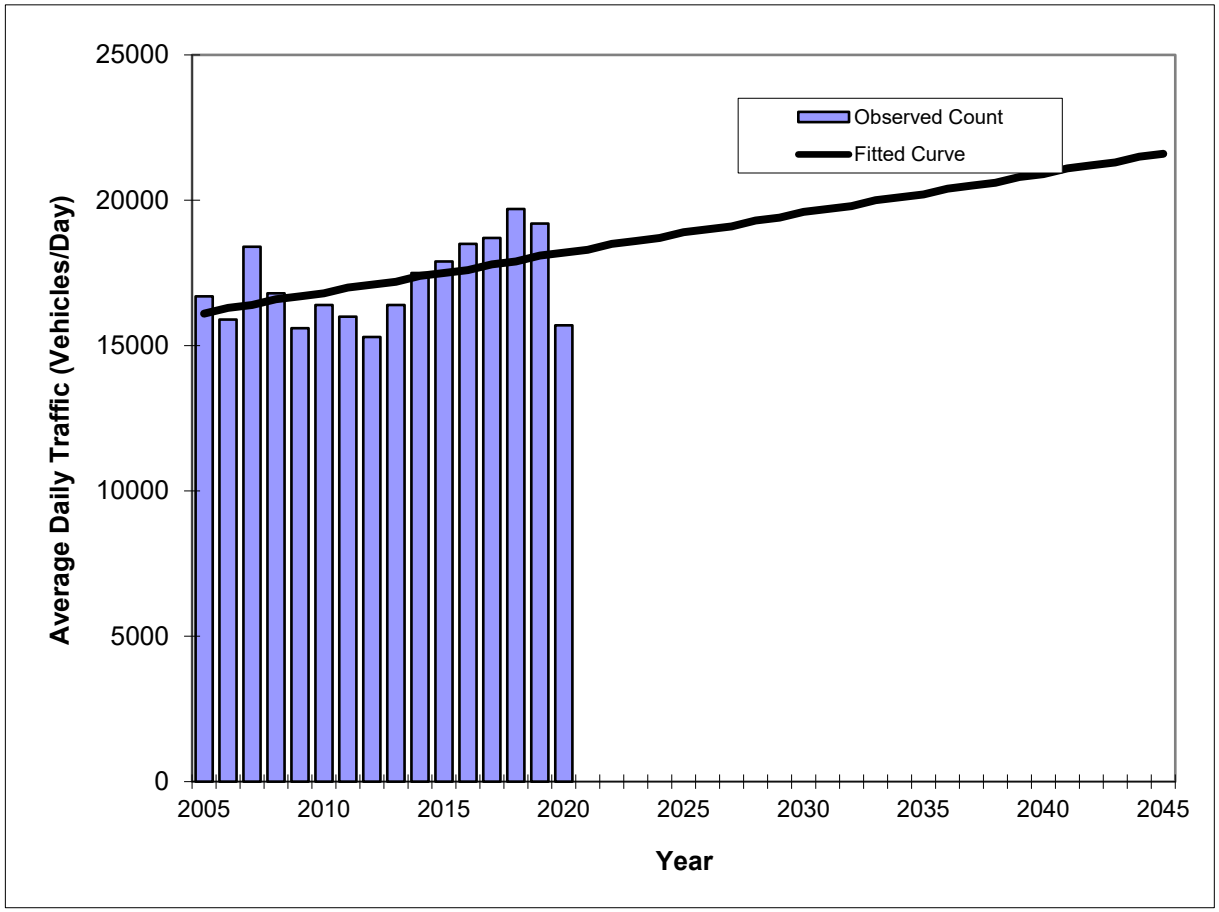
Traffic Trends - V03.a

SW 200 ST --

FIN#	1234
Location	1

County:	Miami-Dade (87)
Station #:	871116
Highway:	SW 200 ST



Year	Traffic (ADT/AADT) Count*	Trend**
2005	16700	16100
2006	15900	16300
2007	18400	16400
2008	16800	16600
2009	15600	16700
2010	16400	16800
2011	16000	17000
2012	15300	17100
2013	16400	17200
2014	17500	17400
2015	17900	17500
2016	18500	17600
2017	18700	17800
2018	19700	17900
2019	19200	18100
2020	15700	18200
2025 Opening Year Trend		
2025	N/A	18900
2035 Mid-Year Trend		
2035	N/A	20200
2045 Design Year Trend		
2045	N/A	21600
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	136
Trend R-squared:	21.47%
Trend Annual Historic Growth Rate:	0.87%
Trend Growth Rate (2020 to Design Year):	0.75%
Printed:	15-Oct-21

Straight Line Growth Option

*Axle-Adjusted

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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 1116 - SR 994/QUAIL ROOST DR, 200' W SW 127 AV

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	15700 C	E 7900	W 7800	9.00	56.00	5.90
2019	19200 C	E 9600	W 9600	9.00	56.00	3.20
2018	19700 C	E 9700	W 10000	9.00	54.30	5.50
2017	18700 C	E 9300	W 9400	9.00	55.70	10.50
2016	18500 C	E 9500	W 9000	9.00	56.10	6.00
2015	17900 C	E 9400	W 8500	9.00	57.40	7.60
2014	17500 C	E 8900	W 8600	9.00	59.30	4.80
2013	16400 C	E 8400	W 8000	9.00	58.90	6.20
2012	15300 C	E 7900	W 7400	9.00	59.70	5.20
2011	16000 C	E 8100	W 7900	9.00	58.20	6.20
2010	16400 C	E 8300	W 8100	7.87	58.27	6.20
2009	15600 C	E 7400	W 8200	7.98	59.96	7.50
2008	16800 C	E 8500	W 8300	8.07	66.31	5.20
2007	18400 C	E 8900	W 9500	7.90	63.12	6.90
2006	15900 C	E 7800	W 8100	7.39	58.66	5.10
2005	16700 C	E 8400	W 8300	7.70	65.70	6.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

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ATTACHMENT E – Crash Statistics

DocuSign Envelope ID: 18004A6A-E69C-4901-A820-8BDF53D41949

SR 994/Krome Ave/SW 200 St		SW 137 Ave							
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	6	12	10	9	10	47	9.40	75.8%
	Head On	0	1	0	0	0	1	0.20	1.6%
	Angle	0	1	2	1	2	6	1.20	9.7%
	Left Turn	0	2	2	0	0	4	0.80	6.5%
	Right Turn	0	0	0	0	0	0	0.00	0.0%
	Sideswipe	0	1	0	0	1	2	0.40	3.2%
	Backed Into	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0	0	0.00	0.0%
	Fixed Object	0	1	1	0	0	2	0.40	3.2%
	Other Non-Collisions	0	0	0	0	0	0	0.00	0.0%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%
	Others	0	0	0	0	0	0	0.00	0.0%
	Total Crashes	**6**	**18**	**15**	**10**	**13**	**62**	**12.40**	**100.0%**
SEVERITY	PDO Crashes	5	11	12	6	9	43	8.60	69.4%
	Fatal Crashes	0	0	0	0	0	0	0.00	0.0%
	Injury Crashes	1	7	3	4	4	19	3.80	30.6%
LIGHTING CONDITIONS	Daylight	5	13	12	6	8	44	8.80	71.0%
	Dusk	0	0	0	0	1	1	0.20	1.6%
	Dawn	0	0	1	0	0	1	0.20	1.6%
	Dark	1	5	2	4	4	16	3.20	25.8%
	Unknown	0	0	0	0	0	0	0.00	0.0%
SURFACE CONDITIONS	Dry	4	11	15	6	11	47	9.40	75.8%
	Wet	2	7	0	4	2	15	3.00	24.2%
	Others	0	0	0	0	0	0	0.00	0.0%
HOUR OF DAY	00:00-06:00	0	1	1	0	1	3	0.60	4.8%
	06:00-09:00	2	3	3	3	2	13	2.60	21.0%
	09:00-11:00	1	4	1	0	0	6	1.20	9.7%
	11:00-13:00	0	2	1	1	0	4	0.80	6.5%
	13:00-15:00	0	1	0	1	0	2	0.40	3.2%
	15:00-18:00	2	5	7	2	5	21	4.20	33.9%
	18:00-24:00	1	2	2	3	5	13	2.60	21.0%

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Appendix I: Intersection Control Evaluation for SW 134 Avenue

Appendix I: Intersection Control Evaluation for SW 134 Avenue

SR 994/Quail Roost Drive at SW 134 Avenue

Financial Project No.: 445804-1-22-01

ICE STUDY - STAGE 2

(DRAFT)

Prepared for:

Florida Department of Transportation

District Six

Elsa Riverol, P.E.
FDOT Project Manager

Prepared By:
Choice Engineering Consultants, Inc.

September 2022

Date: September 6, 2022

To: Elsa Riverol, P.E., FDOT Project Manager

From: Eugenio S. Lopez, P.E.; Jessica Garcia, MSCE, E.I.

Subject: ICE Study Stage 2 (DRAFT) – SR 994/Quail Roost Drive at SW 134 Avenue

FPID No.: 445804-1-22-01

Introduction:

The Florida Department of Transportation (FDOT) District Six Traffic Operations' Office (Department) assigned Choice Engineering Consultants, Inc. to perform an Intersection Control Evaluation (ICE) to identify and select a traffic control strategy for the intersection of SR 994/Quail Roost Drive (hereafter referred to as SR 994) at SW 134 Avenue, located in Miami-Dade County, Florida, meeting the goals and needs of the community and reflecting the overall best value. The review focuses on assessing the vehicular traffic demands based on a review of the traffic data and crash data. This study originated from the development of the PD&E scope for SR 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue. In addition, a Signal Warrant Analysis (2017) performed at this location (FPID No. 249726-4-32-01) recommended the installation of a traffic signal. The following is documented in this memorandum:

- ***Existing Conditions***
- ***Background – ICE Stage 1***
- ***ICE Stage 2***
    - *Operational Analysis for ICE Stage 2*
    - *Other Considerations for ICE Stage 2*
        - *Safety Performance and Anticipated Safety Impacts*
        - *Multimodal Accommodations*
        - *Environmental, Utility, and Right-of-Way Impacts*
- ***Conclusion & Recommendation***

Existing Conditions:

The study location is the four-legged intersection of SR 994 (Roadway Section 87091000) at SW 134 Avenue (MP 4.328) – see **Figure 1**. Within the study area, SR 994 is a two-lane two-way undivided road oriented in the east to west direction with a posted speed limit of 40 MPH. SW 134 Avenue is a two-lane two-way undivided roadway oriented in the north to south direction with a posted speed limit of 35 MPH. The functional and context classifications of SR 994 are Urban Minor Arterial and C3R Suburban Residential, respectively. FDOT defines this C3R context classification as "mostly residential uses within large blocks and a disconnected or sparse roadway network." The study intersection offers a sidewalk along the northwest corner and provides no crosswalks or transit stops. There are no designated bicycle lanes or markings along SR 994. The area immediately surrounding the study intersection includes a plant nursery in the southwest corner and residential homes in the northwest, northeast, and southeast corners of the study intersection.

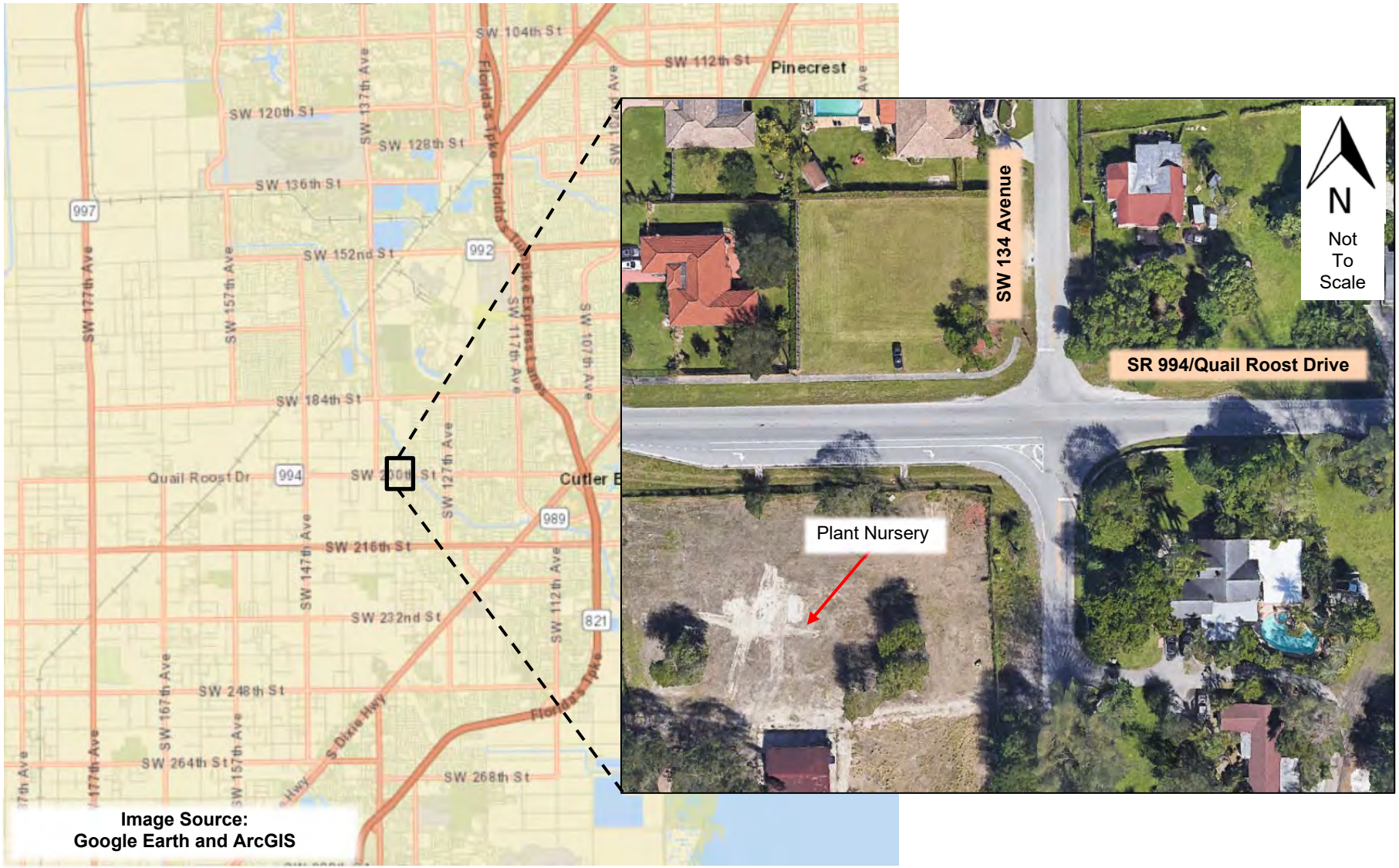

Figure 1. Study Location Map

Background – ICE Stage 1:

The Stage 1 Screening form was completed and approved on February 24, 2022 – included as **Attachment A**. This report includes the items for ICE Stage 2 (Preliminary Control Strategy Assessment), which utilizes FHWA's Safety Performance of Intersection Control Evaluations (SPICE) and Synchro 11.1.1.6. The SPICE tool conducts a safety analysis and Synchro conducts an operational analysis utilizing the Highway Capacity Manual (HCM), 6th edition methodologies. **Figure 1** exhibits the projected 2045 vehicle turning movements.

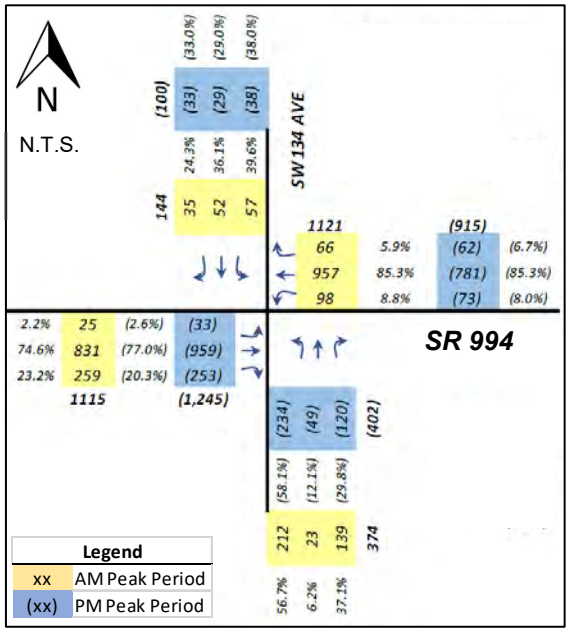

Figure 2. Build 2045 Traffic Volumes

ICE Stage 2:

The Stage 2 Preliminary Control Strategy Assessment is intended to differentiate between the remaining control strategies identified in Stage 1 – included as **Attachment B**. This evaluation consisted of conceptual designs in addition to the items previously mentioned. The two control strategies selected in Stage 1 for further analysis were as follows:

1. SR 994 PD&E Build Alternative – Traffic Signal (see **Figure 3**)
    - Eastbound (SR 994) – 1 left-turn bay, 2 through lanes, and 1 right-turn bay.
    - Westbound (SR 994) – 1 left-turn bay, 2 through lanes, and 1 right-turn bay.
    - Northbound (SW 134 Avenue) – 1 left-turn bay and 1 shared through/right-turn lane.
    - Southbound (SW 134 Avenue) – 1 left-turn bay and 1 shared through/right-turn lane.
2. 2-Lane Roundabout Alternative (see **Figure 4**)

The concept plans are also included as **Attachment C.**

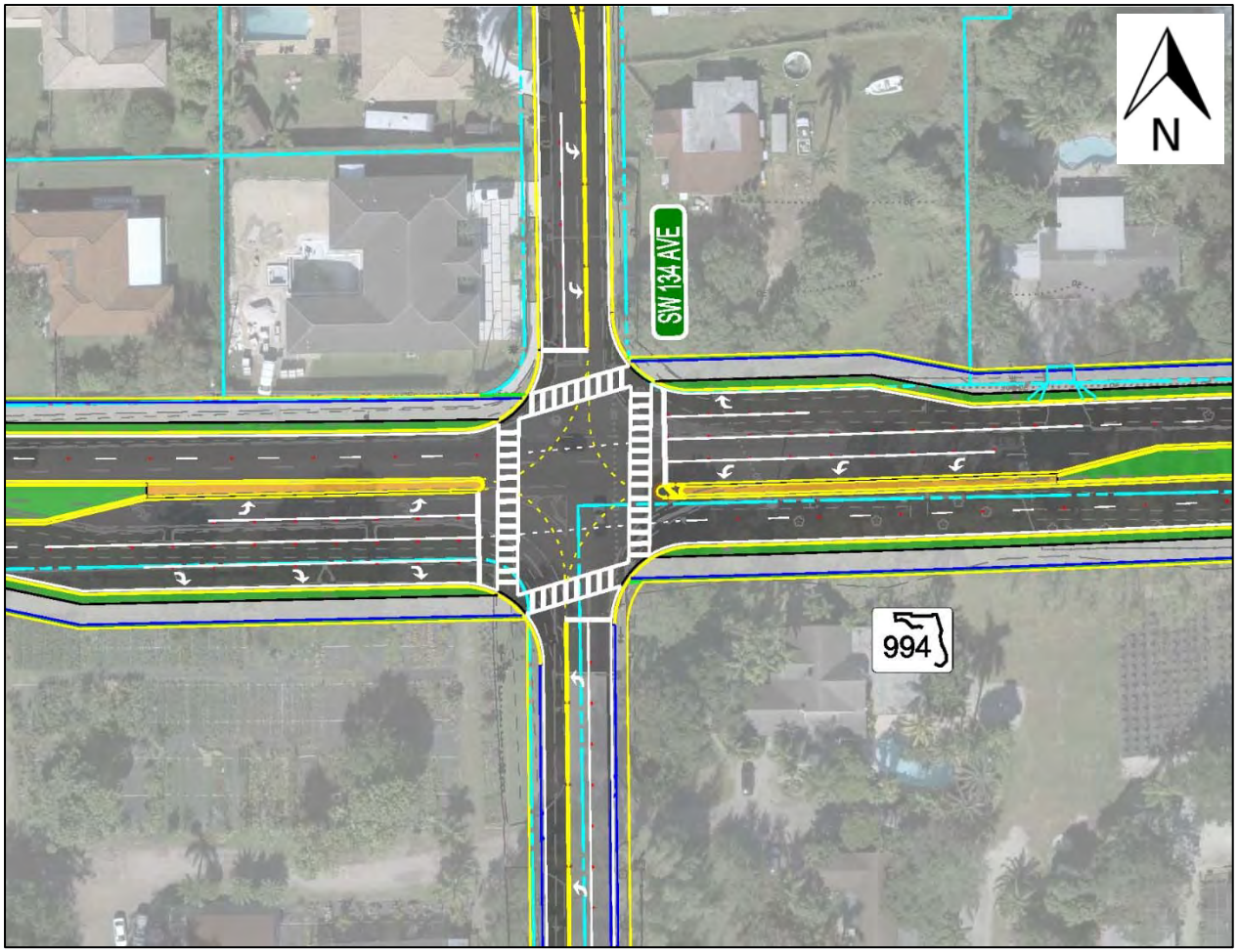

Figure 3. Build Alternative 2045

Operational Analysis for ICE Stage 2:

An operational analysis of the study intersection was performed utilizing Synchro, Version 11, to evaluate the performance of the existing and proposed conditions for the weekday 2045 AM and PM peak periods. The operational assessment was performed in accordance with the standard FDOT methodologies and consistent with the Highway Capacity Manual (HCM) 6th Edition. The main Measures of Effectiveness (MOE) used to evaluate the performance of the study intersection were level of service (LOS), control delay (seconds/vehicle), volume/capacity (v/c), and the 95th percentile queue (feet). The HCM utilizes LOS as the quantitative measure to represent the level of service at an intersection or arterial. The LOS grading criteria ranges from LOS A to LOS F, where LOS A is under-saturated/free-flow conditions and LOS F is over-saturated conditions.

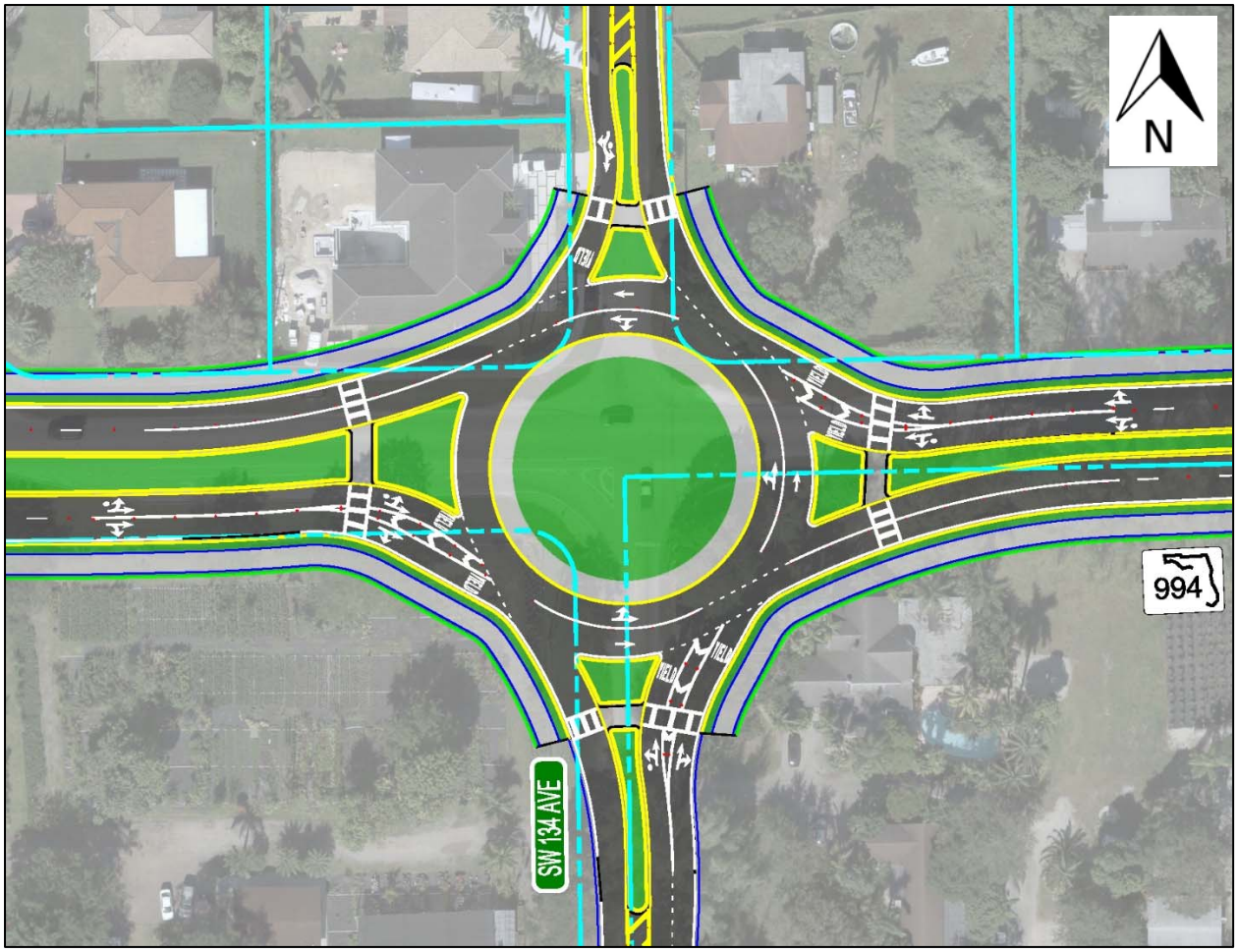

Figure 4. Roundabout Alternative 2045

The operational analyses are summarized in **Table 1**. The traffic analysis output reports are included as **Attachment D**. It is noted that the AM and PM peak hours demonstrated similar results. During the AM peak hour, the build alternative operates at LOS C with an intersection delay of 23.6 seconds, and the roundabout operates at LOS B with an intersection delay of 10.7 seconds. During the PM peak hour, the build alternative operates at LOS C with an intersection delay of 23.9 seconds, and the roundabout operates at LOS B with an intersection delay of 10.6 seconds. According to the 95th percentile queues reported, all queues are accommodated.

Table 1. Operational Results for the Selected Control Strategies

ROUNDABOUT							BUILD SIGNALIZED CONTROL						
Intersection Approach	Movement	*2045 AM Future Volume*	*Avg Delay (sec/veh)*	*LOS*	*v/c*	*Queue (veh)*	*Intersection Approach*	Movement	*2045 AM Future Volume*	*Avg Delay (sec/veh)*	*LOS*	*v/c*	*Queue (ft)*
Eastbound	Left	25	8.7	A	0.49	3	Eastbound	Left	25	24.1	C	0.11	m18
	Thru	831	9.8	A	0.55	4		Thru	831	22.3	C	0.53	365
	Right	259	---	---	---	---		Right	259	11.1	B	0.28	M71
Westbound	Left	98	9.5	A	0.52	3	Westbound	Left	98	16.5	B	0.35	59
	Thru	957	10.9	B	0.59	4		Thru	957	16.4	B	0.50	277
	Right	66	---	---	---	---		Right	66	11.7	B	0.08	19
Northbound	Left	212	13.6	B	0.44	2	Northbound	Left	212	47.3	D	0.71	203
	Thru	23	9.9	A	0.26	1		Thru	23	39.1	D	0.45	62
	Right	139	---	---	---	---		Right*	139	---	---	---	---
Southbound	Left	57	---	---	---	---	Southbound	Left	57	55.4	E	0.39	87
	Thru	52	22.0	C	0.46	2		Thru	52	63.0	E	0.75	102
	Right	35	---	---	---	---		Right*	35	---	---	---	---
Intersection		*2754*	*10.7*	*B*			*Intersection*		*2754*	*23.6*	*C*		
		Total Int Delay		*8.5*	*veh-hr*				*Total Int Delay*		*18.1*	*veh-hr*	
Intersection Approach	Movement	*2045 PM Future Volume*	*Avg Delay (sec/veh)*	*LOS*	*v/c*	*Queue (veh)*	*Intersection Approach*	Movement	*2045 PM Future Volume*	*Avg Delay (sec/veh)*	*LOS*	*v/c*	*Queue (ft)*
Eastbound	Left	33	8.6	A	0.51	3	Eastbound	Left	33	21.1	C	0.12	m14
	Thru	959	9.9	A	0.58	4		Thru	959	23.6	C	0.61	377
	Right	253	---	---	---	---		Right	253	9.9	A	0.27	m13
Westbound	Left	73	8.7	A	0.45	2	Westbound	Left	73	17.3	B	0.31	43
	Thru	781	9.6	A	0.51	3		Thru	781	15.0	B	0.41	201
	Right	62	---	---	---	---		Right	62	11.7	B	0.07	17
Northbound	Left	234	20.2	C	0.60	4	Northbound	Left	234	49.0	D	0.73	231
	Thru	49	10.9	B	0.26	1		Thru	49	39.4	D	0.46	94
	Right	120	---	---	---	---		Right*	120	---	---	---	---
Southbound	Left	38	---	---	---	---	Southbound	Left	38	56.0	E	0.30	65
	Thru	29	13.4	B	0.26	1		Thru	29	64.2	E	0.70	68
	Right	33	---	---	---	---		Right*	33	---	---	---	---
Intersection		*2664*	*10.6*	*B*			*Intersection*		*2664*	*23.9*	*C*		
		Total Int Delay		*8.0*	*veh-hr*				*Total Int Delay*		*17.7*	*veh-hr*	

Note(s): 1)- "*" indicates shared movement with through movement. 2) "---" indicates the information is not applicable or unavailable. 3) For the 95th percentile queue length, "#" indicates that capacity is exceeded, and the queue may be longer. 4) For the 95th percentile queue length, "m" indicates that the queue is metered by upstream signal. 5) LOS F and E are highlighted in red and orange, respectively.

Other Considerations for ICE Stage 2:

In addition to the concept plans and operational analysis, the Stage 2 Preliminary Control Strategy Assessment also considers the following items:

- Safety performance and anticipated safety impacts. The SPICE form, included as **Attachment E**, was utilized to predict the number of crashes for the opening and design year – see **Table 2**.

Table 2. Spice Tool Results

Control Strategy	Anticipated Impact on Safety Performance	Opening Year		Design Year	
		Predicted Total Crashes	Predicted Fatal+Injury Crashes	Predicted Total Crashes	Predicted Fatal+Injury Crashes
Signalized Control – Build Condition	Expected to decrease crash rates; left-turn lanes will provide space for deceleration and storage for turning vehicles.	4.38	1.47	6.55	2.24
Roundabout (2-lane) – Build Condition	Expected to decrease crash rates by eliminating conflict points.	7.06	1.21	10.02	1.78

- Multimodal accommodations. **Table 3** lists the anticipated multimodal impacts for the build signalized control and roundabout alternatives.

Table 3. Multimodal Accommodation Impacts

Impact	Signalized Control – Build Condition	Roundabout – Build Condition
Transit stops?	None	None
Crosswalks at which legs?	All four legs	All four legs
Pedestrian signals at which legs?	All four legs	None
Bicycle lanes?	Shared use path	Shared use path
Sidewalk connectivity to crosswalks?	All four legs	All four legs
Largest design vehicle accommodated?	WB-62	WB-50
Speed Limit?	40 mph	40 mph

- Environmental, utility, and right-of-way impacts. **Table 4** lists the anticipated environmental, utility, and right-of-way impacts for the build signalized control and roundabout alternatives. Additionally, **Table 4** presents the expected cost of each alternative.

Table 4. Multimodal Accommodation Impacts

Impact	Signalized Control – Build Condition	Roundabout – Build Condition
Utility Impacts. (Type and locations)	• Two Electric poles containing Overhead Electric and Overhead TV cables. (NE of the intersection) • Two Electric poles containing Overhead Electric and Overhead TV cables. (SE of the intersection) • Water valve and water Main Pipes (North of the intersection) • Buried TV cable (North of the intersection) • Buried Telephone cable (North of the intersection)	• Electric pole containing Overhead Electric cables (NW of the intersection) • Electric pole containing Overhead Electric, Telephone, and TV cables (SW of the intersection) • Three Electric poles containing Overhead Electric and Overhead TV cables. (NE of the intersection) • Three Electric poles containing Overhead Electric and Overhead TV cables. (SE of the intersection) • Water valve and water Main Pipes (North of the intersection) • Buried TV cable (North of the intersection) • Buried Telephone cable (North of the intersection)
Right-of-Way Impacts	58,595.04 SF	336,714 SF
Environmental impacts. (Land, animals, and special trees)	• Noise: The turn lanes will bring traffic closer to noise sensitive receptors • Increased impact to adjacent properties • Increased impact to trees • Impact to Nursery in Southwest corner that has potential contamination	• The roundabout concept will bring a travel lane closer to noise sensitive receptors • Increased impact to the adjacent properties and buildings that may require relocations • Increased impact to trees that may require tree relocation or replacement • Impacts to the Talbot House on the southeast quadrant due to the larger footprint, this will require Section 106 coordination and an Individual Section 4f document. • Southwest corner is a nursery that has potential contamination
Cost	$ 1,299,628.02	$1,931,320.88

Conclusion & Recommendation:

In conclusion, it is recommended to the Department that the signalized control condition be implemented at the study location of SR 994/Quail Roost Drive at SW 134 Avenue, located in Miami-Dade County, Florida. This alternative is recommended due to the following findings:

- Based on the operational analysis performed, the roundabout is expected to experience a LOS B with an average control delay of 11 seconds per vehicle during the AM and PM peak periods. The signalized control is expected to experience a LOS C with an average control delay of 24 seconds per vehicle during the AM and PM peak periods. It is noted that although the signalized control alternative has a lower LOS than the roundabout, the difference in average control delay per vehicle is 13 seconds. Additionally, all volume to capacity (v/c) ratios for the signalized alternative are below capacity.
- Based on the safety performance, the signalized control alternative is expected to experience the least total number of crashes in comparison to the roundabout.
- Based on the multimodal accommodations, the only difference between the alternatives is that the signalized control can accommodate a larger vehicle (WB-62) than the roundabout (WB-50).
- Based on the utility impacts, both build alternatives propose comparable results. The primary difference between the alternatives is that the roundabout impacts four additional electric poles containing overhead electric cables than the signalized control alternative.
- Based on the right-of-way impacts, the signalized control is preferable, requiring an acquisition of approximately 278,119 square feet (SF) less than the roundabout alternative.
- Based on the environmental impacts, both build alternatives propose comparable results and needs. The primary difference between the alternatives is that the roundabout impacts the Talbot House on the southeast quadrant due to the larger footprint which would require Section 106 coordination and an Individual Section 4f document.
- Based on the expected costs of the proposed alternatives, the signalized control is preferable with an expected cost of $1,299,628. The expected cost for the roundabout alternative is $1,931.31, which is approximately $631,693 more than the signalized control strategy.

An alternative matrix was developed for both alternatives, as presented in **Table 5**. This table presents a comparison of both alternatives by assigning a point range value from 0 to 5, with 0 being no impact or change at all to 5 being the most beneficial to the project. Based on this approach analysis, the signal alternative is the preferred option with a total of 46 points versus the roundabout alternative with 35 points.

Table 5. Matrix – Considerations and Results for Evaluating the Alternatives

Measuring Item	Signal	Roundabout	Comment(s)
Avg Vehicle Delay (sec/veh)	3	5	Roundabout will reduce avg. vehicle delay by 10 seconds.
Predicted Crashes Design Year	5	4	Signal Option is expected to reduce 3.5 more crashes.
Transit Stops	0	0	Neither option includes transit stops.
Crosswalks	5	5	Both options will provide similar benefits.
Pedestrian Signals	5	0	Roundabout does not include pedestrian signals.
Bicycle Lanes	5	5	Both options will provide similar benefits.
Sidewalk Connectivity	5	5	Both options will provide similar benefits.
Large Vehicle Accommodation	5	4	Signal Option can accommodate a slightly larger vehicle.
Speed Limit Change	0	0	No speed limit change is expected.
Lack of Utility Impacts	2	3	Signal Option has 4 more poles impacted.
Lack of Right-of-Way Impacts	4	0	Roundabout requires 278,119 SF more of ROW.
Lack of Environmental Impacts	3	1	Roundabout may impact buildings.
Lack of High Cost	4	2	Roundabout costs $632,000 more; 50% more than Signal Option.
Total Points	**46**	**34**	**Signal Option is the preferred alternative.**

In conclusion, the build signalized control alternative is recommended for implementation as it is expected to meet the goals and needs of the community and reflect the overall best value. Therefore, an ICE Stage 3 (Detailed Control Strategy Assessment) is not required.

LIST OF ATTACHMENTS:

Attachment A: Stage 1 Screening Study and Forms

Attachment B: Stage 2 Preliminary Control Strategy Assessment ICE

Attachment C: Concept Plans

Attachment D: Synchro HCM Operational Results

Attachment E: SPICE Form

ATTACHMENT A – Stage 1 Screening Study and Forms

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SR 994/Quail Roost Drive at SW 134 Avenue

Financial Project No.: 445804-1-22-01

ICE STUDY

(STAGE 1)

Prepared for:

Florida Department of Transportation

District Six

Elsa Riverol, P.E.
FDOT Project Manager

Prepared By:
Choice Engineering Consultants, Inc.

January 2022

DocuSign Envelope ID: 236F42E2-8E70-4190-A01C-56B39D2C2D39

Date: January 5, 2022

To: Elsa Riverol, P.E., FDOT Project Manager

From: Eugenio S. Lopez, P.E.; Jessica Garcia, MSCE, E.I.

Subject: ICE Study (Stage 1) – SR 994/Quail Roost Drive at SW 134 Avenue

FPID No.: 445804-1-22-01

The Florida Department of Transportation (FDOT) District Six Traffic Operations' Office (Department) assigned Choice Engineering Consultants, Inc. to perform an Intersection Control Evaluation (ICE) to identify and select a traffic control strategy for the intersection of SR 994/Quail Roost Drive (hereafter referred to as SR 994) at SW 134 Avenue, located in Miami-Dade County, Florida, meeting the goals and needs of the community and reflecting the overall best value. The review focuses on assessing the vehicular traffic demands based on a review of the traffic data and crash data. This study originated from the development of the PD&E scope for SR 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue. In addition, a Signal Warrant Analysis (2017) performed at this location (FPID No. 249726-4-32-01) recommended the installation of a traffic signal.

The study location is the four-legged intersection of SR 994 (Roadway Section 87091000) at SW 134 Avenue (MP 4.328) – see **Figure 1**. Within the study area, SR 994 is a two-lane two-way undivided road oriented in the east to west direction with a posted speed limit of 40 MPH. SW 134 Avenue is a two-lane two-way undivided roadway oriented in the north to south direction with a posted speed limit of 35 MPH. The functional and context classification of SR 994 are Urban Minor Arterial and C3R Suburban Residential, respectively. FDOT defines this C3R context classification as "mostly residential uses within large blocks and a disconnected or sparse roadway network." The study intersection offers a sidewalk along the northwest corner and provides no crosswalks or transit stops. There are no designated bicycle lanes or markings along SR 994. The area immediately surrounding the study intersection includes a plant nursery in the southwest corner and residential homes in the northwest, northeast, and southeast corners of the study intersection.

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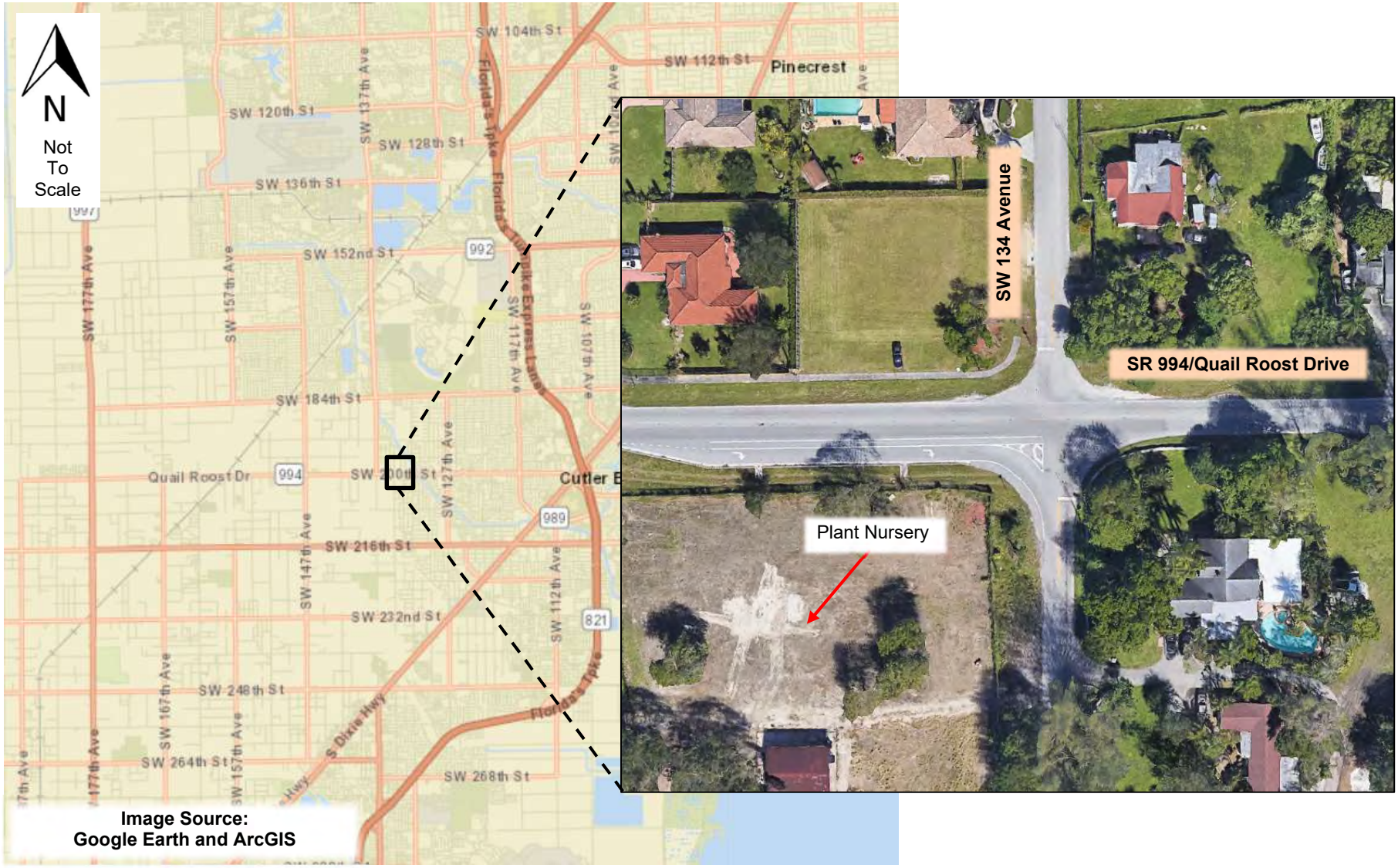

Figure 1. Study Location Map

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The ICE activities consist of three stages. This report includes the items for stage 1 (screening), which utilizes FHWA's Capacity Analysis for Planning of Junctions (CAP-X) and FHWA's Safety Performance of Intersection Control Evaluations (SPICE). The CAP-X tool intends to evaluate selected types of innovative intersection designs and the SPICE tool conducts a safety analysis.

The Stage 1 Screening ICE form was completed first to identify potential control strategies to be advanced. This evaluation was performed for SR 994 design year traffic conditions 2045. Based on the planning model for the SR 994 PD&E Study, two sets of traffic volumes were developed for 2045, No Build and Build traffic conditions as presented in **Figure 2**. The Stage 1 Screening ICE forms were populated using these two sets of 2045 traffic volumes. The first analysis used 2045 No Build traffic volumes and included the screening of the following alternatives: signalized intersection per signal warrant analysis conducted by FDOT in 2017; signalized intersection per SR 994 PD&E TSM Alternative; 1-lane roundabout; 2-lane roundabout. The second analysis (separate form populated) was conducted using the 2045 Build traffic volumes and included the screening of the SR 994 PD&E Build Alternative and the 1-lane/2-lane roundabouts. Two separate forms were populated due to having developed two sets of traffic volumes. The TSM Alternative was evaluated using the No Build 2045 traffic volumes, since it is more representative of the 2045 No Build intersection conditions (signalized intersection per FDOT signal warrant analysis) than the Build Alternative (greater capacity along SR 994, which means higher volumes). These control strategies were then further developed through the CAP-X and SPICE forms.

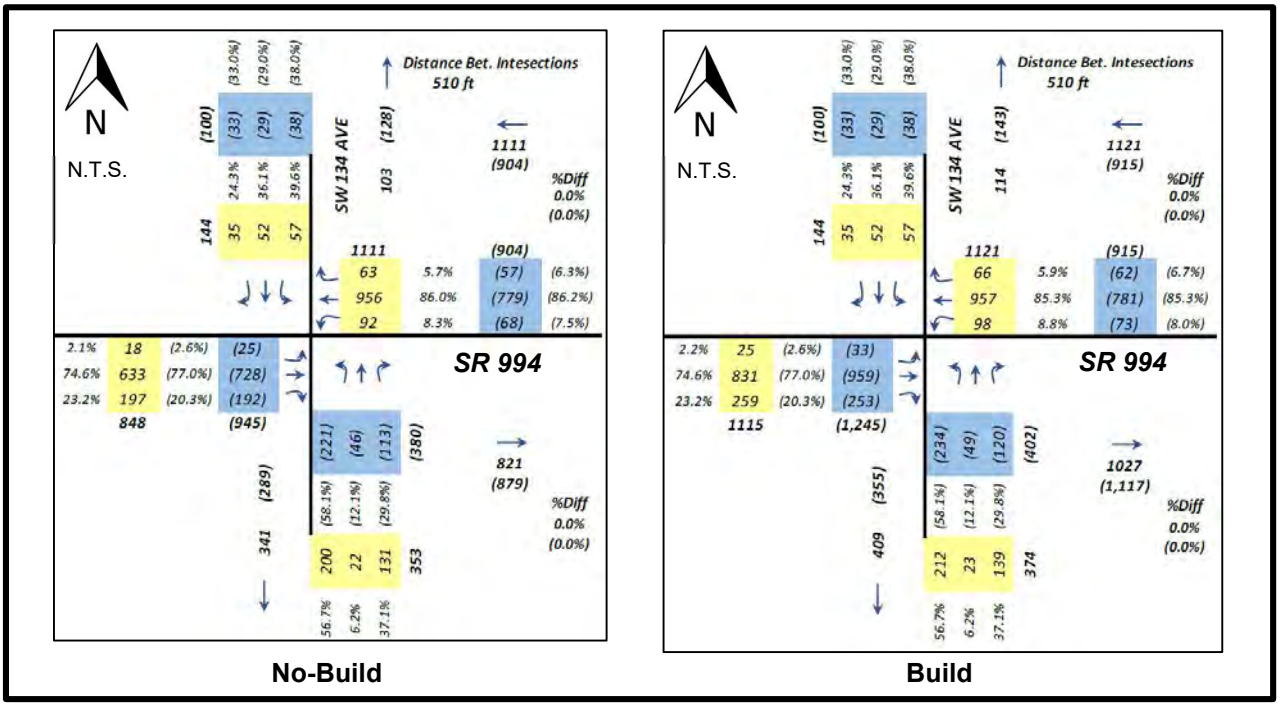

Figure 2. No-Build and Build 2045 Traffic Volumes

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The control strategies considered using the 2045 no-build traffic volumes are as follows:

- No-Build Alternative (see **Figure 3**)

Note: Intersection is Upgraded to Signal Control per FDOT Signal Warrant Analysis (2017)

  - Eastbound (SR 994) – 1 left-turn bay, 1 through lane, and 1 right-turn bay.
  - Westbound (SR 994) – 1 left-turn bay, and 1 shared through/right-turn lane.
  - Northbound (SW 134 Avenue) – 1 left-turn bay, and 1 shared through/right-turn lane.
  - Southbound (SW 134 Avenue) – 1 shared left/through/right-turn lane.
- TSM&O Alternative (see **Figure 3**)
  - Eastbound (SR 994) – 1 left-turn bay, 1 through lane, and 1 right-turn bay.
  - Westbound (SR 994) – 1 left-turn bay, 1 through lane, and 1 right-turn bay.
  - Northbound (SW 134 Avenue) – 1 left-turn bay, and 1 shared through/right-turn lane.
  - Southbound (SW 134 Avenue) – 1 shared left/through/right-turn lane.
- 1-lane roundabout
- 2-lane roundabout

The control strategies considered using the 2045 build traffic volumes are as follows:

- Build Alternative (see **Figure 4**)
  - Eastbound (SR 994) – 1 left-turn bay, 2 through lanes, and 1 right-turn bay.
  - Westbound (SR 994) – 1 left-turn bay, 2 through lanes, and 1 right-turn bay.
  - Northbound (SW 134 Avenue) – 1 left-turn bay, and 1 shared through/right-turn lane.
  - Southbound (SW 134 Avenue) – 1 shared left/through/right-turn lane.
- 1-lane roundabout
- 2-lane roundabout

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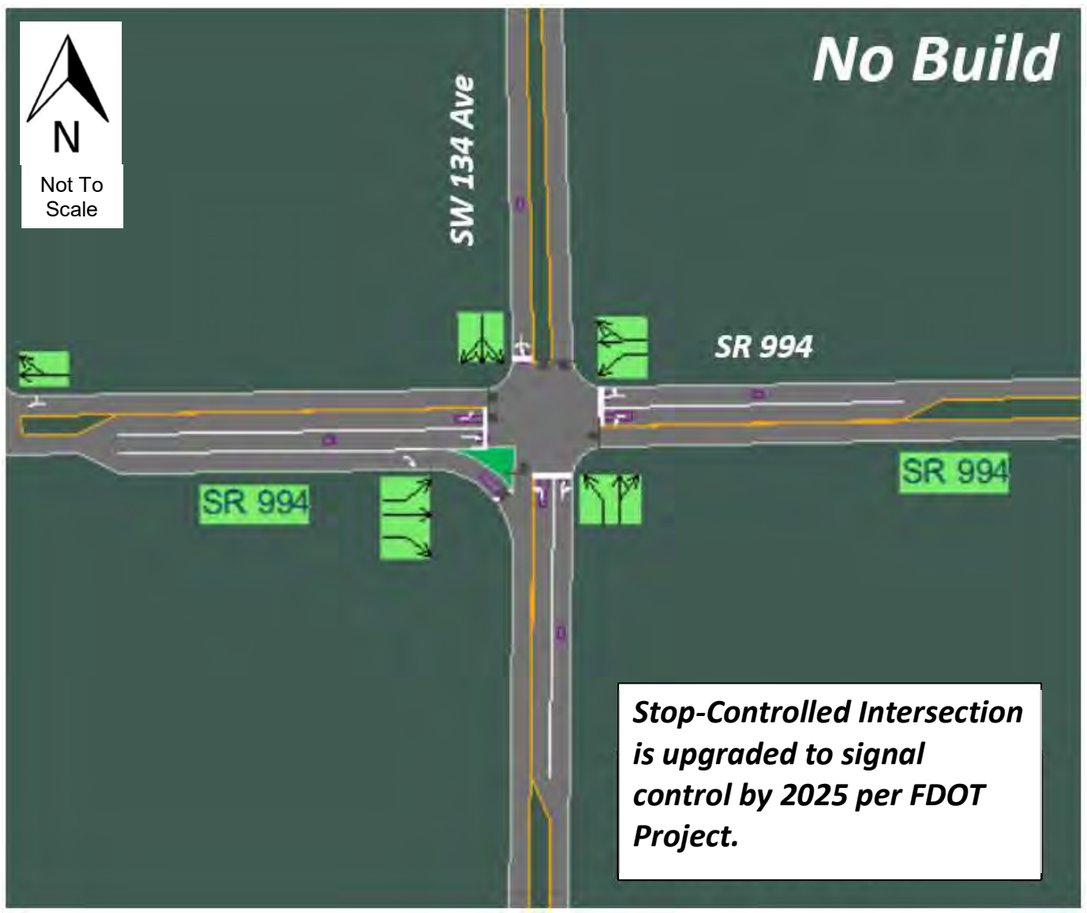

Figure 3. No-Build Volume Traffic Signal Alternatives

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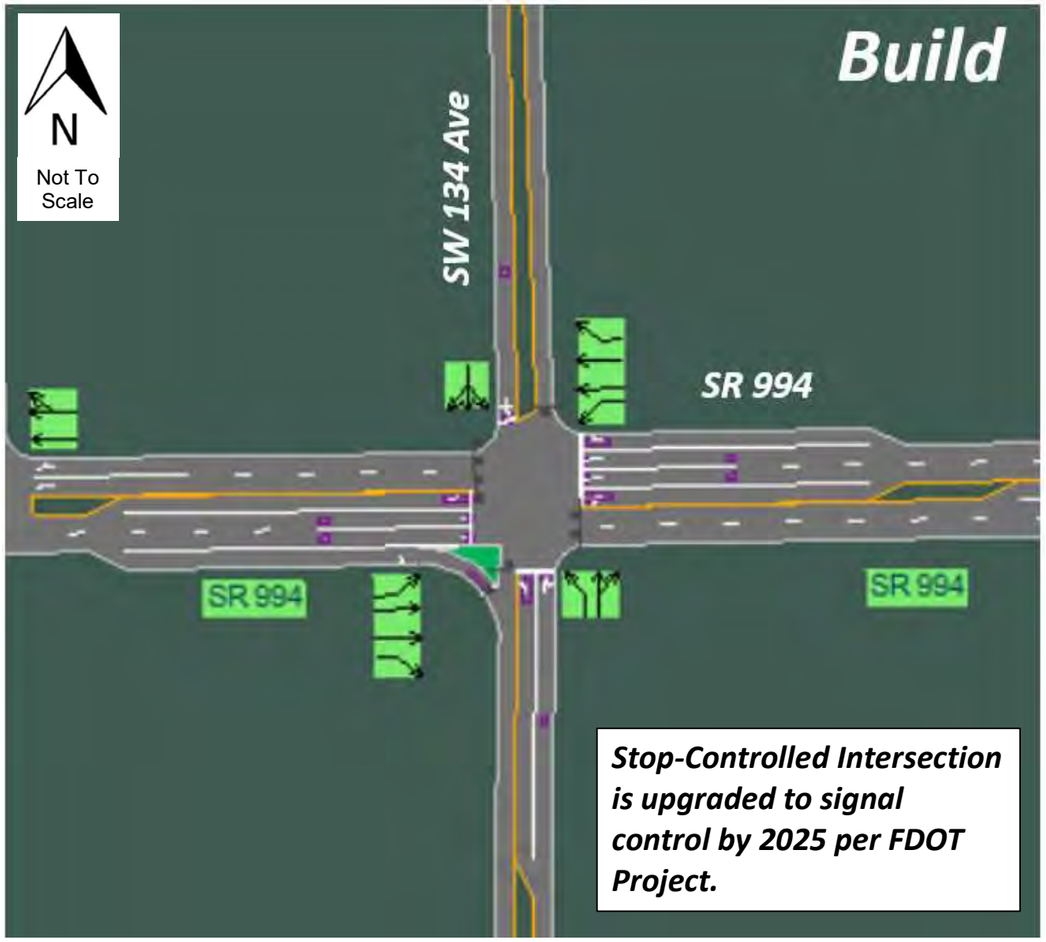

Figure 4. Build Volume Traffic Signal Alternative

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The following items are included within this document:

- Stage 1 Screening ICE forms x2 (**Attachment A**)
  - ICE Form #1 – Alternatives analyzed using No Build 2045 traffic volumes.
  - ICE Form #2 – Alternatives analyzed using Build 2045 traffic volumes.
- CAP-X forms x6 (**Attachment B**)
  - CAP-X Form #1 – AM peak period using no-build 2045 traffic volumes.
  - CAP-X Form #2 – AM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations.
  - CAP-X Form #3 – AM peak period using build 2045 traffic volumes.
  - CAP-X Form #4 – PM peak period using no-build 2045 traffic volumes.
  - CAP-X Form #5 – PM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations.
  - CAP-X Form #6 – PM peak period using build 2045 traffic volumes.
- SPICE forms x2 (**Attachment C**)
  - SPICE Form #1 –Alternatives analyzed using No Build 2045 traffic volumes.
  - SPICE Form #2 –Alternatives analyzed using Build 2045 traffic volumes.
- One FDOT traffic trend analysis worksheet for SR 994 (**Attachment D**)
  - Historic AADT was obtained from FDOT Florida Traffic Online (FTO) Station #871116
- Crash statistics (included as **Attachment E**)

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Amongst the 2045 No-Build traffic volume alternatives, the 2-lane roundabout exhibited the top score in the CAP-X forms with V/C ratios of 0.53 and 0.46 for the AM and PM peak periods, respectively. This was followed by the signalized control intersection with the TSM&O recommendations with V/C ratios of 0.83 and 0.73 for the AM and PM peak periods, respectively. Similarly, amongst the 2045 Build traffic volume alternatives, the 2-lane roundabout exhibited the top score in the CAP-X forms with V/C ratios of 0.55 and 0.57 for the AM and PM peak periods, respectively. This was closely followed by the build signalized control intersection, per SR 994 PD&E, with V/C ratios of 0.57 and 0.58 for the AM and PM peak periods, respectively. In the SPICE forms, the 1-lane roundabout obtained the top score. However, this strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0) when analyzed using the 2045 No Build and Build traffic conditions. It is also outperformed by the 2-lane roundabout. **Figure 5** represents the ICE results for all the alternatives considered.

Upon the Department's approval of the Stage 1 screening, the project will proceed to Stage 2 for a preliminary control strategy assessment which intends to help differentiate the remaining control strategies with a more detailed vetting and conceptual designs. The strategies moving to Stage 2 are:

- SR 994 PD&E TSM&O Alternative
- SR 994 PD&E Build Alternative
- 2-Lane Roundabout Alternative

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	Control Strategy Evaluation						
	Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
		CAP-X Outputs					
		V/C Ratio					
	Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Alternatives Evaluated per 2045 No-Build Traffic Volumes	Signalized Control (FDOT SWA)	0.86	0.74	7.2	4	No	Strategy is not to be advanced since this would be the existing intersection condition in 2045 as per FDOT Signal Warrant Analysis.
	Roundabout (1-lane)	1.08	0.93	10.0	1	No	Strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0). It is also outperformed by the 2-lane roundabout.
	Roundabout (2-lane)	0.53	0.46	8.3	2	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.
	Signalized Control (TSM&O)	0.83	0.73	7.2	3	Yes	Strategy to be advanced since the CAP-X output is very similar and has a better SPICE ranking to the intersection's existing condition in 2045.

	Control Strategy Evaluation						
	Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
		CAP-X Outputs					
		V/C Ratio					
	Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Alternatives Evaluated per 2045 Build Traffic Volumes	Signalized Control (Build per SR 994 PD&E)	0.57	0.58	7.2	3	Yes	Strategy to be advanced since the CAP-X output is better than the 1-lane roundabout and similar to the 2-lane roundabout with improved capacity.
	Roundabout (1-lane)	1.12	1.14	10.0	1	No	Strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0). It is also outperformed by the 2-lane roundabout.
	Roundabout (2-lane)	0.55	0.57	8.3	2	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.

Figure 5. Summary of ICE Results

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ATTACHMENT A – ICE Forms

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ICE Form #1

(Alternatives analyzed using No Build 2045 traffic volumes**)**

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

Intersection Control Evaluation Form 750-010-003

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	SR 994/Quail Roost Drive at SW 134th Avenue		FDOT Project #	445804-1-22-01	
Submitted By	Eugenio Lopez	Agency/Company	Choice Engineering Consultants	Date	1/4/2022
Email	elopez@choiceeng.com	FDOT District	District 6	County	Miami-Dade
Project Locality (*City/Town/Village*)	Redland		Project Type	Corridor Improvement Project	
Project Funding Source	Non-federal	FDOT Context Classification	C3R - Suburban Residential		
Project Purpose (*What is the catalyst for this project and why is it being undertaken?*)	This project was initiated due to the need for a traffic control signal at the intersection of SR 994/Quail Roost Drive at SW 134 Avenue as a result of a signal warrant analysis performed under this PD&E Study. This ICE form considers the 2045 No-Build volumes with the alternatives of the no-build traffic signal, TSM&O traffic signal, 1-lane roundabout, and 2-lane roundabout.				
Project Setting Description (*Describe the area surrounding the intersection*)	Surrounding the intersection are private homes in the northeast, northwest and southeast corners, and a plant nursery occupying the southwest corner of the study intersection.				
Multimodal Context (*Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns*)	The study intersection offers a sidewalk along the northwest corner and provides no crosswalks or transit stops. There are no designated bicycle lanes or markings along SR 994/Quail Roost Drive. Low, if any, pedestrian/bicycle activity is anticipated at the study intersection. However, the proposed alternatives will include additional multimodal facilities.				

Major Street Information

Route #:	87091000	Route Name(s)	SR 994/Quail Roost Drive	Milepost	4.328
Existing Control Type	Two-way Stop-Control	Existing AADT	19,621	Design Year AADT	21,785
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)		
Primary Functional Classification	Urban Minor Arterial			Design Speed (mph)	40
Secondary Functional Classification (if app.)				Target Speed (mph) [if app.]	

Approach #1	Direction	Eastbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	1	Left	18	Left	25
	Multi-Use Path?	No	Left-Through-Right		Through	633	Through	728
	Scheduled Bus Service?	No	Through-Right		Right	197	Right	192
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		6.3%	
Approach #2	Direction	Westbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	92	Left	68
	Multi-Use Path?	No	Left-Through-Right		Through	956	Through	779
	Scheduled Bus Service?	No	Through-Right	1	Right	63	Right	57
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		4.7%	

Note: The "major street" and "minor street" sections use the 2045 No-Build traffic volumes and the lane geometry for the 2045 existing traffic signal, per FDOT Signal Warrant Analysis, for informational purposes.

Minor Street Information							
Route #:		Route Name(s)	SW 134 Avenue			Milepost (if app.)	
Existing Control Type	Two-way Stop-Control		Existing AADT	3,834		Design Year AADT	4,257
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)			
Primary Functional Classification		Urban Minor Collector				Design Speed (mph)	35
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]	

Approach #1	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	200	Left	221
	Multi-Use Path?	No	Left-Through-Right		Through	22	Through	46
	Scheduled Bus Service?	No	Through-Right	1	Right	131	Right	113
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		8.5%	
Approach #2	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn					
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	57	Left	38
	Multi-Use Path?	No	Left-Through-Right	1	Through	52	Through	29
	Scheduled Bus Service?	No	Through-Right		Right	35	Right	33
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		4.0%	
Approach #3	Direction		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:		Left-Turn					
	Crosswalk on Approach?		Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?		Through		Left		Left	
	Multi-Use Path?		Left-Through-Right		Through		Through	
	Scheduled Bus Service?		Through-Right		Right		Right	
	Bus Stop on Approach?		Right-Turn		Daily Truck %			

Crash History (Existing Intersections Only)
Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:
There was a total of 74 crashes in the five-year period with a yearly breakdown of 14, 11, 12, 16, and 21 crashes (2014, 2015, 2016, 2017, and 2018). The leading crash types consisted of Angle with 32 (43%) crashes, Rear-end with 16 (22%) crashes, and Left-turn with 9 (12%) crashes. Based on crash severity, 46 (62%) crashes were property damaged only (PDO) and 28 (38%) were injury type crashes; no fatal crashes were reported during the referenced five-year period. Based on the 2020 FDOT's 5-year high crash lists for spots and segments, the study intersection is a high crash spot and segment (MP 4.075 to 4.961). Additionally, there were 20 (27%) nighttime crashes and 10 (14%) crashes that occured under wet/slippery pavement conditions which is above the district-wide average of 29% and 12%, respectively.

Control Strategy Evaluation						
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
	CAP-X Outputs					
	V/C Ratio					
Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Two-Way Stop-Controlled					No	Preceding configuration (existing in 2021).
All-Way Stop-Controlled					No	An interim measure to the existing condition.
Signalized Control (FDOT SWA)	0.86	0.74	7.2	4	No	Strategy is not to be advanced since this would be the existing intersection condition in 2045 as per FDOT Signal Warrant Analysis.
Roundabout (1-lane)	1.08	0.93	10.0	1	No	Strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0). It is also outperformed by the 2-lane roundabout.
Median U-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Signalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Unsignalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
Jughandle					No	Not feasible with existing roadway geometry and insufficient R/W.
Displaced Left-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
Continuous Green Tee					No	Not feasible with existing roadway geometry and insufficient R/W.
Quadrant Roadway					No	Not feasible with existing roadway geometry and insufficient R/W.
Roundabout (2-lane)	0.53	0.46	8.3	2	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.
Signalized Control (TSM&O)	0.83	0.73	7.2	3	Yes	Strategy to be advanced since the CAP-X output is very similar and has a better SPICE ranking to the intersection's existing condition in 2045.

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DTOE Name	Meitin, Omar	Signature	DocuSigned by: Meitin, Omar CA0A65627D7244D...	Date	2/22/2022 | 4:1
DDE Name	Karina Fuentes	Signature	DocuSigned by: Karina Fuentes 928260846A474B5...	Date	2/24/2022 | 1

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ICE Form #2

(Alternatives analyzed using Build 2045 traffic volumes**)**

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Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 1: Screening

To fulfill the requirements of Stage 1 (Screening) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	SR 994/Quail Roost Drive at SW 134th Avenue		FDOT Project #	445804-1-22-01	
Submitted By	Eugenio Lopez	Agency/Company	Choice Engineering Consultants	Date	1/4/2022
Email	elopez@choiceeng.com	FDOT District	District 6	County	Miami-Dade
Project Locality (*City/Town/Village*)	Redland		Project Type	Corridor Improvement Project	
Project Funding Source	Non-federal	FDOT Context Classification	C3R - Suburban Residential		
Project Purpose (*What is the catalyst for this project and why is it being undertaken?*)	This project was initiated due to the need for a traffic control signal at the intersection of SR 994/Quail Roost Drive at SW 134 Avenue as a result of a signal warrant analysis performed under this PD&E Study. This ICE form considers the 2045 Build volumes with the alternatives of the build traffic signal, 1-lane roundabout, and 2-lane roundabout.				
Project Setting Description (*Describe the area surrounding the intersection*)	Surrounding the intersection are private homes in the northeast, northwest and southeast corners, and a plant nursery occupying the southwest corner of the study intersection.				
Multimodal Context (*Describe the pedestrian, bicycle, and transit activity in the area and the potential for activity based on surrounding land uses and development patterns*)	The study intersection offers a sidewalk along the northwest corner and provides no crosswalks or transit stops. There are no designated bicycle lanes or markings along SR 994/Quail Roost Drive. Low, if any, pedestrian/bicycle activity is anticipated at the study intersection. However, the proposed alternatives will include additional multimodal facilities.				

Major Street Information

Route #:	87091000	Route Name(s)	SR 994/Quail Roost Drive	Milepost	4.328
Existing Control Type	Two-way Stop-Control	Existing AADT	19,621	Design Year AADT	21,785
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)		
Primary Functional Classification	Urban Minor Arterial			Design Speed (mph)	40
Secondary Functional Classification (if app.)				Target Speed (mph) [if app.]	

Approach #1	Direction	Eastbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	2	Left	25	Left	33
	Multi-Use Path?	No	Left-Through-Right		Through	831	Through	959
	Scheduled Bus Service?	No	Through-Right		Right	259	Right	253
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		6.3%	
Approach #2	Direction	Westbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through	2	Left	66	Left	73
	Multi-Use Path?	No	Left-Through-Right		Through	957	Through	781
	Scheduled Bus Service?	No	Through-Right		Right	98	Right	62
	Bus Stop on Approach?	No	Right-Turn	1	Daily Truck %		4.7%	

Note: The "major street" and "minor street" sections use the 2045 Build traffic volumes and the lane geometry for the 2045 build traffic signal for informational purposes.

Minor Street Information							
Route #:		Route Name(s)	SW 134 Avenue			Milepost (if app.)	
Existing Control Type	Two-way Stop-Control		Existing AADT	3,834		Design Year AADT	4,257
Design Vehicle	Florida Interstate Semitrailer (WB-62FL)		Control Vehicle	Florida Interstate Semitrailer (WB-62FL)			
Primary Functional Classification		Urban Minor Collector				Design Speed (mph)	35
Secondary Functional Classification (if app.)						Target Speed (mph) [if app.]	

Approach #1	Direction	Northbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn	1				
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	212	Left	234
	Multi-Use Path?	No	Left-Through-Right		Through	23	Through	49
	Scheduled Bus Service?	No	Through-Right	1	Right	139	Right	120
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		8.5%	
Approach #2	Direction	Southbound	Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:	Neither side of the approach	Left-Turn					
	Crosswalk on Approach?	No	Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?	No	Through		Left	57	Left	33
	Multi-Use Path?	No	Left-Through-Right	1	Through	52	Through	29
	Scheduled Bus Service?	No	Through-Right		Right	35	Right	38
	Bus Stop on Approach?	No	Right-Turn		Daily Truck %		4.0%	
Approach #3	Direction		Number of Lanes		Study Period #1 Traffic Volumes		Study Period #2 Traffic Volumes	
	Sidewalks along:		Left-Turn					
	Crosswalk on Approach?		Left-Through		Weekday AM Peak		Weekday PM Peak	
	On-Street Bike Facilities?		Through		Left		Left	
	Multi-Use Path?		Left-Through-Right		Through		Through	
	Scheduled Bus Service?		Through-Right		Right		Right	
	Bus Stop on Approach?		Right-Turn		Daily Truck %			

Crash History (Existing Intersections Only)
Append the most recent five-years of crash data for the intersection from the CAR System. If the crash data evidences any issues relating to safety performance, discuss briefly here:
There was a total of 74 crashes in the five-year period with a yearly breakdown of 14, 11, 12, 16, and 21 crashes (2014, 2015, 2016, 2017, and 2018). The leading crash types consisted of Angle with 32 (43%) crashes, Rear-end with 16 (22%) crashes, and Left-turn with 9 (12%) crashes. Based on crash severity, 46 (62%) crashes were property damaged only (PDO) and 28 (38%) were injury type crashes; no fatal crashes were reported during the referenced five-year period. Based on the 2020 FDOT's 5-year high crash lists for spots and segments, the study intersection is a high crash spot and segment (MP 4.075 to 4.961). Additionally, there were 20 (27%) nighttime crashes and 10 (14%) crashes that occured under wet/slippery pavement conditions which is above the district-wide average of 29% and 12%, respectively.

Control Strategy Evaluation						
Provide a brief justification as to why each of the following control strategies should be advanced or not. Justification should consider potential environmental impacts.						
	CAP-X Outputs					
	V/C Ratio					
Control Strategy	Weekday AM Peak	Weekday PM Peak	Multimodal Score	SPICE Ranking	Strategy to Be Advanced?	Justification
Two-Way Stop-Controlled					No	Preceding configuration (existing in 2021).
All-Way Stop-Controlled					No	An interim measure to the existing condition.
Signalized Control (Build per SR 994 PD&E)	0.57	0.58	7.2	3	Yes	Strategy to be advanced since the CAP-X output is better than the 1-lane roundabout and similar to the 2-lane roundabout with improved capacity.
Roundabout (1-lane)	1.12	1.14	10.0	1	No	Strategy is not to be advanced since the AM and PM V/C ratios are near or above capacity (>1.0). It is also outperformed by the 2-lane roundabout.
Median U-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Signalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
RCUT (Unsignalized)					No	Not feasible with existing roadway geometry and insufficient R/W.
Jughandle					No	Not feasible with existing roadway geometry and insufficient R/W.
Displaced Left-Turn					No	Not feasible with existing roadway geometry and insufficient R/W.
Continuous Green Tee					No	Not feasible with existing roadway geometry and insufficient R/W.
Quadrant Roadway					No	Not feasible with existing roadway geometry and insufficient R/W.
Roundabout (2-lane)	0.55	0.57	8.3	2	Yes	Strategy to be advanced since the CAP-X output and SPICE ranking are better than the intersection's existing condition in 2045.
Other 2					No	

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DTOE Name	Meitin, Omar	Signature	DocuSigned by: Meitin, Omar CA0A65627D7244D...	Date	2/22/2022 | 4
DDE Name	Karina Fuentes	Signature	DocuSigned by: Karina Fuentes 928260846A474B5...	Date	2/24/2022 | 1

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ATTACHMENT B – CAP-X Forms

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CAP-X Form #1

(AM peak period using no-build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	18	633	197	8.60%	0.00%
Westbound	0	92	956	63	2.90%	0.00%
Southbound	0	57	52	35	7.90%	0.00%
Northbound	0	200	22	131	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	**0.53**	**1**	**8.3**	**Good**	**Excellent**	**Excellent**
Traffic Signal (Existing)	**0.86**	**2**	**7.2**	**Good**	**Good**	**Excellent**
1 X 1	**1.08**	**3**	**10.0**	**Excellent**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	18	633	197	8.60%	0.00%
Westbound	0	92	956	63	2.90%	0.00%
Southbound	0	57	52	35	7.90%	0.00%
Northbound	0	200	22	131	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	1	1		1	1	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1469	0.86	0.86	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	0.42			0.83			0.61			1.08			1.08	Excellent	Excellent	Excellent
2 X 2	0.18	0.18		0.51	0.53		0.33	0.23		0.39	0.41		0.53	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #2

(AM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build_TSM&O)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	18	633	197	8.60%	0.00%
Westbound	0	92	956	63	2.90%	0.00%
Southbound	0	57	52	35	7.90%	0.00%
Northbound	0	200	22	131	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	**0.53**	**1**	**8.3**	**Good**	**Excellent**	**Excellent**
Traffic Signal (TSM&O)	**0.83**	**2**	**7.2**	**Good**	**Good**	**Excellent**
1 X 1	**1.08**	**3**	**10.0**	**Excellent**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - No Build_TSM&O)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	18	633	197	8.60%	0.00%
Westbound	0	92	956	63	2.90%	0.00%
Southbound	0	57	52	35	7.90%	0.00%
Northbound	0	200	22	131	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	1	1		1	1	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1404	0.83	0.83	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	0.42			0.83			0.61			1.08			1.08	Excellent	Excellent	Excellent
2 X 2	0.18	0.18		0.51	0.53		0.33	0.23		0.39	0.41		0.53	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #3

(AM peak period using build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	25	831	259	8.60%	0.00%
Westbound	0	98	957	66	2.90%	0.00%
Southbound	0	57	52	35	7.90%	0.00%
Northbound	0	212	23	139	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	**0.55**	**1**	**8.3**	**Good**	**Excellent**	**Excellent**
Traffic Signal (Build)	**0.57**	**2**	**7.2**	**Good**	**Good**	**Excellent**
1 X 1	**1.12**	**3**	**10.0**	**Excellent**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (AM - Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	25	831	259	8.60%	0.00%
Westbound	0	98	957	66	2.90%	0.00%
Southbound	0	57	52	35	7.90%	0.00%
Northbound	0	212	23	139	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									970	0.57	0.57	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	0.43			1.10			0.81			1.12			1.12	Excellent	Excellent	Excellent
2 X 2	0.18	0.18		0.52	0.55		0.43	0.29		0.52	0.54		0.55	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #4

(PM peak period using no-build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	25	728	192	8.60%	0.00%
Westbound	0	68	779	57	2.90%	0.00%
Southbound	0	38	29	33	7.90%	0.00%
Northbound	0	221	46	113	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	**0.46**	**1**	**8.3**	**Good**	**Excellent**	**Excellent**
Traffic Signal (Existing)	**0.74**	**2**	**7.2**	**Good**	**Good**	**Excellent**
1 X 1	**0.93**	**3**	**10.0**	**Excellent**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	25	728	192	8.60%	0.00%
Westbound	0	68	779	57	2.90%	0.00%
Southbound	0	38	29	33	7.90%	0.00%
Northbound	0	221	46	113	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	1	1		1	1	0

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1266	0.74	0.74	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	*0.24*			0.86			*0.72*			0.93			0.93	Excellent	Excellent	Excellent
2 X 2	*0.10*	*0.10*		*0.43*	*0.46*		*0.40*	0.25		*0.41*	*0.43*		0.46	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #5

(PM peak period using no-build 2045 traffic volumes with the traffic signal option representing the TSM&O recommendations)

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Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build_TSM&O)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	25	728	192	8.60%	0.00%
Westbound	0	68	779	57	2.90%	0.00%
Southbound	0	38	29	33	7.90%	0.00%
Northbound	0	221	46	113	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	**0.46**	**1**	**8.3**	**Good**	**Excellent**	**Excellent**
Traffic Signal (TSM&O)	**0.73**	**2**	**7.2**	**Good**	**Good**	**Excellent**
1 X 1	**0.93**	**3**	**10.0**	**Excellent**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - No Build_TSM&O)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	25	728	192	8.60%	0.00%
Westbound	0	68	779	57	2.90%	0.00%
Southbound	0	38	29	33	7.90%	0.00%
Northbound	0	221	46	113	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	1	1		1	1	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									1241	0.73	0.73	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	0.24			0.86			0.72			0.93			0.93	Excellent	Excellent	Excellent
2 X 2	0.10	0.10		0.43	0.46		0.40	0.25		0.41	0.43		0.46	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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CAP-X Form #6

(PM peak period using build 2045 traffic volumes)

Capacity Analysis for Planning of Junctions

Summary Report - Page 1 of 2

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - Build)
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	**Left**	**Thru**	**Right**	Heavy Vehicles	Volume Growth
Eastbound	0	33	959	253	8.60%	0.00%
Westbound	0	73	781	62	2.90%	0.00%
Southbound	0	38	29	33	7.90%	0.00%
Northbound	0	234	49	120	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report - Page 2 of 2

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
2 X 2	**0.57**	**1**	**8.3**	**Good**	**Excellent**	**Excellent**
Traffic Signal (Build)	**0.58**	**2**	**7.2**	**Good**	**Good**	**Excellent**
1 X 1	**1.14**	**3**	**10.0**	**Excellent**	**Excellent**	**Excellent**
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Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 994/Quail Roost Drive at SW 134 Avenue
Project Number:	445804-1-22-01
Location:	Miami-Dade County, FL
Date:	12/29/2021 (PM - Build)
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	33	959	253	8.60%	0.00%
Westbound	0	73	781	62	2.90%	0.00%
Southbound	0	38	29	33	7.90%	0.00%
Northbound	0	234	49	120	9.30%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
FDOT Context Zone	**C2-Rural**		
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800**	**1800**
	3-phase signal	**Suggested = 1750**	**1750**
	4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Traffic Signal	FULL		1	1	0		0	1	0		1	2	1		1	2	1

Number of Lanes for Interchanges

TYPE OF INTERCHANGE	Sheet	Northbound				Southbound				Eastbound				Westbound			
		U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				
Traffic Signal	FULL									991	0.58	0.58	Good	Good	Excellent

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3				
1 X 1	0.25			1.14			1.00			0.97			1.14	Excellent	Excellent	Excellent
2 X 2	0.11	0.11		0.45	0.47		0.53	0.34		0.54	0.57		0.57	Good	Excellent	Excellent

Results for Interchanges

TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C				

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ATTACHMENT C – SPICE Forms

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SPICE Form #1

(Alternatives analyzed using No Build 2045 traffic volumes**)**

Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 994/Quail Roost Drive PD&E	**Intersection Type**	At-Grade Intersections
Intersection:	SR 994/Quail Roost Drive at SW 134 Avenue (No Build)	**Opening Year**	2025
Agency:	FDOT	**Design Year**	2045
Project Reference:	445804-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Miami-Dade County	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/29/2021	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	Choice Engineering Consultants	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal (Existing)	Total	7.20	5.55	135.52	4	Yes	Calibrated SPF
	Fatal & Injury	2.45	1.90	46.24			
Traffic Signal (TSM&O)	Total	6.90	5.32	129.89	3	Yes	Calibrated SPF
	Fatal & Injury	2.35	1.83	44.34			
1-lane Roundabout	Total	2.68	2.42	53.54	1	No	Uncalibrated SPF
	Fatal & Injury	0.54	0.47	10.64			
2-lane Roundabout	Total	9.59	8.19	186.68	2	Yes	Uncalibrated SPF
	Fatal & Injury	1.70	1.43	32.78			

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SPICE Form #2

(Alternatives analyzed using Build 2045 traffic volumes**)**

Federal Highway Administration (FHWA)
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 994/Quail Roost Drive PD&E	**Intersection Type**	At-Grade Intersections
Intersection:	SR 994/Quail Roost Drive at SW 134 Avenue (Build)	**Opening Year**	2025
Agency:	FDOT	**Design Year**	2045
Project Reference:	445804-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Miami-Dade County	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	12/29/2021	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	Choice Engineering Consultants	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal (Build)	Total	6.90	6.23	140.02	3	Yes	Calibrated SPF
	Fatal & Injury	2.35	2.16	48.06			
1-lane Roundabout	Total	2.68	2.67	56.16	1	No	Uncalibrated SPF
	Fatal & Injury	0.54	0.54	11.28			
2-lane Roundabout	Total	9.59	9.55	200.97	2	Yes	Uncalibrated SPF
	Fatal & Injury	1.70	1.69	35.55			

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ATTACHMENT D – FDOT Traffic Trend Analysis

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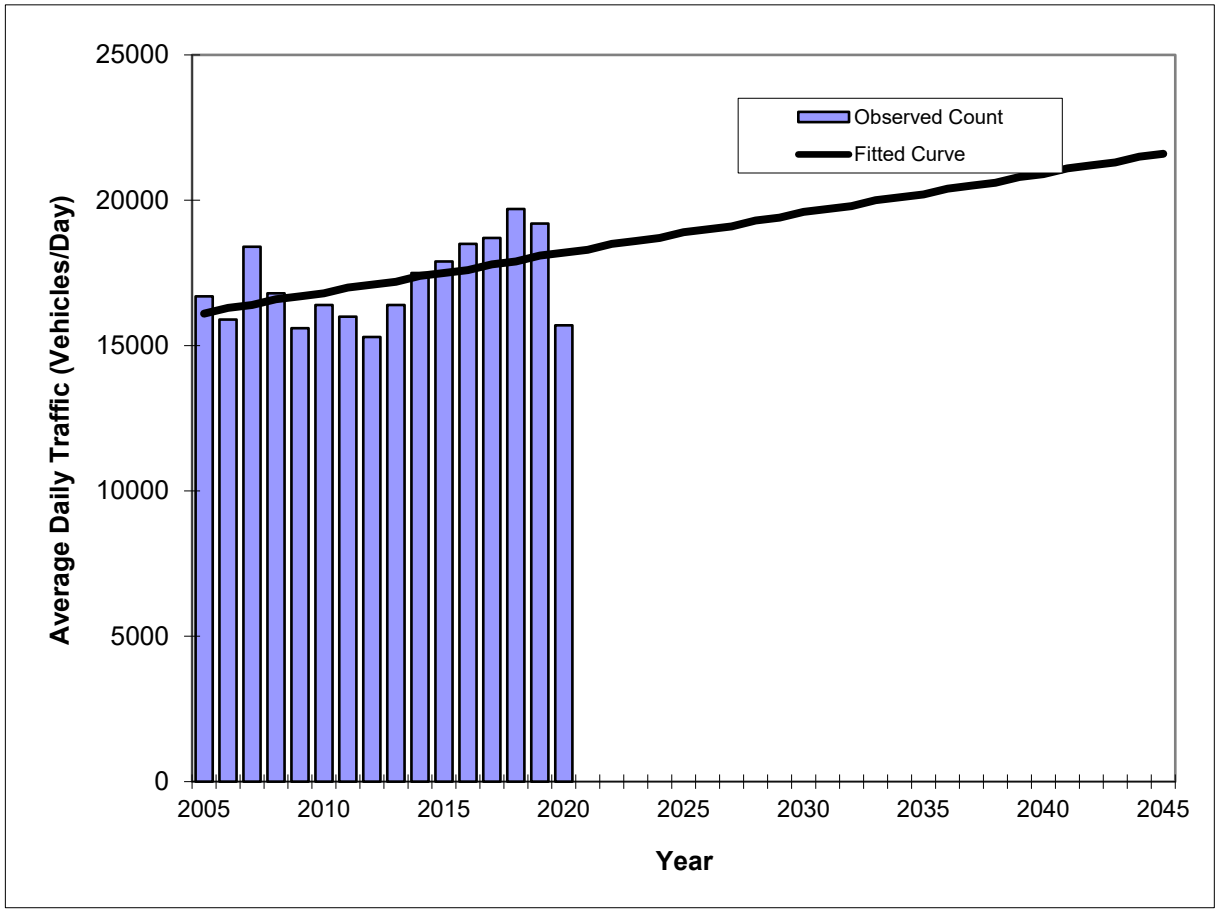
Traffic Trends - V03.a

SW 200 ST --

FIN#	1234
Location	1

County:	Miami-Dade (87)
Station #:	871116
Highway:	SW 200 ST



Year	Traffic (ADT/AADT) Count*	Trend**
2005	16700	16100
2006	15900	16300
2007	18400	16400
2008	16800	16600
2009	15600	16700
2010	16400	16800
2011	16000	17000
2012	15300	17100
2013	16400	17200
2014	17500	17400
2015	17900	17500
2016	18500	17600
2017	18700	17800
2018	19700	17900
2019	19200	18100
2020	15700	18200
2025 Opening Year Trend		
2025	N/A	18900
2035 Mid-Year Trend		
2035	N/A	20200
2045 Design Year Trend		
2045	N/A	21600
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	136
Trend R-squared:	21.47%
Trend Annual Historic Growth Rate:	0.87%
Trend Growth Rate (2020 to Design Year):	0.75%
Printed:	15-Oct-21

Straight Line Growth Option

*Axle-Adjusted

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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 1116 - SR 994/QUAIL ROOST DR, 200' W SW 127 AV

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	15700 C	E 7900	W 7800	9.00	56.00	5.90
2019	19200 C	E 9600	W 9600	9.00	56.00	3.20
2018	19700 C	E 9700	W 10000	9.00	54.30	5.50
2017	18700 C	E 9300	W 9400	9.00	55.70	10.50
2016	18500 C	E 9500	W 9000	9.00	56.10	6.00
2015	17900 C	E 9400	W 8500	9.00	57.40	7.60
2014	17500 C	E 8900	W 8600	9.00	59.30	4.80
2013	16400 C	E 8400	W 8000	9.00	58.90	6.20
2012	15300 C	E 7900	W 7400	9.00	59.70	5.20
2011	16000 C	E 8100	W 7900	9.00	58.20	6.20
2010	16400 C	E 8300	W 8100	7.87	58.27	6.20
2009	15600 C	E 7400	W 8200	7.98	59.96	7.50
2008	16800 C	E 8500	W 8300	8.07	66.31	5.20
2007	18400 C	E 8900	W 9500	7.90	63.12	6.90
2006	15900 C	E 7800	W 8100	7.39	58.66	5.10
2005	16700 C	E 8400	W 8300	7.70	65.70	6.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

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ATTACHMENT E – Crash Statistics

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SR 994/Krome Ave/SW 200 St		SW 134 Ave							
		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	6	3	4	2	1	16	3.20	21.6%
	Head On	0	0	0	0	0	0	0.00	0.0%
	Angle	5	3	7	12	5	32	6.40	43.2%
	Left Turn	0	2	0	1	6	9	1.80	12.2%
	Right Turn	1	1	0	0	2	4	0.80	5.4%
	Sideswipe	1	1	1	1	1	5	1.00	6.8%
	Backed Into	0	0	0	0	0	0	0.00	0.0%
	Pedestrian	0	0	0	0	0	0	0.00	0.0%
	Bicycle	0	0	0	0	0	0	0.00	0.0%
	Fixed Object	0	0	0	0	5	5	1.00	6.8%
	Other Non-Collisions	0	1	0	0	0	1	0.20	1.4%
	Overturn/Rollover	0	0	0	0	0	0	0.00	0.0%
	Others	1	0	0	0	1	2	0.40	2.7%
	Total Crashes	**14**	**11**	**12**	**16**	**21**	**74**	**14.80**	**100.0%**
SEVERITY	PDO Crashes	8	8	7	9	14	46	9.20	62.2%
	Fatal Crashes	0	0	0	0	0	0	0.00	0.0%
	Injury Crashes	6	3	5	7	7	28	5.60	37.8%
LIGHTING CONDITIONS	Daylight	8	8	12	13	12	53	10.60	71.6%
	Dusk	0	0	0	0	0	0	0.00	0.0%
	Dawn	0	0	0	0	0	0	0.00	0.0%
	Dark	6	3	0	3	8	20	4.00	27.0%
	Unknown	0	0	0	0	1	1	0.20	1.4%
SURFACE CONDITIONS	Dry	12	10	9	15	17	63	12.60	85.1%
	Wet	2	1	3	1	3	10	2.00	13.5%
	Others	0	0	0	0	1	1	0.20	1.4%
HOUR OF DAY	00:00-06:00	4	0	0	1	2	7	1.40	9.5%
	06:00-09:00	2	3	4	4	2	15	3.00	20.3%
	09:00-11:00	2	1	1	3	0	7	1.40	9.5%
	11:00-13:00	0	0	2	2	2	6	1.20	8.1%
	13:00-15:00	1	2	1	1	2	7	1.40	9.5%
	15:00-18:00	2	3	3	2	5	15	3.00	20.3%
	18:00-24:00	3	2	1	3	8	17	3.40	23.0%

ATTACHMENT B – Stage 2 Preliminary Control Strategy Assessment ICE

Florida Department of Transportation
Intersection Control Evaluation (ICE) Form
Stage 2: Initial Control Strategy Assessment

To fulfill the requirements of Stage 2 (Intersection Control Strategy) of FDOT's ICE procedures, complete the following form and append all supporting documentation. Completed forms can be submitted to the District Traffic Operations Engineer (DTOE) and District Design Engineer (DDE) for the project's approval.

Project Name	SR 994/Quail Roost Drive at SW 134th Avenue	FDOT Project #	445804-1-22-01	Date	08/26/22
Submitted By	Eugenio Lopez	Agency/Company	Choice Engineering Consultants	Email	elopez@choiceeng.com

List all viable intersection control strategies identified in Stage 1 (Screening):

Signalized Control	Roundabout (2-lane)	

Operational Analyses

Summarize the results of the peak hour analysis performed for each control strategy. Select analysis year based on guidance in the ICE procedures document. Refer to Exhibit 19-8 of the *Highway Capacity Manual, 6th Edition* (HCM6) to determine the appropriate LOS based on intersection delay (*hover over this cell for Exhibit 19-8*).

Design Vehicle	Florida Interstate Semitrailer (WB-62FL)	Control Vehicle	Florida Interstate Semitrailer (WB-62FL)
Design Year	2045		

Control Strategy	Critical Peak Hour		Weekday PM Peak
	LOS	Delay (sec.)	All Queues Accommodated?
Signalized Control	C	23.9	Yes
Roundabout (2-lane)	B	10.6	Yes

Provide any additional discussion necessary regarding the results of the operational analysis:	Both alternatives exhibit satisfactory results with undersaturated volume to capacity conditions.

Safety Performance							
Enter the most recent five (5) years of crash data from the CAR System.					Most recent year of crash data available		2018
Crash Type		2014	2015	2016	2017	2018	Total
Combined	Total						
	Fatal/Injury						
	PDO						
Single-Vehicle	Total						
	Fatal/Injury						
	PDO						
Multi-Vehicle	Total	14	11	12	16	21	74
	Fatal/Injury	8	8	7	9	14	46
	PDO	6	3	5	7	7	28
Vehicle-Pedestrian	Fatal/Injury						
Vehicle-Bicycle	Fatal/Injury						
Total	All	14	11	12	16	21	74

Apply the FDOT SPICE Tool to model anticipated safety performance of each control strategy. For intersection types not accommodated in the tool, manually apply crash modification factors detailed in the ICE procedures document or qualitatively describe anticipated safety impacts.

Control Strategy	Anticipated Impact on Safety Performance	Opening Year		Design Year	
		Predicted Total Crashes	Predicted Fatal+Injury Crashes	Predicted Total Crashes	Predicted Fatal+Injury Crashes
Signalized Control	Expected to decrease crash rates; left-turn lanes will provide space for decelaration and storage for turning vehicles.	4.38	1.47	6.55	2.24
Roundabout (2-lane)	Expected to decrease crash rates by eliminating conflict points.	7.06	1.21	10.02	1.78

Multimodal Accommodations								
Note the existing/anticipated level of pedestrian/bicyclist activity at the study intersection during the peak hours of the typical day. See ICE procedures document for activity level thresholds:								
Peak Hour:							Activity Level	
	Major Street	Minor Street	Major Street	Minor Street	Major Street	Minor Street	Ped.	Bicycles
# of ped. crossings (both approaches, if app.):							Low	Low
# of cyclists (both approaches, if app.):								

Summarize the ability of each viable control strategy to accommodate the existing/anticipated level of:

Control Strategy	Pedestrians and Bicyclists	Transit Services	Freight Needs
Signalized Control	Crosswalks with sidewalk connectivity and pedestrian signals will be provided across all four legs.	No transit accommodations are currently available or anticipated.	Designed to service up to a WB-62 vehicle.
Roundabout (2-lane)	Crosswalks with sidewalk connectivity and pedestrian signals will be provided across all four legs.	No transit accommodations are currently available or anticipated.	Designed to service up to a WB-50 vehicle.

Environmental, Utility, and Right-of-Way Impacts	
Summarize any issues related to environmental, utility, or right-of-way (including relocation) impacts specific to each control strategy. Be sure to consider the NEPA requirements for each control type.	
Signalized Control	Approximately 4 electric poles, water valve and main pipes, and 2 buried cables will be impacted. Approximately 58,595 SF of right-of-way acqusition will be required. Adjacent properties and trees/nursery will be affected.
Roundabout (2-lane)	Approximately 8 electric poles, water valve and main pipes, and 2 buried cables will be impacted. Approximately 336,714 SF of right-of-way acqusition will be required. Adjacent properties and trees/nursery will be affected.

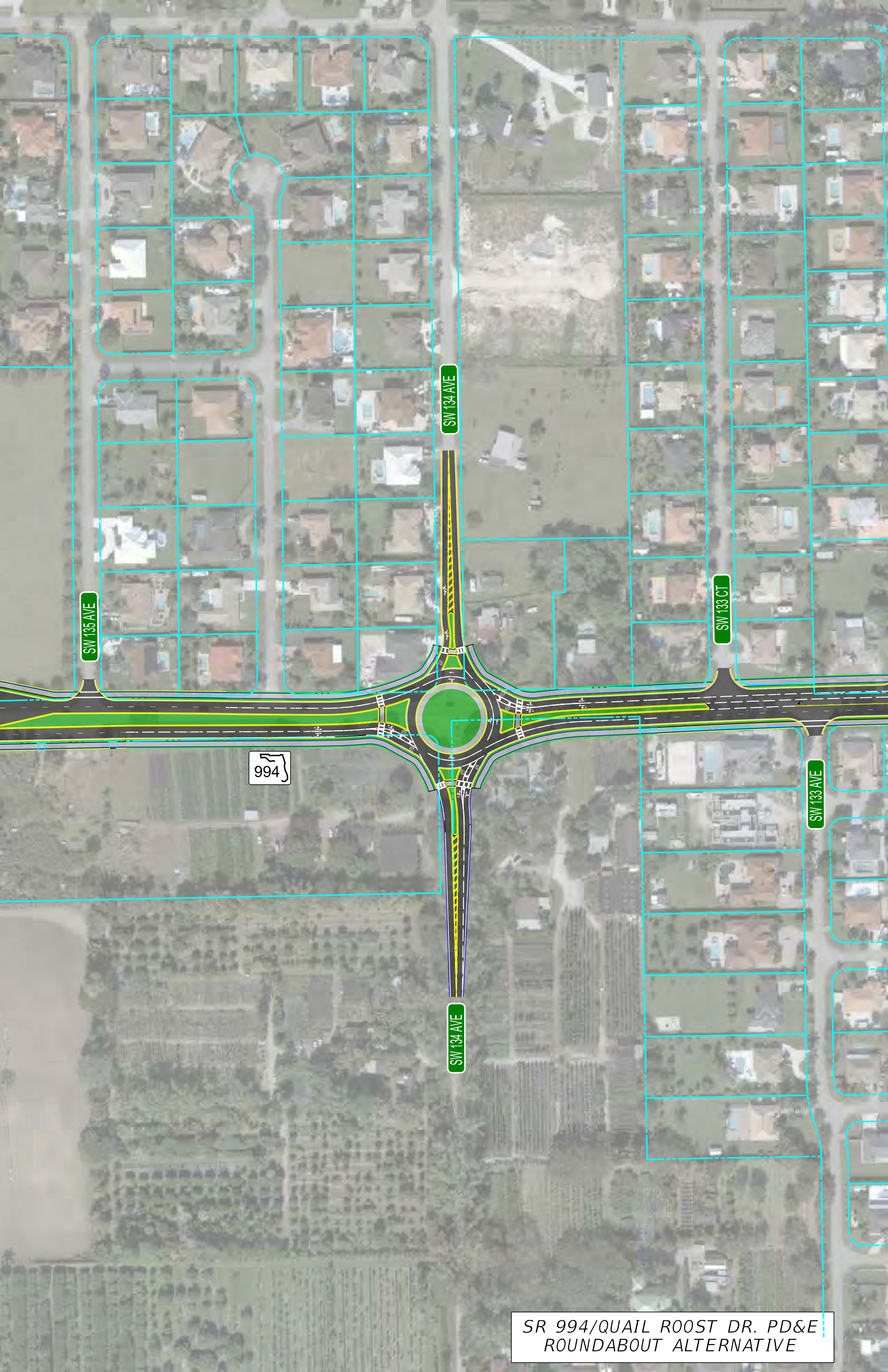
Public Input/Feedback (if appropriate)
Summarize any agency or public input regarding the control strategies:
No agency or public input has been provided at this time.

Control Strategy Evaluation		
Provide a brief justification as to why each of the following is either viable or not viable. If a single control strategy is recommended, select it as the only strategy to be advanced.		
Control Strategy	Strategy to be Advanced?	Justification
Signalized Control	Yes	This alternative is expected to experience the least total number of crashes. Based on the operational analysis, the operations are satisfactory with a LOS C during the AM and PM peak hours. The right-of-way impact is significantly less than the roundabout.
Roundabout (2-lane)	No	This alternative is expected to experience more crashes than the traffic signal. The right-of-way impacts are significantly greater. Similarly, it is expected to have more utility and environmental impacts. The roundabout would not be able to service a WB-62 vehicle.

Resolution					
To be filled out by FDOT District Traffic Operations Engineer and District Design Engineer					
Project Determination					
Comments					
DTOE Name		Signature		Date	
DDE Name		Signature		Date	

ATTACHMENT C – Concept Plans

SW 135 AVE
SW 134 CT
SW 134 AVE
SW 133 CT
SW 133 AVE
994
SR 994/QUAIL ROOST DR. PD&E
BUILD 1 ALTERNATIVE

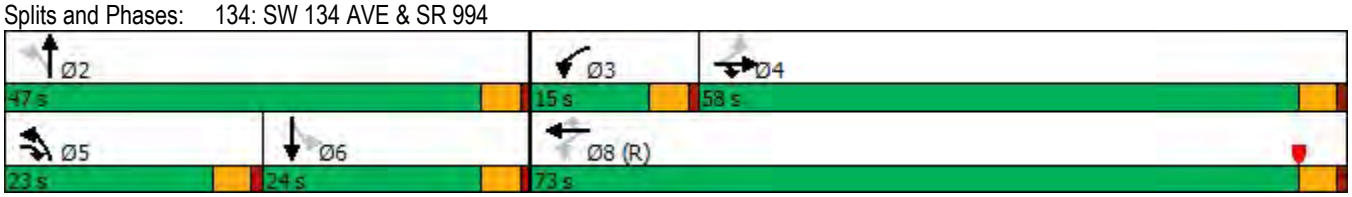

SW 135 AVE
SW 134 AVE
SW 133 CT
SW 133 AVE
994
SR 994/QUAIL ROOST DR. PD&E
ROUNDABOUT ALTERNATIVE

ATTACHMENT D – Synchro HCM Operational Results

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	831	259	98	957	66	212	23	57	52
Future Volume (vph)	25	831	259	98	957	66	212	23	57	52
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	58.0	58.0		15.0	73.0	73.0	23.0	47.0	24.0	24.0
Total Split (%)	48.3%	48.3%		12.5%	60.8%	60.8%	19.2%	39.2%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	Max	Max		None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	64.7	64.7	86.7	77.4	77.4	77.4	33.6	33.6	11.6	11.6
Actuated g/C Ratio	0.54	0.54	0.72	0.64	0.64	0.64	0.28	0.28	0.10	0.10
v/c Ratio	0.11	0.49	0.23	0.27	0.45	0.07	0.63	0.33	0.50	0.61
Control Delay	12.9	16.6	2.1	11.0	12.1	2.5	43.1	8.8	64.5	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	16.6	2.1	11.0	12.1	2.5	43.1	8.8	64.5	54.2
LOS	B	B	A	B	B	A	D	A	E	D
Approach Delay		13.1			11.5			28.2		58.3
Approach LOS		B			B			C		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 102 (85%), Referenced to phase 8:WBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 16.9	Intersection LOS: B
Intersection Capacity Utilization 62.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 134: SW 134 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	875	273	103	1007	69	223	170	60	92
v/c Ratio	0.11	0.49	0.23	0.27	0.45	0.07	0.63	0.33	0.50	0.61
Control Delay	12.9	16.6	2.1	11.0	12.1	2.5	43.1	8.8	64.5	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	16.6	2.1	11.0	12.1	2.5	43.1	8.8	64.5	54.2
Queue Length 50th (ft)	7	291	0	28	193	0	142	14	45	51
Queue Length 95th (ft)	m18	365	m71	59	277	19	203	62	87	102
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	229	1785	1208	407	2260	1035	362	604	200	237
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.49	0.23	0.25	0.45	0.07	0.62	0.28	0.30	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	831	259	98	957	66	212	23	139	57	52	35
Future Volume (veh/h)	25	831	259	98	957	66	212	23	139	57	52	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	26	875	273	103	1007	69	223	24	146	60	55	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	230	1645	972	293	2012	898	315	54	327	154	73	49
Arrive On Green	0.49	0.49	0.49	0.04	0.57	0.57	0.13	0.25	0.25	0.08	0.08	0.08
Sat Flow, veh/h	425	3357	1560	1810	3526	1572	1725	218	1325	1234	960	646
Grp Volume(v), veh/h	26	875	273	103	1007	69	223	0	170	60	0	92
Grp Sat Flow(s),veh/h/ln	425	1678	1560	1810	1763	1572	1725	0	1543	1234	0	1606
Q Serve(g_s), s	4.7	21.6	9.6	3.3	20.6	2.4	13.8	0.0	11.2	5.7	0.0	6.7
Cycle Q Clear(g_c), s	15.6	21.6	9.6	3.3	20.6	2.4	13.8	0.0	11.2	5.7	0.0	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.40
Lane Grp Cap(c), veh/h	230	1645	972	293	2012	898	315	0	381	154	0	123
V/C Ratio(X)	0.11	0.53	0.28	0.35	0.50	0.08	0.71	0.00	0.45	0.39	0.00	0.75
Avail Cap(c_a), veh/h	230	1645	972	373	2012	898	352	0	546	261	0	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.1	21.1	10.3	15.8	15.5	11.6	41.7	0.0	38.2	53.8	0.0	54.3
Incr Delay (d2), s/veh	1.0	1.2	0.7	0.7	0.9	0.2	5.7	0.0	0.8	1.6	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	8.6	3.4	1.4	8.3	0.9	6.4	0.0	4.3	1.8	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	22.3	11.1	16.5	16.4	11.7	47.3	0.0	39.1	55.4	0.0	63.0
LnGrp LOS	C	C	B	B	B	B	D	A	D	E	A	E
Approach Vol, veh/h		1174			1179			393			152	
Approach Delay, s/veh		19.7			16.1			43.7			60.0	
Approach LOS		B			B			D			E	

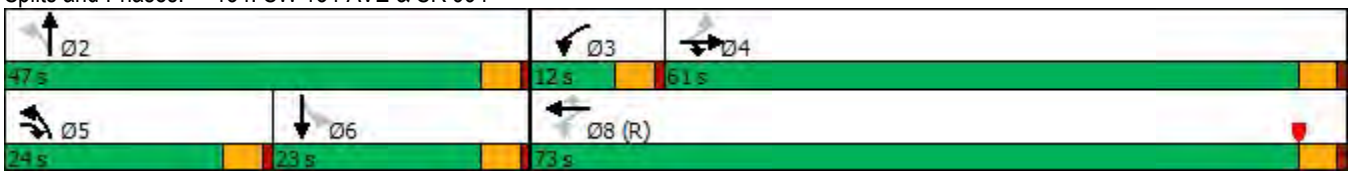
Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		34.1	9.7	63.3	20.4	13.7		73.0				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5	10.5	53.5	18.5	19.5		68.5				
Max Q Clear Time (g_c+I1), s		13.2	5.3	23.6	15.8	8.7		22.6				
Green Ext Time (p_c), s		1.1	0.1	9.0	0.2	0.4		9.7				

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	959	253	73	781	62	234	49	38	29
Future Volume (vph)	33	959	253	73	781	62	234	49	38	29
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	61.0	61.0		12.0	73.0	73.0	24.0	47.0	23.0	23.0
Total Split (%)	50.8%	50.8%		10.0%	60.8%	60.8%	20.0%	39.2%	19.2%	19.2%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	Max	Max		None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	70.5	70.5	94.5	80.4	80.4	80.4	30.6	30.6	9.5	9.5
Actuated g/C Ratio	0.59	0.59	0.79	0.67	0.67	0.67	0.26	0.26	0.08	0.08
v/c Ratio	0.12	0.52	0.21	0.22	0.35	0.06	0.71	0.38	0.41	0.51
Control Delay	8.8	11.8	1.1	10.0	10.0	2.4	49.4	15.2	64.1	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	11.8	1.1	10.0	10.0	2.4	49.4	15.2	64.1	41.5
LOS	A	B	A	A	A	A	D	B	E	D
Approach Delay		9.5			9.5			35.0		50.0
Approach LOS		A			A			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 102 (85%), Referenced to phase 8:WBTL, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 62.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 134: SW 134 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	1009	266	77	822	65	246	178	40	66
v/c Ratio	0.12	0.52	0.21	0.22	0.35	0.06	0.71	0.38	0.41	0.51
Control Delay	8.8	11.8	1.1	10.0	10.0	2.4	49.4	15.2	64.1	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	11.8	1.1	10.0	10.0	2.4	49.4	15.2	64.1	41.5
Queue Length 50th (ft)	7	280	2	20	142	0	161	38	30	23
Queue Length 95th (ft)	m14	377	m13	43	201	17	231	94	65	68
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	303	1946	1279	350	2349	1072	359	602	189	222
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.52	0.21	0.22	0.35	0.06	0.69	0.30	0.21	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	959	253	73	781	62	234	49	120	38	29	33
Future Volume (veh/h)	33	959	253	73	781	62	234	49	120	38	29	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	35	1009	266	77	822	65	246	52	126	40	31	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	283	1661	1001	252	2012	898	338	113	274	134	45	50
Arrive On Green	0.49	0.49	0.49	0.04	0.57	0.57	0.15	0.24	0.24	0.06	0.06	0.06
Sat Flow, veh/h	507	3357	1560	1810	3526	1572	1725	462	1119	1225	738	834
Grp Volume(v), veh/h	35	1009	266	77	822	65	246	0	178	40	0	66
Grp Sat Flow(s),veh/h/ln	507	1678	1560	1810	1763	1572	1725	0	1580	1225	0	1572
Q Serve(g_s), s	5.0	26.1	8.8	2.4	15.7	2.2	15.5	0.0	11.5	3.8	0.0	4.9
Cycle Q Clear(g_c), s	11.5	26.1	8.8	2.4	15.7	2.2	15.5	0.0	11.5	3.8	0.0	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.53
Lane Grp Cap(c), veh/h	283	1661	1001	252	2012	898	338	0	387	134	0	95
V/C Ratio(X)	0.12	0.61	0.27	0.31	0.41	0.07	0.73	0.00	0.46	0.30	0.00	0.70
Avail Cap(c_a), veh/h	283	1661	1001	296	2012	898	365	0	560	249	0	242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.2	21.9	9.3	16.7	14.4	11.5	42.4	0.0	38.6	54.8	0.0	55.3
Incr Delay (d2), s/veh	0.9	1.7	0.6	0.7	0.6	0.2	6.6	0.0	0.9	1.2	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	10.5	3.1	1.0	6.3	0.8	7.2	0.0	4.6	1.2	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	23.6	9.9	17.3	15.0	11.7	49.0	0.0	39.4	56.0	0.0	64.2
LnGrp LOS	C	C	A	B	B	B	D	A	D	E	A	E
Approach Vol, veh/h		1310			964			424			106	
Approach Delay, s/veh		20.7			15.0			45.0			61.1	
Approach LOS		C			B			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		33.9	9.1	63.9	22.1	11.7		73.0				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5	7.5	56.5	19.5	18.5		68.5				
Max Q Clear Time (g_c+I1), s		13.5	4.4	28.1	17.5	6.9		17.7				
Green Ext Time (p_c), s		1.1	0.0	10.4	0.1	0.3		7.4				

Intersection Summary	
HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1187	1192	398	153
Demand Flow Rate, veh/h	1212	1215	406	156
Vehicles Circulating, veh/h	224	283	992	1375
Vehicles Exiting, veh/h	1307	1115	444	123
Ped Vol Crossing Leg, #/h	0	0	50	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	10.3	12.2	22.0
Approach LOS	A	B	B	C

Lane	Left	Right	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LT	R	LTR
Assumed Moves	LT	TR	LT	TR	LT	R	LTR
RT Channelized							
Lane Util	0.470	0.530	0.470	0.530	0.628	0.372	1.000
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.609
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.976
Entry Flow, veh/h	570	642	571	644	255	151	156
Cap Entry Lane, veh/h	1158	1158	1098	1098	576	576	339
Entry HV Adj Factor	0.979	0.980	0.981	0.981	0.979	0.980	0.980
Flow Entry, veh/h	558	629	560	632	250	148	153
Cap Entry, veh/h	1134	1135	1077	1076	563	564	333
V/C Ratio	0.492	0.554	0.520	0.587	0.443	0.262	0.460
Control Delay, s/veh	8.7	9.8	9.5	10.9	13.6	9.9	22.0
LOS	A	A	A	B	B	A	C
95th %tile Queue, veh	3	4	3	4	2	1	2

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1324	975	429	106
Demand Flow Rate, veh/h	1350	995	438	109
Vehicles Circulating, veh/h	153	343	1117	1182
Vehicles Exiting, veh/h	1138	1212	386	156
Ped Vol Crossing Leg, #/h	0	0	50	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	9.2	17.4	13.4
Approach LOS	A	A	C	B

Lane	Left	Right	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LT	R	LTR
Assumed Moves	LT	TR	LT	TR	LT	R	LTR
RT Channelized							
Lane Util	0.470	0.530	0.470	0.530	0.701	0.299	1.000
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.609
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.976
Entry Flow, veh/h	634	716	468	527	307	131	109
Cap Entry Lane, veh/h	1236	1236	1039	1039	514	514	413
Entry HV Adj Factor	0.981	0.980	0.980	0.981	0.980	0.977	0.976
Flow Entry, veh/h	622	702	458	517	301	128	106
Cap Entry, veh/h	1212	1211	1018	1019	504	502	403
V/C Ratio	0.513	0.580	0.450	0.507	0.597	0.255	0.264
Control Delay, s/veh	8.6	9.9	8.7	9.6	20.2	10.9	13.4
LOS	A	A	A	A	C	B	B
95th %tile Queue, veh	3	4	2	3	4	1	1

ATTACHMENT E – SPICE Form

Federal Highway Administration (FHWA)

Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 994/Quail Roost Drive PD&E	**Intersection Type**	At-Grade Intersections
Intersection:	SR 994/Quail Roost Drive at SW 134 Avenue (Build)	**Opening Year**	2025
Agency:	FDOT	**Design Year**	2045
Project Reference:	445804-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Miami-Dade County	**Number of Legs**	4-leg
State:	FL	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	6/6/2022	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	Choice Engineering Consultants	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Rank	AADT Within Prediction Range?	Source of Prediction
Traffic Signal	Total	4.38	6.55	114.59	2	Yes	Calibrated SPF
	Fatal & Injury	1.47	2.24	38.89			
2-lane Roundabout	Total	7.06	10.02	179.17	1	Yes	Uncalibrated SPF
	Fatal & Injury	1.21	1.78	31.34			

Appendix J: TMTOOL Worksheets

SERPM Model AADTs Growth Rates from 2025 No-Build and Build to 2045 No-Build and Build

Location	Direction	Project Traffic Volumes (SERPM)				Annual Growth Rates 2025 vs. 2045	
		2025 No-Build	2025 Build	2045 No-Build	2045 Build	2045 No-Build	2045 Build
SW 137 Ave, west leg	EB	5,000	5,100	6,000	6,100	1.00%	1.0%
	WB	4,900	4,800	5,500	5,500	0.61%	0.7%
	Total	***9,900***	***9,900***	***11,500***	***11,600***	***0.81%***	***0.9%***
SW 137 Ave, east leg	EB	7,400	7,700	10,500	11,500	2.09%	2.5%
	WB	6,100	6,600	8,100	9,300	1.64%	2.0%
	Total	***13,500***	***14,300***	***18,600***	***20,800***	***1.89%***	***2.3%***
SW 137 Ave, north leg	NB	9,700	9,800	13,500	13,500	1.96%	1.9%
	SB	10,500	10,500	14,000	14,500	1.67%	1.9%
	Total	***20,200***	***20,300***	***27,500***	***28,000***	***1.81%***	***1.9%***
SW 137 Ave, south leg	NB	11,000	11,500	14,000	14,500	1.36%	1.3%
	SB	11,000	11,000	14,500	14,500	1.59%	1.6%
	Total	***22,000***	***22,500***	***28,500***	***29,000***	***1.48%***	***1.4%***
SW 134 Ave, west leg	EB	8,700	8,900	11,000	11,500	1.32%	1.5%
	WB	6,000	6,400	7,900	9,100	1.58%	2.1%
	Total	***14,700***	***15,300***	***18,900***	***20,600***	***1.43%***	***1.7%***
SW 134 Ave, east leg	EB	8,400	8,600	9,900	10,500	0.89%	1.1%
	WB	8,300	8,700	9,900	11,000	0.96%	1.3%
	Total	***16,700***	***17,300***	***19,800***	***21,500***	***0.93%***	***1.2%***
SW 134 Ave, south leg	NB	650	650	850	950	1.54%	2.3%
	SB	1,300	1,600	2,400	3,100	4.23%	4.7%
	Total	***1,950***	***2,250***	***3,250***	***4,050***	***3.33%***	***4.0%***
SW 127 Ave, west leg	EB	11,500	11,500	13,500	14,000	0.87%	1.1%
	WB	9,400	9,800	11,000	12,500	0.85%	1.4%
	Total	***20,900***	***21,300***	***24,500***	***26,500***	***0.86%***	***1.2%***
SW 127 Ave, east leg	EB	10,500	10,000	14,500	14,500	1.90%	2.3%
	WB	10,500	11,000	15,000	15,500	2.14%	2.0%
	Total	***21,000***	***21,000***	***29,500***	***30,000***	***2.02%***	***2.1%***
SW 127 Ave, north leg	NB	4,500	4,600	5,600	5,500	1.22%	1.0%
	SB	5,100	5,200	6,200	6,400	1.08%	1.2%
	Total	***9,600***	***9,800***	***11,800***	***11,900***	***1.15%***	***1.1%***
SW 127 Ave, south leg	NB	8,700	8,600	10,500	10,500	1.03%	1.1%
	SB	6,100	6,100	7,800	7,800	1.39%	1.4%
	Total	***14,800***	***14,700***	***18,300***	***18,300***	***1.18%***	***1.2%***

SERPM Model Growth Rates from Base Year 2015 to 2025 and 2045 No-Build and Build

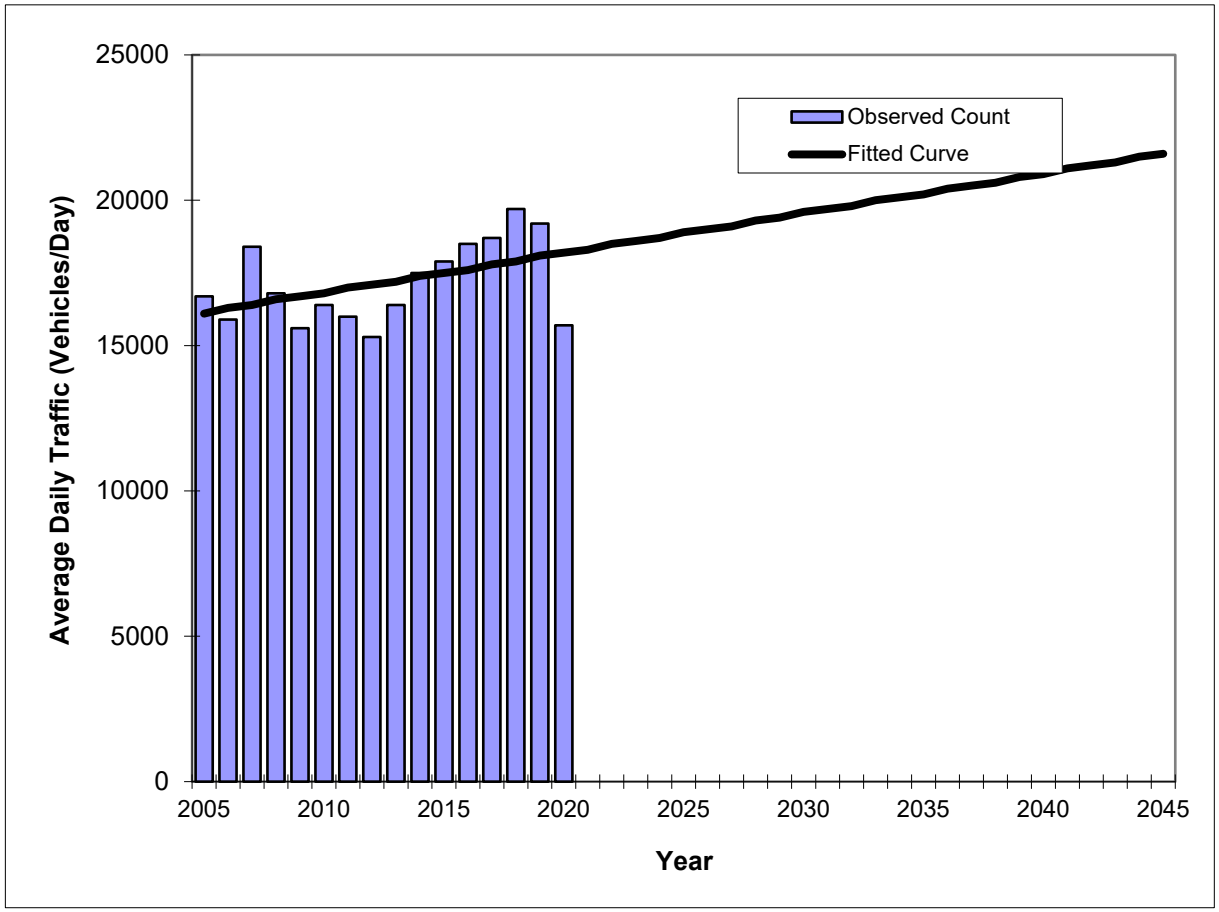
Location	Direction	Project Traffic Volumes (SERPM)					Annual Growth Rates 2015 Base Year vs. SERPM Outputs			
		2015 Base	2025 No-Build	2025 Build	2045 No-Build	2045 Build	2025 No-Build	2045 No-Build	2025 Build	2045 Build
SW 137 Ave, west leg	EB	5550	5,000	5,100	6,000	6,100	-0.99%	0.27%	-0.81%	0.33%
	WB	4530	4,900	4,800	5,500	5,500	0.82%	0.71%	0.60%	0.71%
	Total	***10,080***	***9,900***	***9,900***	***11,500***	***11,600***	***-0.18%***	***0.47%***	***-0.18%***	***0.50%***
SW 137 Ave, east leg	EB	5040	7,400	7,700	10,500	11,500	4.68%	3.61%	5.28%	4.27%
	WB	5500	6,100	6,600	8,100	9,300	1.09%	1.58%	2.00%	2.30%
	Total	***10,540***	***13,500***	***14,300***	***18,600***	***20,800***	***2.81%***	***2.55%***	***3.57%***	***3.24%***
SW 137 Ave, north leg	NB	6430	9,700	9,800	13,500	13,500	5.09%	3.67%	5.24%	3.67%
	SB	4830	10,500	10,500	14,000	14,500	11.74%	6.33%	11.74%	6.67%
	Total	***11,260***	***20,200***	***20,300***	***27,500***	***28,000***	***7.94%***	***4.81%***	***8.03%***	***4.96%***
SW 137 Ave, south leg	NB	N/A	11,000	11,500	14,000	14,500	N/A	N/A	N/A	N/A
	SB	N/A	11,000	11,000	14,500	14,500	N/A	N/A	N/A	N/A
	Total	***N/A***	***22,000***	***22,500***	***28,500***	***29,000***	***N/A***	***N/A***	***N/A***	***N/A***
SW 134 Ave, west leg	EB	5040	8,700	8,900	11,000	11,500	7.26%	3.94%	7.66%	4.27%
	WB	5620	6,000	6,400	7,900	9,100	0.68%	1.35%	1.39%	2.06%
	Total	***10,660***	***14,700***	***15,300***	***18,900***	***20,600***	***3.79%***	***2.58%***	***4.35%***	***3.11%***
SW 134 Ave, east leg	EB	2660	8,400	8,600	9,900	10,500	21.58%	9.07%	22.33%	9.82%
	WB	3170	8,300	8,700	9,900	11,000	16.18%	7.08%	17.44%	8.23%
	Total	***5,830***	***16,700***	***17,300***	***19,800***	***21,500***	***18.64%***	***7.99%***	***19.67%***	***8.96%***
SW 134 Ave, south leg	NB	3090	650	650	850	950	-7.90%	-2.42%	-7.90%	-2.31%
	SB	3020	1,300	1,600	2,400	3,100	-5.70%	-0.68%	-4.70%	0.09%
	Total	***6,110***	***1,950***	***2,250***	***3,250***	***4,050***	***-6.81%***	***-1.56%***	***-6.32%***	***-1.12%***
SW 127 Ave, west leg	EB	3920	11,500	11,500	13,500	14,000	19.34%	8.15%	19.34%	8.57%
	WB	4240	9,400	9,800	11,000	12,500	12.17%	5.31%	13.11%	6.49%
	Total	***8,160***	***20,900***	***21,300***	***24,500***	***26,500***	***15.61%***	***6.67%***	***16.10%***	***7.49%***
SW 127 Ave, east leg	EB	9910	10,500	10,000	14,500	14,500	0.60%	1.54%	0.09%	1.54%
	WB	9910	10,500	11,000	15,000	15,500	0.60%	1.71%	1.10%	1.88%
	Total	***19,820***	***21,000***	***21,000***	***29,500***	***30,000***	***0.60%***	***1.63%***	***0.60%***	***1.71%***
SW 127 Ave, north leg	NB	4820	4,500	4,600	5,600	5,500	-0.66%	0.54%	-0.46%	0.47%
	SB	5280	5,100	5,200	6,200	6,400	-0.34%	0.58%	-0.15%	0.71%
	Total	***10,100***	***9,600***	***9,800***	***11,800***	***11,900***	***-0.50%***	***0.56%***	***-0.30%***	***0.59%***
SW 127 Ave, south leg	NB	8010	8,700	8,600	10,500	10,500	0.86%	1.04%	0.74%	1.04%
	SB	7550	6,100	6,100	7,800	7,800	-1.92%	0.11%	-1.92%	0.11%
	Total	***15,560***	***14,800***	***14,700***	***18,300***	***18,300***	***-0.49%***	***0.59%***	***-0.55%***	***0.59%***

Traffic Trends - V03.a

SR 994/SW 200 ST --

FIN#	1234
Location	1

County:	Miami-Dade (87)
Station #:	871116
Highway:	SR 994/SW 200 ST



Year	Traffic (ADT/AADT) Count*	Trend**
2005	16700	16100
2006	15900	16300
2007	18400	16400
2008	16800	16600
2009	15600	16700
2010	16400	16800
2011	16000	17000
2012	15300	17100
2013	16400	17200
2014	17500	17400
2015	17900	17500
2016	18500	17600
2017	18700	17800
2018	19700	17900
2019	19200	18100
2020	15700	18200
2025 Opening Year Trend		
2025	N/A	18900
2035 Mid-Year Trend		
2035	N/A	20200
2045 Design Year Trend		
2045	N/A	21600
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	136
Trend R-squared:	21.47%
Trend Annual Historic Growth Rate:	0.87%
Trend Growth Rate (2020 to Design Year):	0.75%
Printed:	16-Jun-24

Straight Line Growth Option

*Axle-Adjusted

TMTOOL INPUT SHEET

Project Description:

SECTION NO:		PREPARED BY:	CHOICE
FM NO.:		FILE:	
PROJECT LIMITS:		DATE:	6/16/2024
DESIGN YEAR:	No Build 2045		
INTERSECTION:	SR 994/SW 200 Street and SW 137 Avenue		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
	2021	11,000	20,300	N/A	11,500
	2025	20,200	13,500	22,000	9,900
Model Volume:	2045	27,500	18,600	28,500	11,500

Growth Rates:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
Historic Trend GR =	1.00%	LGR	1.00%	LGR	1.00%	LGR	1.00%	LGR
Historic + Model Trend GR =	1.81%	LGR	1.89%	LGR	1.48%	LGR	1.43%	LGR
Base Year Model to Future Year Model GR =	4.81%	LGR	2.55%	LGR	N/A	LGR	0.47%	LGR
Recommended Growth Rate:	**1.75%**	**LGR**	**1.75%**	**LGR**	**1.25%**	**LGR**	**1.00%**	**LGR**

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound Growth First Ten Years, Linear Growth Thereafter (Based Upon the Base Year AADT)

		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
				2		**2**		**2**		**2**
		2025		20,200		13,500		22,000		9,900
NO. YEARS	0	2025	1.000	20,200	1.000	13,500	1.000	22,000	1.000	9,900
NO. YEARS	10	2035	1.175	23,700	1.175	15,900	1.125	24,800	1.100	10,900
NO. YEARS	20	2045	1.350	27,300	1.350	18,200	1.250	27,500	1.200	11,900

Percent Turns Calculated From Base Year TMCs:

TURN STUDY		FROM NORTH LEG (Southbound)			FROM EAST LEG (Westbound)			FROM SOUTH LEG (Northbound)			FROM WEST LEG (Eastbound)			
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	TOTAL
A.M.	2-Way Pk Hr Vol:	1,119			1,074			954			792		
Est. 2025	25	317	167	169	324	50	67	409	99	12	299	33	1,969
% TURNS:	5%	62%	33%	31%	60%	9%	12%	71%	17%	4%	87%	9%	
P.M.	2-Way Pk Hr Vol:	1,234			1,190			916			753		
Est. 2025	27	471	242	195	311	52	58	276	33	27	333	23	2,046
% TURNS:	4%	64%	33%	35%	56%	9%	16%	75%	9%	7%	87%	6%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2025	5%	62%	33%	31%	60%	9%	12%	71%	17%	4%	87%	9%
2025	7%	61%	32%	32%	56%	12%	14%	69%	18%	7%	81%	12%
2035	7%	61%	33%	32%	55%	13%	14%	68%	18%	8%	79%	13%
2045	8%	60%	33%	33%	53%	15%	15%	67%	18%	9%	77%	14%
P.M.												
2025	4%	64%	33%	35%	56%	9%	16%	75%	9%	7%	87%	6%
2025	5%	62%	32%	35%	52%	13%	17%	72%	10%	10%	81%	9%
2035	6%	62%	32%	36%	51%	13%	18%	72%	11%	11%	79%	10%
2045	6%	61%	33%	36%	49%	15%	19%	71%	11%	12%	77%	11%

K & D FACTORS:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
	AM	PM	AM	PM	AM	PM	AM	PM
K FACTOR								
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2035	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2045	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
D FACTOR								
2025	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%
2025	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%
2035	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%
2045	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%

Notes: 1- 2021 AADTs come from 2021 daily counts. 2- 2025 and 2045 AADTs come from SERPM AADTs. 3- Historic growth comes from trend analysis per FDOT station on SR 994 west of SW 127 Ave, since there is no station nearby. 4- Historic+Model Trend growth comes from 2025 to 2045 SERPM AADTs, since there are no historical AADTs available for this intersection. 5- Base Year Model to Future Year Model growth comes from 2015 to 2045 SERPM AADTs.6- Recommended Growth Rate is based on the rates presented and engineering judgment. 7- Linear growth rate was selected. 8- Since south leg was closed during 2021 traffic counts, counts collected in 2023 once south leg opened were grown to 2025 by applying 1% annual growth rate to determine 2025 counts and used as base year for TMTOOL. 9- Turning movement volumes outputs from TMTOOL were balanced by reviewing 2021 counts, 2023 counts, and considering that some SERPM AADTs were underestimating traffic.

TMTOOL "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: 0
FM NO.: 0
PROJECT LIMITS: 0
DESIGN YEAR: No Build 2045
INTERSECTION: SR 994/SW 200 Street and SW 137 Avenue
PREPARED BY: CHOICE
FILE:

DATE: 6/16/2024
NOTES:

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
24 HR EST. AADT	2025	20,200	13,500	22,000	9,900
24 HR EST. AADT	2025	20,200	13,500	22,000	9,900
24 HR EST. AADT	2035	23,700	15,900	24,800	10,900
24 HR EST. AADT	2045	27,300	18,200	27,500	11,900

Percent Turns Calculated From Base Year AADTs:

JKTURNS		FROM NORTH LEG			FROM EAST LEG			FROM SOUTH LEG			FROM WEST LEG		
2025 2-WAY ADT		20,200			13,500			22,000			9,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	9,900	22,000	13,500	20,200	9,900	22,000	13,500	20,200	9,900	22,000	13,500	20,200
	22%	48%	30%	39%	19%	42%	31%	46%	23%	39%	24%	36%
2025 2-WAY ADT		20,200			13,500			22,000			9,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	9,900	22,000	13,500	20,200	9,900	22,000	13,500	20,200	9,900	22,000	13,500	20,200
	22%	48%	30%	39%	19%	42%	31%	46%	23%	39%	24%	36%
2035 2-WAY ADT		23,700			15,900			24,800			10,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	10,900	24,800	15,900	23,700	10,900	24,800	15,900	23,700	10,900	24,800	15,900	23,700
	21%	48%	31%	40%	18%	42%	31%	47%	22%	39%	25%	37%
2045 2-WAY ADT		27,300			18,200			27,500			11,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	11,900	27,500	18,200	27,300	11,900	27,500	18,200	27,300	11,900	27,500	18,200	27,300
	21%	48%	32%	41%	18%	41%	32%	48%	21%	38%	25%	37%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M. DESIGN HR. TURNS													
2025	EST. TURNS	18	687	121	196	319	146	109	784	161	38	310	40
2025	EST. TURNS	28	645	137	201	299	165	127	769	171	62	350	50
2035	EST. TURNS	36	725	179	256	335	189	150	876	177	66	301	59
2045	EST. TURNS	47	805	229	318	365	216	175	987	187	74	319	74
P.M. DESIGN HR. TURNS													
2025	EST. TURNS	22	906	160	145	279	111	131	629	90	92	394	28
2025	EST. TURNS	35	632	178	150	255	134	148	612	101	114	359	41
2035	EST. TURNS	43	971	233	192	283	158	173	694	105	119	394	50
2045	EST. TURNS	56	1,078	297	241	304	184	199	779	110	129	423	64

LINK VOLUME CHECK		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		800	1,020	1,820	680	540	1,220	1,109	871	1,980	392	498	890
2025	TURN SUMMARY	826	1,020	1,846	661	540	1,201	1,054	871	1,925	388	498	886
CONTROL LINK VOLUMES		800	1,020	1,820	680	540	1,220	1,109	871	1,980	392	498	890
2025	TURN SUMMARY	810	1,020	1,830	664	613	1,278	1,067	871	1,938	462	498	960
CONTROL LINK VOLUMES		939	1,191	2,130	801	629	1,430	1,250	980	2,230	432	548	980
2035	TURN SUMMARY	940	1,191	2,131	780	629	1,409	1,203	980	2,183	426	548	974
CONTROL LINK VOLUMES		1,081	1,379	2,460	917	723	1,640	1,386	1,094	2,480	471	599	1,070
2045	TURN SUMMARY	1,080	1,379	2,459	899	723	1,622	1,349	1,094	2,443	466	599	1,065
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		1,018	802	1,820	535	685	1,220	871	1,109	1,980	499	391	890
2025	TURN SUMMARY	1,088	802	1,890	535	685	1,220	850	1,109	1,959	515	391	906
CONTROL LINK VOLUMES		1,018	802	1,820	535	685	1,220	871	1,109	1,980	499	391	890
2025	TURN SUMMARY	845	802	1,647	539	685	1,224	860	881	1,741	514	391	905
CONTROL LINK VOLUMES		1,194	936	2,130	630	800	1,430	982	1,248	2,230	549	431	980
2035	TURN SUMMARY	1,246	936	2,182	634	800	1,434	972	1,248	2,220	563	431	994
CONTROL LINK VOLUMES		1,376	1,084	2,460	721	919	1,640	1,089	1,391	2,480	600	470	1,070
2045	TURN SUMMARY	1,431	1,084	2,515	729	919	1,648	1,088	1,391	2,479	616	470	1,086

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:		PREPARED BY:	CHOICE
FM NO.:		FILE:	
PROJECT LIMITS:		DATE:	6/16/2024
DESIGN YEAR:	No Build 2045		
INTERSECTION:	SR 994/SW 200 Street and SW 134 Avenue		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
		*2025 Estimated			
	2021	1,700	17,900	7,200	20,500
	2025*	1,800	16,700	1,950	14,700
Model Volume:	2045	N/A	19,800	3,250	18,900

Growth Rates:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
Historic Trend GR =	1.00%	LGR	1.00%	LGR	1.00%	LGR	1.00%	LGR
Historic + Model Trend GR =	N/A	LGR	0.93%	LGR	3.33%	LGR	1.43%	LGR
Base Year Model to Future Year Model GR =	N/A	LGR	7.99%	LGR	-1.56%	LGR	2.58%	LGR
Recommended Growth Rate:	**1.00%**	**LGR**	**1.00%**	**LGR**	**2.10%**	**LGR**	**1.40%**	**LGR**

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound Growth First Ten Years, Linear Growth Thereafter (Based Upon the Base Year AADT)

		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
				2		**2**		**2**		**2**
		2025		1,800		16,700		1,950		14,700
NO. YEARS	0	2025	1.000	1,800	1.000	16,700	1.000	2,000	1.000	14,700
NO. YEARS	10	2035	1.100	2,000	1.100	18,400	1.210	2,400	1.140	16,800
NO. YEARS	20	2045	1.200	2,200	1.200	20,000	1.420	2,800	1.280	18,800

Percent Turns Calculated From Base Year TMCs:

TURN STUDY		FROM NORTH LEG (Southbound)			FROM EAST LEG (Westbound)			FROM SOUTH LEG (Northbound)			FROM WEST LEG (Eastbound)			
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	TOTAL
A.M.	2-Way Pk Hr Vol:	260			1,757			392			1,741		
Estimated 2025	3	44	48	112	828	59	33	37	103	115	676	16	2,075
% TURNS:	3%	46%	51%	11%	83%	6%	19%	22%	59%	14%	84%	2%	
P.M.	2-Way Pk Hr Vol:	102			1,491			484			1,659		
Estimated 2025	2	24	32	19	657	68	42	25	107	218	674	0	1,868
% TURNS:	4%	41%	55%	3%	88%	9%	24%	14%	62%	24%	76%	0%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2025	3%	46%	51%	11%	83%	6%	19%	22%	59%	14%	84%	2%
2025	7%	42%	50%	11%	82%	6%	22%	20%	58%	14%	84%	3%
2035	8%	41%	50%	11%	82%	7%	23%	20%	58%	14%	83%	3%
2045	10%	40%	50%	11%	82%	7%	24%	19%	57%	14%	83%	3%
P.M.												
2025	4%	41%	55%	3%	88%	9%	24%	14%	62%	24%	76%	0%
2025	8%	38%	55%	3%	87%	9%	27%	13%	60%	23%	76%	1%
2035	9%	37%	55%	3%	87%	9%	27%	13%	60%	23%	76%	1%
2045	11%	35%	54%	4%	87%	10%	28%	13%	59%	22%	76%	1%

K & D FACTORS:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
	AM	PM	AM	PM	AM	PM	AM	PM
K FACTOR								
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2035	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2045	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
D FACTOR								
2025	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%
2025	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%
2035	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%
2045	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%

Notes: 1- 2021 AADTs come from 2021 daily counts. 2- 2025 and 2045 AADTs come from SERPM AADTs. 3- Historic growth comes from trend analysis per FDOT station on SR 994 west of SW 127 Ave, since there is no station nearby. 4- Historic+Model Trend growth comes from 2025 to 2045 SERPM AADTs, since there are no historical AADTs available for this intersection. 5- Base Year Model to Future Year Model growth comes from 2015 to 2045 SERPM AADTs.6- Recommended Growth Rate is based on the rates presented and engineering judgment. 7- Linear growth rate was selected. 8- North leg 2025 AADT was estimated from 2021 counts since leg is not coded in SERPM model. 9- Used 2025 as base year since opening of south leg SW 137 Ave affected this intersection. 10- Turning movement volumes outputs from TMTOOL were balanced by reviewing 2021 counts, 2023 counts, and considering that some SERPM AADTs were underestimating traffic.

TMTOOL "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: 0
FM NO.: 0
PROJECT LIMITS: 0
DESIGN YEAR: No Build 2045
INTERSECTION: SR 994/SW 200 Street and SW 134 Avenue
PREPARED BY: CHOICE
FILE:

DATE: 6/16/2024
NOTES:

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
24 HR EST. AADT	2025	1,800	16,700	1,950	14,700
24 HR EST. AADT	2025	1,800	16,700	2,000	14,700
24 HR EST. AADT	2035	2,000	18,400	2,400	16,800
24 HR EST. AADT	2045	2,200	20,000	2,800	18,800

Percent Turns Calculated From Base Year AADTs:

JKTURNS		FROM NORTH LEG			FROM EAST LEG			FROM SOUTH LEG			FROM WEST LEG		
2025 2-WAY ADT		1,800			16,700			1,950			14,700		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	14,700	1,950	16,700	1,800	14,700	1,950	16,700	1,800	14,700	1,950	16,700	1,800
	44%	6%	50%	10%	80%	11%	50%	5%	44%	10%	82%	9%
2025 2-WAY ADT		1,800			16,700			2,000			14,700		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	14,700	2,000	16,700	1,800	14,700	2,000	16,700	1,800	14,700	2,000	16,700	1,800
	44%	6%	50%	10%	79%	11%	50%	5%	44%	10%	81%	9%
2035 2-WAY ADT		2,000			18,400			2,400			16,800		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	16,800	2,400	18,400	2,000	16,800	2,400	18,400	2,000	16,800	2,400	18,400	2,000
	45%	6%	49%	9%	79%	11%	49%	5%	45%	11%	81%	9%
2045 2-WAY ADT		2,200			20,000			2,800			18,800		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	18,800	2,800	20,000	2,200	18,800	2,800	20,000	2,200	18,800	2,800	20,000	2,200
	45%	7%	48%	9%	79%	12%	49%	5%	46%	11%	80%	9%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M. DESIGN HR. TURNS													
2025	EST. TURNS	3	30	84	35	692	34	25	6	43	37	549	3
2025	EST. TURNS	7	27	83	34	689	37	29	5	42	35	547	4
2035	EST. TURNS	10	33	86	38	781	43	32	7	54	47	615	5
2045	EST. TURNS	15	36	89	42	865	45	34	8	66	56	668	7
P.M. DESIGN HR. TURNS													
2025	EST. TURNS	1	6	42	78	546	27	29	37	32	50	768	0
2025	EST. TURNS	2	17	41	73	542	29	38	29	35	47	760	13
2035	EST. TURNS	3	7	44	77	614	33	43	33	46	61	844	19
2045	EST. TURNS	5	8	46	80	679	34	48	36	58	70	914	29

LINK VOLUME CHECK		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		117	43	160	842	658	1,500	79	101	180	582	738	1,320
2025	TURN SUMMARY	117	43	160	761	658	1,419	74	101	175	588	738	1,326
CONTROL LINK VOLUMES		117	43	160	842	658	1,500	81	99	180	582	738	1,320
2025	TURN SUMMARY	116	43	159	760	658	1,418	76	99	175	586	738	1,324
CONTROL LINK VOLUMES		130	50	180	927	733	1,660	97	123	220	665	845	1,510
2035	TURN SUMMARY	129	50	179	863	733	1,596	93	123	216	667	845	1,512
CONTROL LINK VOLUMES		143	57	200	1,008	792	1,800	113	137	250	744	946	1,690
2045	TURN SUMMARY	140	57	197	953	792	1,745	108	137	245	732	946	1,678
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		45	115	160	661	839	1,500	97	83	180	741	579	1,320
2025	TURN SUMMARY	49	115	164	650	839	1,489	99	83	182	818	579	1,397
CONTROL LINK VOLUMES		45	115	160	661	839	1,500	99	81	180	741	579	1,320
2025	TURN SUMMARY	61	115	176	644	839	1,483	101	92	194	819	579	1,398
CONTROL LINK VOLUMES		50	130	180	729	931	1,660	119	101	220	847	663	1,510
2035	TURN SUMMARY	54	130	184	724	931	1,655	123	101	224	924	663	1,587
CONTROL LINK VOLUMES		55	145	200	792	1,008	1,800	139	111	250	948	742	1,690
2045	TURN SUMMARY	58	145	203	793	1,008	1,801	143	111	254	1,012	742	1,754

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:		PREPARED BY:	CHOICE
FM NO.:		FILE:	
PROJECT LIMITS:		DATE:	6/16/2024
DESIGN YEAR:	No Build 2045		
INTERSECTION:	SR 994/SW 200 Street and SW 127 Avenue		

NOTES:

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
	2019				19,200
	2020				15,700
	2021	10,500	24,700	17,900	22,000
	2025	9,600	21,000	14,800	20,900
Model Volume:	2045	11,800	29,500	18,300	24,500

Growth Rates:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
Historic Trend GR =	1.00%	LGR	1.00%	LGR	1.00%	LGR	1.00%	LGR
Historic + Model Trend GR =	1.15%	LGR	2.02%	LGR	1.18%	LGR	0.86%	LGR
Base Year Model to Future Year Model GR =	0.56%	LGR	1.63%	LGR	0.59%	LGR	6.67%	LGR
Recommended Growth Rate:	**1.00%**	**LGR**	**1.60%**	**LGR**	**1.00%**	**LGR**	**0.70%**	**LGR**

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound Growth First Ten Years, Linear Growth Thereafter (Based Upon the Base Year AADT)

			NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
			2		**2**		**2**		**2**	
		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
		2021		9,600		21,000		14,800		20,900
NO. YEARS	4	2025	1.040	10,000	1.064	22,300	1.040	15,400	1.028	21,500
NO. YEARS	14	2035	1.140	10,900	1.224	25,700	1.140	16,900	1.098	22,900
NO. YEARS	24	2045	1.240	11,900	1.384	29,100	1.240	18,400	1.168	24,400

Percent Turns Calculated From Base Year TMCs:

TURN STUDY		FROM NORTH LEG (Southbound)			FROM EAST LEG (Westbound)			FROM SOUTH LEG (Northbound)			FROM WEST LEG (Eastbound)			
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	TOTAL
A.M.	2-Way Pk Hr Vol:	798			2,145			1,107			1,836		
Year 2021	46	182	93	146	526	174	315	197	192	47	891	134	2,944
% TURNS:	14%	57%	29%	17%	62%	21%	45%	28%	27%	4%	83%	12%	
P.M.	2-Way Pk Hr Vol:	824			1,839			1,133			1,546		
Year 2021	65	284	131	97	565	246	169	198	147	89	630	49	2,671
% TURNS:	14%	59%	27%	11%	62%	27%	33%	38%	29%	12%	82%	6%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2021	14%	57%	29%	17%	62%	21%	45%	28%	27%	4%	83%	12%
2025	17%	54%	30%	18%	61%	22%	44%	27%	29%	7%	79%	13%
2035	17%	53%	30%	18%	60%	22%	45%	27%	29%	8%	79%	13%
2045	18%	52%	31%	18%	59%	23%	45%	26%	29%	9%	77%	14%
P.M.												
2021	14%	59%	27%	11%	62%	27%	33%	38%	29%	12%	82%	6%
2025	16%	56%	28%	12%	61%	28%	34%	36%	30%	14%	79%	8%
2035	16%	55%	29%	12%	60%	28%	34%	36%	30%	14%	78%	8%
2045	17%	54%	29%	13%	59%	28%	35%	35%	30%	15%	77%	9%

K & D FACTORS:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
	AM	PM	AM	PM	AM	PM	AM	PM
K FACTOR								
2021	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2035	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2045	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
D FACTOR								
2021	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%
2025	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%
2035	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%
2045	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%

Notes: 1- 2021 AADTs come from 2021 daily counts. 2- 2025 and 2045 AADTs come from SERPM AADTs. 3- Historic growth comes from trend analysis per FDOT station on SR 994 west of SW 127 Ave. 4- Historic+Model Trend growth comes from 2025 to 2045 SERPM AADTs, since there are no historical AADTs available for this intersection. 5- Base Year Model to Future Year Model growth comes from 2015 to 2045 SERPM AADTs.6- Recommended Growth Rate is based on the rates presented and engineering judgment. 7- Linear growth rate was selected. 8- Turning movement volumes outputs from TMTOOL were balanced by reviewing 2021 counts, 2023 counts, and considering that some SERPM AADTs were underestimating traffic.

TMTOOL "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: 0
FM NO.: 0
PROJECT LIMITS: 0
DESIGN YEAR: No Build 2045
INTERSECTION: SR 994/SW 200 Street and SW 127 Avenue
PREPARED BY: CHOICE
FILE:

DATE: 6/16/2024
NOTES:

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
24 HR EST. AADT	2021	9,600	21,000	14,800	20,900
24 HR EST. AADT	2025	10,000	22,300	15,400	21,500
24 HR EST. AADT	2035	10,900	25,700	16,900	22,900
24 HR EST. AADT	2045	11,900	29,100	18,400	24,400

Percent Turns Calculated From Base Year AADTs:

JKTURNS		FROM NORTH LEG			FROM EAST LEG			FROM SOUTH LEG			FROM WEST LEG		
2021 2-WAY ADT		9,600			21,000			14,800			20,900		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		20,900	14,800	21,000	9,600	20,900	14,800	21,000	9,600	20,900	14,800	21,000	9,600
		37%	26%	37%	21%	46%	33%	41%	19%	41%	33%	46%	21%
2025 2-WAY ADT		10,000			22,300			15,400			21,500		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		21,500	15,400	22,300	10,000	21,500	15,400	22,300	10,000	21,500	15,400	22,300	10,000
		36%	26%	38%	21%	46%	33%	41%	19%	40%	32%	47%	21%
2035 2-WAY ADT		10,900			25,700			16,900			22,900		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		22,900	16,900	25,700	10,900	22,900	16,900	25,700	10,900	22,900	16,900	25,700	10,900
		35%	26%	39%	21%	45%	33%	43%	18%	38%	32%	48%	20%
2045 2-WAY ADT		11,900			29,100			18,400			24,400		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		24,400	18,400	29,100	11,900	24,400	18,400	29,100	11,900	24,400	18,400	29,100	11,900
		34%	26%	40%	22%	45%	34%	44%	18%	37%	31%	49%	20%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M. DESIGN HR. TURNS													
2021	EST. TURNS	52	269	57	107	504	219	244	213	271	97	757	159
2025	EST. TURNS	64	254	76	128	522	231	281	214	270	129	770	162
2035	EST. TURNS	66	264	98	159	577	275	347	229	264	129	846	159
2045	EST. TURNS	71	274	126	194	634	322	417	242	265	137	925	162
P.M. DESIGN HR. TURNS													
2021	EST. TURNS	85	322	86	87	730	275	137	222	237	148	610	66
2025	EST. TURNS	98	282	104	105	747	306	163	216	243	162	618	76
2035	EST. TURNS	98	325	131	129	816	369	207	228	240	157	676	74
2045	EST. TURNS	103	337	164	157	889	434	255	236	242	160	734	77

LINK VOLUME CHECK		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		380	480	860	832	1,058	1,890	746	584	1,330	1,053	827	1,880
2021	TURN SUMMARY	378	480	858	830	1,058	1,888	729	584	1,313	1,013	827	1,840
CONTROL LINK VOLUMES		396	504	900	883	1,127	2,010	776	614	1,390	1,084	856	1,940
2025	TURN SUMMARY	393	504	897	881	1,127	2,008	766	614	1,380	1,061	856	1,917
CONTROL LINK VOLUMES		432	548	980	1,018	1,292	2,310	852	668	1,520	1,154	906	2,060
2035	TURN SUMMARY	428	548	976	1,011	1,292	2,303	841	668	1,509	1,134	906	2,040
CONTROL LINK VOLUMES		471	599	1,070	1,152	1,468	2,620	927	733	1,660	1,230	970	2,200
2045	TURN SUMMARY	470	599	1,069	1,151	1,468	2,619	924	733	1,657	1,225	970	2,195
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		484	376	860	1,058	832	1,890	586	744	1,330	828	1,052	1,880
2021	TURN SUMMARY	493	376	869	1,092	832	1,924	596	744	1,340	824	1,052	1,876
CONTROL LINK VOLUMES		504	396	900	1,124	886	2,010	610	780	1,390	851	1,089	1,940
2025	TURN SUMMARY	484	396	880	1,158	886	2,044	622	750	1,372	856	1,089	1,945
CONTROL LINK VOLUMES		549	431	980	1,295	1,015	2,310	669	851	1,520	907	1,153	2,060
2035	TURN SUMMARY	554	431	985	1,313	1,015	2,328	674	851	1,525	908	1,153	2,061
CONTROL LINK VOLUMES		600	470	1,070	1,467	1,153	2,620	729	931	1,660	966	1,234	2,200
2045	TURN SUMMARY	604	470	1,074	1,480	1,153	2,633	734	931	1,665	970	1,234	2,204

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:		PREPARED BY:	CHOICE
FM NO.:		FILE:	
PROJECT LIMITS:		DATE:	6/16/2024
DESIGN YEAR:	Build 2045		
INTERSECTION:	SR 994/SW 200 Street and SW 137 Avenue		

NOTES:

See notes at bottom of TMTOOL sheet for No-Build.

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
	2021	11,000	20,300	N/A	11,500
	2025	20,300	14,300	22,500	9,900
Model Volume:	2045	28,000	20,800	29,000	11,600

Growth Rates:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
Historic Trend GR =	1.00%	LGR	1.00%	LGR	1.00%	LGR	1.00%	LGR
Historic + Model Trend GR =	1.90%	LGR	2.30%	LGR	1.40%	LGR	0.90%	LGR
Base Year Model to Future Year Model GR =	4.96%	LGR	3.24%	LGR	N/A	LGR	0.50%	LGR
Recommended Growth Rate:	**2.00%**	**LGR**	**2.00%**	**LGR**	**1.45%**	**LGR**	**1.00%**	**LGR**

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound Growth First Ten Years, Linear Growth Thereafter (Based Upon the Base Year AADT)

		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
				2		**2**		**2**		**2**
		2025		20,300		14,300		22,500		9,900
NO. YEARS	0	2025	1.000	20,300	1.000	14,300	1.000	22,500	1.000	9,900
NO. YEARS	10	2035	1.200	24,400	1.200	17,200	1.145	25,800	1.100	10,900
NO. YEARS	20	2045	1.400	28,400	1.400	20,000	1.290	29,000	1.200	11,900

Percent Turns Calculated From Base Year TMCs:

TURN STUDY		FROM NORTH LEG (Southbound)			FROM EAST LEG (Westbound)			FROM SOUTH LEG (Northbound)			FROM WEST LEG (Eastbound)			
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	TOTAL
A.M.	2-Way Pk Hr Vol:		1,123			1,078			957			794		
Est. 2025		25	318	167	170	326	50	67	410	100	12	299	33	1,976
% TURNS:		5%	62%	33%	31%	60%	9%	12%	71%	17%	4%	87%	9%	
P.M.	2-Way Pk Hr Vol:		1,239			1,194			920			754		
Est. 2025		27	473	243	196	312	52	59	277	33	27	333	23	2,054
% TURNS:		4%	64%	33%	35%	56%	9%	16%	75%	9%	7%	87%	6%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2025	5%	62%	33%	31%	60%	9%	12%	71%	17%	4%	87%	9%
2025	7%	61%	33%	32%	56%	13%	14%	69%	18%	7%	81%	12%
2035	7%	61%	33%	32%	54%	13%	14%	68%	18%	8%	79%	13%
2045	7%	60%	33%	33%	53%	15%	15%	67%	18%	9%	77%	14%
P.M.												
2025	4%	64%	33%	35%	56%	9%	16%	75%	9%	7%	87%	6%
2025	5%	62%	33%	35%	52%	13%	18%	72%	10%	10%	81%	9%
2035	6%	62%	33%	36%	51%	13%	18%	72%	10%	11%	79%	10%
2045	6%	61%	33%	36%	49%	15%	19%	70%	11%	12%	77%	11%

K & D FACTORS:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
	AM	PM	AM	PM	AM	PM	AM	PM
K FACTOR								
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2035	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2045	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
D FACTOR								
2025	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%
2025	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%
2035	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%
2045	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%	44.0%	56.0%

TMTOOL "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: 0
FM NO.: 0
PROJECT LIMITS: 0
DESIGN YEAR: Build 2045
INTERSECTION: SR 994/SW 200 Street and SW 137 Avenue
PREPARED BY: CHOICE
FILE:

DATE: 6/16/2024
NOTES:

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
24 HR EST. AADT	2025	20,300	14,300	22,500	9,900
24 HR EST. AADT	2025	20,300	14,300	22,500	9,900
24 HR EST. AADT	2035	24,400	17,200	25,800	10,900
24 HR EST. AADT	2045	28,400	20,000	29,000	11,900

Percent Turns Calculated From Base Year AADTs:

JKTURNS		FROM NORTH LEG			FROM EAST LEG			FROM SOUTH LEG			FROM WEST LEG		
2025 2-WAY ADT		20,300			14,300			22,500			9,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	9,900	22,500	14,300	20,300	9,900	22,500	14,300	20,300	9,900	22,500	14,300	20,300
	21%	48%	31%	39%	19%	43%	32%	46%	22%	39%	25%	36%
2025 2-WAY ADT		20,300			14,300			22,500			9,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	9,900	22,500	14,300	20,300	9,900	22,500	14,300	20,300	9,900	22,500	14,300	20,300
	21%	48%	31%	39%	19%	43%	32%	46%	22%	39%	25%	36%
2035 2-WAY ADT		24,400			17,200			25,800			10,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	10,900	25,800	17,200	24,400	10,900	25,800	17,200	24,400	10,900	25,800	17,200	24,400
	20%	48%	32%	40%	18%	42%	33%	46%	21%	38%	26%	36%
2045 2-WAY ADT		28,400			20,000			29,000			11,900		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
	11,900	29,000	20,000	28,400	11,900	29,000	20,000	28,400	11,900	29,000	20,000	28,400
	20%	48%	33%	41%	17%	42%	33%	47%	20%	37%	26%	37%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M. DESIGN HR. TURNS													
2025	EST. TURNS	16	689	127	204	324	170	126	786	158	37	316	35
2025	EST. TURNS	25	647	142	209	305	188	145	772	168	61	282	45
2035	EST. TURNS	32	739	197	279	345	218	176	901	171	63	310	54
2045	EST. TURNS	42	824	254	350	377	254	210	1,019	180	70	328	66
P.M. DESIGN HR. TURNS													
2025	EST. TURNS	19	918	168	153	284	130	152	630	88	91	404	25
2025	EST. TURNS	31	635	187	157	261	155	169	614	99	113	368	36
2035	EST. TURNS	39	999	258	211	292	185	203	713	100	115	408	45
2045	EST. TURNS	49	1,117	331	267	315	220	239	805	106	124	438	58

LINK VOLUME CHECK		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		804	1,026	1,830	721	569	1,290	1,134	896	2,030	392	498	890
2025	TURN SUMMARY	832	1,026	1,858	698	569	1,267	1,070	896	1,966	389	498	887
CONTROL LINK VOLUMES		804	1,026	1,830	721	569	1,290	1,134	896	2,030	392	498	890
2025	TURN SUMMARY	815	1,026	1,841	702	569	1,271	1,085	896	1,981	388	498	886
CONTROL LINK VOLUMES		966	1,234	2,200	867	683	1,550	1,300	1,020	2,320	432	548	980
2035	TURN SUMMARY	968	1,234	2,202	842	683	1,525	1,248	1,020	2,268	426	548	974
CONTROL LINK VOLUMES		1,125	1,435	2,560	1,008	792	1,800	1,462	1,148	2,610	471	599	1,070
2045	TURN SUMMARY	1,120	1,435	2,555	980	792	1,772	1,410	1,148	2,558	464	599	1,063
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		1,023	807	1,830	566	724	1,290	891	1,139	2,030	499	391	890
2025	TURN SUMMARY	1,105	807	1,912	567	724	1,291	869	1,139	2,008	519	391	910
CONTROL LINK VOLUMES		1,023	807	1,830	566	724	1,290	891	1,139	2,030	499	391	890
2025	TURN SUMMARY	853	807	1,660	573	724	1,297	882	904	1,786	518	391	909
CONTROL LINK VOLUMES		1,230	970	2,200	681	869	1,550	1,022	1,298	2,320	549	431	980
2035	TURN SUMMARY	1,295	970	2,265	688	869	1,557	1,016	1,298	2,314	568	431	999
CONTROL LINK VOLUMES		1,431	1,129	2,560	792	1,008	1,800	1,148	1,462	2,610	600	470	1,070
2045	TURN SUMMARY	1,498	1,129	2,627	802	1,008	1,810	1,149	1,462	2,611	620	470	1,090

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:		PREPARED BY:	CHOICE
FM NO.:		FILE:	
PROJECT LIMITS:		DATE:	6/16/2024
DESIGN YEAR:	Build 2045		
INTERSECTION:	SR 994/SW 200 Street and SW 134 Avenue		

NOTES:

See notes at bottom of TMTOOL sheet for No-Build.

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
		*2025 Estimated			
	2021	1,700	17,900	7,200	20,500
	2025*	1,800	17,300	2,250	15,300
Model Volume:	2045	N/A	21,500	4,050	20,600

Growth Rates:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
Historic Trend GR =	1.00%	LGR	1.00%	LGR	1.00%	LGR	1.00%	LGR
Historic + Model Trend GR =	N/A	LGR	1.20%	LGR	4.00%	LGR	1.70%	LGR
Base Year Model to Future Year Model GR =	N/A	LGR	8.96%	LGR	-1.12%	LGR	3.11%	LGR
Recommended Growth Rate:	**1.00%**	**LGR**	**1.20%**	**LGR**	**2.70%**	**LGR**	**1.70%**	**LGR**

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound Growth First Ten Years, Linear Growth Thereafter (Based Upon the Base Year AADT)

		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
				2		**2**		**2**		**2**
		2025		1,800		17,300		2,250		15,300
NO. YEARS	0	2025	1.000	1,800	1.000	17,300	1.000	2,300	1.000	15,300
NO. YEARS	10	2035	1.100	2,000	1.120	19,400	1.270	2,900	1.170	17,900
NO. YEARS	20	2045	1.200	2,200	1.240	21,500	1.540	3,500	1.340	20,500

Percent Turns Calculated From Base Year TMCs:

TURN STUDY		FROM NORTH LEG (Southbound)			FROM EAST LEG (Westbound)			FROM SOUTH LEG (Northbound)			FROM WEST LEG (Eastbound)			
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	TOTAL
A.M.	2-Way Pk Hr Vol:		260			1,757			392			1,741		
Estimated 2025		3	44	48	112	828	59	33	37	103	115	676	16	2,075
% TURNS:		3%	46%	51%	11%	83%	6%	19%	22%	59%	14%	84%	2%	
P.M.	2-Way Pk Hr Vol:		102			1,491			484			1,659		
Estimated 2025		2	24	32	19	657	68	42	25	107	218	674	0	1,868
% TURNS:		4%	41%	55%	3%	88%	9%	24%	14%	62%	24%	76%	0%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2025	3%	46%	51%	11%	83%	6%	19%	22%	59%	14%	84%	2%
2025	7%	42%	50%	11%	82%	7%	22%	20%	58%	14%	83%	3%
2035	8%	41%	50%	11%	82%	7%	23%	19%	58%	14%	83%	3%
2045	10%	40%	50%	11%	82%	7%	24%	19%	57%	14%	83%	3%
P.M.												
2025	4%	41%	55%	3%	88%	9%	24%	14%	62%	24%	76%	0%
2025	8%	38%	55%	3%	87%	9%	27%	13%	60%	23%	76%	1%
2035	9%	37%	54%	3%	87%	10%	27%	13%	60%	23%	76%	1%
2045	10%	36%	54%	3%	87%	10%	28%	13%	59%	23%	76%	1%

K & D FACTORS:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
	AM	PM	AM	PM	AM	PM	AM	PM
K FACTOR								
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2035	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2045	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
D FACTOR								
2025	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%
2025	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%
2035	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%
2045	72.0%	28.0%	56.0%	44.0%	45.0%	55.0%	44.0%	56.0%

TMTOOL "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: 0
FM NO.: 0
PROJECT LIMITS: 0
DESIGN YEAR: Build 2045
INTERSECTION: SR 994/SW 200 Street and SW 134 Avenue
PREPARED BY: CHOICE
FILE:

DATE: 6/16/2024
NOTES:

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
24 HR EST. AADT	2025	1,800	17,300	2,250	15,300
24 HR EST. AADT	2025	1,800	17,300	2,300	15,300
24 HR EST. AADT	2035	2,000	19,400	2,900	17,900
24 HR EST. AADT	2045	2,200	21,500	3,500	20,500

Percent Turns Calculated From Base Year AADTs:

JKTURNS		FROM NORTH LEG			FROM EAST LEG			FROM SOUTH LEG			FROM WEST LEG		
2025 2-WAY ADT		1,800			17,300			2,250			15,300		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		15,300	2,250	17,300	1,800	15,300	2,250	17,300	1,800	15,300	2,250	17,300	1,800
		44%	6%	50%	9%	79%	12%	50%	5%	44%	11%	81%	8%
2025 2-WAY ADT		1,800			17,300			2,300			15,300		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		15,300	2,300	17,300	1,800	15,300	2,300	17,300	1,800	15,300	2,300	17,300	1,800
		44%	7%	50%	9%	79%	12%	50%	5%	44%	11%	81%	8%
2035 2-WAY ADT		2,000			19,400			2,900			17,900		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		17,900	2,900	19,400	2,000	17,900	2,900	19,400	2,000	17,900	2,900	19,400	2,000
		45%	7%	48%	9%	79%	13%	49%	5%	46%	12%	80%	8%
2045 2-WAY ADT		2,200			21,500			3,500			20,500		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		20,500	3,500	21,500	2,200	20,500	3,500	21,500	2,200	20,500	3,500	21,500	2,200
		45%	8%	47%	8%	78%	13%	49%	5%	46%	13%	79%	8%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M. DESIGN HR. TURNS													
2025	EST. TURNS	3	31	84	34	721	38	29	6	50	40	575	3
2025	EST. TURNS	7	30	81	34	719	45	34	6	49	42	573	3
2035	EST. TURNS	10	35	84	37	825	51	38	8	66	56	650	5
2045	EST. TURNS	14	42	85	41	938	61	44	9	85	75	727	7
P.M. DESIGN HR. TURNS													
2025	EST. TURNS	1	6	42	75	570	29	35	40	38	54	798	0
2025	EST. TURNS	2	17	41	71	566	34	45	32	41	55	789	12
2035	EST. TURNS	3	8	43	74	648	38	52	38	57	71	887	18
2045	EST. TURNS	5	9	44	76	736	45	60	42	76	93	985	27

LINK VOLUME CHECK		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		117	43	160	872	688	1,560	91	109	200	606	774	1,380
2025	TURN SUMMARY	118	43	161	793	688	1,481	86	109	195	618	774	1,392
CONTROL LINK VOLUMES		117	43	160	872	688	1,560	93	117	210	606	774	1,380
2025	TURN SUMMARY	118	43	161	797	688	1,485	89	117	206	619	774	1,393
CONTROL LINK VOLUMES		130	50	180	978	772	1,750	117	143	260	709	901	1,610
2035	TURN SUMMARY	129	50	179	914	772	1,686	112	143	255	711	901	1,612
CONTROL LINK VOLUMES		143	57	200	1,084	856	1,940	142	178	320	812	1,038	1,850
2045	TURN SUMMARY	142	57	199	1,040	856	1,896	138	178	316	809	1,038	1,847
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		45	115	160	685	875	1,560	111	89	200	771	609	1,380
2025	TURN SUMMARY	49	115	164	673	875	1,548	113	89	202	852	609	1,461
CONTROL LINK VOLUMES		45	115	160	685	875	1,560	114	96	210	771	609	1,380
2025	TURN SUMMARY	60	115	175	671	875	1,546	118	106	224	857	609	1,466
CONTROL LINK VOLUMES		50	130	180	768	982	1,750	144	116	260	902	708	1,610
2035	TURN SUMMARY	54	130	184	759	982	1,741	147	116	263	976	708	1,684
CONTROL LINK VOLUMES		55	145	200	851	1,089	1,940	173	147	320	1,033	817	1,850
2045	TURN SUMMARY	58	145	203	857	1,089	1,946	178	147	325	1,105	817	1,922

Note: Boxed number indicates manual adjustment.

TMTOOL INPUT SHEET

Project Description:

SECTION NO:		PREPARED BY:	CHOICE
FM NO.:		FILE:	
PROJECT LIMITS:		DATE:	6/16/2024
DESIGN YEAR:	Build 2045		
INTERSECTION:	SR 994/SW 200 Street and SW 127 Avenue		

NOTES:

See notes at bottom of TMTOOL sheet for No-Build.

Historical AADTs:

	YEAR	NORTH LEG AADT	EAST LEG AADT	SOUTH LEG AADT	WEST LEG AADT
	2019				19,200
	2020				15,700
	2021	10,500	24,700	17,900	22,000
	2025	9,800	21,000	14,700	21,300
Model Volume:	2045	11,900	30,000	18,300	26,500

Growth Rates:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
Historic Trend GR =	1.00%	LGR	1.00%	LGR	1.00%	LGR	1.00%	LGR
Historic + Model Trend GR =	1.10%	LGR	2.10%	LGR	1.20%	LGR	1.20%	LGR
Base Year Model to Future Year Model GR =	0.59%	LGR	1.71%	LGR	0.59%	LGR	7.49%	LGR
Recommended Growth Rate:	**0.65%**	**LGR**	**1.00%**	**LGR**	**0.20%**	**LGR**	**0.95%**	**LGR**

Choose Methodology for Calculating Growth Factor on Each Leg (Input 1, 2 or 3)

1 = Compound Growth Throughout All Years
2 = Linear Growth Throughout All Years
3 = Blend of Compound Growth First Ten Years, Linear Growth Thereafter (Based Upon the Base Year AADT)

		YEAR	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT	FACTOR	AADT
				2		**2**		**2**		**2**
		2021		9,800		21,000		14,700		21,300
NO. YEARS	4	2025	1.026	10,100	1.040	21,800	1.008	14,800	1.038	22,100
NO. YEARS	14	2035	1.091	10,700	1.140	23,900	1.028	15,100	1.133	24,100
NO. YEARS	24	2045	1.156	11,300	1.240	26,000	1.048	15,400	1.228	26,200

Percent Turns Calculated From Base Year TMCs:

TURN STUDY		FROM NORTH LEG (Southbound)			FROM EAST LEG (Westbound)			FROM SOUTH LEG (Northbound)			FROM WEST LEG (Eastbound)			
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	TOTAL
A.M.	2-Way Pk Hr Vol:	798			2,145			1,107			1,836		
Year 2021	46	182	93	146	526	174	315	197	192	47	891	134	2,944
% TURNS:	14%	57%	29%	17%	62%	21%	45%	28%	27%	4%	83%	12%	
P.M.	2-Way Pk Hr Vol:	824			1,839			1,133			1,546		
Year 2021	65	284	131	97	565	246	169	198	147	89	630	49	2,671
% TURNS:	14%	59%	27%	11%	62%	27%	33%	38%	29%	12%	82%	6%	

Est. % Turns Calculated From Base Year AADTs & TMCs:

SUGGESTED STARTING POINTS

	NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M.												
2021	14%	57%	29%	17%	62%	21%	45%	28%	27%	4%	83%	12%
2025	17%	54%	30%	18%	61%	22%	44%	27%	29%	7%	79%	13%
2035	17%	53%	30%	18%	60%	22%	44%	27%	29%	8%	79%	14%
2045	18%	51%	30%	18%	60%	22%	44%	26%	30%	9%	77%	14%
P.M.												
2021	14%	59%	27%	11%	62%	27%	33%	38%	29%	12%	82%	6%
2025	16%	56%	28%	12%	61%	28%	34%	36%	30%	14%	79%	8%
2035	17%	55%	29%	12%	61%	27%	34%	36%	30%	14%	78%	8%
2045	18%	53%	29%	12%	60%	27%	34%	35%	31%	14%	77%	9%

K & D FACTORS:

	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG	
	AM	PM	AM	PM	AM	PM	AM	PM
K FACTOR								
2021	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2025	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2035	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
2045	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
D FACTOR								
2021	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%
2025	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%
2035	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%
2045	44.0%	56.0%	44.0%	56.0%	56.0%	44.0%	56.0%	44.0%

TMTOOL "TURNS" REPORT

DESIGN HOUR TURNS CALCULATIONS

SECTION NO: 0
FM NO.: 0
PROJECT LIMITS: 0
DESIGN YEAR: Build 2045
INTERSECTION: SR 994/SW 200 Street and SW 127 Avenue
PREPARED BY: CHOICE
FILE:

DATE: 6/16/2024
NOTES:

ESTIMATED TWO-WAY 24 HOUR AADT FOR EACH LEG OF THE INTERSECTION:

	YEAR	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
24 HR EST. AADT	2021	9,800	21,000	14,700	21,300
24 HR EST. AADT	2025	10,100	21,800	14,800	22,100
24 HR EST. AADT	2035	10,700	23,900	15,100	24,100
24 HR EST. AADT	2045	11,300	26,000	15,400	26,200

Percent Turns Calculated From Base Year AADTs:

JKTURNS		FROM NORTH LEG			FROM EAST LEG			FROM SOUTH LEG			FROM WEST LEG		
2021 2-WAY ADT		9,800			21,000			14,700			21,300		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		21,300	14,700	21,000	9,800	21,300	14,700	21,000	9,800	21,300	14,700	21,000	9,800
		37%	26%	37%	21%	47%	32%	40%	19%	41%	32%	46%	22%
2025 2-WAY ADT		10,100			21,800			14,800			22,100		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		22,100	14,800	21,800	10,100	22,100	14,800	21,800	10,100	22,100	14,800	21,800	10,100
		38%	25%	37%	21%	47%	31%	40%	19%	41%	32%	47%	22%
2035 2-WAY ADT		10,700			23,900			15,100			24,100		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		24,100	15,100	23,900	10,700	24,100	15,100	23,900	10,700	24,100	15,100	23,900	10,700
		38%	24%	38%	21%	48%	30%	41%	18%	41%	30%	48%	22%
2045 2-WAY ADT		11,300			26,000			15,400			26,200		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
		26,200	15,400	26,000	11,300	26,200	15,400	26,000	11,300	26,200	15,400	26,000	11,300
		39%	23%	38%	21%	50%	29%	41%	18%	41%	29%	49%	21%

		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
		RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT	RIGHT	THRU	LEFT
A.M. DESIGN HR. TURNS													
2021	EST. TURNS	56	272	58	108	514	209	234	215	276	97	766	169
2025	EST. TURNS	72	249	74	123	529	205	249	208	275	129	774	179
2035	EST. TURNS	83	250	87	138	591	213	262	206	281	136	855	192
2045	EST. TURNS	97	246	101	156	654	220	274	205	289	149	934	212
P.M. DESIGN HR. TURNS													
2021	EST. TURNS	92	326	87	89	745	262	129	225	240	150	617	72
2025	EST. TURNS	111	284	100	103	758	271	140	211	246	166	621	87
2035	EST. TURNS	126	307	114	116	839	283	148	208	251	172	683	97
2045	EST. TURNS	145	305	129	133	919	294	156	206	258	181	744	112

LINK VOLUME CHECK		NORTH LEG			EAST LEG			SOUTH LEG			WEST LEG		
DESIGN HOUR A.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		388	492	880	832	1,058	1,890	741	579	1,320	1,074	846	1,920
2021	TURN SUMMARY	386	492	878	831	1,058	1,889	725	579	1,304	1,033	846	1,879
CONTROL LINK VOLUMES		400	510	910	863	1,097	1,960	746	584	1,330	1,114	876	1,990
2025	TURN SUMMARY	395	510	905	858	1,097	1,955	732	584	1,316	1,082	876	1,958
CONTROL LINK VOLUMES		424	536	960	946	1,204	2,150	761	599	1,360	1,215	955	2,170
2035	TURN SUMMARY	419	536	955	942	1,204	2,146	749	599	1,348	1,184	955	2,139
CONTROL LINK VOLUMES		447	573	1,020	1,030	1,310	2,340	776	614	1,390	1,320	1,040	2,360
2045	TURN SUMMARY	444	573	1,017	1,030	1,310	2,340	768	614	1,382	1,295	1,040	2,335
DESIGN HOUR P.M.:		FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK	FROM	TO	LINK
CONTROL LINK VOLUMES		494	386	880	1,058	832	1,890	582	738	1,320	843	1,077	1,920
2021	TURN SUMMARY	504	386	890	1,096	832	1,928	594	738	1,332	839	1,077	1,916
CONTROL LINK VOLUMES		509	401	910	1,099	861	1,960	586	744	1,330	875	1,115	1,990
2025	TURN SUMMARY	495	401	896	1,132	861	1,993	597	721	1,318	874	1,115	1,989
CONTROL LINK VOLUMES		539	421	960	1,205	945	2,150	598	762	1,360	954	1,216	2,170
2035	TURN SUMMARY	547	421	968	1,238	945	2,183	608	762	1,370	951	1,216	2,167
CONTROL LINK VOLUMES		570	450	1,020	1,310	1,030	2,340	610	780	1,390	1,038	1,322	2,360
2045	TURN SUMMARY	579	450	1,029	1,346	1,030	2,376	620	780	1,400	1,037	1,322	2,359

Note: Boxed number indicates manual adjustment.

Appendix K: Future Synchro Analysis Worksheets

NO BUILD 2025

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	40	25.0	68.4	93.4	0.23	8.7	F
SW 127 AVE	III	30	106.6	53.5	160.1	0.89	20.0	C
Total	III		131.6	121.9	253.5	1.11	15.8	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	29.7	63.6	0.27	15.1	D
SW1 137 AVE	III	32	99.7	94.0	193.7	0.89	16.6	D
Total	III		133.6	123.7	257.3	1.16	16.2	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	401	93	201	390	245	145	417	127	137	283	146
Future Volume (vph)	70	401	93	201	390	245	145	417	127	137	283	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected		0.99			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1660			1741	1509	1770	1797		1656	1062	
Flt Permitted		0.65			0.60	1.00	0.17	1.00		0.12	1.00	
Satd. Flow (perm)		1089			1068	1509	312	1797		208	1062	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	422	98	212	411	258	153	439	134	144	298	154
RTOR Reduction (vph)	0	6	0	0	0	67	0	9	0	0	16	0
Lane Group Flow (vph)	0	588	0	0	623	191	153	564	0	144	436	0
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	pm+pt	NA		Perm	NA	Prot	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6			2	2	7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		64.1			64.1	64.1	38.1	33.1		39.1	33.6	
Effective Green, g (s)		64.1			64.1	64.1	38.1	33.1		39.1	33.6	
Actuated g/C Ratio		0.53			0.53	0.53	0.32	0.28		0.33	0.28	
Clearance Time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Vehicle Extension (s)		1.0			1.0	1.0	3.0	3.5		3.0	3.5	
Lane Grp Cap (vph)		581			570	806	159	495		134	297	
v/s Ratio Prot						0.13	0.04	0.31		c0.05	c0.41	
v/s Ratio Perm		0.54			c0.58		0.26			0.30		
v/c Ratio		1.01			1.09	0.24	0.96	1.14		1.07	1.47	
Uniform Delay, d1		28.0			28.0	14.9	39.8	43.5		38.5	43.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		40.3			65.5	0.7	59.8	84.4		99.1	228.4	
Delay (s)		68.3			93.5	15.6	99.5	127.9		137.7	271.6	
Level of Service		E			F	B	F	F		F	F	
Approach Delay (s)		68.3			70.7			121.9			239.2	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	119.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	897	106	266	498	161	201	219	356	104	241	50
Future Volume (veh/h)	126	897	106	266	498	161	201	219	356	104	241	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	133	944	112	280	524	169	212	231	375	109	254	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	433	1336	158	323	1703	827	264	485	404	238	290	61
Arrive On Green	0.05	0.44	0.44	0.10	0.48	0.48	0.11	0.27	0.27	0.04	0.19	0.19
Sat Flow, veh/h	1767	3047	361	1795	3526	1598	1725	1811	1510	1781	1501	313
Grp Volume(v), veh/h	133	524	532	280	524	169	212	231	375	109	0	307
Grp Sat Flow(s),veh/h/ln	1767	1692	1716	1795	1763	1598	1725	1811	1510	1781	0	1814
Q Serve(g_s), s	6.6	40.3	40.3	13.3	14.4	9.1	15.4	17.1	38.7	5.6	0.0	26.3
Cycle Q Clear(g_c), s	6.6	40.3	40.3	13.3	14.4	9.1	15.4	17.1	38.7	5.6	0.0	26.3
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	433	742	752	323	1703	827	264	485	404	238	0	351
V/C Ratio(X)	0.31	0.71	0.71	0.87	0.31	0.20	0.80	0.48	0.93	0.46	0.00	0.88
Avail Cap(c_a), veh/h	477	742	752	433	1703	827	297	584	487	238	0	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	36.6	36.6	30.1	25.1	20.8	45.8	49.2	57.1	52.6	0.0	62.6
Incr Delay (d2), s/veh	0.3	5.6	5.5	12.3	0.5	0.6	12.6	0.9	22.3	1.0	0.0	17.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	17.9	18.2	6.8	6.3	3.6	7.6	8.0	17.3	1.2	0.0	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	42.2	42.1	42.5	25.6	21.3	58.4	50.0	79.4	53.7	0.0	79.6
LnGrp LOS	C	D	D	D	C	C	E	D	E	D	A	E
Approach Vol, veh/h		1189			973			818			416	
Approach Delay, s/veh		40.0			29.7			65.7			72.8	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	83.7	12.0	49.3	22.2	76.5	23.9	37.3
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	64.6	5.6	51.6	25.6	51.6	20.6	36.6
Max Q Clear Time (g_c+I1), s	8.6	0.0	7.6	40.7	15.3	0.0	17.4	28.3
Green Ext Time (p_c), s	0.1	0.0	0.0	2.1	0.5	0.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	47.2
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	126	897	266	498	161	201	219	356	104	241
Future Volume (vph)	126	897	266	498	161	201	219	356	104	241
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6	5	2	3	7	4		3	8
Permitted Phases	6		2		2	4		4	8	
Detector Phase	1	6	5	2	3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	28.4	11.4	28.4
Total Split (s)	19.0	58.0	32.0	71.0	12.0	27.0	58.0	58.0	12.0	43.0
Total Split (%)	11.9%	36.3%	20.0%	44.4%	7.5%	16.9%	36.3%	36.3%	7.5%	26.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 53 (33%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

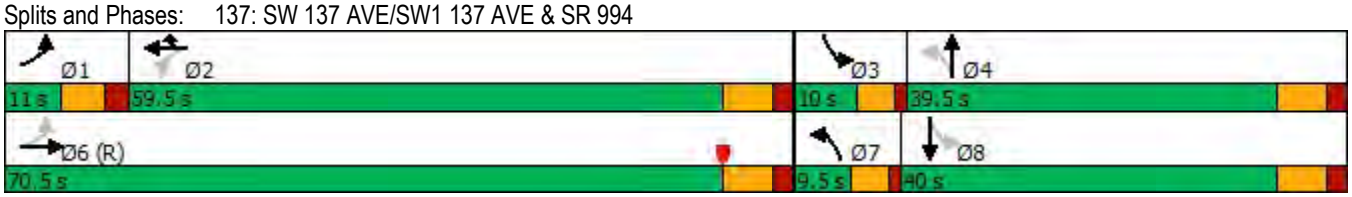
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	70	401	201	390	245	145	417	137	283
Future Volume (vph)	70	401	201	390	245	145	417	137	283
Turn Type	pm+pt	NA	Perm	NA	Prot	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		2	2	7	4	3	8
Permitted Phases	6		2			4		8	
Detector Phase	1	6	2	2	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	16.0	16.0	16.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	22.4	22.4	22.4	22.4	9.5	13.4	9.5	13.4
Total Split (s)	11.0	70.5	59.5	59.5	59.5	9.5	39.5	10.0	40.0
Total Split (%)	9.2%	58.8%	49.6%	49.6%	49.6%	7.9%	32.9%	8.3%	33.3%
Yellow Time (s)	4.0	4.4	4.4	4.4	4.4	3.5	4.4	3.5	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4		6.4	6.4	4.5	6.4	4.5	6.4
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	Max	Max	Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	1056	280	524	169	212	231	375	109	307
v/c Ratio	0.31	0.85	0.85	0.33	0.18	0.77	0.46	0.57	0.38	0.86
Control Delay	21.2	53.5	59.2	29.7	3.4	55.4	49.6	10.8	43.4	82.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	53.5	59.2	29.7	3.4	55.4	49.6	10.8	43.4	82.9
Queue Length 50th (ft)	66	557	206	187	0	160	197	38	77	306
Queue Length 95th (ft)	111	#740	#353	252	42	222	272	134	119	411
Internal Link Dist (ft)		550		1328			1420			1118
Turn Bay Length (ft)	300		225		225	120		260	100	
Base Capacity (vph)	459	1246	359	1608	932	288	577	702	285	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.85	0.78	0.33	0.18	0.74	0.40	0.53	0.38	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	594	623	258	153	573	144	452
v/c Ratio	1.01	1.09	0.30	0.93	1.13	1.05	1.44
Control Delay	68.4	94.0	7.5	87.7	121.9	123.4	249.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.4	94.0	7.5	87.7	121.9	123.4	249.1
Queue Length 50th (ft)	~454	~544	43	80	~510	~81	~467
Queue Length 95th (ft)	#707	#770	93	#197	#735	#207	#677
Internal Link Dist (ft)	1118	581			1157		1066
Turn Bay Length (ft)			135	200		220	
Base Capacity (vph)	587	570	872	164	505	137	313
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	1.09	0.30	0.93	1.13	1.05	1.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	672	834	3	6	2
Future Vol, veh/h	2	672	834	3	6	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	2	707	878	3	6	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	881	0	-	0	1591	880
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	711	-
Critical Hdwy	4.1	-	-	-	6.4	6.69
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.741
Pot Cap-1 Maneuver	776	-	-	-	119	286
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	490	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	776	-	-	-	119	286
Mov Cap-2 Maneuver	-	-	-	-	119	-
Stage 1	-	-	-	-	407	-
Stage 2	-	-	-	-	490	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	32.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	776	-	-	-	139
HCM Lane V/C Ratio	0.003	-	-	-	0.061
HCM Control Delay (s)	9.7	0	-	-	32.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1028	5	16	776	2	29	2	56	6	1	2
Future Vol, veh/h	2	1028	5	16	776	2	29	2	56	6	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1082	5	17	817	2	31	2	59	6	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	819	0	0	1087	0	0	1943	1942	1085	1971	1943	818
Stage 1	-	-	-	-	-	-	1089	1089	-	852	852	-
Stage 2	-	-	-	-	-	-	854	853	-	1119	1091	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	818	-	-	609	-	-	50	66	266	47	66	379
Stage 1	-	-	-	-	-	-	263	294	-	357	379	-
Stage 2	-	-	-	-	-	-	356	378	-	253	293	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	818	-	-	609	-	-	47	62	266	34	62	379
Mov Cap-2 Maneuver	-	-	-	-	-	-	47	62	-	34	62	-
Stage 1	-	-	-	-	-	-	261	292	-	355	360	-
Stage 2	-	-	-	-	-	-	335	359	-	194	291	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	73.3	105.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	47	266	818	-	-	609	-	-	45
HCM Lane V/C Ratio	0.649	0.222	0.003	-	-	0.028	-	-	0.211
HCM Control Delay (s)	171.9	22.3	9.4	0	-	11.1	0	-	105.2
HCM Lane LOS	F	C	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.5	0.8	0	-	-	0.1	-	-	0.7

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	113	1015	3	1	771	24	5	1	4	16	1	78
Future Vol, veh/h	113	1015	3	1	771	24	5	1	4	16	1	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	119	1068	3	1	812	25	5	1	4	17	1	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	837	0	0	1071	0	0	2176	2147	1070	2137	2136	825
Stage 1	-	-	-	-	-	-	1308	1308	-	827	827	-
Stage 2	-	-	-	-	-	-	868	839	-	1310	1309	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	789	-	-	658	-	-	34	49	271	34	50	372
Stage 1	-	-	-	-	-	-	198	231	-	356	389	-
Stage 2	-	-	-	-	-	-	350	384	-	189	231	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	789	-	-	658	-	-	18	31	271	23	31	372
Mov Cap-2 Maneuver	-	-	-	-	-	-	18	31	-	23	31	-
Stage 1	-	-	-	-	-	-	124	145	-	223	388	-
Stage 2	-	-	-	-	-	-	271	383	-	116	145	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	172.1	164.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	31	789	-	-	658	-	-	101
HCM Lane V/C Ratio	0.34	0.151	-	-	0.002	-	-	0.99
HCM Control Delay (s)	172.1	10.4	0	-	10.5	0	-	164.5
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	1.1	0.5	-	-	0	-	-	6.1

Intersection	
Int Delay, s/veh	32.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	896	15	66	788	34	235
Future Vol, veh/h	896	15	66	788	34	235
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	943	16	69	829	36	247

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	959	0	1918	951
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	967	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	701	-	73	312
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	364	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	701	-	60	312
Mov Cap-2 Maneuver	-	-	-	-	60	-
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	297	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	246.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	-	-	701	-
HCM Lane V/C Ratio	1.388	-	-	0.099	-
HCM Control Delay (s)	246.5	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	16.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	773	883	10	7	6
Future Vol, veh/h	4	773	883	10	7	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	4	814	929	11	7	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	940	0	-	0	1757	935
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	822	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	737	-	-	-	82	325
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	396	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	737	-	-	-	81	325
Mov Cap-2 Maneuver	-	-	-	-	81	-
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	396	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	37.6
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	737	-	-	-	124
HCM Lane V/C Ratio	0.006	-	-	-	0.11
HCM Control Delay (s)	9.9	0	-	-	37.6
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	626	38	74	765	50	44	18	105	46	42	28
Future Vol, veh/h	14	626	38	74	765	50	44	18	105	46	42	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	225	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	26	9	4	0	3	3	6	8	16	0	12	65
Mvmt Flow	15	659	40	78	805	53	46	19	111	48	44	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	858	0	0	659	0	0	1713	1703	659	1742	1677	832
Stage 1	-	-	-	-	-	-	689	689	-	988	988	-
Stage 2	-	-	-	-	-	-	1024	1014	-	754	689	-
Critical Hdwy	4.36	-	-	4.1	-	-	5	5	5	5	5	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Follow-up Hdwy	2.434	-	-	2.2	-	-	3.554	4.072	3.444	3.5	4.108	3.885
Pot Cap-1 Maneuver	690	-	-	939	-	-	195	187	564	190	192	442
Stage 1	-	-	-	-	-	-	429	438	-	300	313	-
Stage 2	-	-	-	-	-	-	279	309	-	404	432	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	690	-	-	939	-	-	122	151	564	118	155	442
Mov Cap-2 Maneuver	-	-	-	-	-	-	122	151	-	118	155	-
Stage 1	-	-	-	-	-	-	414	422	-	289	263	-
Stage 2	-	-	-	-	-	-	182	259	-	299	416	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.8	47.1	77
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	251	690	-	-	939	-	-	160
HCM Lane V/C Ratio	0.7	0.021	-	-	0.083	-	-	0.763
HCM Control Delay (s)	47.1	10.3	0	-	9.2	0	-	77
HCM Lane LOS	E	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.7	0.1	-	-	0.3	-	-	4.8

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	663	832	4	11	4
Future Vol, veh/h	1	663	832	4	11	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	1	698	876	4	12	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	880	0	-	0	1578	878
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	700	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	777	-	-	-	122	350
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	496	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	777	-	-	-	122	350
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	496	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	32.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	777	-	-	-	148
HCM Lane V/C Ratio	0.001	-	-	-	0.107
HCM Control Delay (s)	9.6	0	-	-	32.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1035	786	21	0	9
Future Vol, veh/h	0	1035	786	21	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1089	827	22	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	838
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	369
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	369
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	369
HCM Lane V/C Ratio	-	-	-	0.026
HCM Control Delay (s)	-	-	-	15
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	847	805	17	64	11
Future Vol, veh/h	20	847	805	17	64	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	21	892	847	18	67	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	865	0	-	0	1790	856
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	934	-
Critical Hdwy	4.1	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.3
Pot Cap-1 Maneuver	787	-	-	-	89	360
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	382	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	787	-	-	-	84	360
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	129.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	787	-	-	-	95
HCM Lane V/C Ratio	0.027	-	-	-	0.831
HCM Control Delay (s)	9.7	0	-	-	129.8
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	4.5

Intersection	
Int Delay, s/veh	22.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	767	13	13	802	91	100
Future Vol, veh/h	767	13	13	802	91	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	807	14	14	844	96	105

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	821	0	1686	814
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	872	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	787	-	103	378
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	409	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	787	-	99	378
Mov Cap-2 Maneuver	-	-	-	-	99	-
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	395	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	208.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	161	-	-	787	-
HCM Lane V/C Ratio	1.249	-	-	0.017	-
HCM Control Delay (s)	208.6	-	-	9.7	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	11.5	-	-	0.1	-

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	40	25.0	92.8	117.8	0.23	6.9	F
SW 127 AVE	III	30	106.6	61.3	167.9	0.89	19.0	C
Total	III		131.6	154.1	285.7	1.11	14.0	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	27.8	61.7	0.27	15.6	D
SW1 137 AVE	III	32	99.7	160.6	260.3	0.89	12.4	E
Total	III		133.6	188.4	322.0	1.16	13.0	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	418	87	162	338	181	138	256	148	178	501	139
Future Volume (vph)	43	418	87	162	338	181	138	256	148	178	501	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected		1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1666			1741	1509	1770	1760		1656	1023	
Flt Permitted		0.73			0.55	1.00	0.10	1.00		0.26	1.00	
Satd. Flow (perm)		1228			975	1509	184	1760		445	1023	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	440	92	171	356	191	145	269	156	187	527	146
RTOR Reduction (vph)	0	6	0	0	0	94	0	17	0	0	8	0
Lane Group Flow (vph)	0	571	0	0	527	97	145	408	0	187	665	0
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	pm+pt	NA		Perm	NA	Prot	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6			2	2	7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		52.1			52.1	52.1	45.5	40.5		55.1	45.6	
Effective Green, g (s)		52.1			52.1	52.1	45.5	40.5		55.1	45.6	
Actuated g/C Ratio		0.43			0.43	0.43	0.38	0.34		0.46	0.38	
Clearance Time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Vehicle Extension (s)		1.0			1.0	1.0	3.0	3.5		3.0	3.5	
Lane Grp Cap (vph)		533			423	655	135	594		306	388	
v/s Ratio Prot						0.06	c0.04	0.23		0.05	c0.65	
v/s Ratio Perm		0.47			c0.54		0.36			0.23		
v/c Ratio		1.07			1.25	0.15	1.07	0.69		0.61	1.71	
Uniform Delay, d1		34.0			34.0	20.5	34.8	34.3		22.5	37.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		59.7			129.1	0.5	98.7	3.4		3.6	332.0	
Delay (s)		93.6			163.1	21.0	133.4	37.7		26.1	369.2	
Level of Service		F			F	C	F	D		C	F	
Approach Delay (s)		93.6			125.3			62.0			294.6	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	158.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	725	128	346	570	125	164	208	212	146	308	73
Future Volume (veh/h)	62	725	128	346	570	125	164	208	212	146	308	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	65	763	135	364	600	132	173	219	223	154	324	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	375	1091	193	389	1706	898	213	443	370	318	343	81
Arrive On Green	0.03	0.38	0.38	0.14	0.48	0.48	0.09	0.24	0.24	0.08	0.23	0.23
Sat Flow, veh/h	1767	2874	508	1795	3526	1598	1725	1811	1510	1781	1461	347
Grp Volume(v), veh/h	65	449	449	364	600	132	173	219	223	154	0	401
Grp Sat Flow(s),veh/h/ln	1767	1692	1690	1795	1763	1598	1725	1811	1510	1781	0	1808
Q Serve(g_s), s	3.6	35.9	35.9	19.2	16.9	6.3	12.1	16.6	20.9	10.4	0.0	34.9
Cycle Q Clear(g_c), s	3.6	35.9	35.9	19.2	16.9	6.3	12.1	16.6	20.9	10.4	0.0	34.9
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	375	642	641	389	1706	898	213	443	370	318	0	424
V/C Ratio(X)	0.17	0.70	0.70	0.94	0.35	0.15	0.81	0.49	0.60	0.48	0.00	0.95
Avail Cap(c_a), veh/h	390	642	641	519	1706	898	229	448	374	363	0	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	41.9	41.9	31.4	25.7	16.7	45.0	51.9	53.5	42.2	0.0	60.2
Incr Delay (d2), s/veh	0.2	6.2	6.2	20.0	0.6	0.3	17.8	1.0	2.9	0.9	0.0	27.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	16.2	16.2	10.4	7.4	2.5	6.3	7.8	8.3	4.7	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	48.2	48.2	51.4	26.2	17.1	62.8	52.9	56.5	43.0	0.0	88.1
LnGrp LOS	C	D	D	D	C	B	E	D	E	D	A	F
Approach Vol, veh/h		963			1096			615			555	
Approach Delay, s/veh		46.9			33.5			57.0			75.6	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	83.8	18.9	45.6	28.4	67.1	20.5	44.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	6.6	71.6	16.6	39.6	33.6	44.6	15.6	40.6
Max Q Clear Time (g_c+I1), s	5.6	0.0	12.4	22.9	21.2	0.0	14.1	36.9
Green Ext Time (p_c), s	0.0	0.0	0.1	1.7	0.8	0.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	62	725	346	570	125	164	208	212	146	308
Future Volume (vph)	62	725	346	570	125	164	208	212	146	308
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6	5	2	3	7	4		3	8
Permitted Phases	6		2		2	4		4	8	
Detector Phase	1	6	5	2	3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	28.4	11.4	28.4
Total Split (s)	13.0	51.0	40.0	78.0	23.0	22.0	46.0	46.0	23.0	47.0
Total Split (%)	8.1%	31.9%	25.0%	48.8%	14.4%	13.8%	28.8%	28.8%	14.4%	29.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 116 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

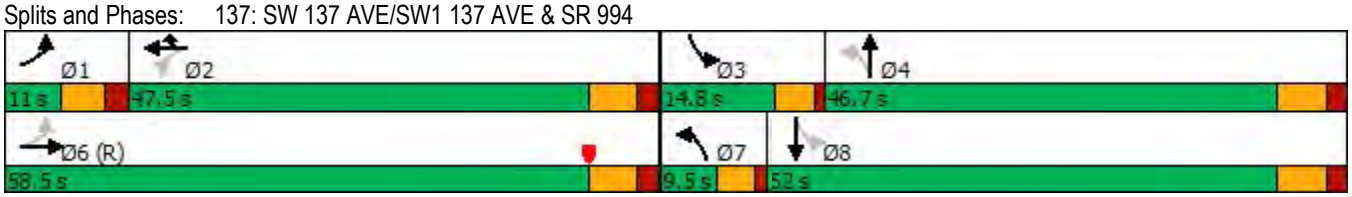
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	43	418	162	338	181	138	256	178	501
Future Volume (vph)	43	418	162	338	181	138	256	178	501
Turn Type	pm+pt	NA	Perm	NA	Prot	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		2	2	7	4	3	8
Permitted Phases	6		2			4		8	
Detector Phase	1	6	2	2	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	16.0	16.0	16.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	22.4	22.4	22.4	22.4	9.5	13.4	9.5	13.4
Total Split (s)	11.0	58.5	47.5	47.5	47.5	9.5	46.7	14.8	52.0
Total Split (%)	9.2%	48.8%	39.6%	39.6%	39.6%	7.9%	38.9%	12.3%	43.3%
Yellow Time (s)	4.0	4.4	4.4	4.4	4.4	3.5	4.4	3.5	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4		6.4	6.4	4.5	6.4	4.5	6.4
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	Max	Max	Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	898	364	600	132	173	219	223	154	401
v/c Ratio	0.20	0.87	0.89	0.35	0.13	0.80	0.50	0.42	0.43	0.92
Control Delay	23.3	61.3	64.7	27.8	2.4	64.6	56.4	7.9	37.9	84.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	61.3	64.7	27.8	2.4	64.6	56.4	7.9	37.9	84.7
Queue Length 50th (ft)	33	490	296	217	0	122	194	0	107	398
Queue Length 95th (ft)	59	#641	#460	269	29	#234	288	71	164	#576
Internal Link Dist (ft)		550		1328			1420			1118
Turn Bay Length (ft)	300		225		225	120		260	100	
Base Capacity (vph)	322	1035	441	1694	1052	221	450	542	390	466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.87	0.83	0.35	0.13	0.78	0.49	0.41	0.39	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	577	527	191	145	425	187	673
v/c Ratio	1.07	1.25	0.26	1.05	0.70	0.60	1.70
Control Delay	92.8	160.6	5.3	116.4	39.3	27.6	352.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.8	160.6	5.3	116.4	39.3	27.6	352.4
Queue Length 50th (ft)	~493	~508	11	~68	268	83	~766
Queue Length 95th (ft)	#717	#724	55	#204	389	133	#1000
Internal Link Dist (ft)	1118	581			1157		1066
Turn Bay Length (ft)			135	200		220	
Base Capacity (vph)	538	423	749	138	611	314	396
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	1.25	0.26	1.05	0.70	0.60	1.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	750	679	5	6	1
Future Vol, veh/h	1	750	679	5	6	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	1	789	715	5	6	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	720	0	-	0	1509	718
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	791	-
Critical Hdwy	4.1	-	-	-	6.4	6.69
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.741
Pot Cap-1 Maneuver	891	-	-	-	134	360
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	450	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	891	-	-	-	134	360
Mov Cap-2 Maneuver	-	-	-	-	134	-
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	450	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	891	-	-	-	147
HCM Lane V/C Ratio	0.001	-	-	-	0.05
HCM Control Delay (s)	9	0	-	-	30.8
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	843	54	19	835	5	7	1	27	6	1	2
Future Vol, veh/h	1	843	54	19	835	5	7	1	27	6	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	1	887	57	20	879	5	7	1	28	6	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	884	0	0	944	0	0	1841	1842	916	1854	1868	882
Stage 1	-	-	-	-	-	-	918	918	-	922	922	-
Stage 2	-	-	-	-	-	-	923	924	-	932	946	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	774	-	-	691	-	-	59	76	333	57	73	348
Stage 1	-	-	-	-	-	-	328	353	-	327	352	-
Stage 2	-	-	-	-	-	-	326	351	-	322	343	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	774	-	-	691	-	-	55	71	333	49	69	348
Mov Cap-2 Maneuver	-	-	-	-	-	-	55	71	-	49	69	-
Stage 1	-	-	-	-	-	-	327	352	-	326	332	-
Stage 2	-	-	-	-	-	-	305	331	-	293	342	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	29.9	72
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	333	774	-	-	691	-	-	63
HCM Lane V/C Ratio	0.134	0.085	0.001	-	-	0.029	-	-	0.15
HCM Control Delay (s)	80.3	16.8	9.7	0	-	10.4	0	-	72
HCM Lane LOS	F	C	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.4	0.3	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	880	4	1	829	28	2	1	2	16	3	53
Future Vol, veh/h	40	880	4	1	829	28	2	1	2	16	3	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	42	926	4	1	873	29	2	1	2	17	3	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	902	0	0	930	0	0	1931	1916	928	1904	1904	888
Stage 1	-	-	-	-	-	-	1012	1012	-	890	890	-
Stage 2	-	-	-	-	-	-	919	904	-	1014	1014	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	745	-	-	744	-	-	51	68	328	50	70	343
Stage 1	-	-	-	-	-	-	291	319	-	328	364	-
Stage 2	-	-	-	-	-	-	328	358	-	279	319	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	745	-	-	744	-	-	37	60	328	45	62	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	37	60	-	45	62	-
Stage 1	-	-	-	-	-	-	257	282	-	290	363	-
Stage 2	-	-	-	-	-	-	271	357	-	244	282	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	65.2	66.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	65	745	-	-	744	-	-	129
HCM Lane V/C Ratio	0.081	0.057	-	-	0.001	-	-	0.588
HCM Control Delay (s)	65.2	10.1	0	-	9.8	0	-	66.6
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0	-	-	3

Intersection	
Int Delay, s/veh	7.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	817	47	155	729	21	107
Future Vol, veh/h	817	47	155	729	21	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	860	49	163	767	22	113

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	909	0	1978	885
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	1093	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	733	-	67	341
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	317	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	733	-	41	341
Mov Cap-2 Maneuver	-	-	-	-	41	-
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	194	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	98.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	155	-	-	733	-
HCM Lane V/C Ratio	0.869	-	-	0.223	-
HCM Control Delay (s)	98.6	-	-	11.3	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	6	-	-	0.8	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	800	721	12	10	2
Future Vol, veh/h	6	800	721	12	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	6	842	759	13	11	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	772	0	-	0	1620	766
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	854	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	852	-	-	-	101	406
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	382	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	852	-	-	-	100	406
Mov Cap-2 Maneuver	-	-	-	-	100	-
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	40.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	852	-	-	-	114
HCM Lane V/C Ratio	0.007	-	-	-	0.111
HCM Control Delay (s)	9.3	0	-	-	40.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	685	51	54	623	46	35	37	90	30	23	26
Future Vol, veh/h	20	685	51	54	623	46	35	37	90	30	23	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	225	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	26	9	4	0	3	3	6	8	16	0	12	65
Mvmt Flow	21	721	54	57	656	48	37	39	95	32	24	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	704	0	0	721	0	0	1583	1581	721	1624	1557	680
Stage 1	-	-	-	-	-	-	763	763	-	794	794	-
Stage 2	-	-	-	-	-	-	820	818	-	830	763	-
Critical Hdwy	4.36	-	-	4.1	-	-	5	5	5	5	5	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Follow-up Hdwy	2.434	-	-	2.2	-	-	3.554	4.072	3.444	3.5	4.108	3.885
Pot Cap-1 Maneuver	792	-	-	890	-	-	222	211	532	214	216	509
Stage 1	-	-	-	-	-	-	391	404	-	384	386	-
Stage 2	-	-	-	-	-	-	363	381	-	367	399	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	792	-	-	890	-	-	168	180	532	131	184	509
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	180	-	131	184	-
Stage 1	-	-	-	-	-	-	373	385	-	366	345	-
Stage 2	-	-	-	-	-	-	286	341	-	258	380	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	36.5	36.5
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	278	792	-	-	890	-	-	195
HCM Lane V/C Ratio	0.613	0.027	-	-	0.064	-	-	0.426
HCM Control Delay (s)	36.5	9.7	0	-	9.3	0	-	36.5
HCM Lane LOS	E	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	3.7	0.1	-	-	0.2	-	-	2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	744	675	5	7	5
Future Vol, veh/h	2	744	675	5	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	2	783	711	5	7	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	716	0	-	0	1501	714
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	787	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	894	-	-	-	136	435
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	452	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	894	-	-	-	135	435
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	452	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	894	-	-	-	189
HCM Lane V/C Ratio	0.002	-	-	-	0.067
HCM Control Delay (s)	9	0	-	-	25.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	898	840	5	0	17
Future Vol, veh/h	0	898	840	5	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	945	884	5	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	887
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	346
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	346
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	346
HCM Lane V/C Ratio	-	-	-	0.052
HCM Control Delay (s)	-	-	-	16
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	835	740	10	28	5
Future Vol, veh/h	1	835	740	10	28	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	1	879	779	11	29	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	790	0	-	0	1666	785
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	881	-
Critical Hdwy	4.1	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.3
Pot Cap-1 Maneuver	839	-	-	-	106	396
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	405	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	839	-	-	-	106	396
Mov Cap-2 Maneuver	-	-	-	-	106	-
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	405	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	47.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	839	-	-	-	119
HCM Lane V/C Ratio	0.001	-	-	-	0.292
HCM Control Delay (s)	9.3	0	-	-	47.3
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	1.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	802	8	29	716	17	34
Future Vol, veh/h	802	8	29	716	17	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	844	8	31	754	18	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	852	0	1664	848
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	816	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	766	-	107	361
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	435	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	766	-	100	361
Mov Cap-2 Maneuver	-	-	-	-	100	-
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	405	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	30.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	193	-	-	766	-
HCM Lane V/C Ratio	0.278	-	-	0.04	-
HCM Control Delay (s)	30.7	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

NO BUILD 2045

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	40	25.0	389.7	414.7	0.23	2.0	F
SW 127 AVE	III	30	106.6	116.0	222.6	0.89	14.4	D
Total	III		131.6	505.7	637.3	1.11	6.3	F

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	31.9	65.8	0.27	14.6	D
SW1 137 AVE	III	32	99.7	343.1	442.8	0.89	7.3	F
Total	III		133.6	375.0	508.6	1.16	8.2	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	450	116	377	434	256	181	521	165	215	353	182
Future Volume (vph)	83	450	116	377	434	256	181	521	165	215	353	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.98			1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected		0.99			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1659			1747	1509	1770	3411		1656	2018	
Flt Permitted		0.40			0.50	1.00	0.32	1.00		0.15	1.00	
Satd. Flow (perm)		666			897	1509	598	3411		267	2018	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	87	474	122	397	457	269	191	548	174	226	372	192
RTOR Reduction (vph)	0	7	0	0	0	73	0	25	0	0	55	0
Lane Group Flow (vph)	0	676	0	0	854	196	191	697	0	226	509	0
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	pm+pt	NA		Perm	NA	Prot	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6			2	2	7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		67.6			67.6	67.6	29.1	21.6		39.6	27.6	
Effective Green, g (s)		67.6			67.6	67.6	29.1	21.6		39.6	27.6	
Actuated g/C Ratio		0.56			0.56	0.56	0.24	0.18		0.33	0.23	
Clearance Time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Vehicle Extension (s)		1.0			1.0	1.0	3.0	3.5		3.0	3.5	
Lane Grp Cap (vph)		375			505	850	218	613		244	464	
v/s Ratio Prot						0.13	0.05	0.20		c0.10	c0.25	
v/s Ratio Perm		c1.02			0.95		0.16			0.20		
v/c Ratio		1.80			1.69	0.23	0.88	1.14		0.93	1.10	
Uniform Delay, d1		26.2			26.2	13.1	41.3	49.2		33.5	46.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		372.2			319.5	0.6	30.1	80.1		37.8	71.0	
Delay (s)		398.4			345.7	13.8	71.3	129.3		71.3	117.2	
Level of Service		F			F	B	E	F		E	F	
Approach Delay (s)		398.4			266.2			117.2			104.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	216.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	130.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	1112	132	333	622	201	251	274	445	130	301	62
Future Volume (veh/h)	157	1112	132	333	622	201	251	274	445	130	301	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	165	1171	139	351	655	212	264	288	468	137	317	65
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	371	1078	128	332	1558	792	267	494	411	236	297	61
Arrive On Green	0.07	0.35	0.35	0.16	0.44	0.44	0.13	0.27	0.27	0.05	0.20	0.20
Sat Flow, veh/h	1767	3048	361	1795	3526	1598	1725	1811	1510	1781	1506	309
Grp Volume(v), veh/h	165	649	661	351	655	212	264	288	468	137	0	382
Grp Sat Flow(s),veh/h/ln	1767	1692	1716	1795	1763	1598	1725	1811	1510	1781	0	1815
Q Serve(g_s), s	9.5	56.6	56.6	25.6	20.4	12.3	20.3	22.0	43.6	8.6	0.0	31.6
Cycle Q Clear(g_c), s	9.5	56.6	56.6	25.6	20.4	12.3	20.3	22.0	43.6	8.6	0.0	31.6
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	371	599	607	332	1558	792	267	494	411	236	0	358
V/C Ratio(X)	0.44	1.08	1.09	1.06	0.42	0.27	0.99	0.58	1.14	0.58	0.00	1.07
Avail Cap(c_a), veh/h	383	599	607	332	1558	792	267	494	411	236	0	358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	51.7	51.7	55.2	30.6	23.5	49.8	50.3	58.2	50.4	0.0	64.2
Incr Delay (d2), s/veh	0.6	61.6	63.0	65.0	0.8	0.8	51.7	5.0	87.5	3.0	0.0	66.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	34.2	34.9	19.6	9.0	5.0	12.6	10.8	26.7	1.0	0.0	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	113.3	114.7	120.2	31.4	24.3	101.5	55.3	145.7	53.4	0.0	130.3
LnGrp LOS	C	F	F	F	C	C	F	E	F	D	A	F
Approach Vol, veh/h		1475			1218			1020			519	
Approach Delay, s/veh		104.6			55.8			108.7			110.0	
Approach LOS		F			E			F			F	

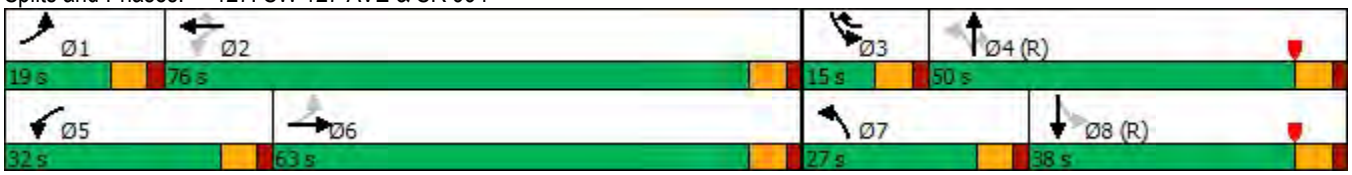
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	77.1	15.0	50.0	32.0	63.0	27.0	38.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	69.6	8.6	43.6	25.6	56.6	20.6	31.6
Max Q Clear Time (g_c+I1), s	11.5	0.0	10.6	45.6	27.6	0.0	22.3	33.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	92.2
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	157	1112	333	622	201	251	274	445	130	301
Future Volume (vph)	157	1112	333	622	201	251	274	445	130	301
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6	5	2	3	7	4		3	8
Permitted Phases	6		2		2	4		4	8	
Detector Phase	1	6	5	2	3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	28.4	11.4	28.4
Total Split (s)	19.0	63.0	32.0	76.0	15.0	27.0	50.0	50.0	15.0	38.0
Total Split (%)	11.9%	39.4%	20.0%	47.5%	9.4%	16.9%	31.3%	31.3%	9.4%	23.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	68.0	56.6	88.6	70.8	85.8	58.6	43.6	43.6	40.2	31.6
Actuated g/C Ratio	0.42	0.35	0.55	0.44	0.54	0.37	0.27	0.27	0.25	0.20
v/c Ratio	0.43	1.13	1.06	0.42	0.22	1.00	0.59	0.75	0.48	1.05
Control Delay	22.9	116.0	112.8	31.9	2.8	102.7	56.3	27.8	44.7	119.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	116.0	112.8	31.9	2.8	102.7	56.3	27.8	44.7	119.7
LOS	C	F	F	C	A	F	E	C	D	F
Approach Delay		105.6		50.1			55.2			99.9
Approach LOS		F		D			E			F

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 53 (33%), Referenced to phase 4:NBTL and 8:SBTL, Start of Yellow	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 76.8	Intersection LOS: E
Intersection Capacity Utilization 108.2%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 127: SW 127 AVE & SR 994

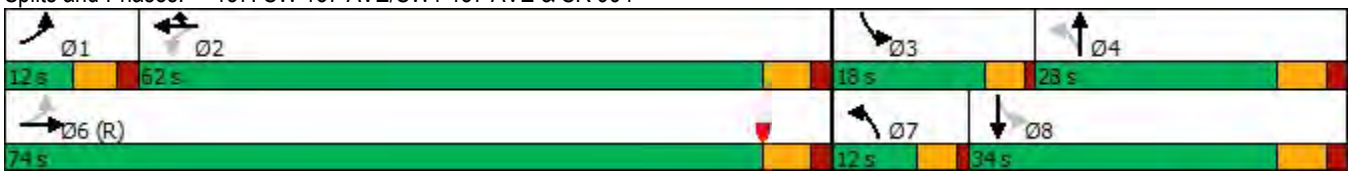


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	83	450	377	434	256	181	521	215	353
Future Volume (vph)	83	450	377	434	256	181	521	215	353
Turn Type	pm+pt	NA	Perm	NA	Prot	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		2	2	7	4	3	8
Permitted Phases	6		2			4		8	
Detector Phase	1	6	2	2	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	16.0	16.0	16.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	22.4	22.4	22.4	22.4	9.5	13.4	9.5	13.4
Total Split (s)	12.0	74.0	62.0	62.0	62.0	12.0	28.0	18.0	34.0
Total Split (%)	10.0%	61.7%	51.7%	51.7%	51.7%	10.0%	23.3%	15.0%	28.3%
Yellow Time (s)	4.0	4.4	4.4	4.4	4.4	3.5	4.4	3.5	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4		6.4	6.4	4.5	6.4	4.5	6.4
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		67.6		67.6	67.6	31.0	21.6	41.5	27.6
Actuated g/C Ratio		0.56		0.56	0.56	0.26	0.18	0.35	0.23
v/c Ratio		1.79		1.69	0.29	0.84	1.13	0.91	1.09
Control Delay		389.7		343.1	5.9	64.3	119.8	70.6	104.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		389.7		343.1	5.9	64.3	119.8	70.6	104.1
LOS		F		F	A	E	F	E	F
Approach Delay		389.7		262.3			108.2		94.5
Approach LOS		F		F			F		F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.79
Intersection Signal Delay: 209.2 — Intersection LOS: F
Intersection Capacity Utilization 130.4% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	165	1310	351	655	212	264	288	468	137	382
v/c Ratio	0.43	1.13	1.06	0.42	0.22	1.00	0.59	0.75	0.48	1.05
Control Delay	22.9	116.0	112.8	31.9	2.8	102.7	56.3	27.8	44.7	119.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	116.0	112.8	31.9	2.8	102.7	56.3	27.8	44.7	119.7
Queue Length 50th (ft)	83	~832	~349	247	0	~231	263	178	98	~428
Queue Length 95th (ft)	126	#974	#559	304	41	#430	367	328	154	#648
Internal Link Dist (ft)		550		1328			1420			1118
Turn Bay Length (ft)	300		225		225	120		260	100	
Base Capacity (vph)	398	1159	332	1550	955	263	488	620	284	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	1.13	1.06	0.42	0.22	1.00	0.59	0.75	0.48	1.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	683	854	269	191	722	226	564
v/c Ratio	1.79	1.69	0.29	0.84	1.13	0.91	1.09
Control Delay	389.7	343.1	5.9	64.3	119.8	70.6	104.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	389.7	343.1	5.9	64.3	119.8	70.6	104.1
Queue Length 50th (ft)	~502	~969	35	108	~331	132	~235
Queue Length 95th (ft)	#736	#830	80	#222	#457	#274	#352
Internal Link Dist (ft)	1118	581			1157		1066
Turn Bay Length (ft)			135	200		220	
Base Capacity (vph)	381	505	922	227	639	248	518
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.79	1.69	0.29	0.84	1.13	0.91	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	840	1064	4	8	3
Future Vol, veh/h	2	840	1064	4	8	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	2	884	1120	4	8	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1124	0	-	0	2010	1122
Stage 1	-	-	-	-	1122	-
Stage 2	-	-	-	-	888	-
Critical Hdwy	4.1	-	-	-	6.4	6.69
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.741
Pot Cap-1 Maneuver	629	-	-	-	66	203
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	405	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	629	-	-	-	66	203
Mov Cap-2 Maneuver	-	-	-	-	66	-
Stage 1	-	-	-	-	312	-
Stage 2	-	-	-	-	405	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	56.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	629	-	-	-	81
HCM Lane V/C Ratio	0.003	-	-	-	0.143
HCM Control Delay (s)	10.7	0	-	-	56.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection	
Int Delay, s/veh	15.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1275	7	21	971	3	36	0	70	7	1	3
Future Vol, veh/h	3	1275	7	21	971	3	36	0	70	7	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	3	1342	7	22	1022	3	38	0	74	7	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1025	0	0	1349	0	0	2422	-	1346	2457	2423	1024
Stage 1	-	-	-	-	-	-	1352	-	-	1068	1068	-
Stage 2	-	-	-	-	-	-	1070	-	-	1389	1355	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	-	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	685	-	-	482	-	-	~ 23	0	187	21	33	288
Stage 1	-	-	-	-	-	-	187	0	-	271	301	-
Stage 2	-	-	-	-	-	-	270	0	-	178	220	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	685	-	-	482	-	-	~ 20	-	187	12	29	288
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 20	-	-	12	29	-
Stage 1	-	-	-	-	-	-	184	-	-	266	269	-
Stage 2	-	-	-	-	-	-	238	-	-	106	216	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	$ 304.7	$ 378.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	20	187	685	-	-	482	-	-	18
HCM Lane V/C Ratio	1.895	0.394	0.005	-	-	0.046	-	-	0.643
HCM Control Delay (s)	$ 826.8	36.2	10.3	0	-	12.8	0	-	$ 378.4
HCM Lane LOS	F	E	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	5.1	1.7	0	-	-	0.1	-	-	1.7

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	179.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	141	1259	4	1	964	30	6	1	5	20	1	98
Future Vol, veh/h	141	1259	4	1	964	30	6	1	5	20	1	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	148	1325	4	1	1015	32	6	1	5	21	1	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1047	0	0	1329	0	0	2708	2672	1327	2659	2658	1031
Stage 1	-	-	-	-	-	-	1623	1623	-	1033	1033	-
Stage 2	-	-	-	-	-	-	1085	1049	-	1626	1625	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	657	-	-	526	-	-	14	23	192	~ 14	23	283
Stage 1	-	-	-	-	-	-	131	163	-	272	312	-
Stage 2	-	-	-	-	-	-	265	307	-	124	162	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	657	-	-	526	-	-	~ 2	3	192	~ 3	3	283
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 2	3	-	~ 3	3	-
Stage 1	-	-	-	-	-	-	18	22	-	37	310	-
Stage 2	-	-	-	-	-	-	167	305	-	~ 16	22	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	$ 2621.3	$ 3542.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	4	657	-	-	526	-	-	16
HCM Lane V/C Ratio	3.158	0.226	-	-	0.002	-	-	7.829
HCM Control Delay (s)	$ 2621.3	12.1	0	-	11.9	0		$ 3542.3
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.8	0.9	-	-	0	-	-	16.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	141.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1111	18	82	985	42	294
Future Vol, veh/h	1111	18	82	985	42	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1169	19	86	1037	44	309

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1188	0	2388	1179
Stage 1	-	-	-	-	1179	-
Stage 2	-	-	-	-	1209	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	574	-	~ 37	~ 230
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	279	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	574	-	~ 24	~ 230
Mov Cap-2 Maneuver	-	-	-	-	~ 24	-
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	181	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	$ 1066.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	111	-	-	574	-
HCM Lane V/C Ratio	3.186	-	-	0.15	-
HCM Control Delay (s)	$ 1066.5	-	-	12.4	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	34.2	-	-	0.5	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	956	1104	12	9	7
Future Vol, veh/h	5	956	1104	12	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	5	1006	1162	13	9	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1175	0	-	0	2185	1169
Stage 1	-	-	-	-	1169	-
Stage 2	-	-	-	-	1016	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	602	-	-	-	43	237
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	318	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	602	-	-	-	42	237
Mov Cap-2 Maneuver	-	-	-	-	42	-
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	318	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	77.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	602	-	-	-	66
HCM Lane V/C Ratio	0.009	-	-	-	0.255
HCM Control Delay (s)	11	0	-	-	77.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Intersection	
Int Delay, s/veh	71.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	774	56	74	974	63	66	22	131	57	42	28
Future Vol, veh/h	18	774	56	74	974	63	66	22	131	57	42	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	225	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	26	9	4	0	3	3	6	8	16	0	12	65
Mvmt Flow	19	815	59	78	1025	66	69	23	138	60	44	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1091	0	0	874	0	0	2104	2100	815	2177	2126	1058
Stage 1	-	-	-	-	-	-	853	853	-	1214	1214	-
Stage 2	-	-	-	-	-	-	1251	1247	-	963	912	-
Critical Hdwy	4.36	-	-	4.1	-	-	5	5	5	5	5	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Follow-up Hdwy	2.434	-	-	2.2	-	-	3.554	4.072	3.444	3.5	4.108	3.885
Pot Cap-1 Maneuver	558	-	-	781	-	-	129	125	485	120	122	358
Stage 1	-	-	-	-	-	-	348	367	-	224	243	-
Stage 2	-	-	-	-	-	-	207	239	-	310	340	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	558	-	-	781	-	-	~ 54	86	485	~ 52	84	358
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 54	86	-	~ 52	84	-
Stage 1	-	-	-	-	-	-	325	342	-	209	180	-
Stage 2	-	-	-	-	-	-	106	177	-	193	317	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	$ 468.7	$ 481.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	125	558	-	-	781	-	-	76
HCM Lane V/C Ratio	1.844	0.034	-	-	0.1	-	-	1.759
HCM Control Delay (s)	$ 468.7	11.7	0	-	10.1	0	-	$ 481.3
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	18	0.1	-	-	0.3	-	-	11.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	828	1062	5	13	5
Future Vol, veh/h	1	828	1062	5	13	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	1	872	1118	5	14	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1123	0	-	0	1995	1121
Stage 1	-	-	-	-	1121	-
Stage 2	-	-	-	-	874	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	629	-	-	-	67	253
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	412	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	629	-	-	-	67	253
Mov Cap-2 Maneuver	-	-	-	-	67	-
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	412	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	59.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	629	-	-	-	84
HCM Lane V/C Ratio	0.002	-	-	-	0.226
HCM Control Delay (s)	10.7	0	-	-	59.9
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.8

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1285	983	27	0	11
Future Vol, veh/h	0	1285	983	27	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1353	1035	28	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1049
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	279
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	279
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	279
HCM Lane V/C Ratio	-	-	-	0.042
HCM Control Delay (s)	-	-	-	18.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	28.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	1050	1006	22	80	13
Future Vol, veh/h	26	1050	1006	22	80	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	27	1105	1059	23	84	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1082	0	-	0	2230	1071
Stage 1	-	-	-	-	1071	-
Stage 2	-	-	-	-	1159	-
Critical Hdwy	4.1	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.3
Pot Cap-1 Maneuver	652	-	-	-	~ 47	271
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	299	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	652	-	-	-	~ 42	271
Mov Cap-2 Maneuver	-	-	-	-	~ 42	-
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	299	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	$ 665.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	652	-	-	-	48
HCM Lane V/C Ratio	0.042	-	-	-	2.039
HCM Control Delay (s)	10.8	0	-	-	$ 665.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	9.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	92.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	950	16	16	1003	113	125
Future Vol, veh/h	950	16	16	1003	113	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1000	17	17	1056	119	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1017	0	2099	1009
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	1090	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	663	-	~ 57	292
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	322	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	663	-	~ 53	292
Mov Cap-2 Maneuver	-	-	-	-	~ 53	-
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	302	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	$ 863.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	93	-	-	663	-
HCM Lane V/C Ratio	2.694	-	-	0.025	-
HCM Control Delay (s)	$ 863.2	-	-	10.6	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	23.7	-	-	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	40	25.0	55.9	80.9	0.23	10.1	E
SW 127 AVE	III	30	106.6	96.7	203.3	0.89	15.7	D
Total	III		131.6	152.6	284.2	1.11	14.1	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	35.0	68.9	0.27	13.9	E
SW1 137 AVE	III	32	99.7	138.2	237.9	0.89	13.5	E
Total	III		133.6	173.2	306.8	1.16	13.6	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	466	109	218	361	286	173	319	186	278	626	174
Future Volume (vph)	51	466	109	218	361	286	173	319	186	278	626	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frt		0.98			1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected		1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1665			1743	1509	1770	3344		1656	1944	
Flt Permitted		0.76			0.54	1.00	0.16	1.00		0.22	1.00	
Satd. Flow (perm)		1273			954	1509	291	3344		384	1944	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	491	115	229	380	301	182	336	196	293	659	183
RTOR Reduction (vph)	0	6	0	0	0	78	0	70	0	0	21	0
Lane Group Flow (vph)	0	654	0	0	609	223	182	462	0	293	821	0
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	pm+pt	NA		Perm	NA	Prot	pm+pt	NA		pm+pt	NA	
Protected Phases	1	6			2	2	7	4		3	8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		63.6			63.6	63.6	32.1	25.6		43.6	32.6	
Effective Green, g (s)		63.6			63.6	63.6	32.1	25.6		43.6	32.6	
Actuated g/C Ratio		0.53			0.53	0.53	0.27	0.21		0.36	0.27	
Clearance Time (s)		6.4			6.4	6.4	4.5	6.4		4.5	6.4	
Vehicle Extension (s)		1.0			1.0	1.0	3.0	3.5		3.0	3.5	
Lane Grp Cap (vph)		674			505	799	157	713		282	528	
v/s Ratio Prot						0.15	0.06	0.14		c0.12	c0.42	
v/s Ratio Perm		0.51			c0.64		0.25			0.26		
v/c Ratio		0.97			1.21	0.28	1.16	0.65		1.04	1.55	
Uniform Delay, d1		27.3			28.2	15.5	40.3	43.1		33.2	43.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		27.3			110.2	0.9	121.1	2.1		64.1	258.8	
Delay (s)		54.6			138.4	16.4	161.4	45.2		97.3	302.5	
Level of Service		D			F	B	F	D		F	F	
Approach Delay (s)		54.6			98.1			74.8			249.5	
Approach LOS		D			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	135.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	117.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	900	160	433	712	156	205	260	265	183	385	91
Future Volume (veh/h)	77	900	160	433	712	156	205	260	265	183	385	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	81	947	168	456	749	164	216	274	279	193	405	96
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	308	978	173	340	1618	789	236	552	460	262	334	79
Arrive On Green	0.04	0.34	0.34	0.16	0.46	0.46	0.11	0.30	0.30	0.04	0.23	0.23
Sat Flow, veh/h	1767	2873	509	1795	3526	1598	1725	1811	1510	1781	1462	346
Grp Volume(v), veh/h	81	558	557	456	749	164	216	274	279	193	0	501
Grp Sat Flow(s),veh/h/ln	1767	1692	1690	1795	1763	1598	1725	1811	1510	1781	0	1808
Q Serve(g_s), s	4.8	51.9	51.9	25.6	23.4	9.3	15.6	19.8	25.2	5.6	0.0	36.6
Cycle Q Clear(g_c), s	4.8	51.9	51.9	25.6	23.4	9.3	15.6	19.8	25.2	5.6	0.0	36.6
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	308	576	575	340	1618	789	236	552	460	262	0	414
V/C Ratio(X)	0.26	0.97	0.97	1.34	0.46	0.21	0.91	0.50	0.61	0.74	0.00	1.21
Avail Cap(c_a), veh/h	374	576	575	340	1618	789	267	584	487	262	0	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	51.9	51.9	53.0	29.7	22.8	47.0	45.6	47.5	56.1	0.0	61.7
Incr Delay (d2), s/veh	0.3	30.4	30.6	171.7	1.0	0.6	30.7	0.8	2.2	9.9	0.0	115.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	26.8	26.9	30.1	10.3	3.7	8.8	9.2	9.9	5.5	0.0	30.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	82.3	82.6	224.7	30.7	23.4	77.7	46.4	49.7	66.0	0.0	177.3
LnGrp LOS	C	F	F	F	C	C	E	D	D	E	A	F
Approach Vol, veh/h		1196			1369			769			694	
Approach Delay, s/veh		79.1			94.4			56.4			146.4	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	79.8	12.0	55.1	32.0	60.9	24.1	43.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	64.6	5.6	51.6	25.6	51.6	20.6	36.6
Max Q Clear Time (g_c+I1), s	6.8	0.0	7.6	27.2	27.6	0.0	17.6	38.6
Green Ext Time (p_c), s	0.1	0.0	0.0	2.5	0.0	0.0	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	91.6
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	77	900	433	712	156	205	260	265	183	385
Future Volume (vph)	77	900	433	712	156	205	260	265	183	385
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	1	6	5	2	3	7	4		3	8
Permitted Phases	6		2		2	4		4	8	
Detector Phase	1	6	5	2	3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	28.4	11.4	28.4
Total Split (s)	19.0	58.0	32.0	71.0	12.0	27.0	58.0	58.0	12.0	43.0
Total Split (%)	11.9%	36.3%	20.0%	44.4%	7.5%	16.9%	36.3%	36.3%	7.5%	26.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 116 (73%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

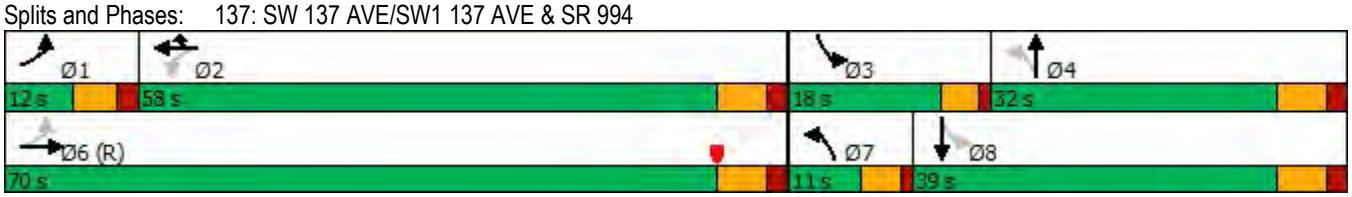
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	51	466	218	361	286	173	319	278	626
Future Volume (vph)	51	466	218	361	286	173	319	278	626
Turn Type	pm+pt	NA	Perm	NA	Prot	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		2	2	7	4	3	8
Permitted Phases	6		2			4		8	
Detector Phase	1	6	2	2	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	16.0	16.0	16.0	16.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	22.4	22.4	22.4	22.4	9.5	13.4	9.5	13.4
Total Split (s)	12.0	70.0	58.0	58.0	58.0	11.0	32.0	18.0	39.0
Total Split (%)	10.0%	58.3%	48.3%	48.3%	48.3%	9.2%	26.7%	15.0%	32.5%
Yellow Time (s)	4.0	4.4	4.4	4.4	4.4	3.5	4.4	3.5	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4		6.4	6.4	4.5	6.4	4.5	6.4
Lead/Lag	Lead		Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	Max	Max	Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:EBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	1115	456	749	164	216	274	279	193	501
v/c Ratio	0.27	1.06	1.37	0.50	0.19	0.85	0.47	0.42	0.61	1.17
Control Delay	23.3	96.7	223.0	35.0	3.4	70.9	46.7	6.0	52.6	148.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	96.7	223.0	35.0	3.4	70.9	46.7	6.0	52.6	148.7
Queue Length 50th (ft)	42	~669	~578	297	0	173	230	0	136	~626
Queue Length 95th (ft)	72	#811	#809	371	41	#313	324	69	201	#861
Internal Link Dist (ft)		550		1328			1420			1118
Turn Bay Length (ft)	300		225		225	120		260	100	
Base Capacity (vph)	346	1048	333	1500	885	263	577	671	319	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	1.06	1.37	0.50	0.19	0.82	0.47	0.42	0.61	1.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	660	609	301	182	532	293	842
v/c Ratio	0.97	1.21	0.34	1.12	0.68	1.02	1.53
Control Delay	55.9	138.2	7.9	138.9	40.9	89.3	280.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	138.2	7.9	138.9	40.9	89.3	280.4
Queue Length 50th (ft)	470	~574	52	~107	167	~173	~476
Queue Length 95th (ft)	#743	#798	108	#253	230	#333	#606
Internal Link Dist (ft)	1118	581			1157		1066
Turn Bay Length (ft)			135	200		220	
Base Capacity (vph)	680	505	878	162	783	288	549
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	1.21	0.34	1.12	0.68	1.02	1.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	938	864	6	7	1
Future Vol, veh/h	1	938	864	6	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	1	987	909	6	7	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	915	0	-	0	1901	912
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	989	-
Critical Hdwy	4.1	-	-	-	6.4	6.69
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.741
Pot Cap-1 Maneuver	754	-	-	-	77	273
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	363	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	754	-	-	-	77	273
Mov Cap-2 Maneuver	-	-	-	-	77	-
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	363	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	52
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	754	-	-	-	85
HCM Lane V/C Ratio	0.001	-	-	-	0.099
HCM Control Delay (s)	9.8	0	-	-	52
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1047	66	24	1044	6	9	1	33	8	1	3
Future Vol, veh/h	2	1047	66	24	1044	6	9	1	33	8	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1102	69	25	1099	6	9	1	35	8	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1105	0	0	1171	0	0	2295	2296	1137	2311	2327	1102
Stage 1	-	-	-	-	-	-	1141	1141	-	1152	1152	-
Stage 2	-	-	-	-	-	-	1154	1155	-	1159	1175	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	639	-	-	565	-	-	28	39	248	27	38	260
Stage 1	-	-	-	-	-	-	246	278	-	243	275	-
Stage 2	-	-	-	-	-	-	242	274	-	241	268	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	639	-	-	565	-	-	24	34	248	21	33	260
Mov Cap-2 Maneuver	-	-	-	-	-	-	24	34	-	21	33	-
Stage 1	-	-	-	-	-	-	244	275	-	241	243	-
Stage 2	-	-	-	-	-	-	211	242	-	205	266	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	66.8	213.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	24	248	639	-	-	565	-	-	28
HCM Lane V/C Ratio	0.395	0.14	0.003	-	-	0.045	-	-	0.451
HCM Control Delay (s)	231.4	21.9	10.7	0	-	11.7	0	-	213.4
HCM Lane LOS	F	C	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	1.2	0.5	0	-	-	0.1	-	-	1.4

Intersection	
Int Delay, s/veh	18.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	1093	5	1	1036	35	2	1	2	20	4	67
Future Vol, veh/h	50	1093	5	1	1036	35	2	1	2	20	4	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	53	1151	5	1	1091	37	2	1	2	21	4	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1128	0	0	1156	0	0	2409	2390	1154	2373	2374	1110
Stage 1	-	-	-	-	-	-	1260	1260	-	1112	1112	-
Stage 2	-	-	-	-	-	-	1149	1130	-	1261	1262	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	612	-	-	612	-	-	23	34	242	23	35	255
Stage 1	-	-	-	-	-	-	211	244	-	246	287	-
Stage 2	-	-	-	-	-	-	244	281	-	202	243	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	612	-	-	612	-	-	12	26	242	~ 18	26	255
Mov Cap-2 Maneuver	-	-	-	-	-	-	12	26	-	~ 18	26	-
Stage 1	-	-	-	-	-	-	160	185	-	186	286	-
Stage 2	-	-	-	-	-	-	173	280	-	151	184	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	203	$ 446.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	23	612	-	-	612	-	-	60
HCM Lane V/C Ratio	0.229	0.086	-	-	0.002	-	-	1.596
HCM Control Delay (s)	203	11.4	0	-	10.9	0	-	$ 446.4
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.7	0.3	-	-	0	-	-	8.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	96.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1014	59	194	911	27	134
Future Vol, veh/h	1014	59	194	911	27	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1067	62	204	959	28	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1129	0	2465	1098
Stage 1	-	-	-	-	1098	-
Stage 2	-	-	-	-	1367	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	604	-	33	256
Stage 1	-	-	-	-	315	-
Stage 2	-	-	-	-	233	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	604	-	~ 9	256
Mov Cap-2 Maneuver	-	-	-	-	~ 9	-
Stage 1	-	-	-	-	315	-
Stage 2	-	-	-	-	65	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	$ 1390.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	46	-	-	604	-
HCM Lane V/C Ratio	3.684	-	-	0.338	-
HCM Control Delay (s)	$ 1390.4	-	-	14	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	18.8	-	-	1.5	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	994	901	15	12	3
Future Vol, veh/h	7	994	901	15	12	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	7	1046	948	16	13	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	964	0	-	0	2016	956
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	1060	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	722	-	-	-	56	316
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	303	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	722	-	-	-	55	316
Mov Cap-2 Maneuver	-	-	-	-	55	-
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	303	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	75.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	722	-	-	-	66
HCM Lane V/C Ratio	0.01	-	-	-	0.239
HCM Control Delay (s)	10	0	-	-	75.9
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.8

Intersection	
Int Delay, s/veh	40

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	850	70	68	779	57	58	46	113	38	29	33
Future Vol, veh/h	25	850	70	68	779	57	58	46	113	38	29	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	225	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	26	9	4	0	3	3	6	8	16	0	12	65
Mvmt Flow	26	895	74	72	820	60	61	48	119	40	31	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	880	0	0	969	0	0	1974	1971	895	2062	2015	850
Stage 1	-	-	-	-	-	-	947	947	-	994	994	-
Stage 2	-	-	-	-	-	-	1027	1024	-	1068	1021	-
Critical Hdwy	4.36	-	-	4.1	-	-	5	5	5	5	5	5
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.58	-	6.1	5.62	-
Follow-up Hdwy	2.434	-	-	2.2	-	-	3.554	4.072	3.444	3.5	4.108	3.885
Pot Cap-1 Maneuver	676	-	-	719	-	-	148	143	449	136	136	435
Stage 1	-	-	-	-	-	-	308	332	-	298	310	-
Stage 2	-	-	-	-	-	-	278	305	-	271	301	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	676	-	-	719	-	-	84	105	449	52	100	435
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	105	-	52	100	-
Stage 1	-	-	-	-	-	-	282	304	-	273	248	-
Stage 2	-	-	-	-	-	-	180	244	-	153	275	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.8	289.9	227.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	157	676	-	-	719	-	-	91
HCM Lane V/C Ratio	1.455	0.039	-	-	0.1	-	-	1.157
HCM Control Delay (s)	289.9	10.5	0	-	10.6	0	-	227.6
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	14.7	0.1	-	-	0.3	-	-	7.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	930	859	6	9	6
Future Vol, veh/h	2	930	859	6	9	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	2	979	904	6	9	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	910	0	-	0	1890	907
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	983	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	757	-	-	-	78	337
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	366	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	757	-	-	-	78	337
Mov Cap-2 Maneuver	-	-	-	-	78	-
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	366	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	42
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	757	-	-	-	113
HCM Lane V/C Ratio	0.003	-	-	-	0.14
HCM Control Delay (s)	9.8	0	-	-	42
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1115	1050	6	0	22
Future Vol, veh/h	0	1115	1050	6	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1174	1105	6	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1108
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	258
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	258
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	258
HCM Lane V/C Ratio	-	-	-	0.09
HCM Control Delay (s)	-	-	-	20.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1037	925	12	36	6
Future Vol, veh/h	1	1037	925	12	36	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	1	1092	974	13	38	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	987	0	-	0	2075	981
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	1094	-
Critical Hdwy	4.1	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.3
Pot Cap-1 Maneuver	708	-	-	-	59	305
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	321	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	59	305
Mov Cap-2 Maneuver	-	-	-	-	59	-
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	321	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	129.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	67
HCM Lane V/C Ratio	0.001	-	-	-	0.66
HCM Control Delay (s)	10.1	0	-	-	129.9
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	2.9

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	996	10	37	895	22	43
Future Vol, veh/h	996	10	37	895	22	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1048	11	39	942	23	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1059	0	2074	1054
Stage 1	-	-	-	-	1054	-
Stage 2	-	-	-	-	1020	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	639	-	59	275
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	348	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	639	-	51	275
Mov Cap-2 Maneuver	-	-	-	-	51	-
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	303	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	79.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	111	-	-	639	-
HCM Lane V/C Ratio	0.616	-	-	0.061	-
HCM Control Delay (s)	79.4	-	-	11	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	3.1	-	-	0.2	-

BUILD 1 2025

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	12.5	45.0	0.26	20.5	C
SW 127 AVE	III	30	90.9	32.9	123.8	0.76	22.0	C
Total	III		123.4	45.4	168.8	1.01	21.6	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	10.9	101.8	0.76	26.8	B
SW1 137 AVE	III	38	28.2	47.2	75.4	0.26	12.2	E
Total	III		119.1	58.1	177.2	1.01	20.6	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	519	79	219	379	244	105	417	180	178	283	97
Future Volume (vph)	71	519	79	219	379	244	105	417	180	178	283	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	1.00		0.97	1.00	0.88	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	1674		3433	1727	2656	1770	1863	1583	3213	964	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.54	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	1674		3433	1727	2656	1006	1863	1583	3213	964	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	546	83	231	399	257	111	439	189	187	298	102
RTOR Reduction (vph)	0	4	0	0	0	139	0	0	129	0	0	66
Lane Group Flow (vph)	75	625	0	231	399	118	111	439	60	187	298	36
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases						2	4		4			8
Actuated Green, G (s)	6.8	37.5		13.4	42.6	54.9	40.5	35.0	35.0	12.3	41.8	41.8
Effective Green, g (s)	6.8	37.5		13.4	42.6	54.9	40.5	35.0	35.0	12.3	41.8	41.8
Actuated g/C Ratio	0.06	0.31		0.11	0.36	0.46	0.34	0.29	0.29	0.10	0.35	0.35
Clearance Time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	171	523		383	613	1215	374	543	461	329	335	480
v/s Ratio Prot	0.02	c0.37		c0.07	0.23	0.01	0.01	0.24		c0.06	c0.31	
v/s Ratio Perm						0.03	0.09		0.04			0.03
v/c Ratio	0.44	1.19		0.60	0.65	0.10	0.30	0.81	0.13	0.57	0.89	0.07
Uniform Delay, d1	54.8	41.2		50.8	32.5	18.5	28.1	39.4	31.3	51.3	36.9	26.2
Progression Factor	1.00	1.00		0.89	1.24	4.07	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	105.2		2.2	4.5	0.0	0.4	8.9	0.2	2.3	24.1	0.1
Delay (s)	56.1	146.5		47.4	44.6	75.3	28.6	48.3	31.4	53.6	61.0	26.2
Level of Service	E	F		D	D	E	C	D	C	D	E	C
Approach Delay (s)		136.9			54.2			41.0			52.6	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	70.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	1043	120	217	560	131	168	144	235	67	156	38
Future Volume (veh/h)	143	1043	120	217	560	131	168	144	235	67	156	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	151	1098	126	228	589	138	177	152	247	71	164	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	477	1592	182	283	1928	945	230	309	381	225	275	237
Arrive On Green	0.05	0.52	0.52	0.08	0.55	0.55	0.07	0.17	0.17	0.04	0.15	0.15
Sat Flow, veh/h	1767	3060	351	3483	3526	1598	3346	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	151	607	617	228	589	138	177	152	247	71	164	40
Grp Sat Flow(s),veh/h/ln	1767	1692	1718	1742	1763	1598	1673	1811	1510	1781	1870	1610
Q Serve(g_s), s	5.6	37.5	37.7	9.0	12.7	5.4	7.3	10.6	20.5	4.7	11.5	3.0
Cycle Q Clear(g_c), s	5.6	37.5	37.7	9.0	12.7	5.4	7.3	10.6	20.5	4.7	11.5	3.0
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	477	880	894	283	1928	945	230	309	381	225	275	237
V/C Ratio(X)	0.32	0.69	0.69	0.80	0.31	0.15	0.77	0.49	0.65	0.32	0.60	0.17
Avail Cap(c_a), veh/h	540	880	894	463	1928	945	468	461	507	229	302	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	25.1	25.1	63.2	17.3	12.8	64.1	52.5	46.8	47.8	55.8	52.2
Incr Delay (d2), s/veh	0.3	4.4	4.4	4.0	0.4	0.3	4.1	1.5	2.2	0.6	3.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	16.0	16.3	4.2	5.3	2.0	3.2	5.0	8.0	2.1	5.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	29.5	29.5	67.2	17.7	13.1	68.2	54.0	49.1	48.4	58.9	52.6
LnGrp LOS	B	C	C	E	B	B	E	D	D	D	E	D
Approach Vol, veh/h		1375			955			576			275	
Approach Delay, s/veh		27.9			28.8			56.2			55.3	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	83.0	12.7	30.3	17.8	79.2	16.0	27.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	59.6	6.6	35.6	18.6	53.6	19.6	22.6
Max Q Clear Time (g_c+I1), s	7.6	0.0	6.7	22.5	11.0	0.0	9.3	13.5
Green Ext Time (p_c), s	0.1	0.0	0.0	1.4	0.4	0.0	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	823	42	79	765	53	51	19	111	65	42	28
Future Volume (veh/h)	20	823	42	79	765	53	51	19	111	65	42	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	21	866	44	83	805	56	54	20	117	68	44	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	353	1199	1117	341	1396	1183	161	35	205	152	70	46
Arrive On Green	0.68	0.68	0.68	0.03	0.75	0.75	0.04	0.16	0.16	0.07	0.07	0.07
Sat Flow, veh/h	520	1767	1560	1810	1856	1572	1725	225	1319	1272	969	638
Grp Volume(v), veh/h	21	866	44	83	805	56	54	0	137	68	0	73
Grp Sat Flow(s),veh/h/ln	520	1767	1560	1810	1856	1572	1725	0	1544	1272	0	1607
Q Serve(g_s), s	2.2	37.1	1.0	1.6	22.8	1.1	3.4	0.0	9.9	6.3	0.0	5.3
Cycle Q Clear(g_c), s	16.1	37.1	1.0	1.6	22.8	1.1	3.4	0.0	9.9	6.3	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	1.00		0.40
Lane Grp Cap(c), veh/h	353	1199	1117	341	1396	1183	161	0	241	152	0	116
V/C Ratio(X)	0.06	0.72	0.04	0.24	0.58	0.05	0.34	0.00	0.57	0.45	0.00	0.63
Avail Cap(c_a), veh/h	353	1199	1117	343	1396	1183	175	0	405	277	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	12.2	5.0	12.2	6.5	3.8	47.5	0.0	46.9	54.5	0.0	54.1
Incr Delay (d2), s/veh	0.3	3.8	0.1	0.4	1.7	0.1	1.2	0.0	2.1	2.0	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	14.6	0.3	0.8	8.3	0.3	1.5	0.0	3.9	2.1	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	15.9	5.0	12.5	8.2	3.9	48.7	0.0	49.0	56.6	0.0	59.5
LnGrp LOS	B	B	A	B	A	A	D	A	D	E	A	E
Approach Vol, veh/h		931			944			191			141	
Approach Delay, s/veh		15.3			8.3			48.9			58.1	
Approach LOS		B			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		24.2	8.9	86.9	10.0	14.2		95.8				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		31.5	3.5	68.5	5.5	20.5		77.5				
Max Q Clear Time (g_c+I1), s		11.9	3.6	39.1	5.4	8.3		24.8				
Green Ext Time (p_c), s		0.7	0.0	8.3	0.0	0.4		7.8				

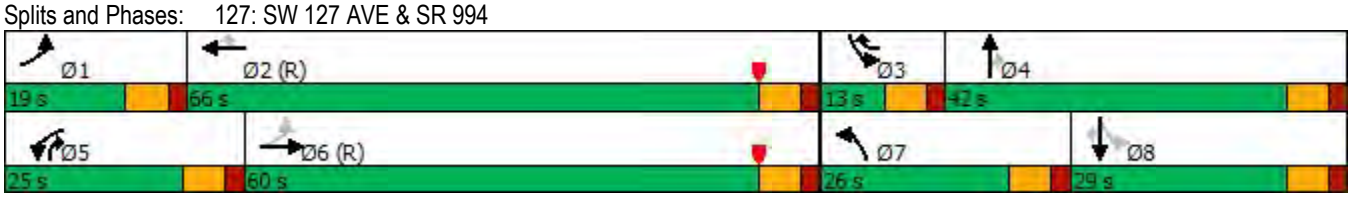
Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	143	1043	217	560	131	168	144	235	67	156	38
Future Volume (vph)	143	1043	217	560	131	168	144	235	67	156	38
Turn Type	pm+pt	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3	7	4	5	3	8	
Permitted Phases	6				2			4	8		8
Detector Phase	1	6	5	2	3	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	60.0	25.0	66.0	13.0	26.0	42.0	25.0	13.0	29.0	29.0
Total Split (%)	13.6%	42.9%	17.9%	47.1%	9.3%	18.6%	30.0%	17.9%	9.3%	20.7%	20.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

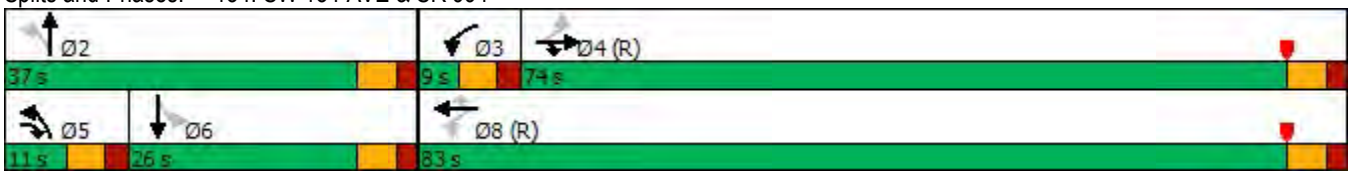


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	823	42	79	765	53	51	19	65	42
Future Volume (vph)	20	823	42	79	765	53	51	19	65	42
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		3.5	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		9.0	23.5	23.5	10.5	23.5	24.0	24.0
Total Split (s)	74.0	74.0		9.0	83.0	83.0	11.0	37.0	26.0	26.0
Total Split (%)	61.7%	61.7%		7.5%	69.2%	69.2%	9.2%	30.8%	21.7%	21.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

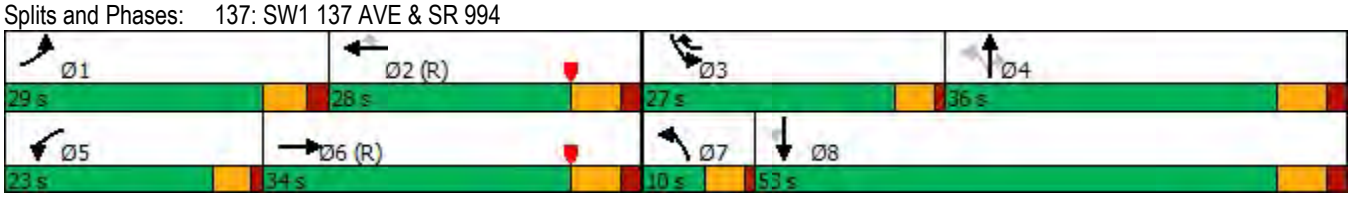


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	71	519	219	379	244	105	417	180	178	283	97
Future Volume (vph)	71	519	219	379	244	105	417	180	178	283	97
Turn Type	Prot	NA	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	7	4		3	8	
Permitted Phases					2	4		4			8
Detector Phase	1	6	5	2	3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	16.0	5.0	16.0	5.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	22.4	9.5	22.4	9.5	9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	29.0	34.0	23.0	28.0	27.0	10.0	36.0	36.0	27.0	53.0	53.0
Total Split (%)	24.2%	28.3%	19.2%	23.3%	22.5%	8.3%	30.0%	30.0%	22.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.4	3.5	4.4	3.5	3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30.6 (26%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	151	1224	228	589	138	177	152	247	71	164	40
v/c Ratio	0.30	0.75	0.66	0.32	0.13	0.61	0.50	0.47	0.30	0.69	0.11
Control Delay	12.9	32.9	69.7	20.7	2.6	70.3	57.0	25.5	41.7	72.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	32.9	69.7	20.7	2.6	70.3	57.0	25.5	41.7	72.5	0.6
Queue Length 50th (ft)	50	453	104	154	0	81	127	115	50	145	0
Queue Length 95th (ft)	97	#694	145	240	33	118	185	169	83	214	0
Internal Link Dist (ft)		550		1328			526			1118	
Turn Bay Length (ft)	300		425		195	320		575	335		155
Base Capacity (vph)	539	1639	460	1857	1048	462	455	578	241	304	411
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.75	0.50	0.32	0.13	0.38	0.33	0.43	0.29	0.54	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	866	44	83	805	56	54	137	68	73
v/c Ratio	0.07	0.76	0.04	0.26	0.59	0.05	0.29	0.40	0.55	0.48
Control Delay	2.4	12.5	0.0	7.5	10.9	1.0	43.2	13.4	66.9	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.4	12.5	0.0	7.5	10.9	1.0	43.2	13.4	66.9	45.0
Queue Length 50th (ft)	1	686	0	17	275	0	35	13	51	36
Queue Length 95th (ft)	m2	m641	m0	37	456	9	69	65	96	82
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	311	1138	1175	324	1359	1175	186	465	217	249
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.76	0.04	0.26	0.59	0.05	0.29	0.29	0.31	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	629	231	399	257	111	439	189	187	298	102
v/c Ratio	0.38	1.19	0.60	0.63	0.17	0.28	0.81	0.32	0.57	0.89	0.18
Control Delay	58.6	141.1	50.7	47.2	9.1	21.9	51.9	6.5	57.9	64.7	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	141.1	50.7	47.2	9.1	21.9	51.9	6.5	57.9	64.7	4.3
Queue Length 50th (ft)	29	~610	90	305	11	48	307	4	72	210	0
Queue Length 95th (ft)	53	#917	128	#453	59	80	#440	58	107	#358	30
Internal Link Dist (ft)		1118		377			510			573	
Turn Bay Length (ft)	320		425		385	340		240	360		235
Base Capacity (vph)	578	528	529	630	1711	390	544	591	602	374	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.19	0.44	0.63	0.15	0.28	0.81	0.32	0.31	0.80	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	885	840	4	0	2
Future Vol, veh/h	0	885	840	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	932	884	4	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	886
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.69
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.741
Pot Cap-1 Maneuver	0	-	-	-	0	284
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	284
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	284
HCM Lane V/C Ratio	-	-	-	0.007
HCM Control Delay (s)	-	-	-	17.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1196	7	18	797	3	29	2	60	6	1	2
Future Vol, veh/h	3	1196	7	18	797	3	29	2	60	6	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	3	1259	7	19	839	3	31	2	63	6	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	842	0	0	1266	0	0	2149	2149	1263	2180	2151	841
Stage 1	-	-	-	-	-	-	1269	1269	-	879	879	-
Stage 2	-	-	-	-	-	-	880	880	-	1301	1272	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	802	-	-	519	-	-	35	49	209	34	49	368
Stage 1	-	-	-	-	-	-	208	242	-	345	368	-
Stage 2	-	-	-	-	-	-	345	368	-	200	241	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	519	-	-	33	47	209	22	47	368
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	47	-	22	47	-
Stage 1	-	-	-	-	-	-	207	241	-	344	354	-
Stage 2	-	-	-	-	-	-	329	354	-	138	240	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	121.2	172.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	33	209	802	-	-	519	-	-	30
HCM Lane V/C Ratio	0.925	0.302	0.004	-	-	0.037	-	-	0.316
HCM Control Delay (s)	$ 311	29.5	9.5	-	-	12.2	-	-	172.9
HCM Lane LOS	F	D	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.2	1.2	0	-	-	0.1	-	-	1

Intersection	
Int Delay, s/veh	11.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	1186	5	2	787	25	5	1	4	16	1	78
Future Vol, veh/h	130	1186	5	2	787	25	5	1	4	16	1	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	137	1248	5	2	828	26	5	1	4	17	1	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	854	0	0	1253	0	0	2412	2383	1251	2372	2372	841
Stage 1	-	-	-	-	-	-	1525	1525	-	845	845	-
Stage 2	-	-	-	-	-	-	887	858	-	1527	1527	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	777	-	-	562	-	-	23	35	213	23	35	365
Stage 1	-	-	-	-	-	-	149	182	-	348	382	-
Stage 2	-	-	-	-	-	-	341	376	-	142	181	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	777	-	-	562	-	-	15	29	213	19	29	365
Mov Cap-2 Maneuver	-	-	-	-	-	-	15	29	-	19	29	-
Stage 1	-	-	-	-	-	-	123	150	-	287	380	-
Stage 2	-	-	-	-	-	-	263	374	-	114	149	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	217.3	230.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	26	777	-	-	562	-	-	87
HCM Lane V/C Ratio	0.405	0.176	-	-	0.004	-	-	1.149
HCM Control Delay (s)	217.3	10.6	-	-	11.4	-	-	230.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.2	0.6	-	-	0	-	-	7

Intersection	
Int Delay, s/veh	15.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1085	18	70	800	34	235
Future Vol, veh/h	1085	18	70	800	34	235
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1142	19	74	842	36	247

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1161	0	2142	1152
Stage 1	-	-	-	-	1152	-
Stage 2	-	-	-	-	990	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	588	-	53	~ 238
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	355	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	588	-	46	~ 238
Mov Cap-2 Maneuver	-	-	-	-	46	-
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	310	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	125.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	46	238	-	-	588	-
HCM Lane V/C Ratio	0.778	1.039	-	-	0.125	-
HCM Control Delay (s)	206.2	113.6	-	-	12	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	3.1	10.2	-	-	0.4	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	968	891	11	52	6
Future Vol, veh/h	31	968	891	11	52	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	33	1019	938	12	55	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	950	0	-	0	2029	944
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	1085	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	731	-	-	-	55	321
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	294	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	731	-	-	-	~ 53	321
Mov Cap-2 Maneuver	-	-	-	-	~ 53	-
Stage 1	-	-	-	-	330	-
Stage 2	-	-	-	-	294	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	250.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	731	-	-	-	58
HCM Lane V/C Ratio	0.045	-	-	-	1.053
HCM Control Delay (s)	10.2	-	-	-	250.8
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑			↱
Traffic Vol, veh/h	0	877	837	5	0	4
Future Vol, veh/h	0	877	837	5	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	923	881	5	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	884
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	347
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	347
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	347
HCM Lane V/C Ratio	-	-	-	0.012
HCM Control Delay (s)	-	-	-	15.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1206	805	23	0	9
Future Vol, veh/h	0	1206	805	23	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1269	847	24	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	859
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	359
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	359
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	359
HCM Lane V/C Ratio	-	-	-	0.026
HCM Control Delay (s)	-	-	-	15.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1103	814	19	0	11
Future Vol, veh/h	0	1103	814	19	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1161	857	20	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	867
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	355
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	355
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	355
HCM Lane V/C Ratio	-	-	-	0.033
HCM Control Delay (s)	-	-	-	15.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	42.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1003	17	14	811	91	100
Future Vol, veh/h	1003	17	14	811	91	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1056	18	15	854	96	105

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1074	0	1949	1065
Stage 1	-	-	-	-	1065	-
Stage 2	-	-	-	-	884	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	631	-	~ 71	270
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	404	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	631	-	~ 69	270
Mov Cap-2 Maneuver	-	-	-	-	~ 69	-
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	394	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	$ 449.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	113	-	-	631	-
HCM Lane V/C Ratio	1.779	-	-	0.023	-
HCM Control Delay (s)	$ 449.3	-	-	10.8	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	15.8	-	-	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	28.4	60.9	0.26	15.1	D
SW 127 AVE	III	30	90.9	34.1	125.0	0.76	21.8	C
Total	III		123.4	62.5	185.9	1.01	19.6	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	9.3	100.2	0.76	27.2	B
SW1 137 AVE	III	36	30.8	55.3	86.1	0.26	10.7	E
Total	III		121.7	64.6	186.3	1.01	19.6	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	488	71	178	327	180	87	256	214	237	501	98
Future Volume (vph)	43	488	71	178	327	180	87	256	214	237	501	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	1.00		0.97	1.00	0.88	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	1674		3433	1727	2656	1770	1863	1583	3213	964	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.36	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	1674		3433	1727	2656	663	1863	1583	3213	964	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	514	75	187	344	189	92	269	225	249	527	103
RTOR Reduction (vph)	0	4	0	0	0	119	0	0	138	0	0	55
Lane Group Flow (vph)	45	585	0	187	344	70	92	269	87	249	527	48
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases						2	4		4			8
Actuated Green, G (s)	5.7	25.6		11.5	29.9	44.5	52.0	46.5	46.5	14.6	55.6	55.6
Effective Green, g (s)	5.7	25.6		11.5	29.9	44.5	52.0	46.5	46.5	14.6	55.6	55.6
Actuated g/C Ratio	0.05	0.21		0.10	0.25	0.37	0.43	0.39	0.39	0.12	0.46	0.46
Clearance Time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	143	357		328	430	984	338	721	613	390	446	639
v/s Ratio Prot	0.01	c0.35		c0.05	c0.20	0.01	0.01	0.14		c0.08	c0.55	
v/s Ratio Perm						0.02	0.11		0.06			0.03
v/c Ratio	0.31	1.64		0.57	0.80	0.07	0.27	0.37	0.14	0.64	1.18	0.07
Uniform Delay, d1	55.3	47.2		51.9	42.2	24.4	20.9	26.3	23.8	50.2	32.2	17.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	299.9		2.4	14.4	0.0	0.4	0.4	0.1	3.4	102.6	0.1
Delay (s)	56.2	347.1		54.3	56.7	24.4	21.3	26.7	23.9	53.6	134.8	18.0
Level of Service	E	F		D	E	C	C	C	C	D	F	B
Approach Delay (s)		326.4			47.6			24.8			98.1	
Approach LOS		F			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	121.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	848	155	286	641	104	134	138	140	94	198	57
Future Volume (veh/h)	74	848	155	286	641	104	134	138	140	94	198	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	78	893	163	301	675	109	141	145	147	99	208	60
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	454	1505	275	361	2102	1051	190	227	346	214	243	209
Arrive On Green	0.03	0.53	0.53	0.10	0.60	0.60	0.06	0.13	0.13	0.06	0.13	0.13
Sat Flow, veh/h	1767	2858	522	3483	3526	1598	3346	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	78	529	527	301	675	109	141	145	147	99	208	60
Grp Sat Flow(s),veh/h/ln	1767	1692	1688	1742	1763	1598	1673	1811	1510	1781	1870	1610
Q Serve(g_s), s	2.8	30.1	30.1	11.9	13.4	3.5	5.8	10.7	11.6	6.7	15.2	4.7
Cycle Q Clear(g_c), s	2.8	30.1	30.1	11.9	13.4	3.5	5.8	10.7	11.6	6.7	15.2	4.7
Prop In Lane	1.00		0.31	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	891	889	361	2102	1051	190	227	346	214	243	209
V/C Ratio(X)	0.17	0.59	0.59	0.83	0.32	0.10	0.74	0.64	0.42	0.46	0.86	0.29
Avail Cap(c_a), veh/h	477	891	889	587	2102	1051	349	461	540	278	462	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	22.8	22.8	61.6	14.1	8.8	65.0	58.2	46.1	49.5	59.6	55.0
Incr Delay (d2), s/veh	0.1	2.9	2.9	4.3	0.4	0.2	4.2	3.6	1.0	1.1	9.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	12.6	12.6	5.5	5.5	1.3	2.6	5.1	4.5	3.1	7.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	25.7	25.7	65.9	14.5	9.0	69.2	61.7	47.1	50.6	69.5	55.9
LnGrp LOS	B	C	C	E	B	A	E	E	D	D	E	E
Approach Vol, veh/h		1134			1085			433			367	
Approach Delay, s/veh		24.9			28.2			59.2			62.2	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	89.9	15.0	24.0	20.9	80.1	14.4	24.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	6.6	58.6	13.6	35.6	23.6	41.6	14.6	34.6
Max Q Clear Time (g_c+I1), s	4.8	0.0	8.7	13.6	13.9	0.0	7.8	17.2
Green Ext Time (p_c), s	0.0	0.0	0.1	1.2	0.6	0.0	0.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	35.6
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	909	55	58	625	49	41	39	96	38	23	26
Future Volume (veh/h)	26	909	55	58	625	49	41	39	96	38	23	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	27	957	58	61	658	52	43	41	101	40	24	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	449	1224	1130	311	1437	1218	148	61	151	122	43	48
Arrive On Green	0.69	0.69	0.69	0.04	0.77	0.77	0.03	0.13	0.13	0.06	0.06	0.06
Sat Flow, veh/h	599	1767	1560	1810	1856	1572	1725	456	1123	1266	740	832
Grp Volume(v), veh/h	27	957	58	61	658	52	43	0	142	40	0	51
Grp Sat Flow(s),veh/h/ln	599	1767	1560	1810	1856	1572	1725	0	1579	1266	0	1572
Q Serve(g_s), s	2.0	43.9	1.3	1.1	15.0	0.9	2.8	0.0	10.3	3.8	0.0	3.8
Cycle Q Clear(g_c), s	7.1	43.9	1.3	1.1	15.0	0.9	2.8	0.0	10.3	4.8	0.0	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.53
Lane Grp Cap(c), veh/h	449	1224	1130	311	1437	1218	148	0	213	122	0	91
V/C Ratio(X)	0.06	0.78	0.05	0.20	0.46	0.04	0.29	0.00	0.67	0.33	0.00	0.56
Avail Cap(c_a), veh/h	449	1224	1130	320	1437	1218	272	0	463	237	0	234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.7	12.5	4.8	13.8	4.8	3.2	49.7	0.0	49.8	56.5	0.0	55.5
Incr Delay (d2), s/veh	0.3	5.0	0.1	0.3	1.1	0.1	1.1	0.0	3.6	1.5	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	17.2	0.4	0.7	5.2	0.3	1.2	0.0	4.3	1.3	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	17.5	4.9	14.1	5.8	3.3	50.8	0.0	53.3	58.0	0.0	60.8
LnGrp LOS	A	B	A	B	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1042			771			185			91	
Approach Delay, s/veh		16.5			6.3			52.7			59.6	
Approach LOS		B			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		21.8	9.9	89.3	9.3	12.5		99.2				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		35.5	5.0	63.5	12.5	18.0		73.5				
Max Q Clear Time (g_c+I1), s		12.3	3.1	45.9	4.8	6.8		17.0				
Green Ext Time (p_c), s		0.8	0.0	7.8	0.0	0.2		5.6				

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	74	848	286	641	104	134	138	140	94	198	57
Future Volume (vph)	74	848	286	641	104	134	138	140	94	198	57
Turn Type	pm+pt	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	Prot
Protected Phases	1	6	5	2	3	7	4	5	3	8	8
Permitted Phases	6				2			4	8		
Detector Phase	1	6	5	2	3	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	13.0	48.0	30.0	65.0	20.0	21.0	42.0	30.0	20.0	41.0	41.0
Total Split (%)	9.3%	34.3%	21.4%	46.4%	14.3%	15.0%	30.0%	21.4%	14.3%	29.3%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

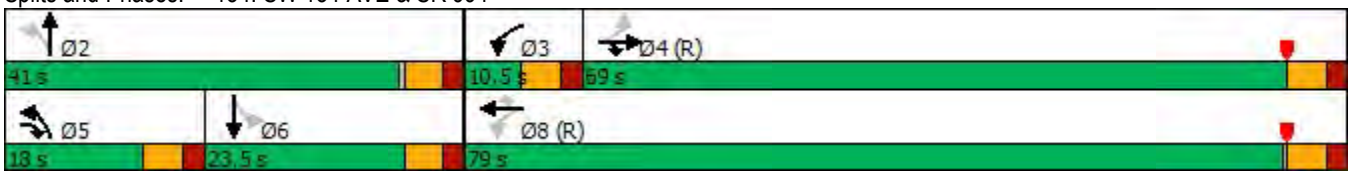
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	26	909	55	58	625	49	41	39	38	23
Future Volume (vph)	26	909	55	58	625	49	41	39	38	23
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		10.5	23.5	23.5	10.5	23.5	23.5	23.5
Total Split (s)	69.0	69.0		10.5	79.0	79.0	18.0	41.0	23.5	23.5
Total Split (%)	57.0%	57.0%		8.7%	65.3%	65.3%	14.9%	33.9%	19.4%	19.4%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 121
Actuated Cycle Length: 121
Offset: 101 (83%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

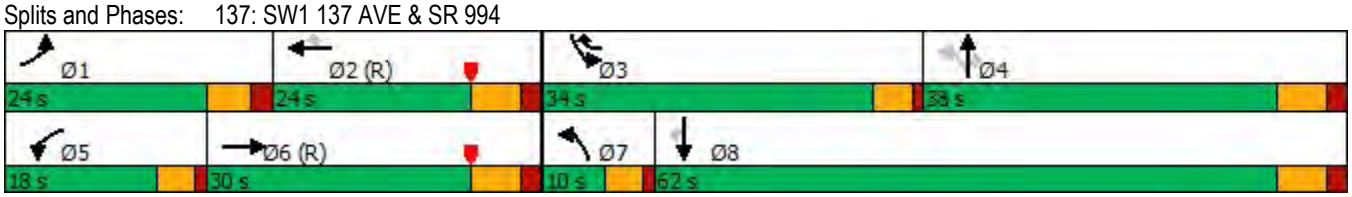


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	43	488	178	327	180	87	256	214	237	501	98
Future Volume (vph)	43	488	178	327	180	87	256	214	237	501	98
Turn Type	Prot	NA	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	7	4		3	8	
Permitted Phases					2	4		4			8
Detector Phase	1	6	5	2	3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	16.0	5.0	16.0	5.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	22.4	9.5	22.4	9.5	9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	24.0	30.0	18.0	24.0	34.0	10.0	38.0	38.0	34.0	62.0	62.0
Total Split (%)	20.0%	25.0%	15.0%	20.0%	28.3%	8.3%	31.7%	31.7%	28.3%	51.7%	51.7%
Yellow Time (s)	4.0	4.4	3.5	4.4	3.5	3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	1056	301	675	109	141	145	147	99	208	60
v/c Ratio	0.18	0.70	0.72	0.36	0.10	0.55	0.53	0.25	0.34	0.73	0.15
Control Delay	13.6	34.1	69.0	21.0	2.2	70.2	60.9	5.2	40.4	71.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	34.1	69.0	21.0	2.2	70.2	60.9	5.2	40.4	71.2	0.8
Queue Length 50th (ft)	26	388	138	180	0	64	124	0	70	183	0
Queue Length 95th (ft)	57	#583	182	274	25	99	184	43	107	257	0
Internal Link Dist (ft)		550		1328			526			1118	
Turn Bay Length (ft)	300		425		195	320		575	335		155
Base Capacity (vph)	435	1511	584	1869	1116	344	455	641	325	460	531
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.70	0.52	0.36	0.10	0.41	0.32	0.23	0.30	0.45	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	957	58	61	658	52	43	142	40	51
v/c Ratio	0.07	0.84	0.05	0.24	0.48	0.04	0.21	0.42	0.41	0.42
Control Delay	12.0	28.4	1.1	8.1	9.3	0.9	40.8	17.2	64.9	40.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	28.4	1.1	8.1	9.3	0.9	40.8	17.2	64.9	40.2
Queue Length 50th (ft)	8	593	0	12	200	0	28	27	30	18
Queue Length 95th (ft)	26	#1036	9	31	344	8	57	81	66	58
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	395	1137	1255	258	1357	1172	242	514	188	208
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.84	0.05	0.24	0.48	0.04	0.18	0.28	0.21	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	589	187	344	189	92	269	225	249	527	103
v/c Ratio	0.27	1.64	0.57	0.77	0.15	0.26	0.37	0.30	0.64	1.18	0.15
Control Delay	57.7	329.8	58.6	55.3	3.1	15.3	29.0	4.5	57.4	133.7	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	329.8	58.6	55.3	3.1	15.3	29.0	4.5	57.4	133.7	3.2
Queue Length 50th (ft)	17	~665	72	254	0	31	148	0	95	~490	0
Queue Length 95th (ft)	37	#911	109	#427	23	57	233	53	135	#705	26
Internal Link Dist (ft)		1118		377			510			573	
Turn Bay Length (ft)	320		425		385	340		240	360		235
Base Capacity (vph)	452	360	386	447	1566	348	721	750	789	446	700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	1.64	0.48	0.77	0.12	0.26	0.37	0.30	0.32	1.18	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	990	686	6	0	1
Future Vol, veh/h	0	990	686	6	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1042	722	6	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	725
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.69
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.741
Pot Cap-1 Maneuver	0	-	-	-	0	356
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	356
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	356
HCM Lane V/C Ratio	-	-	-	0.003
HCM Control Delay (s)	-	-	-	15.1
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1036	60	21	864	5	7	1	29	7	1	2
Future Vol, veh/h	2	1036	60	21	864	5	7	1	29	7	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1091	63	22	909	5	7	1	31	7	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	914	0	0	1154	0	0	2084	2085	1123	2099	2114	912
Stage 1	-	-	-	-	-	-	1127	1127	-	956	956	-
Stage 2	-	-	-	-	-	-	957	958	-	1143	1158	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	754	-	-	574	-	-	39	54	253	38	51	335
Stage 1	-	-	-	-	-	-	251	282	-	313	339	-
Stage 2	-	-	-	-	-	-	312	338	-	246	273	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	754	-	-	574	-	-	37	52	253	32	49	335
Mov Cap-2 Maneuver	-	-	-	-	-	-	37	52	-	32	49	-
Stage 1	-	-	-	-	-	-	250	281	-	312	326	-
Stage 2	-	-	-	-	-	-	297	325	-	215	272	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	41.4	120.8
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	37	253	754	-	-	574	-	-	41
HCM Lane V/C Ratio	0.199	0.121	0.003	-	-	0.039	-	-	0.257
HCM Control Delay (s)	125.1	21.2	9.8	-	-	11.5	-	-	120.8
HCM Lane LOS	F	C	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.6	0.4	0	-	-	0.1	-	-	0.8

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	1080	6	2	854	29	2	1	2	16	3	53
Future Vol, veh/h	48	1080	6	2	854	29	2	1	2	16	3	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	51	1137	6	2	899	31	2	1	2	17	3	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	930	0	0	1143	0	0	2190	2176	1140	2163	2164	915
Stage 1	-	-	-	-	-	-	1242	1242	-	919	919	-
Stage 2	-	-	-	-	-	-	948	934	-	1244	1245	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	727	-	-	619	-	-	33	47	247	33	48	331
Stage 1	-	-	-	-	-	-	216	249	-	316	353	-
Stage 2	-	-	-	-	-	-	316	347	-	206	248	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	727	-	-	619	-	-	24	44	247	30	44	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	24	44	-	30	44	-
Stage 1	-	-	-	-	-	-	201	232	-	294	352	-
Stage 2	-	-	-	-	-	-	260	346	-	189	231	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	97.6	122.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	44	727	-	-	619	-	-	95
HCM Lane V/C Ratio	0.12	0.069	-	-	0.003	-	-	0.798
HCM Control Delay (s)	97.6	10.3	-	-	10.8	-	-	122.6
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	4.3

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1028	59	167	742	21	107
Future Vol, veh/h	1028	59	167	742	21	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1082	62	176	781	22	113

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1144	0	2246	1113
Stage 1	-	-	-	-	1113	-
Stage 2	-	-	-	-	1133	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	596	-	45	251
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	303	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	596	-	32	251
Mov Cap-2 Maneuver	-	-	-	-	32	-
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	214	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	66.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	32	251	-	-	596	-
HCM Lane V/C Ratio	0.691	0.449	-	-	0.295	-
HCM Control Delay (s)	247.5	30.5	-	-	13.5	-
HCM Lane LOS	F	D	-	-	B	-
HCM 95th %tile Q(veh)	2.3	2.2	-	-	1.2	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1033	729	13	30	2
Future Vol, veh/h	10	1033	729	13	30	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	11	1087	767	14	32	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	781	0	-	0	1883	774
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	1109	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	845	-	-	-	68	402
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	286	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	845	-	-	-	67	402
Mov Cap-2 Maneuver	-	-	-	-	67	-
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	286	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	95
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	845	-	-	-	71
HCM Lane V/C Ratio	0.012	-	-	-	0.474
HCM Control Delay (s)	9.3	-	-	-	95
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	1.9

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑			↱
Traffic Vol, veh/h	0	986	681	6	0	5
Future Vol, veh/h	0	986	681	6	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1038	717	6	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	720
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	431
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	431
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	431
HCM Lane V/C Ratio	-	-	-	0.012
HCM Control Delay (s)	-	-	-	13.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1098	868	6	0	17
Future Vol, veh/h	0	1098	868	6	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1156	914	6	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	917
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	332
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	332
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	332
HCM Lane V/C Ratio	-	-	-	0.054
HCM Control Delay (s)	-	-	-	16.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1086	752	11	0	5
Future Vol, veh/h	0	1086	752	11	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1143	792	12	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	798
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	389
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	389
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	389
HCM Lane V/C Ratio	-	-	-	0.014
HCM Control Delay (s)	-	-	-	14.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1052	11	32	725	17	34
Future Vol, veh/h	1052	11	32	725	17	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1107	12	34	763	18	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1119	0	1944	1113
Stage 1	-	-	-	-	1113	-
Stage 2	-	-	-	-	831	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	606	-	71	254
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	606	-	67	254
Mov Cap-2 Maneuver	-	-	-	-	67	-
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	49.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	132	-	-	606	-
HCM Lane V/C Ratio	0.407	-	-	0.056	-
HCM Control Delay (s)	49.8	-	-	11.3	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	1.7	-	-	0.2	-

BUILD 1 2045

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	51.4	83.9	0.26	11.0	E
SW 127 AVE	III	30	90.9	63.7	154.6	0.76	17.6	D
Total	III		123.4	115.1	238.5	1.01	15.3	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	16.7	107.6	0.76	25.3	B
SW1 137 AVE	III	38	28.2	34.8	63.0	0.26	14.6	D
Total	III		119.1	51.5	170.6	1.01	21.4	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	561	98	278	413	383	131	521	243	292	353	121
Future Volume (vph)	84	561	98	278	413	383	131	521	243	292	353	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	1.00		0.97	1.00	0.88	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	1673		3433	1727	2656	1770	3539	1583	3213	1832	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.53	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	1673		3433	1727	2656	988	3539	1583	3213	1832	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	591	103	293	435	403	138	548	256	307	372	127
RTOR Reduction (vph)	0	5	0	0	0	190	0	0	203	0	0	88
Lane Group Flow (vph)	88	689	0	293	435	213	138	548	53	307	372	39
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases						2	4		4			8
Actuated Green, G (s)	8.4	40.8		15.3	46.2	63.4	30.4	24.9	24.9	17.2	36.6	36.6
Effective Green, g (s)	8.4	40.8		15.3	46.2	63.4	30.4	24.9	24.9	17.2	36.6	36.6
Actuated g/C Ratio	0.07	0.34		0.13	0.39	0.53	0.25	0.21	0.21	0.14	0.31	0.31
Clearance Time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	211	568		437	664	1403	286	734	328	460	558	420
v/s Ratio Prot	0.03	c0.41		c0.09	0.25	0.02	0.02	c0.15		c0.10	0.20	
v/s Ratio Perm						0.06	0.10		0.03			0.03
v/c Ratio	0.42	1.21		0.67	0.66	0.15	0.48	0.75	0.16	0.67	0.67	0.09
Uniform Delay, d1	53.5	39.6		49.9	30.3	14.5	36.5	44.6	39.0	48.7	36.4	29.8
Progression Factor	1.00	1.00		0.86	0.93	4.35	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	111.7		2.7	3.4	0.0	1.3	4.3	0.3	3.6	3.1	0.1
Delay (s)	54.4	151.3		45.9	31.6	63.1	37.8	48.9	39.3	52.3	39.5	29.9
Level of Service	D	F		D	C	E	D	D	D	D	D	C
Approach Delay (s)		140.4			46.6			44.6			42.9	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	65.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1285	150	271	701	164	210	180	294	84	195	47
Future Volume (veh/h)	179	1285	150	271	701	164	210	180	294	84	195	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	188	1353	158	285	738	173	221	189	309	88	205	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	392	1413	164	340	1725	866	275	370	456	246	327	282
Arrive On Green	0.07	0.46	0.46	0.10	0.49	0.49	0.08	0.20	0.20	0.05	0.17	0.17
Sat Flow, veh/h	1767	3055	355	3483	3526	1598	3346	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	188	746	765	285	738	173	221	189	309	88	205	49
Grp Sat Flow(s),veh/h/ln	1767	1692	1718	1742	1763	1598	1673	1811	1510	1781	1870	1610
Q Serve(g_s), s	7.8	59.3	60.5	11.3	18.9	7.8	9.1	13.0	25.1	5.6	14.2	3.6
Cycle Q Clear(g_c), s	7.8	59.3	60.5	11.3	18.9	7.8	9.1	13.0	25.1	5.6	14.2	3.6
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	783	794	340	1725	866	275	370	456	246	327	282
V/C Ratio(X)	0.48	0.95	0.96	0.84	0.43	0.20	0.80	0.51	0.68	0.36	0.63	0.17
Avail Cap(c_a), veh/h	426	783	794	463	1725	866	492	461	531	249	327	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	36.2	36.5	62.1	23.1	16.5	63.1	49.5	42.9	44.2	53.5	49.1
Incr Delay (d2), s/veh	0.7	22.5	24.2	8.7	0.8	0.5	4.1	1.3	3.1	0.7	4.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	28.9	30.2	5.4	8.1	3.0	4.0	6.1	9.8	2.6	7.1	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	58.7	60.7	70.8	23.9	17.0	67.2	50.8	46.0	44.9	57.6	49.5
LnGrp LOS	B	E	E	E	C	B	E	D	D	D	E	D
Approach Vol, veh/h		1699			1196			719			342	
Approach Delay, s/veh		55.2			34.1			53.8			53.1	
Approach LOS		E			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	74.9	13.8	35.0	20.1	71.1	17.9	30.9
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	58.6	7.6	35.6	18.6	52.6	20.6	22.6
Max Q Clear Time (g_c+I1), s	9.8	0.0	7.6	27.1	13.3	0.0	11.1	16.2
Green Ext Time (p_c), s	0.1	0.0	0.0	1.5	0.4	0.0	0.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	48.4
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1007	75	98	957	66	85	23	139	81	52	35
Future Volume (veh/h)	25	1007	75	98	957	66	85	23	139	81	52	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	26	1060	79	103	1007	69	89	24	146	85	55	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	225	1128	1054	174	1337	1133	188	41	249	168	100	67
Arrive On Green	0.64	0.64	0.64	0.04	0.72	0.72	0.04	0.19	0.19	0.10	0.10	0.10
Sat Flow, veh/h	425	1767	1560	1810	1856	1572	1725	218	1325	1234	960	646
Grp Volume(v), veh/h	26	1060	79	103	1007	69	89	0	170	85	0	92
Grp Sat Flow(s),veh/h/ln	425	1767	1560	1810	1856	1572	1725	0	1543	1234	0	1606
Q Serve(g_s), s	4.8	65.1	2.1	2.2	39.8	1.5	4.5	0.0	12.1	8.1	0.0	6.5
Cycle Q Clear(g_c), s	34.7	65.1	2.1	2.2	39.8	1.5	4.5	0.0	12.1	10.2	0.0	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.40
Lane Grp Cap(c), veh/h	225	1128	1054	174	1337	1133	188	0	290	168	0	168
V/C Ratio(X)	0.12	0.94	0.07	0.59	0.75	0.06	0.47	0.00	0.59	0.51	0.00	0.55
Avail Cap(c_a), veh/h	225	1128	1054	236	1337	1133	188	0	366	229	0	248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	19.6	6.6	29.1	10.2	4.9	46.5	0.0	44.5	53.7	0.0	51.0
Incr Delay (d2), s/veh	1.0	15.8	0.1	3.2	4.0	0.1	1.9	0.0	1.9	2.4	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	29.2	0.7	2.1	15.7	0.5	0.5	0.0	4.8	2.6	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	35.4	6.8	32.3	14.2	5.0	48.4	0.0	46.4	56.1	0.0	53.8
LnGrp LOS	C	D	A	C	B	A	D	A	D	E	A	D
Approach Vol, veh/h		1165			1179			259			177	
Approach Delay, s/veh		33.2			15.3			47.1			54.9	
Approach LOS		C			B			D			D	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		28.0	9.9	82.1	10.0	18.0		92.0				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		28.5	8.5	66.5	4.5	18.5		80.5				
Max Q Clear Time (g_c+I1), s		14.1	4.2	67.1	6.5	12.2		41.8				
Green Ext Time (p_c), s		0.8	0.1	0.0	0.0	0.4		11.3				

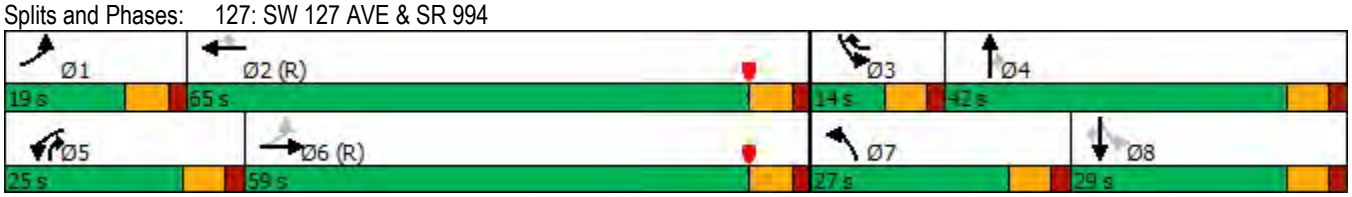
Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	179	1285	271	701	164	210	180	294	84	195	47
Future Volume (vph)	179	1285	271	701	164	210	180	294	84	195	47
Turn Type	pm+pt	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3	7	4	5	3	8	
Permitted Phases	6				2			4	8		8
Detector Phase	1	6	5	2	3	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	59.0	25.0	65.0	14.0	27.0	42.0	25.0	14.0	29.0	29.0
Total Split (%)	13.6%	42.1%	17.9%	46.4%	10.0%	19.3%	30.0%	17.9%	10.0%	20.7%	20.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

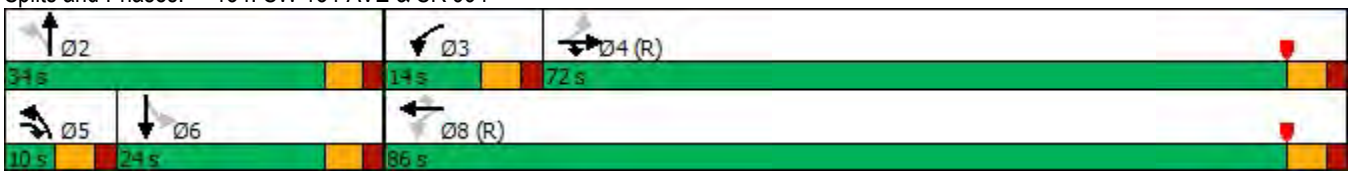


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	1007	75	98	957	66	85	23	81	52
Future Volume (vph)	25	1007	75	98	957	66	85	23	81	52
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		4.5	5.0	5.0	4.5	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		10.0	24.0	24.0	10.0	24.0	24.0	24.0
Total Split (s)	72.0	72.0		14.0	86.0	86.0	10.0	34.0	24.0	24.0
Total Split (%)	60.0%	60.0%		11.7%	71.7%	71.7%	8.3%	28.3%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

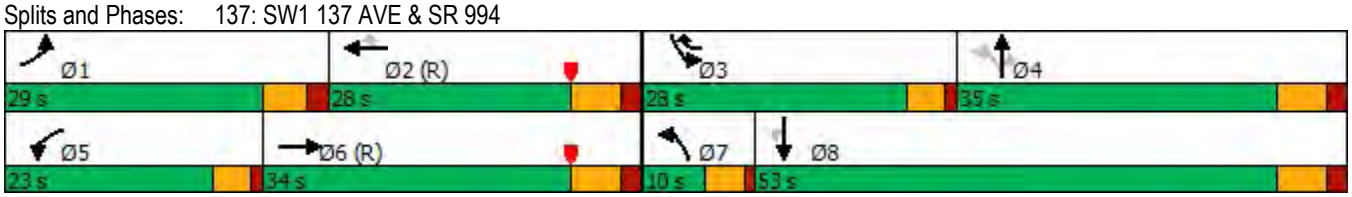


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	84	561	278	413	383	131	521	243	292	353	121
Future Volume (vph)	84	561	278	413	383	131	521	243	292	353	121
Turn Type	Prot	NA	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	7	4		3	8	
Permitted Phases					2	4		4			8
Detector Phase	1	6	5	2	3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	16.0	5.0	16.0	5.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	22.4	9.5	22.4	9.5	9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	29.0	34.0	23.0	28.0	28.0	10.0	35.0	35.0	28.0	53.0	53.0
Total Split (%)	24.2%	28.3%	19.2%	23.3%	23.3%	8.3%	29.2%	29.2%	23.3%	44.2%	44.2%
Yellow Time (s)	4.0	4.4	3.5	4.4	3.5	3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30.6 (26%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	188	1511	285	738	173	221	189	309	88	205	49
v/c Ratio	0.46	1.01	0.73	0.43	0.17	0.66	0.54	0.54	0.33	0.76	0.13
Control Delay	17.4	63.7	70.9	25.4	2.7	70.0	55.6	28.9	39.5	74.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	63.7	70.9	25.4	2.7	70.0	55.6	28.9	39.5	74.6	0.7
Queue Length 50th (ft)	71	~769	130	226	0	101	156	167	59	181	0
Queue Length 95th (ft)	126	#1033	177	318	37	142	221	230	95	262	0
Internal Link Dist (ft)		550		1328			526			1118	
Turn Bay Length (ft)	300		425		195	320		575	335		155
Base Capacity (vph)	432	1494	460	1722	1016	486	455	604	269	309	415
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	1.01	0.62	0.43	0.17	0.45	0.42	0.51	0.33	0.66	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	1060	79	103	1007	69	89	170	85	92
v/c Ratio	0.15	1.01	0.07	0.58	0.76	0.06	0.45	0.43	0.62	0.54
Control Delay	10.0	51.4	2.9	30.0	16.7	1.5	47.6	12.5	69.7	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	51.4	2.9	30.0	16.7	1.5	47.6	12.5	69.7	48.1
Queue Length 50th (ft)	9	~885	9	25	439	0	59	15	64	50
Queue Length 95th (ft)	m15	m#931	m18	88	735	14	103	74	114	101
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	179	1053	1090	193	1317	1140	199	453	190	226
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	1.01	0.07	0.53	0.76	0.06	0.45	0.38	0.45	0.41

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	694	293	435	403	138	548	256	307	372	127
v/c Ratio	0.42	1.21	0.67	0.66	0.24	0.46	0.75	0.48	0.67	0.67	0.25
Control Delay	59.0	145.6	48.4	34.8	6.3	30.8	51.0	7.7	55.6	41.5	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	145.6	48.4	34.8	6.3	30.8	51.0	7.7	55.6	41.5	5.5
Queue Length 50th (ft)	34	~664	109	304	39	68	211	0	117	131	0
Queue Length 95th (ft)	60	#1044	m141	#529	63	97	259	65	158	165	39
Internal Link Dist (ft)		1118		377			510			573	
Turn Bay Length (ft)	320		425		385	340		240	360		235
Base Capacity (vph)	578	573	529	664	1831	301	852	575	629	711	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	1.21	0.55	0.66	0.22	0.46	0.64	0.45	0.49	0.52	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1107	1072	5	0	3
Future Vol, veh/h	0	1107	1072	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1165	1128	5	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1131
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.69
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.741
Pot Cap-1 Maneuver	0	-	-	-	0	200
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	200
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	200
HCM Lane V/C Ratio	-	-	-	0.016
HCM Control Delay (s)	-	-	-	23.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	24.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1477	8	22	996	3	36	0	75	8	1	3
Future Vol, veh/h	4	1477	8	22	996	3	36	0	75	8	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	4	1555	8	23	1048	3	38	0	79	8	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1051	0	0	1563	0	0	2665	-	1559	2703	2667	1050
Stage 1	-	-	-	-	-	-	1567	-	-	1096	1096	-
Stage 2	-	-	-	-	-	-	1098	-	-	1607	1571	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	-	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	670	-	-	398	-	-	~ 15	0	140	14	23	278
Stage 1	-	-	-	-	-	-	141	0	-	261	292	-
Stage 2	-	-	-	-	-	-	260	0	-	134	173	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	670	-	-	398	-	-	~ 14	-	140	~ 6	22	278
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 14	-	-	~ 6	22	-
Stage 1	-	-	-	-	-	-	140	-	-	259	275	-
Stage 2	-	-	-	-	-	-	241	-	-	58	172	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	$ 470	$ 1006.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	14	140	670	-	-	398	-	-	9
HCM Lane V/C Ratio	2.707	0.564	0.006	-	-	0.058	-	-	1.404
HCM Control Delay (s)	$ 1324.9	59.7	10.4	-	-	14.6	-	-	$ 1006.5
HCM Lane LOS	F	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	5.5	2.8	0	-	-	0.2	-	-	2.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	76.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	162	1463	6	2	984	32	6	1	5	20	1	98
Future Vol, veh/h	162	1463	6	2	984	32	6	1	5	20	1	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	171	1540	6	2	1036	34	6	1	5	21	1	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1070	0	0	1546	0	0	2994	2959	1543	2945	2945	1053
Stage 1	-	-	-	-	-	-	1885	1885	-	1057	1057	-
Stage 2	-	-	-	-	-	-	1109	1074	-	1888	1888	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	644	-	-	435	-	-	9	15	143	~ 9	15	275
Stage 1	-	-	-	-	-	-	92	121	-	264	304	-
Stage 2	-	-	-	-	-	-	257	299	-	87	120	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	644	-	-	435	-	-	~ 4	11	143	~ 6	11	275
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 4	11	-	~ 6	11	-
Stage 1	-	-	-	-	-	-	68	89	-	194	302	-
Stage 2	-	-	-	-	-	-	159	298	-	61	88	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	$ 1371.4	$ 1629.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	7	644	-	-	435	-	-	31
HCM Lane V/C Ratio	1.805	0.265	-	-	0.005	-	-	4.041
HCM Control Delay (s)	$ 1371.4	12.6	-	-	13.3	-	-	$ 1629.5
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.6	1.1	-	-	0	-	-	14.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	63.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1338	22	88	999	42	294
Future Vol, veh/h	1338	22	88	999	42	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1408	23	93	1052	44	309

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1431	0	2658	1420
Stage 1	-	-	-	-	1420	-
Stage 2	-	-	-	-	1238	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	463	-	~ 25	~ 166
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	270	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	463	-	~ 20	~ 166
Mov Cap-2 Maneuver	-	-	-	-	~ 20	-
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	216	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	$ 520.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	20	166	-	-	463	-
HCM Lane V/C Ratio	2.211	1.864	-	-	0.2	-
HCM Control Delay (s)	$ 960.6	$ 457.8	-	-	14.7	-
HCM Lane LOS	F	F	-	-	B	-
HCM 95th %tile Q(veh)	5.9	23	-	-	0.7	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	35.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	1188	1114	13	65	7
Future Vol, veh/h	39	1188	1114	13	65	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	41	1251	1173	14	68	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1187	0	-	0	2513	1180
Stage 1	-	-	-	-	1180	-
Stage 2	-	-	-	-	1333	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	595	-	-	-	~ 26	234
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	221	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	595	-	-	-	~ 24	234
Mov Cap-2 Maneuver	-	-	-	-	~ 24	-
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	221	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	$ 1180.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	595	-	-	-	26
HCM Lane V/C Ratio	0.069	-	-	-	2.915
HCM Control Delay (s)	11.5	-	-		$ 1180.4
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	9.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑			↱
Traffic Vol, veh/h	0	1096	1069	6	0	5
Future Vol, veh/h	0	1096	1069	6	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1154	1125	6	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1128
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	251
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	251
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	251
HCM Lane V/C Ratio	-	-	-	0.021
HCM Control Delay (s)	-	-	-	19.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1489	1006	29	0	11
Future Vol, veh/h	0	1489	1006	29	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1567	1059	31	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1075
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	269
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	269
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	269
HCM Lane V/C Ratio	-	-	-	0.043
HCM Control Delay (s)	-	-	-	19
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1360	1018	24	0	13
Future Vol, veh/h	0	1360	1018	24	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1432	1072	25	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1085
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	266
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	266
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	266
HCM Lane V/C Ratio	-	-	-	0.051
HCM Control Delay (s)	-	-	-	19.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	142.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1232	21	17	1014	113	125
Future Vol, veh/h	1232	21	17	1014	113	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1297	22	18	1067	119	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1319	0	2411	1308
Stage 1	-	-	-	-	1308	-
Stage 2	-	-	-	-	1103	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	508	-	~ 36	195
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	318	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	508	-	~ 35	195
Mov Cap-2 Maneuver	-	-	-	-	~ 35	-
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	307	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	$ 1504.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	62	-	-	508	-
HCM Lane V/C Ratio	4.041	-	-	0.035	-
HCM Control Delay (s)	$ 1504.6	-	-	12.3	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	27	-	-	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	61.3	93.8	0.26	9.8	F
SW 127 AVE	III	30	90.9	69.7	160.6	0.76	17.0	D
Total	III		123.4	131.0	254.4	1.01	14.3	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	10.3	101.2	0.76	26.9	B
SW1 137 AVE	III	36	30.8	36.0	66.8	0.26	13.8	E
Total	III		121.7	46.3	168.0	1.01	21.7	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	529	88	241	347	295	109	319	274	379	626	123
Future Volume (vph)	51	529	88	241	347	295	109	319	274	379	626	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	1.00		0.97	1.00	0.88	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	1673		3433	1727	2656	1770	3539	1583	3213	1832	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.40	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	1673		3433	1727	2656	747	3539	1583	3213	1832	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	557	93	254	365	311	115	336	288	399	659	129
RTOR Reduction (vph)	0	5	0	0	0	159	0	0	212	0	0	79
Lane Group Flow (vph)	54	645	0	254	365	152	115	336	76	399	659	50
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases						2	4		4			8
Actuated Green, G (s)	6.1	32.7		13.6	38.7	58.8	37.3	31.8	31.8	20.1	46.4	46.4
Effective Green, g (s)	6.1	32.7		13.6	38.7	58.8	37.3	31.8	31.8	20.1	46.4	46.4
Actuated g/C Ratio	0.05	0.27		0.11	0.32	0.49	0.31	0.27	0.27	0.17	0.39	0.39
Clearance Time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	153	455		389	556	1301	279	937	419	538	708	533
v/s Ratio Prot	0.02	c0.39		c0.07	0.21	0.02	0.02	0.09		c0.12	c0.36	
v/s Ratio Perm						0.04	0.11		0.05			0.04
v/c Ratio	0.35	1.42		0.65	0.66	0.12	0.41	0.36	0.18	0.74	0.93	0.09
Uniform Delay, d1	55.0	43.6		50.9	34.9	16.6	30.5	35.8	34.1	47.5	35.3	23.4
Progression Factor	1.00	1.00		0.94	0.86	1.77	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	200.4		3.3	5.0	0.0	1.0	0.3	0.2	5.5	19.1	0.1
Delay (s)	56.1	244.1		51.2	34.9	29.4	31.5	36.1	34.3	52.9	54.4	23.5
Level of Service	E	F		D	C	C	C	D	C	D	D	C
Approach Delay (s)		229.6			37.5			34.7			50.5	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	79.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	1091	193	357	801	130	168	172	175	117	247	71
Future Volume (veh/h)	92	1091	193	357	801	130	168	172	175	117	247	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	97	1148	203	376	843	137	177	181	184	123	260	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	358	1340	236	435	1936	992	227	280	422	241	296	255
Arrive On Green	0.04	0.47	0.47	0.13	0.55	0.55	0.07	0.15	0.15	0.07	0.16	0.16
Sat Flow, veh/h	1767	2876	506	3483	3526	1598	3346	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	97	673	678	376	843	137	177	181	184	123	260	75
Grp Sat Flow(s),veh/h/ln	1767	1692	1690	1742	1763	1598	1673	1811	1510	1781	1870	1610
Q Serve(g_s), s	4.0	49.4	50.0	14.8	19.8	5.0	7.3	13.1	14.0	8.0	19.0	5.8
Cycle Q Clear(g_c), s	4.0	49.4	50.0	14.8	19.8	5.0	7.3	13.1	14.0	8.0	19.0	5.8
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	358	789	788	435	1936	992	227	280	422	241	296	255
V/C Ratio(X)	0.27	0.85	0.86	0.86	0.44	0.14	0.78	0.65	0.44	0.51	0.88	0.29
Avail Cap(c_a), veh/h	367	789	788	587	1936	992	349	461	573	286	462	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	33.1	33.3	60.1	18.7	11.0	64.2	55.6	41.4	45.7	57.6	52.0
Incr Delay (d2), s/veh	0.3	11.4	11.8	9.0	0.7	0.3	4.6	3.0	0.9	1.2	12.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	22.5	22.8	7.1	8.3	1.9	3.3	6.3	5.4	3.7	10.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	44.5	45.2	69.1	19.4	11.3	68.9	58.6	42.2	47.0	70.2	52.8
LnGrp LOS	B	D	D	E	B	B	E	E	D	D	E	D
Approach Vol, veh/h		1448			1356			542			458	
Approach Delay, s/veh		43.1			32.4			56.4			61.1	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	83.3	16.4	28.0	23.9	71.6	15.9	28.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	6.6	58.6	13.6	35.6	23.6	41.6	14.6	34.6
Max Q Clear Time (g_c+I1), s	6.0	0.0	10.0	16.0	16.8	0.0	9.3	21.0
Green Ext Time (p_c), s	0.0	0.0	0.1	1.5	0.7	0.0	0.2	1.1

Intersection Summary	
HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1112	93	73	781	62	76	49	120	49	29	33
Future Volume (veh/h)	33	1112	93	73	781	62	76	49	120	49	29	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	35	1171	98	77	822	65	80	52	126	52	31	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	332	1162	1097	130	1376	1166	183	77	186	134	55	62
Arrive On Green	0.66	0.66	0.66	0.04	0.74	0.74	0.05	0.17	0.17	0.07	0.07	0.07
Sat Flow, veh/h	507	1767	1560	1810	1856	1572	1725	462	1119	1225	738	834
Grp Volume(v), veh/h	35	1171	98	77	822	65	80	0	178	52	0	66
Grp Sat Flow(s),veh/h/ln	507	1767	1560	1810	1856	1572	1725	0	1580	1225	0	1572
Q Serve(g_s), s	4.1	78.9	2.4	1.5	24.6	1.3	5.0	0.0	12.7	5.0	0.0	4.9
Cycle Q Clear(g_c), s	18.6	78.9	2.4	1.5	24.6	1.3	5.0	0.0	12.7	6.7	0.0	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.53
Lane Grp Cap(c), veh/h	332	1162	1097	130	1376	1166	183	0	263	134	0	118
V/C Ratio(X)	0.11	1.01	0.09	0.59	0.60	0.06	0.44	0.00	0.68	0.39	0.00	0.56
Avail Cap(c_a), veh/h	332	1162	1097	143	1376	1166	183	0	388	232	0	242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	20.6	5.6	32.4	7.2	4.2	47.0	0.0	47.0	55.3	0.0	53.6
Incr Delay (d2), s/veh	0.6	28.4	0.2	5.5	1.9	0.1	1.6	0.0	3.0	1.8	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	38.2	0.8	1.7	9.2	0.4	2.2	0.0	5.2	1.6	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	49.0	5.8	37.9	9.1	4.3	48.7	0.0	50.0	57.1	0.0	57.7
LnGrp LOS	B	F	A	D	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1304			964			258			118	
Approach Delay, s/veh		44.8			11.1			49.6			57.5	
Approach LOS		D			B			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		25.5	10.1	84.4	11.0	14.5		94.5				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		29.5	5.5	68.5	5.5	18.5		79.5				
Max Q Clear Time (g_c+I1), s		14.7	3.5	80.9	7.0	8.7		26.6				
Green Ext Time (p_c), s		0.8	0.0	0.0	0.0	0.3		8.1				

Intersection Summary	
HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	92	1091	357	801	130	168	172	175	117	247	71
Future Volume (vph)	92	1091	357	801	130	168	172	175	117	247	71
Turn Type	pm+pt	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	Prot
Protected Phases	1	6	5	2	3	7	4	5	3	8	8
Permitted Phases	6				2			4	8		
Detector Phase	1	6	5	2	3	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	13.0	48.0	30.0	65.0	20.0	21.0	42.0	30.0	20.0	41.0	41.0
Total Split (%)	9.3%	34.3%	21.4%	46.4%	14.3%	15.0%	30.0%	21.4%	14.3%	29.3%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

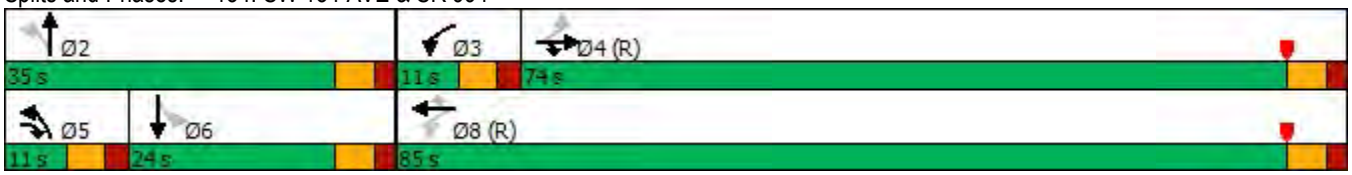
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	1112	93	73	781	62	76	49	49	29
Future Volume (vph)	33	1112	93	73	781	62	76	49	49	29
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		10.5	23.5	23.5	10.5	23.5	23.5	23.5
Total Split (s)	74.0	74.0		11.0	85.0	85.0	11.0	35.0	24.0	24.0
Total Split (%)	61.7%	61.7%		9.2%	70.8%	70.8%	9.2%	29.2%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

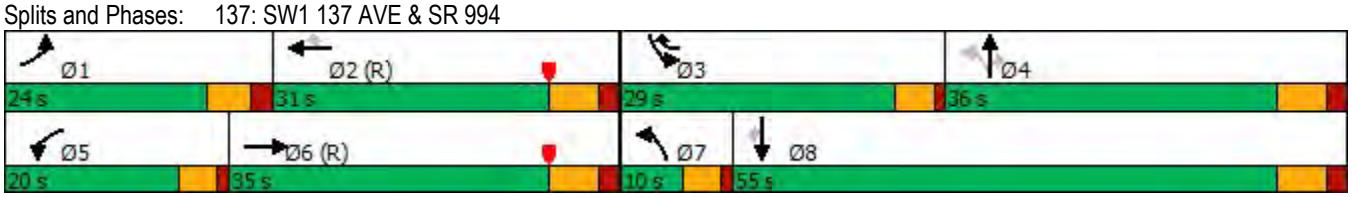


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	51	529	241	347	295	109	319	274	379	626	123
Future Volume (vph)	51	529	241	347	295	109	319	274	379	626	123
Turn Type	Prot	NA	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	7	4		3	8	
Permitted Phases					2	4		4			8
Detector Phase	1	6	5	2	3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	16.0	5.0	16.0	5.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	22.4	9.5	22.4	9.5	9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	24.0	35.0	20.0	31.0	29.0	10.0	36.0	36.0	29.0	55.0	55.0
Total Split (%)	20.0%	29.2%	16.7%	25.8%	24.2%	8.3%	30.0%	30.0%	24.2%	45.8%	45.8%
Yellow Time (s)	4.0	4.4	3.5	4.4	3.5	3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW1 137 AVE & SR 994



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	97	1351	376	843	137	177	181	184	123	260	75
v/c Ratio	0.29	1.02	0.76	0.49	0.13	0.62	0.55	0.29	0.40	0.78	0.17
Control Delay	17.9	69.7	68.1	26.2	2.4	71.4	57.6	8.6	37.8	70.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	69.7	68.1	26.2	2.4	71.4	57.6	8.6	37.8	70.0	0.9
Queue Length 50th (ft)	36	~683	172	265	0	81	152	28	83	228	0
Queue Length 95th (ft)	75	#997	219	373	30	120	216	69	121	309	0
Internal Link Dist (ft)		550		1328			526			1118	
Turn Bay Length (ft)	300		425		195	320		575	335		155
Base Capacity (vph)	331	1326	590	1733	1069	344	455	678	336	460	531
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	1.02	0.64	0.49	0.13	0.51	0.40	0.27	0.37	0.57	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	1171	98	77	822	65	80	178	52	66
v/c Ratio	0.11	1.01	0.08	0.46	0.60	0.05	0.47	0.56	0.49	0.47
Control Delay	21.7	61.3	7.0	21.4	10.3	1.2	51.3	27.0	66.6	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	61.3	7.0	21.4	10.3	1.2	51.3	27.0	66.6	38.5
Queue Length 50th (ft)	20	~1036	12	15	272	0	54	56	39	23
Queue Length 95th (ft)	m33	m#1027	m31	60	447	11	97	123	79	67
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	312	1154	1203	168	1380	1191	170	439	189	222
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	1.01	0.08	0.46	0.60	0.05	0.47	0.41	0.28	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	54	650	254	365	311	115	336	288	399	659	129
v/c Ratio	0.31	1.41	0.65	0.63	0.19	0.40	0.36	0.46	0.74	0.93	0.21
Control Delay	58.0	230.7	54.7	36.0	2.9	24.1	37.3	6.6	56.0	56.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	230.7	54.7	36.0	2.9	24.1	37.3	6.6	56.0	56.2	4.7
Queue Length 50th (ft)	21	~708	87	259	27	46	108	0	153	246	0
Queue Length 95th (ft)	42	#957	131	#380	29	80	159	69	199	#364	38
Internal Link Dist (ft)		1118		377			510			573	
Turn Bay Length (ft)	320		425		385	340		240	360		235
Base Capacity (vph)	452	461	443	575	1695	290	936	630	655	741	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	1.41	0.57	0.63	0.18	0.40	0.36	0.46	0.61	0.89	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1238	883	7	0	1
Future Vol, veh/h	0	1238	883	7	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1303	929	7	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	933
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.69
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.741
Pot Cap-1 Maneuver	0	-	-	-	0	265
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	265
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	265
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	18.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1270	76	26	1080	7	9	1	36	9	1	3
Future Vol, veh/h	2	1270	76	26	1080	7	9	1	36	9	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1337	80	27	1137	7	9	1	38	9	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1144	0	0	1417	0	0	2578	2579	1377	2596	2616	1141
Stage 1	-	-	-	-	-	-	1381	1381	-	1195	1195	-
Stage 2	-	-	-	-	-	-	1197	1198	-	1401	1421	-
Critical Hdwy	4.1	-	-	4.21	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.299	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	618	-	-	454	-	-	17	26	179	17	25	247
Stage 1	-	-	-	-	-	-	180	213	-	230	262	-
Stage 2	-	-	-	-	-	-	229	261	-	175	204	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	618	-	-	454	-	-	15	24	179	12	23	247
Mov Cap-2 Maneuver	-	-	-	-	-	-	15	24	-	12	23	-
Stage 1	-	-	-	-	-	-	179	212	-	229	247	-
Stage 2	-	-	-	-	-	-	212	246	-	137	203	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	111.5	$ 493.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	15	179	618	-	-	454	-	-	16
HCM Lane V/C Ratio	0.632	0.212	0.003	-	-	0.06	-	-	0.855
HCM Control Delay (s)	$ 436.1	30.4	10.8	-	-	13.4	-	-	$ 493.5
HCM Lane LOS	F	D	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.6	0.8	0	-	-	0.2	-	-	2.1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	28.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	1326	8	2	1067	37	2	1	2	20	4	67
Future Vol, veh/h	60	1326	8	2	1067	37	2	1	2	20	4	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	63	1396	8	2	1123	39	2	1	2	21	4	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1162	0	0	1404	0	0	2710	2692	1400	2675	2677	1143
Stage 1	-	-	-	-	-	-	1526	1526	-	1147	1147	-
Stage 2	-	-	-	-	-	-	1184	1166	-	1528	1530	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.3	3.581	4	3.318
Pot Cap-1 Maneuver	594	-	-	493	-	-	14	22	174	~ 14	22	244
Stage 1	-	-	-	-	-	-	149	182	-	235	276	-
Stage 2	-	-	-	-	-	-	233	270	-	141	181	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	594	-	-	493	-	-	8	20	174	~ 12	20	244
Mov Cap-2 Maneuver	-	-	-	-	-	-	8	20	-	~ 12	20	-
Stage 1	-	-	-	-	-	-	133	163	-	210	275	-
Stage 2	-	-	-	-	-	-	162	269	-	124	162	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	$ 315.9	$ 792.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	16	594	-	-	493	-	-	42
HCM Lane V/C Ratio	0.329	0.106	-	-	0.004	-	-	2.281
HCM Control Delay (s)	$ 315.9	11.8	-	-	12.3	-	-	$ 792.4
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.9	0.4	-	-	0	-	-	10.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	19.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1260	74	209	927	27	134
Future Vol, veh/h	1260	74	209	927	27	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1326	78	220	976	28	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1404	0	2781	1365
Stage 1	-	-	-	-	1365	-
Stage 2	-	-	-	-	1416	-
Critical Hdwy	-	-	4.16	-	6.45	6.24
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.254	-	3.545	3.336
Pot Cap-1 Maneuver	-	-	474	-	~ 20	178
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	221	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	474	-	~ 11	178
Mov Cap-2 Maneuver	-	-	-	-	~ 11	-
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	118	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.5	297.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	11	178	-	-	474	-
HCM Lane V/C Ratio	2.584	0.792	-	-	0.464	-
HCM Control Delay (s)	$ 1401	75.4	-	-	19	-
HCM Lane LOS	F	F	-	-	C	-
HCM 95th %tile Q(veh)	4.5	5.3	-	-	2.4	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	1268	912	16	37	3
Future Vol, veh/h	13	1268	912	16	37	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	14	1335	960	17	39	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	977	0	-	0	2332	969
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	1363	-
Critical Hdwy	4.1	-	-	-	6.64	6.2
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	2.2	-	-	-	3.716	3.3
Pot Cap-1 Maneuver	714	-	-	-	~ 35	310
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	213	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	714	-	-	-	~ 34	310
Mov Cap-2 Maneuver	-	-	-	-	~ 34	-
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	213	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	$ 375.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	36
HCM Lane V/C Ratio	0.019	-	-	-	1.17
HCM Control Delay (s)	10.1	-	-	-	$ 375.7
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	4.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑			↱
Traffic Vol, veh/h	0	1232	877	7	0	6
Future Vol, veh/h	0	1232	877	7	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1297	923	7	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	927
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	328
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	328
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	328
HCM Lane V/C Ratio	-	-	-	0.019
HCM Control Delay (s)	-	-	-	16.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1348	1084	7	0	22
Future Vol, veh/h	0	1348	1084	7	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1419	1141	7	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1145
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	245
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	245
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	21.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	245
HCM Lane V/C Ratio	-	-	-	0.095
HCM Control Delay (s)	-	-	-	21.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↱
Traffic Vol, veh/h	0	1334	940	13	0	6
Future Vol, veh/h	0	1334	940	13	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1404	989	14	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	996
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	299
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	299
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	299
HCM Lane V/C Ratio	-	-	-	0.021
HCM Control Delay (s)	-	-	-	17.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1292	13	40	907	22	43
Future Vol, veh/h	1292	13	40	907	22	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1360	14	42	955	23	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1374	0	2406	1367
Stage 1	-	-	-	-	1367	-
Stage 2	-	-	-	-	1039	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	484	-	36	180
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	341	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	484	-	33	180
Mov Cap-2 Maneuver	-	-	-	-	33	-
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	311	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	190.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	72	-	-	484	-
HCM Lane V/C Ratio	0.95	-	-	0.087	-
HCM Control Delay (s)	190.5	-	-	13.1	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	4.8	-	-	0.3	-

BUILD 2 2025

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	28.7	61.2	0.26	15.1	D
SW 127 AVE	III	30	90.9	33.3	124.2	0.76	21.9	C
Total	III		123.4	62.0	185.4	1.01	19.7	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	6.8	97.7	0.76	27.9	B
SW1 137 AVE	III	38	28.2	31.6	59.8	0.26	15.4	D
Total	III		119.1	38.4	157.5	1.01	23.2	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	519	79	219	379	243	105	417	181	177	283	97
Future Volume (vph)	71	519	79	219	379	243	105	417	181	177	283	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3180		3433	3282	2656	3433	1863	1583	3213	964	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3180		3433	3282	2656	3433	1863	1583	3213	964	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	546	83	231	399	256	111	439	191	186	298	102
RTOR Reduction (vph)	0	8	0	0	0	51	0	0	128	0	0	65
Lane Group Flow (vph)	75	621	0	231	399	205	111	439	63	186	298	37
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases						4			4			8
Actuated Green, G (s)	6.8	33.0		13.4	38.1	96.3	8.6	39.5	39.5	12.3	43.2	43.2
Effective Green, g (s)	6.8	33.0		13.4	38.1	96.3	8.6	39.5	39.5	12.3	43.2	43.2
Actuated g/C Ratio	0.06	0.28		0.11	0.32	0.80	0.07	0.33	0.33	0.10	0.36	0.36
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	171	874		383	1042	2131	246	613	521	329	347	496
v/s Ratio Prot	0.02	c0.20		c0.07	0.12	0.05	0.03	0.24		c0.06	c0.31	
v/s Ratio Perm						0.03			0.04			0.03
v/c Ratio	0.44	0.71		0.60	0.38	0.10	0.45	0.72	0.12	0.57	0.86	0.07
Uniform Delay, d1	54.8	39.2		50.8	31.8	2.5	53.4	35.3	28.1	51.3	35.6	25.2
Progression Factor	1.00	1.00		0.86	0.87	10.96	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	4.9		2.6	1.0	0.0	1.3	4.1	0.1	2.2	19.0	0.1
Delay (s)	56.1	44.1		46.1	28.7	27.8	54.8	39.4	28.2	53.5	54.5	25.3
Level of Service	E	D		D	C	C	D	D	C	D	D	C
Approach Delay (s)		45.3			33.0			38.9			49.1	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	1043	120	217	560	131	168	144	235	67	156	38
Future Volume (veh/h)	143	1043	120	217	560	131	168	144	235	67	156	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	151	1098	126	228	589	138	177	152	247	71	164	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	477	1762	727	283	1928	947	260	307	378	226	210	181
Arrive On Green	0.05	0.52	0.52	0.08	0.55	0.55	0.10	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	151	1098	126	228	589	138	177	152	247	71	164	40
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	5.6	32.2	6.7	9.0	12.7	5.4	12.3	10.7	20.5	4.9	11.9	3.2
Cycle Q Clear(g_c), s	5.6	32.2	6.7	9.0	12.7	5.4	12.3	10.7	20.5	4.9	11.9	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	477	1762	727	283	1928	947	260	307	378	226	210	181
V/C Ratio(X)	0.32	0.62	0.17	0.81	0.31	0.15	0.68	0.50	0.65	0.31	0.78	0.22
Avail Cap(c_a), veh/h	540	1762	727	438	1928	947	311	409	463	265	302	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	23.8	17.7	63.2	17.3	12.7	47.1	52.7	47.0	51.6	60.5	56.6
Incr Delay (d2), s/veh	0.3	1.7	0.5	4.9	0.4	0.3	3.9	1.5	2.7	0.6	9.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	13.2	2.3	4.2	5.3	2.0	5.6	5.0	8.0	2.2	6.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	25.5	18.2	68.2	17.7	13.0	51.0	54.2	49.8	52.2	69.5	57.3
LnGrp LOS	B	C	B	E	B	B	D	D	D	D	E	E
Approach Vol, veh/h		1375			955			576			275	
Approach Delay, s/veh		23.6			29.1			51.3			63.3	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	82.9	12.9	30.1	17.8	79.3	20.9	22.1
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	60.6	9.6	31.6	17.6	55.6	18.6	22.6
Max Q Clear Time (g_c+I1), s	7.6	0.0	6.9	22.5	11.0	8.7	14.3	13.9
Green Ext Time (p_c), s	0.1	0.0	0.0	1.2	0.3	0.0	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	823	42	79	765	53	51	19	111	65	42	28
Future Volume (veh/h)	20	823	42	79	765	53	51	19	111	65	42	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	21	866	44	83	805	56	54	20	117	68	44	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	389	2127	1046	446	2533	1130	207	24	142	167	103	68
Arrive On Green	0.63	0.63	0.63	0.04	0.72	0.72	0.04	0.11	0.11	0.04	0.11	0.11
Sat Flow, veh/h	520	3357	1560	1810	3526	1572	1725	225	1319	1810	969	638
Grp Volume(v), veh/h	21	866	44	83	805	56	54	0	137	68	0	73
Grp Sat Flow(s),veh/h/ln	520	1678	1560	1810	1763	1572	1725	0	1544	1810	0	1607
Q Serve(g_s), s	1.9	15.3	1.1	1.8	10.0	1.2	3.3	0.0	10.4	4.0	0.0	5.1
Cycle Q Clear(g_c), s	1.9	15.3	1.1	1.8	10.0	1.2	3.3	0.0	10.4	4.0	0.0	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.85	1.00		0.40
Lane Grp Cap(c), veh/h	389	2127	1046	446	2533	1130	207	0	166	167	0	172
V/C Ratio(X)	0.05	0.41	0.04	0.19	0.32	0.05	0.26	0.00	0.83	0.41	0.00	0.43
Avail Cap(c_a), veh/h	389	2127	1046	519	2533	1130	265	0	290	214	0	288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	10.9	6.7	7.5	6.2	4.9	45.5	0.0	52.4	45.3	0.0	50.1
Incr Delay (d2), s/veh	0.3	0.6	0.1	0.2	0.3	0.1	0.7	0.0	9.8	1.6	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.6	0.4	0.7	3.5	0.4	1.5	0.0	4.5	1.9	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	11.4	6.8	7.7	6.5	5.0	46.2	0.0	62.3	46.9	0.0	51.8
LnGrp LOS	A	B	A	A	A	A	D	A	E	D	A	D
Approach Vol, veh/h		931			944			191			141	
Approach Delay, s/veh		11.2			6.5			57.7			49.5	
Approach LOS		B			A			E			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	18.4	10.2	81.5	10.0	18.3		91.7
Change Period (Y+Rc), s	4.5	5.5	5.5	5.5	5.5	5.5		5.5
Max Green Setting (Gmax), s	8.5	22.5	9.5	58.5	8.5	21.5		73.5
Max Q Clear Time (g_c+I1), s	6.0	12.4	3.8	17.3	5.3	7.1		12.0
Green Ext Time (p_c), s	0.0	0.5	0.1	8.2	0.0	0.2		7.2

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1043	120	217	560	131	168	144	235	67	156	38
Future Volume (vph)	143	1043	120	217	560	131	168	144	235	67	156	38
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	62.0	62.0	24.0	67.0	16.0	25.0	38.0	24.0	16.0	29.0	29.0
Total Split (%)	13.6%	44.3%	44.3%	17.1%	47.9%	11.4%	17.9%	27.1%	17.1%	11.4%	20.7%	20.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

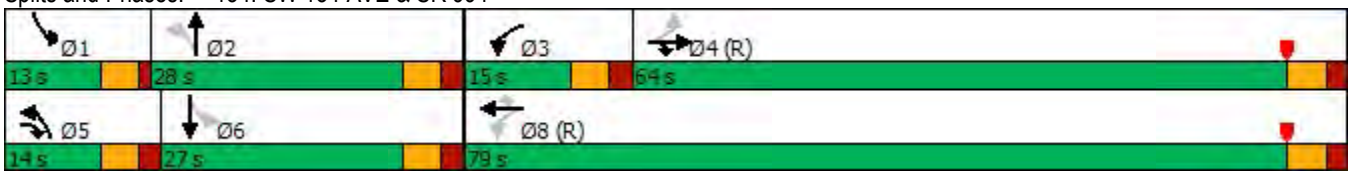
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	823	42	79	765	53	51	19	65	42
Future Volume (vph)	20	823	42	79	765	53	51	19	65	42
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases		4	4 5	3	8		5	2	1	6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		10.5	23.5	23.5	10.5	23.5	9.5	23.5
Total Split (s)	64.0	64.0		15.0	79.0	79.0	14.0	28.0	13.0	27.0
Total Split (%)	53.3%	53.3%		12.5%	65.8%	65.8%	11.7%	23.3%	10.8%	22.5%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	4.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

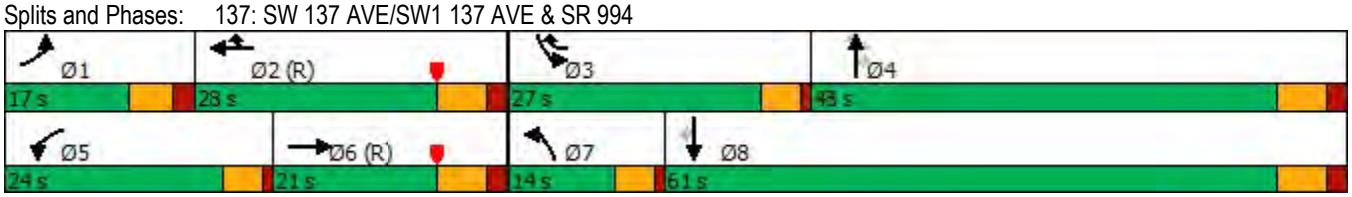


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	71	519	219	379	243	105	417	181	177	283	97
Future Volume (vph)	71	519	219	379	243	105	417	181	177	283	97
Turn Type	Prot	NA	Prot	NA	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases					4			4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	13.6	5.0	16.0		5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	20.0	9.5	22.4		9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	17.0	21.0	24.0	28.0		14.0	48.0	48.0	27.0	61.0	61.0
Total Split (%)	14.2%	17.5%	20.0%	23.3%		11.7%	40.0%	40.0%	22.5%	50.8%	50.8%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	151	1098	126	228	589	138	177	152	247	71	164	40
v/c Ratio	0.32	0.69	0.17	0.66	0.33	0.13	0.60	0.47	0.43	0.27	0.70	0.11
Control Delay	14.6	33.3	1.4	70.0	22.8	2.5	47.2	54.9	19.5	38.4	73.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	33.3	1.4	70.0	22.8	2.5	47.2	54.9	19.5	38.4	73.8	0.6
Queue Length 50th (ft)	56	412	0	104	168	0	126	124	87	47	145	0
Queue Length 95th (ft)	100	562	12	146	240	31	183	188	149	82	217	0
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	511	1588	748	435	1765	1040	315	404	605	276	300	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.69	0.17	0.52	0.33	0.13	0.56	0.38	0.41	0.26	0.55	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	866	44	83	805	56	54	137	68	73
v/c Ratio	0.06	0.41	0.04	0.19	0.31	0.05	0.27	0.58	0.35	0.54
Control Delay	27.8	28.7	8.5	6.8	6.8	1.5	41.8	22.7	43.4	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	28.7	8.5	6.8	6.8	1.5	41.8	22.7	43.4	51.0
Queue Length 50th (ft)	13	310	0	17	110	0	35	15	44	37
Queue Length 95th (ft)	m29	418	m15	39	164	12	68	75	80	84
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	338	2138	1201	472	2569	1166	214	365	204	260
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.41	0.04	0.18	0.31	0.05	0.25	0.38	0.33	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	629	231	399	256	111	439	191	186	298	102
v/c Ratio	0.38	0.71	0.60	0.37	0.11	0.45	0.72	0.29	0.57	0.86	0.17
Control Delay	58.8	46.2	49.9	31.6	3.0	59.2	41.4	3.6	57.9	57.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	46.2	49.9	31.6	3.0	59.2	41.4	3.6	57.9	57.9	0.8
Queue Length 50th (ft)	29	233	90	135	7	43	290	0	71	208	0
Queue Length 95th (ft)	53	#457	129	209	32	73	370	36	106	293	3
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	276	883	557	1076	2322	271	679	709	602	438	718
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.71	0.41	0.37	0.11	0.41	0.65	0.27	0.31	0.68	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	885	840	4	0	2
Future Vol, veh/h	0	885	840	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	932	884	4	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	444
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	450
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	450
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	450
HCM Lane V/C Ratio	-	-	-	0.005
HCM Control Delay (s)	-	-	-	13
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1196	7	18	797	3	29	2	60	6	1	2
Future Vol, veh/h	3	1196	7	18	797	3	29	2	60	6	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	3	1259	7	19	839	3	31	2	63	6	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	842	0	0	1266	0	0	1727	2149	633	1516	2151	421
Stage 1	-	-	-	-	-	-	1269	1269	-	879	879	-
Stage 2	-	-	-	-	-	-	458	880	-	637	1272	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	802	-	-	498	-	-	58	49	427	84	49	587
Stage 1	-	-	-	-	-	-	181	242	-	313	368	-
Stage 2	-	-	-	-	-	-	557	368	-	437	241	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	498	-	-	55	47	427	67	47	587
Mov Cap-2 Maneuver	-	-	-	-	-	-	55	47	-	67	47	-
Stage 1	-	-	-	-	-	-	180	241	-	312	354	-
Stage 2	-	-	-	-	-	-	532	354	-	368	240	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	53.3	56.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	427	802	-	-	498	-	-	79
HCM Lane V/C Ratio	0.555	0.148	0.004	-	-	0.038	-	-	0.12
HCM Control Delay (s)	132.7	14.9	9.5	-	-	12.5	-	-	56.7
HCM Lane LOS	F	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	2.2	0.5	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	1186	5	2	787	25	5	1	4	16	1	78
Future Vol, veh/h	130	1186	5	2	787	25	5	1	4	16	1	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	137	1248	5	2	828	26	5	1	4	17	1	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	854	0	0	1253	0	0	1944	2383	627	1744	2372	427
Stage 1	-	-	-	-	-	-	1525	1525	-	845	845	-
Stage 2	-	-	-	-	-	-	419	858	-	899	1527	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	769	-	-	562	-	-	40	35	431	51	35	576
Stage 1	-	-	-	-	-	-	126	182	-	309	382	-
Stage 2	-	-	-	-	-	-	588	376	-	286	181	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	769	-	-	562	-	-	29	29	431	42	29	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	29	29	-	42	29	-
Stage 1	-	-	-	-	-	-	104	150	-	254	380	-
Stage 2	-	-	-	-	-	-	501	374	-	231	149	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0	105.1	51.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	46	769	-	-	562	-	-	172
HCM Lane V/C Ratio	0.229	0.178	-	-	0.004	-	-	0.581
HCM Control Delay (s)	105.1	10.7	-	-	11.4	-	-	51.5
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.8	0.6	-	-	0	-	-	3.1

Intersection	
Int Delay, s/veh	4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1085	18	70	800	34	235
Future Vol, veh/h	1085	18	70	800	34	235
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1142	19	74	842	36	247

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1161	0	1721	581
Stage 1	-	-	-	-	1152	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	575	-	78	452
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	575	-	68	452
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	454	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	32.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	68	452	-	-	575	-
HCM Lane V/C Ratio	0.526	0.547	-	-	0.128	-
HCM Control Delay (s)	106	22.2	-	-	12.2	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	2.2	3.2	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	968	891	11	52	6
Future Vol, veh/h	31	968	891	11	52	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	33	1019	938	12	55	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	950	0	-	0	1520	475
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	576	-
Critical Hdwy	4.1	-	-	-	7.28	6.9
Critical Hdwy Stg 1	-	-	-	-	6.28	-
Critical Hdwy Stg 2	-	-	-	-	6.28	-
Follow-up Hdwy	2.2	-	-	-	3.74	3.3
Pot Cap-1 Maneuver	731	-	-	-	89	541
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	731	-	-	-	85	541
Mov Cap-2 Maneuver	-	-	-	-	85	-
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	98.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	731	-	-	-	93
HCM Lane V/C Ratio	0.045	-	-	-	0.656
HCM Control Delay (s)	10.2	-	-	-	98.4
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	3.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	877	837	5	0	4
Future Vol, veh/h	0	877	837	5	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	923	881	5	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	443
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	568
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	568
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	568
HCM Lane V/C Ratio	-	-	-	0.007
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1206	805	23	0	9
Future Vol, veh/h	0	1206	805	23	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1269	847	24	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	436
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	574
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	574
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	574
HCM Lane V/C Ratio	-	-	-	0.017
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1103	814	19	0	11
Future Vol, veh/h	0	1103	814	19	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1161	857	20	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	439
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	571
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	571
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	571
HCM Lane V/C Ratio	-	-	-	0.02
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	14.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1003	17	14	811	91	100
Future Vol, veh/h	1003	17	14	811	91	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1056	18	15	854	96	105

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1074	0	1522	537
Stage 1	-	-	-	-	1065	-
Stage 2	-	-	-	-	457	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	616	-	109	488
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	604	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	616	-	106	488
Mov Cap-2 Maneuver	-	-	-	-	106	-
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	590	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	155
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	180	-	-	616	-
HCM Lane V/C Ratio	1.117	-	-	0.024	-
HCM Control Delay (s)	155	-	-	11	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	10.1	-	-	0.1	-

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	17.4	49.9	0.26	18.5	C
SW 127 AVE	III	30	90.9	34.6	125.5	0.76	21.7	C
Total	III		123.4	52.0	175.4	1.01	20.8	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	6.4	97.3	0.76	28.0	B
SW1 137 AVE	III	38	28.2	36.8	65.0	0.26	14.2	D
Total	III		119.1	43.2	162.3	1.01	22.5	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	535	71	178	327	180	87	256	214	237	501	98
Future Volume (vph)	43	535	71	178	327	180	87	256	214	237	501	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3181		3433	3282	2656	3433	1863	1583	3213	964	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.33	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3181		3433	3282	2656	1181	1863	1583	3213	964	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	563	75	187	344	189	92	269	225	249	527	103
RTOR Reduction (vph)	0	8	0	0	0	109	0	0	138	0	0	57
Lane Group Flow (vph)	45	630	0	187	344	80	92	269	87	249	527	46
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pt+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases							4		4			8
Actuated Green, G (s)	5.7	25.2		11.9	29.9	51.0	54.0	46.4	46.4	14.7	53.5	53.5
Effective Green, g (s)	5.7	25.2		11.9	29.9	51.0	54.0	46.4	46.4	14.7	53.5	53.5
Actuated g/C Ratio	0.05	0.21		0.10	0.25	0.42	0.45	0.39	0.39	0.12	0.45	0.45
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	143	668		340	817	1128	674	720	612	393	429	615
v/s Ratio Prot	0.01	c0.20		c0.05	0.10	0.03	0.01	0.14		c0.08	c0.55	
v/s Ratio Perm							0.05		0.05			0.03
v/c Ratio	0.31	0.94		0.55	0.42	0.07	0.14	0.37	0.14	0.63	1.23	0.07
Uniform Delay, d1	55.3	46.7		51.5	37.8	20.5	19.5	26.4	23.9	50.1	33.2	19.1
Progression Factor	1.00	1.00		0.90	0.93	3.85	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	23.4		1.9	1.6	0.0	0.1	0.4	0.1	3.3	121.8	0.1
Delay (s)	56.2	70.1		48.4	36.5	78.7	19.6	26.8	24.0	53.4	155.1	19.1
Level of Service	E	E		D	D	E	B	C	C	D	F	B
Approach Delay (s)		69.2			50.7			24.6			110.4	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	68.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	892	155	286	641	104	134	138	140	94	198	57
Future Volume (veh/h)	74	892	155	286	641	104	134	138	140	94	198	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	78	939	163	301	675	109	141	145	147	99	208	60
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	431	1694	699	355	2002	1006	220	278	385	247	243	209
Arrive On Green	0.03	0.50	0.50	0.10	0.57	0.57	0.08	0.15	0.15	0.06	0.13	0.13
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	78	939	163	301	675	109	141	145	147	99	208	60
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	3.0	26.9	9.2	11.9	14.3	3.8	9.8	10.3	11.2	6.7	15.2	4.7
Cycle Q Clear(g_c), s	3.0	26.9	9.2	11.9	14.3	3.8	9.8	10.3	11.2	6.7	15.2	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	431	1694	699	355	2002	1006	220	278	385	247	243	209
V/C Ratio(X)	0.18	0.55	0.23	0.85	0.34	0.11	0.64	0.52	0.38	0.40	0.86	0.29
Avail Cap(c_a), veh/h	529	1694	699	463	2002	1006	279	409	495	387	462	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	24.2	19.8	61.8	16.2	10.3	48.0	54.6	43.0	48.7	59.6	55.0
Incr Delay (d2), s/veh	0.1	1.3	0.8	10.1	0.5	0.2	2.4	1.8	0.7	0.8	9.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	11.1	3.2	5.8	5.9	1.4	4.4	4.9	4.3	3.0	7.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	25.5	20.6	71.9	16.6	10.5	50.4	56.4	43.8	49.4	69.5	55.9
LnGrp LOS	B	C	C	E	B	B	D	E	D	D	E	E
Approach Vol, veh/h		1180			1085			433			367	
Approach Delay, s/veh		24.2			31.3			50.2			61.9	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	85.9	15.0	27.9	20.7	76.5	18.3	24.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	50.6	19.6	31.6	18.6	44.6	16.6	34.6
Max Q Clear Time (g_c+I1), s	5.0	0.0	8.7	13.2	13.9	11.2	11.8	17.2
Green Ext Time (p_c), s	0.1	0.0	0.1	1.1	0.4	0.0	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	909	55	58	625	49	41	39	96	38	23	26
Future Volume (veh/h)	26	909	55	58	625	49	41	39	96	38	23	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	27	957	58	61	658	52	43	41	101	40	24	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	474	2320	1128	446	2726	1216	149	62	152	123	43	48
Arrive On Green	0.69	0.69	0.69	0.04	0.77	0.77	0.03	0.14	0.14	0.06	0.06	0.06
Sat Flow, veh/h	599	3357	1560	1810	3526	1572	1725	456	1123	1266	740	832
Grp Volume(v), veh/h	27	957	58	61	658	52	43	0	142	40	0	51
Grp Sat Flow(s),veh/h/ln	599	1678	1560	1810	1763	1572	1725	0	1579	1266	0	1572
Q Serve(g_s), s	1.7	14.8	1.3	1.1	6.2	0.9	2.7	0.0	10.3	3.7	0.0	3.8
Cycle Q Clear(g_c), s	1.7	14.8	1.3	1.1	6.2	0.9	2.7	0.0	10.3	4.7	0.0	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.53
Lane Grp Cap(c), veh/h	474	2320	1128	446	2726	1216	149	0	213	123	0	90
V/C Ratio(X)	0.06	0.41	0.05	0.14	0.24	0.04	0.29	0.00	0.67	0.33	0.00	0.56
Avail Cap(c_a), veh/h	474	2320	1128	494	2726	1216	302	0	507	245	0	242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	8.0	4.8	5.4	3.8	3.2	49.3	0.0	49.3	56.0	0.0	55.1
Incr Delay (d2), s/veh	0.2	0.5	0.1	0.1	0.2	0.1	1.1	0.0	3.6	1.5	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.1	0.4	0.4	2.0	0.3	1.2	0.0	4.3	1.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	8.5	4.9	5.5	4.0	3.3	50.4	0.0	52.9	57.5	0.0	60.5
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1042			771			185			91	
Approach Delay, s/veh		8.3			4.1			52.3			59.2	
Approach LOS		A			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		21.7	9.8	88.5	9.3	12.4		98.3				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		38.5	7.5	57.5	14.5	18.5		70.5				
Max Q Clear Time (g_c+I1), s		12.3	3.1	16.8	4.7	6.7		8.2				
Green Ext Time (p_c), s		0.8	0.0	9.4	0.0	0.2		5.6				

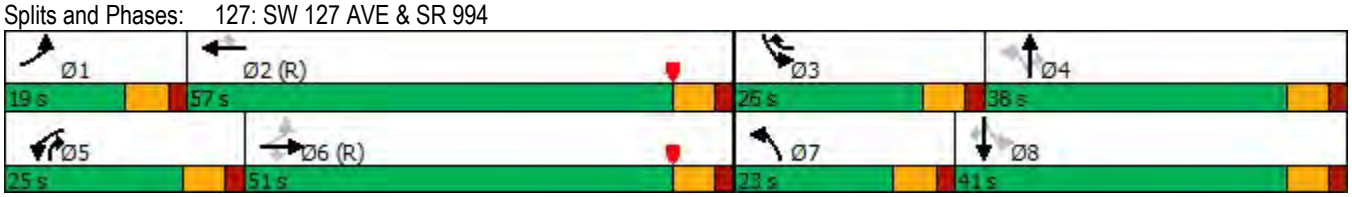
Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	892	155	286	641	104	134	138	140	94	198	57
Future Volume (vph)	74	892	155	286	641	104	134	138	140	94	198	57
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	51.0	51.0	25.0	57.0	26.0	23.0	38.0	25.0	26.0	41.0	41.0
Total Split (%)	13.6%	36.4%	36.4%	17.9%	40.7%	18.6%	16.4%	27.1%	17.9%	18.6%	29.3%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

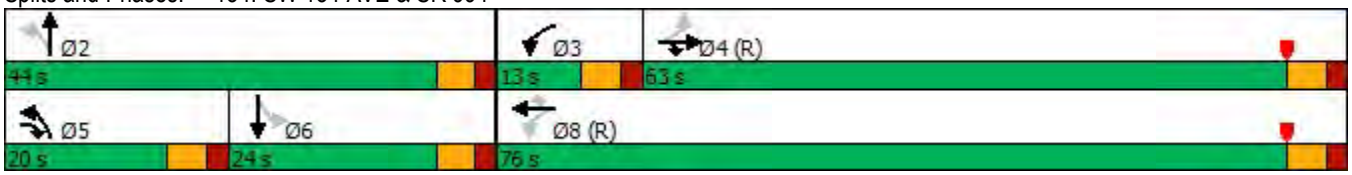


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	26	909	55	58	625	49	41	39	38	23
Future Volume (vph)	26	909	55	58	625	49	41	39	38	23
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		10.5	23.5	23.5	10.5	23.5	23.5	23.5
Total Split (s)	63.0	63.0		13.0	76.0	76.0	20.0	44.0	24.0	24.0
Total Split (%)	52.5%	52.5%		10.8%	63.3%	63.3%	16.7%	36.7%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

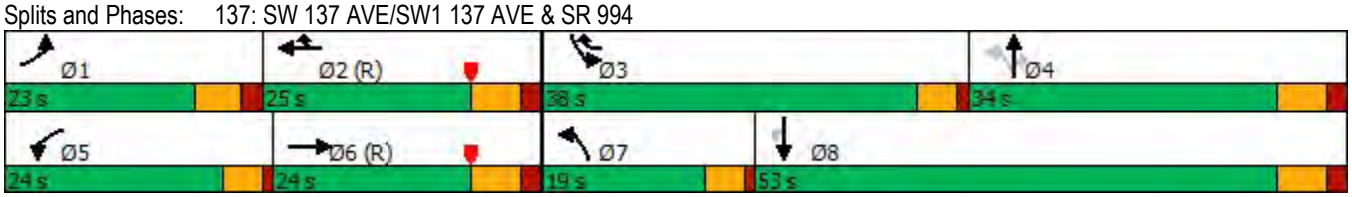


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	43	535	178	327	180	87	256	214	237	501	98
Future Volume (vph)	43	535	178	327	180	87	256	214	237	501	98
Turn Type	Prot	NA	Prot	NA	pt+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases						4		4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	4.0	5.0	16.0		2.5	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	10.4	9.5	22.4		7.0	13.4	13.4	9.5	13.4	13.4
Total Split (s)	23.0	24.0	24.0	25.0		19.0	34.0	34.0	38.0	53.0	53.0
Total Split (%)	19.2%	20.0%	20.0%	20.8%		15.8%	28.3%	28.3%	31.7%	44.2%	44.2%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	939	163	301	675	109	141	145	147	99	208	60
v/c Ratio	0.19	0.63	0.24	0.72	0.38	0.10	0.53	0.46	0.24	0.31	0.73	0.17
Control Delay	15.1	34.6	7.9	69.2	23.1	2.5	43.4	55.8	4.8	37.5	71.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	34.6	7.9	69.2	23.1	2.5	43.4	55.8	4.8	37.5	71.2	1.0
Queue Length 50th (ft)	28	345	13	138	192	0	98	120	0	67	183	0
Queue Length 95th (ft)	60	497	69	182	284	26	142	181	42	104	257	0
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	474	1485	689	474	1787	1145	297	404	628	423	460	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.63	0.24	0.64	0.38	0.10	0.47	0.36	0.23	0.23	0.45	0.12

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	957	58	61	658	52	43	142	40	51
v/c Ratio	0.07	0.44	0.05	0.15	0.26	0.04	0.21	0.41	0.41	0.42
Control Delay	11.3	17.4	5.5	6.8	6.4	0.9	40.3	17.0	64.3	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	17.4	5.5	6.8	6.4	0.9	40.3	17.0	64.3	39.7
Queue Length 50th (ft)	11	381	11	12	82	0	28	27	30	18
Queue Length 95th (ft)	m23	m428	m24	31	133	8	57	80	65	58
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	394	2153	1273	415	2572	1170	261	547	195	215
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.44	0.05	0.15	0.26	0.04	0.16	0.26	0.21	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	638	187	344	189	92	269	225	249	527	103
v/c Ratio	0.27	0.94	0.55	0.40	0.15	0.13	0.37	0.30	0.64	1.23	0.15
Control Delay	57.7	69.8	52.5	36.8	12.0	13.0	29.0	4.5	57.3	152.8	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	69.8	52.5	36.8	12.0	13.0	29.0	4.5	57.3	152.8	2.5
Queue Length 50th (ft)	17	254	73	122	7	15	148	0	95	~504	0
Queue Length 95th (ft)	37	#409	108	173	53	27	234	53	134	#726	22
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	427	676	557	850	1609	890	720	750	896	429	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.94	0.34	0.40	0.12	0.10	0.37	0.30	0.28	1.23	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	990	686	6	0	1
Future Vol, veh/h	0	990	686	6	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1042	722	6	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	364
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	515
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	515
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	515
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	12
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1036	60	21	864	5	7	1	29	7	1	2
Future Vol, veh/h	2	1036	60	21	864	5	7	1	29	7	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1091	63	22	909	5	7	1	31	7	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	914	0	0	1154	0	0	1626	2085	577	1506	2114	457
Stage 1	-	-	-	-	-	-	1127	1127	-	956	956	-
Stage 2	-	-	-	-	-	-	499	958	-	550	1158	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	754	-	-	552	-	-	69	54	465	85	51	556
Stage 1	-	-	-	-	-	-	221	282	-	281	339	-
Stage 2	-	-	-	-	-	-	527	338	-	492	273	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	754	-	-	552	-	-	65	52	465	76	49	556
Mov Cap-2 Maneuver	-	-	-	-	-	-	65	52	-	76	49	-
Stage 1	-	-	-	-	-	-	220	281	-	280	325	-
Stage 2	-	-	-	-	-	-	502	324	-	457	272	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	23.8	52.6
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	65	465	754	-	-	552	-	-	86
HCM Lane V/C Ratio	0.113	0.066	0.003	-	-	0.04	-	-	0.122
HCM Control Delay (s)	67.3	13.3	9.8	-	-	11.8	-	-	52.6
HCM Lane LOS	F	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.4	0.2	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	1080	6	2	854	29	2	1	2	16	3	53
Future Vol, veh/h	48	1080	6	2	854	29	2	1	2	16	3	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	51	1137	6	2	899	31	2	1	2	17	3	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	930	0	0	1143	0	0	1697	2176	572	1590	2164	465
Stage 1	-	-	-	-	-	-	1242	1242	-	919	919	-
Stage 2	-	-	-	-	-	-	455	934	-	671	1245	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	719	-	-	619	-	-	61	47	468	67	48	544
Stage 1	-	-	-	-	-	-	188	249	-	278	353	-
Stage 2	-	-	-	-	-	-	560	347	-	396	248	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	719	-	-	619	-	-	49	44	468	62	44	544
Mov Cap-2 Maneuver	-	-	-	-	-	-	49	44	-	62	44	-
Stage 1	-	-	-	-	-	-	175	231	-	258	352	-
Stage 2	-	-	-	-	-	-	496	346	-	365	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	57.3	42.2
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	74	719	-	-	619	-	-	170
HCM Lane V/C Ratio	0.071	0.07	-	-	0.003	-	-	0.446
HCM Control Delay (s)	57.3	10.4	-	-	10.8	-	-	42.2
HCM Lane LOS	F	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	2.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1028	59	167	742	21	107
Future Vol, veh/h	1028	59	167	742	21	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1082	62	176	781	22	113

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1144	0	1856	572
Stage 1	-	-	-	-	1113	-
Stage 2	-	-	-	-	743	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	584	-	63	458
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	423	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	584	-	44	458
Mov Cap-2 Maneuver	-	-	-	-	44	-
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	296	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	37.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	44	458	-	-	584	-
HCM Lane V/C Ratio	0.502	0.246	-	-	0.301	-
HCM Control Delay (s)	151	15.4	-	-	13.8	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	1.8	1	-	-	1.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1033	729	13	30	2
Future Vol, veh/h	10	1033	729	13	30	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	11	1087	767	14	32	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	781	0	-	0	1340	391
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	566	-
Critical Hdwy	4.1	-	-	-	7.28	6.9
Critical Hdwy Stg 1	-	-	-	-	6.28	-
Critical Hdwy Stg 2	-	-	-	-	6.28	-
Follow-up Hdwy	2.2	-	-	-	3.74	3.3
Pot Cap-1 Maneuver	845	-	-	-	119	614
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	474	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	845	-	-	-	117	614
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	358	-
Stage 2	-	-	-	-	474	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	45
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	845	-	-	-	123
HCM Lane V/C Ratio	0.012	-	-	-	0.274
HCM Control Delay (s)	9.3	-	-	-	45
HCM Lane LOS	A	-	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	986	681	6	0	5
Future Vol, veh/h	0	986	681	6	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1038	717	6	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	362
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	641
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	641
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	641
HCM Lane V/C Ratio	-	-	-	0.008
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1098	868	6	0	17
Future Vol, veh/h	0	1098	868	6	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1156	914	6	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	460
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	554
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	554
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	554
HCM Lane V/C Ratio	-	-	-	0.032
HCM Control Delay (s)	-	-	-	11.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	1086	752	11	0	5
Future Vol, veh/h	0	1086	752	11	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1143	792	12	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	402
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	604
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	604
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	604
HCM Lane V/C Ratio	-	-	-	0.009
HCM Control Delay (s)	-	-	-	11
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1052	11	32	725	17	34
Future Vol, veh/h	1052	11	32	725	17	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1107	12	34	763	18	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1119	0	1563	560
Stage 1	-	-	-	-	1113	-
Stage 2	-	-	-	-	450	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	592	-	102	472
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	592	-	96	472
Mov Cap-2 Maneuver	-	-	-	-	96	-
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	28.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	205	-	-	592	-
HCM Lane V/C Ratio	0.262	-	-	0.057	-
HCM Control Delay (s)	28.7	-	-	11.4	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	1	-	-	0.2	-

BUILD 2 2045

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	30.4	62.9	0.26	14.7	D
SW 127 AVE	III	30	90.9	45.5	136.4	0.76	20.0	C
Total	III		123.4	75.9	199.3	1.01	18.3	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	10.4	101.3	0.76	26.9	B
SW1 137 AVE	III	38	28.2	23.6	51.8	0.26	17.8	D
Total	III		119.1	34.0	153.1	1.01	23.8	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	562	98	278	413	383	131	521	242	292	353	121
Future Volume (vph)	84	562	98	278	413	383	131	521	242	292	353	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3178		3433	3282	2656	3433	3539	1583	3213	1832	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3178		3433	3282	2656	3433	3539	1583	3213	1832	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	592	103	293	435	403	138	548	255	307	372	127
RTOR Reduction (vph)	0	10	0	0	0	24	0	0	174	0	0	92
Lane Group Flow (vph)	88	685	0	293	435	379	138	548	81	307	372	35
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases						4			4			8
Actuated Green, G (s)	8.3	40.5		15.3	46.0	94.8	9.5	25.4	25.4	17.0	32.9	32.9
Effective Green, g (s)	8.3	40.5		15.3	46.0	94.8	9.5	25.4	25.4	17.0	32.9	32.9
Actuated g/C Ratio	0.07	0.34		0.13	0.38	0.79	0.08	0.21	0.21	0.14	0.27	0.27
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	208	1072		437	1258	2098	271	749	335	455	502	378
v/s Ratio Prot	0.03	c0.22		c0.09	0.13	0.10	0.04	0.15		c0.10	c0.20	
v/s Ratio Perm						0.04			0.05			0.03
v/c Ratio	0.42	0.64		0.67	0.35	0.18	0.51	0.73	0.24	0.67	0.74	0.09
Uniform Delay, d1	53.6	33.6		49.9	26.3	3.1	53.0	44.1	39.3	48.9	39.7	32.4
Progression Factor	1.00	1.00		0.81	0.80	3.41	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	2.9		3.7	0.7	0.0	1.5	3.8	0.4	3.9	6.0	0.1
Delay (s)	54.6	36.5		44.1	21.8	10.6	54.5	47.9	39.7	52.8	45.7	32.6
Level of Service	D	D		D	C	B	D	D	D	D	D	C
Approach Delay (s)		38.5			23.6			46.7			46.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1284	150	271	701	164	210	180	294	84	195	47
Future Volume (veh/h)	179	1284	150	271	701	164	210	180	294	84	195	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	188	1352	158	285	738	173	221	189	309	88	205	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	392	1571	648	339	1731	871	290	365	451	246	257	221
Arrive On Green	0.07	0.46	0.46	0.10	0.49	0.49	0.12	0.20	0.20	0.05	0.14	0.14
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	188	1352	158	285	738	173	221	189	309	88	205	49
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	7.8	49.9	9.6	11.3	18.9	7.7	15.0	13.0	25.3	5.9	14.9	3.8
Cycle Q Clear(g_c), s	7.8	49.9	9.6	11.3	18.9	7.7	15.0	13.0	25.3	5.9	14.9	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	1571	648	339	1731	871	290	365	451	246	257	221
V/C Ratio(X)	0.48	0.86	0.24	0.84	0.43	0.20	0.76	0.52	0.69	0.36	0.80	0.22
Avail Cap(c_a), veh/h	427	1571	648	438	1731	871	290	409	488	246	302	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	33.5	22.7	62.1	22.9	16.2	44.1	49.8	43.3	48.2	58.5	53.7
Incr Delay (d2), s/veh	0.7	6.4	0.9	10.2	0.8	0.5	10.9	1.4	3.9	0.7	12.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	21.6	3.4	5.5	8.1	3.0	7.3	6.1	10.0	2.7	8.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	39.9	23.6	72.4	23.7	16.7	55.0	51.2	47.2	48.9	71.4	54.4
LnGrp LOS	B	D	C	E	C	B	D	D	D	D	E	D
Approach Vol, veh/h		1698			1196			719			342	
Approach Delay, s/veh		36.0			34.3			50.6			63.1	
Approach LOS		D			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	75.1	14.0	34.6	20.0	71.4	23.0	25.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	62.6	7.6	31.6	17.6	57.6	16.6	22.6
Max Q Clear Time (g_c+I1), s	9.8	0.0	7.9	27.3	13.3	11.6	17.0	16.9
Green Ext Time (p_c), s	0.1	0.0	0.0	0.9	0.3	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1009	73	98	957	66	85	23	139	81	52	35
Future Volume (veh/h)	25	1009	73	98	957	66	85	23	139	81	52	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	26	1062	77	103	1007	69	89	24	146	85	55	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	328	2211	1121	384	2597	1158	209	41	250	169	88	59
Arrive On Green	0.66	0.66	0.66	0.04	0.74	0.74	0.06	0.19	0.19	0.09	0.09	0.09
Sat Flow, veh/h	425	3357	1560	1810	3526	1572	1725	218	1325	1234	960	646
Grp Volume(v), veh/h	26	1062	77	103	1007	69	89	0	170	85	0	92
Grp Sat Flow(s),veh/h/ln	425	1678	1560	1810	1763	1572	1725	0	1543	1234	0	1606
Q Serve(g_s), s	2.9	19.0	1.8	2.1	12.6	1.5	5.4	0.0	12.1	8.1	0.0	6.6
Cycle Q Clear(g_c), s	6.2	19.0	1.8	2.1	12.6	1.5	5.4	0.0	12.1	8.5	0.0	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.40
Lane Grp Cap(c), veh/h	328	2211	1121	384	2597	1158	209	0	291	169	0	146
V/C Ratio(X)	0.08	0.48	0.07	0.27	0.39	0.06	0.43	0.00	0.58	0.50	0.00	0.63
Avail Cap(c_a), veh/h	328	2211	1121	470	2597	1158	371	0	546	257	0	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	10.2	5.0	7.4	5.8	4.4	44.2	0.0	44.4	53.6	0.0	52.6
Incr Delay (d2), s/veh	0.5	0.8	0.1	0.4	0.4	0.1	1.4	0.0	1.9	2.3	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.8	0.6	0.8	4.3	0.5	2.4	0.0	4.8	2.6	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	11.0	5.1	7.8	6.3	4.5	45.5	0.0	46.3	55.9	0.0	56.9
LnGrp LOS	A	B	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1165			1179			259			177	
Approach Delay, s/veh		10.5			6.3			46.0			56.5	
Approach LOS		B			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		27.1	9.3	83.5	11.7	15.4		92.9				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5	10.5	53.5	18.5	19.5		68.5				
Max Q Clear Time (g_c+I1), s		14.1	4.1	21.0	7.4	10.5		14.6				
Green Ext Time (p_c), s		1.1	0.1	10.5	0.1	0.5		9.9				

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	1284	150	271	701	164	210	180	294	84	195	47
Future Volume (vph)	179	1284	150	271	701	164	210	180	294	84	195	47
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	64.0	64.0	24.0	69.0	14.0	23.0	38.0	24.0	14.0	29.0	29.0
Total Split (%)	13.6%	45.7%	45.7%	17.1%	49.3%	10.0%	16.4%	27.1%	17.1%	10.0%	20.7%	20.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

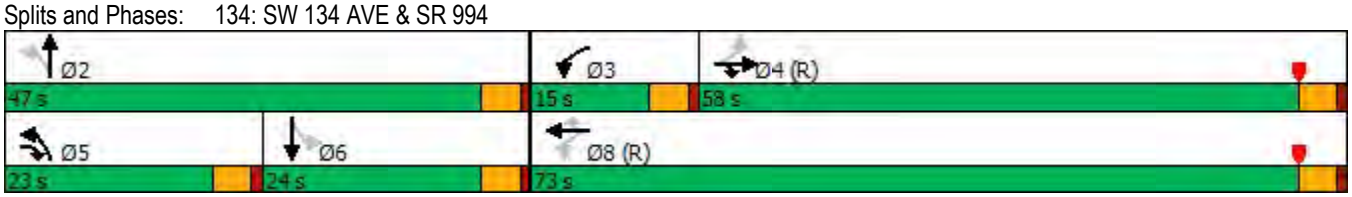
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	25	1009	73	98	957	66	85	23	81	52
Future Volume (vph)	25	1009	73	98	957	66	85	23	81	52
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	58.0	58.0		15.0	73.0	73.0	23.0	47.0	24.0	24.0
Total Split (%)	48.3%	48.3%		12.5%	60.8%	60.8%	19.2%	39.2%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

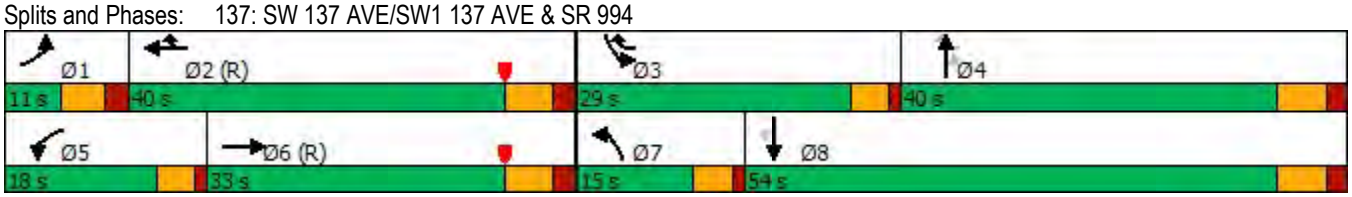


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	84	562	278	413	383	131	521	242	292	353	121
Future Volume (vph)	84	562	278	413	383	131	521	242	292	353	121
Turn Type	Prot	NA	Prot	NA	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases					4			4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	13.6	5.0	16.0		5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	20.0	9.5	22.4		9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	11.0	33.0	18.0	40.0		15.0	40.0	40.0	29.0	54.0	54.0
Total Split (%)	9.2%	27.5%	15.0%	33.3%		12.5%	33.3%	33.3%	24.2%	45.0%	45.0%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	188	1352	158	285	738	173	221	189	309	88	205	49
v/c Ratio	0.47	0.90	0.22	0.74	0.44	0.17	0.79	0.52	0.53	0.34	0.78	0.13
Control Delay	17.5	45.5	3.2	72.1	25.6	2.5	59.1	54.6	28.8	40.0	78.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	45.5	3.2	72.1	25.6	2.5	59.1	54.6	28.8	40.0	78.4	0.7
Queue Length 50th (ft)	74	610	0	130	235	0	159	153	162	58	181	0
Queue Length 95th (ft)	117	#801	34	179	301	34	#249	230	246	100	268	0
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	422	1504	717	435	1693	1004	286	404	607	263	300	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.90	0.22	0.66	0.44	0.17	0.77	0.47	0.51	0.33	0.68	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	1062	77	103	1007	69	89	170	85	92
v/c Ratio	0.11	0.56	0.07	0.31	0.42	0.06	0.30	0.37	0.61	0.53
Control Delay	23.9	30.4	8.1	10.5	10.4	2.4	36.2	9.5	68.2	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	30.4	8.1	10.5	10.4	2.4	36.2	9.5	68.2	47.1
Queue Length 50th (ft)	13	432	4	25	168	0	55	14	64	50
Queue Length 95th (ft)	m35	518	m49	58	275	19	89	62	113	100
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	246	1898	1205	366	2376	1085	341	604	200	238
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.56	0.06	0.28	0.42	0.06	0.26	0.28	0.42	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	695	293	435	403	138	548	255	307	372	127
v/c Ratio	0.43	0.64	0.67	0.35	0.18	0.51	0.73	0.50	0.67	0.74	0.25
Control Delay	59.7	38.4	47.7	23.6	5.4	59.5	49.9	11.0	56.1	48.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	38.4	47.7	23.6	5.4	59.5	49.9	11.0	56.1	48.3	2.8
Queue Length 50th (ft)	34	232	111	132	57	53	210	22	118	140	0
Queue Length 95th (ft)	61	#405	135	204	107	87	254	90	158	173	20
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	207	1083	447	1259	2195	300	990	602	655	726	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.64	0.66	0.35	0.18	0.46	0.55	0.42	0.47	0.51	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	1107	1072	5	0	3
Future Vol, veh/h	0	1107	1072	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1165	1128	5	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	567
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	365
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	365
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	365
HCM Lane V/C Ratio	-	-	-	0.009
HCM Control Delay (s)	-	-	-	14.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1472	8	22	996	3	36	0	75	8	1	3
Future Vol, veh/h	4	1472	8	22	996	3	36	0	75	8	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	4	1549	8	23	1048	3	38	0	79	8	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1051	0	0	1557	0	0	2132	-	779	1879	2661	526
Stage 1	-	-	-	-	-	-	1561	-	-	1096	1096	-
Stage 2	-	-	-	-	-	-	571	-	-	783	1565	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	670	-	-	380	-	-	~ 29	0	343	45	23	502
Stage 1	-	-	-	-	-	-	119	0	-	231	292	-
Stage 2	-	-	-	-	-	-	478	0	-	357	174	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	670	-	-	380	-	-	~ 26	-	343	33	21	502
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 26	-	-	33	21	-
Stage 1	-	-	-	-	-	-	118	-	-	230	274	-
Stage 2	-	-	-	-	-	-	445	-	-	273	173	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	195.7	127.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	26	343	670	-	-	380	-	-	41
HCM Lane V/C Ratio	1.457	0.23	0.006	-	-	0.061	-	-	0.308
HCM Control Delay (s)	$ 564.8	18.6	10.4	-	-	15.1	-	-	127.9
HCM Lane LOS	F	C	B	-	-	C	-	-	F
HCM 95th %tile Q(veh)	4.6	0.9	0	-	-	0.2	-	-	1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	19.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	162	1462	6	2	984	32	6	1	5	20	1	98
Future Vol, veh/h	162	1462	6	2	984	32	6	1	5	20	1	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	171	1539	6	2	1036	34	6	1	5	21	1	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1070	0	0	1545	0	0	2407	2958	773	2169	2944	535
Stage 1	-	-	-	-	-	-	1884	1884	-	1057	1057	-
Stage 2	-	-	-	-	-	-	523	1074	-	1112	1887	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	635	-	-	435	-	-	18	15	346	24	15	490
Stage 1	-	-	-	-	-	-	75	121	-	228	304	-
Stage 2	-	-	-	-	-	-	510	299	-	211	120	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	635	-	-	435	-	-	10	11	346	~ 17	11	490
Mov Cap-2 Maneuver	-	-	-	-	-	-	10	11	-	~ 17	11	-
Stage 1	-	-	-	-	-	-	55	88	-	167	302	-
Stage 2	-	-	-	-	-	-	399	298	-	150	88	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	$ 431.3	$ 387
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	17	635	-	-	435	-	-	81
HCM Lane V/C Ratio	0.743	0.269	-	-	0.005	-	-	1.546
HCM Control Delay (s)	$ 431.3	12.7	-	-	13.3	-	-	$ 387
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.9	1.1	-	-	0	-	-	10.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	12.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1337	22	88	999	42	294
Future Vol, veh/h	1337	22	88	999	42	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1407	23	93	1052	44	309

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1430	0	2131	715
Stage 1	-	-	-	-	1419	-
Stage 2	-	-	-	-	712	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	451	-	~ 41	369
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	439	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	451	-	~ 33	369
Mov Cap-2 Maneuver	-	-	-	-	~ 33	-
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	349	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	100.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	33	369	-	-	451	-
HCM Lane V/C Ratio	1.34	0.839	-	-	0.205	-
HCM Control Delay (s)	$ 458.1	49.2	-	-	15	-
HCM Lane LOS	F	E	-	-	C	-
HCM 95th %tile Q(veh)	4.8	7.7	-	-	0.8	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	1190	1114	13	65	7
Future Vol, veh/h	39	1190	1114	13	65	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	41	1253	1173	14	68	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1187	0	-	0	1889	594
Stage 1	-	-	-	-	1180	-
Stage 2	-	-	-	-	709	-
Critical Hdwy	4.1	-	-	-	7.28	6.9
Critical Hdwy Stg 1	-	-	-	-	6.28	-
Critical Hdwy Stg 2	-	-	-	-	6.28	-
Follow-up Hdwy	2.2	-	-	-	3.74	3.3
Pot Cap-1 Maneuver	595	-	-	-	~ 48	453
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	395	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	595	-	-	-	~ 45	453
Mov Cap-2 Maneuver	-	-	-	-	~ 45	-
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	395	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	$ 458.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	595	-	-	-	49
HCM Lane V/C Ratio	0.069	-	-	-	1.547
HCM Control Delay (s)	11.5	-	-	-	$ 458.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	7.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1096	1069	6	0	5
Future Vol, veh/h	0	1096	1069	6	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1154	1125	6	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	566
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	473
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	473
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	473
HCM Lane V/C Ratio	-	-	-	0.011
HCM Control Delay (s)	-	-	-	12.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1484	1006	29	0	11
Future Vol, veh/h	0	1484	1006	29	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1562	1059	31	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	545
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	488
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	488
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	488
HCM Lane V/C Ratio	-	-	-	0.024
HCM Control Delay (s)	-	-	-	12.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1360	1018	24	0	13
Future Vol, veh/h	0	1360	1018	24	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1432	1072	25	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	549
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	485
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	485
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	485
HCM Lane V/C Ratio	-	-	-	0.028
HCM Control Delay (s)	-	-	-	12.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	62.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1234	21	17	1014	113	125
Future Vol, veh/h	1234	21	17	1014	113	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1299	22	18	1067	119	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1321	0	1880	661
Stage 1	-	-	-	-	1310	-
Stage 2	-	-	-	-	570	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	493	-	~ 63	405
Stage 1	-	-	-	-	217	-
Stage 2	-	-	-	-	529	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	493	-	~ 61	405
Mov Cap-2 Maneuver	-	-	-	-	~ 61	-
Stage 1	-	-	-	-	217	-
Stage 2	-	-	-	-	509	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	$ 666
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	110	-	-	493	-
HCM Lane V/C Ratio	2.278	-	-	0.036	-
HCM Control Delay (s)	$ 666	-	-	12.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	21.9	-	-	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	19.6	52.1	0.26	17.7	D
SW 127 AVE	III	30	90.9	49.4	140.3	0.76	19.4	C
Total	III		123.4	69.0	192.4	1.01	19.0	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	7.4	98.3	0.76	27.7	B
SW1 137 AVE	III	38	28.2	35.8	64.0	0.26	14.4	D
Total	III		119.1	43.2	162.3	1.01	22.5	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	529	88	242	347	294	109	319	274	379	626	123
Future Volume (vph)	51	529	88	242	347	294	109	319	274	379	626	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3178		3433	3282	2656	3433	3539	1583	3213	1832	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.40	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3178		3433	3282	2656	1450	3539	1583	3213	1832	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	557	93	255	365	309	115	336	288	399	659	129
RTOR Reduction (vph)	0	10	0	0	0	59	0	0	202	0	0	74
Lane Group Flow (vph)	54	640	0	255	365	250	115	336	86	399	659	55
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	custom	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases						4	4		4			8
Actuated Green, G (s)	6.1	28.6		13.2	34.2	97.0	41.4	35.9	35.9	20.5	50.9	50.9
Effective Green, g (s)	6.1	28.6		13.2	34.2	97.0	41.4	35.9	35.9	20.5	50.9	50.9
Actuated g/C Ratio	0.05	0.24		0.11	0.29	0.81	0.34	0.30	0.30	0.17	0.42	0.42
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	153	757		377	935	2146	591	1058	473	548	777	585
v/s Ratio Prot	0.02	c0.20		c0.07	0.11	0.06	0.01	0.09		c0.12	c0.36	
v/s Ratio Perm						0.03	0.06		0.05			0.04
v/c Ratio	0.35	0.85		0.68	0.39	0.12	0.19	0.32	0.18	0.73	0.85	0.09
Uniform Delay, d1	55.0	43.6		51.3	34.5	2.4	26.6	32.6	31.2	47.1	31.1	20.7
Progression Factor	1.00	1.00		0.90	0.94	0.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	11.2		4.6	1.2	0.0	0.2	0.2	0.2	4.8	8.8	0.1
Delay (s)	56.1	54.8		50.7	33.5	1.3	26.8	32.8	31.4	51.9	39.8	20.8
Level of Service	E	D		D	C	A	C	C	C	D	D	C
Approach Delay (s)		54.9			27.5			31.3			41.8	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	1091	193	357	801	130	168	172	175	117	247	71
Future Volume (veh/h)	92	1091	193	357	801	130	168	172	175	117	247	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	97	1148	203	376	843	137	177	181	184	123	260	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	336	1479	610	426	1816	938	246	337	466	277	296	255
Arrive On Green	0.04	0.44	0.44	0.12	0.52	0.52	0.10	0.19	0.19	0.07	0.16	0.16
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	97	1148	203	376	843	137	177	181	184	123	260	75
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	4.2	40.5	13.4	14.9	21.3	5.4	11.9	12.7	13.4	8.0	19.0	5.8
Cycle Q Clear(g_c), s	4.2	40.5	13.4	14.9	21.3	5.4	11.9	12.7	13.4	8.0	19.0	5.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	1479	610	426	1816	938	246	337	466	277	296	255
V/C Ratio(X)	0.29	0.78	0.33	0.88	0.46	0.15	0.72	0.54	0.40	0.44	0.88	0.29
Avail Cap(c_a), veh/h	417	1479	610	463	1816	938	279	409	525	398	462	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	33.6	26.0	60.5	21.6	13.1	44.5	51.5	38.1	44.9	57.6	52.0
Incr Delay (d2), s/veh	0.3	4.1	1.5	16.7	0.9	0.3	6.9	1.6	0.7	0.8	12.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	17.4	4.8	7.6	9.1	2.1	5.6	5.9	5.1	3.6	10.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	37.7	27.4	77.2	22.5	13.4	51.4	53.1	38.8	45.7	70.2	52.8
LnGrp LOS	C	D	C	E	C	B	D	D	D	D	E	D
Approach Vol, veh/h		1448			1356			542			458	
Approach Delay, s/veh		35.1			36.7			47.7			60.7	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	78.5	16.5	32.5	23.5	67.6	20.4	28.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	50.6	19.6	31.6	18.6	44.6	16.6	34.6
Max Q Clear Time (g_c+I1), s	6.2	0.0	10.0	15.4	16.9	15.4	13.9	21.0
Green Ext Time (p_c), s	0.1	0.0	0.2	1.4	0.2	0.0	0.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1112	93	73	781	62	76	49	120	49	29	33
Future Volume (veh/h)	33	1112	93	73	781	62	76	49	120	49	29	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	35	1171	98	77	822	65	80	52	126	52	31	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	406	2291	1151	357	2674	1193	198	77	186	134	55	62
Arrive On Green	0.68	0.68	0.68	0.04	0.76	0.76	0.06	0.17	0.17	0.07	0.07	0.07
Sat Flow, veh/h	507	3357	1560	1810	3526	1572	1725	462	1119	1225	738	834
Grp Volume(v), veh/h	35	1171	98	77	822	65	80	0	178	52	0	66
Grp Sat Flow(s),veh/h/ln	507	1678	1560	1810	1763	1572	1725	0	1580	1225	0	1572
Q Serve(g_s), s	2.8	20.4	2.1	1.4	8.8	1.2	5.0	0.0	12.7	5.0	0.0	4.9
Cycle Q Clear(g_c), s	2.8	20.4	2.1	1.4	8.8	1.2	5.0	0.0	12.7	6.6	0.0	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.53
Lane Grp Cap(c), veh/h	406	2291	1151	357	2674	1193	198	0	263	134	0	116
V/C Ratio(X)	0.09	0.51	0.09	0.22	0.31	0.05	0.40	0.00	0.68	0.39	0.00	0.57
Avail Cap(c_a), veh/h	406	2291	1151	400	2674	1193	383	0	560	233	0	242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.5	9.3	4.4	6.8	4.6	3.7	46.1	0.0	47.0	55.3	0.0	53.7
Incr Delay (d2), s/veh	0.4	0.8	0.1	0.3	0.3	0.1	1.3	0.0	3.0	1.8	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.2	0.7	0.5	2.9	0.4	2.2	0.0	5.2	1.6	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	10.1	4.6	7.1	4.9	3.7	47.4	0.0	50.0	57.1	0.0	58.0
LnGrp LOS	A	B	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1304			964			258			118	
Approach Delay, s/veh		9.6			5.0			49.2			57.6	
Approach LOS		A			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		24.5	9.1	86.4	11.1	13.4		95.5				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5	7.5	56.5	19.5	18.5		68.5				
Max Q Clear Time (g_c+I1), s		14.7	3.4	22.4	7.0	8.6		10.8				
Green Ext Time (p_c), s		1.1	0.0	12.2	0.1	0.3		7.5				

Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	529	88	242	347	294	109	319	274	379	626	123
Future Volume (veh/h)	51	529	88	242	347	294	109	319	274	379	626	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1707	1900	1870	1752	1796	1870	1870	1870	1767	462	1648
Adj Flow Rate, veh/h	54	557	93	255	365	309	115	336	288	399	659	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	16	13	0	2	10	7	2	2	2	9	97	17
Cap, veh/h	107	542	90	314	794	639	244	1377	614	474	436	694
Arrive On Green	0.03	0.19	0.19	0.09	0.24	0.24	0.04	0.39	0.39	0.15	0.50	0.50
Sat Flow, veh/h	3072	2783	463	3456	3328	2679	3456	3554	1585	3264	879	1397
Grp Volume(v), veh/h	54	324	326	255	365	309	115	336	288	399	659	129
Grp Sat Flow(s),veh/h/ln	1536	1622	1624	1728	1664	1340	1728	1777	1585	1632	439	1397
Q Serve(g_s), s	2.1	23.4	23.4	8.7	11.3	11.9	2.4	7.7	16.3	14.3	59.6	6.1
Cycle Q Clear(g_c), s	2.1	23.4	23.4	8.7	11.3	11.9	2.4	7.7	16.3	14.3	59.6	6.1
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	316	316	314	794	639	244	1377	614	474	436	694
V/C Ratio(X)	0.51	1.03	1.03	0.81	0.46	0.48	0.47	0.24	0.47	0.84	1.51	0.19
Avail Cap(c_a), veh/h	512	316	316	389	794	639	278	1377	614	775	436	694
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	48.3	48.3	53.5	39.1	39.3	29.6	24.9	27.5	50.0	30.2	16.7
Incr Delay (d2), s/veh	2.7	57.4	58.9	10.1	1.9	2.6	1.4	0.1	0.7	4.6	241.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	14.2	14.4	4.2	4.7	4.1	1.0	3.2	6.1	6.0	20.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	105.7	107.2	63.6	41.0	41.9	31.0	25.0	28.2	54.5	271.3	16.9
LnGrp LOS	E	F	F	E	D	D	C	C	C	D	F	B
Approach Vol, veh/h		704			929			739			1187	
Approach Delay, s/veh		102.9			47.5			27.2			170.8	
Approach LOS		F			D			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	35.0	21.9	52.9	15.4	29.8	8.8	66.0
Change Period (Y+Rc), s	6.0	6.4	4.5	6.4	4.5	6.4	4.5	6.4
Max Green Setting (Gmax), s	20.0	11.6	28.5	36.6	13.5	19.6	5.5	59.6
Max Q Clear Time (g_c+I1), s	4.1	0.0	16.3	18.3	10.7	25.4	4.4	61.6
Green Ext Time (p_c), s	0.1	0.0	1.1	2.7	0.2	0.0	0.0	0.0

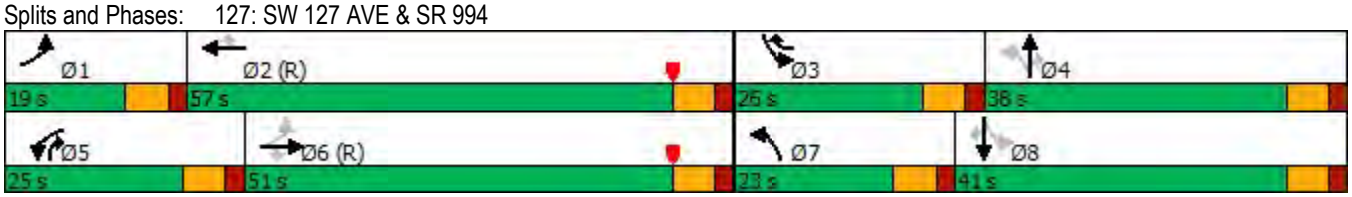
Intersection Summary	
HCM 6th Ctrl Delay	95.4
HCM 6th LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1091	193	357	801	130	168	172	175	117	247	71
Future Volume (vph)	92	1091	193	357	801	130	168	172	175	117	247	71
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	51.0	51.0	25.0	57.0	26.0	23.0	38.0	25.0	26.0	41.0	41.0
Total Split (%)	13.6%	36.4%	36.4%	17.9%	40.7%	18.6%	16.4%	27.1%	17.9%	18.6%	29.3%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

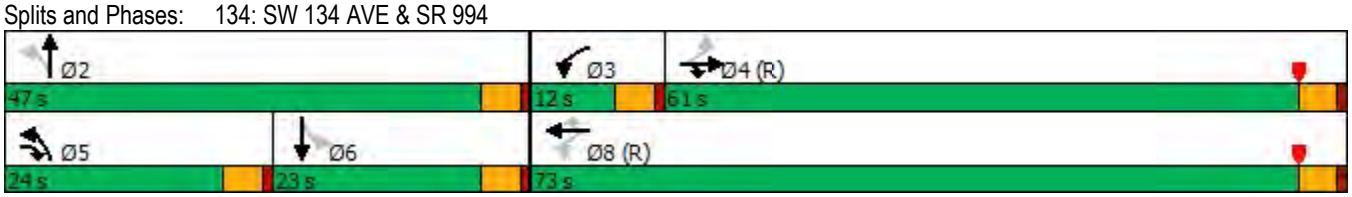


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	1112	93	73	781	62	76	49	49	29
Future Volume (vph)	33	1112	93	73	781	62	76	49	49	29
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	61.0	61.0		12.0	73.0	73.0	24.0	47.0	23.0	23.0
Total Split (%)	50.8%	50.8%		10.0%	60.8%	60.8%	20.0%	39.2%	19.2%	19.2%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

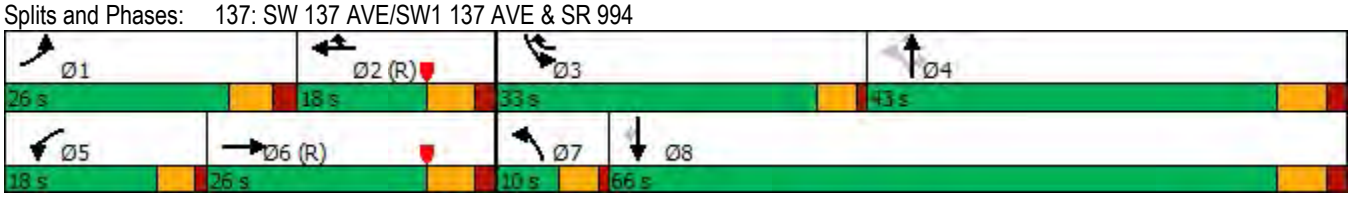


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	51	529	242	347	294	109	319	274	379	626	123
Future Volume (vph)	51	529	242	347	294	109	319	274	379	626	123
Turn Type	Prot	NA	Prot	NA	custom	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases					4	4		4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	4.0	5.0	11.6		2.5	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	10.4	9.5	18.0		7.0	13.4	13.4	9.5	13.4	13.4
Total Split (s)	26.0	26.0	18.0	18.0		10.0	43.0	43.0	33.0	66.0	66.0
Total Split (%)	21.7%	21.7%	15.0%	15.0%		8.3%	35.8%	35.8%	27.5%	55.0%	55.0%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	97	1148	203	376	843	137	177	181	184	123	260	75
v/c Ratio	0.31	0.88	0.32	0.79	0.52	0.14	0.64	0.50	0.27	0.36	0.78	0.19
Control Delay	19.1	49.4	12.8	70.7	29.3	2.7	44.1	53.6	4.7	35.1	70.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	49.4	12.8	70.7	29.3	2.7	44.1	53.6	4.7	35.1	70.0	1.6
Queue Length 50th (ft)	39	523	38	171	284	0	118	146	4	79	228	0
Queue Length 95th (ft)	77	#751	111	228	400	32	166	215	49	118	309	4
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	366	1306	625	496	1636	1090	295	410	693	435	460	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.88	0.32	0.76	0.52	0.13	0.60	0.44	0.27	0.28	0.57	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	1171	98	77	822	65	80	178	52	66
v/c Ratio	0.11	0.55	0.08	0.24	0.32	0.06	0.33	0.46	0.49	0.47
Control Delay	12.1	19.6	5.0	8.2	7.4	2.0	40.6	18.4	66.6	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	19.6	5.0	8.2	7.4	2.0	40.6	18.4	66.6	38.5
Queue Length 50th (ft)	14	465	18	16	113	0	51	42	39	23
Queue Length 95th (ft)	m29	553	m36	40	185	16	87	98	79	67
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	333	2143	1310	336	2549	1158	325	602	189	222
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.55	0.07	0.23	0.32	0.06	0.25	0.30	0.28	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	54	650	255	365	309	115	336	288	399	659	129
v/c Ratio	0.31	0.85	0.67	0.38	0.13	0.19	0.32	0.43	0.73	0.85	0.19
Control Delay	58.0	55.9	55.0	35.8	0.2	15.6	32.9	5.4	54.9	41.6	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	55.9	55.0	35.8	0.2	15.6	32.9	5.4	54.9	41.6	1.6
Queue Length 50th (ft)	21	255	100	127	0	21	104	0	153	233	0
Queue Length 95th (ft)	42	#445	145	192	3	30	141	61	195	283	16
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	503	766	402	968	2324	614	1111	694	763	909	769
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.85	0.63	0.38	0.13	0.19	0.30	0.41	0.52	0.72	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1238	883	7	0	1
Future Vol, veh/h	0	1238	883	7	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1303	929	7	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	468
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	432
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	432
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	432
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	13.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1270	76	26	1080	7	9	1	36	9	1	3
Future Vol, veh/h	2	1270	76	26	1080	7	9	1	36	9	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1337	80	27	1137	7	9	1	38	9	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1144	0	0	1417	0	0	2004	2579	709	1868	2616	572
Stage 1	-	-	-	-	-	-	1381	1381	-	1195	1195	-
Stage 2	-	-	-	-	-	-	623	1198	-	673	1421	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	618	-	-	433	-	-	36	26	381	46	25	468
Stage 1	-	-	-	-	-	-	154	213	-	201	262	-
Stage 2	-	-	-	-	-	-	445	261	-	416	204	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	618	-	-	433	-	-	33	24	381	38	23	468
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	24	-	38	23	-
Stage 1	-	-	-	-	-	-	154	212	-	200	246	-
Stage 2	-	-	-	-	-	-	413	245	-	372	203	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	43	116.7
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	33	381	618	-	-	433	-	-	45
HCM Lane V/C Ratio	0.287	0.099	0.003	-	-	0.063	-	-	0.304
HCM Control Delay (s)	153.2	15.5	10.8	-	-	13.9	-	-	116.7
HCM Lane LOS	F	C	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.9	0.3	0	-	-	0.2	-	-	1

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	1326	8	2	1067	37	2	1	2	20	4	67
Future Vol, veh/h	60	1326	8	2	1067	37	2	1	2	20	4	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	63	1396	8	2	1123	39	2	1	2	21	4	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1162	0	0	1404	0	0	2094	2692	702	1972	2677	581
Stage 1	-	-	-	-	-	-	1526	1526	-	1147	1147	-
Stage 2	-	-	-	-	-	-	568	1166	-	825	1530	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	586	-	-	493	-	-	31	22	385	34	22	457
Stage 1	-	-	-	-	-	-	126	182	-	200	276	-
Stage 2	-	-	-	-	-	-	480	270	-	318	181	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	493	-	-	20	20	385	30	20	457
Mov Cap-2 Maneuver	-	-	-	-	-	-	20	20	-	30	20	-
Stage 1	-	-	-	-	-	-	112	162	-	178	275	-
Stage 2	-	-	-	-	-	-	398	269	-	280	161	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	138.5	198.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	32	586	-	-	493	-	-	90
HCM Lane V/C Ratio	0.164	0.108	-	-	0.004	-	-	1.064
HCM Control Delay (s)	138.5	11.9	-	-	12.3	-	-	198.6
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.5	0.4	-	-	0	-	-	6.4

Intersection	
Int Delay, s/veh	10.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1260	74	209	927	27	134
Future Vol, veh/h	1260	74	209	927	27	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1326	78	220	976	28	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1404	0	2293	702
Stage 1	-	-	-	-	1365	-
Stage 2	-	-	-	-	928	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	462	-	32	376
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	338	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	462	-	~ 17	376
Mov Cap-2 Maneuver	-	-	-	-	~ 17	-
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	177	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.6	150.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	17	376	-	-	462	-
HCM Lane V/C Ratio	1.672	0.375	-	-	0.476	-
HCM Control Delay (s)	$ 794.7	20.2	-	-	19.7	-
HCM Lane LOS	F	C	-	-	C	-
HCM 95th %tile Q(veh)	4.1	1.7	-	-	2.5	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	1268	912	16	37	3
Future Vol, veh/h	13	1268	912	16	37	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	14	1335	960	17	39	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	977	0	-	0	1665	489
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	696	-
Critical Hdwy	4.1	-	-	-	7.28	6.9
Critical Hdwy Stg 1	-	-	-	-	6.28	-
Critical Hdwy Stg 2	-	-	-	-	6.28	-
Follow-up Hdwy	2.2	-	-	-	3.74	3.3
Pot Cap-1 Maneuver	714	-	-	-	70	530
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	402	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	714	-	-	-	69	530
Mov Cap-2 Maneuver	-	-	-	-	69	-
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	402	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	104.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	74
HCM Lane V/C Ratio	0.019	-	-	-	0.569
HCM Control Delay (s)	10.1	-	-	-	104.5
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	2.5

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1232	877	7	0	6
Future Vol, veh/h	0	1232	877	7	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1297	923	7	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	465
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	550
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	550
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	550
HCM Lane V/C Ratio	-	-	-	0.011
HCM Control Delay (s)	-	-	-	11.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1348	1084	7	0	22
Future Vol, veh/h	0	1348	1084	7	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1419	1141	7	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	574
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	467
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	467
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	467
HCM Lane V/C Ratio	-	-	-	0.05
HCM Control Delay (s)	-	-	-	13.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1334	940	13	0	6
Future Vol, veh/h	0	1334	940	13	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1404	989	14	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	502
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	520
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	520
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	520
HCM Lane V/C Ratio	-	-	-	0.012
HCM Control Delay (s)	-	-	-	12
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1292	13	40	907	22	43
Future Vol, veh/h	1292	13	40	907	22	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1360	14	42	955	23	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1374	0	1929	687
Stage 1	-	-	-	-	1367	-
Stage 2	-	-	-	-	562	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	470	-	58	389
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	534	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	470	-	53	389
Mov Cap-2 Maneuver	-	-	-	-	53	-
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	486	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	65
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	124	-	-	470	-
HCM Lane V/C Ratio	0.552	-	-	0.09	-
HCM Control Delay (s)	65	-	-	13.4	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	2.7	-	-	0.3	-

BUILD 3 2025

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	28.0	60.5	0.26	15.2	D
SW 127 AVE	III	30	90.9	31.8	122.7	0.76	22.2	C
Total	III		123.4	59.8	183.2	1.01	19.9	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	8.6	99.5	0.76	27.4	B
SW1 137 AVE	III	38	28.2	31.6	59.8	0.26	15.4	D
Total	III		119.1	40.2	159.3	1.01	22.9	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	518	79	206	357	230	105	417	181	177	283	97
Future Volume (vph)	71	518	79	206	357	230	105	417	181	177	283	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3180		3433	3282	2656	3433	1863	1583	3213	964	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3180		3433	3282	2656	3433	1863	1583	3213	964	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	545	83	217	376	242	111	439	191	186	298	102
RTOR Reduction (vph)	0	8	0	0	0	140	0	0	128	0	0	65
Lane Group Flow (vph)	75	620	0	217	376	102	111	439	63	186	298	37
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases						2			4			8
Actuated Green, G (s)	6.8	33.5		12.9	38.1	50.4	8.6	39.5	39.5	12.3	43.2	43.2
Effective Green, g (s)	6.8	33.5		12.9	38.1	50.4	8.6	39.5	39.5	12.3	43.2	43.2
Actuated g/C Ratio	0.06	0.28		0.11	0.32	0.42	0.07	0.33	0.33	0.10	0.36	0.36
Clearance Time (s)	6.0	6.4		4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	171	887		369	1042	1115	246	613	521	329	347	496
v/s Ratio Prot	0.02	c0.20		c0.06	0.11	0.01	0.03	0.24		c0.06	c0.31	
v/s Ratio Perm						0.03			0.04			0.03
v/c Ratio	0.44	0.70		0.59	0.36	0.09	0.45	0.72	0.12	0.57	0.86	0.07
Uniform Delay, d1	54.8	38.7		51.0	31.6	21.0	53.4	35.3	28.1	51.3	35.6	25.2
Progression Factor	1.00	1.00		0.85	0.88	3.31	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	4.6		2.3	0.9	0.0	1.3	4.1	0.1	2.2	19.0	0.1
Delay (s)	56.1	43.3		45.9	28.6	69.5	54.8	39.4	28.2	53.5	54.5	25.3
Level of Service	E	D		D	C	E	D	D	C	D	D	C
Approach Delay (s)		44.7			44.9			38.9			49.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	969	120	217	560	131	168	144	235	67	156	38
Future Volume (veh/h)	143	969	120	217	560	131	168	144	235	67	156	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	151	1020	126	228	589	138	177	152	247	71	164	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	477	1762	727	283	1928	947	260	307	378	226	210	181
Arrive On Green	0.05	0.52	0.52	0.08	0.55	0.55	0.10	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	151	1020	126	228	589	138	177	152	247	71	164	40
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	5.6	29.0	6.7	9.0	12.7	5.4	12.3	10.7	20.5	4.9	11.9	3.2
Cycle Q Clear(g_c), s	5.6	29.0	6.7	9.0	12.7	5.4	12.3	10.7	20.5	4.9	11.9	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	477	1762	727	283	1928	947	260	307	378	226	210	181
V/C Ratio(X)	0.32	0.58	0.17	0.81	0.31	0.15	0.68	0.50	0.65	0.31	0.78	0.22
Avail Cap(c_a), veh/h	540	1762	727	438	1928	947	311	409	463	265	302	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	23.0	17.7	63.2	17.3	12.7	47.1	52.7	47.0	51.6	60.5	56.6
Incr Delay (d2), s/veh	0.3	1.4	0.5	4.9	0.4	0.3	3.9	1.5	2.7	0.6	9.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	11.9	2.3	4.2	5.3	2.0	5.6	5.0	8.0	2.2	6.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	24.4	18.2	68.2	17.7	13.0	51.0	54.2	49.8	52.2	69.5	57.3
LnGrp LOS	B	C	B	E	B	B	D	D	D	D	E	E
Approach Vol, veh/h		1297			955			576			275	
Approach Delay, s/veh		22.7			29.1			51.3			63.3	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	82.9	12.9	30.1	17.8	79.3	20.9	22.1
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	60.6	9.6	31.6	17.6	55.6	18.6	22.6
Max Q Clear Time (g_c+I1), s	7.6	0.0	6.9	22.5	11.0	8.7	14.3	13.9
Green Ext Time (p_c), s	0.1	0.0	0.0	1.2	0.3	0.0	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	812	42	124	710	53	51	47	111	54	70	28
Future Volume (veh/h)	22	812	42	124	710	53	51	47	111	54	70	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	23	855	44	131	747	56	54	49	117	57	74	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	420	2201	1081	473	2618	1168	151	77	185	144	97	38
Arrive On Green	0.66	0.66	0.66	0.04	0.74	0.74	0.04	0.17	0.17	0.08	0.08	0.08
Sat Flow, veh/h	549	3357	1560	1810	3526	1572	1725	467	1114	1239	1178	461
Grp Volume(v), veh/h	23	855	44	131	747	56	54	0	166	57	0	103
Grp Sat Flow(s),veh/h/ln	549	1678	1560	1810	1763	1572	1725	0	1581	1239	0	1639
Q Serve(g_s), s	1.8	14.1	1.1	2.7	8.3	1.1	3.3	0.0	11.7	5.4	0.0	7.4
Cycle Q Clear(g_c), s	1.8	14.1	1.1	2.7	8.3	1.1	3.3	0.0	11.7	7.1	0.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.70	1.00		0.28
Lane Grp Cap(c), veh/h	420	2201	1081	473	2618	1168	151	0	262	144	0	135
V/C Ratio(X)	0.05	0.39	0.04	0.28	0.29	0.05	0.36	0.00	0.63	0.40	0.00	0.76
Avail Cap(c_a), veh/h	420	2201	1081	693	2618	1168	294	0	534	254	0	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.4	9.5	5.8	6.7	5.0	4.1	46.6	0.0	46.7	54.7	0.0	53.9
Incr Delay (d2), s/veh	0.2	0.5	0.1	0.3	0.3	0.1	1.4	0.0	2.5	1.8	0.0	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.1	0.4	1.0	2.8	0.4	1.5	0.0	4.8	1.8	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.7	10.1	5.9	7.0	5.3	4.2	48.0	0.0	49.2	56.4	0.0	62.5
LnGrp LOS	A	B	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		922			934			220			160	
Approach Delay, s/veh		9.8			5.5			48.9			60.4	
Approach LOS		A			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		25.4	10.4	84.2	10.0	15.4		94.6				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		40.5	19.5	43.5	14.5	20.5		68.5				
Max Q Clear Time (g_c+I1), s		13.7	4.7	16.1	5.3	9.4		10.3				
Green Ext Time (p_c), s		1.0	0.3	7.3	0.1	0.5		6.6				

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	969	120	217	560	131	168	144	235	67	156	38
Future Volume (vph)	143	969	120	217	560	131	168	144	235	67	156	38
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	62.0	62.0	24.0	67.0	16.0	25.0	38.0	24.0	16.0	29.0	29.0
Total Split (%)	13.6%	44.3%	44.3%	17.1%	47.9%	11.4%	17.9%	27.1%	17.1%	11.4%	20.7%	20.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

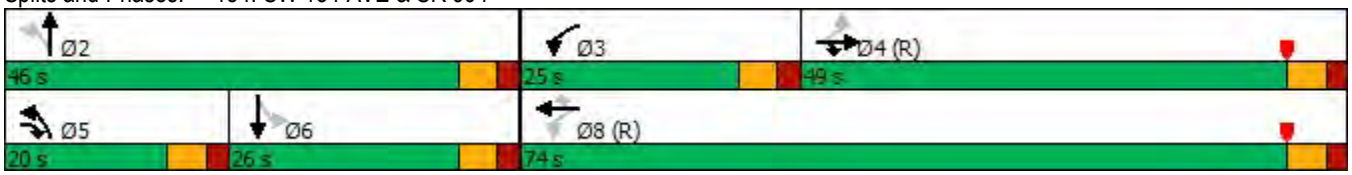
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	22	812	42	124	710	53	51	47	54	70
Future Volume (vph)	22	812	42	124	710	53	51	47	54	70
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		10.5	23.5	23.5	10.5	23.5	23.5	23.5
Total Split (s)	49.0	49.0		25.0	74.0	74.0	20.0	46.0	26.0	26.0
Total Split (%)	40.8%	40.8%		20.8%	61.7%	61.7%	16.7%	38.3%	21.7%	21.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

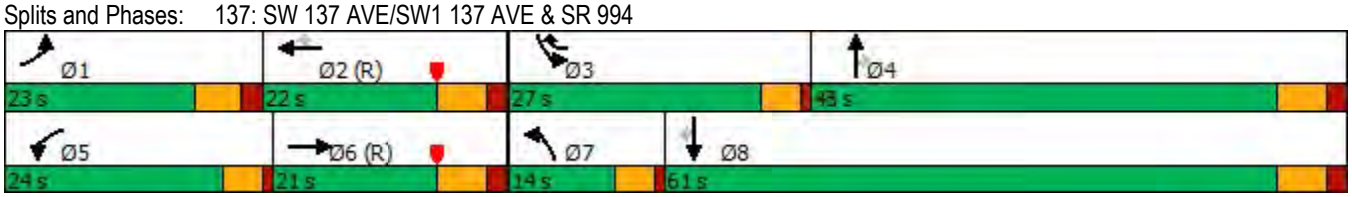


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	71	518	206	357	230	105	417	181	177	283	97
Future Volume (vph)	71	518	206	357	230	105	417	181	177	283	97
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	3	7	4		3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	13.6	5.0	15.6	5.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	20.0	9.5	22.0	9.5	9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	23.0	21.0	24.0	22.0	27.0	14.0	48.0	48.0	27.0	61.0	61.0
Total Split (%)	19.2%	17.5%	20.0%	18.3%	22.5%	11.7%	40.0%	40.0%	22.5%	50.8%	50.8%
Yellow Time (s)	4.0	4.4	3.5	4.4	3.5	3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4	4.5	4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	151	1020	126	228	589	138	177	152	247	71	164	40
v/c Ratio	0.32	0.64	0.17	0.66	0.33	0.13	0.60	0.47	0.43	0.27	0.70	0.11
Control Delay	14.6	31.8	1.4	70.0	22.8	2.5	47.2	54.9	18.3	38.4	73.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	31.8	1.4	70.0	22.8	2.5	47.2	54.9	18.3	38.4	73.8	0.6
Queue Length 50th (ft)	56	370	0	104	168	0	126	124	82	47	145	0
Queue Length 95th (ft)	100	507	12	146	240	31	183	188	144	82	217	0
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	511	1588	748	435	1765	1040	315	404	609	276	300	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.64	0.17	0.52	0.33	0.13	0.56	0.38	0.41	0.26	0.55	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	855	44	131	747	56	54	166	57	103
v/c Ratio	0.07	0.44	0.04	0.30	0.30	0.05	0.23	0.42	0.43	0.62
Control Delay	22.0	28.0	10.0	9.5	8.6	1.5	36.6	16.6	58.8	59.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	28.0	10.0	9.5	8.6	1.5	36.6	16.6	58.8	59.7
Queue Length 50th (ft)	13	344	8	32	112	0	34	36	42	67
Queue Length 95th (ft)	m31	420	m22	69	182	11	62	89	82	121
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	322	1923	1179	552	2450	1117	286	576	211	256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.44	0.04	0.24	0.30	0.05	0.19	0.29	0.27	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	628	217	376	242	111	439	191	186	298	102
v/c Ratio	0.38	0.70	0.59	0.35	0.17	0.45	0.72	0.29	0.57	0.86	0.18
Control Delay	58.6	45.5	49.8	31.6	10.3	59.2	41.4	4.5	57.9	57.9	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	45.5	49.8	31.6	10.3	59.2	41.4	4.5	57.9	57.9	2.6
Queue Length 50th (ft)	29	231	85	127	18	43	290	0	71	208	0
Queue Length 95th (ft)	53	#449	122	197	69	73	370	45	106	293	21
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	427	897	557	1075	1614	271	679	699	602	438	696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.70	0.39	0.35	0.15	0.41	0.65	0.27	0.31	0.68	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	876	785	4	0	2
Future Vol, veh/h	0	876	785	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	922	826	4	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	415
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	473
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	473
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	473
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	12.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1122	7	18	797	3	29	2	60	6	1	2
Future Vol, veh/h	3	1122	7	18	797	3	29	2	60	6	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	3	1181	7	19	839	3	31	2	63	6	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	842	0	0	1188	0	0	1649	2071	594	1477	2073	421
Stage 1	-	-	-	-	-	-	1191	1191	-	879	879	-
Stage 2	-	-	-	-	-	-	458	880	-	598	1194	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	802	-	-	535	-	-	67	55	453	89	55	587
Stage 1	-	-	-	-	-	-	202	263	-	313	368	-
Stage 2	-	-	-	-	-	-	557	368	-	461	262	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	535	-	-	64	53	453	72	53	587
Mov Cap-2 Maneuver	-	-	-	-	-	-	64	53	-	72	53	-
Stage 1	-	-	-	-	-	-	201	262	-	312	355	-
Stage 2	-	-	-	-	-	-	534	355	-	392	261	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	43.7	52.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	64	453	802	-	-	535	-	-	85
HCM Lane V/C Ratio	0.477	0.139	0.004	-	-	0.035	-	-	0.111
HCM Control Delay (s)	104.6	14.2	9.5	-	-	12	-	-	52.6
HCM Lane LOS	F	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.9	0.5	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	1112	5	2	787	25	5	1	4	16	1	78
Future Vol, veh/h	130	1112	5	2	787	25	5	1	4	16	1	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	137	1171	5	2	828	26	5	1	4	17	1	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	854	0	0	1176	0	0	1867	2306	588	1705	2295	427
Stage 1	-	-	-	-	-	-	1448	1448	-	845	845	-
Stage 2	-	-	-	-	-	-	419	858	-	860	1450	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	769	-	-	601	-	-	46	39	457	55	39	576
Stage 1	-	-	-	-	-	-	140	198	-	309	382	-
Stage 2	-	-	-	-	-	-	588	376	-	303	198	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	769	-	-	601	-	-	33	32	457	46	32	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	32	-	46	32	-
Stage 1	-	-	-	-	-	-	115	163	-	254	381	-
Stage 2	-	-	-	-	-	-	501	375	-	245	163	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0	91	45.3
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	52	769	-	-	601	-	-	185
HCM Lane V/C Ratio	0.202	0.178	-	-	0.004	-	-	0.541
HCM Control Delay (s)	91	10.7	-	-	11	-	-	45.3
HCM Lane LOS	F	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.7	0.6	-	-	0	-	-	2.8

Intersection	
Int Delay, s/veh	8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1011	18	70	800	70	235
Future Vol, veh/h	1011	18	70	800	70	235
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1064	19	74	842	74	247

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1083	0	1643	542
Stage 1	-	-	-	-	1074	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	617	-	88	480
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	617	-	77	480
Mov Cap-2 Maneuver	-	-	-	-	77	-
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	458	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	57.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	77	480	-	-	617	-
HCM Lane V/C Ratio	0.957	0.515	-	-	0.119	-
HCM Control Delay (s)	184.3	20.2	-	-	11.6	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	5.1	2.9	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	946	874	11	0	13
Future Vol, veh/h	31	946	874	11	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	33	996	920	12	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	932	0	-	0	-	466
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	-	-	3.3
Pot Cap-1 Maneuver	743	-	-	-	0	549
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	743	-	-	-	-	549
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	743	-	-	-	549
HCM Lane V/C Ratio	0.044	-	-	-	0.025
HCM Control Delay (s)	10.1	-	-	-	11.7
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	876	782	5	0	11
Future Vol, veh/h	0	876	782	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	922	823	5	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	414
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	593
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	593
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	593
HCM Lane V/C Ratio	-	-	-	0.02
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1132	805	23	0	9
Future Vol, veh/h	0	1132	805	23	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1192	847	24	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	436
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	574
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	574
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	574
HCM Lane V/C Ratio	-	-	-	0.017
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1029	850	19	0	49
Future Vol, veh/h	0	1029	850	19	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1083	895	20	0	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	458
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	555
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	555
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	555
HCM Lane V/C Ratio	-	-	-	0.093
HCM Control Delay (s)	-	-	-	12.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	929	17	14	885	0	100
Future Vol, veh/h	929	17	14	885	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	978	18	15	932	0	105

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	996	0	-	498
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.24	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.27	-	-	3.32
Pot Cap-1 Maneuver	-	-	661	-	0	518
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	661	-	-	518
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	518	-	-	661	-
HCM Lane V/C Ratio	0.203	-	-	0.022	-
HCM Control Delay (s)	13.7	-	-	10.6	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	32.5	16.9	49.4	0.26	18.7	C
SW 127 AVE	III	30	90.9	33.8	124.7	0.76	21.8	C
Total	III		123.4	50.7	174.1	1.01	20.9	C

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 134 AVE	III	30	90.9	6.5	97.4	0.76	28.0	B
SW1 137 AVE	III	38	28.2	41.0	69.2	0.26	13.3	E
Total	III		119.1	47.5	166.6	1.01	21.9	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	487	71	177	325	179	87	256	214	236	501	98
Future Volume (vph)	43	487	71	177	325	179	87	256	214	236	501	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3180		3433	3282	2656	3433	1863	1583	3213	964	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3180		3433	3282	2656	3433	1863	1583	3213	964	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	513	75	186	342	188	92	269	225	248	527	103
RTOR Reduction (vph)	0	9	0	0	0	115	0	0	130	0	0	54
Lane Group Flow (vph)	45	579	0	186	342	73	92	269	95	248	527	49
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases									4			8
Actuated Green, G (s)	5.7	21.3		11.8	25.9	46.9	8.3	50.5	50.5	14.6	56.8	56.8
Effective Green, g (s)	5.7	21.3		11.8	25.9	46.9	8.3	50.5	50.5	14.6	56.8	56.8
Actuated g/C Ratio	0.05	0.18		0.10	0.22	0.39	0.07	0.42	0.42	0.12	0.47	0.47
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	143	564		337	708	1038	237	784	666	390	456	653
v/s Ratio Prot	0.01	c0.18		c0.05	0.10	0.03	0.03	0.14		c0.08	c0.55	
v/s Ratio Perm									0.06			0.04
v/c Ratio	0.31	1.03		0.55	0.48	0.07	0.39	0.34	0.14	0.64	1.16	0.07
Uniform Delay, d1	55.3	49.4		51.6	41.2	22.9	53.4	23.5	21.4	50.2	31.6	17.3
Progression Factor	1.00	1.00		0.91	0.94	3.70	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	44.8		1.9	2.3	0.0	1.1	0.3	0.1	3.4	92.3	0.1
Delay (s)	56.2	94.2		49.0	40.9	84.9	54.5	23.8	21.5	53.5	123.9	17.3
Level of Service	E	F		D	D	F	D	C	C	D	F	B
Approach Delay (s)		91.5			54.5			27.8			91.5	
Approach LOS		F			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	854	155	286	641	104	134	138	140	94	198	57
Future Volume (veh/h)	74	854	155	286	641	104	134	138	140	94	198	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	78	899	163	301	675	109	141	145	147	99	208	60
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	431	1694	699	355	2002	1006	220	278	385	247	243	209
Arrive On Green	0.03	0.50	0.50	0.10	0.57	0.57	0.08	0.15	0.15	0.06	0.13	0.13
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	78	899	163	301	675	109	141	145	147	99	208	60
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	3.0	25.3	9.2	11.9	14.3	3.8	9.8	10.3	11.2	6.7	15.2	4.7
Cycle Q Clear(g_c), s	3.0	25.3	9.2	11.9	14.3	3.8	9.8	10.3	11.2	6.7	15.2	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	431	1694	699	355	2002	1006	220	278	385	247	243	209
V/C Ratio(X)	0.18	0.53	0.23	0.85	0.34	0.11	0.64	0.52	0.38	0.40	0.86	0.29
Avail Cap(c_a), veh/h	529	1694	699	463	2002	1006	279	409	495	387	462	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	23.8	19.8	61.8	16.2	10.3	48.0	54.6	43.0	48.7	59.6	55.0
Incr Delay (d2), s/veh	0.1	1.2	0.8	10.1	0.5	0.2	2.4	1.8	0.7	0.8	9.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	10.4	3.2	5.8	5.9	1.4	4.4	4.9	4.3	3.0	7.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	25.0	20.6	71.9	16.6	10.5	50.4	56.4	43.8	49.4	69.5	55.9
LnGrp LOS	B	C	C	E	B	B	D	E	D	D	E	E
Approach Vol, veh/h		1140			1085			433			367	
Approach Delay, s/veh		23.7			31.3			50.2			61.9	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	85.9	15.0	27.9	20.7	76.5	18.3	24.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	50.6	19.6	31.6	18.6	44.6	16.6	34.6
Max Q Clear Time (g_c+I1), s	5.0	0.0	8.7	13.2	13.9	11.2	11.8	17.2
Green Ext Time (p_c), s	0.1	0.0	0.1	1.1	0.4	0.0	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	902	55	85	615	49	41	44	96	37	36	26
Future Volume (veh/h)	27	902	55	85	615	49	41	44	96	37	36	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	28	949	58	89	647	52	43	46	101	39	38	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	475	2301	1119	451	2718	1212	141	68	150	122	56	40
Arrive On Green	0.69	0.69	0.69	0.04	0.77	0.77	0.03	0.14	0.14	0.06	0.06	0.06
Sat Flow, veh/h	605	3357	1560	1810	3526	1572	1725	496	1089	1260	937	666
Grp Volume(v), veh/h	28	949	58	89	647	52	43	0	147	39	0	65
Grp Sat Flow(s),veh/h/ln	605	1678	1560	1810	1763	1572	1725	0	1585	1260	0	1602
Q Serve(g_s), s	1.8	14.9	1.3	1.6	6.2	0.9	2.7	0.0	10.6	3.6	0.0	4.8
Cycle Q Clear(g_c), s	1.8	14.9	1.3	1.6	6.2	0.9	2.7	0.0	10.6	4.9	0.0	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.42
Lane Grp Cap(c), veh/h	475	2301	1119	451	2718	1212	141	0	218	122	0	96
V/C Ratio(X)	0.06	0.41	0.05	0.20	0.24	0.04	0.31	0.00	0.67	0.32	0.00	0.68
Avail Cap(c_a), veh/h	475	2301	1119	507	2718	1212	352	0	561	241	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.2	8.3	5.0	5.6	3.9	3.3	49.1	0.0	49.2	56.0	0.0	55.3
Incr Delay (d2), s/veh	0.2	0.5	0.1	0.2	0.2	0.1	1.2	0.0	3.6	1.5	0.0	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.2	0.4	0.6	2.0	0.3	1.2	0.0	4.4	1.2	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	8.8	5.1	5.8	4.1	3.3	50.3	0.0	52.8	57.4	0.0	63.3
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1035			788			190			104	
Approach Delay, s/veh		8.5			4.2			52.2			61.1	
Approach LOS		A			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		22.0	10.2	87.8	9.3	12.7		98.0				
Change Period (Y+Rc), s		5.5	5.5	5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		42.5	8.5	52.5	18.5	18.5		66.5				
Max Q Clear Time (g_c+I1), s		12.6	3.6	16.9	4.7	6.9		8.2				
Green Ext Time (p_c), s		0.9	0.1	9.0	0.1	0.3		5.5				

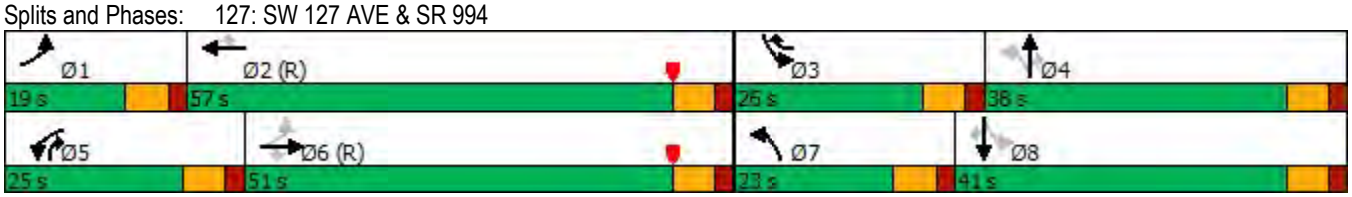
Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	854	155	286	641	104	134	138	140	94	198	57
Future Volume (vph)	74	854	155	286	641	104	134	138	140	94	198	57
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	51.0	51.0	25.0	57.0	26.0	23.0	38.0	25.0	26.0	41.0	41.0
Total Split (%)	13.6%	36.4%	36.4%	17.9%	40.7%	18.6%	16.4%	27.1%	17.9%	18.6%	29.3%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

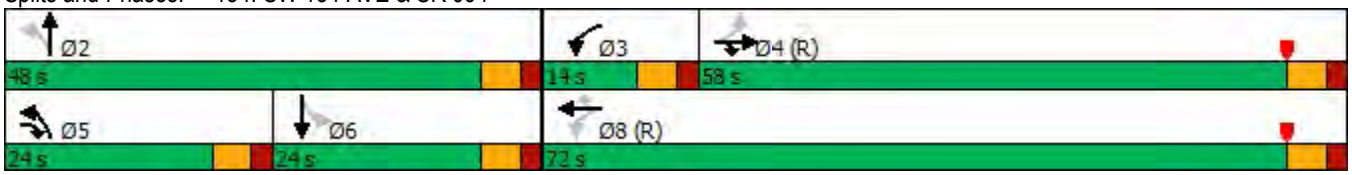


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	27	902	55	85	615	49	41	44	37	36
Future Volume (vph)	27	902	55	85	615	49	41	44	37	36
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5		10.5	23.5	23.5	10.5	23.5	23.5	23.5
Total Split (s)	58.0	58.0		14.0	72.0	72.0	24.0	48.0	24.0	24.0
Total Split (%)	48.3%	48.3%		11.7%	60.0%	60.0%	20.0%	40.0%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

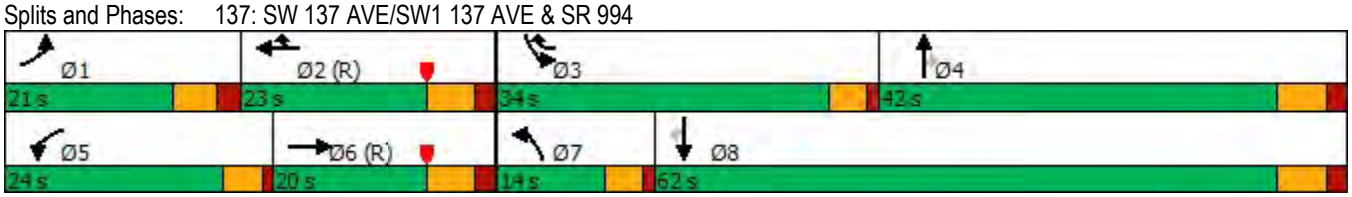


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	43	487	177	325	179	87	256	214	236	501	98
Future Volume (vph)	43	487	177	325	179	87	256	214	236	501	98
Turn Type	Prot	NA	Prot	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases								4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	4.0	5.0	16.0		2.5	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	10.4	9.5	22.4		7.0	13.4	13.4	9.5	13.4	13.4
Total Split (s)	21.0	20.0	24.0	23.0		14.0	42.0	42.0	34.0	62.0	62.0
Total Split (%)	17.5%	16.7%	20.0%	19.2%		11.7%	35.0%	35.0%	28.3%	51.7%	51.7%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	899	163	301	675	109	141	145	147	99	208	60
v/c Ratio	0.19	0.61	0.24	0.72	0.38	0.10	0.53	0.46	0.24	0.31	0.73	0.17
Control Delay	15.1	33.8	7.3	69.2	23.1	2.5	43.4	55.8	4.8	37.5	71.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	33.8	7.3	69.2	23.1	2.5	43.4	55.8	4.8	37.5	71.2	1.0
Queue Length 50th (ft)	28	325	10	138	192	0	98	120	0	67	183	0
Queue Length 95th (ft)	60	470	64	182	284	26	142	181	42	104	257	0
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	474	1485	692	474	1787	1145	297	404	628	423	460	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.61	0.24	0.64	0.38	0.10	0.47	0.36	0.23	0.23	0.45	0.12

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	949	58	89	647	52	43	147	39	65
v/c Ratio	0.07	0.46	0.05	0.22	0.25	0.04	0.21	0.42	0.39	0.51
Control Delay	11.0	16.9	4.9	7.2	6.5	0.9	40.0	17.7	62.8	48.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	16.9	4.9	7.2	6.5	0.9	40.0	17.7	62.8	48.3
Queue Length 50th (ft)	10	370	9	18	81	0	28	30	29	30
Queue Length 95th (ft)	m24	m405	m22	43	133	8	56	83	64	75
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	382	2071	1294	424	2568	1168	297	597	194	226
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.46	0.04	0.21	0.25	0.04	0.14	0.25	0.20	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	588	186	342	188	92	269	225	248	527	103
v/c Ratio	0.27	1.03	0.55	0.46	0.17	0.39	0.34	0.28	0.64	1.16	0.14
Control Delay	57.7	92.4	52.9	41.0	12.9	57.9	25.8	4.0	57.4	123.7	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	92.4	52.9	41.0	12.9	57.9	25.8	4.0	57.4	123.7	2.3
Queue Length 50th (ft)	17	~251	73	126	6	35	139	0	95	~484	0
Queue Length 95th (ft)	37	#407	108	180	54	62	220	50	134	#705	21
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	377	573	557	740	1444	271	784	796	789	456	719
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	1.03	0.33	0.46	0.13	0.34	0.34	0.28	0.31	1.16	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	984	676	6	0	1
Future Vol, veh/h	0	984	676	6	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1036	712	6	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	359
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	520
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	520
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	520
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	998	60	21	864	5	7	1	29	7	1	2
Future Vol, veh/h	2	998	60	21	864	5	7	1	29	7	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1051	63	22	909	5	7	1	31	7	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	914	0	0	1114	0	0	1586	2045	557	1486	2074	457
Stage 1	-	-	-	-	-	-	1087	1087	-	956	956	-
Stage 2	-	-	-	-	-	-	499	958	-	530	1118	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	754	-	-	573	-	-	74	57	479	88	54	556
Stage 1	-	-	-	-	-	-	234	295	-	281	339	-
Stage 2	-	-	-	-	-	-	527	338	-	506	285	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	754	-	-	573	-	-	70	55	479	79	52	556
Mov Cap-2 Maneuver	-	-	-	-	-	-	70	55	-	79	52	-
Stage 1	-	-	-	-	-	-	233	294	-	280	326	-
Stage 2	-	-	-	-	-	-	503	325	-	471	284	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	22.6	50.2
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	70	479	754	-	-	573	-	-	90
HCM Lane V/C Ratio	0.105	0.064	0.003	-	-	0.039	-	-	0.117
HCM Control Delay (s)	62.4	13	9.8	-	-	11.5	-	-	50.2
HCM Lane LOS	F	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.3	0.2	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	1042	6	2	854	29	2	1	2	16	3	53
Future Vol, veh/h	48	1042	6	2	854	29	2	1	2	16	3	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	51	1097	6	2	899	31	2	1	2	17	3	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	930	0	0	1103	0	0	1657	2136	552	1570	2124	465
Stage 1	-	-	-	-	-	-	1202	1202	-	919	919	-
Stage 2	-	-	-	-	-	-	455	934	-	651	1205	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	719	-	-	640	-	-	66	50	483	70	51	544
Stage 1	-	-	-	-	-	-	199	260	-	278	353	-
Stage 2	-	-	-	-	-	-	560	347	-	407	259	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	719	-	-	640	-	-	53	46	483	65	47	544
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	46	-	65	47	-
Stage 1	-	-	-	-	-	-	185	242	-	258	352	-
Stage 2	-	-	-	-	-	-	497	346	-	375	241	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	53.8	39.8
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	79	719	-	-	640	-	-	177
HCM Lane V/C Ratio	0.067	0.07	-	-	0.003	-	-	0.428
HCM Control Delay (s)	53.8	10.4	-	-	10.6	-	-	39.8
HCM Lane LOS	F	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	1.9

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	990	59	167	742	28	107
Future Vol, veh/h	990	59	167	742	28	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1042	62	176	781	29	113

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1104	0	1816	552
Stage 1	-	-	-	-	1073	-
Stage 2	-	-	-	-	743	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	605	-	67	472
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	423	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	605	-	48	472
Mov Cap-2 Maneuver	-	-	-	-	48	-
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	300	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	45.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	48	472	-	-	605	-
HCM Lane V/C Ratio	0.614	0.239	-	-	0.291	-
HCM Control Delay (s)	161.3	15	-	-	13.4	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	2.4	0.9	-	-	1.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1025	736	13	0	12
Future Vol, veh/h	10	1025	736	13	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	11	1079	775	14	0	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	789	0	-	0	-	395
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	-	-	3.3
Pot Cap-1 Maneuver	840	-	-	-	0	610
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	840	-	-	-	-	610
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	840	-	-	-	610
HCM Lane V/C Ratio	0.013	-	-	-	0.021
HCM Control Delay (s)	9.3	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	984	671	6	0	9
Future Vol, veh/h	0	984	671	6	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1036	706	6	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	356
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	646
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	646
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	646
HCM Lane V/C Ratio	-	-	-	0.015
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1060	868	6	0	17
Future Vol, veh/h	0	1060	868	6	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1116	914	6	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	460
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	554
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	554
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	554
HCM Lane V/C Ratio	-	-	-	0.032
HCM Control Delay (s)	-	-	-	11.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1048	759	11	0	22
Future Vol, veh/h	0	1048	759	11	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1103	799	12	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	406
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	600
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	600
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	600
HCM Lane V/C Ratio	-	-	-	0.039
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1014	11	32	749	0	34
Future Vol, veh/h	1014	11	32	749	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1067	12	34	788	0	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1079	0	-	540
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.24	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.27	-	-	3.32
Pot Cap-1 Maneuver	-	-	613	-	0	486
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	613	-	-	486
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	486	-	-	613	-
HCM Lane V/C Ratio	0.074	-	-	0.055	-
HCM Control Delay (s)	13	-	-	11.2	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

BUILD 3 2045

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	40	25.0	37.9	62.9	0.23	13.0	E
SW 134 AVE	III	30	32.5	32.4	64.9	0.26	14.2	D
SW 127 AVE	III	30	90.9	43.0	133.9	0.76	20.3	C
Total	III		148.4	113.3	261.7	1.24	17.1	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	26.8	60.7	0.27	15.8	D
SW 134 AVE	III	30	90.9	10.7	101.6	0.76	26.8	B
SW1 137 AVE	III	38	28.2	23.6	51.8	0.26	17.8	D
Total	III		153.0	61.1	214.1	1.28	21.5	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	560	98	265	393	365	131	521	241	292	377	121
Future Volume (vph)	84	560	98	265	393	365	131	521	241	292	377	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3178		3433	3282	2656	3433	3539	1583	3213	1832	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3178		3433	3282	2656	3433	3539	1583	3213	1832	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	589	103	279	414	384	138	548	254	307	397	127
RTOR Reduction (vph)	0	10	0	0	0	24	0	0	175	0	0	92
Lane Group Flow (vph)	88	682	0	279	414	360	138	548	79	307	397	35
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases						4			4			8
Actuated Green, G (s)	8.3	41.0		14.8	46.0	94.8	9.5	25.4	25.4	17.0	32.9	32.9
Effective Green, g (s)	8.3	41.0		14.8	46.0	94.8	9.5	25.4	25.4	17.0	32.9	32.9
Actuated g/C Ratio	0.07	0.34		0.12	0.38	0.79	0.08	0.21	0.21	0.14	0.27	0.27
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	208	1085		423	1258	2098	271	749	335	455	502	378
v/s Ratio Prot	0.03	c0.21		c0.08	0.13	0.10	0.04	0.15		c0.10	c0.22	
v/s Ratio Perm						0.04			0.05			0.03
v/c Ratio	0.42	0.63		0.66	0.33	0.17	0.51	0.73	0.24	0.67	0.79	0.09
Uniform Delay, d1	53.6	33.1		50.2	26.1	3.1	53.0	44.1	39.2	48.9	40.4	32.4
Progression Factor	1.00	1.00		0.80	0.81	3.65	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	2.8		3.5	0.7	0.0	1.5	3.8	0.4	3.9	8.5	0.1
Delay (s)	54.6	35.9		43.8	21.7	11.2	54.5	47.9	39.7	52.8	48.9	32.6
Level of Service	D	D		D	C	B	D	D	D	D	D	C
Approach Delay (s)		38.0			23.7			46.7			47.8	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1189	150	271	701	164	210	180	294	84	195	47
Future Volume (veh/h)	179	1189	150	271	701	164	210	180	294	84	195	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	188	1252	158	285	738	173	221	189	309	88	205	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	392	1570	648	339	1729	871	292	365	451	246	251	216
Arrive On Green	0.07	0.46	0.46	0.10	0.49	0.49	0.12	0.20	0.20	0.05	0.13	0.13
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	188	1252	158	285	738	173	221	189	309	88	205	49
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	7.8	44.1	9.6	11.3	18.9	7.7	15.0	13.0	25.3	5.9	14.9	3.8
Cycle Q Clear(g_c), s	7.8	44.1	9.6	11.3	18.9	7.7	15.0	13.0	25.3	5.9	14.9	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	1570	648	339	1729	871	292	365	451	246	251	216
V/C Ratio(X)	0.48	0.80	0.24	0.84	0.43	0.20	0.76	0.52	0.69	0.36	0.82	0.23
Avail Cap(c_a), veh/h	427	1570	648	438	1729	871	311	409	488	271	302	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	31.9	22.7	62.1	23.0	16.2	44.0	49.8	43.3	48.5	58.9	54.1
Incr Delay (d2), s/veh	0.7	4.3	0.9	10.2	0.8	0.5	9.1	1.4	3.9	0.6	14.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	18.8	3.4	5.5	8.1	3.0	7.2	6.1	10.0	2.7	8.1	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	36.3	23.6	72.4	23.8	16.8	53.1	51.2	47.2	49.2	73.3	54.8
LnGrp LOS	B	D	C	E	C	B	D	D	D	D	E	D
Approach Vol, veh/h		1598			1196			719			342	
Approach Delay, s/veh		33.0			34.3			50.1			64.4	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	75.1	14.1	34.6	20.0	71.3	23.5	25.2
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	60.6	9.6	31.6	17.6	55.6	18.6	22.6
Max Q Clear Time (g_c+I1), s	9.8	0.0	7.9	27.3	13.3	11.6	17.0	16.9
Green Ext Time (p_c), s	0.1	0.0	0.0	0.9	0.3	0.0	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	994	75	155	889	66	85	57	139	67	87	35
Future Volume (veh/h)	27	994	75	155	889	66	85	57	139	67	87	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	28	1046	79	163	936	69	89	60	146	71	92	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	344	2152	1092	389	2558	1141	194	92	223	155	120	48
Arrive On Green	0.64	0.64	0.64	0.05	0.73	0.73	0.06	0.20	0.20	0.10	0.10	0.10
Sat Flow, veh/h	454	3357	1560	1810	3526	1572	1725	460	1120	1195	1168	470
Grp Volume(v), veh/h	28	1046	79	163	936	69	89	0	206	71	0	129
Grp Sat Flow(s),veh/h/ln	454	1678	1560	1810	1763	1572	1725	0	1580	1195	0	1638
Q Serve(g_s), s	2.9	19.5	1.9	3.5	11.9	1.5	5.4	0.0	14.4	7.0	0.0	9.2
Cycle Q Clear(g_c), s	4.7	19.5	1.9	3.5	11.9	1.5	5.4	0.0	14.4	9.8	0.0	9.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		0.29
Lane Grp Cap(c), veh/h	344	2152	1092	389	2558	1141	194	0	315	155	0	168
V/C Ratio(X)	0.08	0.49	0.07	0.42	0.37	0.06	0.46	0.00	0.65	0.46	0.00	0.77
Avail Cap(c_a), veh/h	344	2152	1092	462	2558	1141	357	0	560	226	0	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	11.2	5.7	8.6	6.1	4.7	43.3	0.0	44.2	54.1	0.0	52.5
Incr Delay (d2), s/veh	0.5	0.8	0.1	0.7	0.4	0.1	1.7	0.0	2.3	2.1	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.1	0.6	1.3	4.1	0.5	2.4	0.0	5.8	2.2	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	12.0	5.8	9.3	6.6	4.8	45.0	0.0	46.5	56.2	0.0	59.6
LnGrp LOS	A	B	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1153			1168			295			200	
Approach Delay, s/veh		11.5			6.8			46.1			58.4	
Approach LOS		B			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		28.4	10.2	81.4	11.6	16.8		91.6				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5	10.5	53.5	18.5	19.5		68.5				
Max Q Clear Time (g_c+I1), s		16.4	5.5	21.5	7.4	11.8		13.9				
Green Ext Time (p_c), s		1.3	0.2	10.2	0.1	0.5		8.9				

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	1189	150	271	701	164	210	180	294	84	195	47
Future Volume (vph)	179	1189	150	271	701	164	210	180	294	84	195	47
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	62.0	62.0	24.0	67.0	16.0	25.0	38.0	24.0	16.0	29.0	29.0
Total Split (%)	13.6%	44.3%	44.3%	17.1%	47.9%	11.4%	17.9%	27.1%	17.1%	11.4%	20.7%	20.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

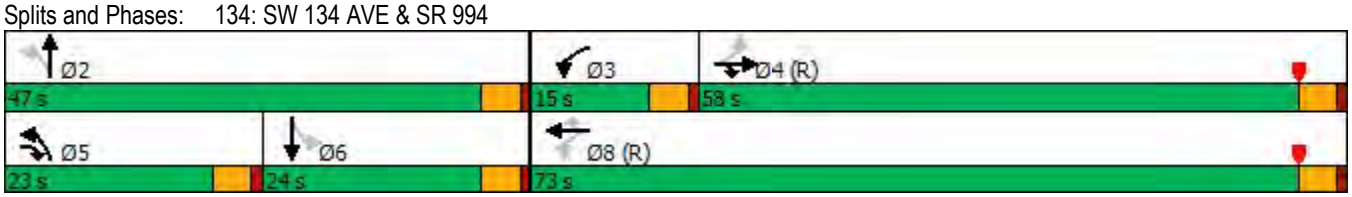
Splits and Phases: 127: SW 127 AVE & SR 994

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	27	994	75	155	889	66	85	57	67	87
Future Volume (vph)	27	994	75	155	889	66	85	57	67	87
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	58.0	58.0		15.0	73.0	73.0	23.0	47.0	24.0	24.0
Total Split (%)	48.3%	48.3%		12.5%	60.8%	60.8%	19.2%	39.2%	20.0%	20.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

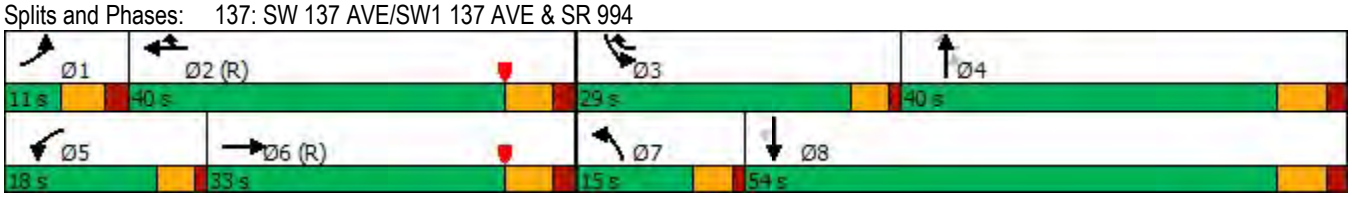


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	84	560	265	393	365	131	521	241	292	377	121
Future Volume (vph)	84	560	265	393	365	131	521	241	292	377	121
Turn Type	Prot	NA	Prot	NA	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases					4			4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	13.6	5.0	16.0		5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	20.0	9.5	22.4		9.5	13.4	13.4	9.5	13.4	13.4
Total Split (s)	11.0	33.0	18.0	40.0		15.0	40.0	40.0	29.0	54.0	54.0
Total Split (%)	9.2%	27.5%	15.0%	33.3%		12.5%	33.3%	33.3%	24.2%	45.0%	45.0%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	188	1252	158	285	738	173	221	189	309	88	205	49
v/c Ratio	0.48	0.85	0.22	0.74	0.45	0.17	0.74	0.52	0.52	0.32	0.78	0.13
Control Delay	18.5	43.0	3.4	72.1	26.8	2.5	53.1	54.6	25.8	37.7	78.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	43.0	3.4	72.1	26.8	2.5	53.1	54.6	25.8	37.7	78.4	0.7
Queue Length 50th (ft)	77	552	0	130	243	0	155	153	146	57	181	0
Queue Length 95th (ft)	122	#724	35	179	310	34	228	230	229	98	268	0
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	413	1470	705	435	1656	1009	308	404	620	289	300	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.85	0.22	0.66	0.45	0.17	0.72	0.47	0.50	0.30	0.68	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	1046	79	163	936	69	89	206	71	129
v/c Ratio	0.11	0.57	0.07	0.47	0.40	0.06	0.32	0.44	0.48	0.68
Control Delay	26.0	32.4	8.9	13.3	10.7	2.6	35.7	18.0	58.0	61.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	32.4	8.9	13.3	10.7	2.6	35.7	18.0	58.0	61.4
Queue Length 50th (ft)	14	428	4	42	158	0	54	57	52	86
Queue Length 95th (ft)	m38	514	m59	90	258	20	87	113	95	145
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	254	1831	1176	363	2342	1070	335	602	198	248
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.57	0.07	0.45	0.40	0.06	0.27	0.34	0.36	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	692	279	414	384	138	548	254	307	397	127
v/c Ratio	0.43	0.63	0.66	0.33	0.17	0.51	0.73	0.50	0.67	0.79	0.25
Control Delay	59.7	37.9	47.5	23.6	5.6	59.5	49.8	10.8	56.1	51.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	37.9	47.5	23.6	5.6	59.5	49.8	10.8	56.1	51.5	2.8
Queue Length 50th (ft)	34	230	104	125	56	53	210	20	118	152	0
Queue Length 95th (ft)	61	#402	128	194	105	87	254	88	158	186	20
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	207	1095	437	1258	2195	300	990	603	655	726	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.63	0.64	0.33	0.17	0.46	0.55	0.42	0.47	0.55	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1096	1004	5	0	11
Future Vol, veh/h	0	1096	1004	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1154	1057	5	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	531
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	388
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	388
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	388
HCM Lane V/C Ratio	-	-	-	0.03
HCM Control Delay (s)	-	-	-	14.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1381	8	22	1007	3	36	2	75	8	1	3
Future Vol, veh/h	4	1381	8	22	1007	3	36	2	75	8	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	4	1454	8	23	1060	3	38	2	79	8	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1063	0	0	1462	0	0	2043	2575	731	1844	2578	532
Stage 1	-	-	-	-	-	-	1466	1466	-	1108	1108	-
Stage 2	-	-	-	-	-	-	577	1109	-	736	1470	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	663	-	-	416	-	-	~ 34	26	369	47	26	497
Stage 1	-	-	-	-	-	-	137	194	-	227	288	-
Stage 2	-	-	-	-	-	-	474	288	-	381	193	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	663	-	-	416	-	-	~ 31	24	369	33	24	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 31	24	-	33	24	-
Stage 1	-	-	-	-	-	-	136	193	-	226	272	-
Stage 2	-	-	-	-	-	-	443	272	-	294	192	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	150.8	127.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	31	369	663	-	-	416	-	-	41
HCM Lane V/C Ratio	1.222	0.214	0.006	-	-	0.056	-	-	0.308
HCM Control Delay (s)	$ 428.8	17.4	10.5	-	-	14.2	-	-	127.9
HCM Lane LOS	F	C	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	4.2	0.8	0	-	-	0.2	-	-	1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	16.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	162	1368	6	2	994	32	6	1	5	20	1	98
Future Vol, veh/h	162	1368	6	2	994	32	6	1	5	20	1	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	171	1440	6	2	1046	34	6	1	5	21	1	103

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1080	0	0	1446	0	0	2313	2869	723	2130	2855	540
Stage 1	-	-	-	-	-	-	1785	1785	-	1067	1067	-
Stage 2	-	-	-	-	-	-	528	1084	-	1063	1788	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	630	-	-	475	-	-	21	17	373	26	17	486
Stage 1	-	-	-	-	-	-	86	135	-	225	301	-
Stage 2	-	-	-	-	-	-	507	296	-	226	135	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	630	-	-	475	-	-	12	12	373	~ 19	12	486
Mov Cap-2 Maneuver	-	-	-	-	-	-	12	12	-	~ 19	12	-
Stage 1	-	-	-	-	-	-	63	98	-	164	300	-
Stage 2	-	-	-	-	-	-	396	295	-	161	98	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0	$ 343	$ 321.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	20	630	-	-	475	-	-	89
HCM Lane V/C Ratio	0.632	0.271	-	-	0.004	-	-	1.407
HCM Control Delay (s)	$ 343	12.8	-	-	12.6	-	-	$ 321.6
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.8	1.1	-	-	0	-	-	9.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	34.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1243	22	98	1000	87	294
Future Vol, veh/h	1243	22	98	1000	87	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1308	23	103	1053	92	309

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1331	0	2053	666
Stage 1	-	-	-	-	1320	-
Stage 2	-	-	-	-	733	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	494	-	~ 46	397
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	494	-	~ 36	397
Mov Cap-2 Maneuver	-	-	-	-	~ 36	-
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	339	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	244.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	36	397	-	-	494	-
HCM Lane V/C Ratio	2.544	0.78	-	-	0.209	-
HCM Control Delay (s)	$ 937.3	39.6	-	-	14.2	-
HCM Lane LOS	F	E	-	-	B	-
HCM 95th %tile Q(veh)	10.3	6.6	-	-	0.8	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	1161	1094	13	0	16
Future Vol, veh/h	39	1161	1094	13	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	41	1222	1152	14	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1166	0	-	0	-	583
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	-	-	3.3
Pot Cap-1 Maneuver	606	-	-	-	0	461
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	606	-	-	-	-	461
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	606	-	-	-	461
HCM Lane V/C Ratio	0.068	-	-	-	0.037
HCM Control Delay (s)	11.4	-	-	-	13.1
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1093	1009	6	0	13
Future Vol, veh/h	0	1093	1009	6	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1151	1062	6	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	534
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	496
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	496
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	496
HCM Lane V/C Ratio	-	-	-	0.028
HCM Control Delay (s)	-	-	-	12.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1393	1017	29	0	11
Future Vol, veh/h	0	1393	1017	29	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1466	1071	31	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	551
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	483
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	483
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	483
HCM Lane V/C Ratio	-	-	-	0.024
HCM Control Delay (s)	-	-	-	12.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	1266	1063	24	0	61
Future Vol, veh/h	0	1266	1063	24	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1333	1119	25	0	64

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	572
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	468
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	468
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	468
HCM Lane V/C Ratio	-	-	-	0.137
HCM Control Delay (s)	-	-	-	13.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1140	21	17	1107	0	125
Future Vol, veh/h	1140	21	17	1107	0	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1200	22	18	1165	0	132

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1222	0	-	611
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.24	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.27	-	-	3.32
Pot Cap-1 Maneuver	-	-	539	-	0	437
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	539	-	-	437
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	437	-	-	539	-
HCM Lane V/C Ratio	0.301	-	-	0.033	-
HCM Control Delay (s)	16.7	-	-	11.9	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

Arterial Level of Service: EB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 137 AVE	III	34	27.2	58.1	85.3	0.23	9.6	F
SW 134 AVE	III	30	32.5	21.2	53.7	0.26	17.2	D
SW 127 AVE	III	30	90.9	46.8	137.7	0.76	19.8	C
Total	III		150.6	126.1	276.7	1.24	16.1	D

Arterial Level of Service: WB SR 994

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SW 127 AVE	III	30	33.9	29.3	63.2	0.27	15.2	D
SW 134 AVE	III	30	90.9	7.5	98.4	0.76	27.7	B
SW1 137 AVE	III	38	28.2	36.5	64.7	0.26	14.3	D
Total	III		153.0	73.3	226.3	1.28	20.4	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	527	88	242	346	293	109	319	274	378	640	123
Future Volume (vph)	51	527	88	242	346	293	109	319	274	378	640	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	6.4
Lane Util. Factor	0.97	0.95		0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3019	3178		3433	3282	2656	3433	3539	1583	3213	1832	1380
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.40	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3019	3178		3433	3282	2656	1429	3539	1583	3213	1832	1380
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	555	93	255	364	308	115	336	288	398	674	129
RTOR Reduction (vph)	0	10	0	0	0	59	0	0	200	0	0	74
Lane Group Flow (vph)	54	638	0	255	364	249	115	336	88	398	674	55
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	Prot	NA		Prot	NA	custom	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases						4	4		4			8
Actuated Green, G (s)	6.1	27.9		13.2	33.5	97.0	42.2	36.7	36.7	20.4	51.6	51.6
Effective Green, g (s)	6.1	27.9		13.2	33.5	97.0	42.2	36.7	36.7	20.4	51.6	51.6
Actuated g/C Ratio	0.05	0.23		0.11	0.28	0.81	0.35	0.31	0.31	0.17	0.43	0.43
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	3.5
Lane Grp Cap (vph)	153	738		377	916	2146	594	1082	484	546	787	593
v/s Ratio Prot	0.02	c0.20		c0.07	0.11	0.06	0.01	0.09		c0.12	c0.37	
v/s Ratio Perm						0.04	0.06		0.06			0.04
v/c Ratio	0.35	0.86		0.68	0.40	0.12	0.19	0.31	0.18	0.73	0.86	0.09
Uniform Delay, d1	55.0	44.2		51.3	35.1	2.4	26.1	31.9	30.6	47.2	30.9	20.3
Progression Factor	1.00	1.00		0.90	0.94	0.49	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	12.9		4.6	1.2	0.0	0.2	0.2	0.2	4.8	9.3	0.1
Delay (s)	56.1	57.1		50.7	34.3	1.2	26.3	32.1	30.8	52.0	40.2	20.4
Level of Service	E	E		D	C	A	C	C	C	D	D	C
Approach Delay (s)		57.0			27.8			30.7			42.0	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	1042	193	357	801	130	168	172	175	117	247	71
Future Volume (veh/h)	92	1042	193	357	801	130	168	172	175	117	247	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1781	1648	1885	1856	1885	1811	1811	1781	1870	1870	1900
Adj Flow Rate, veh/h	97	1097	203	376	843	137	177	181	184	123	260	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	17	1	3	1	6	6	8	2	2	0
Cap, veh/h	336	1479	610	426	1816	938	246	337	466	277	296	255
Arrive On Green	0.04	0.44	0.44	0.12	0.52	0.52	0.10	0.19	0.19	0.07	0.16	0.16
Sat Flow, veh/h	1767	3385	1397	3483	3526	1598	1725	1811	1510	1781	1870	1610
Grp Volume(v), veh/h	97	1097	203	376	843	137	177	181	184	123	260	75
Grp Sat Flow(s),veh/h/ln	1767	1692	1397	1742	1763	1598	1725	1811	1510	1781	1870	1610
Q Serve(g_s), s	4.2	37.8	13.4	14.9	21.3	5.4	11.9	12.7	13.4	8.0	19.0	5.8
Cycle Q Clear(g_c), s	4.2	37.8	13.4	14.9	21.3	5.4	11.9	12.7	13.4	8.0	19.0	5.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	1479	610	426	1816	938	246	337	466	277	296	255
V/C Ratio(X)	0.29	0.74	0.33	0.88	0.46	0.15	0.72	0.54	0.40	0.44	0.88	0.29
Avail Cap(c_a), veh/h	417	1479	610	463	1816	938	279	409	525	398	462	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	32.8	26.0	60.5	21.6	13.1	44.5	51.5	38.1	44.9	57.6	52.0
Incr Delay (d2), s/veh	0.3	3.4	1.5	16.7	0.9	0.3	6.9	1.6	0.7	0.8	12.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	16.1	4.8	7.6	9.1	2.1	5.6	5.9	5.1	3.6	10.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	36.2	27.4	77.2	22.5	13.4	51.4	53.1	38.8	45.7	70.2	52.8
LnGrp LOS	C	D	C	E	C	B	D	D	D	D	E	D
Approach Vol, veh/h		1397			1356			542			458	
Approach Delay, s/veh		33.9			36.7			47.7			60.7	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	78.5	16.5	32.5	23.5	67.6	20.4	28.6
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	50.6	19.6	31.6	18.6	44.6	16.6	34.6
Max Q Clear Time (g_c+I1), s	6.2	0.0	10.0	15.4	16.9	15.4	13.9	21.0
Green Ext Time (p_c), s	0.1	0.0	0.2	1.4	0.2	0.0	0.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1103	93	107	768	62	76	56	120	46	46	33
Future Volume (veh/h)	34	1103	93	107	768	62	76	56	120	46	46	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	36	1161	98	113	808	65	80	59	126	48	48	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	409	2278	1145	362	2669	1190	187	85	182	131	70	51
Arrive On Green	0.68	0.68	0.68	0.04	0.76	0.76	0.06	0.17	0.17	0.08	0.08	0.08
Sat Flow, veh/h	514	3357	1560	1810	3526	1572	1725	506	1081	1218	926	675
Grp Volume(v), veh/h	36	1161	98	113	808	65	80	0	185	48	0	83
Grp Sat Flow(s),veh/h/ln	514	1678	1560	1810	1763	1572	1725	0	1587	1218	0	1601
Q Serve(g_s), s	2.9	20.4	2.1	2.1	8.7	1.3	5.0	0.0	13.2	4.6	0.0	6.1
Cycle Q Clear(g_c), s	2.9	20.4	2.1	2.1	8.7	1.3	5.0	0.0	13.2	6.7	0.0	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.68	1.00		0.42
Lane Grp Cap(c), veh/h	409	2278	1145	362	2669	1190	187	0	267	131	0	121
V/C Ratio(X)	0.09	0.51	0.09	0.31	0.30	0.05	0.43	0.00	0.69	0.37	0.00	0.69
Avail Cap(c_a), veh/h	409	2278	1145	401	2669	1190	372	0	562	227	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.7	9.5	4.5	7.2	4.6	3.7	46.0	0.0	47.0	55.4	0.0	54.1
Incr Delay (d2), s/veh	0.4	0.8	0.1	0.5	0.3	0.1	1.6	0.0	3.2	1.7	0.0	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	7.2	0.7	0.8	2.8	0.4	2.2	0.0	5.4	1.5	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	10.3	4.7	7.7	4.9	3.8	47.6	0.0	50.2	57.1	0.0	60.8
LnGrp LOS	A	B	A	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1295			986			265			131	
Approach Delay, s/veh		9.8			5.1			49.4			59.5	
Approach LOS		A			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		24.7	9.4	86.0	11.1	13.6		95.3				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		42.5	7.5	56.5	19.5	18.5		68.5				
Max Q Clear Time (g_c+I1), s		15.2	4.1	22.4	7.0	8.7		10.7				
Green Ext Time (p_c), s		1.1	0.1	12.1	0.1	0.3		7.3				

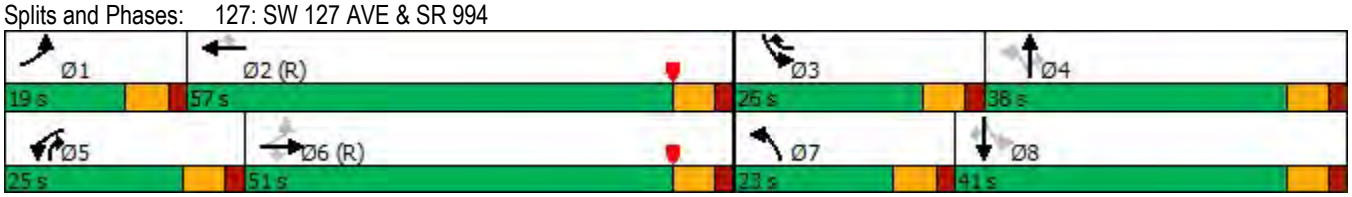
Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	1042	193	357	801	130	168	172	175	117	247	71
Future Volume (vph)	92	1042	193	357	801	130	168	172	175	117	247	71
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	1	6		5	2	3	7	4	5	3	8	
Permitted Phases	6		6			2	4		4	8		8
Detector Phase	1	6	6	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	11.4	28.4	28.4	11.4	28.4	11.4	11.4	28.4	11.4	11.4	28.4	28.4
Total Split (s)	19.0	51.0	51.0	25.0	57.0	26.0	23.0	38.0	25.0	26.0	41.0	41.0
Total Split (%)	13.6%	36.4%	36.4%	17.9%	40.7%	18.6%	16.4%	27.1%	17.9%	18.6%	29.3%	29.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 127: SW 127 AVE & SR 994

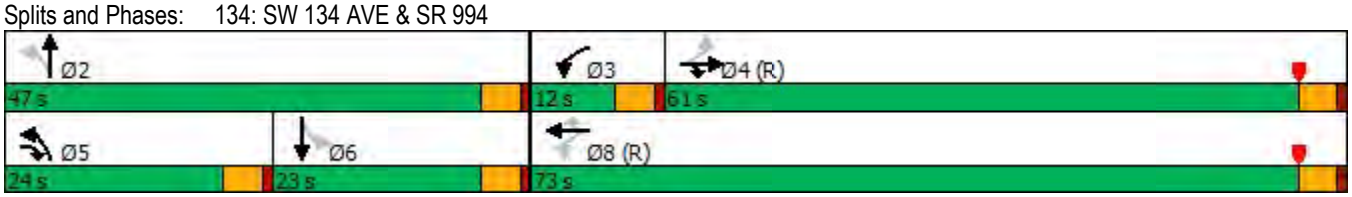


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	34	1103	93	107	768	62	76	56	46	46
Future Volume (vph)	34	1103	93	107	768	62	76	56	46	46
Turn Type	Perm	NA	pt+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	NA
Protected Phases		4	4 5	3	8		5	2		6
Permitted Phases	4			8		8	2		6	
Detector Phase	4	4	4 5	3	8	8	5	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	61.0	61.0		12.0	73.0	73.0	24.0	47.0	23.0	23.0
Total Split (%)	50.8%	50.8%		10.0%	60.8%	60.8%	20.0%	39.2%	19.2%	19.2%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead			Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes		Yes	Yes
Recall Mode	C-Max	C-Max		None	C-Max	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994

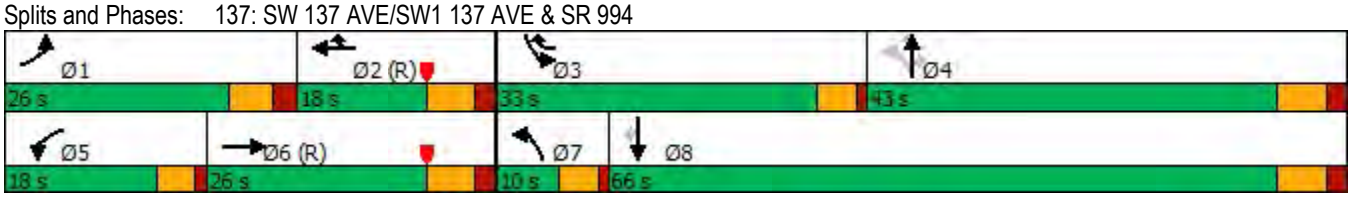


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	51	527	242	346	293	109	319	274	378	640	123
Future Volume (vph)	51	527	242	346	293	109	319	274	378	640	123
Turn Type	Prot	NA	Prot	NA	custom	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	5	2	2 3	7	4		3	8	
Permitted Phases					4	4		4			8
Detector Phase	1	6	5	2	2 3	7	4	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	4.0	5.0	11.6		2.5	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	11.0	10.4	9.5	18.0		7.0	13.4	13.4	9.5	13.4	13.4
Total Split (s)	26.0	26.0	18.0	18.0		10.0	43.0	43.0	33.0	66.0	66.0
Total Split (%)	21.7%	21.7%	15.0%	15.0%		8.3%	35.8%	35.8%	27.5%	55.0%	55.0%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	97	1097	203	376	843	137	177	181	184	123	260	75
v/c Ratio	0.31	0.84	0.32	0.79	0.52	0.14	0.64	0.50	0.27	0.36	0.78	0.19
Control Delay	19.1	46.8	12.0	70.7	29.3	2.7	44.1	53.6	4.7	35.1	70.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	46.8	12.0	70.7	29.3	2.7	44.1	53.6	4.7	35.1	70.0	1.6
Queue Length 50th (ft)	39	488	34	171	284	0	118	146	3	79	228	0
Queue Length 95th (ft)	77	#699	106	228	400	32	166	215	48	118	309	4
Internal Link Dist (ft)		1222			1328			526			1118	
Turn Bay Length (ft)	300		250	385		190	385		385	275		160
Base Capacity (vph)	366	1306	628	496	1636	1090	295	410	693	435	460	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.84	0.32	0.76	0.52	0.13	0.60	0.44	0.27	0.28	0.57	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	1161	98	113	808	65	80	185	48	83
v/c Ratio	0.11	0.56	0.08	0.34	0.32	0.06	0.34	0.49	0.44	0.58
Control Delay	13.1	21.2	5.5	9.3	7.5	2.0	40.6	21.9	62.9	52.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	21.2	5.5	9.3	7.5	2.0	40.6	21.9	62.9	52.3
Queue Length 50th (ft)	15	462	18	24	111	0	51	56	36	43
Queue Length 95th (ft)	m32	552	m35	56	186	16	86	114	73	93
Internal Link Dist (ft)		272			408			1264		1117
Turn Bay Length (ft)	225		225	185		185	185		150	
Base Capacity (vph)	325	2058	1293	338	2542	1155	322	596	187	226
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.56	0.08	0.33	0.32	0.06	0.25	0.31	0.26	0.37

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	54	648	255	364	308	115	336	288	398	674	129
v/c Ratio	0.31	0.87	0.67	0.38	0.13	0.19	0.31	0.42	0.73	0.86	0.19
Control Delay	58.0	58.1	55.0	36.5	0.2	15.3	32.3	5.3	55.0	41.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	58.1	55.0	36.5	0.2	15.3	32.3	5.3	55.0	41.9	1.6
Queue Length 50th (ft)	21	257	100	128	0	21	102	0	152	237	0
Queue Length 95th (ft)	42	#443	145	191	3	30	141	61	195	293	16
Internal Link Dist (ft)		500		377			374			423	
Turn Bay Length (ft)	300		350		405	240		440	425		195
Base Capacity (vph)	503	747	402	949	2324	616	1121	698	763	909	769
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.87	0.63	0.38	0.13	0.19	0.30	0.41	0.52	0.74	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1230	870	7	0	8
Future Vol, veh/h	0	1230	870	7	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	7	0	0	49
Mvmt Flow	0	1295	916	7	0	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	462
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.88
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.79
Pot Cap-1 Maneuver	0	-	-	-	0	436
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	436
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	436
HCM Lane V/C Ratio	-	-	-	0.019
HCM Control Delay (s)	-	-	-	13.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1221	76	26	1093	7	9	1	36	9	1	3
Future Vol, veh/h	2	1221	76	26	1093	7	9	1	36	9	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	90	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	5	24	11	5	0	0	0	0	0	0	0
Mvmt Flow	2	1285	80	27	1151	7	9	1	38	9	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1158	0	0	1365	0	0	1959	2541	683	1856	2578	579
Stage 1	-	-	-	-	-	-	1329	1329	-	1209	1209	-
Stage 2	-	-	-	-	-	-	630	1212	-	647	1369	-
Critical Hdwy	4.1	-	-	4.32	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.31	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	611	-	-	455	-	-	39	27	396	46	26	463
Stage 1	-	-	-	-	-	-	166	226	-	197	258	-
Stage 2	-	-	-	-	-	-	441	257	-	431	216	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	611	-	-	455	-	-	36	25	396	38	24	463
Mov Cap-2 Maneuver	-	-	-	-	-	-	36	25	-	38	24	-
Stage 1	-	-	-	-	-	-	166	225	-	196	243	-
Stage 2	-	-	-	-	-	-	410	242	-	387	215	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	39.6	113.5
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	36	396	611	-	-	455	-	-	46
HCM Lane V/C Ratio	0.263	0.096	0.003	-	-	0.06	-	-	0.297
HCM Control Delay (s)	137.5	15.1	10.9	-	-	13.4	-	-	113.5
HCM Lane LOS	F	C	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.9	0.3	0	-	-	0.2	-	-	1

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	1277	8	2	1081	37	2	1	2	20	4	67
Future Vol, veh/h	60	1277	8	2	1081	37	2	1	2	20	4	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	10	32	0	5	8	0	0	0	9	0	2
Mvmt Flow	63	1344	8	2	1138	39	2	1	2	21	4	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1177	0	0	1352	0	0	2049	2655	676	1961	2640	589
Stage 1	-	-	-	-	-	-	1474	1474	-	1162	1162	-
Stage 2	-	-	-	-	-	-	575	1181	-	799	1478	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.68	6.5	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.68	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.59	4	3.32
Pot Cap-1 Maneuver	578	-	-	516	-	-	33	23	401	35	24	452
Stage 1	-	-	-	-	-	-	135	192	-	196	272	-
Stage 2	-	-	-	-	-	-	475	266	-	330	192	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	578	-	-	516	-	-	22	20	401	31	21	452
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	20	-	31	21	-
Stage 1	-	-	-	-	-	-	120	171	-	175	271	-
Stage 2	-	-	-	-	-	-	393	265	-	291	171	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	129.4	189.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	34	578	-	-	516	-	-	92
HCM Lane V/C Ratio	0.155	0.109	-	-	0.004	-	-	1.041
HCM Control Delay (s)	129.4	12	-	-	12	-	-	189.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.5	0.4	-	-	0	-	-	6.2

Intersection	
Int Delay, s/veh	16.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1211	74	222	928	36	134
Future Vol, veh/h	1211	74	222	928	36	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	250	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	9	0	6	5	5	4
Mvmt Flow	1275	78	234	977	38	141

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1353	0	2271	677
Stage 1	-	-	-	-	1314	-
Stage 2	-	-	-	-	957	-
Critical Hdwy	-	-	4.22	-	6.9	6.98
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.26	-	3.55	3.34
Pot Cap-1 Maneuver	-	-	484	-	~ 33	391
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	326	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	484	-	~ 17	391
Mov Cap-2 Maneuver	-	-	-	-	~ 17	-
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	169	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	233.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	17	391	-	-	484	-
HCM Lane V/C Ratio	2.229	0.361	-	-	0.483	-
HCM Control Delay (s)	$ 1030.8	19.3	-	-	19.2	-
HCM Lane LOS	F	C	-	-	C	-
HCM 95th %tile Q(veh)	5.3	1.6	-	-	2.6	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	1256	921	16	0	15
Future Vol, veh/h	13	1256	921	16	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	9	6	10	24	0
Mvmt Flow	14	1322	969	17	0	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	986	0	-	0	-	493
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	-	-	3.3
Pot Cap-1 Maneuver	709	-	-	-	0	527
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	709	-	-	-	-	527
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	709	-	-	-	527
HCM Lane V/C Ratio	0.019	-	-	-	0.03
HCM Control Delay (s)	10.2	-	-	-	12
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1229	870	7	0	11
Future Vol, veh/h	0	1229	870	7	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	0	1294	916	7	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	462
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	552
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	552
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	552
HCM Lane V/C Ratio	-	-	-	0.021
HCM Control Delay (s)	-	-	-	11.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.1					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↱			↱
Traffic Vol, veh/h	0	1299	1098	7	0	22
Future Vol, veh/h	0	1299	1098	7	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	0	1367	1156	7	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	582
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	461
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	461
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	461
HCM Lane V/C Ratio	-	-	-	0.05
HCM Control Delay (s)	-	-	-	13.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1285	949	13	0	28
Future Vol, veh/h	0	1285	949	13	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	5	3	5	2	0
Mvmt Flow	0	1353	999	14	0	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	507
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	516
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	516
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	516
HCM Lane V/C Ratio	-	-	-	0.057
HCM Control Delay (s)	-	-	-	12.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1243	13	40	938	0	43
Future Vol, veh/h	1243	13	40	938	0	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	0	7	5	2	2
Mvmt Flow	1308	14	42	987	0	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1322	0	-	661
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.24	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.27	-	-	3.32
Pot Cap-1 Maneuver	-	-	493	-	0	405
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	493	-	-	405
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	405	-	-	493	-
HCM Lane V/C Ratio	0.112	-	-	0.085	-
HCM Control Delay (s)	15	-	-	13	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0.3	-

Appendix L: Predictive Method for Urban and Suburban Arterials Worksheets

Note: The SERPM forecast adjusted volumes for the SR 994 corridor (Figure 25) were utilized for this effort. For study areas located between the major intersections considered in the model, an average AADT was calculated for the neighboring roads and applied.

Segmentation Approach:

Segment 1 from center of 137 Ave to center of 134 Ave
Segment 2 from center of 134 Ave to center of 133 Ave
Segment 3 from center of 133 Ave to center of 132 Ave
Segment 4 from center of 132 Ave to center of 130 Ave
Segment 5 from center of 130 Ave to center of 129 Ave
Segment 6 from center of 129 Ave to center of 128 Ave
Segment 7 from center of 128 Ave to center of 127 Ave
Segment 8 from center of 127 Ave to center of 125 Ave

Intersection 1 - SW 137 Ave
Intersection 2 – SW 134 Ave
Intersection 3 – SW 133 Ave
Intersection 4 – SW 132 Pl
Intersection 5 – SW 132 Ave
Intersection 6 – SW 130 Ave
Intersection 7 – SW 129 Ave
Intersection 8 – SW 127 Ave

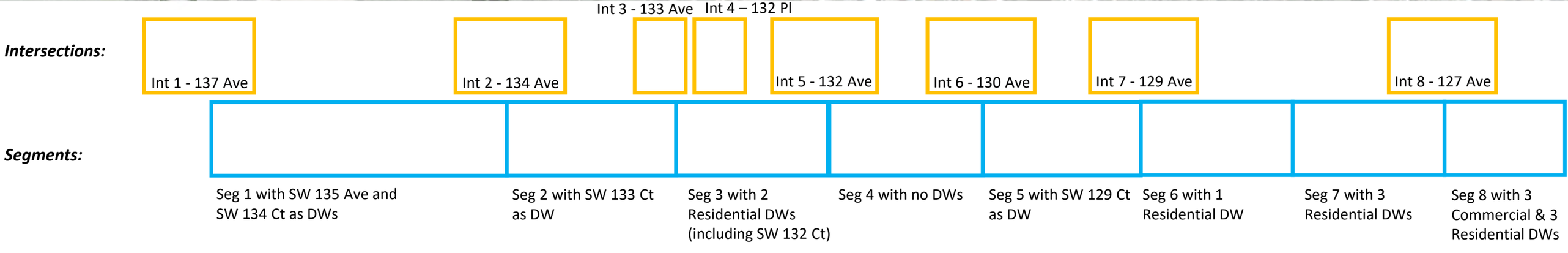
The following streets are being considered as driveways due to the low vehicular traffic and included as part of a segment:

SW 135 Ave, SW 134 Ct, SW 133 Ct, SW 132 Ct, and SW 129 Ct

Legend:

Segment

Intersection



NO BUILD

Worksheet 3A -- Predicted Crashes by Severity and Site Type and Observed Crashes Using the Site-Specific EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision type / Site type	**Predicted average crash frequency (crashes/year)**			**Observed crashes, $N_{observed}$** (crashes/year)	**Overdispersion Parameter, k**	**Weighted adjustment, w**	**Expected average crash frequency, $N_{expected}$**
	$N_{predicted}$ (TOTAL)	$N_{predicted}$ (FI)	$N_{predicted}$ (PDO)			Equation A-5 from Part C Appendix	Equation A-4 from Part C Appendix
ROADWAY SEGMENTS							
Multiple-vehicle nondriveway							
Segment 1	0.945	0.274	0.671	3.0	0.840	0.558	1.854
Segment 2	0.520	0.151	0.370	1.4	0.840	0.696	0.788
Segment 3	0.485	0.140	0.344	0.4	0.840	0.711	0.460
Segment 4	0.687	0.198	0.489	1.4	0.840	0.634	0.948
Segment 5	0.738	0.213	0.525	0.6	0.840	0.617	0.685
Segment 6	0.738	0.213	0.525	0.2	0.840	0.617	0.532
Segment 7	0.473	0.131	0.342	2.2	1.320	0.616	1.137
Segment 8	0.609	0.166	0.443	2.2	1.320	0.554	1.318
Single-vehicle							
Segment 1	0.265	0.049	0.216	0.60	0.810	0.823	0.325
Segment 2	0.137	0.025	0.112	0.80	0.810	0.900	0.203
Segment 3	0.127	0.023	0.104	0.40	0.810	0.906	0.153
Segment 4	0.143	0.024	0.119	0.00	0.810	0.896	0.128
Segment 5	0.154	0.026	0.128	0.20	0.810	0.889	0.159
Segment 6	0.154	0.026	0.128	0.00	0.810	0.889	0.137
Segment 7	0.086	0.015	0.071	0.00	0.860	0.931	0.080
Segment 8	0.094	0.017	0.077	0.20	0.860	0.925	0.102
Multiple-vehicle driveway-related							
Segment 1	0.040	0.013	0.027	0.00	0.810	0.969	0.039
Segment 2	0.021	0.007	0.014	0.00	0.810	0.983	0.021
Segment 3	0.020	0.006	0.013	0.00	0.810	0.984	0.019
Segment 4	0.000	0.000	0.000	0.00	0.810	1.000	0.000
Segment 5	0.026	0.008	0.018	0.00	0.810	0.979	0.026
Segment 6	0.026	0.008	0.018	0.00	0.810	0.979	0.026
Segment 7	0.014	0.004	0.010	0.00	1.390	0.981	0.014
Segment 8	0.081	0.023	0.058	0.00	1.390	0.899	0.073
INTERSECTIONS							
Multiple-vehicle							
Intersection 1	3.961	1.239	2.722	11.0	0.390	0.393	8.234
Intersection 2	2.918	1.167	1.751	13.0	0.400	0.461	8.348
Intersection 3	2.236	0.749	1.488	1.6	0.800	0.359	1.828
Intersection 4	1.787	0.679	1.109	0.6	0.800	0.412	1.089
Intersection 5	2.796	0.892	1.904	6.0	0.800	0.309	5.010
Intersection 6	3.440	1.378	2.062	2.6	0.400	0.421	2.953
Intersection 7	3.172	1.258	1.914	3.0	0.400	0.441	3.076
Intersection 8	4.524	1.521	3.002	23.6	0.390	0.362	16.699
Single-vehicle							
Intersection 1	0.306	0.091	0.216	0.4	0.360	0.901	0.316
Intersection 2	0.286	0.082	0.204	0.8	0.650	0.843	0.367
Intersection 3	0.276	0.084	0.192	0.0	1.140	0.761	0.210
Intersection 4	0.189	0.059	0.131	0.0	1.140	0.822	0.156
Intersection 5	0.331	0.099	0.232	0.6	1.140	0.726	0.404
Intersection 6	0.330	0.101	0.229	0.4	0.650	0.823	0.342
Intersection 7	0.318	0.099	0.219	0.4	0.650	0.829	0.332
Intersection 8	0.271	0.068	0.203	0.4	0.360	0.911	0.283
COMBINED (sum of column)	33.725	11.327	22.398	78	--	--	58.872

BUILD 1

Worksheet 3A -- Predicted Crashes by Severity and Site Type and Observed Crashes Using the Site-Specific EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision type / Site type	**Predicted average crash frequency (crashes/year)**			**Observed crashes, $N_{observed}$** (crashes/year)	**Overdispersion Parameter, k**	**Weighted adjustment, w**	**Expected average crash frequency, $N_{expected}$**
	$N_{predicted}$ (TOTAL)	$N_{predicted}$ (FI)	$N_{predicted}$ (PDO)			Equation A-5 from Part C Appendix	Equation A-4 from Part C Appendix
ROADWAY SEGMENTS							
Multiple-vehicle nondriveway							
Segment 1	1.039	0.301	0.738	3.0	0.840	0.534	1.953
Segment 2	0.552	0.160	0.392	1.4	0.840	0.683	0.821
Segment 3	0.552	0.160	0.392	0.4	0.840	0.683	0.504
Segment 4	0.784	0.226	0.558	1.4	0.840	0.603	1.029
Segment 5	0.784	0.226	0.558	0.6	0.840	0.603	0.711
Segment 6	0.784	0.226	0.558	0.2	0.840	0.603	0.552
Segment 7	0.521	0.143	0.378	2.2	1.320	0.592	1.205
Segment 8	0.617	0.168	0.449	2.2	1.320	0.551	1.327
Single-vehicle							
Segment 1	0.261	0.047	0.215	0.60	0.810	0.825	0.320
Segment 2	0.133	0.023	0.110	0.80	0.810	0.903	0.198
Segment 3	0.133	0.023	0.110	0.40	0.810	0.903	0.159
Segment 4	0.150	0.025	0.125	0.00	0.810	0.892	0.133
Segment 5	0.150	0.025	0.125	0.20	0.810	0.892	0.155
Segment 6	0.150	0.025	0.125	0.00	0.810	0.892	0.133
Segment 7	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 8	0.094	0.017	0.077	0.20	0.860	0.925	0.102
Multiple-vehicle driveway-related							
Segment 1	0.041	0.013	0.028	0.00	0.810	0.968	0.040
Segment 2	0.021	0.007	0.014	0.00	0.810	0.983	0.021
Segment 3	0.043	0.014	0.029	0.00	0.810	0.967	0.041
Segment 4	0.000	0.000	0.000	0.00	0.810	1.000	0.000
Segment 5	0.026	0.009	0.018	0.00	0.810	0.979	0.026
Segment 6	0.026	0.009	0.018	0.00	0.810	0.979	0.026
Segment 7	0.015	0.004	0.011	0.00	1.390	0.979	0.015
Segment 8	0.082	0.023	0.059	0.00	1.390	0.898	0.073
INTERSECTIONS							
Multiple-vehicle							
Intersection 1	2.425	0.767	1.659	11.0	0.390	0.514	6.593
Intersection 2	2.599	0.867	1.732	13.0	0.390	0.497	7.834
Intersection 3	1.694	0.566	1.129	1.6	0.800	0.425	1.640
Intersection 4	1.825	0.691	1.134	0.6	0.800	0.406	1.098
Intersection 5	2.042	0.650	1.392	6.0	0.800	0.380	4.497
Intersection 6	1.794	0.725	1.069	2.6	0.400	0.582	2.131
Intersection 7	1.679	0.673	1.006	3.0	0.400	0.598	2.209
Intersection 8	4.046	1.378	2.668	23.6	0.390	0.388	16.015
Single-vehicle							
Intersection 1	0.181	0.052	0.129	0.4	0.360	0.939	0.194
Intersection 2	0.162	0.042	0.121	0.8	0.360	0.945	0.198
Intersection 3	0.188	0.057	0.132	0.0	1.140	0.823	0.155
Intersection 4	0.175	0.054	0.121	0.0	1.140	0.834	0.146
Intersection 5	0.224	0.067	0.158	0.6	1.140	0.796	0.301
Intersection 6	0.164	0.050	0.114	0.4	0.650	0.903	0.187
Intersection 7	0.160	0.049	0.111	0.4	0.650	0.906	0.183
Intersection 8	0.232	0.056	0.176	0.4	0.360	0.923	0.245
COMBINED (sum of column)	26.639	8.632	18.007	78	--	--	53.254

BUILD 2

Worksheet 3A -- Predicted Crashes by Severity and Site Type and Observed Crashes Using the Site-Specific EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision type / Site type	**Predicted average crash frequency (crashes/year)**			**Observed crashes, $N_{observed}$** (crashes/year)	**Overdispersion Parameter, k**	**Weighted adjustment, w**	**Expected average crash frequency, $N_{expected}$**
	$N_{predicted}$ (TOTAL)	$N_{predicted}$ (FI)	$N_{predicted}$ (PDO)			Equation A-5 from Part C Appendix	Equation A-4 from Part C Appendix
ROADWAY SEGMENTS							
Multiple-vehicle nondriveway							
Segment 1	0.747	0.209	0.538	3.0	1.320	0.503	1.866
Segment 2	0.392	0.110	0.283	1.4	1.320	0.659	0.736
Segment 3	0.392	0.110	0.283	0.4	1.320	0.659	0.395
Segment 4	0.521	0.143	0.378	1.4	1.320	0.592	0.879
Segment 5	0.521	0.143	0.378	0.6	1.320	0.592	0.553
Segment 6	0.521	0.143	0.378	0.2	1.320	0.592	0.390
Segment 7	0.521	0.143	0.378	2.2	1.320	0.592	1.205
Segment 8	0.617	0.168	0.449	2.2	1.320	0.551	1.327
Single-vehicle							
Segment 1	0.158	0.027	0.131	0.60	0.860	0.880	0.211
Segment 2	0.080	0.014	0.066	0.80	0.860	0.936	0.126
Segment 3	0.080	0.014	0.066	0.40	0.860	0.936	0.101
Segment 4	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 5	0.088	0.016	0.073	0.20	0.860	0.929	0.096
Segment 6	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 7	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 8	0.094	0.017	0.077	0.20	0.860	0.925	0.102
Multiple-vehicle driveway-related							
Segment 1	0.008	0.002	0.006	0.00	1.390	0.989	0.008
Segment 2	0.004	0.001	0.003	0.00	1.390	0.994	0.004
Segment 3	0.008	0.002	0.006	0.00	1.390	0.989	0.008
Segment 4	0.000	0.000	0.000	0.00	1.390	1.000	0.000
Segment 5	0.005	0.001	0.004	0.00	1.390	0.993	0.005
Segment 6	0.005	0.001	0.004	0.00	1.390	0.993	0.005
Segment 7	0.015	0.004	0.011	0.00	1.390	0.979	0.015
Segment 8	0.082	0.023	0.059	0.00	1.390	0.898	0.073
INTERSECTIONS							
Multiple-vehicle							
Intersection 1	2.303	0.728	1.575	11.0	0.390	0.527	6.418
Intersection 2	2.599	0.867	1.732	13.0	0.390	0.497	7.834
Intersection 3	1.694	0.566	1.129	1.6	0.800	0.425	1.640
Intersection 4	1.825	0.691	1.134	0.6	0.800	0.406	1.098
Intersection 5	2.042	0.650	1.392	6.0	0.800	0.380	4.497
Intersection 6	1.794	0.725	1.069	2.6	0.400	0.582	2.131
Intersection 7	1.679	0.673	1.006	3.0	0.400	0.598	2.209
Intersection 8	4.091	1.394	2.697	23.6	0.390	0.385	16.083
Single-vehicle							
Intersection 1	0.172	0.050	0.122	0.4	0.360	0.942	0.185
Intersection 2	0.162	0.042	0.121	0.8	0.360	0.945	0.198
Intersection 3	0.188	0.057	0.132	0.0	1.140	0.823	0.155
Intersection 4	0.175	0.054	0.121	0.0	1.140	0.834	0.146
Intersection 5	0.224	0.067	0.158	0.6	1.140	0.796	0.301
Intersection 6	0.164	0.050	0.114	0.4	0.650	0.903	0.187
Intersection 7	0.160	0.049	0.111	0.4	0.650	0.906	0.183
Intersection 8	0.234	0.057	0.177	0.4	0.360	0.922	0.247
COMBINED (sum of column)	24.634	8.059	16.574	78	--	--	51.866

BUILD 3

Worksheet 3A -- Predicted Crashes by Severity and Site Type and Observed Crashes Using the Site-Specific EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision type / Site type	**Predicted average crash frequency (crashes/year)**			**Observed crashes, $N_{observed}$** (crashes/year)	**Overdispersion Parameter, k**	**Weighted adjustment, w**	**Expected average crash frequency, $N_{expected}$**
	$N_{predicted}$ (TOTAL)	$N_{predicted}$ (FI)	$N_{predicted}$ (PDO)			Equation A-5 from Part C Appendix	Equation A-4 from Part C Appendix
ROADWAY SEGMENTS							
Multiple-vehicle nondriveway							
Segment 1	0.747	0.209	0.538	3.0	1.320	0.503	1.866
Segment 2	0.392	0.110	0.283	1.4	1.320	0.659	0.736
Segment 3	0.392	0.110	0.283	0.4	1.320	0.659	0.395
Segment 4	0.521	0.143	0.378	1.4	1.320	0.592	0.879
Segment 5	0.521	0.143	0.378	0.6	1.320	0.592	0.553
Segment 6	0.521	0.143	0.378	0.2	1.320	0.592	0.390
Segment 7	0.521	0.143	0.378	2.2	1.320	0.592	1.205
Segment 8	0.617	0.168	0.449	2.2	1.320	0.551	1.327
Single-vehicle							
Segment 1	0.158	0.027	0.131	0.60	0.860	0.880	0.211
Segment 2	0.080	0.014	0.066	0.80	0.860	0.936	0.126
Segment 3	0.080	0.014	0.066	0.40	0.860	0.936	0.101
Segment 4	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 5	0.088	0.016	0.073	0.20	0.860	0.929	0.096
Segment 6	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 7	0.088	0.016	0.073	0.00	0.860	0.929	0.082
Segment 8	0.094	0.017	0.077	0.20	0.860	0.925	0.102
Multiple-vehicle driveway-related							
Segment 1	0.008	0.002	0.006	0.00	1.390	0.989	0.008
Segment 2	0.004	0.001	0.003	0.00	1.390	0.994	0.004
Segment 3	0.008	0.002	0.006	0.00	1.390	0.989	0.008
Segment 4	0.000	0.000	0.000	0.00	1.390	1.000	0.000
Segment 5	0.005	0.001	0.004	0.00	1.390	0.993	0.005
Segment 6	0.005	0.001	0.004	0.00	1.390	0.993	0.005
Segment 7	0.015	0.004	0.011	0.00	1.390	0.979	0.015
Segment 8	0.082	0.023	0.059	0.00	1.390	0.898	0.073
INTERSECTIONS							
Multiple-vehicle							
Intersection 1	2.303	0.728	1.575	11.0	0.390	0.527	6.418
Intersection 2	2.599	0.867	1.732	13.0	0.390	0.497	7.834
Intersection 3	1.694	0.566	1.129	1.6	0.800	0.425	1.640
Intersection 4	1.825	0.691	1.134	0.6	0.800	0.406	1.098
Intersection 5	2.042	0.650	1.392	6.0	0.800	0.380	4.497
Intersection 6	1.794	0.725	1.069	2.6	0.400	0.582	2.131
Intersection 7	1.679	0.673	1.006	3.0	0.400	0.598	2.209
Intersection 8	4.091	1.394	2.697	23.6	0.390	0.385	16.083
Single-vehicle							
Intersection 1	0.172	0.050	0.122	0.4	0.360	0.942	0.185
Intersection 2	0.162	0.042	0.121	0.8	0.360	0.945	0.198
Intersection 3	0.188	0.057	0.132	0.0	1.140	0.823	0.155
Intersection 4	0.175	0.054	0.121	0.0	1.140	0.834	0.146
Intersection 5	0.224	0.067	0.158	0.6	1.140	0.796	0.301
Intersection 6	0.164	0.050	0.114	0.4	0.650	0.903	0.187
Intersection 7	0.160	0.049	0.111	0.4	0.650	0.906	0.183
Intersection 8	0.234	0.057	0.177	0.4	0.360	0.922	0.247
COMBINED (sum of column)	24.634	8.059	16.574	78	--	--	51.866

Appendix M: Clearinghouse CMFs

CMF / CRF Details

CMF ID: 2219

CMF Name: Install raised median

Description:

Prior Condition: No Prior Condition(s)

Category: Access management

Study ID: *Correlating Access Management to Crash Rate, Severity, and Collision Type*, Schultz et al. 2008

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.29
Adjusted Standard Error:	
Unadjusted Standard Error:	0.184

Crash Reduction Factor	
Value:	70.77
Adjusted Standard Error:	
Unadjusted Standard Error:	18.37

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Minimum Number of Lanes:	
Maximum Number of Lanes:	
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	Minimum of 1390 to Maximum of 51200 Average Daily Traffic (ADT)
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	2002 to 2004
Municipality:	
State:	UT
Country:	
Type of Methodology Used:	Regression cross-section
Sample Size (site-years):	525 site-years

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

The information contained in the Crash Modification Factors (CMF) Clearinghouse is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in the CMF Clearinghouse. The information contained in the CMF Clearinghouse does not constitute a standard, specification, or regulation, nor is it a substitute for sound engineering judgment.

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 7568

CMF Name: Convert 2 lane roadway to 4 lane divided roadway

Description: Conversion of urban and rural two-lane roadways to four-lane divi

Prior Condition: 2 lane roadway

Category: Roadway

Study ID: *Evaluation of the Safety Effectiveness of the Conversion of Two-Lane Roadways to Four-Lane Divided Roadways: Bayesian vs. Empirical Bayes*, Ahmed et al. 2015

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.367
Adjusted Standard Error:	
Unadjusted Standard Error:	0.089

Crash Reduction Factor	
Value:	63.27
Adjusted Standard Error:	
Unadjusted Standard Error:	8.87

Applicability	
Crash Type:	All
Crash Severity:	K (fatal),A (serious injury),B (minor injury),C (possible injury)
Roadway Types:	Not specified
Minimum Number of Lanes:	2
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	Undivided
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All
If countermeasure is intersection-based.	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details

Date Range of Data Used:	2002 to 2012
Municipality:	
State:	FL
Country:	USA
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes
Sample Size (crashes):	34 crashes before, 16 crashes after
Sample Size (sites):	41 sites before, 41 sites after
Sample Size (miles):	8.578 miles before

Other Details

Included in HSM:	No
Date Added to Clearinghouse:	Nov 01, 2015
Comments:	

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

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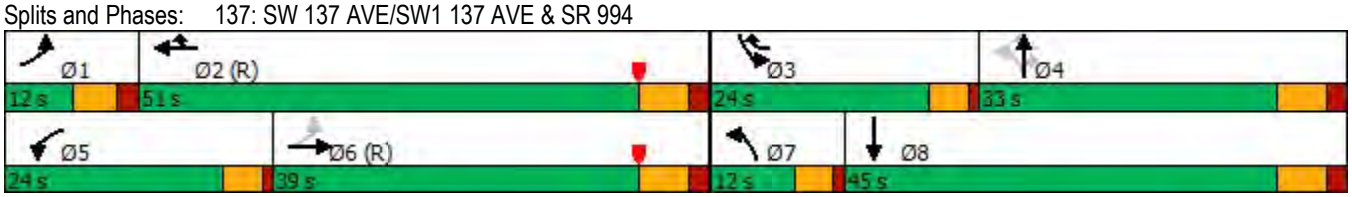
Appendix N: Refined Build 2 - Future Synchro Analysis Worksheets

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	84	562	278	413	383	131	521	242	292	353
Future Volume (vph)	84	562	278	413	383	131	521	242	292	353
Turn Type	pm+pt	NA	Prot	NA	custom	pm+pt	NA	Perm	Prot	NA
Protected Phases	1	6	5	2	2 3	7	4		3	8
Permitted Phases	6				4	4		4		
Detector Phase	1	6	5	2	2 3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	13.6	5.0	16.0		5.0	7.0	7.0	5.0	7.0
Minimum Split (s)	11.0	20.0	9.5	22.4		9.5	13.4	13.4	9.5	13.4
Total Split (s)	12.0	39.0	24.0	51.0		12.0	33.0	33.0	24.0	45.0
Total Split (%)	10.0%	32.5%	20.0%	42.5%		10.0%	27.5%	27.5%	20.0%	37.5%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37.1 (31%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	562	98	278	413	383	131	521	242	292	353	121
Future Volume (vph)	84	562	98	278	413	383	131	521	242	292	353	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1556	3178		3433	3282	1509	1770	3539	1583	3213	1966	
Flt Permitted	0.50	1.00		0.95	1.00	1.00	0.47	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	818	3178		3433	3282	1509	874	3539	1583	3213	1966	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	592	103	293	435	403	138	548	255	307	372	127
RTOR Reduction (vph)	0	10	0	0	0	79	0	0	204	0	30	0
Lane Group Flow (vph)	88	685	0	293	435	324	138	548	51	307	469	0
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	pm+pt	NA		Prot	NA	custom	pm+pt	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases	6					4	4		4			
Actuated Green, G (s)	48.7	42.0		15.5	49.3	96.4	31.7	24.2	24.2	16.5	33.2	
Effective Green, g (s)	48.7	42.0		15.5	49.3	96.4	31.7	24.2	24.2	16.5	33.2	
Actuated g/C Ratio	0.41	0.35		0.13	0.41	0.80	0.26	0.20	0.20	0.14	0.28	
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)	373	1112		443	1348	1212	286	713	319	441	543	
v/s Ratio Prot	0.01	c0.22		c0.09	0.13	0.16	0.03	0.15		c0.10	c0.24	
v/s Ratio Perm	0.08					0.05	0.10		0.03			
v/c Ratio	0.24	0.62		0.66	0.32	0.27	0.48	0.77	0.16	0.70	0.86	
Uniform Delay, d1	22.5	32.3		49.8	24.0	3.0	35.2	45.3	39.5	49.4	41.3	
Progression Factor	1.00	1.00		0.93	1.47	0.46	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	2.6		3.4	0.6	0.1	1.3	5.1	0.3	4.7	13.7	
Delay (s)	22.7	34.9		49.7	35.9	1.5	36.5	50.4	39.8	54.1	55.0	
Level of Service	C	C		D	D	A	D	D	D	D	D	
Approach Delay (s)		33.5			27.2			45.5			54.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	695	293	435	403	138	548	255	307	499
v/c Ratio	0.23	0.62	0.66	0.32	0.30	0.46	0.77	0.49	0.69	0.87
Control Delay	19.5	36.2	53.0	37.6	0.6	30.1	53.0	8.1	57.7	53.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	36.2	53.0	37.6	0.6	30.1	53.0	8.1	57.7	53.9
Queue Length 50th (ft)	34	231	114	157	0	69	211	0	118	178
Queue Length 95th (ft)	69	332	155	216	6	107	270	68	162	237
Internal Link Dist (ft)		500		377			374			423
Turn Bay Length (ft)	300		350		405	240		440	425	
Base Capacity (vph)	376	1124	557	1348	1311	300	785	549	522	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.62	0.53	0.32	0.31	0.46	0.70	0.46	0.59	0.76

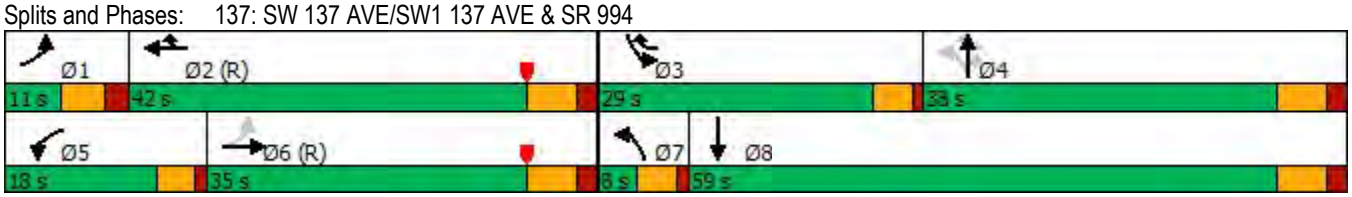
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	51	529	242	347	294	109	319	274	379	626
Future Volume (vph)	51	529	242	347	294	109	319	274	379	626
Turn Type	pm+pt	NA	Prot	NA	custom	pm+pt	NA	Perm	Prot	NA
Protected Phases	1	6	5	2	2 3	7	4		3	8
Permitted Phases	6				4	4		4		
Detector Phase	1	6	5	2	2 3	7	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	4.0	5.0	11.6		2.5	7.0	7.0	5.0	7.0
Minimum Split (s)	11.0	10.4	9.5	18.0		7.0	13.4	13.4	9.5	13.4
Total Split (s)	11.0	35.0	18.0	42.0		8.0	38.0	38.0	29.0	59.0
Total Split (%)	9.2%	29.2%	15.0%	35.0%		6.7%	31.7%	31.7%	24.2%	49.2%
Yellow Time (s)	4.0	4.4	3.5	4.4		3.5	4.4	4.4	3.5	4.4
All-Red Time (s)	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.4	4.5	6.4		4.5	6.4	6.4	4.5	6.4
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max		None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 137: SW 137 AVE/SW1 137 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	529	88	242	347	294	109	319	274	379	626	123
Future Volume (vph)	51	529	88	242	347	294	109	319	274	379	626	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.4		4.5	6.4	6.4	4.5	6.4	6.4	4.5	6.4	
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1556	3178		3433	3282	1509	1770	3539	1583	3213	1915	
Flt Permitted	0.53	1.00		0.95	1.00	1.00	0.35	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	875	3178		3433	3282	1509	659	3539	1583	3213	1915	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	557	93	255	365	309	115	336	288	399	659	129
RTOR Reduction (vph)	0	11	0	0	0	54	0	0	148	0	14	0
Lane Group Flow (vph)	54	639	0	255	365	255	115	336	140	399	774	0
Heavy Vehicles (%)	16%	13%	0%	2%	10%	7%	2%	2%	2%	9%	97%	17%
Turn Type	pm+pt	NA		Prot	NA	custom	pm+pt	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2	2 3	7	4		3	8	
Permitted Phases	6					4	4		4			
Actuated Green, G (s)	35.0	30.9		12.7	38.0	99.0	38.0	34.5	34.5	20.1	51.1	
Effective Green, g (s)	35.0	30.9		12.7	38.0	99.0	38.0	34.5	34.5	20.1	51.1	
Actuated g/C Ratio	0.29	0.26		0.11	0.32	0.82	0.32	0.29	0.29	0.17	0.43	
Clearance Time (s)	6.0	6.4		4.5	6.4		4.5	6.4	6.4	4.5	6.4	
Vehicle Extension (s)	2.5	1.0		3.0	1.0		3.0	3.5	3.5	3.0	3.5	
Lane Grp Cap (vph)	278	818		363	1039	1244	241	1017	455	538	815	
v/s Ratio Prot	0.01	c0.20		c0.07	0.11	0.11	0.01	0.09		c0.12	c0.40	
v/s Ratio Perm	0.05					0.06	0.14		0.09			
v/c Ratio	0.19	0.78		0.70	0.35	0.20	0.48	0.33	0.31	0.74	0.95	
Uniform Delay, d1	31.2	41.4		51.8	31.5	2.2	30.6	33.7	33.4	47.5	33.2	
Progression Factor	1.00	1.00		0.88	0.91	11.55	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	7.3		5.8	0.9	0.1	1.5	0.2	0.5	5.5	20.2	
Delay (s)	31.4	48.7		51.6	29.7	25.6	32.0	33.9	33.9	52.9	53.4	
Level of Service	C	D		D	C	C	C	C	C	D	D	
Approach Delay (s)		47.4			34.3			33.6			53.3	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.3
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	650	255	365	309	115	336	288	399	788
v/c Ratio	0.18	0.78	0.70	0.34	0.23	0.46	0.33	0.48	0.74	0.95
Control Delay	25.6	48.9	56.3	30.2	2.2	28.7	35.1	13.4	56.0	53.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	48.9	56.3	30.2	2.2	28.7	35.1	13.4	56.0	53.9
Queue Length 50th (ft)	26	248	100	122	0	44	105	46	153	290
Queue Length 95th (ft)	54	#341	128	168	116	77	155	133	199	#428
Internal Link Dist (ft)		500		377			374			423
Turn Bay Length (ft)	300		350		405	240		440	425	
Base Capacity (vph)	294	830	386	1071	1355	251	1017	603	655	852
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.78	0.66	0.34	0.23	0.46	0.33	0.48	0.61	0.92

Intersection Summary

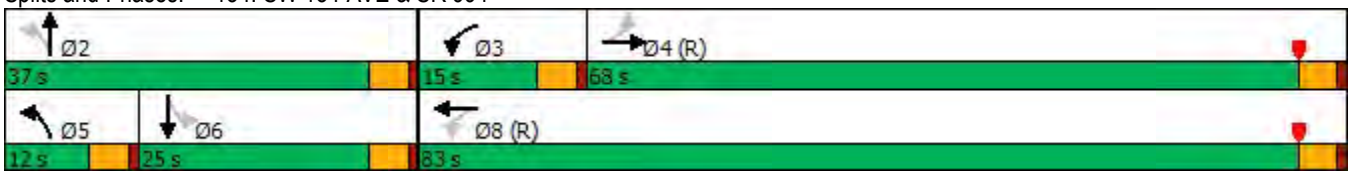
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	1009	98	957	85	23	81	52
Future Volume (vph)	25	1009	98	957	85	23	81	52
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases		4	3	8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	68.0	68.0	15.0	83.0	12.0	37.0	25.0	25.0
Total Split (%)	56.7%	56.7%	12.5%	69.2%	10.0%	30.8%	20.8%	20.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1009	73	98	957	66	85	23	139	81	52	35
Future Volume (veh/h)	25	1009	73	98	957	66	85	23	139	81	52	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	26	1062	77	103	1007	69	89	24	146	85	55	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	324	2090	151	377	2465	169	208	41	250	169	89	60
Arrive On Green	0.66	0.66	0.66	0.04	0.74	0.74	0.06	0.19	0.19	0.09	0.09	0.09
Sat Flow, veh/h	425	3173	230	1810	3348	229	1725	218	1325	1234	960	646
Grp Volume(v), veh/h	26	561	578	103	530	546	89	0	170	85	0	92
Grp Sat Flow(s),veh/h/ln	425	1678	1725	1810	1763	1814	1725	0	1543	1234	0	1606
Q Serve(g_s), s	3.0	20.6	20.6	2.1	13.6	13.6	5.4	0.0	12.1	8.1	0.0	6.6
Cycle Q Clear(g_c), s	7.2	20.6	20.6	2.1	13.6	13.6	5.4	0.0	12.1	8.6	0.0	6.6
Prop In Lane	1.00		0.13	1.00		0.13	1.00		0.86	1.00		0.40
Lane Grp Cap(c), veh/h	324	1105	1136	377	1298	1336	208	0	291	169	0	148
V/C Ratio(X)	0.08	0.51	0.51	0.27	0.41	0.41	0.43	0.00	0.58	0.50	0.00	0.62
Avail Cap(c_a), veh/h	324	1105	1136	463	1298	1336	215	0	418	266	0	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	10.5	10.5	7.8	6.0	6.0	44.1	0.0	44.4	53.6	0.0	52.4
Incr Delay (d2), s/veh	0.5	1.7	1.6	0.4	1.0	0.9	1.4	0.0	1.9	2.3	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.7	7.9	0.8	4.8	5.0	2.4	0.0	4.8	2.6	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.6	12.2	12.1	8.2	6.9	6.9	45.5	0.0	46.2	55.9	0.0	56.6
LnGrp LOS	A	B	B	A	A	A	D	A	D	E	A	E
Approach Vol, veh/h		1165			1179			259			177	
Approach Delay, s/veh		12.1			7.0			46.0			56.3	
Approach LOS		B			A			D			E	

Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		27.1	9.3	83.5	11.6	15.6		92.9				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		32.5	10.5	63.5	7.5	20.5		78.5				
Max Q Clear Time (g_c+I1), s		14.1	4.1	22.6	7.4	10.6		15.6				
Green Ext Time (p_c), s		0.9	0.1	10.7	0.0	0.5		9.5				

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	1139	103	1076	89	170	85	92
v/c Ratio	0.11	0.57	0.31	0.43	0.38	0.40	0.61	0.53
Control Delay	4.1	5.9	8.5	8.2	42.8	11.5	68.2	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	5.9	8.5	8.2	42.8	11.5	68.2	47.1
Queue Length 50th (ft)	2	42	22	160	58	15	64	50
Queue Length 95th (ft)	m4	123	47	240	99	71	113	100
Internal Link Dist (ft)		272		408		1264		1117
Turn Bay Length (ft)	225		185		185		150	
Base Capacity (vph)	245	2014	365	2477	233	496	210	248
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.57	0.28	0.43	0.38	0.34	0.40	0.37

Intersection Summary

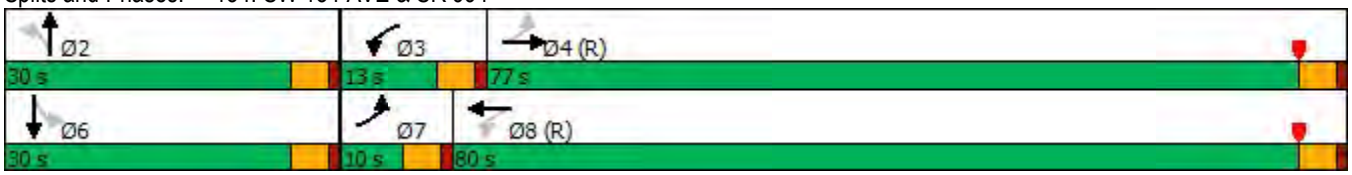
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	33	1112	73	781	76	49	49	29
Future Volume (vph)	33	1112	73	781	76	49	49	29
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	77.0	13.0	80.0	30.0	30.0	30.0	30.0
Total Split (%)	8.3%	64.2%	10.8%	66.7%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 134: SW 134 AVE & SR 994



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1112	93	73	781	62	76	49	120	49	29	33
Future Volume (veh/h)	33	1112	93	73	781	62	76	49	120	49	29	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1767	1841	1900	1856	1856	1811	1781	1663	1900	1722	937
Adj Flow Rate, veh/h	35	1171	98	77	822	65	80	52	126	52	31	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	26	9	4	0	3	3	6	8	16	0	12	65
Cap, veh/h	401	2142	179	349	2293	181	227	77	186	133	122	138
Arrive On Green	0.03	0.68	0.68	0.04	0.69	0.69	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1443	3136	262	1810	3310	262	1293	462	1119	1225	738	834
Grp Volume(v), veh/h	35	626	643	77	438	449	80	0	178	52	0	66
Grp Sat Flow(s),veh/h/ln	1443	1678	1719	1810	1763	1808	1293	0	1580	1225	0	1572
Q Serve(g_s), s	0.9	22.6	22.7	1.5	12.2	12.2	6.9	0.0	12.7	5.0	0.0	4.4
Cycle Q Clear(g_c), s	0.9	22.6	22.7	1.5	12.2	12.2	11.3	0.0	12.7	17.7	0.0	4.4
Prop In Lane	1.00		0.15	1.00		0.14	1.00		0.71	1.00		0.53
Lane Grp Cap(c), veh/h	401	1147	1175	349	1222	1253	227	0	262	133	0	261
V/C Ratio(X)	0.09	0.55	0.55	0.22	0.36	0.36	0.35	0.00	0.68	0.39	0.00	0.25
Avail Cap(c_a), veh/h	426	1147	1175	407	1222	1253	288	0	336	191	0	334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.6	9.6	9.6	7.5	7.5	7.5	48.5	0.0	47.0	55.4	0.0	43.6
Incr Delay (d2), s/veh	0.1	1.9	1.8	0.3	0.8	0.8	0.9	0.0	3.7	1.8	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	8.3	8.5	0.5	4.6	4.7	2.3	0.0	5.3	1.6	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.7	11.5	11.5	7.8	8.3	8.3	49.4	0.0	50.8	57.2	0.0	44.1
LnGrp LOS	A	B	B	A	A	A	D	A	D	E	A	D
Approach Vol, veh/h		1304			964			258			118	
Approach Delay, s/veh		11.3			8.3			50.4			49.9	
Approach LOS		B			A			D			D	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.4	9.1	86.5		24.4	7.9	87.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		25.5	8.5	72.5		25.5	5.5	75.5
Max Q Clear Time (g_c+I1), s		14.7	3.5	24.7		19.7	2.9	14.2
Green Ext Time (p_c), s		0.9	0.1	12.4		0.2	0.0	7.1

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	1269	77	887	80	178	52	66
v/c Ratio	0.09	0.52	0.22	0.34	0.56	0.72	0.83	0.39
Control Delay	6.0	21.3	4.3	6.2	64.5	40.7	121.7	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	21.3	4.3	6.2	64.5	40.7	121.7	32.0
Queue Length 50th (ft)	8	494	9	112	60	64	40	22
Queue Length 95th (ft)	m18	588	25	188	106	134	#90	63
Internal Link Dist (ft)		272		408		1264		1117
Turn Bay Length (ft)	225		185		185		150	
Base Capacity (vph)	406	2428	377	2633	272	389	121	292
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.52	0.20	0.34	0.29	0.46	0.43	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Appendix C – Conceptual Drainage Report

CONCEPTUAL DRAINAGE REPORT

Florida Department of Transportation

District 6

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From West of SW 137th Avenue to East of SW 127th Avenue

Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

June 18, 2024

DRAFT

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by FHWA and FDOT.

CONCEPTUAL DRAINAGE REPORT
(FINAL DRAFT)

SR 994 / SW 200th St / Quail Roost Drive
Project Development & Environment Study
From West of SW 137th Avenue to East of SW 127th Avenue
Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

June 2024

TABLE OF CONTENTS

1.0 Project Background 3
1.1 Project Description 3
1.2 Project Location 3
1.3 Purpose 3
1.4 Project Vertical Datum 3
2.0 Project Drainage Features 4
2.1 Land Use 4
2.2 Topography 4
2.3 Soils 4
2.4 Percolation 4
2.5 Wellfield 4
2.6 Floodplain 4
2.7 Groundwater 5
2.8 Wetlands 5
2.9 Contamination 5
2.10 Receiving Water Bodies 5
2.11 Regional Watershed 5
3.0 Design Criteria 7
3.1 Base Clearance 7
3.2 Conveyance Systems 7
3.3 French Drains 7
3.4 Spread 8
3.5 FDOT D6 Drainage Guidelines 8
3.6 FDOT D6 Drainage System Design Flood Protection Level of Service (FPLOS) 8
3.7 Miami Dade Flood Criteria 9
3.8 Sea Level Rise Resiliency Planning 9
4.0 Permit Criteria 10
4.1 Stormwater Quality 10
4.1.1 SFWMD Stormwater Quality Criteria 10
4.1.2 DRER Stormwater Quality Criteria 10
4.2 Stormwater Quantity 11
4.2.1 SFWMD Stormwater Quantity Criteria 11
4.2.2 Variable Tailwater Conditions 12
4.2.3 DRER Stormwater Quantity Criteria 12
4.3 Permit Requirements 13

4.3.1 South Florida Water Management District (SFWMD) 13
4.3.2 United States Army Corps of Engineers (USACE) 13
4.3.3 USEPA General Construction NPDES Permit 14
4.3.4 Miami Dade Department of Regulatory and Economic Resources (DRER) 15
5.0 Drainage Design & Analysis Approach 16
6.0 Pre-Development Drainage Conditions 16
6.1 Basin 1 – SR 994 from Begin Project to SW 137th Avenue 16
6.2 Basin 2 – SR 994 from SW 137th Avenue to C-1 Canal Bridge Crossing 16
6.3 Basin 3 – SR 994 from C-1 Canal Bridge Crossing to just West of SW 127th Avenue 16
6.4 Basin 4 – SR 994 from just West of SW 127th Avenue to End of Project 16
7.0 Post-Development Drainage Conditions 17
7.1 Basin 1 SR 994 from Begin Project to SW 137th Avenue 17
7.2 Basin 2 – SR 994 from SW 137th Avenue to C-1W Canal Bridge Crossing 17
7.3 Basin 3– SR 994 from C-1W Canal Bridge Crossing to SW 127th Avenue 17
7.4 Basin 4 - SR 994 from SW 127th Avenue to End of Project 17
8.0 Preliminary Construction Cost Estimate 18
9.0 Conclusion and Recommendations 19

APPENDIX A – DRAINAGE EXHIBITS 23
APPENDIX B – CONCEPT DRAINAGE PLANS 32
APPENDIX C – CONCEPT DRAINAGE CALCULATIONS 51

1.0 Project Background

1.1 Project Description

The Florida Department of Transportation (FDOT), District Six (D6), is conducting a Project Development and Environmental (PD&E) Study for SR 994 / SW 200th Street / Quail Roost Drive from west of SW 137th Avenue (MP 4.000) to east of SW 127th Avenue (MP 5.162), in southwest-unincorporated Miami-Dade County, Florida. The SR 994 Corridor is classified as a rural major collector from begin of project to just west of SW 137th Avenue and as an urban minor arterial from just west of SW 137th Avenue to the end of project. The corridor primarily has a C3R Suburban Residential Context Classification and a posted speed of 40 miles per hour. Four major intersections are located along the project corridor, including two signalized intersections (SW 137th Avenue and SW 127th Avenue) and two unsignalized intersections (SW 134th Avenue and SW 132nd Avenue). Eight other minor (unsignalized) intersections are located within the study corridor.

The project scope includes widening of Quail Roost Drive from two to four lanes from SW 137th Avenue to SW 127th Avenue to address traffic capacity demand due to the population and employment growth along the corridor. Additionally, the project scope also includes improving safety conditions along the corridor, including evacuation and response times and enhancing mobility options and multimodal access.

The PD&E includes the evaluation of three (3) alternatives, Build Alternatives 1 thru 3. Build Alternative 1 does not sufficiently address the purpose and need of the project while Build Alternative 3 meets the purpose and need, but results in greater impacts than Build Alternative 2. As result Build Alternative 2 was selected as the preferred alternative. Build Alternative 2 typical section consists of curb and gutter type F, four (4) 11' wide lanes, a 16.5' median and 10' shared use paths at both sides.

1.2 Project Location

The project is located within southwest Unincorporated Miami Dade County. The project begins approximately 400-feet west of SW 139th Avenue and ends just east of SW 123rd Place with a total approximate length of 1.67-miles. The project is located within a section line and it is included within Township 56S, Range 39E, Sections 1 thru 3 and 10 thru 12.

1.3 Purpose

This concept drainage report is a component of the PD&E Study with the purpose of providing an outline of the project's drainage features, design and permit criteria including a preliminary analysis and design of the proposed drainage system to address the project's stormwater management needs.

1.4 Project Vertical Datum

The project survey geodetical vertical datum is NAVD88. The conversion from NAVD88 to NGVD 29 is 0.00' NAVD88= 1.55' NGVD29 as per USACE VERTCON.

2.0 Project Drainage Features

2.1 Land Use

The project land use west of SW 137th Avenue is generally described as rural and is mainly composed of agricultural lands. From SW 137th avenue to SW 127th Avenue the land use is urban and it is composed mainly of residential homes and the C-1W Canal crossing at the mid-section. The land use east of SW 127th Avenue continues to have an urban setup and it is composed of a mixture of residential homes and light commercial.

2.2 Topography

The project topography is relatively high with an existing edge of pavement elevation ranging from 8' to 13'-NAVD.

2.3 Soils

According to the USDA NRCS, the following soil types are located within and adjacent to the project limits:

4 – Pennsuco Marl
6 – Perrine Marl
7 – Krome Gravelly Loam
10 – Udorthents, Limestone Substratum Urban
13 – Biscayne Marl
15- Urban Land
99- Water

2.4 Percolation

Southwest Miami Dade County geologic conditions consist in general of a shallow and porous limestone formation which is highly transmissive and yields high percolation rates. Two (2) percolation tests were performed within the project limits, one test to the west and the other test to the east of the C-1 Canal crossing. Percolation test results as shown below are fairly consistent and indicates excellent percolation rates within the project limits which corroborates our assumption.

Table 2.4.1 – Percolation Test Results

Percolation Test No.	K, Hydraulic Conductivity @10'-depth cfs/ft^2-ft	K, Hydraulic Conductivity @15'-depth cfs/ft^2-ft	K, Hydraulic Conductivity @ 20'-depth cfs/ft^2-ft
EX-1	2.24×10^{-4}	3.48×10^{-3}	4.05×10^{-3}
EX-2	1.66×10^{-4}	3.12×10^{-3}	4.06×10^{-3}

2.5 Wellfield

A portion of the SW 127th Avenue intersection southwest quadrant is located within the South Miami Heights wellfield facility 210-day wellfield protection area.

2.6 Floodplain

As per Flood Insurance Rate Map number 12086C0583L Panels 583 and 584 of 1031 the majority of the project area is located within Zone X which translates to a low risk flood zone. The X zone (also known as "low-risk flood zone") is an area outside of the Special Flood Hazard Area. It shall be noted that because an area is designated as X zone does not mean that the area will never flood but there

is low incidence of flooding. FEMA maps also show that a small project area in the immediate proximity to the C-1 Canal bridge crossing lies within Zone AH with 100-year floodplain elevation of 6.5'-NAVD (8.0'-NGVD). It should be noted that the existing bridge and roadway approaches pavement elevation ranges from 8.5' to 9.0'-NAVD so there are located above the 100-year flood. Also, the that existing bridge low member elevation is 7.0'-NAVD (8.5'-NGVD) which is also above the 100-year flood and translates into no overtopping flow incidence. Finally, the proposed bridge replacement and roadway approaches will be set at a higher elevation than the existing bridge with a proposed deck elevation at 14.0'-NAVD.

2.7 Groundwater

The project's design seasonal high groundwater table is established based on Miami Dade County DERM Average October Groundwater Level Map. The DERM Average October Groundwater elevation for the project is 3.0'-NAVD (4.5'-NGVD).

Average extreme high groundwater levels in Miami Dade County are depicted by DERM Average Yearly Highest Groundwater Level Map. This groundwater level is typically used in FDOT D6 drainage design to set groundwater peak boundaries for ICPR flood routing analysis for variable tailwater conditions. The DERM Average Yearly Highest Groundwater elevation for the project is 5.0'-NAVD (6.5'-NGVD).

2.8 Wetlands

There are no wetlands found within the limits of the project.

2.9 Contamination

Miami Dade County Department of Regulatory and Economic Resources (DRER) Pollution and Remediation Section (PRS) records indicate the presence of contaminated site #37089 at the 7-eleven store located at the south west corner of the SW 127th Avenue intersection. Restrictions are set for installing French drains and for dewatering construction activities nearby open contamination sites. Coordination with DRER PRS will be required.

2.10 Receiving Water Bodies

The project includes a bridge crossing over the C-1W Black Creek Canal approximately at the mid-section of the project. The C-1W Canal is a primary canal owned, operated and maintained by the South Florida Water Management District (SFWMD). However, the project does not have any existing outfall connections into this canal. The project existing drainage infrastructure is self-contained and consists mainly of roadside swales with inlets connected to isolated short segments for French drains providing runoff disposal. The project proposed stormwater management systems will be also designed as self-contained French drain systems.

The existing system east of SW 127th Avenue consists of a positive gravity storm sewer system which has an outfall connection into the SW 122nd Avenue Canal. The SW 122nd Avenue Canal is a secondary canal owned, operated and maintained by DRER. This canal is located beyond the project limits. The existing drainage infrastructure east of SW 127th Avenue within the project limits will be upgraded with French drains with an overflow connection into the remaining of the existing trunk-line that is beyond the project to address current water quality and quantity control requirements.

2.11 Regional Watershed

The C-1 Black Creek Basin has an area of approximately 56.0 square miles and it is located in southeastern Miami Dade County. The land use distribution is predominantly of single-family residential and vacant land, with a lesser proportion of agricultural, plant nurseries and pasture.

The C-1 watershed has a negligible topographic relief and it contains a variety of land uses drained by a complex network of dredged canals. The canals intercept the shallow groundwater table, which provides most of the base flow.

A number of canals within the C-1 Basin are tributaries to the main C-1 (Black Creek) Canal. C-100B connects C-1N and C-100 canals. C-100B joins C-1N one-half mile downstream of the F.E.C. railway. The canal leaves the basin at control structures S-111. Normal flows to the canal are to the north (into the C-100 Basin). The northern portion of the C-1 Basin has limited drainage capability and is subject to severe limitations on development. S-148 control stages in the upper reach of C-1/C-1W and regulates discharges into the lower reach. S-338 is a gated culvert located at Krome Avenue. It controls inflows from the L-31N borrow canal, and helps maintain optimum stage at the borrow canal. Flow in the C-1/C-1W canal is to the southeast with discharge via the S-21 control structure into Biscayne Bay.

3.0 Design Criteria

3.1 Base Clearance

Per FDOT Pavement Design Manual a minimum 3-feet base clearance is required to provide for pavement structural integrity protection. When the clearance is less than 3-feet the pavement designer must reduce the Design Resilient Modulus as follows:

- For 2-feet base clearance, a 25% modulus reduction
- For 1-foot base clearance, a 50% modulus reduction.

A minimum roadway edge of pavement elevation of 7.0'-NAVD is required to provide a 3-feet base clearance from SHGWT (3.0'-NAVD) to the bottom of base.

3.2 Conveyance Systems

The design of both, storm sewer systems and conveyance ditches are based on FDOT drainage design criteria. These criteria are summarized as follows:

1. For major interstates a 10-year recurrence interval shall be used in the design of storm sewer systems;
2. For interstates within a sag vertical curve with no outlet other than the storm sewer, a 50-year recurrence shall be used in the design of the storm sewer system. Also, for a depressed expressway with drainage provided by a pumping station a 50-year recurrence shall be used for the design of the storm sewer system;
3. Design of storm sewer system shall maintain hydraulic grade line HGL a minimum of 1-foot below gutter line when minor losses are not computed in the design. When minor losses are considered, HGL may be maintained at the gutter line;
4. Design of storm sewer system shall maintain a minimum and maximum velocities of 2.5 and 15 feet per second respectively;
5. Roadway and median ditches are designed to convey the 10-year frequency storm. Outfall ditches are designed to convey the 25-year frequency storm;
6. The maximum allowed velocity in grassed ditches is 5.5 feet per second. For velocities higher than 5.5 feet per second lining other than grass shall be used such as paved concrete, flexible, rip-rap, geo-grid and interlocking concrete blocks.

3.3 French Drains

French drains are allowed when in-situ soil hydraulic conductivity is sufficient to promote exfiltration of the required stormwater quality volumes. French drains must be designed in accordance with current FDOT District 6 Drainage Design Guidelines and the Exfiltration Trench Reference Manual (ETRM) dated February, 2020 and must address the following design criteria and parameters:

1. Exfiltrate to the groundwater the greater of the SFWMD or DERM stormwater quality volume, prior to discharge over control weir;
2. Percolate runoff into areas of aquifer that do not contain contaminated soil;
3. Exfiltration pipe shall be a minimum of 24 inches in diameter with an invert elevation set at or above DERM average October groundwater elevation, to be accounted for water quality treatment;
4. Provide baffles, skimmers and sumps in inlets to minimize entrance of oils and sediments into drainage pipes;
5. Bottom of skimmers shall be set at a minimum of 18 inches below the average yearly lowest groundwater elevation, as outlined in the Metropolitan Dade County Public Works Department

Design Standards.

6. Trench width shall be a minimum of 4.5 feet;
7. Rock in trench must be enclosed in filter material, at least on the top and sides;
8. In-situ soil exfiltration capacity must be determined by the FDOT percolation test method. Percolation test hole must be advanced to a depth that will yield a minimum of 6 gpm per foot of head of exfiltration capacity; and
9. Depth of French drain trench must be at or below the percolation test hole depth to a maximum of 20 feet as outlined in the FDOT-VI Drainage Section Pamphlet "Subsurface Drainage with French Drains: June 20, 1991".

3.4 Spread

The minimum longitudinal gutter grade shall be kept at 0.3% to properly drain the pavement and reduce the width of the spread, thus decreasing the likelihood of hydroplaning. The careful spacing of the inlets is required to limit the spread resulting from a constant 4.0 inches per hour storm. Utilize curb inlets types 1 thru 4 to the maximum extent practicable to facilitate maintenance. Curb inlets type 5 and 6 shall be used when inlets type 1 thru 4 cannot be accommodated. Inlets type 5, 6, 9 and 10 are not permitted in concrete pavement sections. The spread criteria are summarized as follows:

Table 3.4.1 – Spread Criteria

Typical Section Condition	Design Speed (mph)	Spread Criteria
Parking Lane of Full Width Shoulder	All	No encroachment
Left Turn Lanes	Design Speed > 45	Keep 8' of lane clear
Right Turn Lanes	All	Keep ½ lane clear
All Other	Design Speed ≤ 45	Keep ½ lane clear
	45 < Design Speed ≤ 55	Keep 8' of lane clear
	Design Speed > 55	No encroachment

3.5 FDOT D6 Drainage Guidelines

FDOT D6 has developed drainage design guidelines tailored to address the unique drainage conditions found within Miami Dade and Monroe County. These unique conditions include low-lying areas, flat terrain and highly transmissive limestone formation that allows for French drains to be the bulk of stormwater management systems used in District 6. These guidelines include the Exfiltration Trench Reference Manual, the ICPR Application Manual and the ICPR Technical Design Guide.

3.6 FDOT D6 Drainage System Design Flood Protection Level of Service (FPLOS)

FDOT stormwater systems shall be design to meet the 10-year storm FPLOS and shall be checked for performance for the 100-yr storm. Typically, analysis and design of system components including storm drains, French drains, swales, ponds, weirs, pollution control structures and pump station are conducted using ICPR flood routing analysis. The 10-yr, 1-hr, 8-hr and 24-hr storm events simulations are evaluated for system design while the 100-yr, 1-hr, 8-hr and 24-hr storm events simulation are evaluated for system performance.

3.7 Miami Dade Flood Criteria

Chapter 28 of the Miami Dade County Ordinance Code requires roadway facilities to meet flood criteria elevation to establish required roadway crown minimum elevation. As per Miami Dade County Flood Criteria Map the project flood criteria elevation is 6.0'-NAVD (7.5'-NGVD).

3.8 Sea Level Rise Resiliency Planning

The project is located relatively further inland, west of the salinity control line. C-1 Canal is a flood-controlled waterway and is not tidally influenced by Biscayne Bay tidal fluctuations. Also, project topography is relatively high (8' to 13'-NAVD) while SHGWT is relatively low (3.0'-NAVD). These conditions promote favorable conditions in terms of drainage and does not present an immediate risk in terms of SLR flooding impacts to the project.

4.0 Permit Criteria

This section describes the Federal, State, and local stormwater quality and quantity criteria applicable to the project. This section also outlines the Federal, State, and local permitting requirements. The criteria and parameters outlined in this section are from the pertinent published regulations, permit design manuals, and design standards.

4.1 Stormwater Quality

The South Florida Water Management District (SFWMD) and the Miami-Dade County Department of Regulatory and Economic Resources (DRER) have jurisdiction over the stormwater quality criteria for the project. The following subsections details the applicable criteria.

4.1.1 SFWMD Stormwater Quality Criteria

The SFWMD requires that all projects meet State water quality standards, as set forth in Chapter 17-302, Florida Administrative Code (FAC). To assure that these criteria are met, the proposed drainage improvements must meet the following volumetric retention/detention requirements, as described in the SFWMD Permit Volume IV:

1. For wet detention systems, the first one inch of runoff from the project or the total runoff from 2.5 inches times the percent of imperviousness, whichever is greater, must be detained on site. A wet detention system is a system, which maintains the bottom elevation below one foot from the seasonal high groundwater elevation and does not bleed-down more than one-half inch of detention volume in 24 hours.
2. Dry detention systems must only provide 75 percent of the required wet detention volume. Dry detention systems maintain the bottom elevation at least one foot above the seasonal high groundwater elevation.
3. Retention systems must only provide 50 percent of the wet detention volume.
4. For projects with more than 50 percent of imperviousness, discharge to the receiving water bodies must be made through baffles, skimmers, or other mechanisms suitable of preventing oil and grease from discharging to/or from the retention/detention areas.

4.1.2 DRER Stormwater Quality Criteria

The Miami-Dade Department of Regulatory and Economic Resources (DRER) also requires that all projects meet the State water quality standards. To assure that this criteria is met, 100 percent of the first inch of runoff must be retained on site. This volume is equivalent to retaining one inch of runoff from the furthest hydrologic point in the project. The methodology for estimating this volume is outlined in DERM's Policy for Design of Drainage Structures, dated December 1980 as follows:

$V = 60CiAT_t$

Where:

V = Required stormwater quality volume, cubic feet

C = Runoff Coefficient; 0.2 for pervious areas and 0.95 for Impervious areas

A = Total tributary area, acre

T_t= Duration of storm whose runoff is polluted and contaminated, minutes

$= T_{1"} + T_c$

Where:

$T_{1"}$ = Time to generate one inch of runoff, minutes

$$= \frac{2940F^{-0.11}}{308.5\ C - 60.5(0.5895 + F^{-0.67})}$$

Where:

F = Storm frequency, years

C = previously defined

T_c = Time of concentration, minutes

i = Storm intensity, inches per hour

$$= \frac{308.5}{48.6F^{-0.11} + T_t\ (0.5895 + F^{-0.67})}$$

All variables previously defined.

For highway systems, DERM requires that the first inch of runoff must be retained for a rainfall event with a 10-year frequency. DERM also requires that the retained volume is infiltrated into the groundwater in a period of 24 hours and does not allow bleeder mechanisms.

4.2 Stormwater Quantity

The SFWMD and DERM both have jurisdiction over the stormwater quantity criteria for the Project. The following subsections outline these requirements.

4.2.1 SFWMD Stormwater Quantity Criteria

The SFWMD requires that off-site discharge rate be limited to rates not causing adverse impacts to existing off-site properties, and:

1. Historic discharge rates; or
2. Rates determined in previous SFWMD permit actions; or
3. Basin allowable discharge rates.

The receiving water bodies within the project are the Miami River and its tributaries including the Lawrence Canal, the Wagner Creek and the Seybold Canal. These receiving water bodies do not have historic or allowable discharge criteria. Nevertheless, the SFWMD requires that pre-development peak discharge during a 25-year, 72-hour rainfall event does not increase for post-development conditions. The SFWMD also requires flood protection within the project as follows:

1. Building finish floor elevation must be set at or above the 100-year flood elevation, as determined from the Federal Flood Insurance Rate Maps (FIRM) or 100-year, 72-hour rainfall event peak stages;
2. Centerline of roadways must be set at or above the 5-year, 24-hour rainfall event peak stages or 2 feet above the seasonal high groundwater elevation, whichever is greater;
3. Parking lots served by French drains must be set at or above the 5-year, 1-hour rainfall event peak stages.

The SFWMD also requires that provisions be made to replace or otherwise mitigate the loss of historical basin storage provided by the project.

4.2.2 Variable Tailwater Conditions

Historically, the SFWMD has allowed French drain exfiltration in hydrologic/hydraulic modeling for only one-hour of rainfall duration or its equivalent of 3.28-inch precipitation deduction credit for a SFWMD 25-year, 72-hour storm event. This volume of runoff typically is the stormwater quality volume required to be retained onsite with French drains. However, because of the relatively excellent draining soils in Miami-Dade County, this criterion is overly conservative and stormwater management systems are over designed. Based on local design experience, French drains tend to exfiltrate throughout the duration of long-term rainfall events such as 24 and 72 hours and provide quick drawdown of retained stormwater runoff after the end of the rainfall event.

In the recent years, based on previous roadway projects and meetings between FDOT VI, SFWMD and DRER, the use of French drain exfiltration in flood routing modeling during the entire storm duration has been accepted for SFWMD 25-year, 72-hour pre-development versus post-development peak discharge analysis. However, this acceptance is subject to include in the model a boundary condition with groundwater and/or surface water levels representative of SFWMD 25-year, 72-hour storm event. Variable tailwater conditions were also used for all other design storms included in this report.

Tailwater boundary conditions for canal water levels and groundwater levels can be established based on two (2) FDOT D6 common design practice approach. The first approach is to set the initial and peak water level boundaries to DERM Average October Groundwater Level and Yearly Highest Groundwater Level respectively. The second approach is to use any recent DRER and/or SFWMD canal masterplan documentation, canal stormwater model and/or groundwater study. DRER has recently completed the Black Creek Cana C-1 master plan which includes the C-1 XPSWMM hydrologic and hydraulic model. Either approach is typically accepted by the Department.

4.2.3 DRER Stormwater Quantity Criteria

Sample Protection from flooding has long been the primary objective of Miami-Dade County. The sizing of a drainage system is determined by the design storm and the land use type. The design storm is based on the County Intensity Duration Frequency (IDF) curves as shown in W.C. 1.1 and W.C. 1.2. The table below summarizes this agency's requirements.

In addition, DRER states that a safety factor of 4, exfiltration trenches with 24 inches perforated pipes 100 feet long, and 18 inches pipes shall be used for section line and half section line roadways, and exfiltration trenches with 36 inches perforated pipes on arterial roads.

Table 4.2.3.1 – DRER Water Quantity Criteria

Storm Event Frequencies and Flood Limits		
Type of Area	Rainfall Frequency	Flood Limit
Residential and Commercial Areas	5-year	To crown of street, or to within 15' of a dwelling or other occupied building, whichever is lower
2-Lane Roads in Residential and Commercial Areas	5-year, except 10-year for bridge or culvert in the canal system	To crown of street
4-Lane Roads in high density, high traffic areas	10-year	To the outer edge of traffic lanes
Private parking lots and similar paved areas	5-year	As per Florida Building Code

4.3 Permit Requirements

The following permits are anticipated to be required for the project.

4.3.1 South Florida Water Management District (SFWMD)

4.3.1.1 SFWMD Environmental Resource Permit (ERP)

There is no existing Environmental Resource Permit (ERP) found in records within the project limits. The project exceeds the 2.0-acres additional impervious and the 10-acres total drainage area which is the threshold for permit exemption. The project existing and proposed drainage systems consist of self-contained French drain systems, which means no outfall or overflow connections into the Black Creek Canal C-1W. However, the project scope includes providing additional traffic lanes, replacing the bridge over the C-1W Canal and dredging and filling the canal. Therefore, an ERP permit will be required.

4.3.1.2 SFWMD Right of Way Occupancy Permit

The segment of the Black Creek Canal under the SR 994 Bridge Crossing is under the jurisdiction of SFWMD. Proposed bridge replacement construction activities will also require a SFWMD Right of Way Occupancy Permit. The existing right of way occupancy permit No. 1960 for previous SR 994 bridge work will require to be modified for proposed bridge widening construction. Incidental construction to bridge replacement will also include the watermain crossing replacement. This working activity will also need to be included under the SFWMD Right of Way Construction Permit.

4.3.1.3 SFWMD Water Use (Dewatering) Permit

Working activities including pipe and drainage structures construction within dense existing utilities and/or bridge foundation construction may require dewatering. Dewatering activities will require a Water Use General Permit by rule from the District. As per FDOT Standard Specification dewatering permit is typically handled by the contractor prior to construction activities commencement.

4.3.2 United States Army Corps of Engineers (USACE)

4.3.2.1 USACE Section 404 Permit Program

This program regulates the discharge of dredge and fill material into waters of the United States, including wetlands. The project includes bridge replacement and dredge and fill activities within the

Black Creek Canal C-1W and will require this permit. Coordination with FDOT D6 Environmental Section will be conducted to determine permitting process.

4.3.2.2 USACE Section 408 Permit Program

This program regulates the alteration of federally authorized projects. The project includes bridge replacement and dredge and fill activities within the Black Creek Canal C-1W. This proposed construction work will modify the canal sections and bridge opening. Therefore, the project may also require this permit. Coordination with FDOT D6 Environmental Section will be conducted to determine permitting process.

4.3.3 USEPA General Construction NPDES Permit

Sample text The U.S. Environmental Protection Agency (USEPA) under the Federal Clean Water Act (CWA) requires that construction projects that disturb 5 acres or more require a General Construction National Pollutant Discharge Elimination System (NPDES) Permit. Procedures for complying with the General Construction NPDES include submitting a Notice of Intent (NOI), developing and implementing a Stormwater Pollution Prevention Plan (SWPPP) and submitting a Notice of Termination (NOT).

The NOI must be submitted to the USEPA at least two (2) days in advance of the start of construction and should include the following information:

1. SFWMD ERP cover page.
2. A certification that the SWPPP has been prepared in accordance with Part IV of the General Construction NPDES Permit criteria.
3. A narrative statement certifying that the SWPPP provides compliance with approved State of Florida issued permits, erosion sediment control plans, and stormwater management plans.

The SWPPP must specify the mechanisms for managing stormwater, including control of soil erosion and sediment control, and inspection and maintaining the effectiveness of the specified controls. The SWPPP consists of six phases as follows:

1. Site Evaluation and Design Development
2. Assessment
3. Control Selection and Erosion Control Plans Design
4. Certification and Notification
5. Construction/Implementation
6. Final Stabilization/Termination

The SWPPP must include erosion and sediment control BMPs. These controls will depend on site-specific characteristics and the construction schedule as follows:

1. Areas that will not be re-disturbed for a period of time must be stabilized by temporary seeding or mulching.
2. Off-site vehicle tracking of sediments and generation of dust shall be minimized.
3. Structural controls must be specified for diverting runoff flow from disturbed areas, storing flows, or limiting the discharge of pollutants from exposed areas. Examples of such control may include the following:

    a. earth dikes

b. silt fences
c. sediment traps
d. sediment basins
e. drainage swales
f. check dams
g. subsurface drains
h. storm drain inlet protection
i. reinforced soil
j. retaining systems
k. gabions
l. turbidity barriers

After the SWPPP is executed and the project is stabilized and terminated, a NOT is submitted to the USEPA and project records should be retained for a minimum of three (3) years.

4.3.4 Miami Dade Department of Regulatory and Economic Resources (DRER)

4.3.4.1 DRER Class I, II, IV and VI Permits

As per Florida Statute Chapter 335.02, Section 4, FDOT as a transportation agency and FDOT highways as facilities which are a component of the State Highway System ***is exempted*** of Miami Dade DRER Class I, II, IV, V and VI permits.

Class I Permit applies to Miami Dade tidal waters and coastal natural resources including mangroves, seagrass, corals and/or hard bottom sponge communities. Typically, any impact to coastal resources for this project is addressed under the SFWMD ERP permit.

Class II Permit applies for drainage construction with outfall connections into Miami Dade canals, lakes, wetlands or any other receiving water body. These activities addressed under the SFWMD ERP permit.

Class IV Permit applies for impacts to wetlands in Miami Dade. This activity is also addressed by the SFWMD ERP permit.

Class V Permit applies to construction dewatering activities. This activity is addressed by SFWMD Water User Permit.

Class VI Permit applies for work within contaminated sites. As per Miami Dade Pollution and Remediation Division, there is no open contamination found within the project limits. However, if there would be any contamination within the project it would also be addressed under the SFWMD ERP permit.

4.3.4.2 DRER Class III Permit

Sample Class III Permit applies for construction work within Miami Dade Canal Right of Way. This is more of proprietary type of permit and it is the only Miami Dade local permit which MDX is not exempted. However, there is no Miami Dade owned canal within the project limits. Consequently, project does not require a Class III permit.

5.0 Drainage Design & Analysis Approach

The SR 994 corridor presents favorable field conditions for drainage. The corridor is located within high terrain (elevation range 8' to 14'-NAVD), with a relatively low groundwater table (elevation 3.0'-NAVD) and excellent limestone percolation ($3x10^{-3}$ cfs/ft^2-ft). Given these conditions self-contained French drain system is found to be typically the most effective and economic stormwater management system for the project. The approach will include maintaining existing corridor drainage flow patterns which does not include existing outfall connections to the C-1W Canal. The proposed system will not be provided with outfall connections.

6.0 Pre-Development Drainage Conditions

6.1 Basin 1 – SR 994 from Begin Project to SW 137th Avenue

This basin includes is located within the rural section of the corridor. There is no drainage infrastructure located within this basin. The roadway directly sheet-flows into the adjacent agricultural lands.

6.2 Basin 2 – SR 994 from SW 137th Avenue to C-1 Canal Bridge Crossing

This basin includes a mixed rural and urban residential setup. The existing drainage infrastructure consists of roadside swales which provide runoff collection with ditch bottom inlets connected to isolated short segments of French drains which provide runoff disposal.

6.3 Basin 3 – SR 994 from C-1 Canal Bridge Crossing to just West of SW 127th Avenue

This basin includes an urban residential setup. As the previous segment the existing drainage infrastructure consists of roadside swales which provide runoff collection with ditch bottom inlets connected to isolated short segments of French drains which provide runoff disposal.

6.4 Basin 4 – SR 994 from just West of SW 127th Avenue to End of Project

This basin includes a mixed urban residential and commercial setup. The existing drainage infrastructure consists of a combined storm sewers and French drain trunk-line system which overflows into the SW 122nd Avenue Canal.

7.0 Post-Development Drainage Conditions

7.1 Basin 1 SR 994 from Begin Project to SW 137th Avenue

Basin 1 has a total drainage area of 2.87-acres. This basin includes two different roadway typical sections, one with curb and gutter at the intersection approach with SW 137th Avenue and the other one at the western end of the project which includes open shoulder with swale. The proposed drainage system within the curb and gutter section will consist of P-2 and P-4 inlets connected though lateral drains into a closed French drain trunk-line. The proposed drainage system within the open shoulder segment consists of swales, inlets and isolated French drain segments for runoff collection and disposal. Inlet tops of type P-2 and P-4 are preferred by FDOT Maintenance because of their ease of access.

Basin 1 bisects SW 137th Avenue into a north and south section referred to as B-137 AVE-N. and B-137 AVE-S. Basin 1 covers an area of 2.87 acres, while B-137 AVE-N and B-137 AVE-S cover an area of 2.85 acres, and 2.84 acres respectively.

7.2 Basin 2 – SR 994 from SW 137th Avenue to C-1W Canal Bridge Crossing

Basin 2 has a total drainage area of 7.47-acres. Basin 2 starts at the intersection of SW 137th Avenue and ends at the C-1W canal bridge. The roadway typical section is urban and consists of curb and gutter type F, four (4) 11' wide lanes, a 16.5' median and 5' Separated Bicycle Lane (SBL) with a 2' buffer to sidewalk at both sides. The proposed drainage system within the curb and gutter section will consist of P-2 and P-4 inlets connected though lateral drains into a closed French drain trunk-line.

Basin 2 covers an area of 7.47 acres. Minor improvement will be performed at the intersection of SR 994 with SW 134th Avenue. North of SR 994 the improvement will impact 0.52 acre and this drainage basin is referred to as B1-134 AVE-N. South of SR 994 the improvement will impact 0.78 acre and this drainage basin is referred to as B1-134 AVE-S.

7.3 Basin 3– SR 994 from C-1W Canal Bridge Crossing to SW 127th Avenue

Basin 3 has a total drainage area of 5.51-acres. Basin 3 starts at the C-1W canal bridge and ends at the intersection of SW 127th Avenue. The roadway typical section is urban and consists of curb and gutter type F, four (4) 11' wide lanes, a 16.5' median and 5' Separated Bicycle Lane (SBL) with a 2' buffer to sidewalk at both sides. The proposed drainage system within the curb and gutter section will consist of P-2 and P-4 inlets connected though lateral drains into a closed French drain trunk-line.

Basin 3 bisects SW 127th Avenue into a north and south section referred to as B-127 AVE-N. and B-127 AVE-S. Basin 3 covers an area of 5.51 acres, while B-127 AVE-N and B-127 AVE-S cover an area of 0.73 acres, and 1.61 acres respectively.

7.4 Basin 4 - SR 994 from SW 127th Avenue to End of Project

Basin 4 has a total drainage area of 4.04-acres. Basin 4 starts at the intersection of SW 127th Avenue and ends at SW 123rd Place which is the end of the project. The project scope includes widening improvements within this segment of the corridor. The roadway typical section is urban and consists of curb and gutter type F, four (4) 11' wide lanes, a 16.5' median and 5' Separated Bicycle Lane (SBL) with a 2' buffer to sidewalk at both sides. The proposed drainage system within the curb and gutter section will consist of P-2 and P-4 inlets as well as P-5 and P-6 inlets (where right of way is limited) connected though lateral drains into a new French drain trunk-line system.

8.0 Preliminary Construction Cost Estimate

A preliminary layout of the drainage systems for Basin 1 through 4 has been sized from the proposed geometry and profile. The preliminary construction cost estimate is evaluated at $3,099,658.84.

9.0 Conclusion and Recommendations

The proposed project drainage systems will not impact the surrounding areas, nor the C-1 West canal. The systems that have been designed and analyzed in this report consist of self-contained French drains that have no overflow to the adjacent water bodies. Where applicable inlets type P-2 and P-4 are being proposed to facilitate FDOT maintenance activities. The systems have been designed to satisfy State and local criteria for both water quality and quantity. Backwater elevations from the systems are limited to the lowest inlet elevation, or edge of pavement elevation, meaning no overflow into private properties.

SR 994/QUAIL ROOST DR. FROM W. OF SW 137 AVE TO E. OF SW 127 AVE.
PD&E STUDY - FPID 445804-1-22-01
POST-DEVELOPMENT DRAINAGE AREAS BREAKDOWN

BASIN ID.	PERVIOUS (AC)	IMPERVIOUS (AC)	TOTAL (AC)
BASIN 1	0.75	2.12	2.87
BASIN 2	0.93	6.54	7.47
BASIN 3	0.82	4.69	5.51
BASIN 4	0.26	3.78	4.04
B-137 AVE -N	0.76	2.09	2.85
B-137 AVE -S	0.62	2.22	2.84
B-127 AVE -N	0.13	0.6	0.73
B-127 AVE -S	0.27	1.34	1.61
B-134 AVE-N	0.12	0.4	0.52
B-134 AVE-S	0.28	0.5	0.78
TOTALS:	**4.94**	**24.28**	**29.22**

SR 994/QUAIL ROOST DR. FROM W. OF SW 137 AVE TO E. OF SW 127 AVE.
PD&E STUDY - FPID 445804-1-22-01
PRE-DEVELOPMENT DRAINAGE AREAS BREAKDOWN

BASIN ID.	PERVIOUS (AC)	IMPERVIOUS (AC)	TOTAL (AC)
BASIN 1	1.83	1.04	2.87
BASIN 2	4.44	3.03	7.47
BASIN 3	2.89	2.62	5.51
BASIN 4	0.78	3.26	4.04
B-137 AVE -N	1.76	1.09	2.85
B-137 AVE -S	1.34	1.50	2.84
B-127 AVE -N	0.28	0.45	0.73
B-127 AVE -S	0.71	0.90	1.61
B-134 AVE-N	0.22	0.30	0.52
B-134 AVE-S	0.42	0.36	0.78
TOTALS:	**14.67**	**14.55**	**29.22**

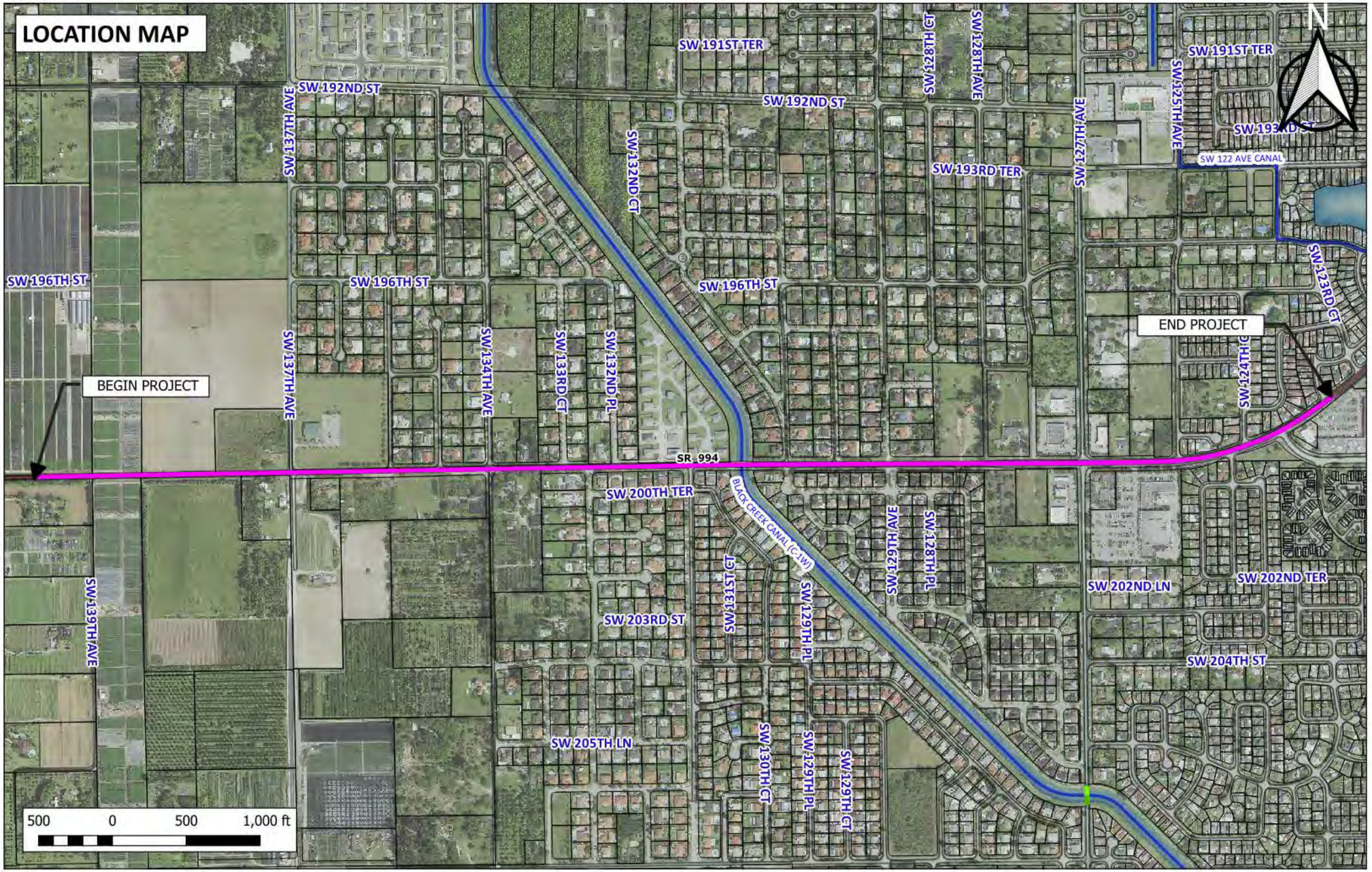
SR 994/SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue
Project Development & Environmental Study (PD&E) - Concept Drainage Report
FPID 445804-1-22-01
Preliminary Drainage Construction Cost Estimate

Prepared by: ER
Date: 6/11/2024
Checked by: CR
Date: 6/11/2024

ESTIMATE USING 2024 STATEWIDE HISTORICAL AVERAGE AND AREA 13 From 2023/05/01 to 2024/04/30					
PAY-ITEMS	**DESCRIPTION**	**UNIT**	**UNIT COST**	**QUANTITIES**	**TOTAL COST**
0425 1211	INLETS, CURB, TYPE 10, <10'	EA	$ 7,000.00	32	$ 224,000.00
0425 1311	INLETS, CURB, TYPE P-1, <10'	EA	$ 11,500.00	48	$ 552,000.00
0425 1321	INLETS, CURB, TYPE P-2, <10'	EA	$ 14,100.00	13	$ 183,300.00
0425 1331	INLETS, CURB, TYPE P-3, <10'	EA	$ 16,942.28	1	$ 16,942.28
0425 1341	INLETS, CURB, TYPE P-4, <10'	EA	$ 11,231.77	3	$ 33,695.31
0425 1351	INLETS, CURB, TYPE P-5, <10'	EA	$ 9,801.52	5	$ 49,007.60
0425 1361	INLETS, CURB, TYPE P-6, <10'	EA	$ 10,960.30	4	$ 43,841.20
0425 1563	INLETS, DITCH BOTTOM, TYPE F, J BOT,	EA	$ 11,500.00	6	$ 69,000.00
0425 2 41	MANHOLES, P-7, <10'	EA	$ 8,597.14	28	$ 240,719.92
0430175118	PIPE CULVERT,OPTIONAL MATERIAL,ROUND, 18"S/CD	LF	$ 152.98	4293	$ 656,743.14
0430175124	PIPE CULVERT,OPTIONAL MATERIAL,ROUND, 24"S/CD	LF	$ 184.14	2568	$ 472,871.52
0443 70 4	FRENCH DRAIN, 24"	LF	$ 374.42	4904	$ 1,836,155.68
				TOTAL	**$ 4,378,276.65**

APPENDIX A

DRAINAGE EXHIBITS


LOCATION MAP
N
SW 191ST TER
SW 192ND ST
SW 137TH AVE
SW 132ND CT
SW 128TH CT
SW 128TH AVE
SW 127TH AVE
SW 125TH AVE
SW 193RD ST
SW 122 AVE CANAL
SW 193RD TER
SW 196TH ST
SW 134TH AVE
SW 133RD CT
SW 132ND PL
SW 123RD CT
END PROJECT
BEGIN PROJECT
SR 994
SW 127TH CT
SW 200TH TER
BLACK CREEK CANAL (C-1W)
SW 129TH AVE
SW 128TH PL
SW 131ST CT
SW 129TH PL
SW 202ND LN
SW 202ND TER
SW 139TH AVE
SW 203RD ST
SW 204TH ST
SW 205TH LN
SW 130TH CT
SW 129TH PL
SW 129TH CT
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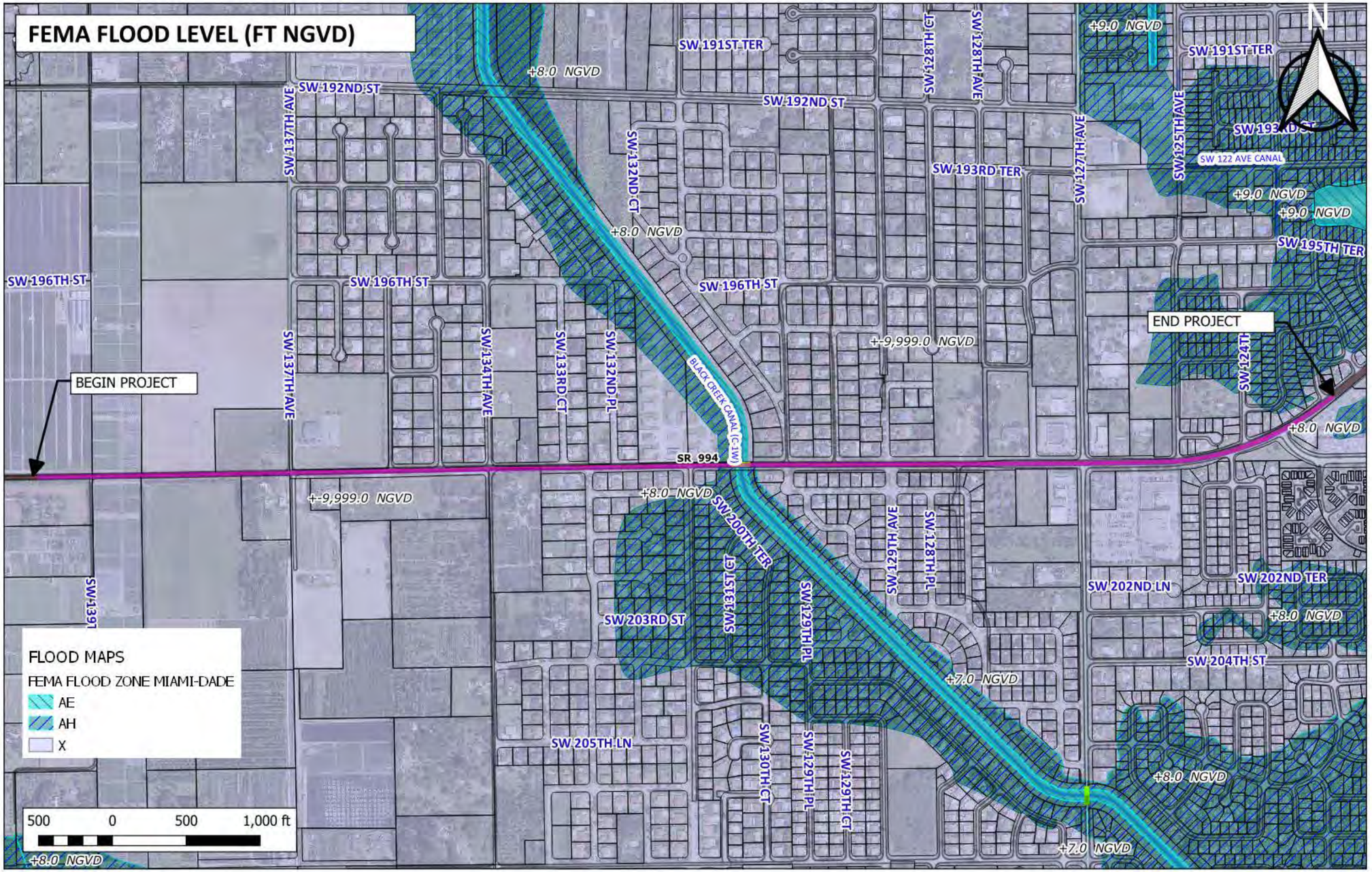
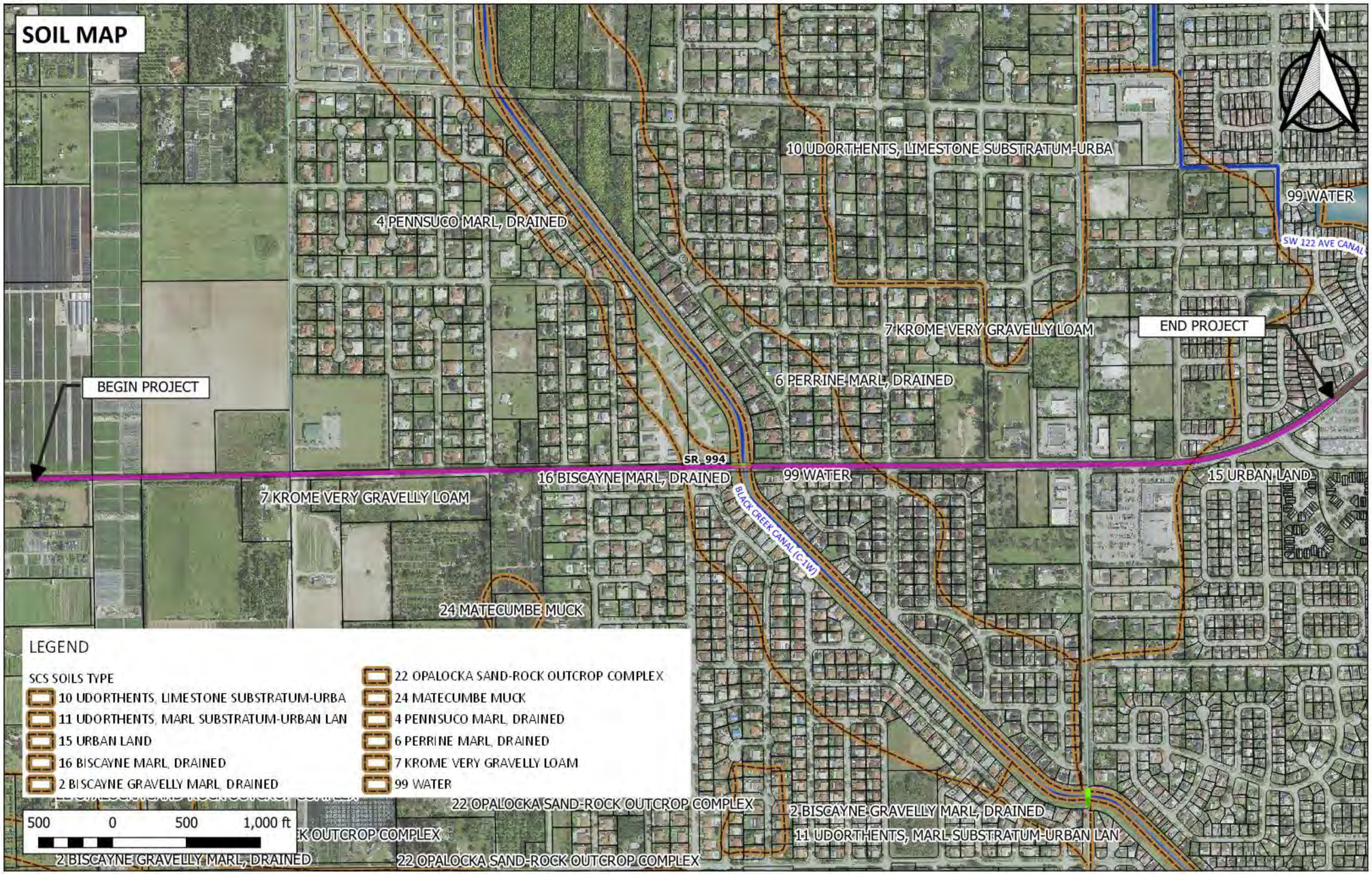
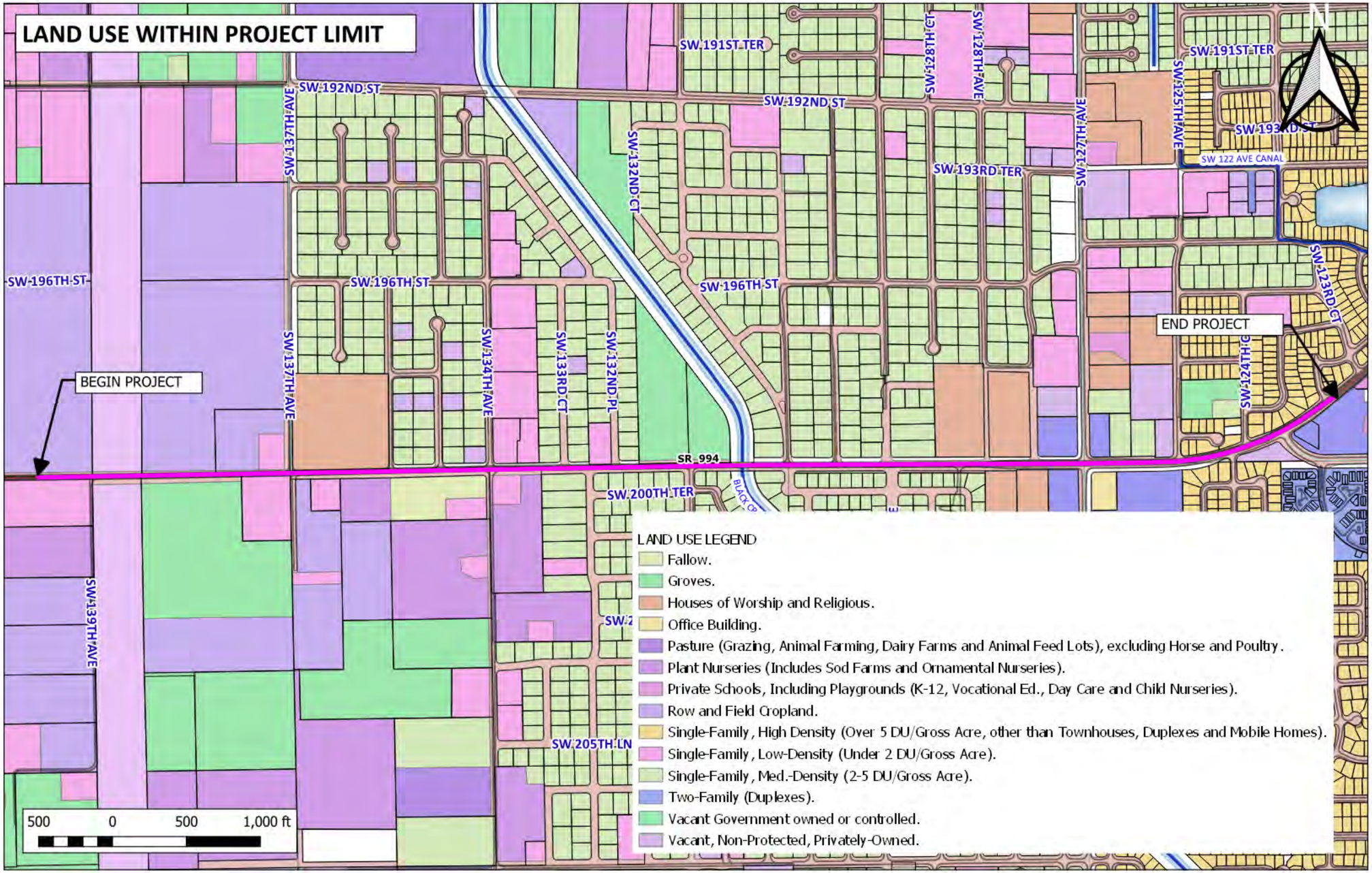
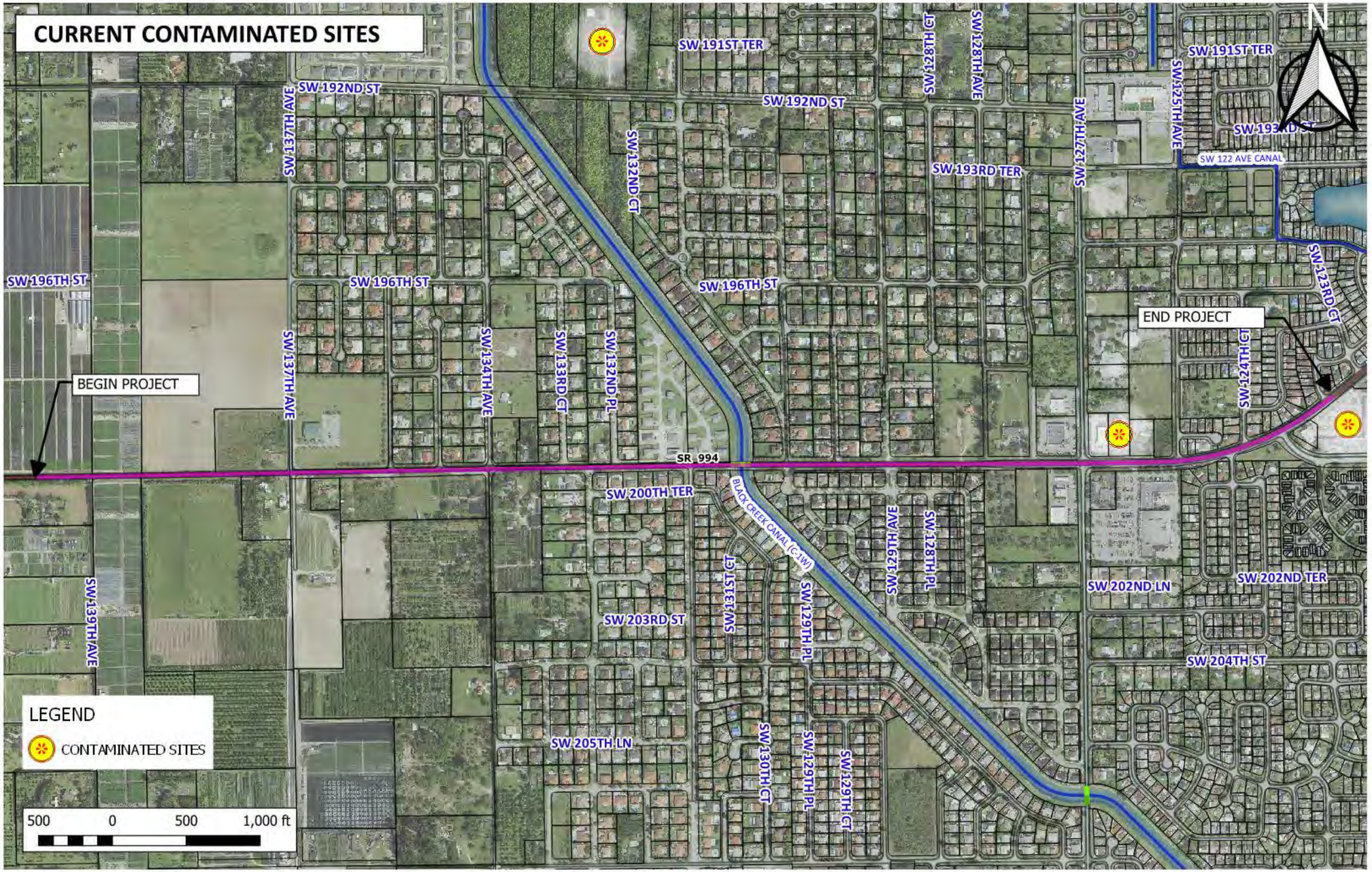

FEMA FLOOD LEVEL (FT NGVD)
SW 191ST TER
SW 192ND ST
SW 137TH AVE
SW 132ND CT
SW 128TH CT
SW 128TH AVE
SW 127TH AVE
SW 125TH AVE
SW 193RD TER
SW 122 AVE CANAL
SW 195TH TER
SW 196TH ST
SW 134TH AVE
SW 133RD CT
SW 132ND PL
BLACK CREEK CANAL (C-1W)
END PROJECT
SW 124TH
BEGIN PROJECT
SR 994
SW 200TH TER
SW 131ST CT
SW 129TH AVE
SW 128TH PL
SW 129TH PL
SW 202ND LN
SW 202ND TER
SW 203RD ST
SW 204TH ST
SW 205TH LN
SW 130TH CT
SW 129TH CT
SW 139T
+8.0 NGVD
+9.0 NGVD
+-9,999.0 NGVD
+7.0 NGVD
FLOOD MAPS
FEMA FLOOD ZONE MIAMI-DADE
AE
AH
X
500 0 500 1,000 ft


SOIL MAP
N
10 UDORTHENTS, LIMESTONE SUBSTRATUM-URBA
99 WATER
SW 122 AVE CANAL
4 PENNSUCO MARL, DRAINED
7 KROME VERY GRAVELLY LOAM
END PROJECT
6 PERRINE MARL, DRAINED
BEGIN PROJECT
SR 994
16 BISCAYNE MARL, DRAINED
99 WATER
15 URBAN LAND
7 KROME VERY GRAVELLY LOAM
BLACK CREEK CANAL (C-1W)
24 MATECUMBE MUCK
LEGEND
SCS SOILS TYPE
10 UDORTHENTS, LIMESTONE SUBSTRATUM-URBA
11 UDORTHENTS, MARL SUBSTRATUM-URBAN LAN
15 URBAN LAND
16 BISCAYNE MARL, DRAINED
2 BISCAYNE GRAVELLY MARL, DRAINED
22 OPALOCKA SAND-ROCK OUTCROP COMPLEX
24 MATECUMBE MUCK
4 PENNSUCO MARL, DRAINED
6 PERRINE MARL, DRAINED
7 KROME VERY GRAVELLY LOAM
99 WATER
500 0 500 1,000 ft
22 OPALOCKA SAND-ROCK OUTCROP COMPLEX
2 BISCAYNE GRAVELLY MARL, DRAINED
11 UDORTHENTS, MARL SUBSTRATUM-URBAN LAN
2 BISCAYNE GRAVELLY MARL, DRAINED
22 OPALOCKA SAND-ROCK OUTCROP COMPLEX


LAND USE WITHIN PROJECT LIMIT
SW 191ST TER
SW 192ND ST
SW 137TH AVE
SW 132ND CT
SW 128TH CT
SW 128TH AVE
SW 127TH AVE
SW 125TH AVE
SW 193RD ST
SW 122 AVE CANAL
SW 193RD TER
SW 196TH ST
SW 123RD CT
END PROJECT
BEGIN PROJECT
SW 134TH AVE
SW 133RD CT
SW 132ND PL
SW 124TH CT
SR 994
SW 200TH TER
SW 139TH AVE
SW 205TH LN
500 0 500 1,000 ft
LAND USE LEGEND
Fallow.
Groves.
Houses of Worship and Religious.
Office Building.
Pasture (Grazing, Animal Farming, Dairy Farms and Animal Feed Lots), excluding Horse and Poultry.
Plant Nurseries (Includes Sod Farms and Ornamental Nurseries).
Private Schools, Including Playgrounds (K-12, Vocational Ed., Day Care and Child Nurseries).
Row and Field Cropland.
Single-Family, High Density (Over 5 DU/Gross Acre, other than Townhouses, Duplexes and Mobile Homes).
Single-Family, Low-Density (Under 2 DU/Gross Acre).
Single-Family, Med.-Density (2-5 DU/Gross Acre).
Two-Family (Duplexes).
Vacant Government owned or controlled.
Vacant, Non-Protected, Privately-Owned.


CURRENT CONTAMINATED SITES
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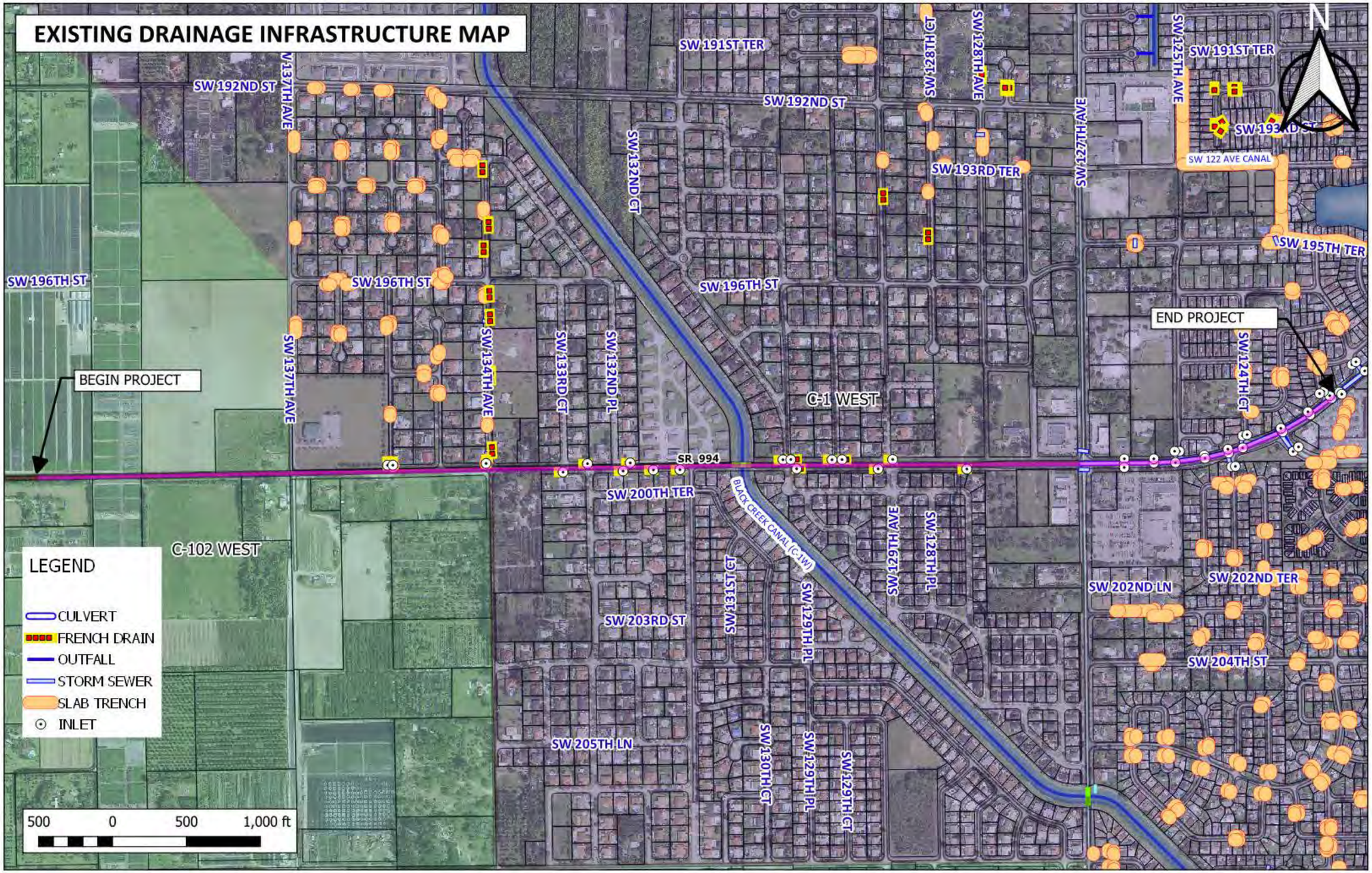
SW 191ST TER
SW 192ND ST
SW 137TH AVE
SW 132ND CT
SW 128TH CT
SW 128TH AVE
SW 127TH AVE
SW 125TH AVE
SW 193RD ST
SW 122 AVE CANAL
SW 193RD TER
SW 196TH ST
SW 134TH AVE
SW 133RD CT
SW 132ND PL
SW 123RD CT
END PROJECT
SW 127TH CT
BEGIN PROJECT
SR 994
SW 200TH TER
BLACK CREEK CANAL (C-1W)
SW 129TH AVE
SW 128TH PL
SW 131ST CT
SW 129TH PL
SW 202ND LN
SW 202ND TER
SW 203RD ST
SW 204TH ST
SW 139TH AVE
SW 205TH LN
SW 130TH CT
SW 129TH CT
LEGEND
CONTAMINATED SITES
500 0 500 1,000 ft


EXISTING DRAINAGE INFRASTRUCTURE MAP
N
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SW 192ND ST
SW 137TH AVE
SW 128TH CT
SW 128TH AVE
SW 127TH AVE
SW 125TH AVE
SW 191ST TER
SW 193RD ST
SW 122 AVE CANAL
SW 193RD TER
SW 132ND CT
SW 195TH TER
SW 196TH ST
SW 196TH ST
SW 196TH ST
END PROJECT
SW 137TH AVE
SW 134TH AVE
SW 133RD CT
SW 132ND PL
SW 124TH CT
BEGIN PROJECT
C-1 WEST
SR 994
SW 200TH TER
BLACK CREEK CANAL (C-1W)
SW 129TH AVE
SW 128TH PL
C-102 WEST
SW 131ST CT
SW 202ND LN
SW 202ND TER
SW 203RD ST
SW 129TH PL
SW 204TH ST
SW 205TH LN
SW 130TH CT
SW 129TH PL
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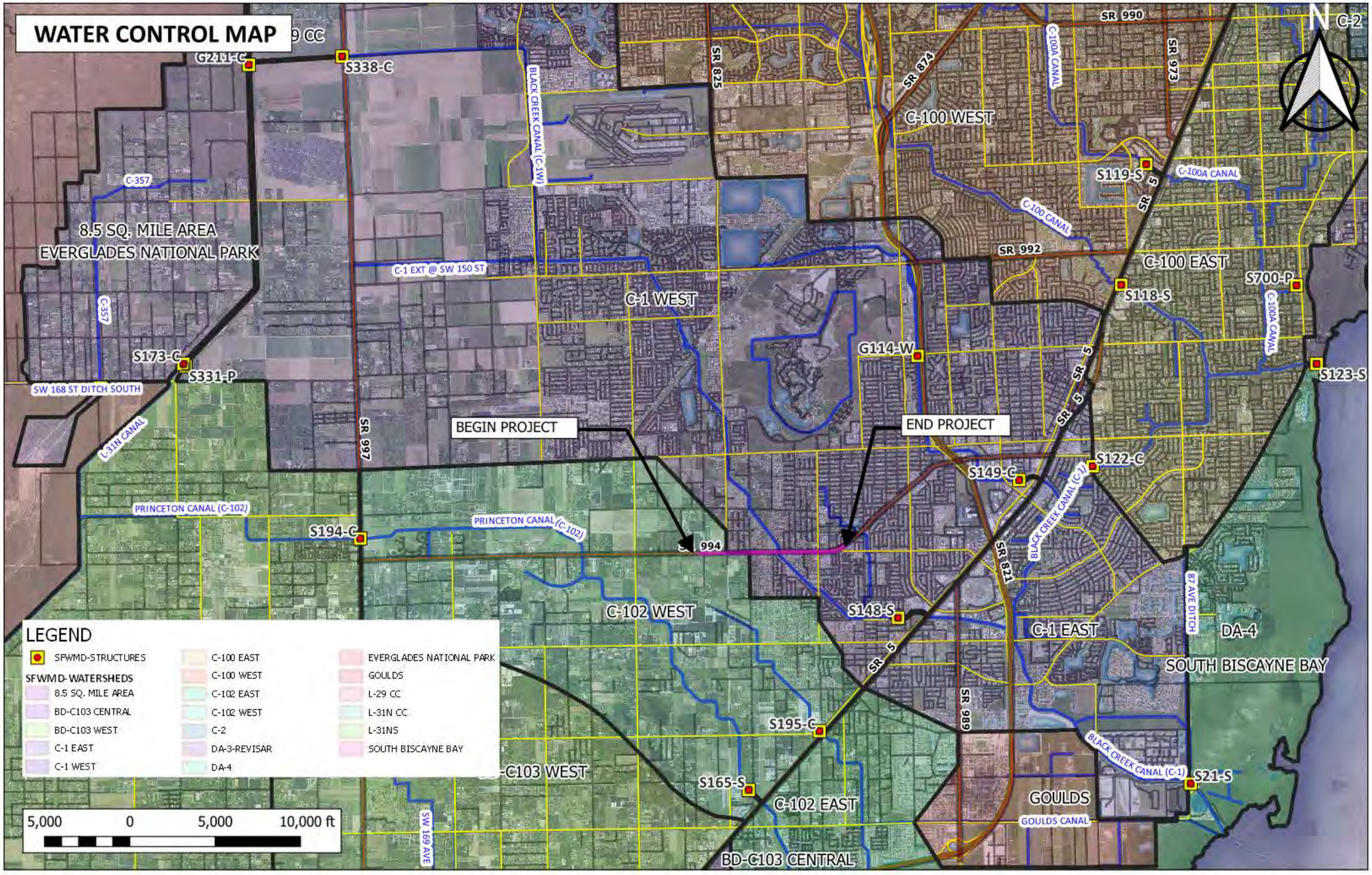
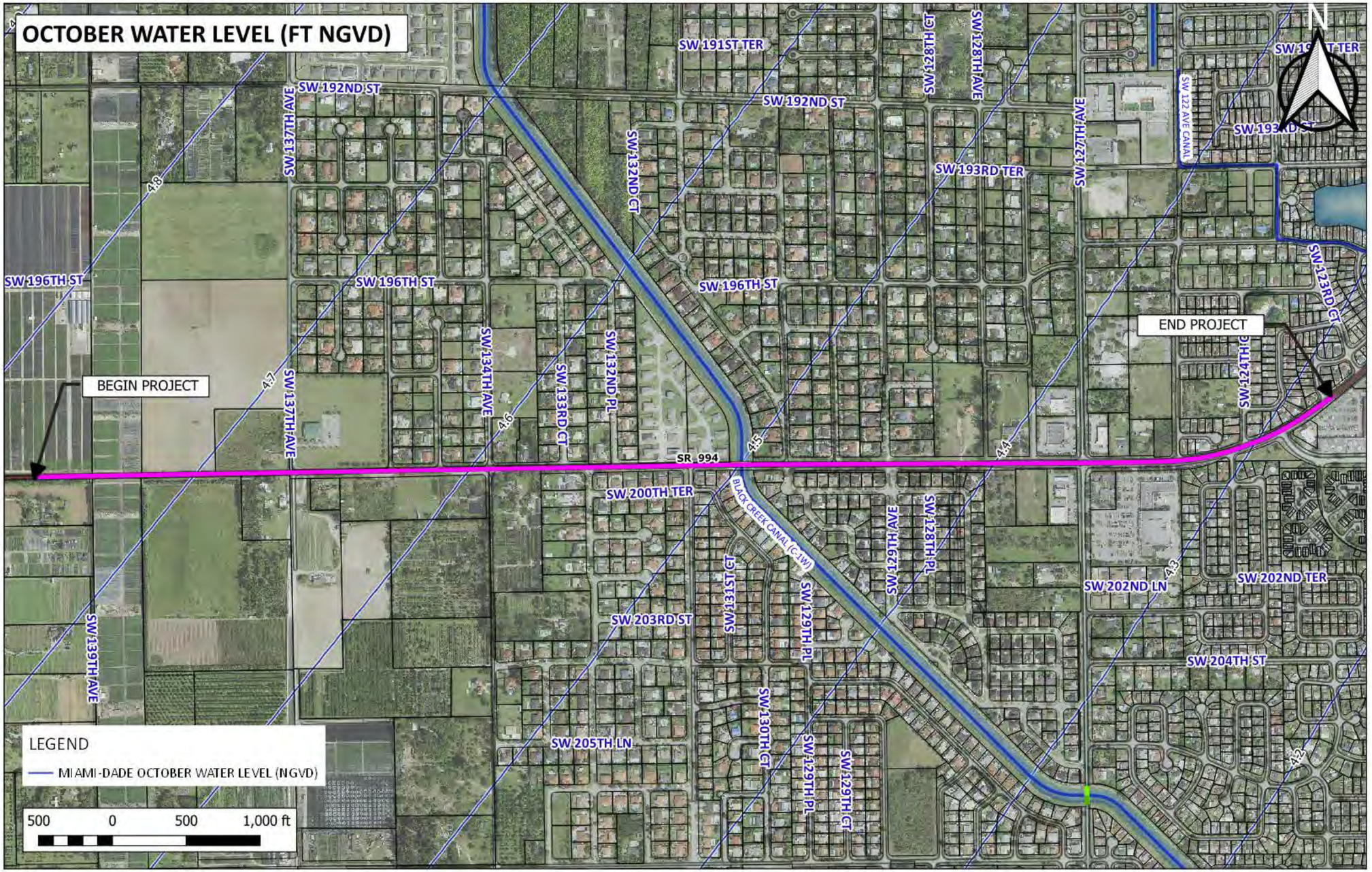
500
1,000 ft


WATER CONTROL MAP
G211-C
S338-C
BLACK CREEK CANAL (C-1W)
SR 825
SR 874
C-100A CANAL
SR 990
SR 973
C-2
N
C-100 WEST
S119-S
C-100A CANAL
C-357
8.5 SQ. MILE AREA
EVERGLADES NATIONAL PARK
C-100 CANAL
SR 992
C-100 EAST
S700-P
C-1 EXT @ SW 150 ST
C-1 WEST
S118-S
C-100A CANAL
S173-C
S331-P
G114-W
S123-S
SW 168 ST DITCH SOUTH
SR 997
BEGIN PROJECT
END PROJECT
L-31N CANAL
S122-C
S149-C
BLACK CREEK CANAL (C-1)
PRINCETON CANAL (C-102)
S194-C
SR 994
SR 821
87 AVE DITCH
C-102 WEST
S148-S
C-1 EAST
DA-4
SOUTH BISCAYNE BAY
LEGEND
SFWMD-STRUCTURES
SFWMD-WATERSHEDS
8.5 SQ. MILE AREA
BD-C103 CENTRAL
BD-C103 WEST
C-1 EAST
C-1 WEST
C-100 EAST
C-100 WEST
C-102 EAST
C-102 WEST
C-2
DA-3-REVISAR
DA-4
EVERGLADES NATIONAL PARK
GOULDS
L-29 CC
L-31N CC
L-31NS
SOUTH BISCAYNE BAY
SR 989
S195-C
BLACK CREEK CANAL (C-1)
S21-S
S165-S
C-102 EAST
GOULDS
GOULDS CANAL
5,000 0 5,000 10,000 ft
SW 169 AVE
BD-C103 CENTRAL


OCTOBER WATER LEVEL (FT NGVD)
SW 191ST TER
SW 192ND ST
SW 192ND ST
SW 137TH AVE
SW 132ND CT
SW 128TH CT
SW 128TH AVE
SW 127TH AVE
SW 122 AVE CANAL
SW 193RD TER
SW 196TH ST
SW 196TH ST
SW 196TH ST
SW 123RD CT
END PROJECT
BEGIN PROJECT
SW 137TH AVE
SW 134TH AVE
SW 133RD CT
SW 132ND PL
SW 127TH CT
SR 994
SW 200TH TER
BLACK CREEK CANAL (C-1W)
SW 129TH AVE
SW 128TH PL
SW 202ND LN
SW 202ND TER
SW 203RD ST
SW 131ST CT
SW 129TH PL
SW 204TH ST
SW 139TH AVE
SW 205TH LN
SW 130TH CT
SW 129TH PL
SW 129TH CT
4.8
4.7
4.6
4.5
4.4
4.3
4.2
LEGEND
MIAMI-DADE OCTOBER WATER LEVEL (NGVD)
500 0 500 1,000 ft

APPENDIX B

CONCEPT DRAINAGE PLANS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
LICENSE NUMBER 50543
RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
1

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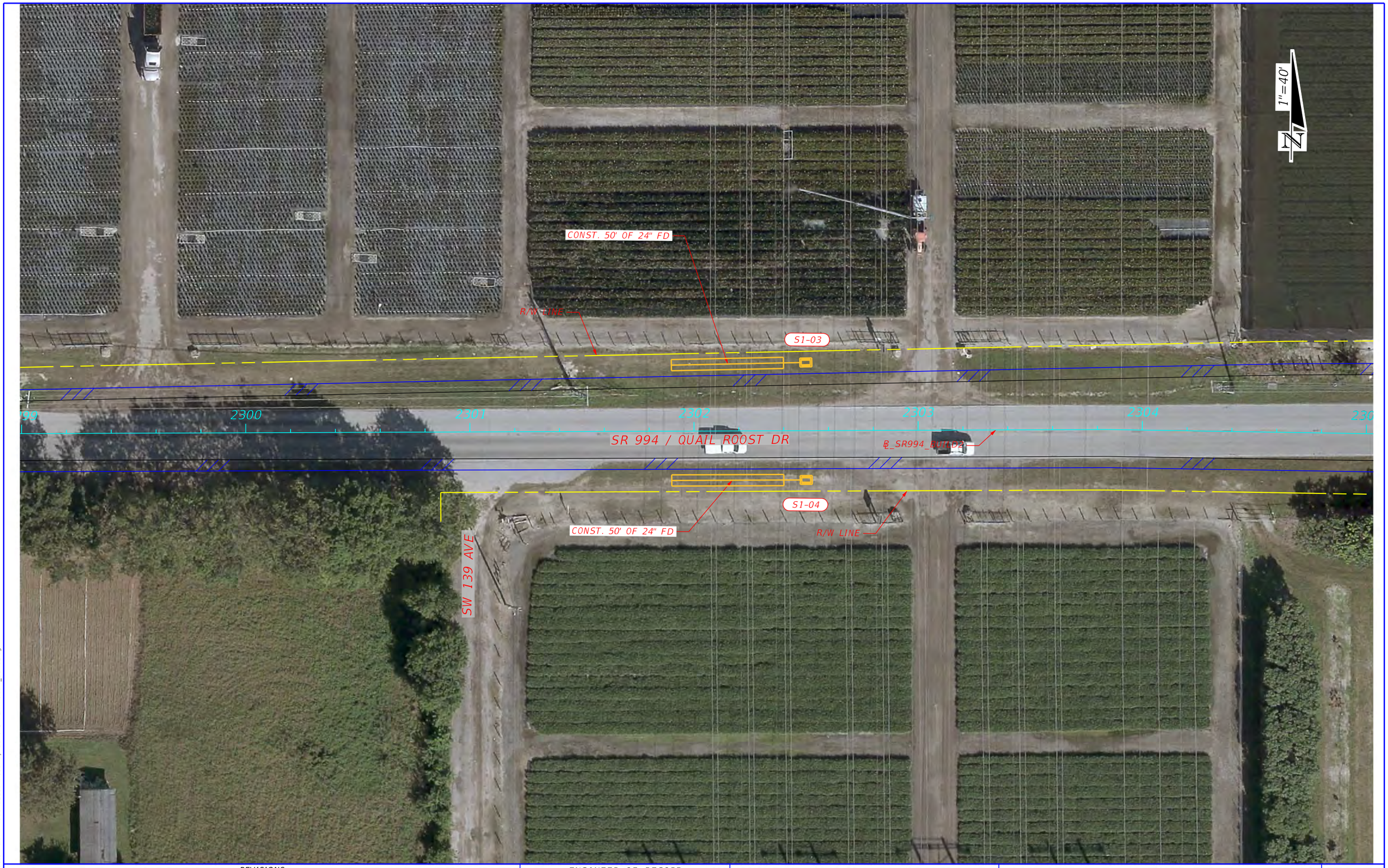

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
2

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
LICENSE NUMBER 50543
RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
3

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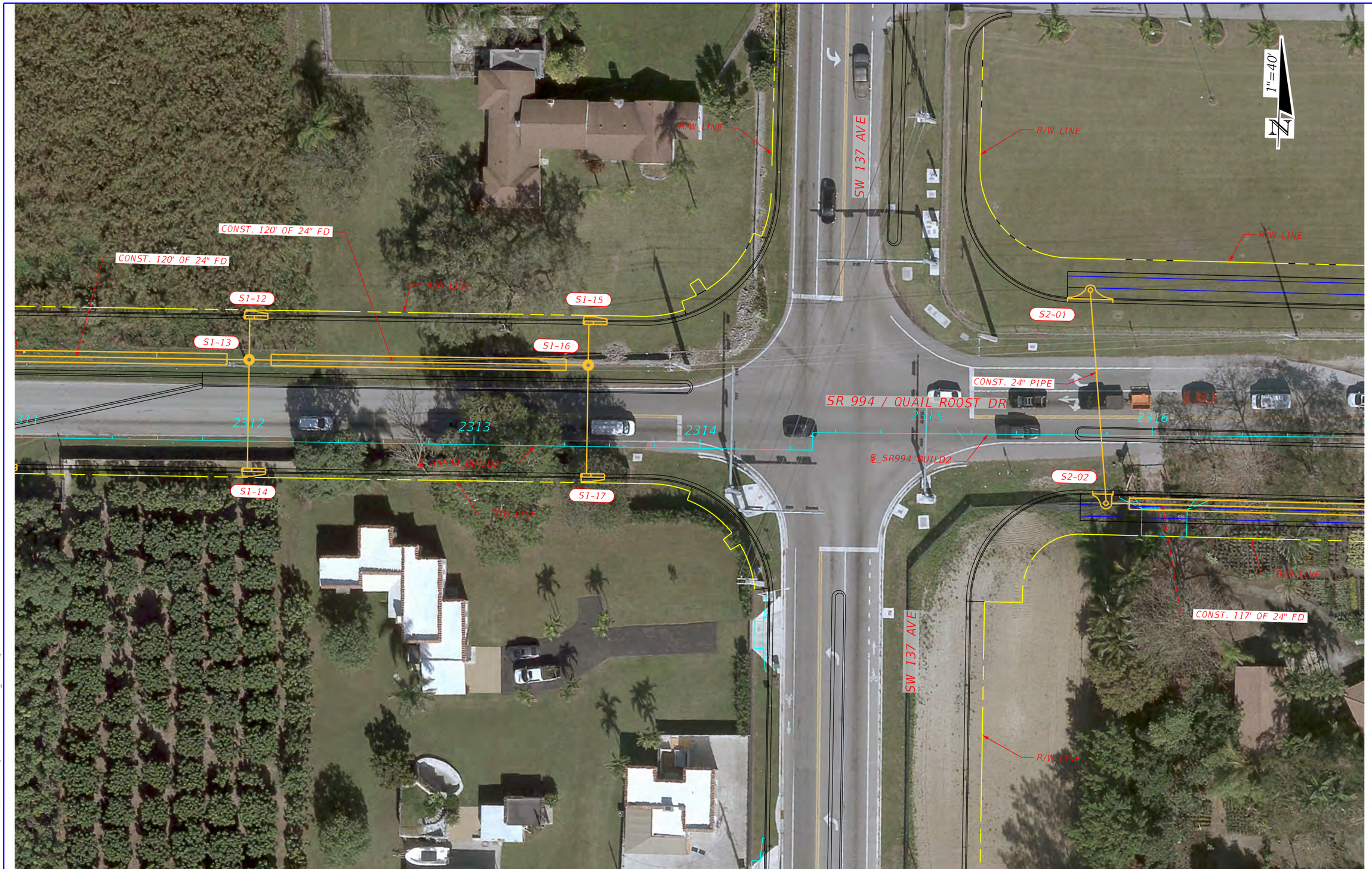

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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LICENSE NUMBER 50543
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MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
4

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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LICENSE NUMBER 50543
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
5

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
6

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
CARLOS F. RIBBECK, P.E.
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MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
7

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
8

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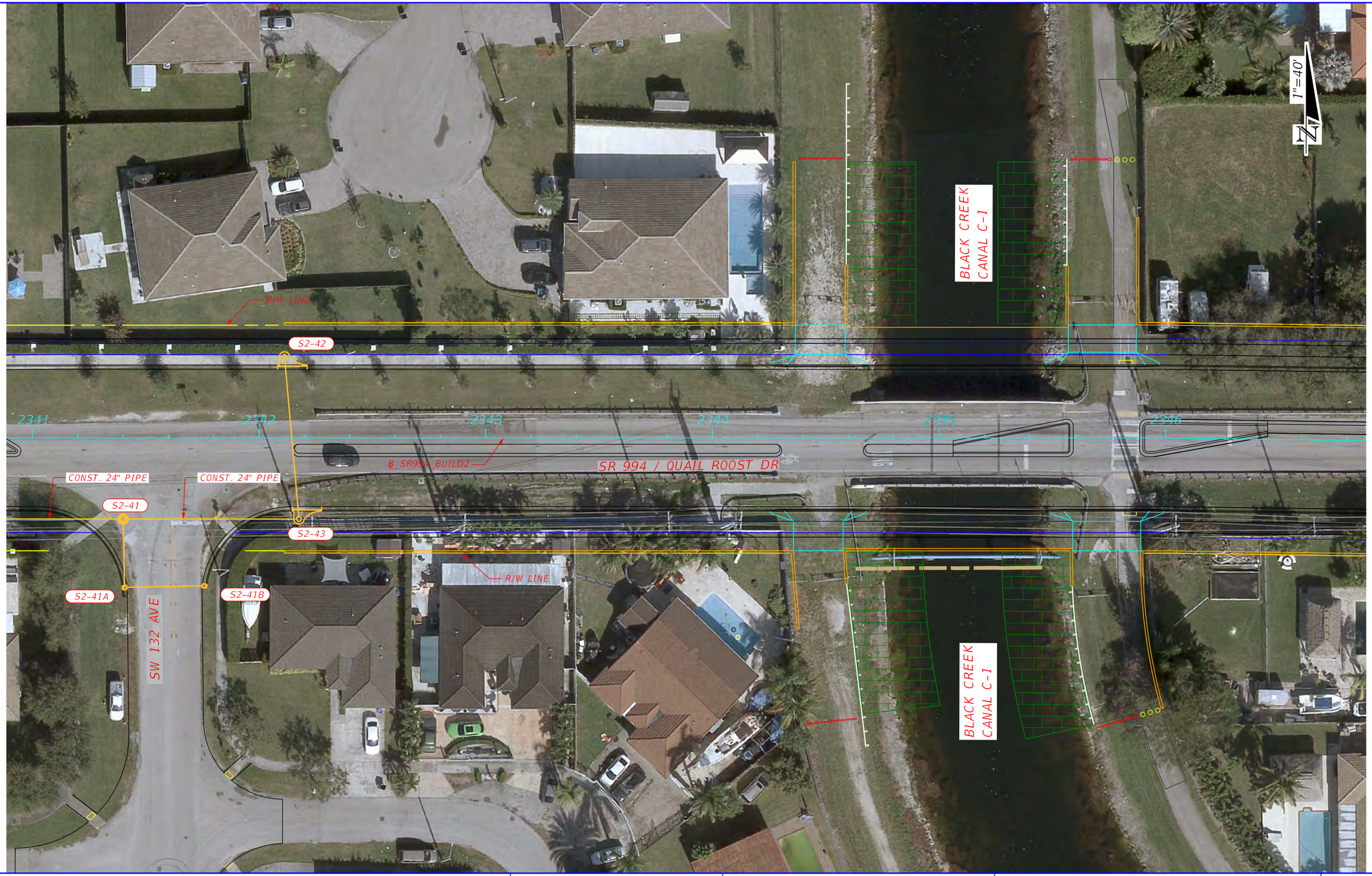

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
9

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
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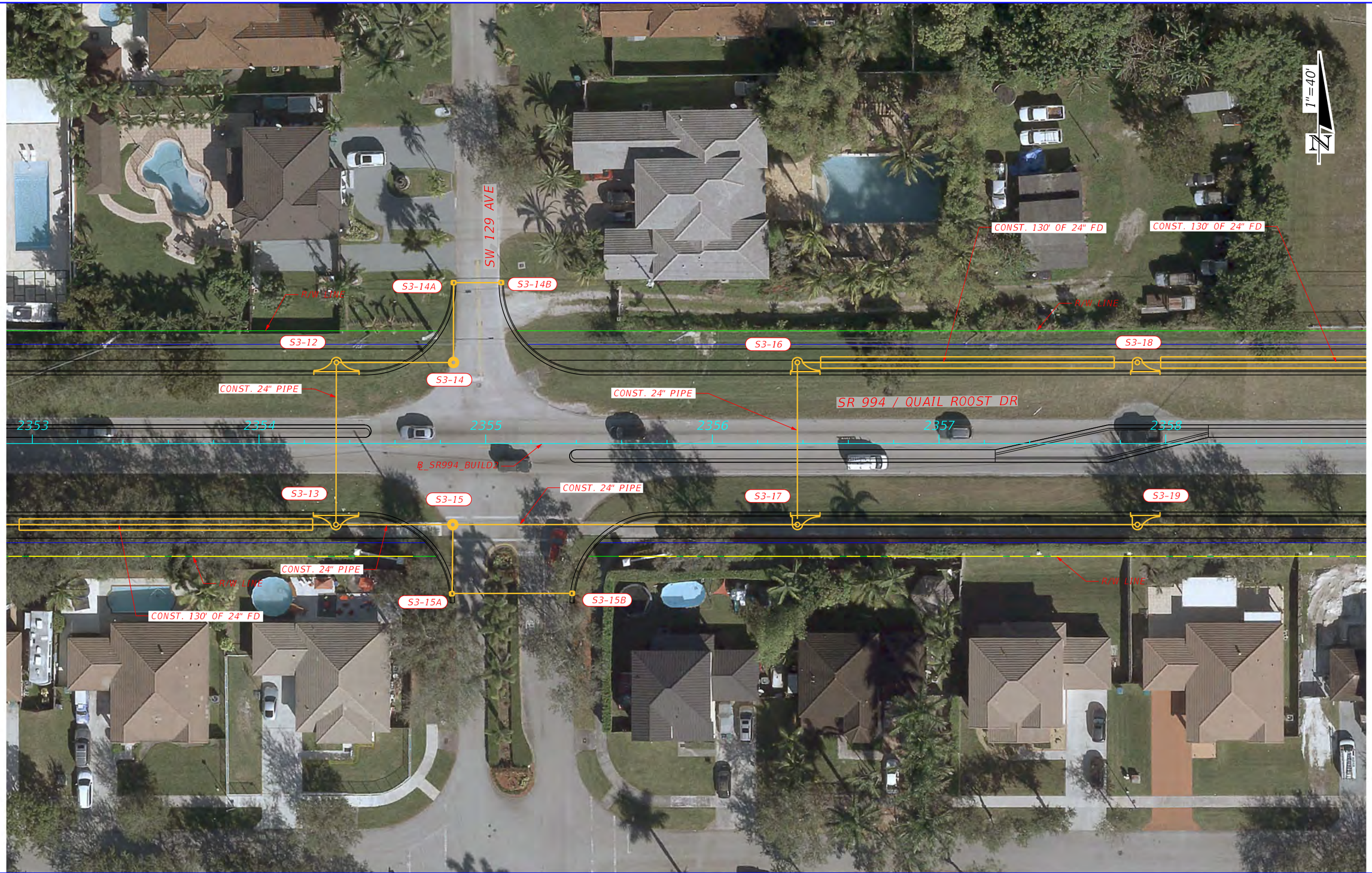

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
LICENSE NUMBER 50543
RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
11

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
LICENSE NUMBER 50543
RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
12

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
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14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
13

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
14

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
LICENSE NUMBER 50543
RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
15

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

CARLOS F. RIBBECK, P.E.
LICENSE NUMBER 50543
RIBBECK ENGINEERING, INC.
14335 SW 120 STREET, SUITE 205
MIAMI, FL 33186

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

CONCEPT DRAINAGE PLAN

SHEET NO.
16

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APPENDIX C

CONCEPT DRAINAGE CALCULATIONS

SR994/Quail Rosst Drive from W. of SW 137th Avenue to E. of SW 127th Avenue
Post-Development Drainage Conditions
Computation of Total Length of Self-Contained French Drain Required per Basin

Calc. by: E. Rodriguez
Chkd. By: C. Ribbeck
Date: 6/14/2024

BASIN I.D.	PERVIOUS acres	IMPERVIOUS acres	TOTAL acres	$C_{WEIGHTED}$	Roadway Min. EOP. Elev ft-NAVD	Top of FD Trench Elev. ft-NAVD	DERM Oct. Avg. GW Elev. ft-NAVD	$E_{FD\ EXF.}$ cfs/ft	$S_{FD\ STORAGE}$ ft^3/ft	COMPUTED L_{-FD} ft.	L_{-FD} (SF>=2)- MIN. REQUIRED ft.	$L_{-FD\ PROVIDED}$ ft.	ACTUAL SF
BASIN 1	0.75	2.12	2.87	0.77	10.0	8.0	3.3	0.1	12.15	144	288	625	4.3
BASIN 2	0.93	6.54	7.47	0.86	9.0	7.0	3.1	0.1	10.35	434	868	1910	4.4
BASIN 3	0.82	4.69	5.51	0.85	8.0	6.0	2.9	0.1	8.55	330	660	1210	3.7
BASIN 4	0.26	3.78	4.04	0.90	8.0	6.0	2.8	0.1	8.77	255	510	1159	4.5
											Project's Total Length of 24" FD=	**4904**	

$C_{IMPERVIOUS}$= 0.95
$C_{PERVIOUS}$= 0.25

BASIN 1: Begin of Project to SW 137th avenue
BASIN 2: SW 137th Avenue to C-1 Canal Bridge
BASIN 3: C-1 Canal Bridge to SW 127th Avenue
BASIN 4: SW 127th Avenue to End of Project

LENGTH OF A SELF-CONTAINED FRENCH DRAIN FOR FDOT RAINFALL - SR 994 PD&E - BASIN B-1

A,B,C,D = FDOT IDF coefficients.
A_r = Area, in acres.
C_r = Runoff coefficient of Rational Equation.
E = F.D. exfiltration rate, in cfs/ft.
S = F.D. storage, in cf/ft.
t and T = time, in minutes.
l and L = length of F.D., in ft.

Zone no. = 10 Frequency, years = 10

$A := 10.84265$ $B := -0.18976$

$C := -0.69575$ $D := 0.07495$

$A_r := 2.87$ $C_r := 0.77$ $E := 0.10$ $S := 12.15$

---

trial values: $t := 10$ $l := 10$

F.D. retention volume and runoff volume curves have equal tangents

Constraints

$$E \cdot l = C_r \cdot A_r \cdot \left(A + B \cdot \left(ln(t) + 1\right) + C \cdot ln(t) \cdot \left(ln(t) + 2\right) + D \cdot \left(ln(t)\right)^2 \cdot \left(ln(t) + 3\right)\right)$$

F.D. retention volume and runoff volumes are equal

$$l \cdot S + 60 \cdot E \cdot l \cdot t = 60 \cdot C_r \cdot A_r \cdot t \cdot \left(A + B \cdot ln(t) + C \cdot \left(ln(t)\right)^2 + D \cdot \left(ln(t)\right)^3\right)$$

Solver

$$\begin{bmatrix} L \\ T \end{bmatrix} := \mathbf{Find}(l, t)$$

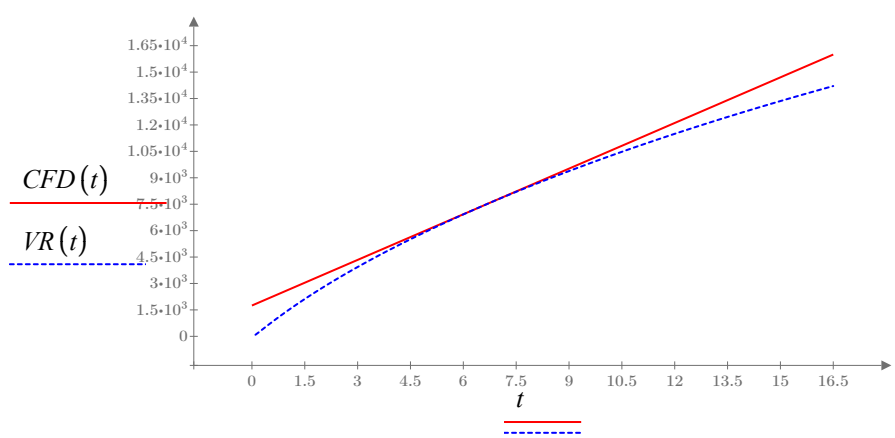
$L = 143.92$ $T = 6.557$

$t := 0., 0.1 .. T + 10$

CFD = Capacity of F.D., in cf.
VR = Volume of runoff, in cf.

$$CFD(t) := L \cdot S + 60 \cdot E \cdot L \cdot t$$

$$VR(t) := 60 \cdot C_r \cdot A_r \cdot \left(A + B \cdot \ln(t) + C \cdot \left(\ln(t)\right)^2 + D \cdot \left(\ln(t)\right)^3\right) \cdot t$$



LENGTH OF A SELF-CONTAINED FRENCH DRAIN FOR FDOT RAINFALL - SR 994 PD&E - BASIN B-2

A,B,C,D = FDOT IDF coefficients.
A_r = Area, in acres.
C_r = Runoff coefficient of Rational Equation.
E = F.D. exfiltration rate, in cfs/ft.
S = F.D. storage, in cf/ft.
t and T = time, in minutes.
l and L = length of F.D., in ft.

Zone no. = 10 Frequency, years = 10

$A := 10.84265$ $B := -0.18976$

$C := -0.69575$ $D := 0.07495$

$A_r := 7.47$ $C_r := 0.86$ $E := 0.10$ $S := 10.35$

---

trial values: $t := 10$ $l := 10$

F.D. retention volume and runoff volume curves have equal tangents

Constraints/Values

$$E \cdot l = C_r \cdot A_r \cdot \left(A + B \cdot \left(ln(t) + 1\right) + C \cdot ln(t) \cdot \left(ln(t) + 2\right) + D \cdot \left(ln(t)\right)^2 \cdot \left(ln(t) + 3\right)\right)$$

F.D. retention volume and runoff volumes are equal

$$l \cdot S + 60 \cdot E \cdot l \cdot t = 60 \cdot C_r \cdot A_r \cdot t \cdot \left(A + B \cdot ln(t) + C \cdot \left(ln(t)\right)^2 + D \cdot \left(ln(t)\right)^3\right)$$

Solver

$$\begin{bmatrix} L \\ T \end{bmatrix} := \mathbf{Find}(l, t)$$

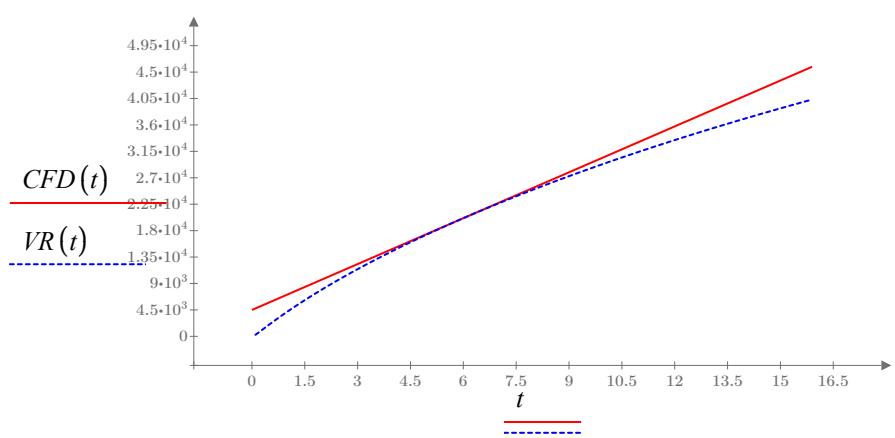
$L = 434.112$ $T = 5.957$

$t := 0., 0.1 .. T + 10$

CFD = Capacity of F.D., in cf.
VR = Volume of runoff, in cf.

$$CFD(t) := L \cdot S + 60 \cdot E \cdot L \cdot t$$

$$VR(t) := 60 \cdot C_r \cdot A_r \cdot \left(A + B \cdot \ln(t) + C \cdot \left(\ln(t)\right)^2 + D \cdot \left(\ln(t)\right)^3\right) \cdot t$$



LENGTH OF A SELF-CONTAINED FRENCH DRAIN FOR FDOT RAINFALL - SR 994 PD&E - BASIN B-3

A,B,C,D = FDOT IDF coefficients.
A_r = Area, in acres.
C_r = Runoff coefficient of Rational Equation.
E = F.D. exfiltration rate, in cfs/ft.
S = F.D. storage, in cf/ft.
t and T = time, in minutes.
l and L = length of F.D., in ft.

Zone no. = 10 Frequency, years = 10

$A := 10.84265$ $B := -0.18976$

$C := -0.69575$ $D := 0.07495$

$A_r := 5.51$ $C_r := 0.85$ $E := 0.10$ $S := 8.55$

---

trial values: $t := 10$ $l := 10$

F.D. retention volume and runoff volume curves have equal tangents

Constraints

$$E \cdot l = C_r \cdot A_r \cdot \left(A + B \cdot \left(ln(t) + 1\right) + C \cdot ln(t) \cdot \left(ln(t) + 2\right) + D \cdot \left(ln(t)\right)^2 \cdot \left(ln(t) + 3\right)\right)$$

F.D. retention volume and runoff volumes are equal

$$l \cdot S + 60 \cdot E \cdot l \cdot t = 60 \cdot C_r \cdot A_r \cdot t \cdot \left(A + B \cdot ln(t) + C \cdot \left(ln(t)\right)^2 + D \cdot \left(ln(t)\right)^3\right)$$

Solver

$$\begin{bmatrix} L \\ T \end{bmatrix} := \mathbf{Find}(l, t)$$

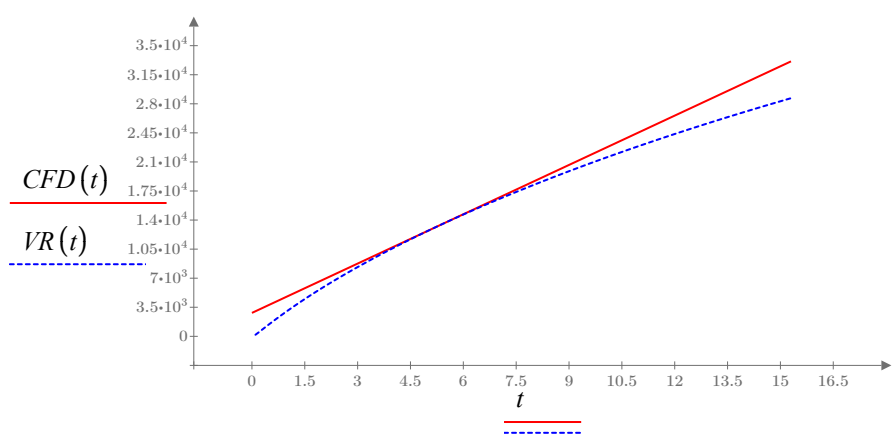
$L = 329.938$ $T = 5.319$

$t := 0., 0.1 .. T + 10$

CFD = Capacity of F.D., in cf.
VR = Volume of runoff, in cf.

$$CFD(t) := L \cdot S + 60 \cdot E \cdot L \cdot t$$

$$VR(t) := 60 \cdot C_r \cdot A_r \cdot \left(A + B \cdot \ln(t) + C \cdot \left(\ln(t)\right)^2 + D \cdot \left(\ln(t)\right)^3\right) \cdot t$$



LENGTH OF A SELF-CONTAINED FRENCH DRAIN FOR FDOT RAINFALL - SR 994 PD&E - BASIN B-4

A,B,C,D = FDOT IDF coefficients.
A_r = Area, in acres.
C_r = Runoff coefficient of Rational Equation.
E = F.D. exfiltration rate, in cfs/ft.
S = F.D. storage, in cf/ft.
t and T = time, in minutes.
l and L = length of F.D., in ft.

Zone no. = 10 Frequency, years = 10

$A := 10.84265$ $B := -0.18976$

$C := -0.69575$ $D := 0.07495$

$A_r := 4.04$ $C_r := 0.90$ $E := 0.10$ $S := 8.77$

---

trial values: $t := 10$ $l := 10$

F.D. retention volume and runoff volume curves have equal tangents

Constraints

$$E \cdot l = C_r \cdot A_r \cdot \left(A + B \cdot \left(ln(t) + 1\right) + C \cdot ln(t) \cdot \left(ln(t) + 2\right) + D \cdot \left(ln(t)\right)^2 \cdot \left(ln(t) + 3\right)\right)$$

F.D. retention volume and runoff volumes are equal

$$l \cdot S + 60 \cdot E \cdot l \cdot t = 60 \cdot C_r \cdot A_r \cdot t \cdot \left(A + B \cdot ln(t) + C \cdot \left(ln(t)\right)^2 + D \cdot \left(ln(t)\right)^3\right)$$

Solver

$$\begin{bmatrix} L \\ T \end{bmatrix} := \mathbf{Find}(l, t)$$

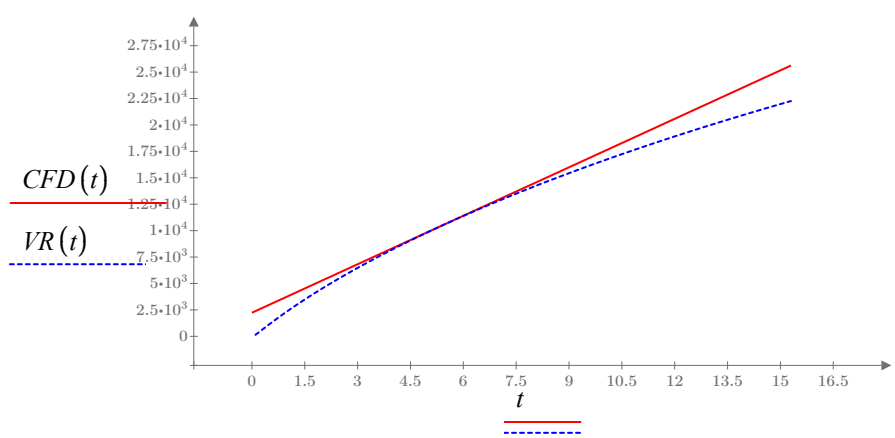
$L = 254.768$ $T = 5.399$

$t := 0., 0.1 .. T + 10$

CFD = Capacity of F.D., in cf.
VR = Volume of runoff, in cf.

$$CFD(t) := L \cdot S + 60 \cdot E \cdot L \cdot t$$

$$VR(t) := 60 \cdot C_r \cdot A_r \cdot \left(A + B \cdot \ln(t) + C \cdot \left(\ln(t)\right)^2 + D \cdot \left(\ln(t)\right)^3\right) \cdot t$$



SR 994/QUAIL ROOST DR. PD&E - BASIN B-1 - FD EXFILTRATION RATING CURVES

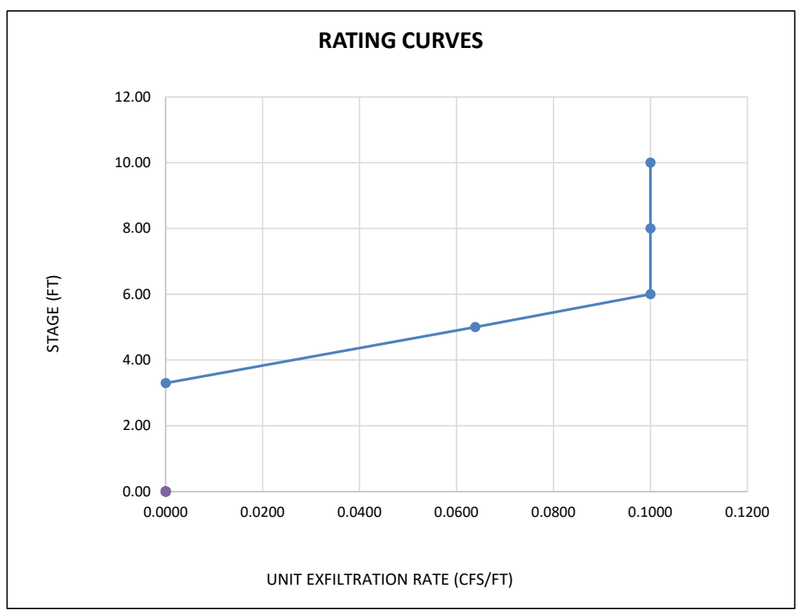
TE	8.00	ft-NGVD	TRENCH TOP ELEVATION	TW	4.50	ft	TRENCH TOP WIDTH
BE	-7.00	ft-NGVD	TRENCH BOTTOM ELEVATION	BW	4.50	ft	TRENCH BOTTOM WIDTH
BE10	-2.00	ft-NGVD	K10 TEST ELEVATION				
BE15	-7.00	ft-NGVD	K15 TEST ELEVATION	PIPE			
BE20	-12.00	ft-NGVD	K20 TEST ELEVATION	DIAMETER	2.00	ft	
K10	2.24E-04	cfs/ft^2-ft	K10 EXFILTRATION RATE	INVERT	5.00	ft-NGVD	
K15	3.48E-03	cfs/ft^2-ft	K15 EXFILTRATION RATE	LENGTH	1.00	ft	
K20	4.05E-03	cfs/ft^2-ft	K20 EXFILTRATION RATE				

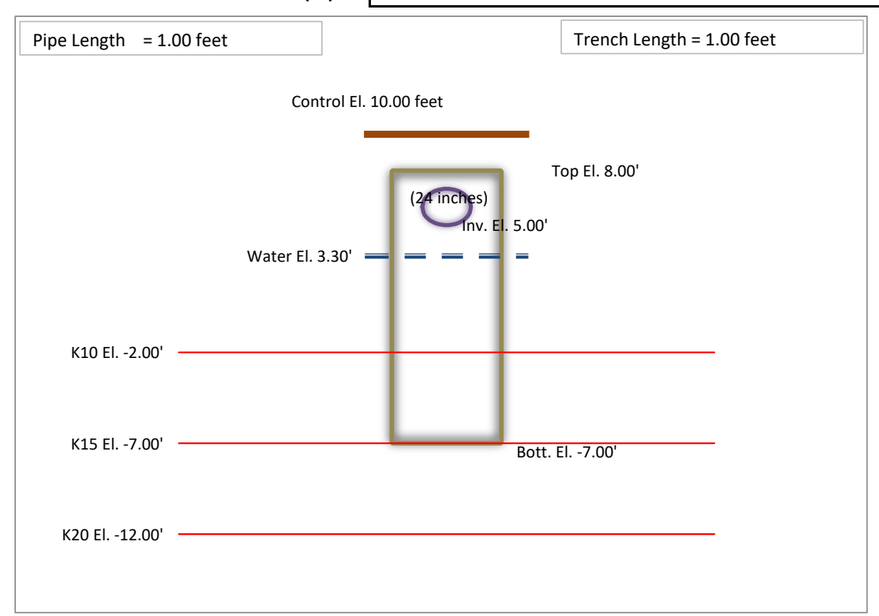
Headwater - HW	**3.30**	**5.00**	**6.00**	**8.00**	**10.00**															
Tailwater - TW	**3.30**																			
Do	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Du	0.00	1.70	2.70	4.70	4.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ds	5.30	5.30	5.30	5.30	5.30	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
D15	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
D20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E10	0.0000	0.0047	0.0080	0.0161	0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E15	0.0000	0.0592	0.0940	0.1636	0.2332	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ET	0.0000	0.0638	0.1020	0.1797	0.2582	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Et_{adj}	0.0000	0.0638	0.1000	0.1000	0.1000															

DRAINAGE STRUCTURE I.D.	FD RUN ALONG SR 994 BASIN 1
LENGTH OF FD (ft.)	1.00

EXFILTRATION OPERATING TABLE

TW (ft)	HW (ft)	UNIT Q (cfs/ft)	TOTAL Q (cfs)
3.30	3.30	0.0000	0.00000
3.30	5.00	0.0638	0.06384
3.30	6.00	0.1000	0.10000
3.30	8.00	0.1000	0.10000
3.30	10.00	0.1000	0.10000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000





SR 994/QUAIL ROOST DR. PD&E - BASIN B-2 - FD EXFILTRATION RATING CURVE

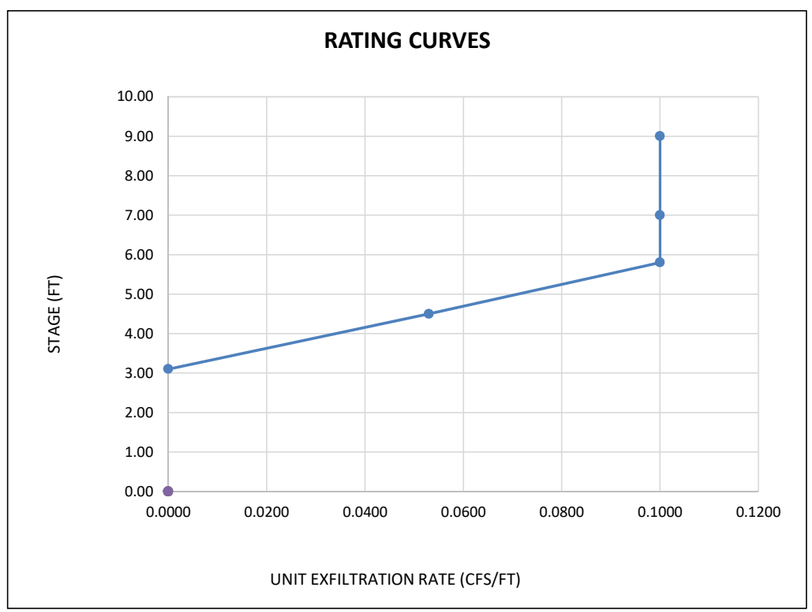
TE	7.00	ft-NGVD	TRENCH TOP ELEVATION	TW	4.50	ft	TRENCH TOP WIDTH
BE	-8.00	ft-NGVD	TRENCH BOTTOM ELEVATION	BW	4.50	ft	TRENCH BOTTOM WIDTH
BE10	-3.00	ft-NGVD	K10 TEST ELEVATION				
BE15	-8.00	ft-NGVD	K15 TEST ELEVATION	PIPE			
BE20	-13.00	ft-NGVD	K20 TEST ELEVATION	DIAMETER	2.00	ft	
K10	2.24E-04	cfs/ft^2-ft	K10 EXFILTRATION RATE	INVERT	4.00	ft-NGVD	
K15	3.48E-03	cfs/ft^2-ft	K15 EXFILTRATION RATE	LENGTH	1.00	ft	
K20	4.05E-03	cfs/ft^2-ft	K20 EXFILTRATION RATE				

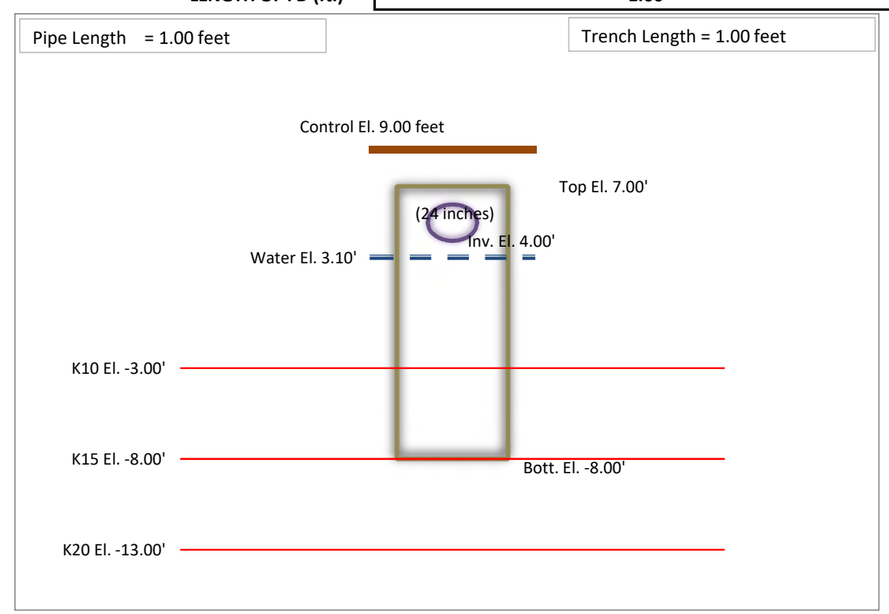
Headwater - HW	**3.10**	**4.50**	**5.80**	**7.00**	**9.00**															
Tailwater - TW			**3.10**																	
Do	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Du	0.00	1.40	2.70	3.90	3.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ds	6.10	6.10	6.10	6.10	6.10	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
D15	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
D20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E10	0.0000	0.0043	0.0090	0.0141	0.0230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E15	0.0000	0.0487	0.0940	0.1357	0.2053	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ET	0.0000	0.0530	0.1030	0.1498	0.2283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Et_{adj}	0.0000	0.0530	0.1000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

DRAINAGE STRUCTURE I.D.	FD RUN ALONG SR 994 BASIN 2
LENGTH OF FD (ft.)	1.00

EXFILTRATION OPERATING TABLE

TW (ft)	HW (ft)	UNIT Q (cfs/ft)	TOTAL Q (cfs)
3.10	3.10	0.0000	0.00000
3.10	4.50	0.0530	0.05298
3.10	5.80	0.1000	0.10000
3.10	7.00	0.1000	0.10000
3.10	9.00	0.1000	0.10000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000





SR 994/QUAIL ROOST DR. PD&E - BASIN B-3 - FD EXFILTRATION RATING CURVE

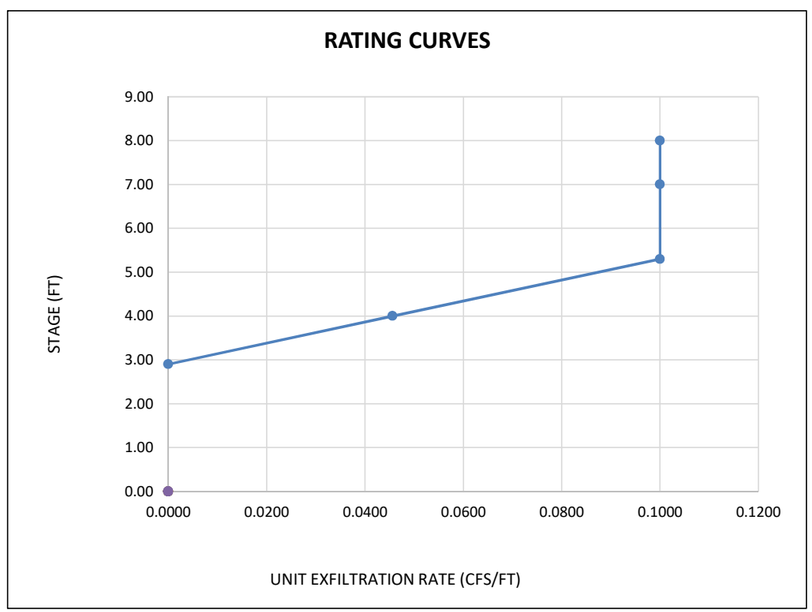
TE	6.00	ft-NGVD	TRENCH TOP ELEVATION	TW	4.50	ft	TRENCH TOP WIDTH
BE	-9.00	ft-NGVD	TRENCH BOTTOM ELEVATION	BW	4.50	ft	TRENCH BOTTOM WIDTH
BE10	-3.00	ft-NGVD	K10 TEST ELEVATION				
BE15	-8.00	ft-NGVD	K15 TEST ELEVATION	PIPE			
BE20	-13.00	ft-NGVD	K20 TEST ELEVATION	DIAMETER	2.00	ft	
K10	1.66E-04	cfs/ft^2-ft	K10 EXFILTRATION RATE	INVERT	3.00	ft-NGVD	
K15	3.12E-03	cfs/ft^2-ft	K15 EXFILTRATION RATE	LENGTH	1.00	ft	
K20	4.06E-03	cfs/ft^2-ft	K20 EXFILTRATION RATE				

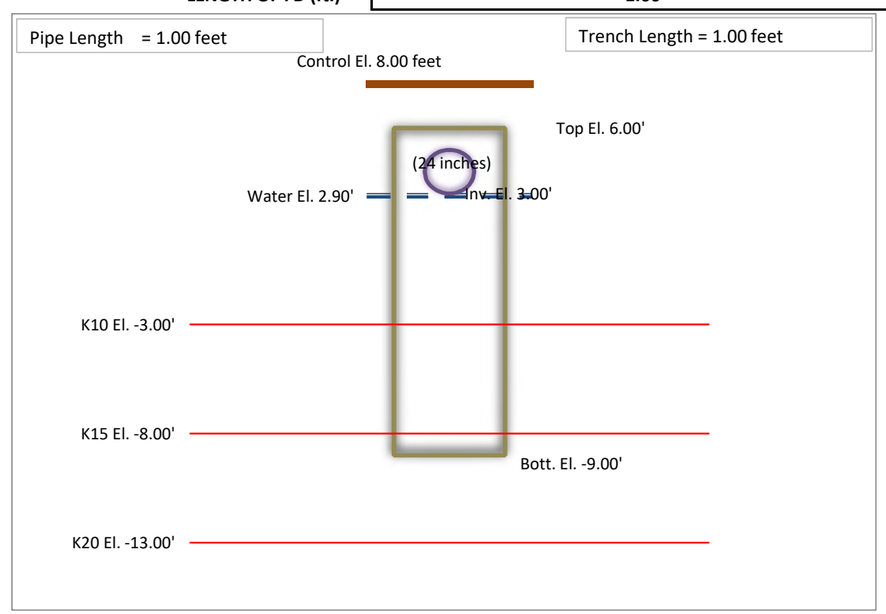
Headwater - HW	**2.90**	**4.00**	**5.30**	**7.00**	**8.00**															
Tailwater - TW			**2.90**																	
Do	0.00	0.00	0.00	1.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Du	0.00	1.10	2.40	3.10	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ds	5.90	5.90	5.90	5.90	5.90	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
D15	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
D20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E10	0.0000	0.0024	0.0057	0.0107	0.0136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E15	0.0000	0.0343	0.0749	0.1279	0.1591	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E20	0.0000	0.0089	0.0195	0.0333	0.0414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ET	0.0000	0.0456	0.1000	0.1719	0.2142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Et_{adj}	0.0000	0.0456	0.1000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

DRAINAGE STRUCTURE I.D.	FD RUN ALONG SR 994 BASIN 3
LENGTH OF FD (ft.)	1.00

EXFILTRATION OPERATING TABLE

TW (ft)	HW (ft)	UNIT Q (cfs/ft)	TOTAL Q (cfs)
2.90	2.90	0.0000	0.00000
2.90	4.00	0.0456	0.04561
2.90	5.30	0.1000	0.10000
2.90	7.00	0.1000	0.10000
2.90	8.00	0.1000	0.10000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000





SR 994/QUAIL ROOST DR. PD&E - BASIN B-4 - FD EXFILTRATION RATING CURVE

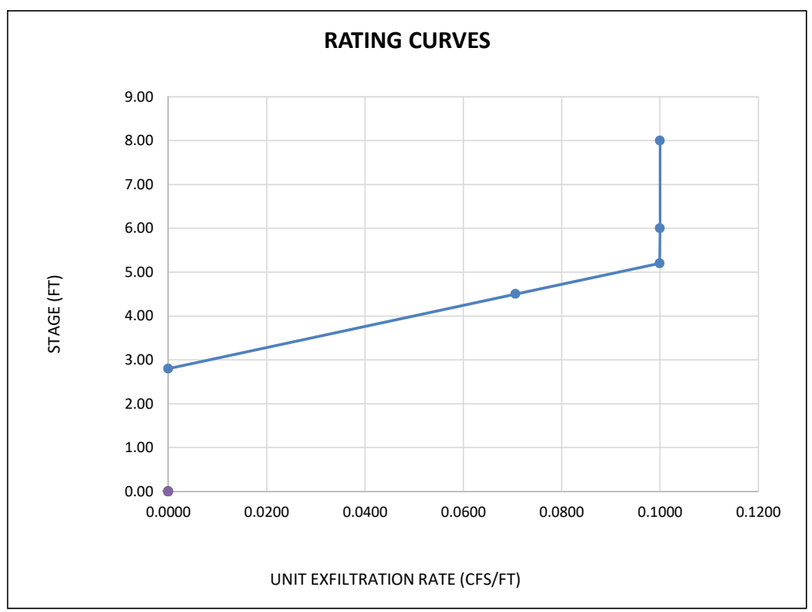
TE	6.00	ft-NGVD	TRENCH TOP ELEVATION	TW	4.50	ft	TRENCH TOP WIDTH
BE	-9.00	ft-NGVD	TRENCH BOTTOM ELEVATION	BW	4.50	ft	TRENCH BOTTOM WIDTH
BE10	-3.00	ft-NGVD	K10 TEST ELEVATION				
BE15	-8.00	ft-NGVD	K15 TEST ELEVATION	PIPE			
BE20	-13.00	ft-NGVD	K20 TEST ELEVATION	DIAMETER	2.00	ft	
K10	1.66E-04	cfs/ft^2-ft	K10 EXFILTRATION RATE	INVERT	3.00	ft-NGVD	
K15	3.12E-03	cfs/ft^2-ft	K15 EXFILTRATION RATE	LENGTH	1.00	ft	
K20	4.06E-03	cfs/ft^2-ft	K20 EXFILTRATION RATE				

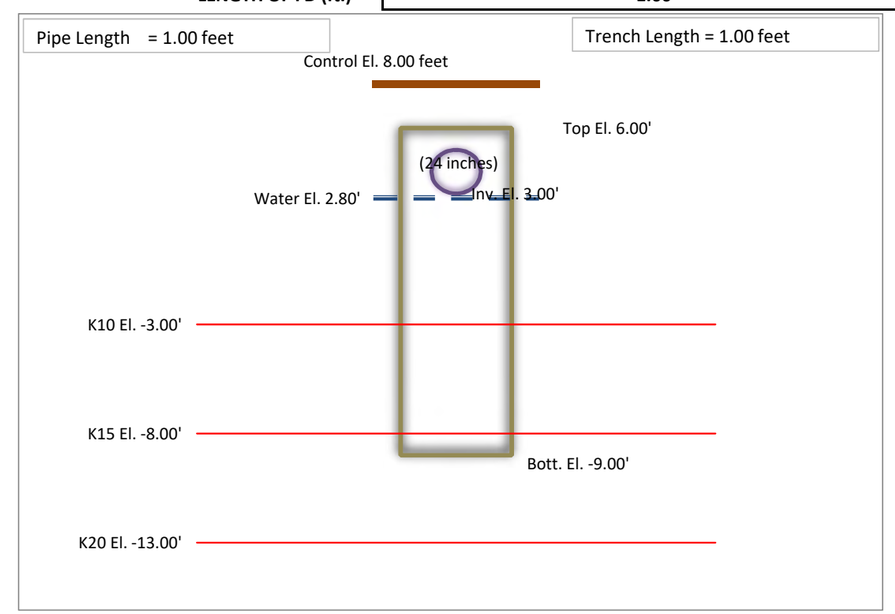
Headwater - HW	**2.80**	**4.50**	**5.20**	**6.00**	**8.00**															
Tailwater - TW			**2.80**																	
Do	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Du	0.00	1.70	2.40	3.20	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ds	5.80	5.80	5.80	5.80	5.80	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
D15	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
D20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E10	0.0000	0.0038	0.0056	0.0079	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E15	0.0000	0.0530	0.0749	0.0998	0.1622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E20	0.0000	0.0138	0.0195	0.0260	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ET	0.0000	0.0706	0.0999	0.1337	0.2183	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Et_{adj}	0.0000	0.0706	0.0999	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

DRAINAGE STRUCTURE I.D.	FD RUN ALONG SR 994 BASIN 4
LENGTH OF FD (ft.)	1.00

EXFILTRATION OPERATING TABLE

TW (ft)	HW (ft)	UNIT Q (cfs/ft)	TOTAL Q (cfs)
2.80	2.80	0.0000	0.00000
2.80	4.50	0.0706	0.07060
2.80	5.20	0.0999	0.09995
2.80	6.00	0.1000	0.10000
2.80	8.00	0.1000	0.10000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000
0.00	0.00	0.0000	0.00000





APPENDIX "D"

Table 4 – Summary of Constant Head Exfiltration Test Results
Schematics of Constant Head Borehole Exfiltration Testing

TABLE 4 - SUMMARY OF CONSTANT HEAD BOREHOLE EXFILTRATION TEST RESULTS

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

Test No.	Date Performed	Diameter Casing (Inches)	Diameter Hole (Inches)	Depth of Hole (Feet)	Screen Interval (Feet)	Depth to Groundwater Level Below Ground Surface (Feet) Prior to Test	Depth to Groundwater Level Below Ground Surface (Feet) During Test	SATURATED HOLE DEPTH Ds (Feet)	Corrected Depth of Hole (Feet)	Average Flow Rate (gpm)	Average Flow Rate (cfs)	K, Hydraulic Conductivity (cfs/ft^2-Ft Head)
EX-1	08/16/21	6.00	6.75	10	0-10	6.3	0.00	3.70	10.00	7.7	1.7E-02	2.24E-04
		6.00	6.75	15	10-15	6.3	5.30	8.70	9.70	13.8	3.1E-02	3.48E-03
		6.00	6.75	20	15-20	6.3	5.30	13.70	14.70	16.1	3.6E-02	4.05E-03
EX-2	08/17/21	6.00	6.75	10	0-10	7.9	0.00	2.10	10.00	6.3	1.4E-02	1.66E-04
		6.00	6.75	15	10-15	7.9	6.90	7.10	8.10	12.4	2.8E-02	3.12E-03
		6.00	6.75	20	15-20	7.9	6.90	12.10	13.10	16.1	3.6E-02	4.06E-03

NOTES:

(1) The above hydraulic conductivity values are for a French drain installed to the same depth as the borehole tests. The values represent an ultimate value. The designer should decide on the required factor of safety.

(2) The hydraulic conductivity values were calculated based on the procedure shown in the Florida Department of Transportation District 6 Exfiltration Trench Reference Manual.

(3) The diameter of the CASING was used in the computation of the hydraulic conductivity values presented in the above table.

(4) Loss of circulation was NOT encountered during the performance of the borehole exfiltration test.

(5) A Standard Penetration Test (SPT) boring was performed at the borehole exfiltration test location. Refer to the Report of Core Borings for subsurface stratification information.

TEST No.	TEST LOCATION (FEET) LATITUDE	TEST LOCATION (FEET) LONGITUDE	DEPTH (FEET) FROM	DEPTH (FEET) TO	GENERAL MATERIAL DESCRIPTION
EX-1	25.580878	-80.406311	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.50	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments
			1.50	6.00	Brown Sandy Limestone
			1.50	10.00	Brown Fine to Medium SAND with Some Limestone Fragments
			10.00	20.00	Brown Sandy Limestone
EX-2	25.580738	-80.398037	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.50	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments
			1.50	20.00	Brown Sandy Limestone

12. Auger a hole from 15 feet to 20 feet deep to accommodate a 3 and 3/16 – inch perforated casing.
13. Lower a 10 feet long, 3 and 3/16 - inch casing, with the lower 5 feet perforated.
14. Pump test water into the hole with the same method as the one used in the determination of the percolation rate for the 10-foot section of the test-hole (Item 5 above).

The hydraulic conductivity at the different stratums can then be determined using the results from the percolation tests performed at the defined stratums and the equations in **Sections 2.3.1** through **2.3.3**. The application of the procedures and equations in **Sections 2.3** and **2.3.1** through **2.3.3** for determining hydraulic conductivity in which the water table is more than 10 feet deep does not yield accurate results and should not be used.

2.3.1 Hydraulic Conductivity Equations – 0- to 10-foot Stratum

The hydraulic conductivity for the 0- to 10-foot stratum (K_{10}) is determined by **Equation 2.3-1** and correlates to the percolation test parameters for a 10-foot test depicted in **Figure 2.3-1**.

$$K_{10} = \frac{P_{10}}{\sum S\,h} \qquad \textbf{Equation 2.3-1}$$

Where P_{10} = Percolation test pump discharge for 0 to 10-casing, in cfs
S = Surface area perpendicular to the direction of flow, in ft^2
h = Average hydraulic head inducing exfiltration through S, in ft

In **Figure 2.3-1**, D_s represents the saturated depth which is the vertical distance from the observed groundwater surface to the bottom of the test hole (10-feet below the existing ground elevation for K_{10}) and D_u represents the unsaturated depth which is the vertical distance from the stabilized water surface during the test to the observed groundwater surface.

It should be noted that **Equations 2.2-1**, **2.2-2** and **2.3-1** imply a linear relationship between flow and hydraulic head, even though the flow is directly proportional to the head elevated to a power less than 1. However, as depicted in **Figure 2.3-2**, the error, e, and Δ are relatively small and thus acceptable in assuming a linear relation.

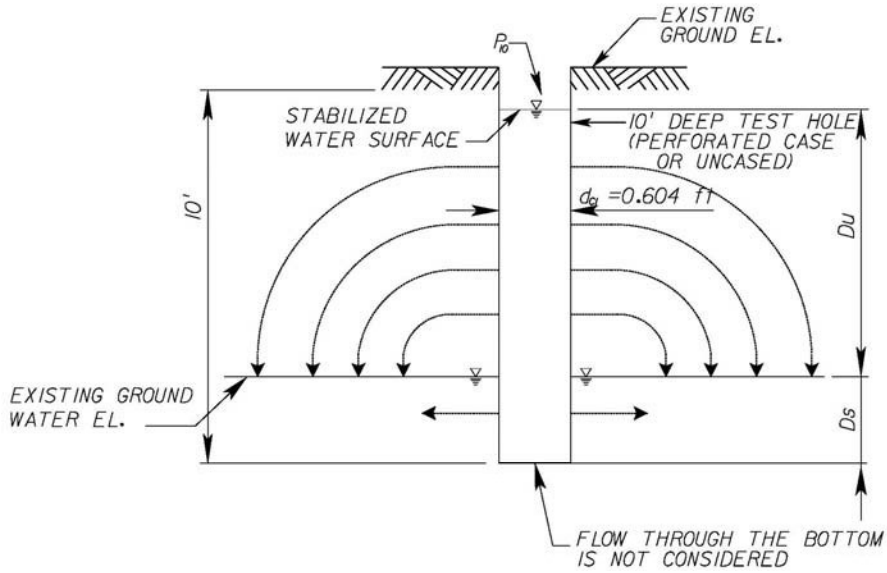


Figure 2.3-1 - Schematic of the key percolation test parameters for a 10-foot test hole

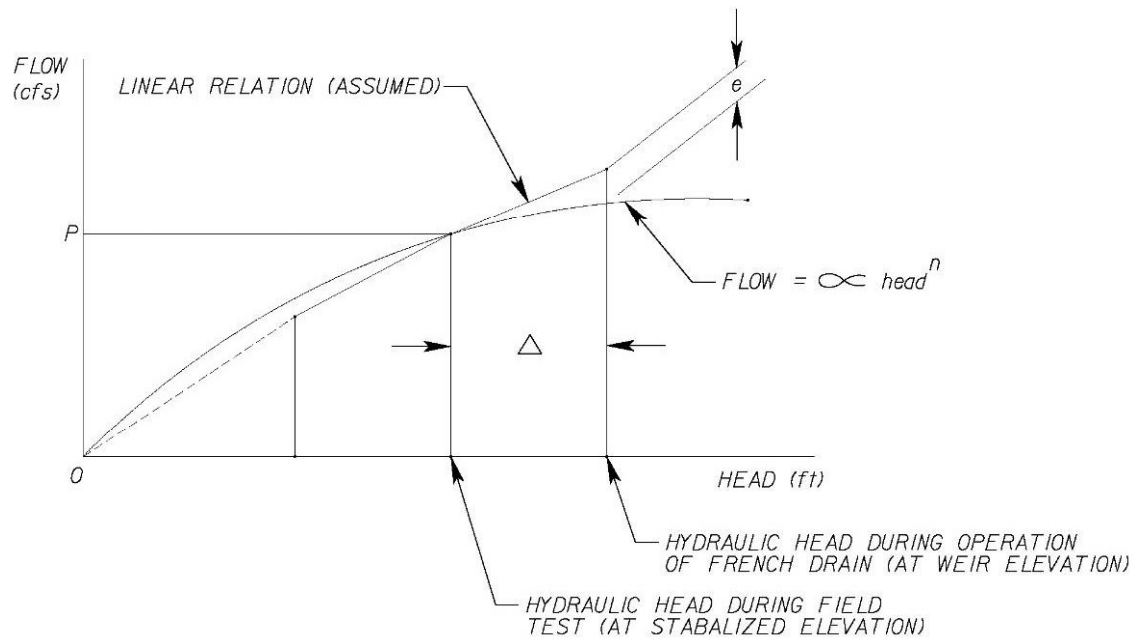


Figure 2.3-2 - Schematic of Percolation Flow versus Head Relationship

Under this assumption, the hydraulic conductivity for the 10-foot stratum can be expressed by **Equation 2.3-2**.

$$K_{10} = \frac{P_{10}}{(S_u\, h_u + S_s\, h_s)} \qquad \textbf{Equation 2.3-2}$$

Where S_u = Unsaturated area, in $ft^2 = \pi\, d_1\, D_u$

h_u = Average head for the unsaturated area, in ft = D_u / 2
S_s = Saturated area, in ft^2 = $\pi\ d_{C1}\ D_s$
h_s = Average head for the saturated area, in ft = D_u
d_{C1}, D_s, and D_u, in ft, from **Figure 2.3.1**

Equation 2.3-2 can then be transformed into **Equation 2.3-3**.

$$K_{10} = \frac{P_{10}}{[(\pi\ d_{C1}\ D_u\ \{D_u/2\}) + (\pi\ d_{C1}\ D_s\ D_u)]} \qquad \textbf{Equation 2.3-3}$$

Equation 2.3-3 can be further reduced to **Equation 2.3-4**, which is the equation used to determine the hydraulic conductivity for the 10-foot stratum of the percolation test hole.

$$K_{10} = \frac{P_{10}}{\pi\ d_{C1}\ D_u\ [D_u/2 + D_s]} \qquad \textbf{Equation 2.3-4}$$

As noted in **Section 2.3**, **Equation 2.3-4** implies that the groundwater table at the percolation test location is less than 10 feet deep and within the 0- to 10-foot stratum.

2.3.2 Hydraulic Conductivity Equations – 10- to 15-foot Stratum

Figure 2.3-3 shows a schematic of the key percolation test parameters for a 15-foot test hole to determine the hydraulic conductivity for the 10- to 15-foot stratum (K_{15}).

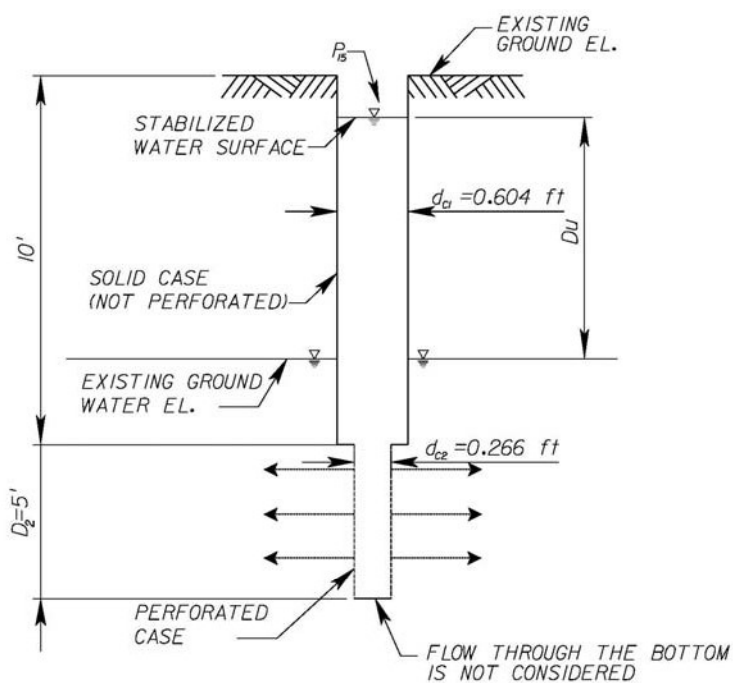


Figure 2.3-3 - Schematic of the key percolation test parameters for a 15-foot test hole

In **Figure 2.3-3**, D_u is the vertical distance from existing groundwater elevation to the stabilized water surface inside the test hole.

The hydraulic conductivity for the 10- to 15-foot stratum (K_{15}) can be expressed by **Equation 2.3-5**.

$$K_{15} = \frac{P_{15}}{\sum S\,h} \qquad \textbf{Equation 2.3-5}$$

Where P_{15} = Percolation test pump discharge for 10 to 15 foot casing, in cfs
S = Area of any vertical surface perpendicular to the direction of flow, in $ft^2 = \pi\, d_{C2}\, D_2$
h = Average hydraulic head affecting the movement of water through S, in ft = D_u
d_{C2}, D_2, and D_u, in ft, from **Figure 2.3.3**

Equation 2.3-5 can be further refined into **Equation 2.3-6**.

$$K_{15} = \frac{P_{15}}{\pi\, d_{C2}\, D_2\, D_u} \qquad \textbf{Equation 2.3-6}$$

2.3.3 Hydraulic Conductivity Equations – 15 to 20 foot Stratum

Similarly, **Figure 2.3-4** shows a schematic of the key percolation test parameters for a 20-foot test hole to determine the hydraulic conductivity for the 15- to 20-foot stratum (K_{20}).

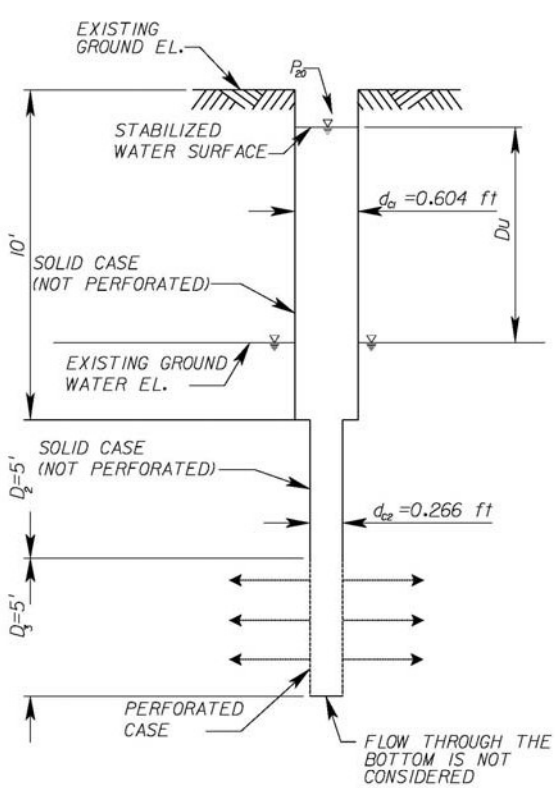


Figure 2.3-4 - Schematic of the key percolation test parameters for a 20-foot test hole

The hydraulic conductivity for the 15- to 20-foot stratum can be expressed by **Equation 2.3-7**.

$$K_{20} = \frac{P_{20}}{\sum S\,h} \qquad \textbf{Equation 2.3-7}$$

Where P_{20} = Percolation test pump discharge for 15 to 20 foot casing, in cfs
S = Area of any vertical surface perpendicular to the direction of flow, in $ft^2 = \pi\, d_{C2}\, D_3$
h = Average hydraulic head affecting the movement of water through S, in ft = D_u

Equation 2.3-7 can be further refined into **Equation 2.3-8**.

$$K_{20} = \frac{P_{20}}{\pi\, d_{C2}\, D_3\, D_u} \qquad \textbf{Equation 2.3-8}$$

2.4 Exfiltration Rate Equations

The exfiltration capacity of exfiltration trenches depends on where the DHW and control elevations are in relation to the exfiltration trench aggregate media. There are typically three scenarios:

- Scenario 1: Design High Water and Control Elevations are within the Aggregate Media
- Scenario 2: Design High Water and Control Elevations are Above the Aggregate Media
- Scenario 3: Design High Water is within the Aggregate Media and Control Elevation is Above the Aggregate Media

The following sections summarize the approach for determining the exfiltration rate for exfiltration trenches for each of these scenarios.

2.4.1 Scenario 1: Design High Water and Control Elevations are within the Aggregate Media

This section applies when the DHW elevation and the control or weir elevations are within the exfiltration trench aggregate media as depicted on **Figure 2.4-1**. The total exfiltration rate per foot of trench out of an exfiltration trench can be calculated using **Figure 2.4-1**, **Equations 2.4-5** through **2.4-7,** and the supporting equations in this section, depending on the depth and geometry of the exfiltration trench.

Equation 2.4-1 is the basic equation used in order to calculate total exfiltration out of an exfiltration trench per foot of trench.

$$E_t = E_{10} + E_{15} + E_{20} \qquad \textbf{Equation 2.4-1}$$

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 9

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REVISIONS					
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ENGINEER OF RECORD:
GEOSOL, INC.
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FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 14

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Appendix D – Location Hydraulic Report

LOCATION HYDRAULIC REPORT

SR 994 / SW 200th St / Quail Roost Drive Project Development & Environment Study From SW 137th Avenue to SW 127th Avenue Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

June 2024

LOCATION HYDRAULIC REPORT

SR 994/Southwest 200th Street/Quail Roost Drive
Project Development & Environment (PD&E) Evaluation

Miami-Dade County, Florida
FDOT FPID: 445804-1-22-01
Prepared for:

Florida Department of Transportation
District VI
Miami-Dade, Florida

Prepared by:
Ribbeck Engineering, Incorporated
14335 Southwest 120th Street, Suite 205
Miami, Florida 33186

February, 2023

TABLE OF CONTENTS

1.0 Project Location 4

2.0 History of Flooding 4

3.0 Longitudinal or Transverse Encroachments 5

4.0 Avoidance Alternatives 5

5.0 Impact on Emergency Services and Evacuation Routes 5

6.0 Impact on Base Flood 5

7.0 Impact on Regulatory Floodway 6

8.0 Impact on Natural and Beneficial Floodplain Values 6

9.0 Floodplain Consistency and Development 6

10.0 FIRM Maps 6

11.0 Risk Assessments 6

Table of Exhibits

Exhibit 1 Project Study Area – Location Map 8

Exhibit 2 Project Study Area – USGS Map 9

Exhibit 3 Project Study Area - Land Use Map 10

Exhibit 4 Project Study Area - Soils Map 11

Exhibit 5 Project Study Area - Average October Ground Water Level 12

Exhibit 6 Project Study Area - Wells Field Protection Zone, Water Control Map 13

Exhibit 7 Project Study Area - FIRM Map No. 12086C0583L, 12086C0584L 14

LOCATION HYDRAULIC REPORT

SR 994/Southwest 200th Street/Quail Roost Drive from Southwest 127th Avenue to Southwest 137th Avenue

The Miami-Dade County Board of Commissioners in partnership with the Florida Department of Transportation (FDOT) are conducting a Project Development and Environment Study to examine the need for bridge construction improvements, roadway widening, and sidewalk addition along SR 994/SW 200th Street/Quail Roost Drive from SW 127th Avenue to SW 137th Avenue within Quail Heights (Miami) in Miami-Dade County, Florida.

The purpose of this *Location Hydraulic Report* is to inventory the existing drainage and to estimate if any flood plain encroachments will result from any of the roadway improvements and construction evaluated in the PD&E study and the existing water quality treatment will be sufficient for the proposed roadway improvements.

The PD&E includes the evaluation of three (3) alternatives, Build Alternatives 1 thru 3. Build Alternative 1 does not sufficiently address the purpose and need of the project while Build Alternative 3 meets the purpose and need, but results in greater impacts than Build Alternative 2. As a result, Build Alternative 2 was selected as the preferred alternative. Build Alternative 2 typical section consists of curb and gutter type F, four (4) 11' wide lanes, a 16.5' median and sidewalk level Separated Bicycle Lanes (SBLs) along both sides of the corridor.

The project area is located between the South Florida Water Management District (SFWMD) C-102 West and C-1 West Watersheds/Basins and the project main roadway (SR 974) intersects the C-1 West (Black Creek Canal) in the project area at the location of bridge number 870633. The Black Creek Canal Trail runs parallel to the C-1 West canal.

Per Executive Order 11988, "Floodplain Management", USDOT Order 5650.2, "Floodplain Management and Protection", and Federal-Aid Policy Guide 23 CFR 650A, it is required to avoid or minimize highway encroachments within the 100-year (base) floodplains. This Location Hydraulic Report Update will determine if any floodplains will be affected by the proposed improvements. The proposed drainage system will follow the Florida Department of Transportation (FDOT), the South Florida Water Management District (SFWMD), and the Miami Dade Department of Regulatory and Economic Resources (DRER) criteria.

1.0 Project Location

The project is located within southwest Unincorporated Miami Dade County. The project begins approximately 400-feet west of SW 139th Avenue and ends just east of SW 123rd Place with a total approximate length of 1.67-miles. The project is located within a section line and it is included within Township 56S, Range 39E, Sections 1 thru 3 and 10 thru 12.

2.0 History of Flooding

The project is located in the South-West area of Miami-Dade County, east of the Everglades protection area. The surrounding area is very flat and varies slightly in height from elevation 3.5 feet to 9.5 feet NGVD and only a small portion of it is below the variable base flood elevation ranging from

4.0 feet to 8.0 feet NGVD. Within the project limits, SR 974/SW 200th Street/Quail Roost Drive is a four-lane divided arterial with raised median, curb and gutter and sidewalk along the south and north side. There is no history of flooding reported. The surrounding area is mostly agricultural west of the C-102 West canal, and residential east of the C-102 West canal. The groundwater table at project location varies from 4.20 feet to 4.80 feet NGVD.

3.0 Longitudinal or Transverse Encroachments

Within the project limits, SR 994 is located within two water management district drainage basins. The basins identified are the C-102 West, and the C-1 West from SFWMD.

The C-1 Black Creek Basin has an area of approximately 56.0 square miles and it is located in southeastern Miami Dade County. The land use distribution is predominantly of single-family residential and vacant land, with a lesser proportion of agricultural, plant nurseries and pasture.

The C-1 watershed has a negligible topographic relief and it contains a variety of land uses drained by a complex network of dredged canals. The canals intercept the shallow groundwater table, which provides most of the base flow.

A number of canals within the C-1 Basin are tributaries to the main C-1 (Black Creek) Canal. C-100B connects C-1N and C-100 canals. C-100B joins C-1N one-half mile downstream of the F.E.C. railway. The canal leaves the basin at control structures S-111. Normal flows to the canal are to the north (into the C-100 Basin). The northern portion of the C-1 Basin has limited drainage capability and is subject to severe limitations on development. S-148 control stages in the upper reach of C-1/C-1W and regulates discharges into the lower reach. S-338 is a gated culvert located at Krome Avenue. It controls inflows from the L-31N borrow canal, and helps maintain optimum stage at the borrow canal. Flow in the C-1/C-1W canal is to the southeast with discharge via the S-21 control structure into Biscayne Bay.

4.0 Avoidance Alternatives

The proposed project will require additional right of way for the proposed typical section. The proposed widenings to accommodate the additional two lanes, and proposed sidewalk level Separated Bicycle Lanes (SBLs) will occur on either side of the existing right of way. There are no other horizontal alignment alternatives.

5.0 Impact on Emergency Services and Evacuation Routes

This project is not going to impact emergency services and evacuation routes. The proposed drainage system will satisfy the pre-development and post-development discharge in such ways as not to cause a rise of the backwater hydraulic grade line on receiving water bodies. Hydrologic and hydraulic analysis will be performed to demonstrate that there will be no rise in the flood levels.

The proposed drainage system consists of self-contained exfiltration trenches with no overflow.

6.0 Impact on Base Flood

The proposed project is not located in a 100-year base flood elevation zone. Therefore, there will be no impact to the 100-year base flood elevation.

7.0 Impact on Regulatory Floodway

According to the current FEMA FIRM maps, there are no regulatory floodways within the project that will prohibit any development.

8.0 Impact on Natural and Beneficial Floodplain Values

The proposed project for most part will be located primarily within the existing right of way and will follow the same alignment for SW 200th Street/Quail Roost Drive/SR 994 from SW 127th Avenue to SW 137th Avenue. There is known periodic maintenance to this facility and there are no wetlands being impacted.

9.0 Floodplain Consistency and Development

The proposed project is consistent with the designated land use as set by the Miami-Dade County, and its storm water regulatory agency DRER.

10.0 FIRM Maps

The project is located in zone X. A small portion of the project, at the C-102 crossing, in zone AE according to the FIRM maps with a base flood level that varies from 4.00 feet to 8.00 feet NGVD. The project is oriented east to west and goes only through areas of what is considered to be 'Unincorporated Dade County' to. The project is bisected by the C-I West canal. This canal drains the SFWMD delineated watershed/basin C-1 West. A list of the FIRM Community Panel numbers that cover the project is shown in Table 1.

Table 1 – FEMA FIRM Community Panel Numbers

Miami Dade County	
Community Panel No.	Effective Date
12086C0583L	September 11, 2009
12086C0584L	September 11, 2009

11.0 Risk Assessments

Based on the FDOT's floodplain construction activities categories, this widening/new construction project could be classified as a category 4 "PROJECTS ON EXISTING ALIGNMENT INVOLVING REPLACEMENT OF EXISTING DRAINAGE STRUCTURES WITH NO RECORD OF DRAINAGE PROBLEMS". The proposed improvements will not significantly impact the floodplain, and any encroachment volume will be mitigated. *"The proposed structure will perform hydraulically in a manner equal to or greater than the existing structure, and backwater surface elevations are not expected to increase. As a result, there will be no significant adverse impacts on natural and beneficial floodplain values. There will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant."*

APPENDIX A

EXHIBITS

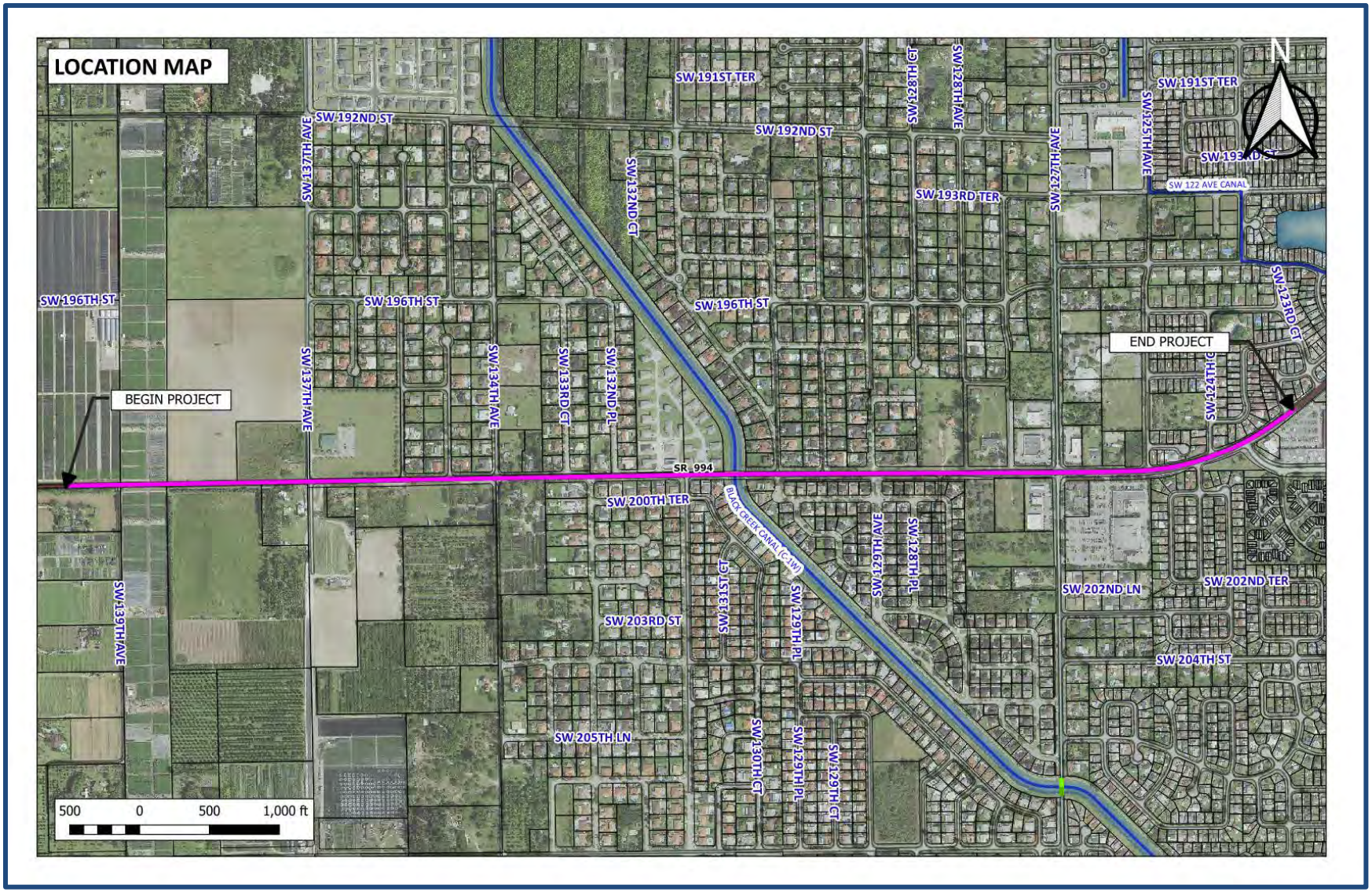

Exhibit 1 Project Study Area – Location Map

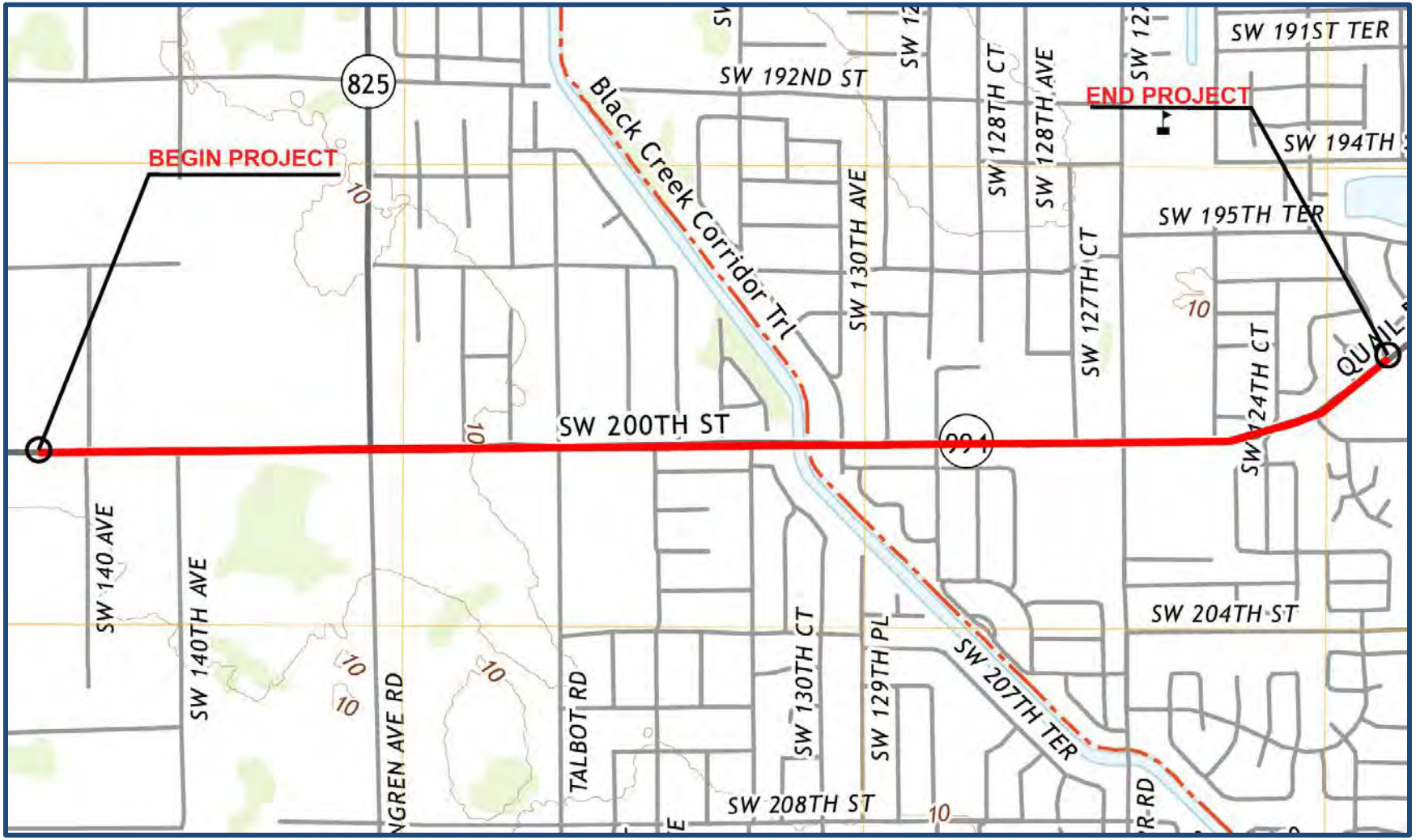

Exhibit 2 Project Study Area – USGS Map

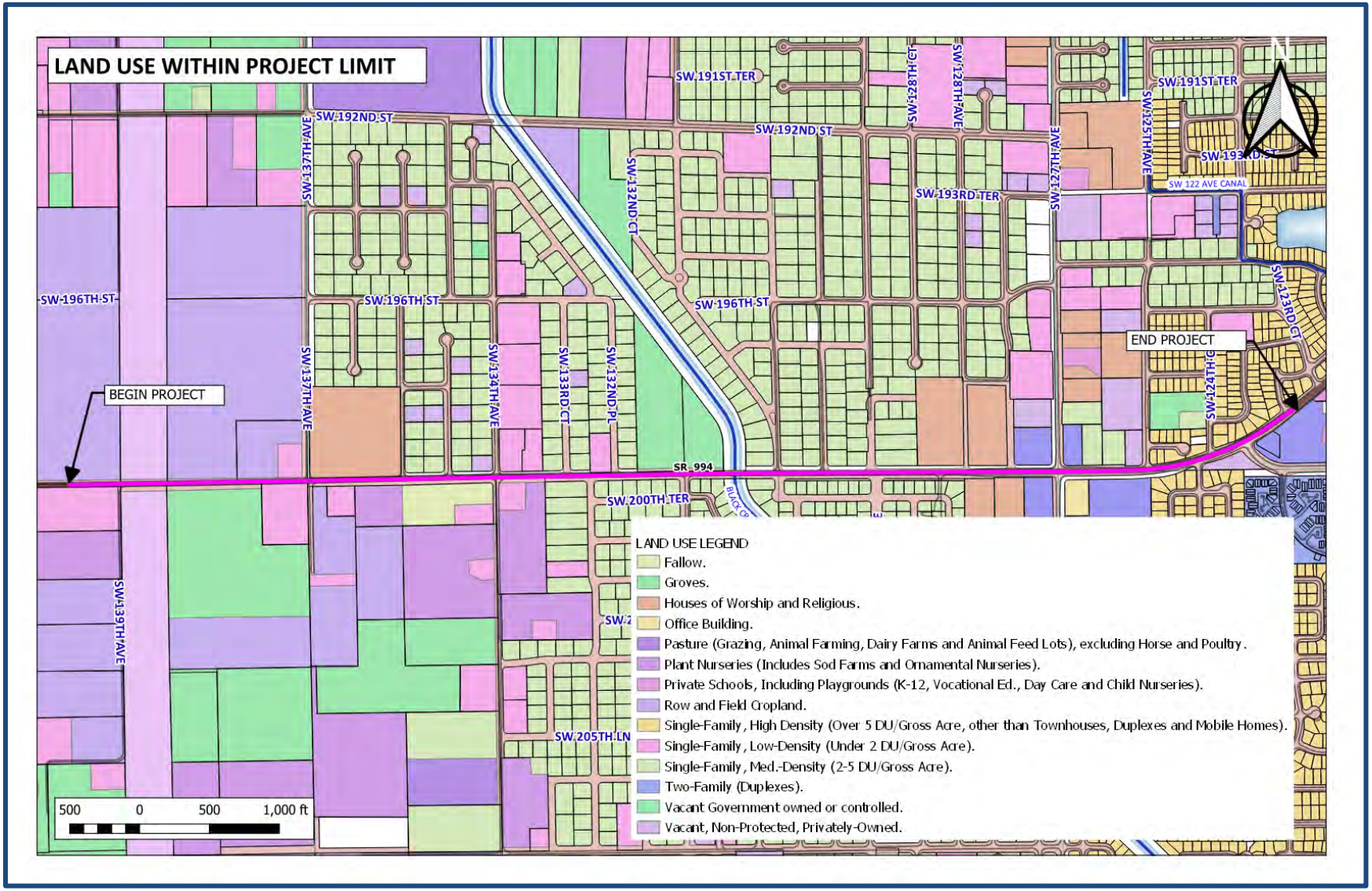

Exhibit 3 Project Study Area - Land Use Map

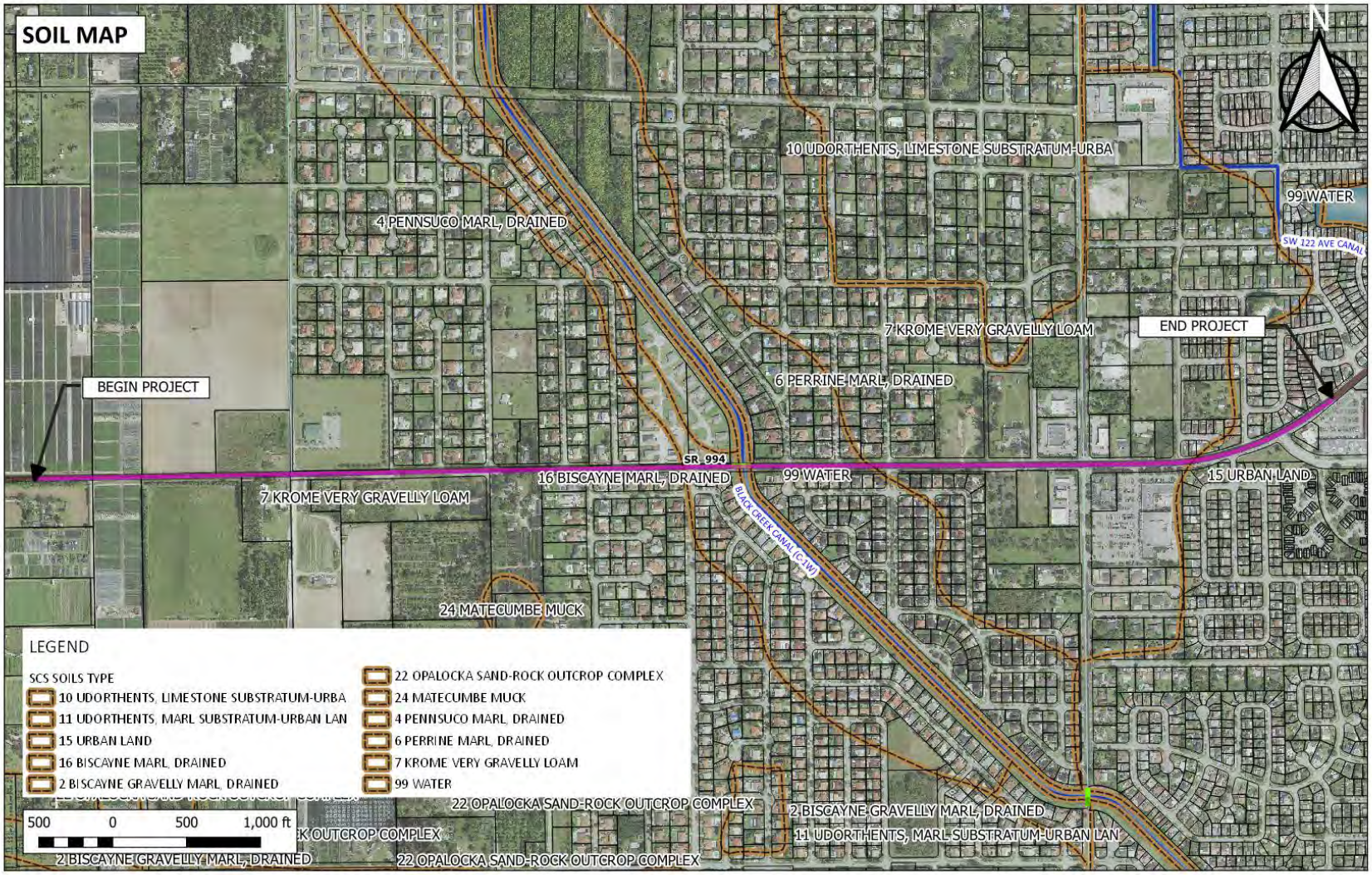

Exhibit 4 Project Study Area - Soils Map

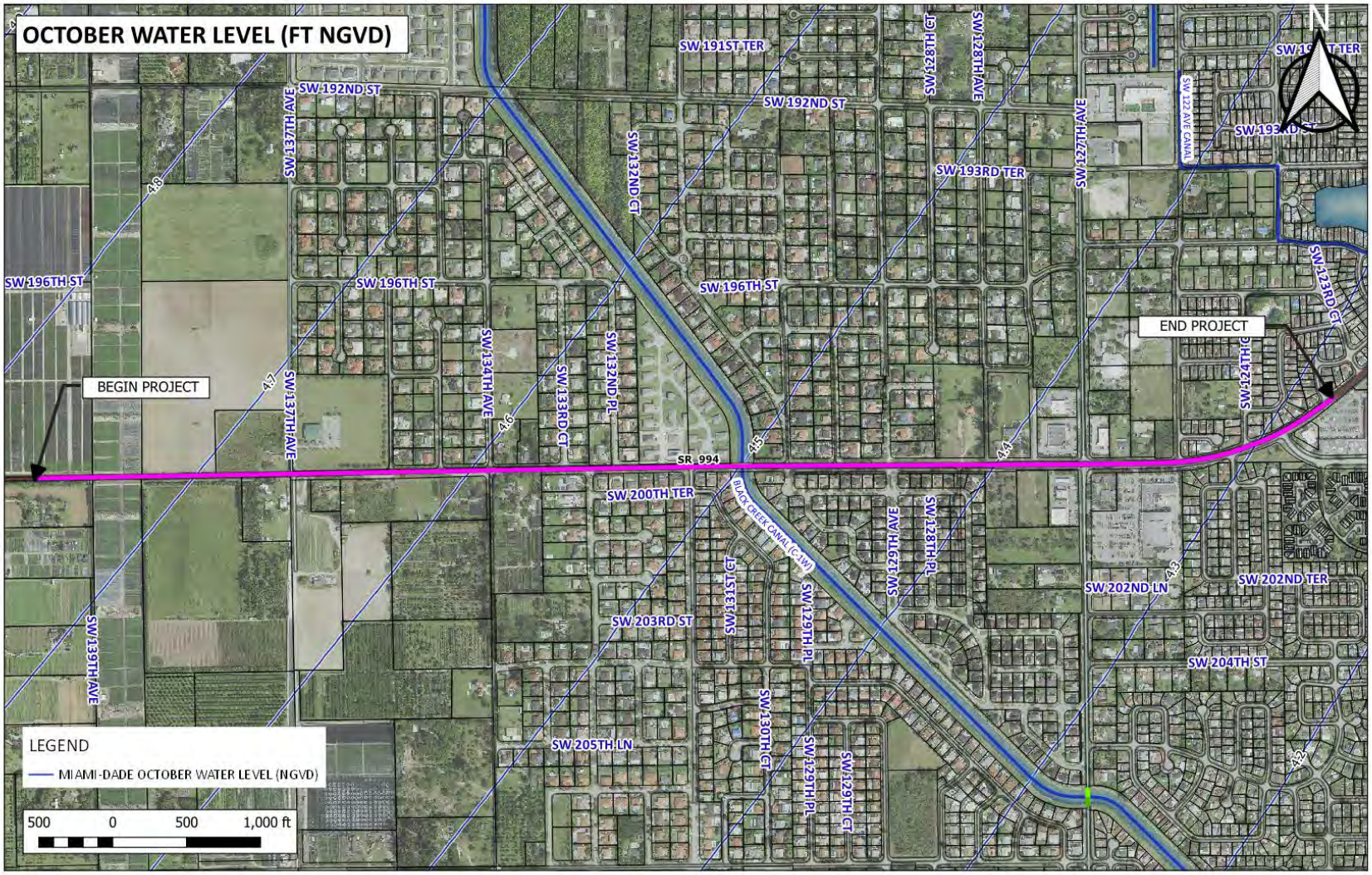

Exhibit 5 Project Study Area - Average October Ground Water Level

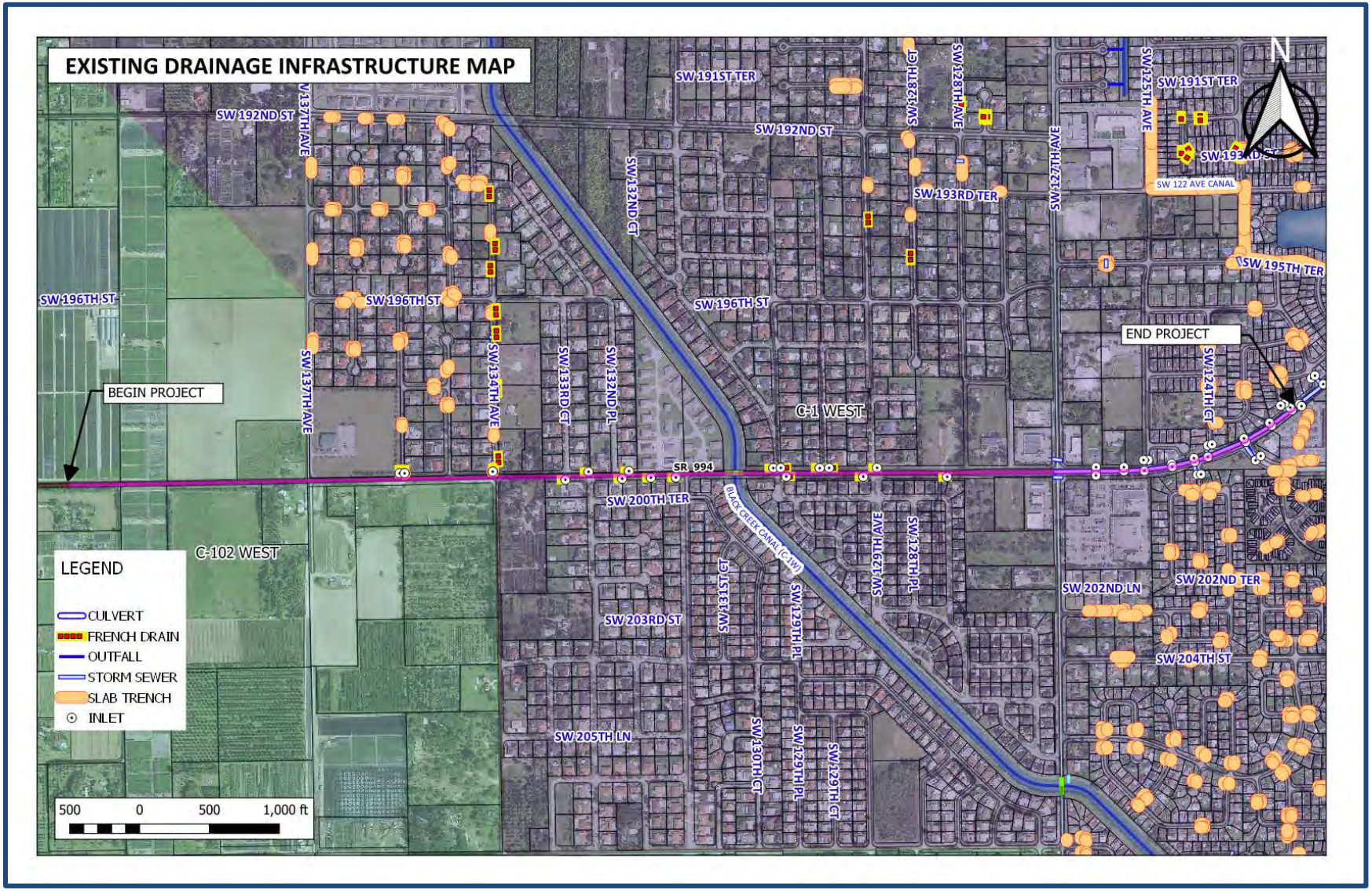

Exhibit 6 Project Study Area - Wells Field Protection Zone, Water Control Map

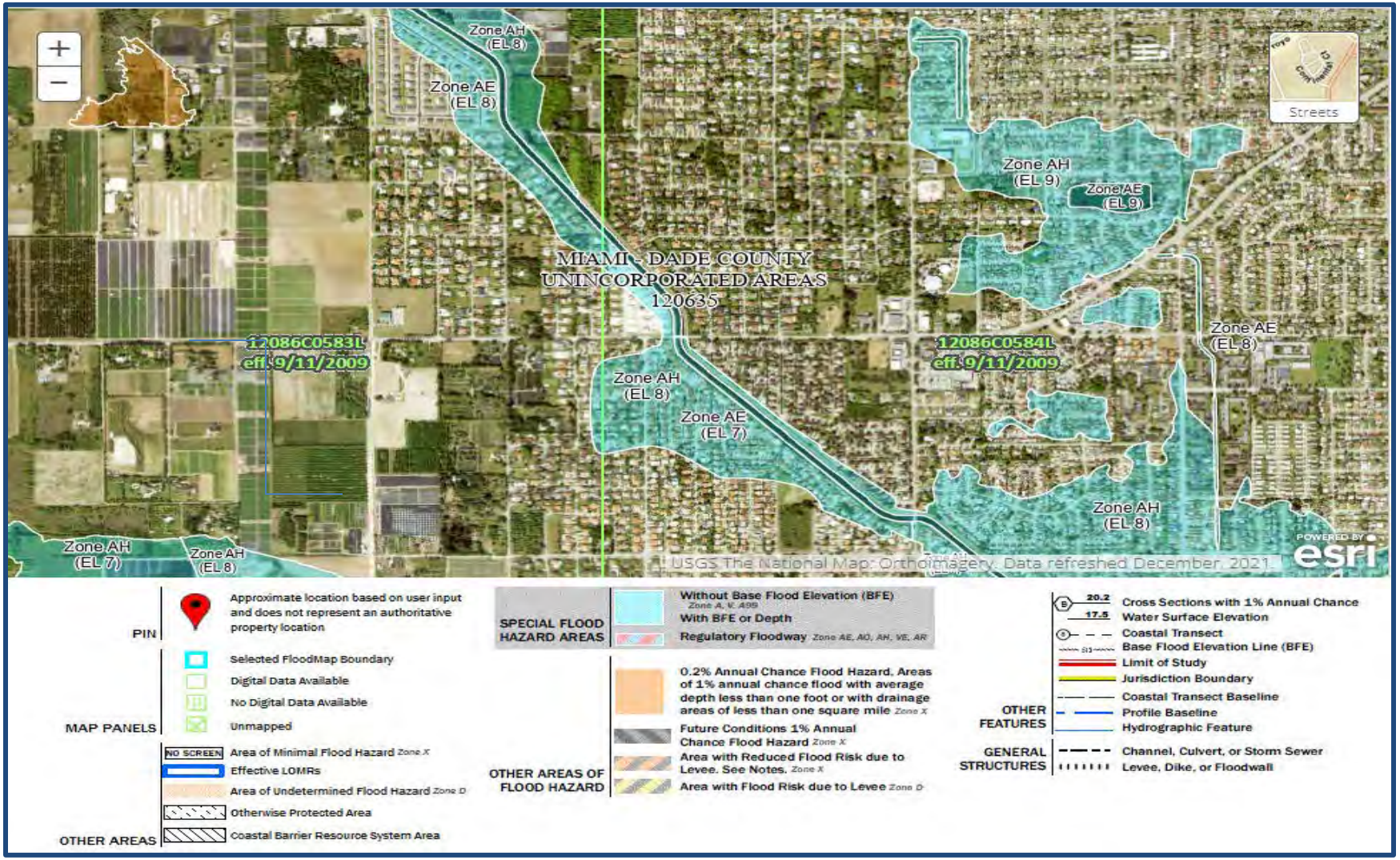

Exhibit 7 Project Study Area - FIRM Map No. 12086C0583L, 12086C0584L

Appendix E – Bridge Hydraulic Report

BRIDGE HYDRAULIC REPORT

SR 994 / SW 200th St / Quail Roost Drive Project Development & Environment Study From SW 137th Avenue to SW 127th Avenue Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

JUNE 2024

BRIDGE HYDRAULIC REPORT

SR 994/Southwest 200th Street/Quail Roost Drive
Project Development & Environment (PD&E) Evaluation

Miami-Dade County, Florida
FDOT FPID: 445804-1-22-01
Prepared for:

Florida Department of Transportation
District VI
Miami-Dade, Florida

Prepared by:
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TABLE OF CONTENTS

1.0 Executive Summary 6

2.0 Project Description 7

3.0 C-1 Drainage Basin 7

4.0 Design Criteria 8

5.0 Permit Requirements 9

6.0 Project Hydraulics and Hydrology 9

7.0 HEC-RAS Analysis 10

8.0 Scour Analysis 12

9.0 Deck Drainage 12

10.0 Conclusion and Recommendation 12

APPENDIX A EXHIBITS 14

APPENDIX B DESIGN AIDS 22

APPENDIX C HEC-RAS ANALYSIS 32

APPENDIX D SCOUR ANALYSIS 84

APPENDIX E SPREAD ANALYSIS 87

APPENDIX F CORRESPONDENCE 90

Figures

Figure 1 Proposed Bridge Typical Section ***6***

Figure 2 Watershed C-1 Model Calibration Results for S-148 ..... ***9***

Tables

Table 1 FEMA FIRM Community Panel Numbers 7

Table 2 C-1 Canal Stages and Flows at Proposed Bridge Location (NAVD88) 10

Table 3 Water Surface Profile upstream of Bridge 10

Table 4 Proposed Bridge Clearance Summary 11

Table 5 Summary of Scour Analysis Results 12

Exhibits

Exhibit 1 Project Study Area – Location Map ***15***

Exhibit 2 Project Study Area – USGS Map ***16***

Exhibit 3 Project Study Area - Land Use Map ***17***

Exhibit 4 Project Study Area - Soils Map ***18***

Exhibit 5 Project Study Area - Average October Ground Water Level ***19***

Exhibit 6 Project Study Area - Wells Field Protection Zone, Water Control Map ***20***

Exhibit 7 Project Study Area - FIRM Map No. 12086C0583L, 12086C0584L ***21***

1.0 Executive Summary

The Florida Department of Transportation District 6 (FDOT-6) is conducting a Project Development and Environmental (PD&E) Study for SR 994 / SW 200th Street / Quail Roost Drive from west of SW 137th Avenue (MP 4.000) to east of SW 127th Avenue (MP 5.162), in southwest-unincorporated Miami-Dade County, Florida. The SR 994 Corridor is classified as a rural major collector from begin of project to just west of SW 137th Avenue and as an urban minor arterial from just west of SW 137th Avenue to the end of project. The corridor primarily has a C3R Suburban Residential Context Classification and a posted speed of 40 miles per hour. Four major intersections are located along the project corridor, including two signalized intersections (SW 137th Avenue and SW 127th Avenue) and two unsignalized intersections (SW 134th Avenue and SW 132nd Avenue). Eight others minor (unsignalized) intersections are located within the study corridor. The existing two-lanes bridge over the C-1 Canal will be removed and replaced with five-lanes bridge set at a higher elevation.

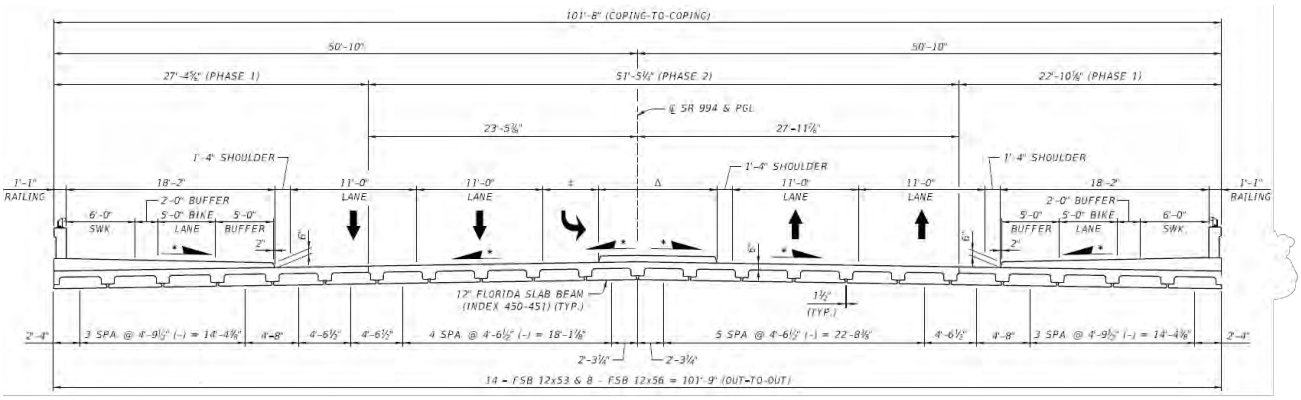

Figure 1 Proposed Bridge Typical Section

The C-1 Canal is a primary canal under the jurisdiction of the South Florida Water Management District (SFWMD). The C-1 Canal is flood regulated by control structure S-148. This canal is also referred to as the Black Creek Canal.

This report includes the proposed bridge, canal design and permit criteria, hydrologic and hydraulic analysis as well as scour analysis and countermeasures where applicable. The hydrology and tail water for the project was established by using the Miami-Dade Department of Regulatory and Economic Resources (DRER) Storm Water Management Program Master Plan Update (FY 2021). The hydraulic and scour analysis was conducted by using HEC-RAS version 4.1.

The proposed bridge has been designed to meet SFWMD, and DRER requirements for vertical and horizontal clearance, access requirements and proposed canal typical section.

The HEC-RAS analysis results indicate that the backwater effect (head-loss) due to the proposed bridge will not exceed the SFWMD maximum allowable head-loss of 0.1' per crossing for the 100-year storm event.

2.0 Project Description

The project scope includes widening of Quail Roost Drive from two to four lanes from SW 137th Avenue to SW 127th Avenue to address traffic capacity demand due to the population and employment growth along the corridor. Additionally, the project scope also includes improving safety conditions along the corridor, including evacuation and response times and enhancing mobility options and multimodal access.

The PD&E includes the evaluation of three (3) alternatives, Build Alternatives 1 thru 3. Build Alternative 1 does not sufficiently address the purpose and need of the project while Build Alternative 3 meets the purpose and need, but results in greater impacts than Build Alternative 2. As a result, Build Alternative 2 was selected as the preferred alternative. Build Alternative 2 proposes one additional travel lane in each direction, for a total of two 11-ft lanes on each bound, and a 16.5-ft median with exclusive left turn lanes along SR 994. Curb and Gutter Type F is proposed on the outside of the travel lanes while Type E curb is the typical condition on the inside to maximize the available landscaping area within the raised islands. This alternative also proposes sidewalks with sidewalk level SBLs along both sides of the corridor. A minimum 4.5-ft buffer is proposed from the back of curb to the front of the sidewalk level SBLs and a 2-ft buffer is proposed between the sidewalk and the bicycle lane. The existing concrete three-spans bridge will be replaced by a wider three-spans concrete bridge to accommodate five lanes of traffic. The new bridge will be 100'-0" long, and 101'-8" wide. The proposed spans are of unequal length. Proposed Span 1 will be 29'-9", Span 2 will be 40'-6", and Span 3 will be 29'-9".

The project is located in zone X. A small portion of the project, at the C-1 crossing, in zone AE according to the FIRM maps with a base flood level that varies from 4.00 feet to 8.00 feet NGVD. The project is bisected by the C-I West canal. This canal drains the SFWMD delineated watershed/basin C-1 West. A list of the FIRM Community Panel numbers that cover the project is shown in Table 1.

Table 1 FEMA FIRM Community Panel Numbers

Miami Dade County	
Community Panel No.	Effective Date
12086C0583L	September 11, 2009
12086C0584L	September 11, 2009

3.0 C-1 Drainage Basin

Within the project limits, SR 994 is located within two water management district drainage basins. The basins identified are the C-102 West, and the C-1 West from SFWMD.

The C-1 Black Creek Basin has an area of approximately 56.9 square miles and it is located in southeastern Miami Dade County. The land use distribution is predominantly of single-family residential and vacant land, with a lesser proportion of agricultural, plant nurseries and pasture.

The C-1 watershed has a negligible topographic relief and it contains a variety of land uses drained by a complex network of dredged canals. The canals intercept the shallow groundwater table, which provides most of the base flow.

A number of canals within the C-1 Basin are tributaries to the main C-1 (Black Creek) Canal. C-100B connects C-1N and C-100 canals. C-100B joins C-1N one-half mile downstream of the F.E.C. railway. The canal leaves the basin at control structures S-111. Normal flows to the canal are to the north (into the C-100 Basin). The northern portion of the C-1 Basin has limited drainage capability and is subject to severe limitations on development. S-148 control stages in the upper reach of C-1/C-1W and regulates discharges into the lower reach. S-338 is a gated culvert located at Krome Avenue. It controls inflows from the L-31N borrow canal, and helps maintain optimum stage at the borrow canal. Flow in the C-1/C-1W canal is to the southeast with discharge via the S-21 control structure into Biscayne Bay.

4.0 Design Criteria

The proposed bridge shall satisfy both the FDOT and the SFWMD horizontal and vertical clearance requirements. As per the FDOT Drainage Manual (Chapter 4.0), a bridge shall provide a minimum vertical drift of 2’ above the design flood stage, and shall also provide a minimum clearance of 4.5’ above the normal high water. The horizontal clearance is set at a minimum of 10’ clear span.

The SFWMD district in Volume V of their Permit Information Manual has a similar vertical clearance requirement of 2’ above the design flood stage. For the normal high-water stage, the vertical clearance is set at 6’ above that stage, or the higher of the two low member elevations. For the horizontal clearance the center span shall have a clear bent spacing of 25’ measured perpendicular to the channel, and the approach spans a spacing of 25’ between faces of bent. The normal high-water elevation was set at elevation +3.00 NGVD (+1.47 NAVD88. The design high water is location specific along the project.

In the case of the installation of a culvert in lieu of a bridge the SFWMD limit the maximum head-loss through the proposed culvert to one-tenth foot (0.1’) or less. The district further specify that the invert of the culvert shall be set in such a manner to allow the passage of a boat having an 8’ wide deck, with the deck being 2’ above the seasonal high optimum water surface of the canal, with a minimum of 2’ of clearance from the boat to the culvert walls on either side. Further, the invert of the culvert must provide for a minimum water depth of 5’ as measured from the seasonal low water elevation. The bottom of the culvert must also be set at a minimum one-half foot above the design canal bottom to minimize loss of culvert capacity due to the accumulation of silt in the bottom of the culvert. The canal section shall also be cleaned 50’ upstream and downstream of the culvert entrance and exit.

The DRER has performed a recent hydrologic and hydraulic study of the C-1 Canal. The design and tail water flow for this bridge hydraulic study is based on this model, and on previous flow values for the C-1 Canal bridge.

5.0 Permit Requirements

A SFWMD Right-of-Way Permit Occupancy Permit (Standard Permit 4, SP-4) is required since the existing and proposed bridge are located within the C-1 Canal. The proposed bridge needs to meet required vertical and horizontal clearances as well as canal access and dredging requirements. Head losses due to new bridge structure or culvert cannot exceed a 0.1' head-loss for the 100-year storm event. The bridge is located over a segment of the C-1 Canal which is flood controlled and is only navigated by small boat and SFWMD maintenance barges. No USCG bridge permit involvement is anticipated since this stretch of the C-1 Canal is not accessible to cargo boat traffic. Canal dredging activities will also require a USACE Nationwide Permit.

6.0 Project Hydraulics and Hydrology

The C-1 drainage basin covers an area of 36,416 acres (56.9 square miles) and is located in southwestern Miami-Dade County. The C-1 Canal has two functions: (1) to provide flood protection and drainage for the C-1 basin, and (2) to maintain a groundwater table elevation adequate to prevent saltwater intrusion into local groundwater.

The C-1 Canal discharges to the east via a gated control structure S-148 located at SW 212th Street and SW 177th Court. The design flow at that structure is 1,500 cfs.

A model of the drainage basin was created in XP-SWMM and calibrated with observed data from Hurricane Irma. The result of this calibration is shown in figure 1.

Figure 2 Watershed C-1 Model Calibration Results for S-148

The results of this study will be used in assessing the flow and stage of the C-1 at project setting. The nodes and reaches described in the study that corresponds to this stretch of the C-1 Canal are the followings:

- Upstream Node C1-C-16A
- Downstream Node C1-C-17

- Reach C1-C-16AL

Table 2 lists the hydraulic data that will be used in performing the water surface profile analysis for the pre and post development. The tail-water stages listed are at the downstream end of the canal reaches relevant to the analysis, and the flows are at the beginning of the reaches.

Table 2 C-1 Canal Stages and Flows at Proposed Bridge Location (NAVD88)

REACH	NODE	CANAL	50 YEAR STORM		100 YEAR STORM	
			FLOW (cfs)	STAGE (ft)	FLOW (cfs)	STAGE (ft)
C1-C-16AL	C1-C-16A	C-1	1231.00		1634.00	
	C1-C-17			7.48		7.79

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7.0 HEC-RAS Analysis

Two (2) sets of HEC-RAS input files were created for the existing and proposed condition for the 50-year and 100-year storm. The boundary conditions used are from the data listed in Table 2. The proposed conditions being evaluated are for the hydraulic modifications previously described.

Surveys of the existing canal at project location were also performed and inputted in the model. The manning roughness coefficient used matches the one used in the XP-SWMM model and is 0.030 for the right and left bank, and 0.035 for the canal itself. The proposed bridges as inputted in HEC-RAS are from designed plan and profile and survey data. The results of these analyses are listed in Table 3 for the most upstream sections.

The hydraulic analysis performed shows that there is no rise on the hydraulic grade line for the upstream reach of the C-1 Canal.

The hydraulic analysis performed also demonstrated that the minimum low member for the proposed bridge exceed the requirements for the minimum clearances. The results of the required and provided clearances are tabulated in Table 4.

Table 3 Water Surface Profile upstream of Bridge

EVENT	HEC-RAS RIVER STATION	PRE-DEVELOPMENT		POST-DEVELOPMENT	
		FLOW (cfs)	STAGE (ft)	FLOW (cfs)	STAGE (ft)
50 YEAR	193	1231.00	7.49	1231.00	7.49
100 YEAR	193	1634.00	7.81	1634.00	7.80

Table 4 Proposed Bridge Clearance Summary

REQUIREMENTS	AGENCY	VALUES (ft)	PROPOSED BRIDGE
HORIZONTAL CLEARANCE	**REQUIRED**		
Approach Span	SFWMD	20'	29'-9"
Center Span	SFWMD	25'	
	FDOT	10'	40'-6"
	DRER	25'	
Maintenance Boat (8' wide + 2' clear both side)	SFWMD	12'	40'-6"
	DRER	10'	
VERTICAL CLEARANCE	**REQUIRED**		
Low Member Elevation (a)			**9.49**
Invert Elevation (b)			Not Applicable
Design Water Elevation-50 Year Flood (c)			**7.49**
Seasonal High-Water Elevation (d)		3.47	**3.47**
Seasonal Low-Water Elevation (e)		1.47	**1.47**
Minimum Low-Water Depth (e-b)	SFWMD	5	Not Applicable
Drift above Seasonal High-Water Elevation (a-d)	SFWMD-FDOT	4.50	6.02
	DRER	3.50	
Required Elevation for Drift [(d) + Max. (Drift)]		7.97	**9.49**
Drift above Design Water Elevation (a-c)	SFWMD-FDOT	2.00	2.00
Required Elevation for Drift (c + 2.00')		9.49	**9.49**
Minimum Low Member Elevation Required		9.49	**9.49**

8.0 Scour Analysis

A scour analysis was performed for this Bridge Hydraulic Report using the procedure established by HEC-18 "Evaluating Scour at Bridges". The scour analysis was generated using the scour analysis module integrated in HEC-RAS for the 100-year storm.

The bridge crossing is located on a stretch of the C-1 that was dug on hard limestone. This soil type is stable. There is no sign of bank erosion, bends, or meanders.

The C-1 Canal is stage controlled. It is typical for this type of canal to show some type of materials aggradations. The SFWMD is responsible for the maintenance of this canal and its conveyance capacity is periodically evaluated by the maintenance division of this agency.

The width of the canal is not going to be impacted, and the piers or bents lines are set parallel to the direction of flow. They are labeled "Bent 2", and "Bent 3". The median diameter size of the bed material (D50) was set at 0.35 mm which is typical of the type of sediment that is encountered in these canals. A scour analysis was performed for the 100-year storm event. The result of the contraction scour is minimal. The scour depths at the piers are equal. The results of the scour calculations have been listed in Table 5.

Table 5 Summary of Scour Analysis Results

SCOUR TYPE	SCOUR DEPTH (100 YEAR) (ft)
Contraction Scour	0.00
Left Abutment	5.83
Bent 2	2.57
Bent 3	2.57
Right Abutment	3.00

The scour protection materials that will be used are articulated concrete block that will be placed around and along the pier lines. The riprap materials will extend 4' away from the face of the bent piles (scour lateral limit).

9.0 Deck Drainage

Spread is not an issue for this bridge. A spread analysis was performed for both the east and west grades and the spread width is well within the limit of the allowable spread.

10.0 Conclusion and Recommendation

A bridge hydraulic study was performed for the reach of the C-1 Canal that is going to be impacted by the widening of SR 994.

The hydraulic analysis performed demonstrated that the widening of the SR 994 bridge from 38'-0" to 101'-8" is not creating an adverse impact to the upstream reach of the study area.

The scour analysis performed for the widening of the SR 994 bridge shows negligible contraction scour depth. There is scour at the piers and scour counter measure is recommended.

APPENDIX A

EXHIBITS

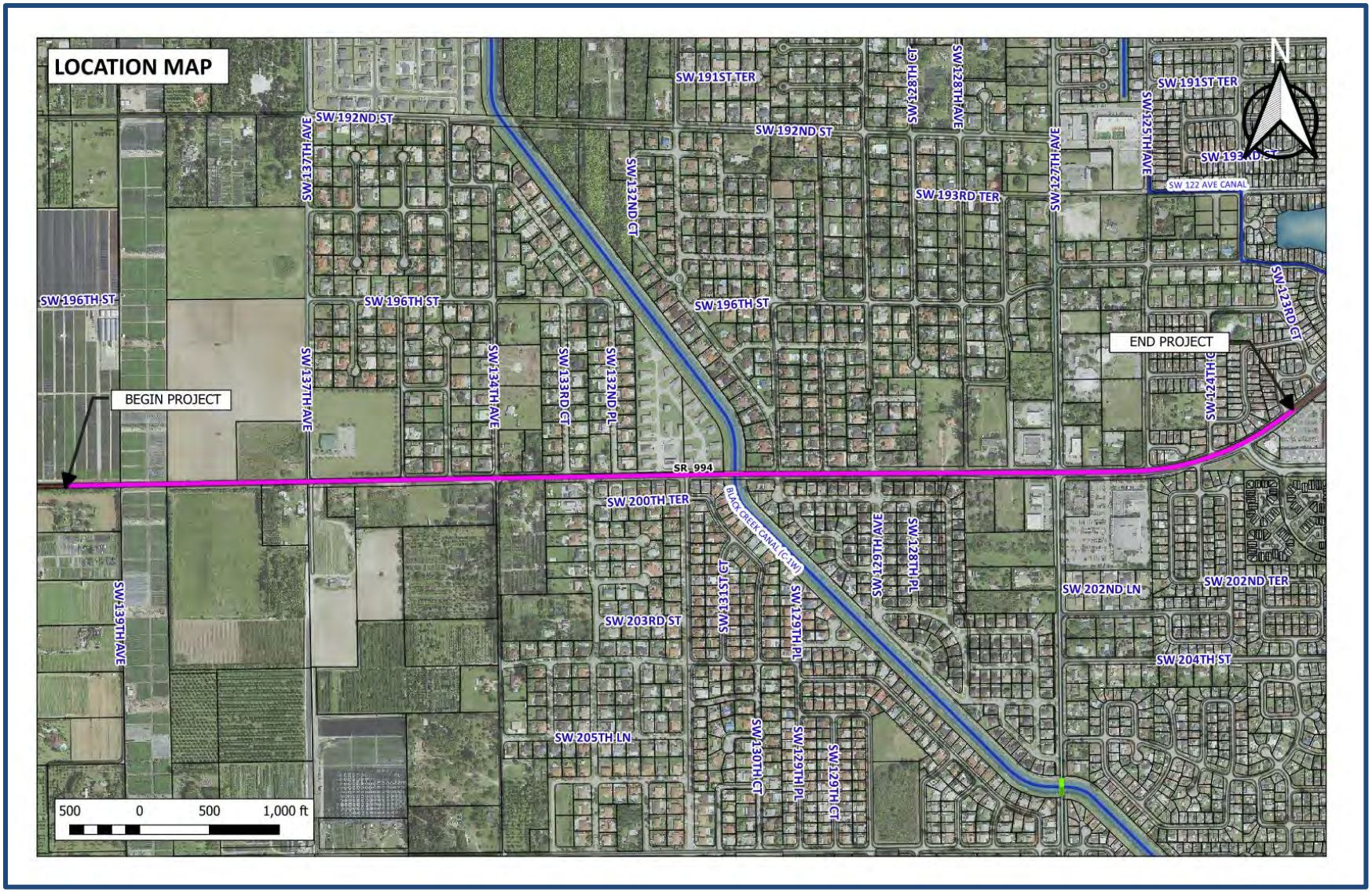


Exhibit 1 Project Study Area – Location Map

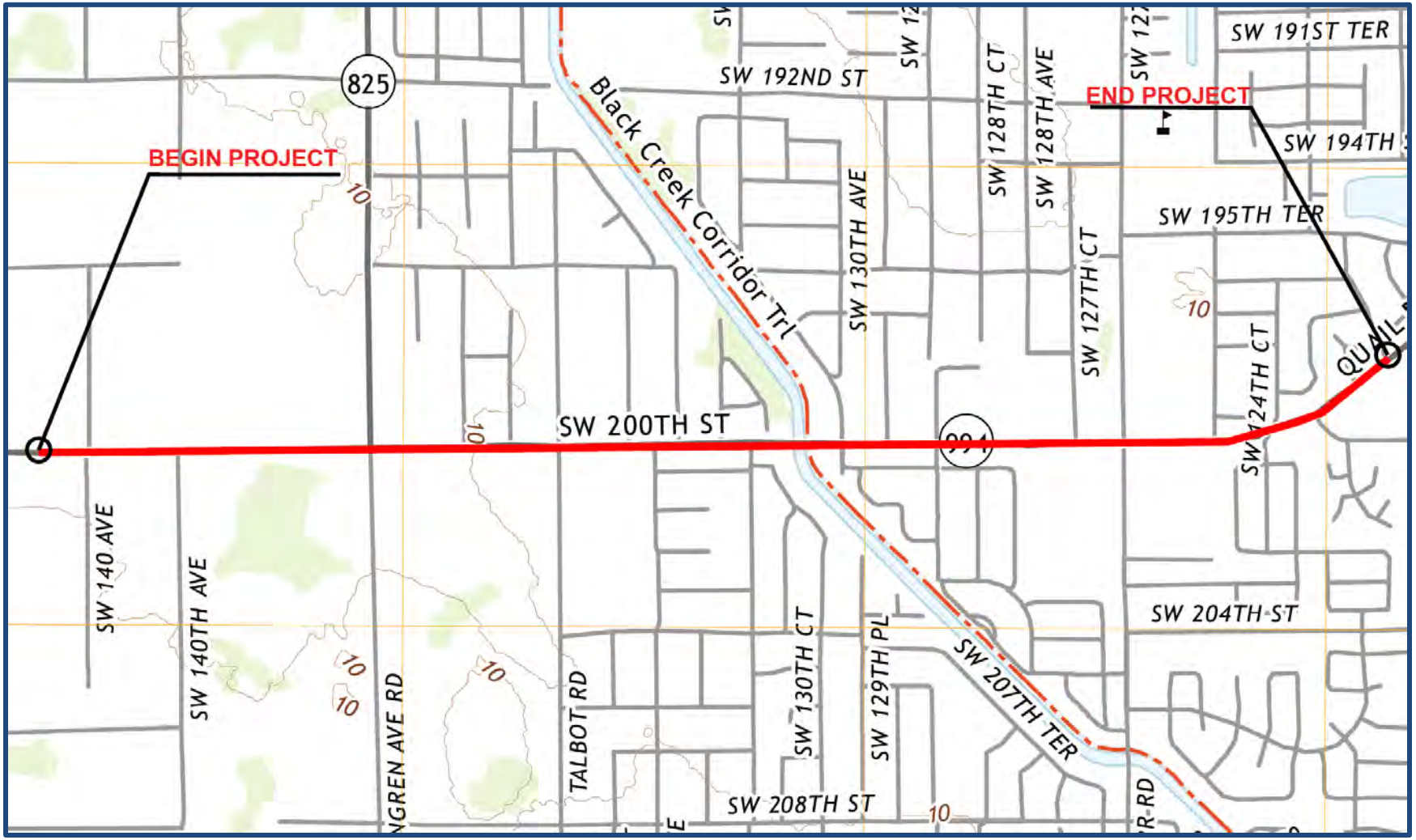


Exhibit 2 Project Study Area – USGS Map

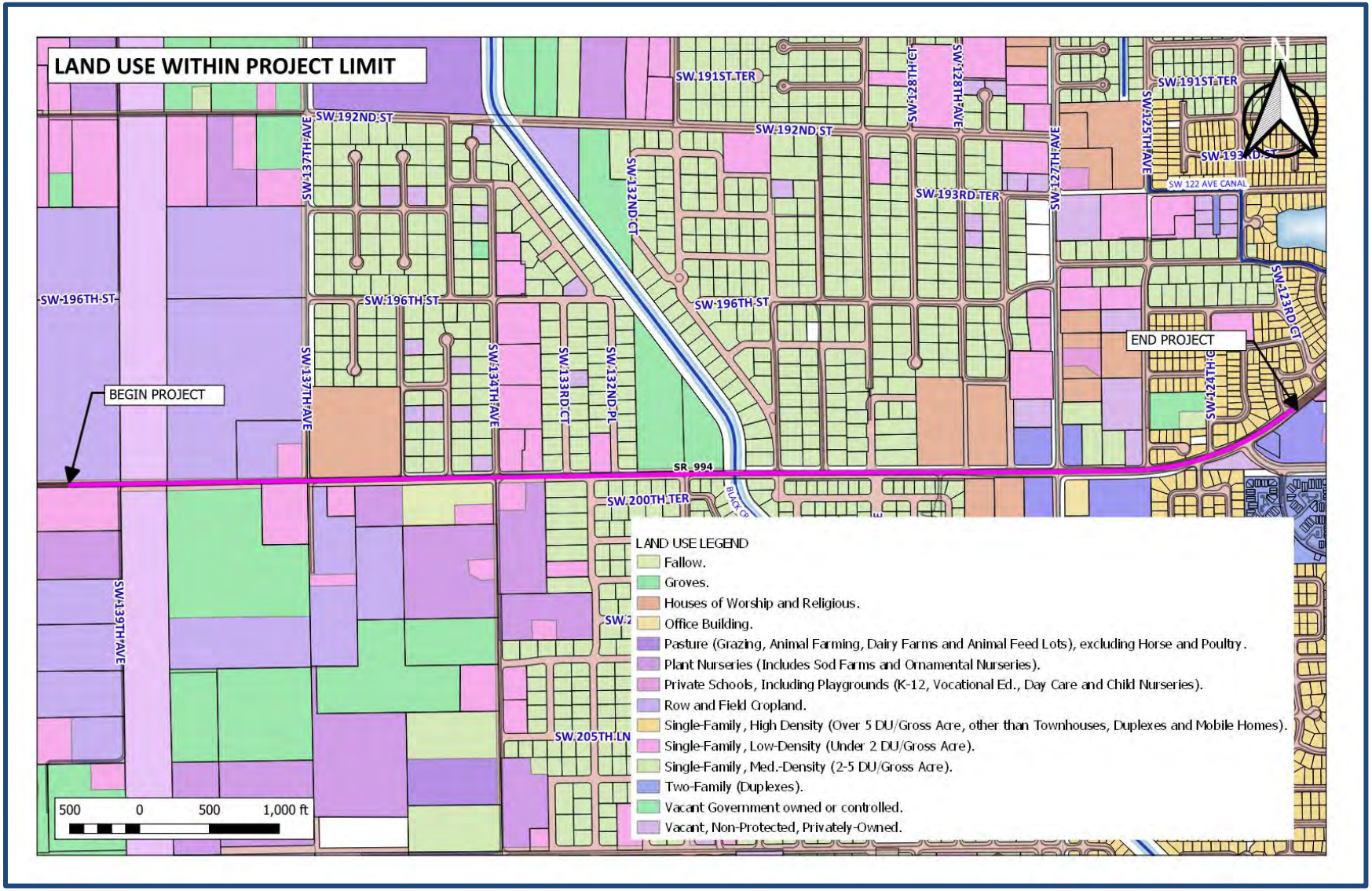


Exhibit 3 Project Study Area - Land Use Map

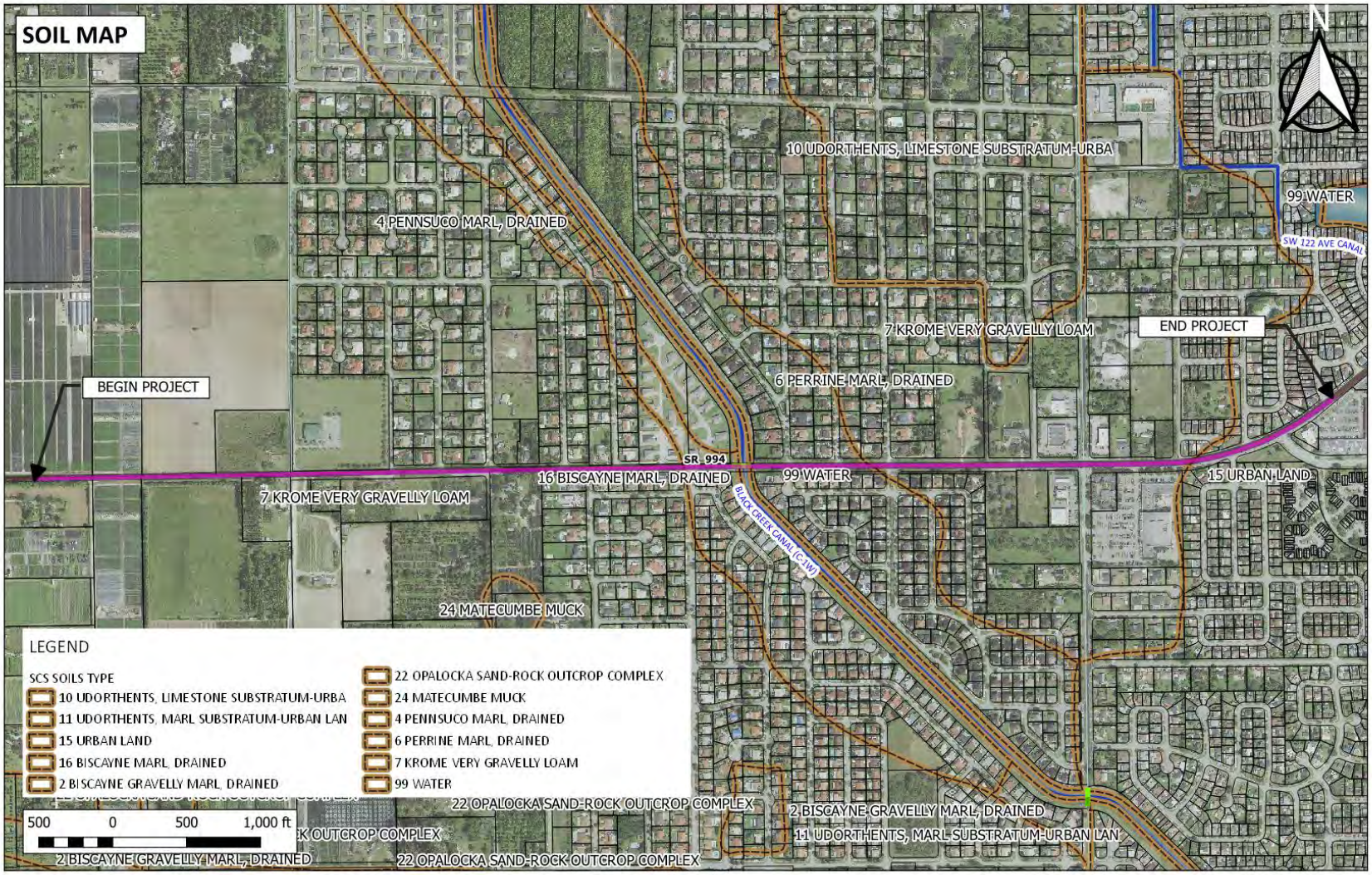


Exhibit 4 Project Study Area - Soils Map

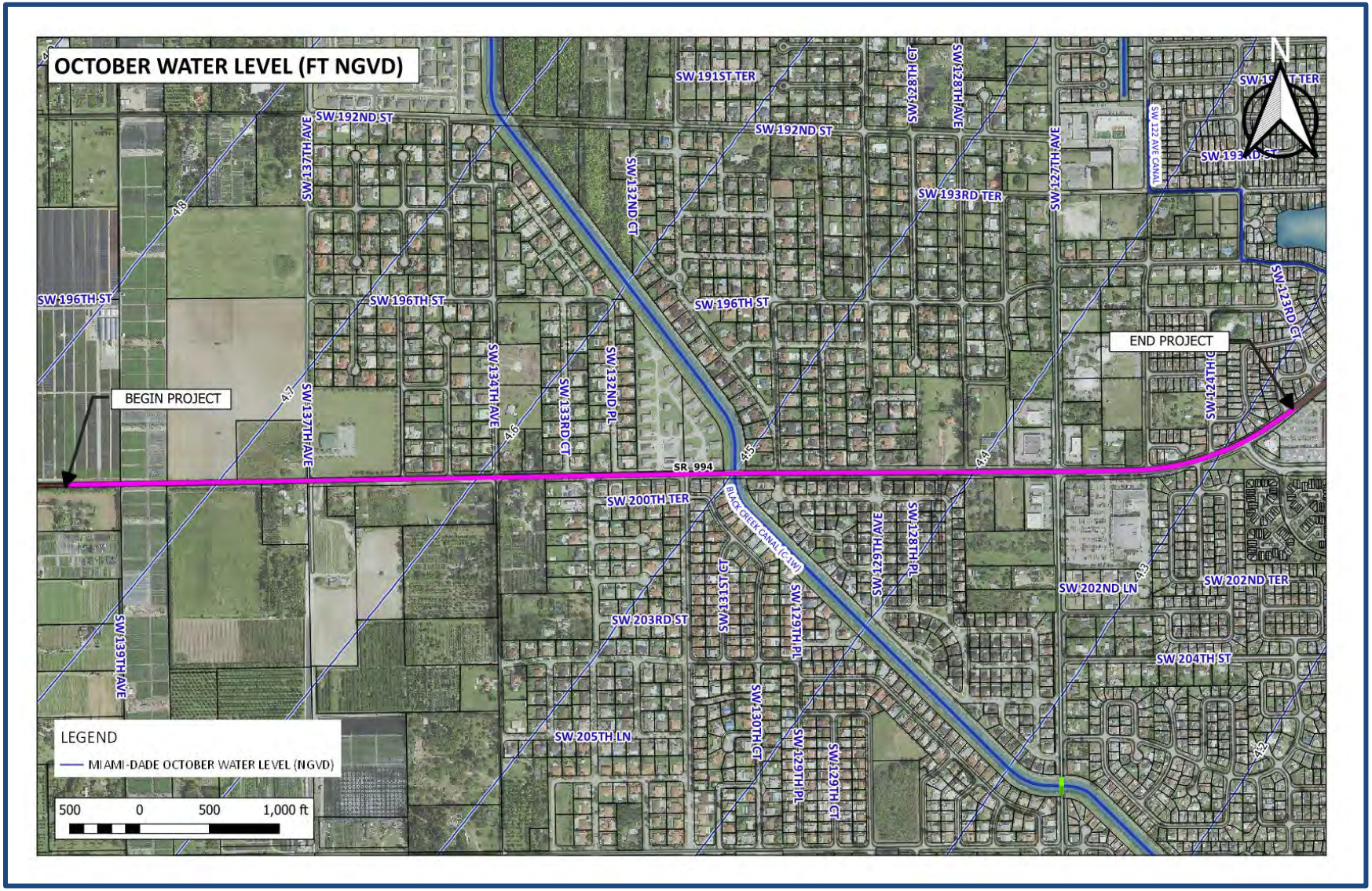


Exhibit 5 Project Study Area - Average October Ground Water Level

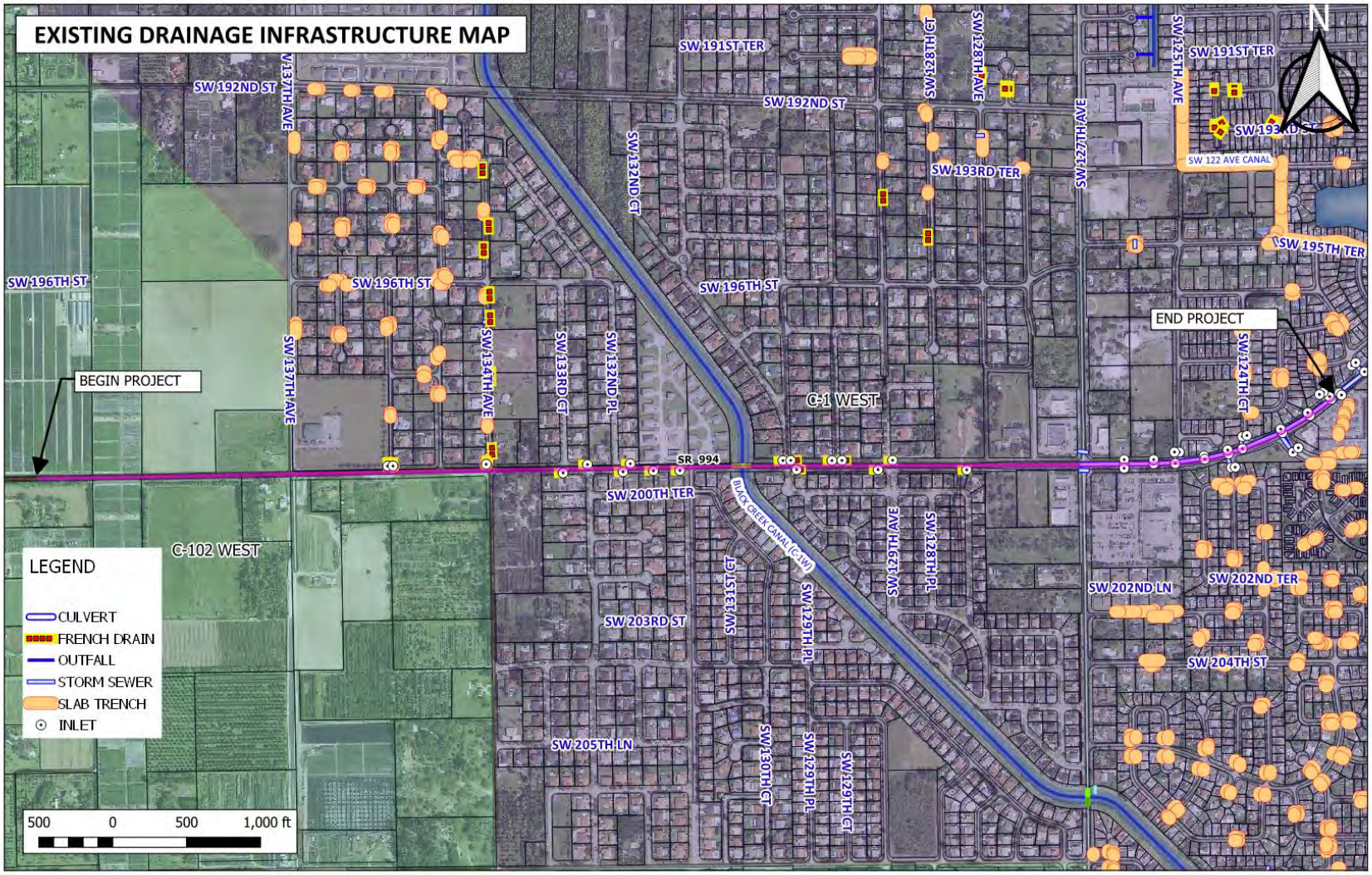


Exhibit 6 Project Study Area - Wells Field Protection Zone, Water Control Map

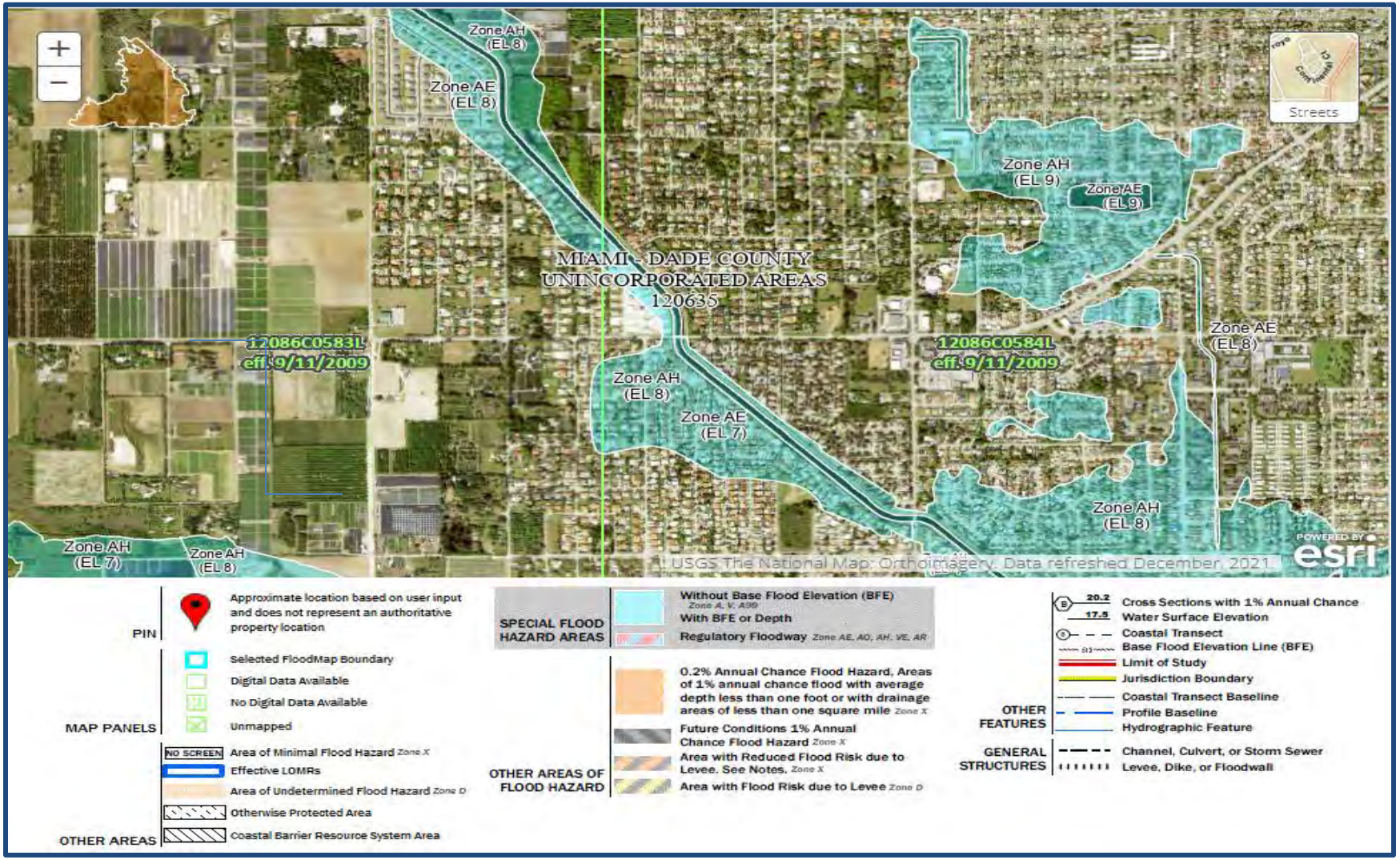
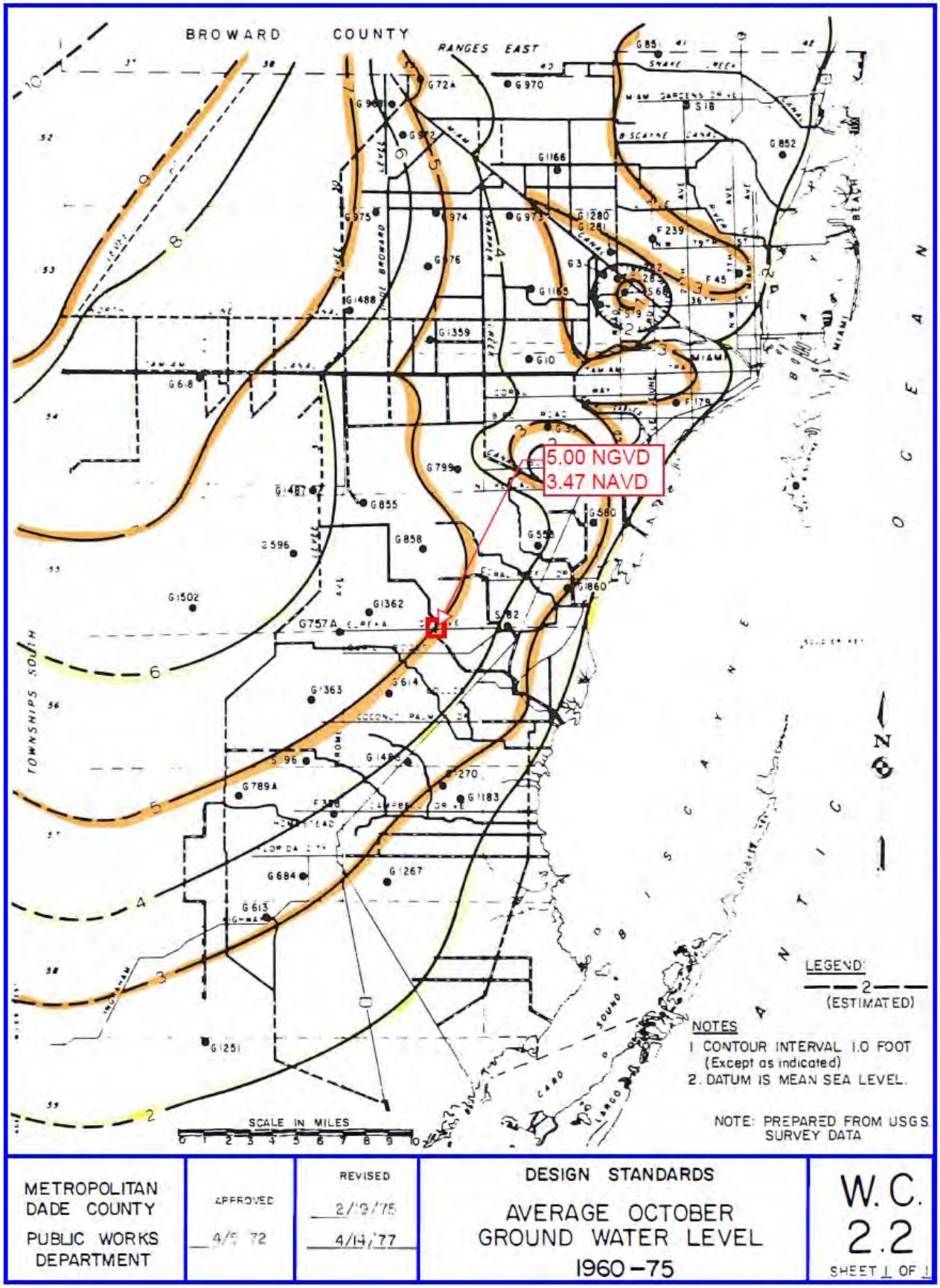


Exhibit 7 Project Study Area - FIRM Map No. 12086C0583L, 12086C0584L

APPENDIX B

DESIGN AIDS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(Except as indicated)
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DADE COUNTY
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DEPARTMENT
APPROVED
4/5/72
REVISED
2/13/75
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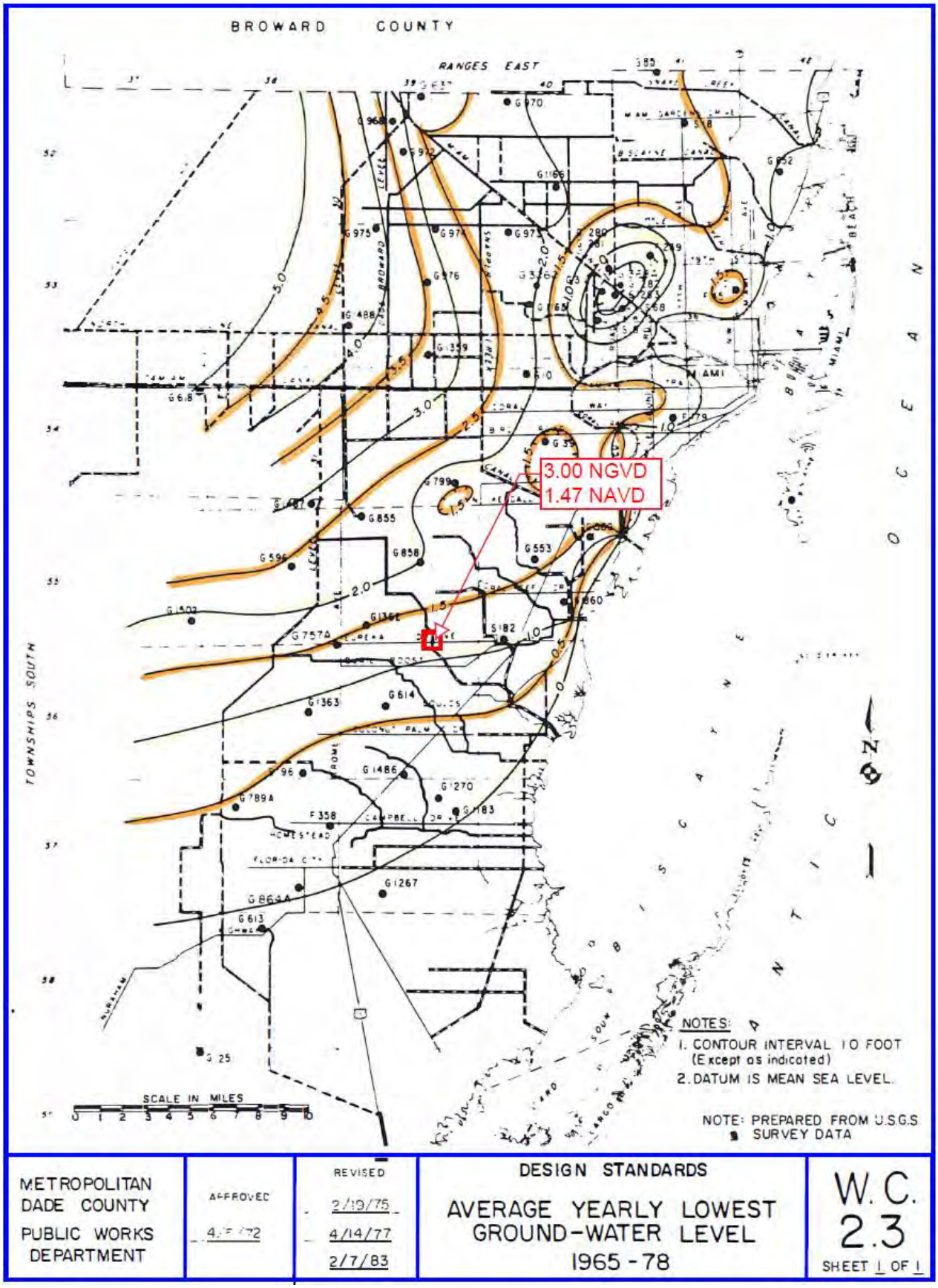
DESIGN STANDARDS
AVERAGE OCTOBER
GROUND WATER LEVEL
1960–75
W.C.
2.2
SHEET 1 OF 1


BROWARD COUNTY
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TOWNSHIPS SOUTH
3.00 NGVD
1.47 NAVD
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SCALE IN MILES
METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT
APPROVED
REVISED
2/19/75
4/14/77
2/7/83
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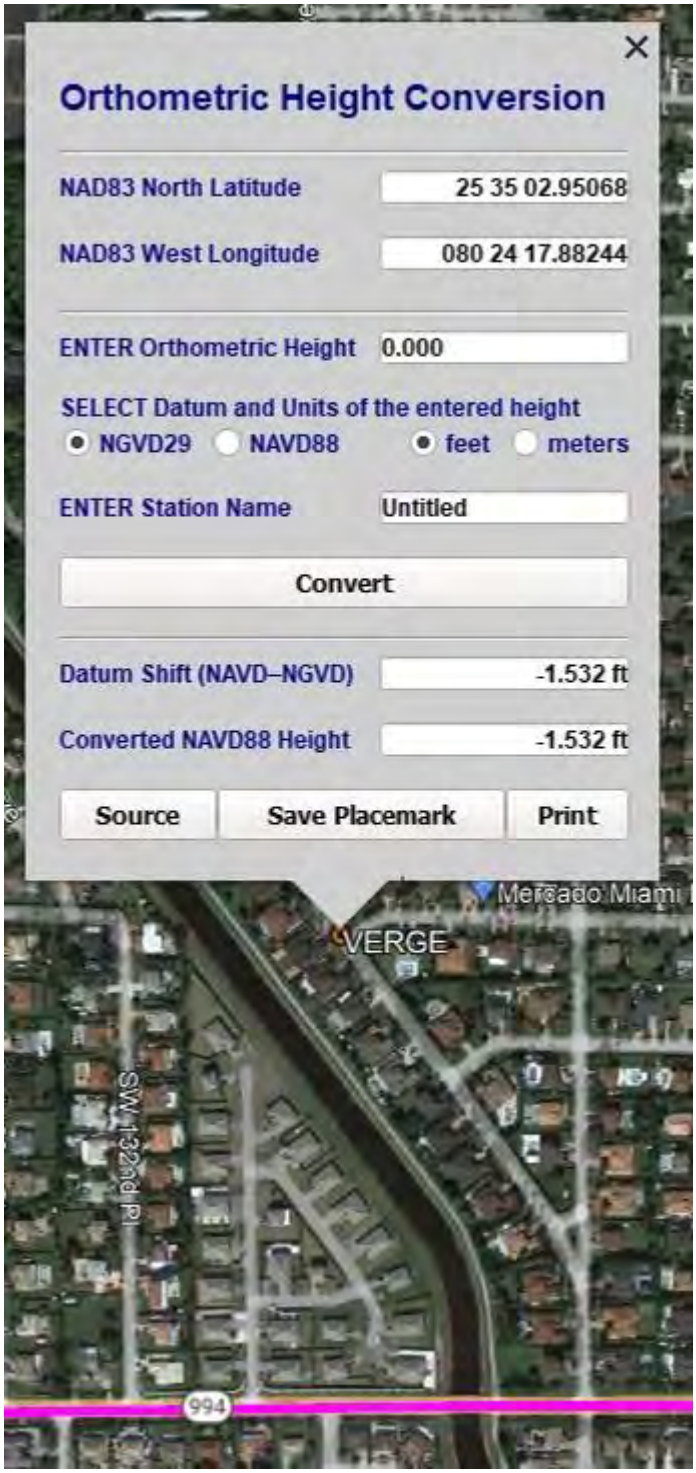
W.C. 2.3
SHEET 1 OF 1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SELECT Datum and Units of the entered height
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NAVD88
feet
meters
ENTER Station Name
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Convert
Datum Shift (NAVD–NGVD)
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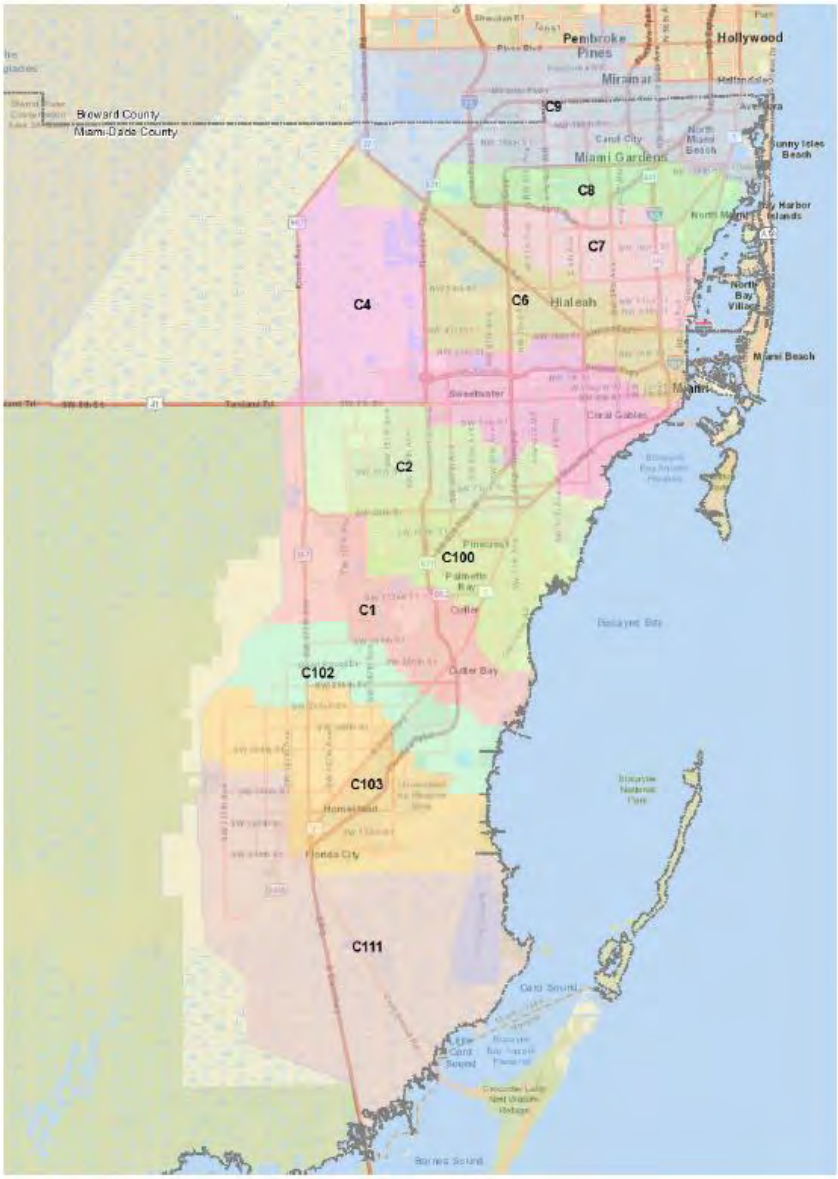
Stormwater Management Program Master Plan Update (FY2021)



Department of Regulatory and Economic Resources
Division of Environmental Resources Management
Water Management Division

C-1 Stages (ft NAVD88) - 2060

Name	Storm	Node X 0	Node Y 0	Max Water Elevation ft
C1-S-4	0050YR72H	834269.151	472103.075	7.717
C1-S-4	0100YR72H	834269.151	472103.075	7.953
C1-S-4	0500YR72H	834269.151	472103.075	8.497
C1-S-4	1000YR72H	834269.151	472103.075	8.685
C1-S-5	0005YR24H	841259.129	469182.327	7.496
C1-S-5	0010YR24H	841259.129	469182.327	7.679
C1-S-5	0025YR24H	841259.129	469182.327	7.837
C1-S-5	0005YR72H	841259.129	469182.327	7.676
C1-S-5	0010YR72H	841259.129	469182.327	7.799
C1-S-5	0025YR72H	841259.129	469182.327	7.898
C1-S-5	0050YR72H	841259.129	469182.327	7.985
C1-S-5	0100YR72H	841259.129	469182.327	8.070
C1-S-5	0500YR72H	841259.129	469182.327	8.511
C1-S-5	1000YR72H	841259.129	469182.327	8.698
C1-S-6	0005YR24H	844831.815	468613.253	7.491
C1-S-6	0010YR24H	844831.815	468613.253	7.678
C1-S-6	0025YR24H	844831.815	468613.253	7.837
C1-S-6	0005YR72H	844831.815	468613.253	7.675
C1-S-6	0010YR72H	844831.815	468613.253	7.798
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C1-S-6	0500YR72H	844831.815	468613.253	8.514
C1-S-6	1000YR72H	844831.815	468613.253	8.704
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C1-C-15	0025YR72H	849419.678	461697.136	7.112
C1-C-15	0050YR72H	849419.678	461697.136	7.637
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C1-C-15	0500YR72H	849419.678	461697.136	8.492
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C1-C-15A	0005YR24H	849606.613	459655.055	3.257
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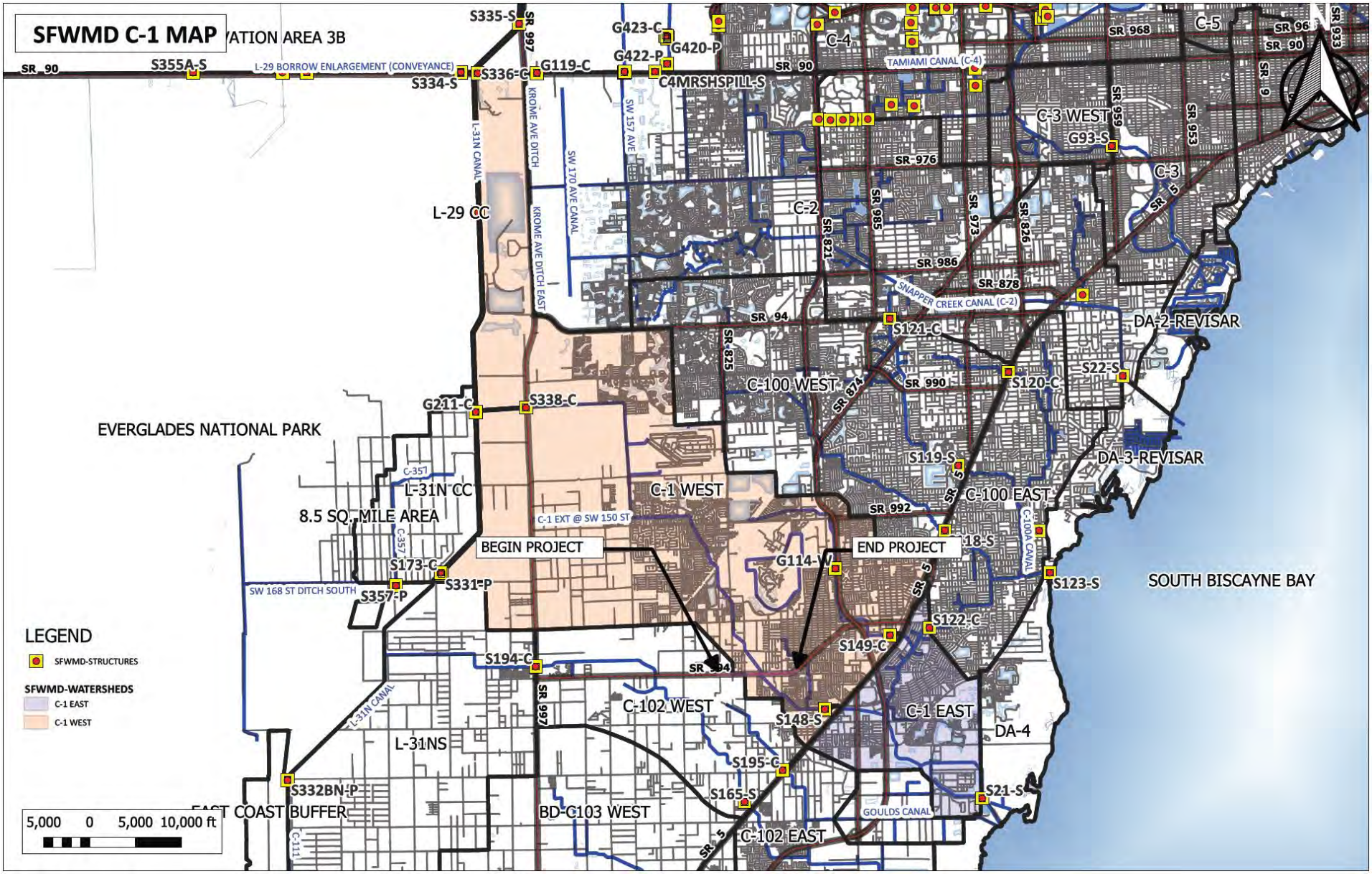
C1-C-15A	1000YR72H	849606.613	459655.055	8.692
C1-C-17	0005YR24H	852616.204	453922.566	3.097
C1-C-17	0010YR24H	852616.204	453922.566	4.200
C1-C-17	0025YR24H	852616.204	453922.566	5.979
C1-C-17	0005YR72H	852616.204	453922.566	4.584
C1-C-17	0010YR72H	852616.204	453922.566	5.798
C1-C-17	0025YR72H	852616.204	453922.566	6.918
C1-C-17	0050YR72H	852616.204	453922.566	7.478

C-1 Stages (ft NAVD88) - 2060

Name	Storm	Node X 0	Node Y 0	Max Water Elevation ft
C1-C-17	0100YR72H	852616.204	453922.566	7.790
C1-C-17	0500YR72H	852616.204	453922.566	8.452
C1-C-17	1000YR72H	852616.204	453922.566	8.676
C1-N-A	0005YR24H	850921.278	457862.766	7.104
C1-N-A	0010YR24H	850921.278	457862.766	7.582
C1-N-A	0025YR24H	850921.278	457862.766	7.976
C1-N-A	0005YR72H	850921.278	457862.766	7.673
C1-N-A	0010YR72H	850921.278	457862.766	7.949
C1-N-A	0025YR72H	850921.278	457862.766	8.031
C1-N-A	0050YR72H	850921.278	457862.766	8.194
C1-N-A	0100YR72H	850921.278	457862.766	8.336
C1-N-A	0500YR72H	850921.278	457862.766	8.802
C1-N-A	1000YR72H	850921.278	457862.766	8.976
C1-S-8A	0005YR24H	851042.026	455218.219	6.922
C1-S-8A	0010YR24H	851042.026	455218.219	7.040
C1-S-8A	0025YR24H	851042.026	455218.219	7.191
C1-S-8A	0005YR72H	851042.026	455218.219	7.077
C1-S-8A	0010YR72H	851042.026	455218.219	7.162
C1-S-8A	0025YR72H	851042.026	455218.219	7.264
C1-S-8A	0050YR72H	851042.026	455218.219	7.340
C1-S-8A	0100YR72H	851042.026	455218.219	7.683
C1-S-8A	0500YR72H	851042.026	455218.219	8.428
C1-S-8A	1000YR72H	851042.026	455218.219	8.664
C1-ZOO-A8	0005YR24H	854186.843	465163.185	7.954
C1-ZOO-A8	0010YR24H	854186.843	465163.185	8.057
C1-ZOO-A8	0025YR24H	854186.843	465163.185	8.206
C1-ZOO-A8	0005YR72H	854186.843	465163.185	8.183
C1-ZOO-A8	0010YR72H	854186.843	465163.185	8.269
C1-ZOO-A8	0025YR72H	854186.843	465163.185	9.212
C1-ZOO-A8	0050YR72H	854186.843	465163.185	9.800
C1-ZOO-A8	0100YR72H	854186.843	465163.185	9.905
C1-ZOO-A8	0500YR72H	854186.843	465163.185	10.092
C1-ZOO-A8	1000YR72H	854186.843	465163.185	10.164
C1-C-18	0005YR24H	855016.523	451552.010	2.998
C1-C-18	0010YR24H	855016.523	451552.010	3.951
C1-C-18	0025YR24H	855016.523	451552.010	5.706
C1-C-18	0005YR72H	855016.523	451552.010	4.341
C1-C-18	0010YR72H	855016.523	451552.010	5.531
C1-C-18	0025YR72H	855016.523	451552.010	6.664
C1-C-18	0050YR72H	855016.523	451552.010	7.281
C1-C-18	0100YR72H	855016.523	451552.010	7.642
C1-C-18	0500YR72H	855016.523	451552.010	8.406
C1-C-18	1000YR72H	855016.523	451552.010	8.646
C1-N-9-A	0005YR24H	856648.803	451466.129	6.816
C1-N-9-A	0010YR24H	856648.803	451466.129	7.194
C1-N-9-A	0025YR24H	856648.803	451466.129	7.423
C1-N-9-A	0005YR72H	856648.803	451466.129	7.199
C1-N-9-A	0010YR72H	856648.803	451466.129	7.364
C1-N-9-A	0025YR72H	856648.803	451466.129	7.795
C1-N-9-A	0050YR72H	856648.803	451466.129	7.960
C1-N-9-A	0100YR72H	856648.803	451466.129	7.945

C-1 Discharges (cfs) - 2060

Name	Storm	Upstream Node Name	Downstream Node Name	Max Flow cfs
C1-C-15BL	0100YR72H	C1-C-15B	C1-C-16	1050.900
C1-C-15BL	0500YR72H	C1-C-15B	C1-C-16	1303.487
C1-C-15BL	1000YR72H	C1-C-15B	C1-C-16	1412.212
C1-ENP-SEEPAGE.2.2.	0005YR24H	C1-C-15B	C1-ENP	0.000
C1-ENP-SEEPAGE.2.2.	0010YR24H			0.000
C1-ENP-SEEPAGE.2.2.	0025YR24H			0.000
C1-ENP-SEEPAGE.2.2.	0005YR72H			0.000
C1-ENP-SEEPAGE.2.2.	0010YR72H			0.000
C1-ENP-SEEPAGE.2.2.	0025YR72H			0.000
C1-ENP-SEEPAGE.2.2.	0050YR72H			0.000
C1-ENP-SEEPAGE.2.2.	0100YR72H			0.000
C1-ENP-SEEPAGE.2.2.	0500YR72H			0.000
C1-ENP-SEEPAGE.2.2.	1000YR72H			0.000
C1-C-16AL	0005YR24H	C1-C-16A	C1-C-17	700.101
C1-C-16AL	0010YR24H	C1-C-16A	C1-C-17	984.177
C1-C-16AL	0025YR24H	C1-C-16A	C1-C-17	1211.234
C1-C-16AL	0005YR72H	C1-C-16A	C1-C-17	1065.823
C1-C-16AL	0010YR72H	C1-C-16A	C1-C-17	1194.488
C1-C-16AL	0025YR72H	C1-C-16A	C1-C-17	1188.443
C1-C-16AL	0050YR72H	C1-C-16A	C1-C-17	1231.449
C1-C-16AL	0100YR72H	C1-C-16A	C1-C-17	1310.257
C1-C-16AL	0500YR72H	C1-C-16A	C1-C-17	1504.274
C1-C-16AL	1000YR72H	C1-C-16A	C1-C-17	1634.743
C1-C-17AL	0005YR24H	C1-C-17A	C1-C-18	746.199
C1-C-17AL	0010YR24H	C1-C-17A	C1-C-18	1037.292
C1-C-17AL	0025YR24H	C1-C-17A	C1-C-18	1299.061
C1-C-17AL	0005YR72H	C1-C-17A	C1-C-18	1116.715
C1-C-17AL	0010YR72H	C1-C-17A	C1-C-18	1267.902
C1-C-17AL	0025YR72H	C1-C-17A	C1-C-18	1322.197
C1-C-17AL	0050YR72H	C1-C-17A	C1-C-18	1357.604
C1-C-17AL	0100YR72H	C1-C-17A	C1-C-18	1496.095
C1-C-17AL	0500YR72H	C1-C-17A	C1-C-18	1566.736
C1-C-17AL	1000YR72H	C1-C-17A	C1-C-18	1666.155
C1-C-20BL	0005YR24H	C1-C-20B	C1-C-20C	858.549
C1-C-20BL	0010YR24H	C1-C-20B	C1-C-20C	1197.578
C1-C-20BL	0025YR24H	C1-C-20B	C1-C-20C	1545.292
C1-C-20BL	0005YR72H	C1-C-20B	C1-C-20C	1283.111
C1-C-20BL	0010YR72H	C1-C-20B	C1-C-20C	1483.648
C1-C-20BL	0025YR72H	C1-C-20B	C1-C-20C	1731.609
C1-C-20BL	0050YR72H	C1-C-20B	C1-C-20C	1915.527
C1-C-20BL	0100YR72H	C1-C-20B	C1-C-20C	1992.393
C1-C-20BL	0500YR72H	C1-C-20B	C1-C-20C	2213.255
C1-C-20BL	1000YR72H	C1-C-20B	C1-C-20C	2592.354
C1-C-23L	0005YR24H	C1-C-23	C1-C-23A	931.888
C1-C-23L	0010YR24H	C1-C-23	C1-C-23A	1267.260
C1-C-23L	0025YR24H	C1-C-23	C1-C-23A	1645.685
C1-C-23L	0005YR72H	C1-C-23	C1-C-23A	1348.037
C1-C-23L	0010YR72H	C1-C-23	C1-C-23A	1560.335
C1-C-23L	0025YR72H	C1-C-23	C1-C-23A	1831.714
C1-C-23L	0050YR72H	C1-C-23	C1-C-23A	2059.076
C1-C-23L	0100YR72H	C1-C-23	C1-C-23A	2247.949


SFWMD C-1 MAP
VATION AREA 3B
S335-S
SR 997
G423-C
G420-P
G422-P
C4MRSHSPILL-S
C-4
SR 968
C-5
SR 96
SR 90
SR 933
SR 90
S355A-S
L-29 BORROW ENLARGEMENT (CONVEYANCE)
S336-C
G119-C
S334-S
SR 90
TAMIAMI CANAL (C-4)
C-3 WEST
G93-S
SR 959
SR 953
SR 976
C-3
L-31N CANAL
KROME AVE DITCH
SW 157 AVE
SW 170 AVE CANAL
L-29 CC
C-2
SR 821
SR 985
SR 973
SR 826
SR 986
SR 878
SNAPPER CREEK CANAL (C-2)
SR 94
S121-C
DA-2-REVISAR
SR 825
C-100 WEST
SR 874
SR 990
S120-C
S22-S
G211-C
S338-C
EVERGLADES NATIONAL PARK
S119-S
DA-3-REVISAR
C-357
L-31N CC
C-1 WEST
C-100 EAST
8.5 SQ. MILE AREA
C-1 EXT @ SW 150 ST
SR 992
C-100A CANAL
BEGIN PROJECT
END PROJECT
S173-C
G114-W
S123-S
SOUTH BISCAYNE BAY
SW 168 ST DITCH SOUTH
S357-P
S331-P
S122-C
LEGEND
SFWMD-STRUCTURES
SFWMD-WATERSHEDS
C-1 EAST
C-1 WEST
S194-C
S149-C
SR 994
C-102 WEST
S148-S
C-1 EAST
DA-4
L-31NS
S195-C
S332BN-P
S165-S
S21-S
EAST COAST BUFFER
BD-C103 WEST
GOULDS CANAL
C-102 EAST
5,000 0 5,000 10,000 ft

QUICK REFERENCE TABLE FOR PILE-SUPPORTED FACILITIES CROSSING DISTRICT WORKS

NOTE: For pile-supported facilities crossing canals located in Collier County (Big Cypress Basin) please refer to the "Big Cypress Basin" section of this manual for information and criteria.

	DADE COUNTY AREA (except C-4 and C-6) See Footnote A	B	C	C-4	C-6 & SALINE (tidal) REACHES OF CANALS	EVERGLADES AGRICULTURAL AREA See Footnote D	KISSIMMEE RIVER BASIN See Footnote E	F	C-51	ALL OTHER CANALS
Minimum Center Span (Clear Opening)	25'	25'	25'	25'	Determined on a case by case basis	29'	40'	25'	29'	25'
Minimum Approach Bents (Measured on Centers)	20'	20'	20'	20'	Determined on a case by case basis	20'	20'	20'	20'	20'
Minimum Low Member Elevation	See Footnote 1 2	See Footnote 1	See Footnote	See Footnote 4	Determined on a case by case basis.	See Footnote 2	See Footnote 3 1	See Footnote	See Footnote 1	See Footnote 1

FOOTNOTES:

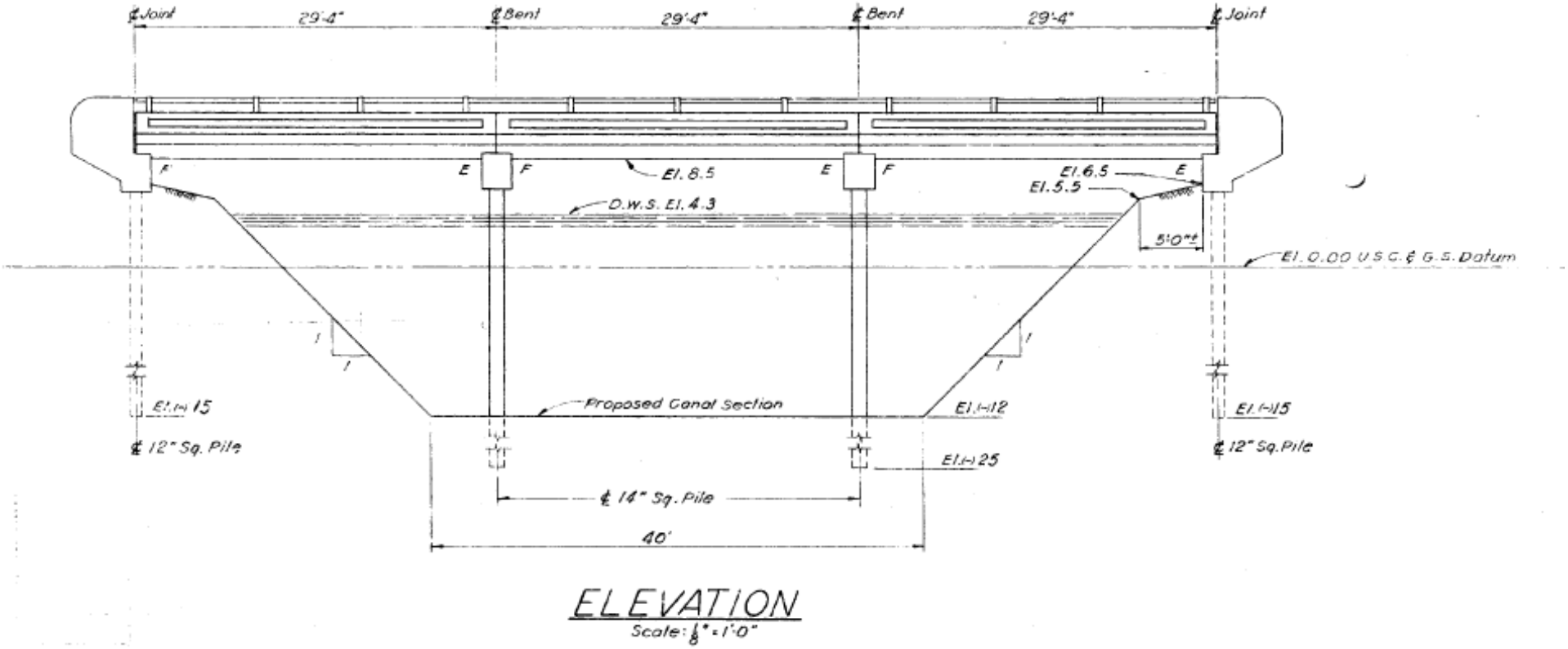
A applies to those canals with only one Water Control Structure.
B applies to those canals with two Water Control Structures – upstream of first Structure or east of U.S. #1.
C applies to those canals with two Water Control Structures – upstream of second Structure or west of U.S. #1.
D applies to the Borrow Canals for L-10, L-12, L-14, L-16, L-18, L-19, L-20, L-21, L-23, L-24 and L-25.
E applies to Canals C-35, C-36, C-37 and C-38.
F applies to Canals C-29, C-29A, C-29B, C-30, C-31, C-32B, C-32C, C-32D, C-32F and C-32G.

1 2' above design water surface elevation or 6' above seasonal high optimum water control elevation, whichever produces the higher low member elevation.
2 2' above design water surface elevation or 4.5' above seasonal high optimum water control elevation, whichever produces the higher low member elevation.
3 12' above seasonal high optimum water control elevation.
4 9' MSL/NGVD from the SCL Railroad easterly to the east side of Red Road.
13' MSL/NGVD from the east side of Red Road easterly to LeJeune Road.

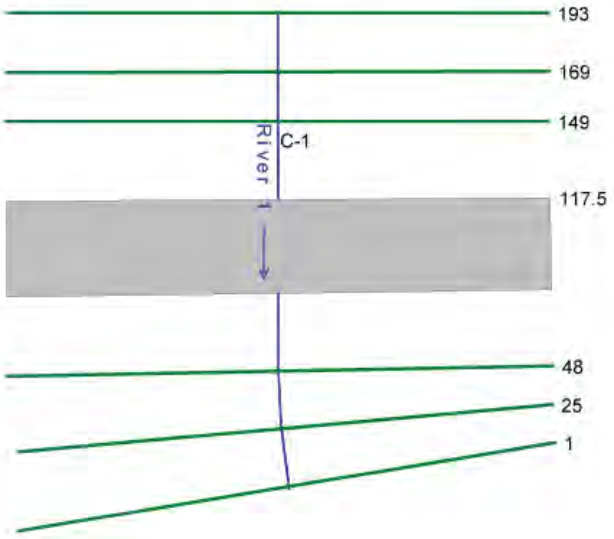
APPENDIX C

HEC-RAS ANALYSIS

PRE-DEVELOPMENT ANALYSIS



ELEVATION
Scale: 1/8" = 1'-0"


193
169
149
C-1
River 1
117.5
48
25
1

```
                    HEC-RAS HEC-RAS 6.0.0 Beta (Update 1) Dec 2020
                      U.S. Army Corps of Engineers
                     Hydrologic Engineering Center
                           609 Second Street
                           Davis, California
          X     X  XXXXXX    XXXX        XXXX       XX      XXXX
          X     X  X        X    X       X   X     X  X    X
          X     X  X        X            X   X    X    X   X
          XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
          X     X  X        X            X  X     X    X        X
          X     X  X        X    X       X   X    X    X        X
          X     X  XXXXXX    XXXX        X    X   X    X   XXXXX

PROJECT DATA
Project Title: Bridge over C-1
Project File : BridgeoverC-1.prj
Run Date and Time: 2/14/2023 10:59:59 AM
Project in English units

PLAN DATA
Plan Title: Plan 03
Plan File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC REPORT\HEC-RAS
MODEL\BridgeoverC-1.p03
           Geometry Title: Existing Bridge
           Geometry File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC
REPORT\HEC-RAS MODEL\BridgeoverC-1.g01
           Flow Title    : Flow Data
           Flow File     : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC
REPORT\HEC-RAS MODEL\BridgeoverC-1.f01
Plan Summary Information:
Number of:  Cross Sections =    6    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    Lateral Structures =    0
Computational Information
    Water surface calculation tolerance  =  0.01
    Critical depth calculation tolerance =  0.01
    Maximum number of iterations         =  20
```

```
    Maximum difference tolerance         =  0.3
    Flow tolerance factor                =  0.001
Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow

FLOW DATA
Flow Title: Flow Data
Flow File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC REPORT\HEC-RAS
MODEL\BridgeoverC-1.f01
Flow Data (cfs)

  River           Reach           RS                    PF 1            PF 2
  River 1         C-1             193                   1231            1634

Boundary Conditions

  River           Reach           Profile                       Upstream
Downstream

  River 1         C-1             PF 1                                                  Known WS =
7.48
  River 1         C-1             PF 2                                                  Known WS =
7.79


GEOMETRY DATA
Geometry Title: Existing Bridge
Geometry File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC REPORT\HEC-RAS
MODEL\BridgeoverC-1.g01
CROSS SECTION
RIVER: River 1
REACH: C-1                RS: 193
INPUT
Description:
```

Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	8.29	10.8	8.29	13.8	8.2	15.8	8.17	19.8	8.04
21.8	8.01	25.8	7.89	28.8	7.82	32.8	7.7	33.8	7.69
35.8	7.62	36.8	7.57	40.8	7.45	43.8	7.45	45.8	7.51
46.8	7.52	47.8	7.57	48.8	7.59	49.8	7.51	50.8	7.47
51.8	7.59	52.8	7.54	53.8	7.26	54.8	7.12	56.8	7.17
57.8	7.27	58.8	7.29	59.8	7.04	61.8	6.64	62.4	6.5
62.8	6.4	63.8	5.95	65.8	4.81	67.8	3.77	68.8	3.07
69.8	2.41	70.8	2.02	71.8	1.22	72.8	.12	74.8	-2.25
75.8	-3.4	76.8	-4.43	77.8	-5.15	78.8	-5.65	79.8	-6.22
80.8	-6.75	81.8	-7.35	83.8	-8.92	85.8	-10.55	86.8	-11.49
87.8	-12.39	88.8	-12.92	89.8	-13.12	91.8	-13.32	94.8	-13.65
95.4	-13.69	96.8	-13.74	97.8	-13.71	98.8	-13.63	99.8	-13.6
100.8	-13.67	101.8	-14.04	102.8	-14.39	103.8	-14.43	105.8	-14.39
106.8	-14.33	107.8	-14.22	108.8	-14.06	109.1	-14.1	109.4	-14.09
109.8	-14.13	110.8	-14.07	111.8	-13.88	112.8	-13.74	113.8	-13.73
114.8	-13.69	115.1	-13.75	115.4	-13.81	115.8	-13.86	116.8	-14.18
117.8	-14.15	118.8	-13.7	119.8	-13.19	120.8	-12.56	121.1	-12.29
121.4	-12.16	121.8	-11.89	122.1	-11.88	122.4	-11.84	122.8	-11.83
123.1	-11.84	123.4	-11.82	123.8	-11.83	124.1	-11.78	124.8	-11.69
125.8	-11.44	126.8	-11.16	127.1	-11.71	127.4	-12.09	127.8	-12.64
128.8	-13.19	129.1	-12.94	129.4	-12.75	129.8	-12.5	130.8	-11.72
131.8	-10.88	132.8	-10.08	133.8	-9.19	137.8	-5.98	139.8	-4.55
142.8	-2.55	143.8	-1.9	146.8	.15	147.8	.89	148.8	1.68
149.8	2.79	150.8	3.56	151.8	4.22	152.8	4.73	153.8	5.06
154.8	5.36	155.8	5.69	156.8	5.93	157.8	6.03	158.8	6.06
160.8	6	162.8	6	164.8	5.94	166.4	5.84	167.8	5.78
168.8	5.78	170.1	5.76	170.8	5.75	171.8	5.78	175.8	5.78
177.8	5.81	183.8	5.81	184.8	5.84	186.8	5.84	187.8	5.88
194.8	6.01	199.8	6.14	201.8	6.17	202.8	6.2	203.8	6.2
207.8	6.29	208.8	6.29	209.8	6.32	210.8	6.32	211.8	6.36
213.8	6.36	214.8	6.39	215.8	6.39				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	70.8	.035	149.8	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

```
          70.8   149.8                24      24      24              .1       .3
CROSS SECTION
RIVER: River 1
REACH: C-1                RS: 169
INPUT
Description:
Station Elevation Data    num=     143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.66    11.1    8.66    14.1    8.57    15.1    8.56    19.1    8.44
    20.1    8.38    24.1    8.25    25.3    8.18    27.1    8.12    28.1    8.06
    29.1    8.03    30.1    7.97    31.1    7.94    32.3    7.87    35.1    7.78
    36.1    7.72    37.1    7.69    38.1    7.69    40.1    7.62    41.1    7.62
    42.1    7.59    43.1    7.59    44.1    7.62    46.1    7.81    48.1    7.81
    49.1    7.84    52.1    7.84    55.1    7.75    57.1    7.62    61.1    7.26
    62.1     7.2    63.1    6.68    65.1    4.68    65.4    4.46    65.8    4.16
    66.1    3.93    68.1    2.75    69.1    2.14    70.1    1.48    71.1     .78
    72.1    -.04    74.1    -1.8    75.1   -2.49    83.1   -6.72    84.1   -7.32
    85.1   -8.28    89.1  -12.36    90.1  -12.95    91.1     -13    93.1  -13.02
    94.5  -12.99    95.1  -12.98    96.1     -13    99.1  -12.97   103.1     -13
   105.1  -12.96   106.1  -13.08   106.5  -13.19   106.7  -13.17   107.1  -13.28
   107.5  -13.32   107.7  -13.23   108.1  -13.27   109.1  -13.65   110.1  -14.13
   110.5  -14.31   110.7  -14.43   111.1   -14.6   111.5   -14.8   111.7     -15
   112.1   -15.2   112.5  -15.17   112.7   -15.2   113.1  -15.17   117.1  -14.38
   118.1  -14.21   119.1  -13.94   119.6  -13.95   119.7  -13.99   120.1     -14
   120.6  -13.47   120.7  -13.22   121.1  -12.69   122.1  -12.97   123.1  -13.23
   124.1  -13.34   124.7  -13.35   125.1  -13.35   126.1  -13.19   127.1   -13.1
   128.1  -12.96   130.1  -12.64   131.1   -12.8   132.1  -12.03   140.1   -5.58
   141.1   -4.67   142.1   -3.86   143.1   -3.13   145.1   -1.47   147.1     .16
   148.1     .94   149.1    1.78   150.1    2.67   151.1    3.44   152.1    4.44
   153.1     5.2   154.1    5.66   155.1    6.05   156.1    6.41   157.1     6.6
   158.1    6.64   159.1    6.64   166.1    6.42   167.1    6.36   169.1     6.3
   170.1    6.24   172.6    6.03   174.1    5.92   175.1    5.89   177.1    5.89
   178.1    5.91   183.1    6.07   184.1    6.11   185.1    6.17   186.1     6.3
   187.1    6.46   190.1    6.74   192.1    6.86   193.1    6.89   195.1    6.99
   196.1    7.02   197.1    7.02   199.1    7.08   200.1    7.08   201.1    7.11
   202.8    7.12   204.1    7.15   206.1    7.15   207.1    7.18   211.1    7.18
   213.1    7.19   214.1    7.21   216.1    7.21
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    69.1    .035   149.1     .03
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          69.1   149.1               20      20      20             .1       .3
CROSS SECTION
RIVER: River 1
REACH: C-1                RS: 149
INPUT
Description:
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.62    10.9    8.62    15.9     8.5    19.9    8.38    20.9    8.36
    21.9    8.31    27.9    8.12    28.9    8.06    31.9    7.95    32.9    7.89
    34.9    7.83    36.9    7.81    37.9    7.78    38.9    7.78    40.9    7.73
    41.9    7.73    42.9    7.78    43.9    7.86    44.9    7.97    45.9    8.03
    46.9    8.06    49.9    8.01    52.9    8.01    53.9       8    54.9    7.95
    58.9    7.56    60.9    7.41    62.9    7.22    63.9    7.14    64.9    6.53
    65.9    5.54    66.9    4.52    67.9    3.62    69.4    2.43    69.9    1.96
    70.9    1.24    71.9     .49    77.9   -4.45    78.9   -5.22    79.9   -5.77
    81.9   -6.82    82.9   -7.38    84.9   -9.02    88.9  -12.42    89.9  -12.95
    90.9  -13.04    91.9  -13.15    94.9  -13.53    95.9  -13.67    96.9  -13.78
    97.9  -13.85    98.9  -13.87   100.9  -13.76   101.9  -13.77   102.9  -14.09
   103.9  -14.47   104.9  -14.66   106.9  -14.59   108.9  -14.43   110.9  -14.31
   114.9  -13.54   115.9  -13.56   116.9  -13.87   117.9  -14.21   118.9  -14.16
   121.9  -12.42   122.9  -11.89   123.9  -11.64   125.4  -11.36   125.5  -11.31
   126.4  -11.12   126.5  -11.07   126.9  -10.97   127.9  -10.65   128.4   -11.1
   128.5  -11.29   128.9  -11.74   129.9  -12.99   132.9  -10.72   135.4    -8.8
   138.9   -5.92   139.9   -5.05   143.9   -1.43   146.9    1.25   147.9    1.92
   148.9    2.04   149.9    2.75   151.9    4.88   152.9    5.71   153.9    6.23
   155.9    7.12   156.9    7.44   157.9    7.59   158.9    7.62   159.9    7.59
   163.9     7.2   164.9    7.14   166.9    7.06   168.9    7.01   169.9    7.01
   170.9    6.98   171.9    6.98   174.9    6.89   178.9    6.88   180.9    6.84
   182.9    6.78   185.9    6.64   186.9    6.61   188.9    6.61   189.9    6.64
   190.9    6.64   194.9    6.77   196.9    6.86   204.9    7.11   205.9    7.12
   209.9    7.25   211.9    7.28   214.9    7.38   215.9    7.38
Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    69.9    .035   148.9     .03
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          69.9   148.9            100.6   100.6   100.6             .1       .3
BRIDGE
RIVER: River 1
REACH: C-1                RS: 117.5
INPUT
Description: Existing Bridge
Distance from Upstream XS =    31.5
Deck/Roadway Width        =      38
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      62   10.97    6.97     156   10.97    6.97
Upstream Bridge Cross Section Data
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.62    10.9    8.62    15.9     8.5    19.9    8.38    20.9    8.36
    21.9    8.31    27.9    8.12    28.9    8.06    31.9    7.95    32.9    7.89
    34.9    7.83    36.9    7.81    37.9    7.78    38.9    7.78    40.9    7.73
    41.9    7.73    42.9    7.78    43.9    7.86    44.9    7.97    45.9    8.03
    46.9    8.06    49.9    8.01    52.9    8.01    53.9       8    54.9    7.95
    58.9    7.56    60.9    7.41    62.9    7.22    63.9    7.14    64.9    6.53
    65.9    5.54    66.9    4.52    67.9    3.62    69.4    2.43    69.9    1.96
    70.9    1.24    71.9     .49    77.9   -4.45    78.9   -5.22    79.9   -5.77
    81.9   -6.82    82.9   -7.38    84.9   -9.02    88.9  -12.42    89.9  -12.95
    90.9  -13.04    91.9  -13.15    94.9  -13.53    95.9  -13.67    96.9  -13.78
    97.9  -13.85    98.9  -13.87   100.9  -13.76   101.9  -13.77   102.9  -14.09
   103.9  -14.47   104.9  -14.66   106.9  -14.59   108.9  -14.43   110.9  -14.31
   114.9  -13.54   115.9  -13.56   116.9  -13.87   117.9  -14.21   118.9  -14.16
   121.9  -12.42   122.9  -11.89   123.9  -11.64   125.4  -11.36   125.5  -11.31
   126.4  -11.12   126.5  -11.07   126.9  -10.97   127.9  -10.65   128.4   -11.1
   128.5  -11.29   128.9  -11.74   129.9  -12.99   132.9  -10.72   135.4    -8.8
   138.9   -5.92   139.9   -5.05   143.9   -1.43   146.9    1.25   147.9    1.92
   148.9    2.04   149.9    2.75   151.9    4.88   152.9    5.71   153.9    6.23
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   155.9    7.12   156.9    7.44   157.9    7.59   158.9    7.62   159.9    7.59
   163.9     7.2   164.9    7.14   166.9    7.06   168.9    7.01   169.9    7.01
   170.9    6.98   171.9    6.98   174.9    6.89   178.9    6.88   180.9    6.84
   182.9    6.78   185.9    6.64   186.9    6.61   188.9    6.61   189.9    6.64
   190.9    6.64   194.9    6.77   196.9    6.86   204.9    7.11   205.9    7.12
   209.9    7.25   211.9    7.28   214.9    7.38   215.9    7.38
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    69.9    .035   148.9     .03
Bank Sta: Left   Right    Coeff Contr.   Expan.
          69.9   148.9             .1       .3
Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      62   10.97    6.97     156   10.97    6.97
Downstream Bridge Cross Section Data
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.11    12.7    8.11    20.7    7.86    21.7    7.85    28.7    7.63
    30.7    7.61    35.3    7.47    36.7    7.45    43.7    7.44    44.7    7.38
    45.7    7.35    46.7    7.29    47.8    7.28    48.7    7.26    52.7    7.25
    53.7    7.22    56.6    7.22    57.7    7.18    61.7    7.18    62.7    7.14
    64.5    6.92    65.7    6.81    66.7    6.67    67.7    6.16    68.9    5.37
    70.7    4.22    72.4    3.17    73.7    2.32    74.7    1.73    75.7    1.62
    77.7    -.47    78.7   -1.55    80.7   -3.81    83.7   -7.11    85.7   -9.47
    86.7  -10.62    87.7   -11.3    88.1  -11.22    88.3  -11.21    88.7  -11.13
    89.7  -11.45    90.7  -11.84    91.7  -12.04    92.7  -12.15    93.7  -12.33
    93.9  -12.65    94.4  -12.99    94.7  -13.29    94.9  -13.47    95.4  -13.88
    95.7  -14.06    96.7  -14.24    98.7  -14.26    99.7  -14.32   102.8   -14.9
   103.7  -15.04   104.7  -15.16   105.7   -15.1   106.7  -14.94   107.7  -14.69
   110.7  -13.84   111.7  -13.61   112.7  -13.43   114.6  -13.13   116.7  -12.87
   117.7  -12.72   118.7  -12.59   119.7  -12.44   122.7  -12.07   123.7  -11.98
   124.7  -11.84   125.7  -11.64   126.7  -11.21   127.7  -10.56   128.7   -9.79
   129.7   -9.27   130.7    -8.7   131.7   -7.97   132.7   -7.14   133.7   -6.35
   134.7   -5.59   135.7   -4.92   136.7   -4.29   139.7   -2.51   140.7   -1.86
   141.7   -1.13   143.7     .52   145.7    1.68   146.7    2.08     147    2.32
   147.4    2.66   148.7    3.74   149.7    4.61   150.7    5.56   151.7    6.34
```

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   152.7    6.71   153.5     6.9   155.7    7.24   156.7    7.43   160.7    7.56
   161.7    7.56   162.7    7.59   164.7    7.59   165.7    7.56   171.7    7.56
   173.7    7.59   176.7    7.59   177.7    7.62   180.7    7.61   184.7     7.5
   185.7    7.44   187.7    7.39   188.7    7.44   189.7    7.56   190.7    7.72
   192.3    7.87   193.3    7.94   195.7    8.03   196.7    8.09   203.7    8.31
   204.9    8.32   206.7    8.38   207.8    8.38   209.7    8.44   212.7    8.47
   214.7    8.53   215.7    8.53   216.7    8.56   217.7    8.56
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    73.7    .035   146.7     .03
Bank Sta: Left   Right    Coeff Contr.   Expan.
          73.7   146.7             .1       .3
Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested
Number of Abutments =  2
Abutment Data
Upstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.55      62    8.55      62       5
Downstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.55      62    8.55      62       5
Abutment Data
Upstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
     156       5     156    8.55     220    8.55
Downstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
     156       5     156    8.55     220    8.55
Number of Piers =  2
Pier Data
Pier Station     Upstream=   91.33    Downstream=   91.33
```

```
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
       1     -20       1    3.97     2.5    3.97     2.5    6.97
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
       1     -20       1    3.97     2.5    3.97     2.5    6.97
Pier Data
Pier Station     Upstream=  120.66    Downstream=  120.66
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
       1     -20       1    3.97     2.5    3.97     2.5    6.97
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
       1     -20       1    3.97     2.5    3.97     2.5    6.97
Number of Bridge Coefficient Sets =  1
Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer
High Flow Method
       Energy Only
Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line
CROSS SECTION
RIVER: River 1
REACH: C-1                RS: 48
INPUT
Description:
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.11    12.7    8.11    20.7    7.86    21.7    7.85    28.7    7.63
    30.7    7.61    35.3    7.47    36.7    7.45    43.7    7.44    44.7    7.38
    45.7    7.35    46.7    7.29    47.8    7.28    48.7    7.26    52.7    7.25
    53.7    7.22    56.6    7.22    57.7    7.18    61.7    7.18    62.7    7.14
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    64.5    6.92    65.7    6.81    66.7    6.67    67.7    6.16    68.9    5.37
    70.7    4.22    72.4    3.17    73.7    2.32    74.7    1.73    75.7    1.62
    77.7    -.47    78.7   -1.55    80.7   -3.81    83.7   -7.11    85.7   -9.47
    86.7  -10.62    87.7   -11.3    88.1  -11.22    88.3  -11.21    88.7  -11.13
    89.7  -11.45    90.7  -11.84    91.7  -12.04    92.7  -12.15    93.7  -12.33
    93.9  -12.65    94.4  -12.99    94.7  -13.29    94.9  -13.47    95.4  -13.88
    95.7  -14.06    96.7  -14.24    98.7  -14.26    99.7  -14.32   102.8   -14.9
   103.7  -15.04   104.7  -15.16   105.7   -15.1   106.7  -14.94   107.7  -14.69
   110.7  -13.84   111.7  -13.61   112.7  -13.43   114.6  -13.13   116.7  -12.87
   117.7  -12.72   118.7  -12.59   119.7  -12.44   122.7  -12.07   123.7  -11.98
   124.7  -11.84   125.7  -11.64   126.7  -11.21   127.7  -10.56   128.7   -9.79
   129.7   -9.27   130.7    -8.7   131.7   -7.97   132.7   -7.14   133.7   -6.35
   134.7   -5.59   135.7   -4.92   136.7   -4.29   139.7   -2.51   140.7   -1.86
   141.7   -1.13   143.7     .52   145.7    1.68   146.7    2.08     147    2.32
   147.4    2.66   148.7    3.74   149.7    4.61   150.7    5.56   151.7    6.34
   152.7    6.71   153.5     6.9   155.7    7.24   156.7    7.43   160.7    7.56
   161.7    7.56   162.7    7.59   164.7    7.59   165.7    7.56   171.7    7.56
   173.7    7.59   176.7    7.59   177.7    7.62   180.7    7.61   184.7     7.5
   185.7    7.44   187.7    7.39   188.7    7.44   189.7    7.56   190.7    7.72
   192.3    7.87   193.3    7.94   195.7    8.03   196.7    8.09   203.7    8.31
   204.9    8.32   206.7    8.38   207.8    8.38   209.7    8.44   212.7    8.47
   214.7    8.53   215.7    8.53   216.7    8.56   217.7    8.56
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    73.7    .035   146.7     .03
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          73.7   146.7               28    23.2      17              .1       .3
CROSS SECTION
RIVER: River 1
REACH: C-1                RS: 25
INPUT
Description:
Station Elevation Data    num=     155
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     7.4    12.3     7.4    23.4    6.84    30.4    6.58    34.4    6.56
    35.4    6.58    37.4    6.54    38.4    6.51    40.4    6.49    41.4    6.46
    42.4    6.45    45.5    6.54    46.5    6.54    50.5    6.38    51.5    6.37
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    53.3    6.31    54.5    6.29    55.5    6.25    57.5    6.12    58.5    6.08
    60.5    5.98    62.5    5.84    63.4     5.7    63.5    5.67    64.5    5.04
    66.5    3.57    67.5     2.8    68.5    2.08    69.9     1.8    70.3    1.63
    70.6    1.56    71.6     .82    72.6     .05    79.6   -5.18    81.6    -6.7
    82.6   -7.41    83.7   -8.25    84.6    -8.9    86.6  -11.15    87.6  -12.13
    88.6  -12.42    89.6  -12.29    90.6  -12.13    91.6  -12.12      92  -12.16
    92.3  -12.17    92.6  -12.21    92.9  -12.33    93.4  -12.67    93.6  -12.78
    93.8   -12.9    94.5  -13.21    94.6  -13.28    94.7  -13.25    95.7  -13.09
    97.7  -12.84    98.7  -12.78    99.7   -12.8     100  -12.74   100.3  -12.68
   100.7  -12.62   102.7  -13.08   106.7  -14.07   108.6  -14.34   108.7  -14.34
   108.9   -14.2   109.5  -13.41   109.7  -13.22   110.7  -12.98   111.7  -13.69
   112.7  -14.31   113.7  -14.64   114.7   -14.7   115.7  -14.58   116.7  -14.35
   116.9  -14.31   117.7     -14   118.7  -13.73   118.8  -13.75   119.6  -13.96
   119.7  -14.04   119.9  -13.92   120.6  -13.33   120.7  -13.14   121.8  -12.69
   123.8  -12.39   124.8  -12.26   125.8  -12.04   126.1  -11.78   126.5  -11.36
   126.8  -11.11   127.9  -10.22   128.7   -9.69   129.8   -8.87   130.8   -8.03
   131.8   -7.11     132   -6.88   132.5   -6.13   132.8   -5.85   133.8    -5.4
   134.8   -5.02   135.3   -4.46   135.8   -3.85   136.2   -3.26   136.4   -3.07
   136.8   -2.51   137.2   -2.35   137.5   -2.22   138.1   -1.96   138.6   -1.82
   138.8   -1.73   139.8   -1.16   141.8     .03   143.8    1.17   144.8    1.56
   145.8    2.26   147.9    4.78   148.9    5.54   149.9    5.62   150.9    5.79
   153.9    6.53   154.9    6.67   155.9    6.76   156.9    6.82   157.9    6.84
   159.9    6.93   161.7    6.97     163    6.97   163.9       7   164.8    6.99
   165.9    7.02   167.6    7.12   168.9    7.16   169.9    7.21   170.9     7.3
     173    7.41     174    7.44     175    7.41   176.8     7.4     178    7.36
     179     7.3     180    7.28     184    7.29     185    7.32     186    7.31
     187    7.34   187.9    7.34     192    7.41     197    7.53   198.1    7.53
   201.1    7.62   204.1    7.67   211.1    7.87   212.1    7.88216.4922    7.99
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    68.5    .035   145.8     .03
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          68.5   145.8               31    23.5      19              .1       .3
CROSS SECTION
RIVER: River 1
REACH: C-1                RS: 1
INPUT
```

Description:
Station Elevation Data num= 164

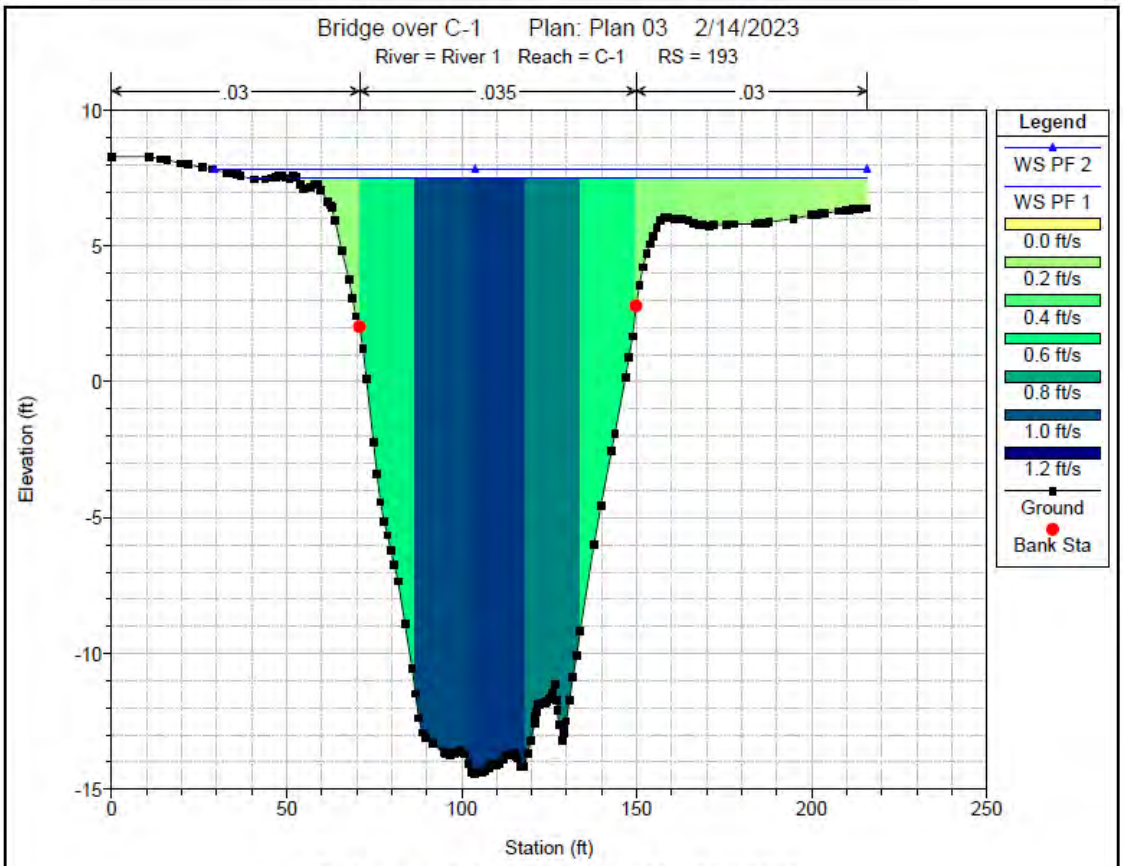
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	6.97	13.6	6.97	14.9	6.91	18.6	6.7	19.8	6.65
21.7	6.53	23.7	6.44	25.8	6.31	27.4	6.26	30	6.12
31.8	6.06	32.8	6	33.9	5.97	35.9	5.94	39.9	5.81
42	5.78	43	5.79	45.7	5.94	47	5.98	50.1	5.97
51.1	5.94	52.1	5.94	54.1	5.89	56.2	5.81	58.2	5.67
60.2	5.56	61.2	5.41	62.2	5.03	64.3	4.16	65.3	3.44
66.3	2.56	67.3	1.9	68.5	1.22	69.2	.7	71.4	-.89
72.4	-1.54	72.7	-1.76	73.4	-2.27	74.4	-3.04	75.4	-3.97
76.8	-4.78	79.2	-6.16	80.5	-6.92	82.5	-8.57	83.5	-9.58
85.5	-11.8	85.7	-11.96	86.6	-12.54	87	-12.61	87.6	-12.68
88.4	-12.53	89.6	-12.22	90.6	-12.22	91.6	-12.86	92.6	-13.42
93.1	-13.29	93.6	-13.14	94.7	-13	95.7	-12.83	96.7	-12.8
97.7	-12.86	97.9	-12.82	98.6	-12.63	98.7	-12.6	98.8	-12.61
99.7	-12.72	100.7	-12.98	101.8	-13.28	104.8	-14.12	105.8	-14.42
106.6	-14.62	106.8	-14.64	107.8	-12.51	108.4	-12.82	108.9	-13.08
109.2	-13.34	109.5	-13.58	109.9	-13.83	110.9	-14.48	111.9	-14.85
112.9	-14.98	113.9	-14.89	114.9	-14.5	116	-13.87	116.2	-13.67
117	-13.05	117.1	-12.99	117.9	-12.79	118	-12.78	119	-14.56
119.2	-14.42	119.7	-14.13	120	-13.96	121	-13.5	122	-13.19
123.2	-12.97	124.1	-12.78	124.9	-12.22	125.1	-12.09	126.1	-10.27
127.1	-9.06	128.1	-8.56	129.1	-8.04	129.3	-7.92	130.2	-6.92
131	-5.93	131.2	-5.77	131.9	-5.64	132.2	-5.56	133.2	-5.47
134.2	-4.3	135.2	-2.65	136.2	-1.97	137.1	-1.83	137.2	-1.79
138.2	-1.47	139.3	-1.08	140.6	-.4	142.3	.48	144.3	1.53
145.3	1.56	146.4	1.23	147.4	3.09	148.4	4.62	149.4	5.55
150.1	5.78	150.4	5.83	153.4	6.39	154.5	6.53	155.5	6.63
156.5	6.7	158.5	6.77	161.6	6.78	162.6	6.81	166.5	6.81
167.6	6.84	168.6	6.84	169.7	6.88	170.7	6.88	175.7	7.03
177.8	7.15	178.9	7.19	182.8	7.19	183.9	7.22	186.9	7.22
187.9	7.25	190.8	7.25	192	7.28	193	7.28	195	7.31
196.9	7.32	198	7.34	202.1	7.38	203.1	7.41	205.1	7.41
206.1	7.44	208.2	7.45	209.2	7.47	211.2	7.47	213.2	7.5
215.1	7.5	216.3	7.53	217.2	7.53	219.8857	7.57		

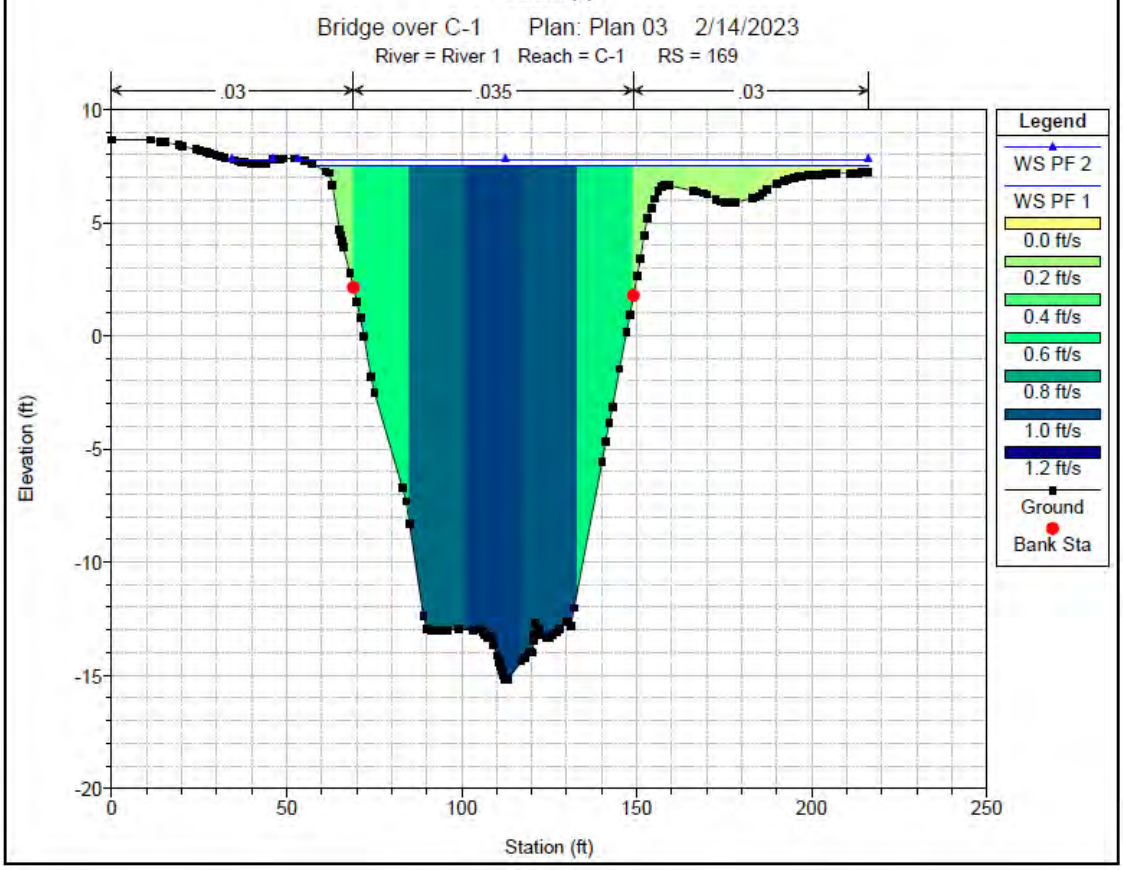
Manning's n Values num= 3

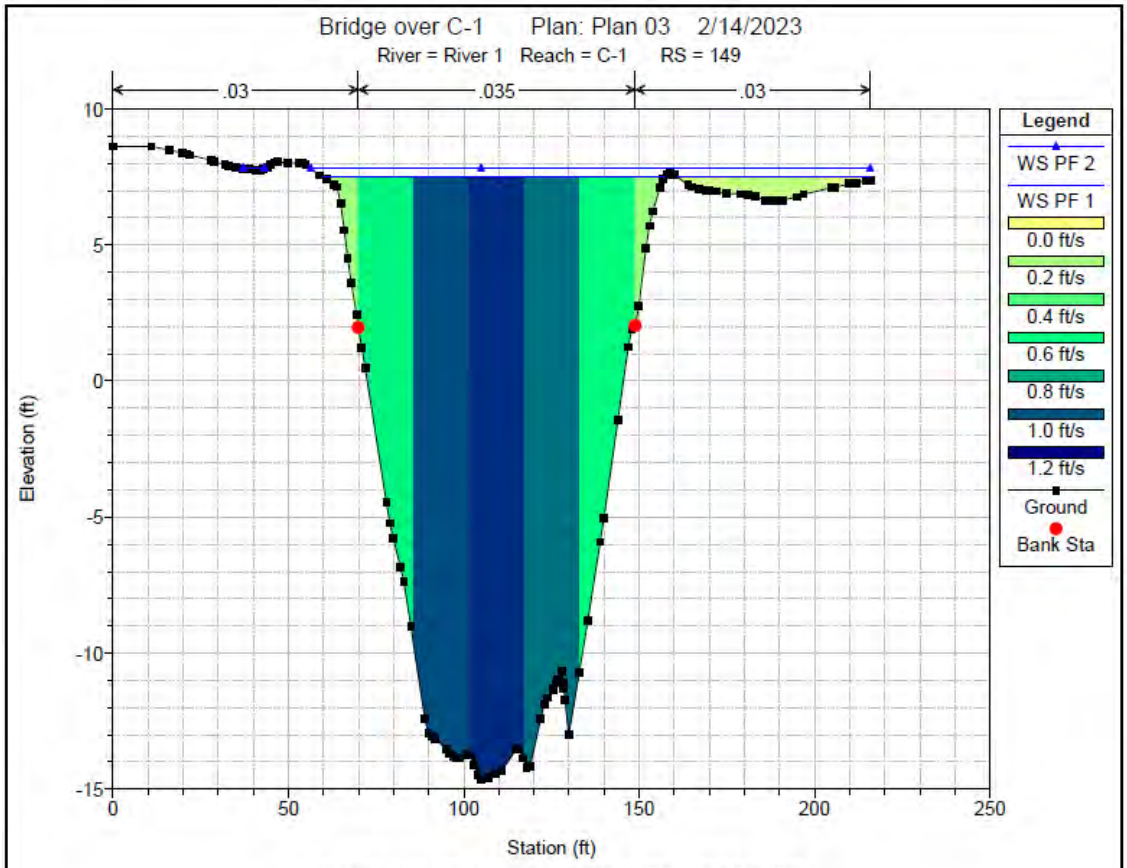
```
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    67.3    .035   145.3     .03
Bank Sta: Left   Right    Coeff Contr.   Expan.
          67.3   145.3             .1       .3
39.85     1578.65     15.50      219.89
```

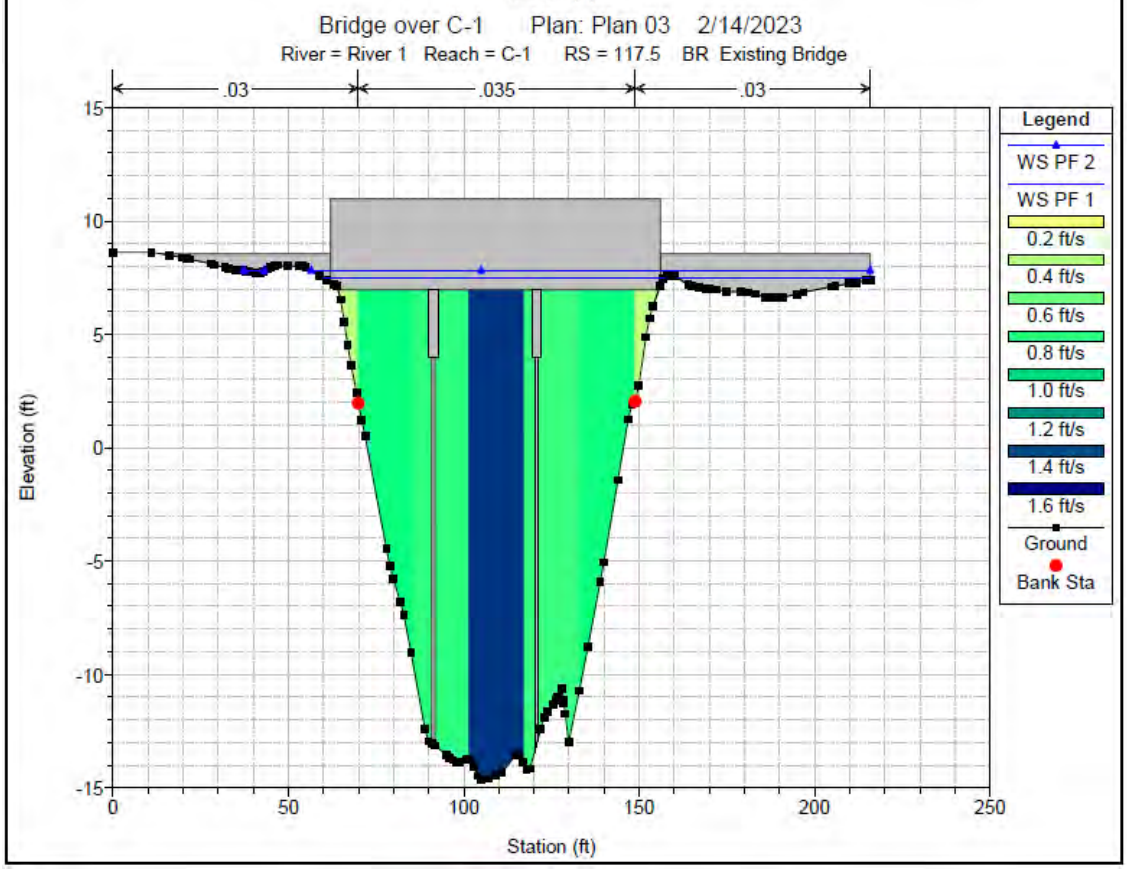
HEC-RAS Plan: Plan 03 River: River 1 Reach: C-1

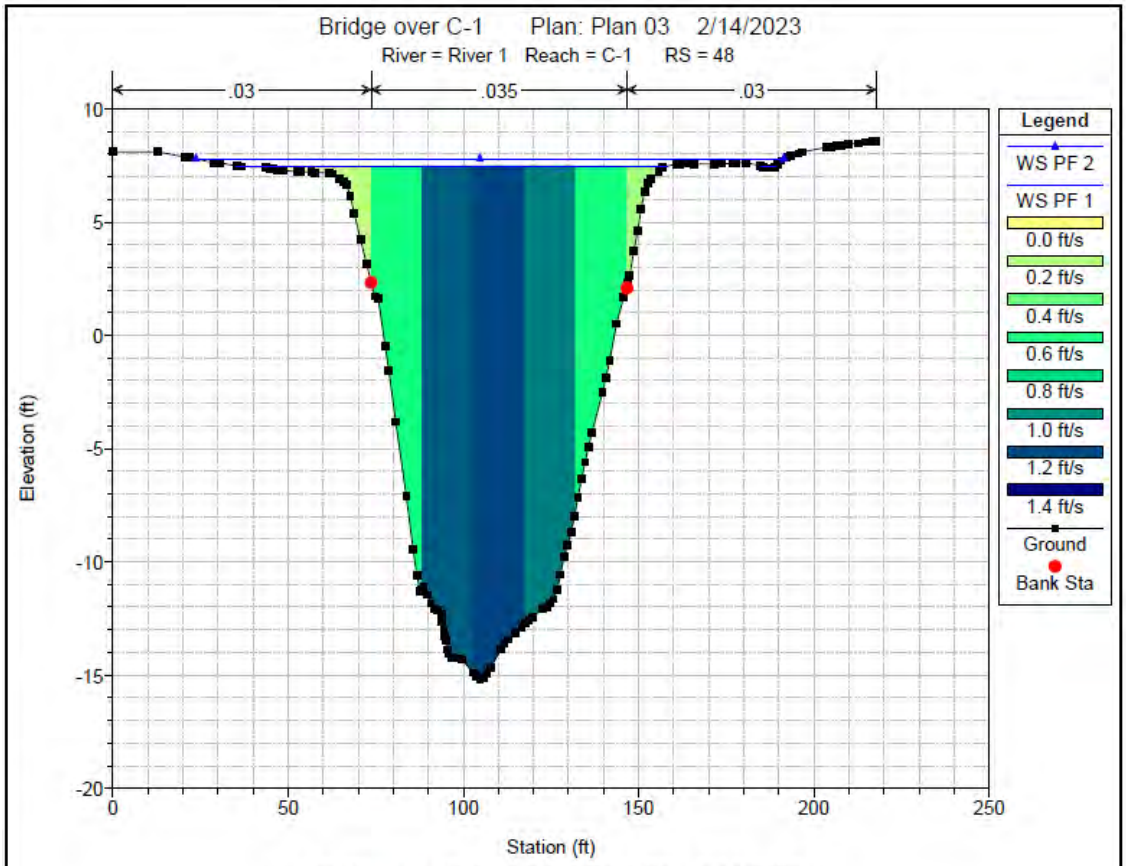
Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
C-1	193	PF 1	7.50	7.49	0.01	0.00	0.00	7.12	1198.57	25.32	169.07
C-1	193	PF 2	7.83	7.81	0.02	0.00	0.00	9.02	1581.53	43.45	186.53
C-1	169	PF 1	7.50	7.49	0.01	0.00	0.00	5.30	1212.65	13.05	157.54
C-1	169	PF 2	7.83	7.81	0.02	0.00	0.00	7.21	1601.27	25.52	174.56
C-1	149	PF 1	7.50	7.49	0.01	0.00	0.00	4.19	1218.89	7.92	152.31
C-1	149	PF 2	7.83	7.80	0.02	0.00	0.00	6.23	1612.77	15.00	165.58
C-1	117.5		Bridge								
C-1	48	PF 1	7.50	7.48	0.02	0.00	0.00	4.30	1221.87	4.83	127.20
C-1	48	PF 2	7.81	7.79	0.03	0.00	0.00	9.19	1619.00	5.81	167.76
C-1	25	PF 1	7.49	7.48	0.01	0.00	0.00	12.18	1214.67	4.15	194.91
C-1	25	PF 2	7.81	7.79	0.02	0.00	0.00	24.80	1599.49	9.71	208.28
C-1	1	PF 1	7.49	7.48	0.01			22.50	1201.83	6.67	211.87
C-1	1	PF 2	7.81	7.79	0.02			39.85	1578.65	15.50	219.89

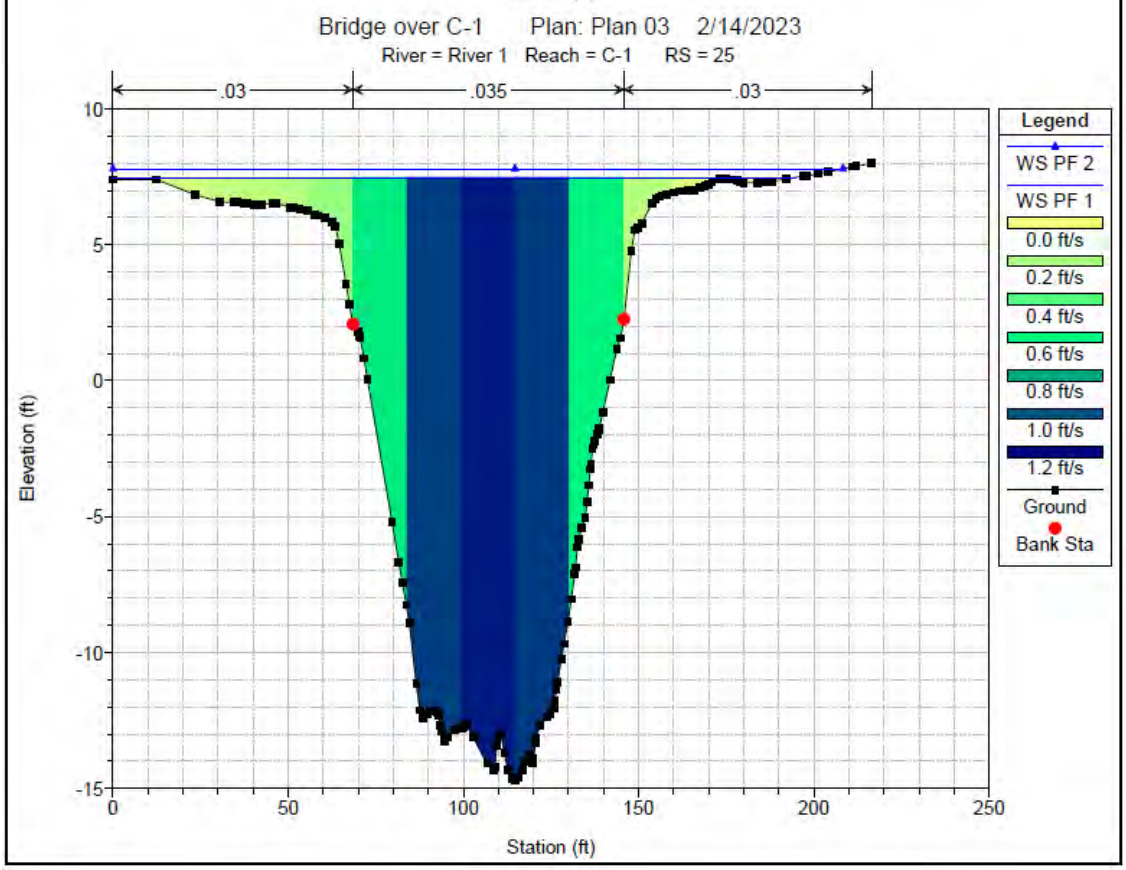

Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 193
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta

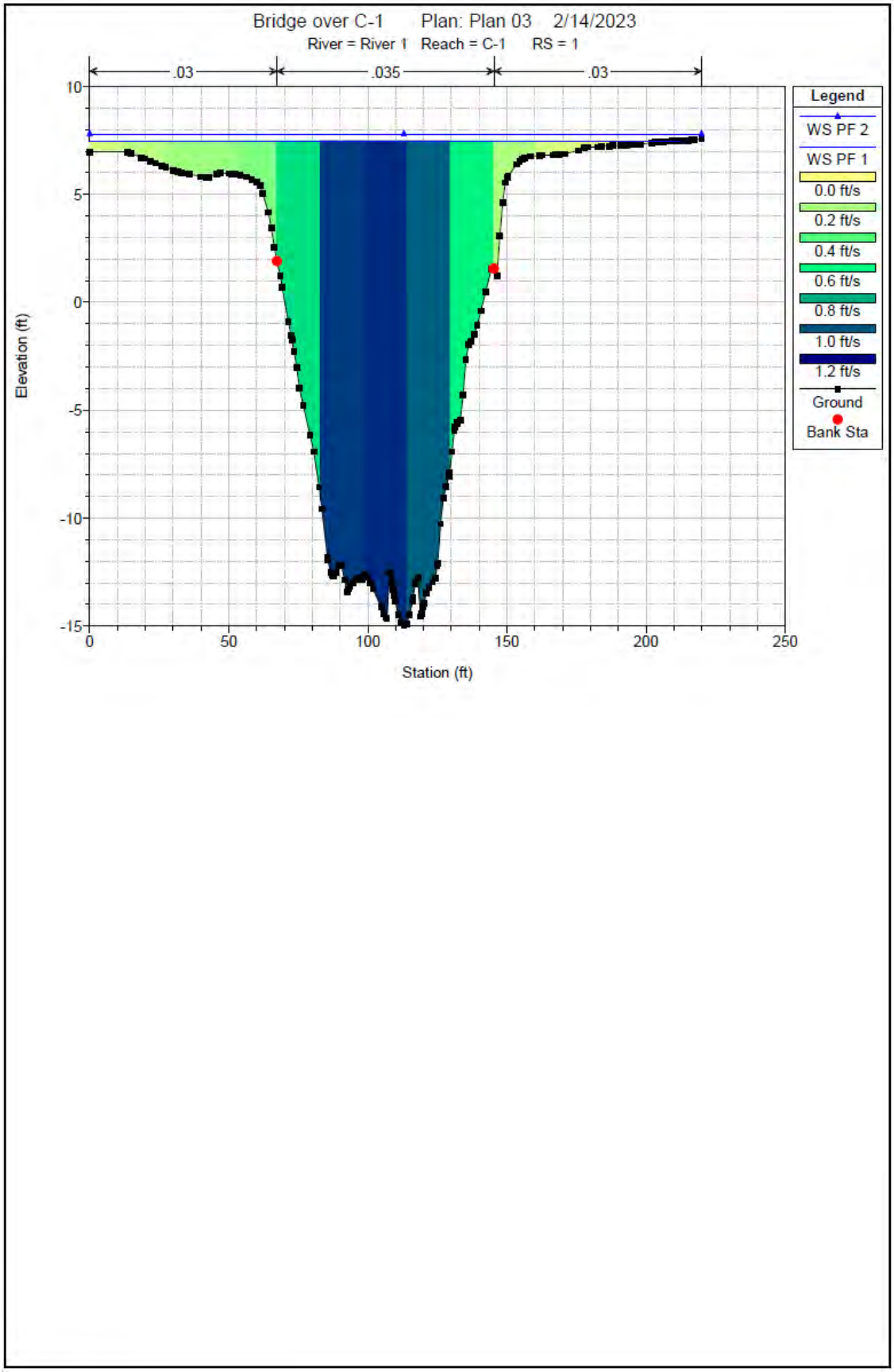

Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 169
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 149
.03
.035
.03
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)

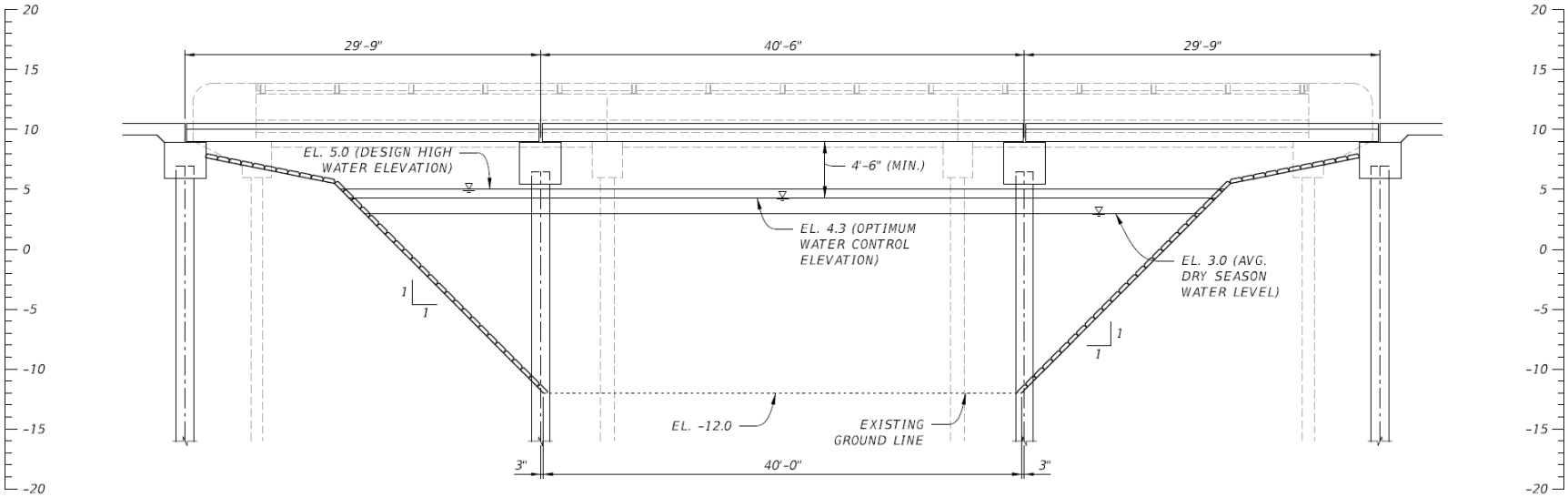

Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 117.5 BR Existing Bridge
.03
.035
.03
Legend
WS PF 2
WS PF 1
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
1.4 ft/s
1.6 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)

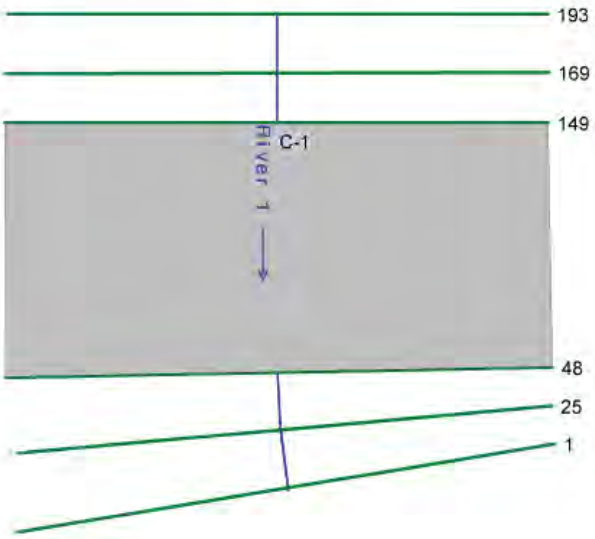

Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 48
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
1.4 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 25
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 2/14/2023
River = River 1 Reach = C-1 RS = 1
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta

POST-DEVELOPMENT ANALYSIS


20
15
10
5
0
-5
-10
-15
-20
29'-9"
40'-6"
29'-9"
EL. 5.0 (DESIGN HIGH WATER ELEVATION)
4'-6" (MIN.)
EL. 4.3 (OPTIMUM WATER CONTROL ELEVATION)
EL. 3.0 (AVG. DRY SEASON WATER LEVEL)
1
1
1
1
EL. -12.0
EXISTING GROUND LINE
3"
40'-0"
3"


193
169
149
C-1
River 1
48
25
1

```
                    HEC-RAS HEC-RAS 6.0.0 Beta (Update 1) Dec 2020
                      U.S. Army Corps of Engineers
                     Hydrologic Engineering Center
                           609 Second Street
                           Davis, California


          X     X  XXXXXX    XXXX        XXXX       XX      XXXX
          X     X  X        X    X       X   X     X  X    X
          X     X  X        X            X   X    X    X   X
          XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
          X     X  X        X            X  X     X    X        X
          X     X  X        X    X       X   X    X    X        X
          X     X  XXXXXX    XXXX        X    X   X    X   XXXXX



PROJECT DATA
Project Title: Bridge over C-1
Project File : BridgeoverC-1.prj
Run Date and Time: 6/11/2024 1:15:17 PM

Project in English units



PLAN DATA

Plan Title: Plan 03
Plan File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC REPORT\HEC-RAS
MODEL\BridgeoverC-1.p03

           Geometry Title: Proposed Bridge
           Geometry File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC
REPORT\HEC-RAS MODEL\BridgeoverC-1.g02
```

```
            Flow Title     : Flow Data
            Flow File      : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC
REPORT\HEC-RAS MODEL\BridgeoverC-1.f01

Plan Summary Information:
Number of:  Cross Sections =    6    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    Lateral Structures =    0

Computational Information
    Water surface calculation tolerance  =  0.01
    Critical depth calculation tolerance =  0.01
    Maximum number of iterations         =  20
    Maximum difference tolerance         =  0.3
    Flow tolerance factor                =  0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow



FLOW DATA

Flow Title: Flow Data
Flow File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC REPORT\HEC-RAS
MODEL\BridgeoverC-1.f01

Flow Data (cfs)

  River           Reach           RS                    PF 1            PF 2
  River 1         C-1             193                   1231            1634
```

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
River 1	C-1	PF 1		Known WS = 7.48
River 1	C-1	PF 2		Known WS = 7.79

GEOMETRY DATA

Geometry Title: Proposed Bridge
Geometry File : z:\PROJECTS\FDOT\D6\2022\GF_Quail Rost Drive_PD&E\BRIDGE HYDRAULIC REPORT\HEC-RAS MODEL\BridgeoverC-1.g02

CROSS SECTION

RIVER: River 1
REACH: C-1 RS: 193

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	8.29	10.8	8.29	13.8	8.2	15.8	8.17	19.8	8.04
21.8	8.01	25.8	7.89	28.8	7.82	32.8	7.7	33.8	7.69
35.8	7.62	36.8	7.57	40.8	7.45	43.8	7.45	45.8	7.51
46.8	7.52	47.8	7.57	48.8	7.59	49.8	7.51	50.8	7.47
51.8	7.59	52.8	7.54	53.8	7.26	54.8	7.12	56.8	7.17
57.8	7.27	58.8	7.29	59.8	7.04	61.8	6.64	62.4	6.5
62.8	6.4	63.8	5.95	65.8	4.81	67.8	3.77	68.8	3.07
69.8	2.41	70.8	2.02	71.8	1.22	72.8	.12	74.8	-2.25

```
    75.8    -3.4    76.8   -4.43    77.8   -5.15    78.8   -5.65    79.8   -6.22
    80.8   -6.75    81.8   -7.35    83.8   -8.92    85.8  -10.55    86.8  -11.49
    87.8  -12.39    88.8  -12.92    89.8  -13.12    91.8  -13.32    94.8  -13.65
    95.4  -13.69    96.8  -13.74    97.8  -13.71    98.8  -13.63    99.8   -13.6
   100.8  -13.67   101.8  -14.04   102.8  -14.39   103.8  -14.43   105.8  -14.39
   106.8  -14.33   107.8  -14.22   108.8  -14.06   109.1   -14.1   109.4  -14.09
   109.8  -14.13   110.8  -14.07   111.8  -13.88   112.8  -13.74   113.8  -13.73
   114.8  -13.69   115.1  -13.75   115.4  -13.81   115.8  -13.86   116.8  -14.18
   117.8  -14.15   118.8   -13.7   119.8  -13.19   120.8  -12.56   121.1  -12.29
   121.4  -12.16   121.8  -11.89   122.1  -11.88   122.4  -11.84   122.8  -11.83
   123.1  -11.84   123.4  -11.82   123.8  -11.83   124.1  -11.78   124.8  -11.69
   125.8  -11.44   126.8  -11.16   127.1  -11.71   127.4  -12.09   127.8  -12.64
   128.8  -13.19   129.1  -12.94   129.4  -12.75   129.8   -12.5   130.8  -11.72
   131.8  -10.88   132.8  -10.08   133.8   -9.19   137.8   -5.98   139.8   -4.55
   142.8   -2.55   143.8    -1.9   146.8     .15   147.8     .89   148.8    1.68
   149.8    2.79   150.8    3.56   151.8    4.22   152.8    4.73   153.8    5.06
   154.8    5.36   155.8    5.69   156.8    5.93   157.8    6.03   158.8    6.06
   160.8       6   162.8       6   164.8    5.94   166.4    5.84   167.8    5.78
   168.8    5.78   170.1    5.76   170.8    5.75   171.8    5.78   175.8    5.78
   177.8    5.81   183.8    5.81   184.8    5.84   186.8    5.84   187.8    5.88
   194.8    6.01   199.8    6.14   201.8    6.17   202.8     6.2   203.8     6.2
   207.8    6.29   208.8    6.29   209.8    6.32   210.8    6.32   211.8    6.36
   213.8    6.36   214.8    6.39   215.8    6.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    70.8    .035   149.8     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          70.8   149.8               24      24      24             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1

  E.G. Elev (ft)              7.50    Element                    Left OB    Channel   Right OB
  Vel Head (ft)               0.01    Wt. n-Val.                  0.030      0.035      0.030
  W.S. Elev (ft)              7.49    Reach Len. (ft)             24.00      24.00      24.00
  Crit W.S. (ft)                      Flow Area (sq ft)           30.35    1344.98     107.32
```

E.G. Slope (ft/ft)	0.000012	Area (sq ft)	30.35	1344.98	107.32
Q Total (cfs)	1231.00	Flow (cfs)	7.12	1198.56	25.32
Top Width (ft)	169.08	Top Width (ft)	24.08	79.00	66.00
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)	0.23	0.89	0.24
Max Chl Dpth (ft)	21.92	Hydr. Depth (ft)	1.26	17.03	1.63
Conv. Total (cfs)	350700.7	Conv. (cfs)	2027.5	341459.5	7213.7
Length Wtd. (ft)	24.00	Wetted Per. (ft)	25.38	91.98	67.88
Min Ch El (ft)	-14.43	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.12	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.11	5.49	0.16
C & E Loss (ft)	0.00	Cum SA (acres)	0.10	0.32	0.14

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	7.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.81	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)		Flow Area (sq ft)	41.43	1369.96	128.18
E.G. Slope (ft/ft)	0.000020	Area (sq ft)	41.43	1369.96	128.18
Q Total (cfs)	1634.00	Flow (cfs)	9.02	1581.55	43.43
Top Width (ft)	186.51	Top Width (ft)	41.51	79.00	66.00
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)	0.22	1.15	0.34
Max Chl Dpth (ft)	22.24	Hydr. Depth (ft)	1.00	17.34	1.94
Conv. Total (cfs)	363768.2	Conv. (cfs)	2007.0	352091.7	9669.5
Length Wtd. (ft)	24.00	Wetted Per. (ft)	42.83	91.98	68.20
Min Ch El (ft)	-14.43	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.15	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.14	5.59	0.21
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.33	0.15

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: River 1
REACH: C-1 RS: 169

INPUT
Description:
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	8.66	11.1	8.66	14.1	8.57	15.1	8.56	19.1	8.44
20.1	8.38	24.1	8.25	25.3	8.18	27.1	8.12	28.1	8.06
29.1	8.03	30.1	7.97	31.1	7.94	32.3	7.87	35.1	7.78
36.1	7.72	37.1	7.69	38.1	7.69	40.1	7.62	41.1	7.62
42.1	7.59	43.1	7.59	44.1	7.62	46.1	7.81	48.1	7.81
49.1	7.84	52.1	7.84	55.1	7.75	57.1	7.62	61.1	7.26
62.1	7.2	63.1	6.68	65.1	4.68	65.4	4.46	65.8	4.16
66.1	3.93	68.1	2.75	69.1	2.14	70.1	1.48	71.1	.78
72.1	-.04	74.1	-1.8	75.1	-2.49	83.1	-6.72	84.1	-7.32
85.1	-8.28	89.1	-12.36	90.1	-12.95	91.1	-13	93.1	-13.02
94.5	-12.99	95.1	-12.98	96.1	-13	99.1	-12.97	103.1	-13
105.1	-12.96	106.1	-13.08	106.5	-13.19	106.7	-13.17	107.1	-13.28
107.5	-13.32	107.7	-13.23	108.1	-13.27	109.1	-13.65	110.1	-14.13
110.5	-14.31	110.7	-14.43	111.1	-14.6	111.5	-14.8	111.7	-15
112.1	-15.2	112.5	-15.17	112.7	-15.2	113.1	-15.17	117.1	-14.38
118.1	-14.21	119.1	-13.94	119.6	-13.95	119.7	-13.99	120.1	-14
120.6	-13.47	120.7	-13.22	121.1	-12.69	122.1	-12.97	123.1	-13.23
124.1	-13.34	124.7	-13.35	125.1	-13.35	126.1	-13.19	127.1	-13.1
128.1	-12.96	130.1	-12.64	131.1	-12.8	132.1	-12.03	140.1	-5.58
141.1	-4.67	142.1	-3.86	143.1	-3.13	145.1	-1.47	147.1	.16
148.1	.94	149.1	1.78	150.1	2.67	151.1	3.44	152.1	4.44
153.1	5.2	154.1	5.66	155.1	6.05	156.1	6.41	157.1	6.6
158.1	6.64	159.1	6.64	166.1	6.42	167.1	6.36	169.1	6.3
170.1	6.24	172.6	6.03	174.1	5.92	175.1	5.89	177.1	5.89

178.1	5.91	183.1	6.07	184.1	6.11	185.1	6.17	186.1	6.3
187.1	6.46	190.1	6.74	192.1	6.86	193.1	6.89	195.1	6.99
196.1	7.02	197.1	7.02	199.1	7.08	200.1	7.08	201.1	7.11
202.8	7.12	204.1	7.15	206.1	7.15	207.1	7.18	211.1	7.18
213.1	7.19	214.1	7.21	216.1	7.21				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	69.1	.035	149.1	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
69.1	149.1	20	20	20	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	7.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.49	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)		Flow Area (sq ft)	21.24	1356.38	72.72
E.G. Slope (ft/ft)	0.000012	Area (sq ft)	21.24	1356.38	72.72
Q Total (cfs)	1231.00	Flow (cfs)	5.30	1212.64	13.05
Top Width (ft)	157.54	Top Width (ft)	10.54	80.00	67.00
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)	0.25	0.89	0.18
Max Chl Dpth (ft)	22.69	Hydr. Depth (ft)	2.01	16.95	1.09
Conv. Total (cfs)	352222.5	Conv. (cfs)	1517.8	346970.2	3734.5
Length Wtd. (ft)	20.00	Wetted Per. (ft)	12.25	91.71	68.88
Min Ch El (ft)	-15.20	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.09	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.10	4.75	0.11
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	0.28	0.10

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	7.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.80	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)		Flow Area (sq ft)	26.77	1381.64	93.87
E.G. Slope (ft/ft)	0.000020	Area (sq ft)	26.77	1381.64	93.87
Q Total (cfs)	1634.00	Flow (cfs)	7.21	1601.29	25.50
Top Width (ft)	174.52	Top Width (ft)	27.52	80.00	67.00
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)	0.27	1.16	0.27
Max Chl Dpth (ft)	23.00	Hydr. Depth (ft)	0.97	17.27	1.40
Conv. Total (cfs)	365115.5	Conv. (cfs)	1611.3	357806.0	5698.2
Length Wtd. (ft)	20.00	Wetted Per. (ft)	29.26	91.71	69.19
Min Ch El (ft)	-15.20	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.11	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.13	4.83	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.10	0.28	0.12

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: River 1
REACH: C-1 RS: 149

INPUT
Description:
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	8.62	10.9	8.62	15.9	8.5	19.9	8.38	20.9	8.36
21.9	8.31	27.9	8.12	28.9	8.06	31.9	7.95	32.9	7.89
34.9	7.83	36.9	7.81	37.9	7.78	38.9	7.78	40.9	7.73
41.9	7.73	42.9	7.78	43.9	7.86	44.9	7.97	45.9	8.03
46.9	8.06	49.9	8.01	52.9	8.01	53.9	8	54.9	7.95
58.9	7.56	60.9	7.41	62.9	7.22	63.9	7.14	64.9	6.53

65.46	5.63	66.01	4.62	66.83	3.8	68.21	2.63	68.76	1.99
69.86	1.3	70.41	.41	74.26	-3.83	75.36	-5.03	76.73	-6.11
78.38	-7.28	79.21	-8.04	80.31	-9.97	83.61	-12.37	89.9	-12.95
90.9	-13.04	91.9	-13.15	94.9	-13.53	95.9	-13.67	96.9	-13.78
97.9	-13.85	98.9	-13.87	100.9	-13.76	101.9	-13.77	102.9	-14.09
103.9	-14.47	104.9	-14.66	106.9	-14.59	108.9	-14.43	110.9	-14.31
114.9	-13.54	115.9	-13.56	116.9	-13.87	117.9	-14.21	118.9	-14.16
121.9	-12.42	122.9	-11.89	123.9	-11.64	125.4	-11.36	125.5	-11.31
126.4	-11.12	126.5	-11.07	126.9	-10.97	127.9	-10.65	128.4	-11.1
128.5	-11.29	128.9	-11.74	129.9	-12.99	132.9	-10.72	135.4	-8.8
138.9	-5.92	139.9	-5.05	143.9	-1.43	146.9	1.25	147.9	1.92
148.9	2.04	149.9	2.75	151.9	4.88	152.9	5.71	153.93	6.04
156.21	6.04	157.35	6.04	159.21	6.04	160.35	6.02	162.42	6.02
164.39	6	166.25	6	168.12	6.04	169.77	6.04	170.19	6.65
170.9	6.98	171.9	6.98	174.9	6.89	178.9	6.88	180.9	6.84
182.9	6.78	185.9	6.64	186.9	6.61	188.9	6.61	189.9	6.64
190.9	6.64	194.9	6.77	196.9	6.86	204.9	7.11	205.9	7.12
209.9	7.25	211.9	7.28	214.9	7.38	215.9	7.38		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	68.21	.035	148.9	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
68.21	148.9	103.6	103.6	103.6	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	7.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.49	Reach Len. (ft)	0.60	0.60	0.60
Crit W.S. (ft)	-10.52	Flow Area (sq ft)	12.03	1400.10	65.45
E.G. Slope (ft/ft)	0.000012	Area (sq ft)	12.03	1400.10	65.45
Q Total (cfs)	1231.00	Flow (cfs)	2.23	1218.13	10.64
Top Width (ft)	156.05	Top Width (ft)	8.36	80.69	67.00
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)	0.19	0.87	0.16
Max Chl Dpth (ft)	22.15	Hydr. Depth (ft)	1.44	17.35	0.98

Conv. Total (cfs)	361872.1	Conv. (cfs)	655.7	358087.8	3128.7
Length Wtd. (ft)	0.60	Wetted Per. (ft)	10.42	94.69	69.02
Min Ch El (ft)	-14.66	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.08	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.09	4.11	0.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	0.24	0.07

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	7.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.80	Reach Len. (ft)	0.60	0.60	0.60
Crit W.S. (ft)	-9.96	Flow Area (sq ft)	15.51	1425.59	86.61
E.G. Slope (ft/ft)	0.000019	Area (sq ft)	15.51	1425.59	86.61
Q Total (cfs)	1634.00	Flow (cfs)	3.51	1608.80	21.69
Top Width (ft)	165.65	Top Width (ft)	17.96	80.69	67.00
Vel Total (ft/s)	1.07	Avg. Vel. (ft/s)	0.23	1.13	0.25
Max Chl Dpth (ft)	22.46	Hydr. Depth (ft)	0.86	17.67	1.29
Conv. Total (cfs)	374797.5	Conv. (cfs)	804.8	369017.2	4975.4
Length Wtd. (ft)	0.60	Wetted Per. (ft)	20.03	94.69	69.34
Min Ch El (ft)	-14.66	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.10	Stream Power (lb/ft s)	0.00	0.02	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.12	4.19	0.10
C & E Loss (ft)	0.00	Cum SA (acres)	0.09	0.24	0.08

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
0.7 or greater than
         1.4.  This may indicate the need for additional cross sections.

BRIDGE


RIVER: River 1
REACH: C-1                RS: 148.33

INPUT
Description: Existing Bridge
Distance from Upstream XS =       .6
Deck/Roadway Width        =  101.66
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   64.58   14.04       9   94.33   14.19    9.14  134.83   14.19    9.14
  164.58   14.04       9

Upstream Bridge Cross Section Data
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.62    10.9    8.62    15.9     8.5    19.9    8.38    20.9    8.36
    21.9    8.31    27.9    8.12    28.9    8.06    31.9    7.95    32.9    7.89
    34.9    7.83    36.9    7.81    37.9    7.78    38.9    7.78    40.9    7.73
    41.9    7.73    42.9    7.78    43.9    7.86    44.9    7.97    45.9    8.03
    46.9    8.06    49.9    8.01    52.9    8.01    53.9       8    54.9    7.95
    58.9    7.56    60.9    7.41    62.9    7.22    63.9    7.14    64.9    6.53
   65.46    5.63   66.01    4.62   66.83     3.8   68.21    2.63   68.76    1.99
   69.86     1.3   70.41     .41   74.26   -3.83   75.36   -5.03   76.73   -6.11
   78.38   -7.28   79.21   -8.04   80.31   -9.97   83.61  -12.37    89.9  -12.95
    90.9  -13.04    91.9  -13.15    94.9  -13.53    95.9  -13.67    96.9  -13.78
    97.9  -13.85    98.9  -13.87   100.9  -13.76   101.9  -13.77   102.9  -14.09
   103.9  -14.47   104.9  -14.66   106.9  -14.59   108.9  -14.43   110.9  -14.31
   114.9  -13.54   115.9  -13.56   116.9  -13.87   117.9  -14.21   118.9  -14.16
```

121.9	-12.42	122.9	-11.89	123.9	-11.64	125.4	-11.36	125.5	-11.31
126.4	-11.12	126.5	-11.07	126.9	-10.97	127.9	-10.65	128.4	-11.1
128.5	-11.29	128.9	-11.74	129.9	-12.99	132.9	-10.72	135.4	-8.8
138.9	-5.92	139.9	-5.05	143.9	-1.43	146.9	1.25	147.9	1.92
148.9	2.04	149.9	2.75	151.9	4.88	152.9	5.71	153.93	6.04
156.21	6.04	157.35	6.04	159.21	6.04	160.35	6.02	162.42	6.02
164.39	6	166.25	6	168.12	6.04	169.77	6.04	170.19	6.65
170.9	6.98	171.9	6.98	174.9	6.89	178.9	6.88	180.9	6.84
182.9	6.78	185.9	6.64	186.9	6.61	188.9	6.61	189.9	6.64
190.9	6.64	194.9	6.77	196.9	6.86	204.9	7.11	205.9	7.12
209.9	7.25	211.9	7.28	214.9	7.38	215.9	7.38		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	68.21	.035	148.9	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
68.21	148.9	.1	.3

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
64.58	14.04	9	94.33	14.19	9.14	134.83	14.19	9.14
164.58	14.04	9						

Downstream Bridge Cross Section Data
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	8.11	12.7	8.11	20.7	7.86	21.7	7.85	28.7	7.63
30.7	7.61	35.3	7.47	36.7	7.45	43.7	7.44	44.7	7.38
45.7	7.35	46.7	7.29	47.8	7.28	48.7	7.26	52.7	7.25
53.7	7.22	56.6	7.22	57.7	7.18	61.7	7.18	62.7	7.14
64.5	6.92	65.7	6.81	66.7	6.67	67.7	6.16	68.9	5.37
70.7	4.22	72.4	3.17	73.7	2.32	74.7	1.73	75.7	1.62
77.7	-.47	78.7	-1.55	80.7	-3.81	83.7	-7.11	85.7	-9.47
86.7	-10.62	87.7	-11.3	88.1	-11.22	88.3	-11.21	88.7	-11.13
89.7	-11.45	90.7	-11.84	91.7	-12.04	92.7	-12.15	93.7	-12.33

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    93.9  -12.65    94.4  -12.99    94.7  -13.29    94.9  -13.47    95.4  -13.88
    95.7  -14.06    96.7  -14.24    98.7  -14.26    99.7  -14.32   102.8   -14.9
   103.7  -15.04   104.7  -15.16   105.7   -15.1   106.7  -14.94   107.7  -14.69
   110.7  -13.84   111.7  -13.61   112.7  -13.43   114.6  -13.13   116.7  -12.87
   117.7  -12.72   118.7  -12.59   119.7  -12.44   122.7  -12.07   123.7  -11.98
   124.7  -11.84   125.7  -11.64   126.7  -11.21   127.7  -10.56   128.7   -9.79
   129.7   -9.27   130.7    -8.7   131.7   -7.97   132.7   -7.14   133.7   -6.35
   134.7   -5.59   135.7   -4.92   136.7   -4.29   139.7   -2.51   140.7   -1.86
   141.7   -1.13   143.7     .52   145.7    1.68   146.7    2.08     147    2.32
   147.4    2.66   148.7    3.74   149.7    4.61   150.7    5.56  151.24    6.06
   152.8       6  154.76    6.03  156.31    6.06  159.32    6.03  161.18    6.06
  163.15    6.08  165.22    6.06  167.18       6  169.98    6.03   171.7    7.56
   173.7    7.59   176.7    7.59   177.7    7.62   180.7    7.61   184.7     7.5
   185.7    7.44   187.7    7.39   188.7    7.44   189.7    7.56   190.7    7.72
   192.3    7.87   193.3    7.94   195.7    8.03   196.7    8.09   203.7    8.31
   204.9    8.32   206.7    8.38   207.8    8.38   209.7    8.44   212.7    8.47
   214.7    8.53   215.7    8.53   216.7    8.56   217.7    8.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03    73.7    .035   146.7     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
          73.7   146.7             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Abutments =  2

Abutment Data
Upstream     num=       7
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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   10.54   64.58   10.54   64.58    8.93   66.33    8.93   66.33    7.95
   77.24    5.81   94.58    -512
Downstream     num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0   10.54   64.58   10.54   64.58    8.93   66.33    8.93   66.33    7.95
   77.24    5.81   94.58    -512

Abutment Data
Upstream     num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  134.58     -12  151.92    5.81  162.83    7.98  162.83    8.93  164.58    8.93
  164.58   10.54     215   10.54
Downstream     num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  134.58     -12  151.92    5.81  162.83    7.98  162.83    8.93  164.58    8.93
  164.58   10.54     215   10.54

Number of Piers =  2

Pier Data
Pier Station     Upstream=   94.33    Downstream=   94.33
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5     -20     1.5    5.44     3.5    5.44     3.5    9.14
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5     -20     1.5    5.44     3.5    5.44     3.5    9.14

Pier Data
Pier Station     Upstream=  134.83    Downstream=  134.83
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5     -20     1.5    5.44     3.5    5.44     3.5    9.14
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
     1.5     -20     1.5    5.44     3.5    5.44     3.5    9.14
```

```
Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: River 1
REACH: C-1                RS: 48

INPUT
Description:
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    8.11    12.7    8.11    20.7    7.86    21.7    7.85    28.7    7.63
    30.7    7.61    35.3    7.47    36.7    7.45    43.7    7.44    44.7    7.38
    45.7    7.35    46.7    7.29    47.8    7.28    48.7    7.26    52.7    7.25
    53.7    7.22    56.6    7.22    57.7    7.18    61.7    7.18    62.7    7.14
    64.5    6.92    65.7    6.81    66.7    6.67    67.7    6.16    68.9    5.37
    70.7    4.22    72.4    3.17    73.7    2.32    74.7    1.73    75.7    1.62
    77.7    -.47    78.7   -1.55    80.7   -3.81    83.7   -7.11    85.7   -9.47
    86.7  -10.62    87.7   -11.3    88.1  -11.22    88.3  -11.21    88.7  -11.13
    89.7  -11.45    90.7  -11.84    91.7  -12.04    92.7  -12.15    93.7  -12.33
    93.9  -12.65    94.4  -12.99    94.7  -13.29    94.9  -13.47    95.4  -13.88
```

95.7	-14.06	96.7	-14.24	98.7	-14.26	99.7	-14.32	102.8	-14.9
103.7	-15.04	104.7	-15.16	105.7	-15.1	106.7	-14.94	107.7	-14.69
110.7	-13.84	111.7	-13.61	112.7	-13.43	114.6	-13.13	116.7	-12.87
117.7	-12.72	118.7	-12.59	119.7	-12.44	122.7	-12.07	123.7	-11.98
124.7	-11.84	125.7	-11.64	126.7	-11.21	127.7	-10.56	128.7	-9.79
129.7	-9.27	130.7	-8.7	131.7	-7.97	132.7	-7.14	133.7	-6.35
134.7	-5.59	135.7	-4.92	136.7	-4.29	139.7	-2.51	140.7	-1.86
141.7	-1.13	143.7	.52	145.7	1.68	146.7	2.08	147	2.32
147.4	2.66	148.7	3.74	149.7	4.61	150.7	5.56	151.24	6.06
152.8	6	154.76	6.03	156.31	6.06	159.32	6.03	161.18	6.06
163.15	6.08	165.22	6.06	167.18	6	169.98	6.03	171.7	7.56
173.7	7.59	176.7	7.59	177.7	7.62	180.7	7.61	184.7	7.5
185.7	7.44	187.7	7.39	188.7	7.44	189.7	7.56	190.7	7.72
192.3	7.87	193.3	7.94	195.7	8.03	196.7	8.09	203.7	8.31
204.9	8.32	206.7	8.38	207.8	8.38	209.7	8.44	212.7	8.47
214.7	8.53	215.7	8.53	216.7	8.56	217.7	8.56		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	73.7	.035	146.7	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
73.7	146.7	26	21.2	16	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	7.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.48	Reach Len. (ft)	26.00	21.20	16.00
Crit W.S. (ft)		Flow Area (sq ft)	27.56	1207.08	44.11
E.G. Slope (ft/ft)	0.000016	Area (sq ft)	27.56	1207.08	44.11
Q Total (cfs)	1231.00	Flow (cfs)	4.28	1214.62	12.10
Top Width (ft)	140.60	Top Width (ft)	38.71	73.00	28.89
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	0.16	1.01	0.27
Max Chl Dpth (ft)	22.64	Hydr. Depth (ft)	0.71	16.54	1.53
Conv. Total (cfs)	306287.0	Conv. (cfs)	1065.0	302211.5	3010.5
Length Wtd. (ft)	21.20	Wetted Per. (ft)	39.99	84.29	30.95

Min Ch El (ft)	-15.16	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.08	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.08	1.28	0.03
C & E Loss (ft)	0.00	Cum SA (acres)	0.08	0.08	0.04

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	7.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.79	Reach Len. (ft)	26.00	21.20	16.00
Crit W.S. (ft)		Flow Area (sq ft)	41.31	1229.65	56.18
E.G. Slope (ft/ft)	0.000027	Area (sq ft)	41.31	1229.65	56.18
Q Total (cfs)	1634.00	Flow (cfs)	9.14	1608.65	16.21
Top Width (ft)	167.77	Top Width (ft)	50.04	73.00	44.73
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)	0.22	1.31	0.29
Max Chl Dpth (ft)	22.95	Hydr. Depth (ft)	0.83	16.84	1.26
Conv. Total (cfs)	316598.3	Conv. (cfs)	1770.2	311686.7	3141.4
Length Wtd. (ft)	21.21	Wetted Per. (ft)	51.33	84.29	46.84
Min Ch El (ft)	-15.16	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.11	Stream Power (lb/ft s)	0.00	0.03	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.11	1.30	0.04
C & E Loss (ft)	0.00	Cum SA (acres)	0.08	0.08	0.05

CROSS SECTION

RIVER: River 1
REACH: C-1 RS: 25

INPUT
Description:
Station Elevation Data num= 155

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	7.4	12.3	7.4	23.4	6.84	30.4	6.58	34.4	6.56
35.4	6.58	37.4	6.54	38.4	6.51	40.4	6.49	41.4	6.46
42.4	6.45	45.5	6.54	46.5	6.54	50.5	6.38	51.5	6.37
53.3	6.31	54.5	6.29	55.5	6.25	57.5	6.12	58.5	6.08
60.5	5.98	62.5	5.84	63.4	5.7	63.5	5.67	64.5	5.04
66.5	3.57	67.5	2.8	68.5	2.08	69.9	1.8	70.3	1.63
70.6	1.56	71.6	.82	72.6	.05	79.6	-5.18	81.6	-6.7
82.6	-7.41	83.7	-8.25	84.6	-8.9	86.6	-11.15	87.6	-12.13
88.6	-12.42	89.6	-12.29	90.6	-12.13	91.6	-12.12	92	-12.16
92.3	-12.17	92.6	-12.21	92.9	-12.33	93.4	-12.67	93.6	-12.78
93.8	-12.9	94.5	-13.21	94.6	-13.28	94.7	-13.25	95.7	-13.09
97.7	-12.84	98.7	-12.78	99.7	-12.8	100	-12.74	100.3	-12.68
100.7	-12.62	102.7	-13.08	106.7	-14.07	108.6	-14.34	108.7	-14.34
108.9	-14.2	109.5	-13.41	109.7	-13.22	110.7	-12.98	111.7	-13.69
112.7	-14.31	113.7	-14.64	114.7	-14.7	115.7	-14.58	116.7	-14.35
116.9	-14.31	117.7	-14	118.7	-13.73	118.8	-13.75	119.6	-13.96
119.7	-14.04	119.9	-13.92	120.6	-13.33	120.7	-13.14	121.8	-12.69
123.8	-12.39	124.8	-12.26	125.8	-12.04	126.1	-11.78	126.5	-11.36
126.8	-11.11	127.9	-10.22	128.7	-9.69	129.8	-8.87	130.8	-8.03
131.8	-7.11	132	-6.88	132.5	-6.13	132.8	-5.85	133.8	-5.4
134.8	-5.02	135.3	-4.46	135.8	-3.85	136.2	-3.26	136.4	-3.07
136.8	-2.51	137.2	-2.35	137.5	-2.22	138.1	-1.96	138.6	-1.82
138.8	-1.73	139.8	-1.16	141.8	.03	143.8	1.17	144.8	1.56
145.8	2.26	147.9	4.78	148.9	5.54	149.9	5.62	150.9	5.79
153.9	6.53	154.9	6.67	155.9	6.76	156.9	6.82	157.9	6.84
159.9	6.93	161.7	6.97	163	6.97	163.9	7	164.8	6.99
165.9	7.02	167.6	7.12	168.9	7.16	169.9	7.21	170.9	7.3
173	7.41	174	7.44	175	7.41	176.8	7.4	178	7.36
179	7.3	180	7.28	184	7.29	185	7.32	186	7.31
187	7.34	187.9	7.34	192	7.41	197	7.53	198.1	7.53
201.1	7.62	204.1	7.67	211.1	7.87	212.1	7.88	216.4922	7.99

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	68.5	.035	145.8	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

```
          68.5   145.8                31    23.5      19              .1       .3

CROSS SECTION OUTPUT  Profile #PF 1

  E.G. Elev (ft)              7.49    Element                   Left OB    Channel   Right OB
  Vel Head (ft)               0.01    Wt. n-Val.                 0.030      0.035      0.030
  W.S. Elev (ft)              7.48    Reach Len. (ft)            31.00      23.50      19.00
  Crit W.S. (ft)                      Flow Area (sq ft)          65.08    1247.90      30.01
  E.G. Slope (ft/ft)      0.000016    Area (sq ft)               65.08    1247.90      30.01
  Q Total (cfs)            1231.00    Flow (cfs)                 12.18    1214.67       4.15
  Top Width (ft)            194.91    Top Width (ft)             68.50      77.30      49.11
  Vel Total (ft/s)            0.92    Avg. Vel. (ft/s)            0.19       0.97       0.14
  Max Chl Dpth (ft)          22.18    Hydr. Depth (ft)            0.95      16.14       0.61
  Conv. Total (cfs)       310942.8    Conv. (cfs)               3076.7   306817.8     1048.3
  Length Wtd. (ft)           23.59    Wetted Per. (ft)           69.79      89.54      50.69
  Min Ch El (ft)            -14.70    Shear (lb/sq ft)            0.00       0.01       0.00
  Alpha                       1.11    Stream Power (lb/ft s)      0.00       0.01       0.00
  Frctn Loss (ft)             0.00    Cum Volume (acre-ft)        0.06       0.68       0.02
  C & E Loss (ft)             0.00    Cum SA (acres)              0.05       0.04       0.03


Warning: The cross-section end points had to be extended vertically for the computed water
surface.

CROSS SECTION OUTPUT  Profile #PF 2

  E.G. Elev (ft)              7.81    Element                   Left OB    Channel   Right OB
  Vel Head (ft)               0.02    Wt. n-Val.                 0.030      0.035      0.030
  W.S. Elev (ft)              7.79    Reach Len. (ft)            31.00      23.50      19.00
  Crit W.S. (ft)                      Flow Area (sq ft)          86.30    1271.84      47.43
  E.G. Slope (ft/ft)      0.000026    Area (sq ft)               86.30    1271.84      47.43
  Q Total (cfs)            1634.00    Flow (cfs)                 24.80    1599.49       9.71
  Top Width (ft)            208.28    Top Width (ft)             68.50      77.30      62.48
  Vel Total (ft/s)            1.16    Avg. Vel. (ft/s)            0.29       1.26       0.20
  Max Chl Dpth (ft)          22.49    Hydr. Depth (ft)            1.26      16.45       0.76
  Conv. Total (cfs)       323522.2    Conv. (cfs)               4909.4   316690.3     1922.5
  Length Wtd. (ft)           23.61    Wetted Per. (ft)           70.10      89.54      64.06
```

Min Ch El (ft)	-14.70	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.15	Stream Power (lb/ft s)	0.00	0.03	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.07	0.69	0.03
C & E Loss (ft)	0.00	Cum SA (acres)	0.05	0.04	0.03

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: River 1
REACH: C-1 RS: 1

INPUT
Description:
Station Elevation Data num= 164

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	6.97	13.6	6.97	14.9	6.91	18.6	6.7	19.8	6.65
21.7	6.53	23.7	6.44	25.8	6.31	27.4	6.26	30	6.12
31.8	6.06	32.8	6	33.9	5.97	35.9	5.94	39.9	5.81
42	5.78	43	5.79	45.7	5.94	47	5.98	50.1	5.97
51.1	5.94	52.1	5.94	54.1	5.89	56.2	5.81	58.2	5.67
60.2	5.56	61.2	5.41	62.2	5.03	64.3	4.16	65.3	3.44
66.3	2.56	67.3	1.9	68.5	1.22	69.2	.7	71.4	-.89
72.4	-1.54	72.7	-1.76	73.4	-2.27	74.4	-3.04	75.4	-3.97
76.8	-4.78	79.2	-6.16	80.5	-6.92	82.5	-8.57	83.5	-9.58
85.5	-11.8	85.7	-11.96	86.6	-12.54	87	-12.61	87.6	-12.68
88.4	-12.53	89.6	-12.22	90.6	-12.22	91.6	-12.86	92.6	-13.42
93.1	-13.29	93.6	-13.14	94.7	-13	95.7	-12.83	96.7	-12.8
97.7	-12.86	97.9	-12.82	98.6	-12.63	98.7	-12.6	98.8	-12.61
99.7	-12.72	100.7	-12.98	101.8	-13.28	104.8	-14.12	105.8	-14.42
106.6	-14.62	106.8	-14.64	107.8	-12.51	108.4	-12.82	108.9	-13.08
109.2	-13.34	109.5	-13.58	109.9	-13.83	110.9	-14.48	111.9	-14.85
112.9	-14.98	113.9	-14.89	114.9	-14.5	116	-13.87	116.2	-13.67
117	-13.05	117.1	-12.99	117.9	-12.79	118	-12.78	119	-14.56

119.2	-14.42	119.7	-14.13	120	-13.96	121	-13.5	122	-13.19
123.2	-12.97	124.1	-12.78	124.9	-12.22	125.1	-12.09	126.1	-10.27
127.1	-9.06	128.1	-8.56	129.1	-8.04	129.3	-7.92	130.2	-6.92
131	-5.93	131.2	-5.77	131.9	-5.64	132.2	-5.56	133.2	-5.47
134.2	-4.3	135.2	-2.65	136.2	-1.97	137.1	-1.83	137.2	-1.79
138.2	-1.47	139.3	-1.08	140.6	-.4	142.3	.48	144.3	1.53
145.3	1.56	146.4	1.23	147.4	3.09	148.4	4.62	149.4	5.55
150.1	5.78	150.4	5.83	153.4	6.39	154.5	6.53	155.5	6.63
156.5	6.7	158.5	6.77	161.6	6.78	162.6	6.81	166.5	6.81
167.6	6.84	168.6	6.84	169.7	6.88	170.7	6.88	175.7	7.03
177.8	7.15	178.9	7.19	182.8	7.19	183.9	7.22	186.9	7.22
187.9	7.25	190.8	7.25	192	7.28	193	7.28	195	7.31
196.9	7.32	198	7.34	202.1	7.38	203.1	7.41	205.1	7.41
206.1	7.44	208.2	7.45	209.2	7.47	211.2	7.47	213.2	7.5
215.1	7.5	216.3	7.53	217.2	7.53	219.8857	7.57		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	67.3	.035	145.3	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
67.3	145.3	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	7.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.48	Reach Len. (ft)			
Crit W.S. (ft)	-10.24	Flow Area (sq ft)	94.22	1269.56	45.48
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	94.22	1269.56	45.48
Q Total (cfs)	1231.00	Flow (cfs)	22.50	1201.83	6.67
Top Width (ft)	211.87	Top Width (ft)	67.30	78.00	66.57
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)	0.24	0.95	0.15
Max Chl Dpth (ft)	22.46	Hydr. Depth (ft)	1.40	16.28	0.68
Conv. Total (cfs)	314685.2	Conv. (cfs)	5751.4	307228.7	1705.1
Length Wtd. (ft)		Wetted Per. (ft)	68.87	93.29	69.04
Min Ch El (ft)	-14.98	Shear (lb/sq ft)	0.00	0.01	0.00

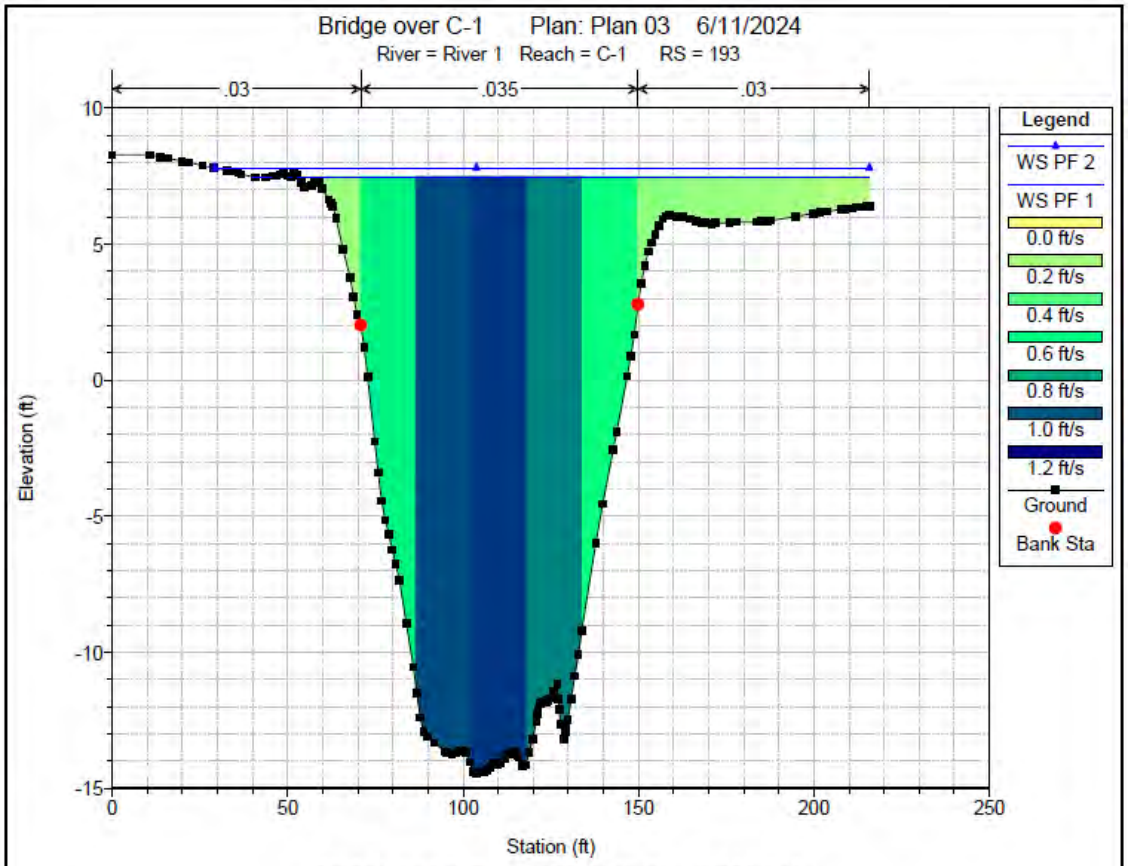
Alpha	1.15	Stream Power (lb/ft s)	0.00	0.01	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

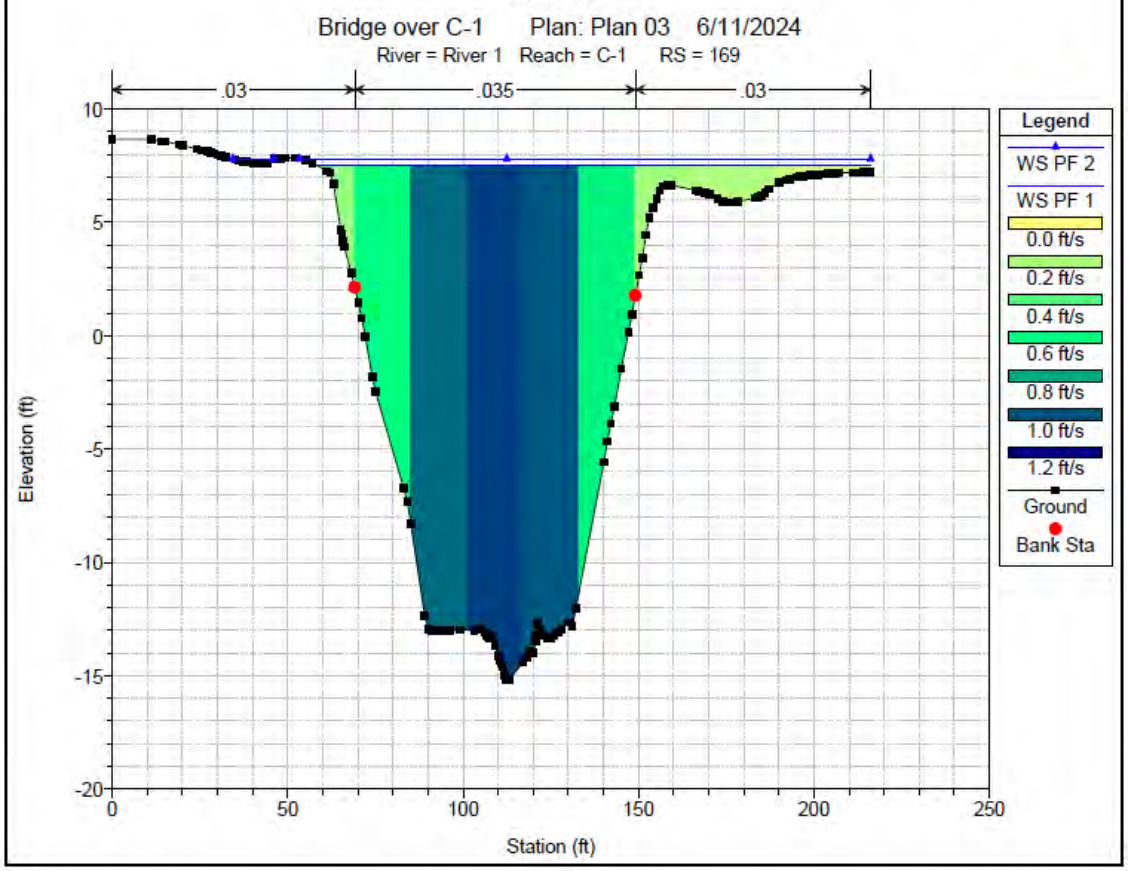
CROSS SECTION OUTPUT Profile #PF 2

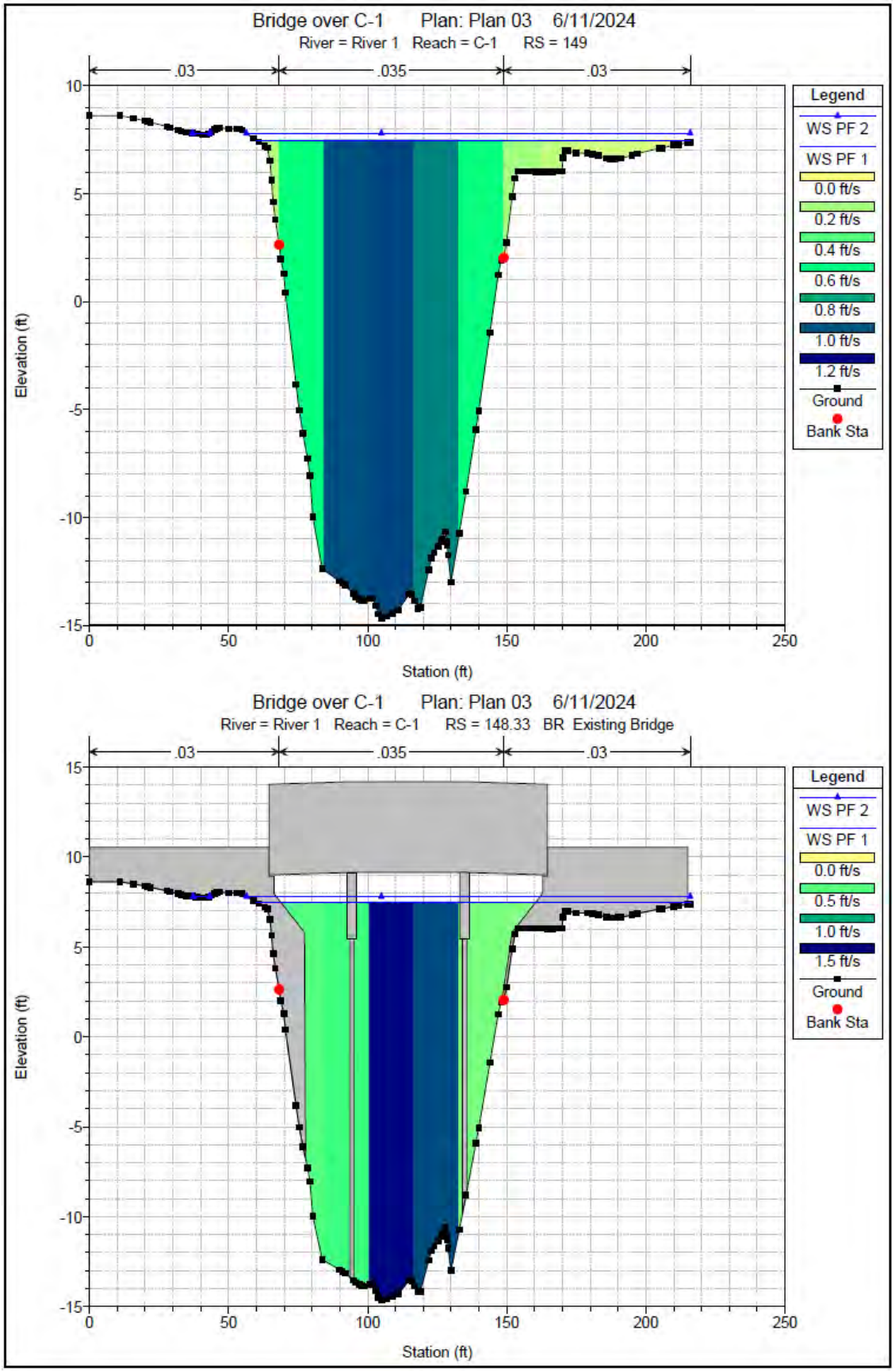
E.G. Elev (ft)	7.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.030	0.035	0.030
W.S. Elev (ft)	7.79	Reach Len. (ft)			
Crit W.S. (ft)	-9.61	Flow Area (sq ft)	115.09	1293.74	68.27
E.G. Slope (ft/ft)	0.000025	Area (sq ft)	115.09	1293.74	68.27
Q Total (cfs)	1634.00	Flow (cfs)	39.85	1578.65	15.50
Top Width (ft)	219.89	Top Width (ft)	67.30	78.00	74.59
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)	0.35	1.22	0.23
Max Chl Dpth (ft)	22.77	Hydr. Depth (ft)	1.71	16.59	0.92
Conv. Total (cfs)	328158.9	Conv. (cfs)	8003.0	317042.7	3113.2
Length Wtd. (ft)		Wetted Per. (ft)	69.18	93.29	77.28
Min Ch El (ft)	-14.98	Shear (lb/sq ft)	0.00	0.02	0.00
Alpha	1.18	Stream Power (lb/ft s)	0.00	0.03	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

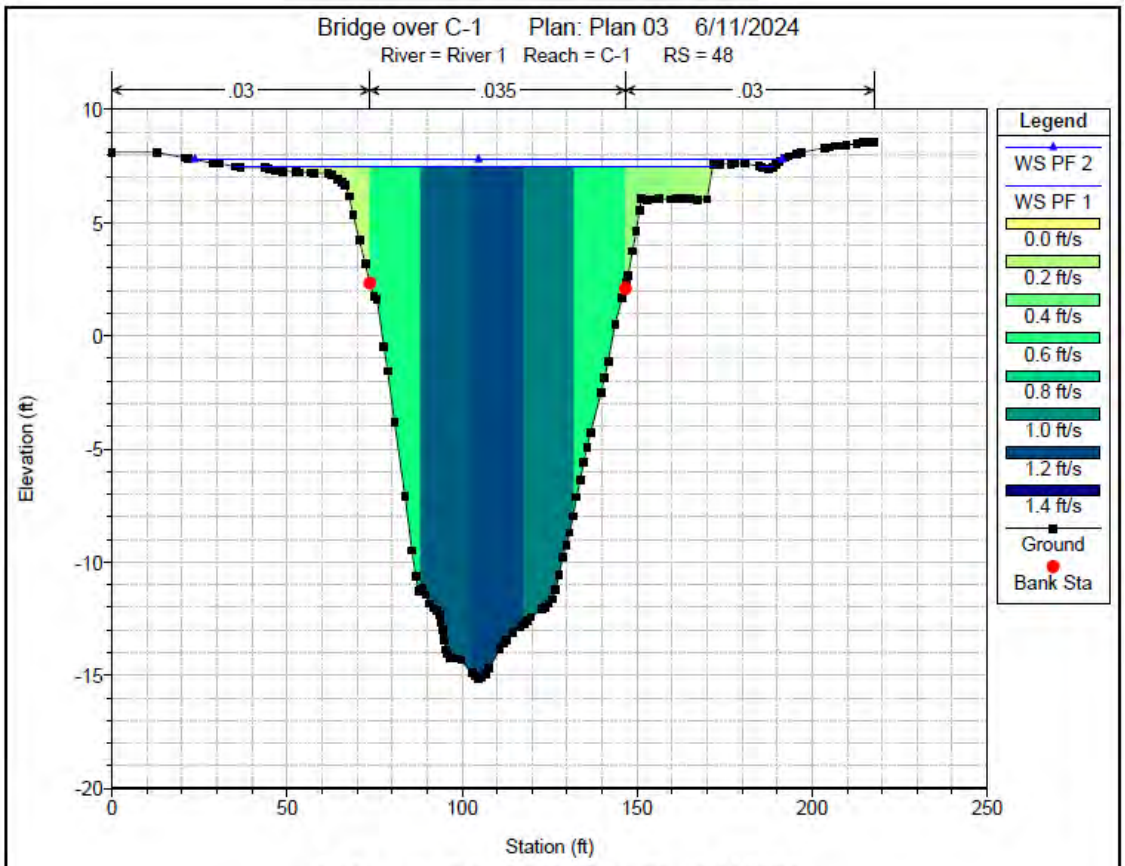
HEC-RAS Plan: Plan 03 River: River 1 Reach: C-1

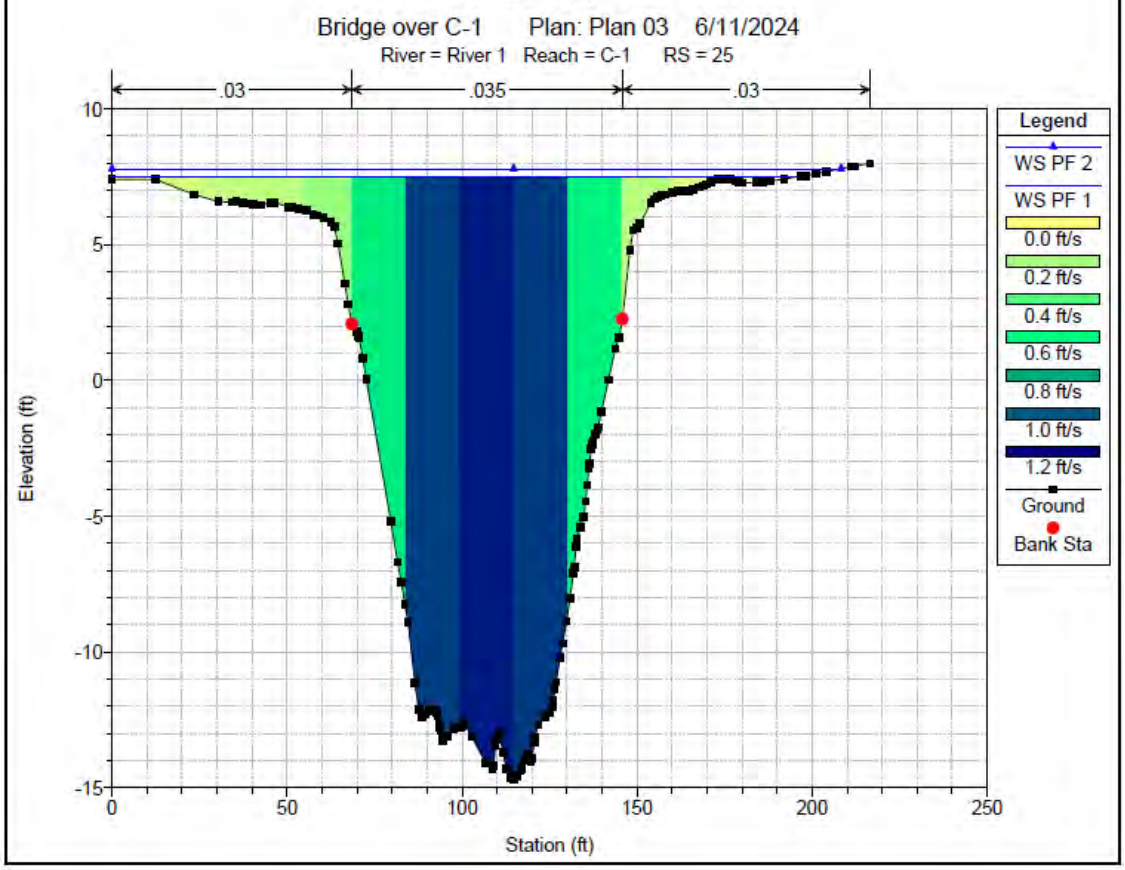
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
C-1	193	PF 1	1231.00	-14.43	7.49		7.50	0.000012	0.89	1482.65	169.08	0.04
C-1	193	PF 2	1634.00	-14.43	7.81		7.83	0.000020	1.15	1539.57	186.51	0.05
C-1	169	PF 1	1231.00	-15.20	7.49		7.50	0.000012	0.89	1450.33	157.54	0.04
C-1	169	PF 2	1634.00	-15.20	7.80		7.83	0.000020	1.16	1502.28	174.52	0.05
C-1	149	PF 1	1231.00	-14.66	7.49	-10.52	7.50	0.000012	0.87	1477.58	156.05	0.04
C-1	149	PF 2	1634.00	-14.66	7.80	-9.96	7.82	0.000019	1.13	1527.70	165.65	0.05
C-1	148.33		Bridge									
C-1	48	PF 1	1231.00	-15.16	7.48		7.49	0.000016	1.01	1278.75	140.60	0.04
C-1	48	PF 2	1634.00	-15.16	7.79		7.81	0.000027	1.31	1327.14	167.77	0.06
C-1	25	PF 1	1231.00	-14.70	7.48		7.49	0.000016	0.97	1343.00	194.91	0.04
C-1	25	PF 2	1634.00	-14.70	7.79		7.81	0.000026	1.26	1405.57	208.28	0.05
C-1	1	PF 1	1231.00	-14.98	7.48	-10.24	7.49	0.000015	0.95	1409.26	211.87	0.04
C-1	1	PF 2	1634.00	-14.98	7.79	-9.61	7.81	0.000025	1.22	1477.10	219.89	0.05

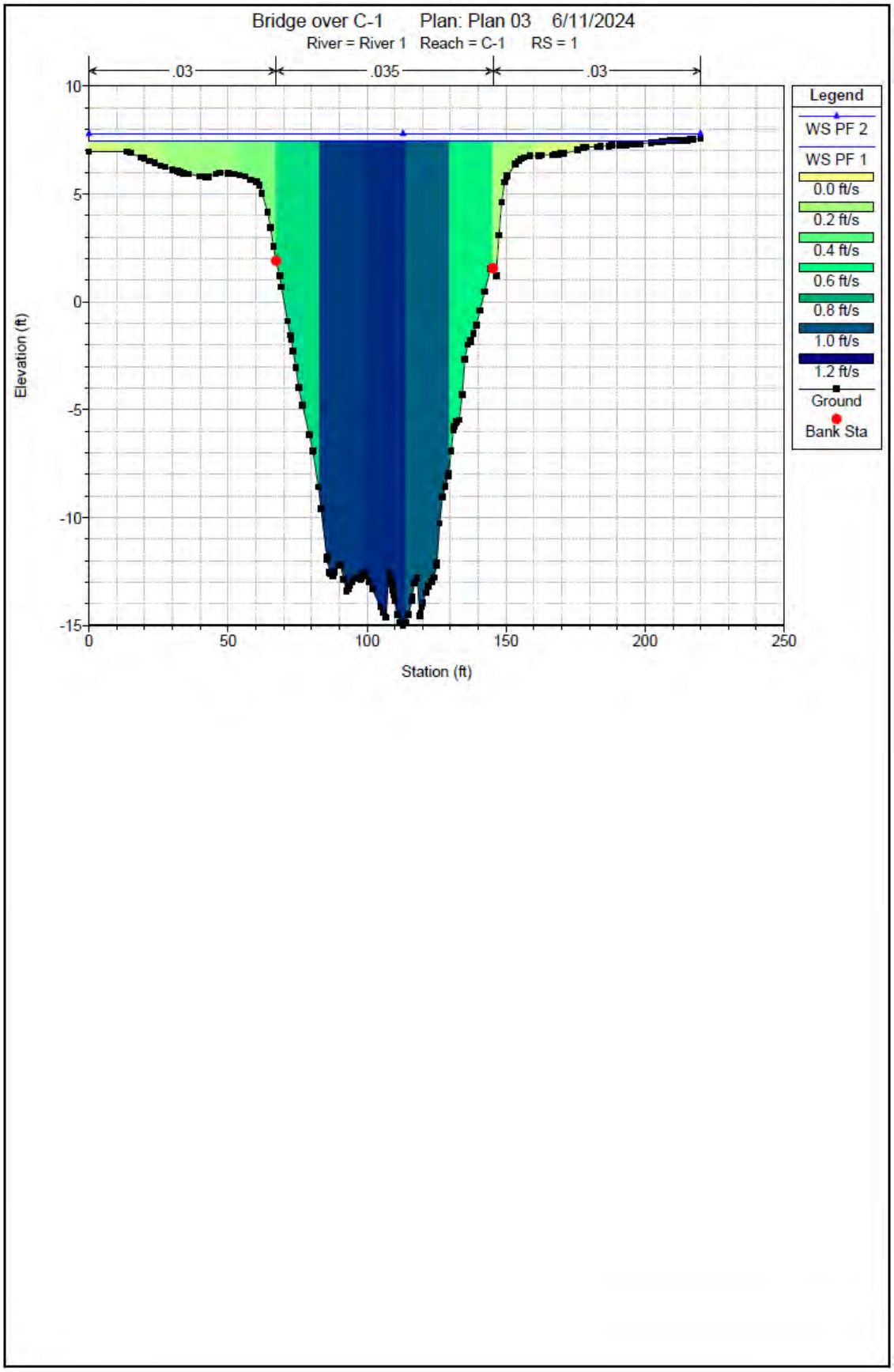

Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 193
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 169
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 149
.03
.035
.03
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 148.33 BR Existing Bridge
.03
.035
.03
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)


Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 48
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
1.4 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 25
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta


Bridge over C-1 Plan: Plan 03 6/11/2024
River = River 1 Reach = C-1 RS = 1
.03
.035
.03
Elevation (ft)
Station (ft)
Legend
WS PF 2
WS PF 1
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta

APPENDIX D

SCOUR ANALYSIS

Contraction Scour

		Left	Channel	Right
Input Data				
	Average Depth (ft):	0.97	17.27	1.40
	Approach Velocity (ft/s):	0.27	1.16	0.27
	Br Average Depth (ft):	0.11	17.32	1.51
	BR Opening Flow (cfs):	0.01	1623.43	10.56
	BR Top WD (ft):	1.11	73.69	13.92
	Grain Size D50 (mm):	0.35	0.35	0.35
	Approach Flow (cfs):	7.21	1601.29	25.50
	Approach Top WD (ft):	27.52	80.00	67.00
	K1 Coefficient:	0.590	0.640	0.590
Results				
	Scour Depth Ys (ft):	0.00	0.00	0.00
	Critical Velocity (ft/s):	1.17	1.89	1.24
	Equation:	Clear	Clear	Clear

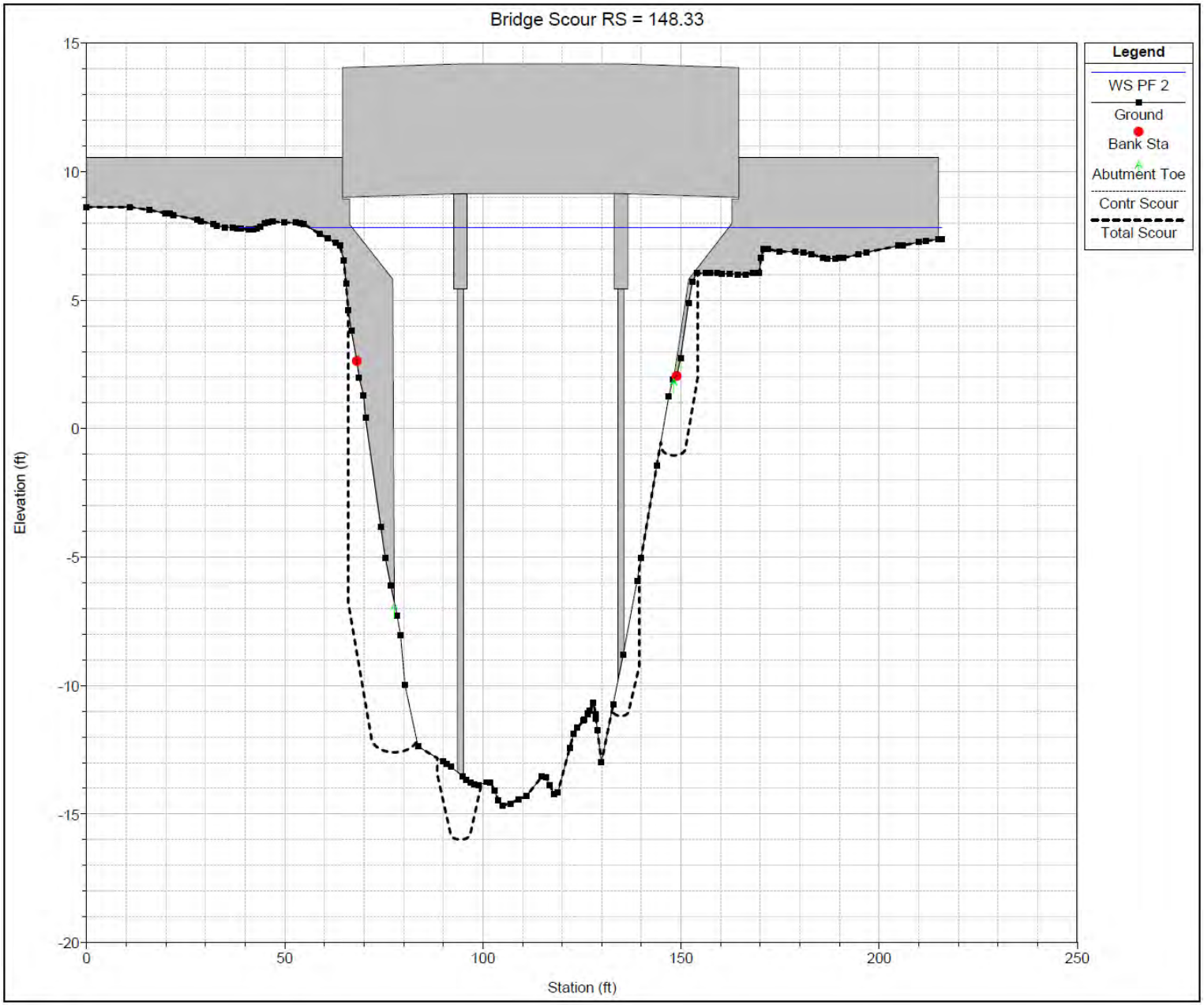
Pier Scour

All piers have the same scour depth

Input Data		
	Pier Shape:	Square nose
	Pier Width (ft):	1.50
	Grain Size D50 (mm):	0.35000
	Depth Upstream (ft):	21.96
	Velocity Upstream (ft/s):	1.34
	K1 Nose Shape:	1.10
	Pier Angle:	0.00
	Pier Length (ft):	99.66
	K2 Angle Coef:	1.00
	K3 Bed Cond Coef:	1.10
	Grain Size D90 (mm):	
	K4 Armouring Coef:	1.00
Results		
	Scour Depth Ys (ft):	2.57
	Froude #:	0.05
	Equation:	CSU equation

Abutment Scour

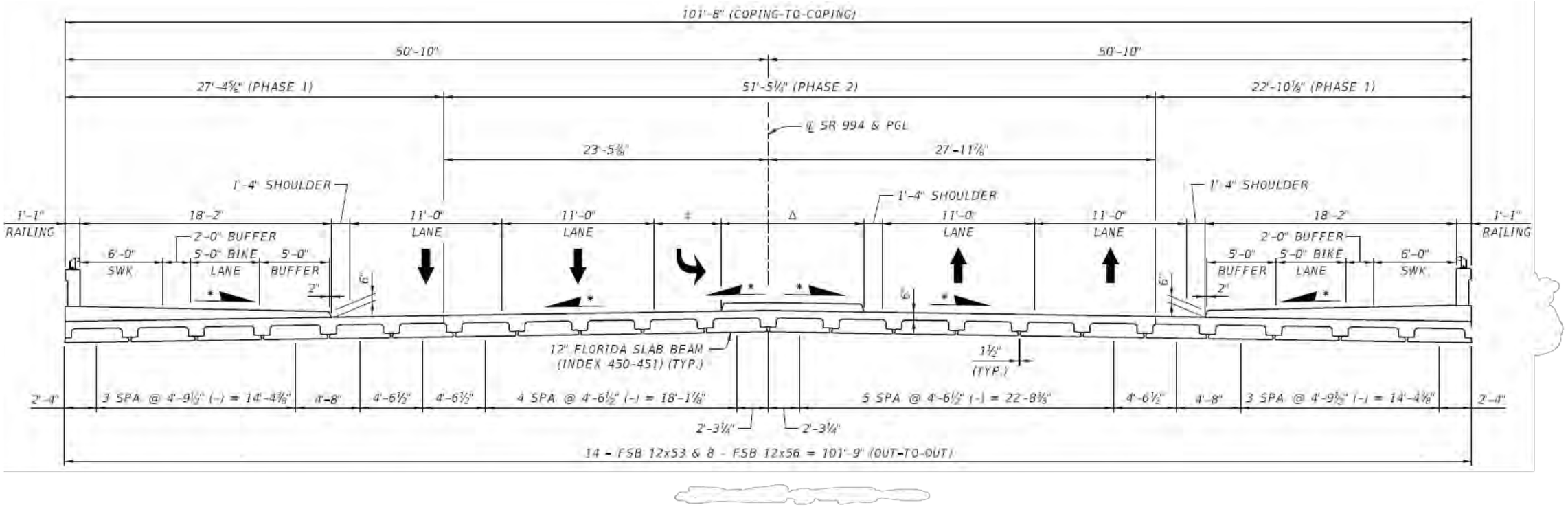
		Left	Right
Input Data			
	Station at Toe (ft):	77.66	148.16
	Toe Sta at appr (ft):	78.55	148.36
	Abutment Length (ft):	36.97	67.74
	Depth at Toe (ft):	14.58	5.85
	K1 Shape Coef:	0.55 - Spill-through abutment	
	Degree of Skew (degrees):	90.00	90.00
	K2 Skew Coef:	1.00	1.00
	Projected Length L' (ft):	36.97	67.74
	Avg Depth Obstructed Ya (ft):	3.56	1.52
	Flow Obstructed Qe (cfs):	89.70	33.03
	Area Obstructed Ae (sq ft):	131.45	103.11
Results			
	Scour Depth Ys (ft):	5.83	3.00
	Qe/Ae = Ve:	0.68	0.32
	Froude #:	0.06	0.05
	Equation:	Froehlich	Froehlich


Bridge Scour RS = 148.33
Legend
WS PF 2
Ground
Bank Sta
Abutment Toe
Contr Scour
Total Scour
Elevation (ft)
Station (ft)
15
10
5
0
-5
-10
-15
-20
0
50
100
150
200
250

APPENDIX E

SPREAD ANALYSIS

STRUCTURE LOCATION AND ID	AREA IMPERVIOUS (Ac)	C IMPERVIOUS	AREA PERVIOUS (Ac)	C PERVIOUS	TOTAL AREA (Ac)	C COMPOSITE	RAINFALL DEPTH (in/hr)	FLOW (cfs)	ALLOWABLE SPREAD (ft)	GUTTER OR SHOULDER WIDTH (ft)	GUTTER OR SHOULDER X-SLOPE (ft/ft)	GUTTER OR SHOULDER MANNING	LANE WIDTH (ft)	LANE X-SLOPE (ft/ft)	LANE MANNING	LONGITUDINAL SLOPE (ft/ft)	SPREAD (ft)	SPREAD DEPTH AT GUTTER (ft)	SPREAD RUN-OFF VELOCITY (ft/s)
2344+60.56	0.0580	0.95	0.0000	0.65	0.058	0.95	4.00	0.220	6.83	1.33	0.02000	0.016	49.83	0.02000	0.016	0.00650	4.434	0.09	0.75
2345+71.31	0.0690	0.95	0.0000	0.65	0.069	0.95	4.00	0.262	6.83	1.33	0.02000	0.016	49.83	0.02000	0.016	0.00790	4.559	0.09	0.84


101'-8" (COPING-TO-COPING)
50'-10"
50'-10"
27'-4⅝" (PHASE 1)
51'-5¼" (PHASE 2)
22'-10⅛" (PHASE 1)
℄ SR 994 & PGL
23'-5⅜"
27'-11⅞"
1'-4" SHOULDER
1'-4" SHOULDER
1'-4" SHOULDER
1'-1" RAILING
18'-2"
11'-0" LANE
11'-0" LANE
11'-0" LANE
11'-0" LANE
18'-2"
1'-1" RAILING
2'-0" BUFFER
6'-0" SWK
5'-0" BIKE LANE
5'-0" BUFFER
2'-0" BUFFER
5'-0" BUFFER
5'-0" BIKE LANE
6'-0" SWK
12" FLORIDA SLAB BEAM (INDEX 450-451) (TYP.)
1½" (TYP.)
2'-4"
3 SPA @ 4'-9½" (-) = 14'-4⅜"
4'-8"
4'-6½"
4'-6½"
4 SPA @ 4'-6½" (-) = 18'-1⅞"
5 SPA @ 4'-6½" (-) = 22'-8⅜"
4'-6½"
4'-8"
3 SPA @ 4'-9½" (-) = 14'-4⅜"
2'-4"
2'-3¼"
2'-3¼"
14 - FSB 12x53 & 8 - FSB 12x56 = 101'-9" (OUT-TO-OUT)

APPENDIX F

CORRESPONDENCE

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

SUBJECT: Replacment of the Quail Roost Bridge crossing C-1W, Right of Way Permit Number 1960

This letter is in response to your written request seeking information relating to the canal design information for a (proposed) replacement of the Quail Roost Bridge crossing the C-1W (canal). Based on your submittal, the canal design section at this location consists of the following:

Canal Design Information

Canal Section:

Bottom Elevation: (-)12.0' NGVD
Bottom Width: 40'
Side Slopes: 1V:1H

Hydraulic Information:

Design Water Surface Elevation:	4.3' NGVD
Optimum Water Control Elevation:	5.0' NGVD

Required Vertical Clearance:

The required minimum vertical clearance acceptable at this location is two (2) feet of clearance above the design water surface elevation or 4.5 feet above the optimum water surface elevation, whichever produces the higher elevation.

Required Horizontal Clearances:

The center span must be centered on the centerline of the canal. The center span must have a minimum clear opening of 25 feet as measured from the faces of the pile bents. Approach spans must have a minimum spacing of 20 feet as measured on centers.

Subaqueous Crossings:

Professional Engineer's Certification Required

Any pedestrian or vehicular bridge crossing must be designed by a professional engineer registered in the State of Florida. The professional engineer is required to affix his/her seal to at least one set of record permit application drawings.

Bridge Hydraulic Report

3301 Gun Club Road, West Palm Beach, Florida 33406 • (561) 686-8800 • 1-800-432-2045 • www.sfwmd.gov

A bridge hydraulic report (BHR) is required for any bridge crossing a District canal and must be submitted with the application for a Right of Way Occupancy Permit. The BHR must demonstrate that the proposed bridge does not result in head loss greater than 0.1 feet.

Section 408 Review-Will be Required

The U.S. Army Corps of Engineers (USACE) has issued guidance that any work done in, over, under or through a system, right of way, levee, canal or structure built by or acquired for the USACE as part of the Central and South Florida Flood Control System (C&SF) is required to have an engineering review by the USACE (i.e., Section 408 Review pursuant to 33 USC 408). In such case and in accordance with 33 USC 408, the District, as local sponsor of the C&SF Project, is required to submit the applicant's documentation for Section 408 review. Applicants do not work with the USACE directly, but rather work through District staff, which then communicates with the USACE. Work cannot begin until such time as USACE 408 approval has been received which can take up to 4-6 months or longer.

Please note that the USACE requires certified as-builts from the professional engineer retained to oversee the work within 30 days of project completion. In advance of permit issuance, the applicant is required to submit the name and contact information of the professional engineer who will prepare the as-built survey. District staff will confirm that the individual has been retained by the applicant and understands all requirements of the District related to the as-built. Failure to submit required as-builts within 30 days of project completion subjects permittee to the imposition of civil penalties, up to $10,000 per day, pursuant to Rule 40E-6.501(4), F.A.C. and Section 373.129, Florida Statutes. If an applicant has violated permit conditions in the past by failing to submit the required certified as-built for a previous project within 30 days of completion, the applicant should anticipate posting of a minimum $5,000.00 cash bond to ensure compliance with this requirement. Such cash bond is refundable if permittee complies with the 30-day deadline or forfeited to the District as a civil penalty for non-compliance. Notwithstanding, depending on the circumstances, the District reserves the right to impose greater civil penalties above and beyond the $5,000.00, up to the maximum allowed by law.

Section 404 Review

Applicants are advised that the work proposed in the District's right of way may require Section 404 approval from the USACE. It is the responsibility of the applicant to contact the local USACE office for the county where the work is proposed.

Cross-Sections:

For the District to determine if clean-out or excavation of the canal is necessary at the point of a proposed crossing, the applicant must provide certified cross-sections of the canal prepared by a surveyor licensed in the State of Florida.

For bridge crossings, the applicant is required to provide a minimum of five (5) cross-sections: one at the centerline of the crossing, one at each of the proposed upstream and downstream faces of the bridge and one on each side taken at 25 feet upstream and 25 feet downstream of the proposed faces of the bridge (unless otherwise directed by District staff).

The cross-sections must be taken perpendicular to the centerline of the canal. Soundings for cross sections are to be taken at a maximum of 10-foot intervals from top of bank to top of bank and tied into the canal right of way lines. The cross-sections must also include the canal design section superimposed on each section.

Excavation:

If excavation is required to achieve the required canal design section, the limits of excavation shall extend outwardly a distance of 25 feet upstream and downstream from the faces of the proposed crossing with adequate transitions back to the existing canal section at both ends. The limits of the excavated area and transitions into the existing section must be shown on both the plan and profile view of the application drawings.

Bank Stabilization

If bank stabilization is required, acceptable erosion control materials include either rubble rip-rap or articulating concrete block mat. Materials specifications and installation must comply with District standards.

Restrictions to Flow during Construction:

The South Florida Water Management District is under no obligation to allow canal flows to be impeded or restricted to facilitate the construction of a crossing. If there is a possibility that the permittee will request the use of cofferdams or earthen fills that will encroach into the canal, such proposals must be included in the application. Applicants are strongly encouraged to advise potential bidders of the prohibition to blocking or interfering with canal flows so that bid proposals account for this restriction.

In those instances where the District determines that the temporary restriction or blocking of a canal is feasible, the District will prescribe the manner and length of time the canal may be impacted. The applicant will be required to prepare a sequence of work, equipment and personnel lists, and a work schedule for review and approval by the District.

District Access:

In designing bridge approaches, consideration must be given to ensure that the District's access along the canal is not be severed or impeded. Guardrails, curbs, sidewalks and medians must be designed so that they do not interfere with the movement of District equipment along the canal or the District's need for vehicular access. Land acquisition required to provide the District with equal or better access is the applicant's sole responsibility and no permit will be issued until the required property interests have been conveyed to the District. Application drawings are required to demonstrate that District access has been incorporated into the proposed scope of work, and in cases where the proposed access includes turning movements, applicant must provide a minimum 50 foot turning radius. Access details should be discussed with Tyler Blanchette, 803-600-4112.

Staging Areas

If required and in order to provide adequate areas to set up and operate equipment, particularly for the purpose of removing and temporarily stockpiling storm debris that accumulates at pilings, the District requires that staging areas at bridge and pile-supported utility crossings be maintained. These staging areas must be 100 feet in length measured perpendicular to the structure or improvement crossing the canal, encompass the entire width of the right of way, and be located on both the upstream and downstream sides of all bridge and utility crossings. No improvements of any kind (on land or in the canal) will be allowed within these staging areas. However, this exclusion does not apply to requests for safety features associated with public works projects or installations necessary to support District works, including but not limited to utilities, provided that such features or installations do not interfere with the District's operations and maintenance activities.

Relocations:

It is the applicant's sole responsibility to determine if any existing installations located within the District's right of way will be impacted by the proposed work and for any notification and/or coordination with the owners of existing facilities. Under no

circumstances will the District be responsible for any relocation costs or liability, either direct or indirect, which result from the applicant's proposed work.

Requirements are Subject to Change

In managing its canal and levee system, the District must, from time to time, change its criteria and permit requirements based on regional and site-specific conditions, as well as policy direction and proposed District projects. Applicants are cautioned that the information provided in this letter is based on the best available information at the time the letter is written and is subject to change. Applicants must keep this in mind if the information contained in this letter is to be used for applications to be submitted more than one year following issuance. In all cases, the rules, criteria and requirements in effect at the time an application is received for review will be applied by the District.

The applicant should also consult the District's Criteria Manual for Use of Works or Lands of the District which may contain additional information pertinent to the proposed project.

As always, the District's Right of Way staff is available to assist you with completion of your application and to answer questions you may have about the process and requirements. If you have any questions or need assistance, please feel free to contact this office directly.

Sincerely,

Beverly Miller
Right of Way Section
South Field Operations
South Florida Water Management District

Appendix F – Preliminary Geotechnical Report for Roadways

PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE
TO EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FPID No. 445804-1-22-01

FINAL PRELIMINARY GEOTECHNICAL REPORT FOR ROADWAYS

PREPARED FOR: GANNETT FLEMING, INC.

PREPARED BY: GEOSOL, INC.

OCTOBER 5, 2021

Gannett Fleming, Inc.
800 NW 62nd Avenue, Suite 490
Miami, Florida 33126

October 5, 2021

Attention: Ms. Alina Fernandez, P.E. - Vice President

Re: **Final Preliminary Geotechnical Report for Roadways**
Project Development and Environment (PD&E) Study
SR 994/ SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue
To East of SW 127th Avenue
Miami-Dade County, Florida
FPID No. 445804-1-22-01
GEOSOL Project No. 221126

Dear Ms. Fernandez:

GEOSOL, Inc. (GEOSOL) is pleased to submit the enclosed geotechnical final preliminary report for the proposed roadway and drainage improvements associated with the above-referenced project. As we understand it, this geotechnical report will be used as documentation for the Project Development and Environmental (PD&E) studies for this project. These services were provided in accordance with the FDOT's *Soils and Foundation Handbook* and our scope of services negotiated with FDOT on May 5, 2021. Authorization for our services was provided by means of a Subconsultant Agreement between Gannett Fleming, Inc. and GEOSOL dated June 17, 2021. This report addresses review comments provided by FDOT District 4 and 6 Materials Office.

The results of the field exploration and laboratory testing programs, together with our preliminary geotechnical engineering evaluations and recommendations for the roadway portion of the project are presented in the accompanying report. For the final design phase of this project, it is recommended that a final design-level geotechnical exploration program be performed in accordance with the latest version of the FDOT's *Soils and Foundations Handbook*.

GEOSOL appreciates the opportunity to submit this geotechnical report and looks forward to a successful team effort on this and future projects. If you have any questions, please do not hesitate to call our office.

Sincerely,
GEOSOL, INC.

10/5/21

Oracio Riccobono, P.E.
Chief Geotechnical Engineer
Florida License No. 49324

Adnan Ismail, P.E:
Senior Geotechnical Engineer
Florida License No. 76014

Juan C. Gonzalez, P.E.
Project Geotechnical Engineer
Florida License No. 88803

cc: Addressee (1)
File (1)

GEOSOL, Inc.
5795-A NW 151st Street
Miami Lakes, FL 33014
Phone (305) 828-4367; Fax (305) 828-4235
E-mail: geosolusa@bellsouth.net

TABLE OF CONTENTS

ITEM **PAGE**

INTRODUCTION **1**
PROJECT INFORMATION 1
PURPOSE AND SCOPE OF STUDY **1**
REPORT FORMAT 3
SITE DESCRIPTION **3**
PRELIMINARY FIELD EXPLORATION PROGRAM **4**
GENERAL 4
FIELD TEST LOCATIONS 4
STANDARD PENETRATION TEST (SPT) BORINGS 5
PAVEMENT CORING 5
BOREHOLE EXFILTRATION TESTS 5
WATER LEVEL MEASUREMENTS 5
TRAFFIC CONTROL AND SIGNS 6
LABORATORY TESTING **6**
GENERAL 6
MOISTURE CONTENT 6
GRAIN-SIZE ANALYSIS 6
ORGANIC CONTENT 7
ENVIRONMENTAL CLASSIFICATION 7
GENERALIZED SUBSURFACE CONDITIONS **7**
REGIONAL GEOLOGY 7
MIAMI-DADE COUNTY SOIL SURVEY 8
SITE SUBSURFACE AND GROUNDWATER CONDITIONS **8**
SITE SUBSURFACE CONDITIONS 8
GROUNDWATER CONDITIONS 9
ESTIMATED SEASONAL HIGH WATER TABLE 9
PRELIMINARY ENGINEERING EVALUATIONS AND RECOMMENDATIONS FOR ROADWAY DESIGN **10**
GENERAL 10
SETTLEMENT ANALYSIS IN AREAS WHERE UNSUITABLE (A-4) SOILS ARE LEFT IN PLACE 12
GEOSYNTHETIC REINFORCEMENT (ALTERNATIVE "B") 12
SURCHARGE (ALTERNATIVE "C") 13
SITE PREPARATION 13
FILL MATERIAL 14
EXISTING RESILIENT MODULUS (M_R) VALUE 14
MILLING AND RESURFACING RECOMMENDATIONS 15
PRELIMINARY CONSTRUCTION CONSIDERATIONS **15**
PRELIMINARY GENERAL ROADWAY CONSTRUCTION RECOMMENDATIONS 15
GROUNDWATER CONTROL 15

GEOSOL, Inc.

FHWA REPORT CHECKLIST **16**
RECOMMENDATIONS FOR FURTHER GEOTECHNICAL STUDIES **16**
REPORT LIMITATIONS **16**

APPENDICIES

Appendix "A"
Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: US Geologic Survey Map
Table 1 - Summary of Field Test Locations
Sheets 4 through 18: Test Location Plans
Sheets 19 and 20: Roadway Soil Profiles
Sheet 21: Roadway Soils Survey Sheet

Appendix "B"
Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Moisture Content Test Results
Material Passing the No. 200 Sieve Test Results
Grain-Size Analysis Test Results and Curves
Organic Content Test Results
Environmental Classification Test Results
SFWMD Readings at the S-148 Spillway on Canal C-1 at FEC Railroad
Dade County Design Standard WC-2.2: Average October Ground Water Level

Appendix "C"
Pavement Evaluation Coring and Condition Data
Asphalt Pavement Site and Core Photographs
Test Boring Records (Pavement Coring Locations)
Milling and Resurfacing Recommendations by the Pavement Section of the FDOT Districts 4 and 6 Materials Office
Preliminary Sample Settlement Evaluations (EMBANK Software)
Sheet 22: Geogrid Placement Detail

Appendix "D"
Table 4 – Summary of Constant Head Exfiltration Test Results
Schematics of Constant Head Borehole Exfiltration Testing

Appendix "E"
FHWA Checklist

INTRODUCTION

Project Information

The Florida Department of Transportation (FDOT) District 6 is conducting a Project Development and Environmental (PD&E) study for the improvement of SR 994/ SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue (MP 4.000 to MP 5.162) in Miami-Dade County, Florida. We understand that the objective of the PD&E study is to evaluate the widening of SR 994/ SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue and document information necessary for FDOT to reach a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility. The total length of the project is about 1.162 miles (about 6,135 feet). Sheet 1 of Appendix "A" presents a Site Vicinity Map.

Based on our review of the preliminary plans provided to us, we understand that the proposed roadway improvements that are part of the project generally consist of the following:

- Widening of SR 994/ SW 200th Street/Quail Roost Drive from two (2) lanes roadway to four (4) lanes roadway with turning lanes,
- Widening of SW 137th Avenue south and north of SR 994/ SW 200th Street/Quail Roost Drive,
- Widening of SW 134th Avenue south and north of SR 994/ SW 200th Street/Quail Roost Drive, and
- Asphalt walkway along the Black Creek Canal south and north of SR 994/ SW 200th Street/Quail Roost Drive

This report was specifically prepared to obtain preliminary geotechnical information in the areas of the planned roadway and drainage improvements of the project. This report presents our preliminary field exploration and laboratory testing programs as well as our preliminary geotechnical engineering evaluations and recommendations for the proposed roadway and drainage improvements that are being considered for this project. GEOSOL previously prepared and submitted a report titled *Preliminary Geotechnical Report for Bridges Structures* dated September 17, 2021, which contained the results of the preliminary field exploration and laboratory testing programs as well as the preliminary geotechnical engineering evaluations and recommendations for the proposed bridges structures that are being considered for this project.

PURPOSE AND SCOPE OF STUDY

The purpose of this study was to perform a subsurface investigation along the alignment of the proposed roadway and drainage improvements within the described project limits in order to catalog the general near-surface stratigraphy and provide the following information:

1. Soil stratigraphy at the boring locations. Development of the anticipated soil profile along the roadway and the anticipated subsurface conditions within the depth of influence.

2. Assessment of the existing soil subgrade and groundwater conditions along the alignment of the proposed roadway improvements for suitability of pavement support.

3. General location and description of potential deleterious materials encountered in the borings that may interfere with construction progress or pavement performance, including existing fills, organic soils (A-8), and silty soils (A-4).

4. Site preparation requirements. Engineering criteria for placement and compaction of approved fill materials.

5. Identification of some critical design or construction considerations based on the soil and groundwater conditions developed from the borings.

6. Measurement of groundwater levels in the test locations.

7. General trend of hydraulic conductivity (k-values) along project alignment from the borehole exfiltration testing.

5. Determination of the pavement type, thicknesses and composition from pavement coring program.

6. Determination of base and subbase type material type and thickness in pavement coring locations.

The scope of services for the geotechnical testing program associated with the design and construction of the proposed roadway improvements to achieve the project requirements consisted of the following:

1. Discussing with Gannett Fleming, Inc. (GF) and FDOT District 4 and 6 Materials Office the scope of the preliminary field exploration and laboratory testing programs for this project.

2. Filing permits required for the traffic control and maintenance of traffic (MOT).

3. Conducting a general visual reconnaissance of the site, locate, and coordinate utilities.

4. Reviewing the USDA Soil Survey for Miami-Dade County along the project vicinity.

5. Planning and executing a Maintenance of Traffic (MOT) program in accordance with the FDOT Standard Index Drawings required for performance of the preliminary field exploration program along the proposed roadway improvement limits.

6. Executing a program of preliminary subsurface exploration consisting of subsurface sampling and field testing. The subsurface program was accomplished by performing Standard Penetration Test (SPT) borings, and borehole exfiltration testing.

7. Collecting pavement cores for evaluation of the existing roadway pavement.

8. Visually classifying the samples from the test borings in the laboratory using the American Association of State Highway and Transportation Officials (AASHTO) Classification System for soil samples recovered from roadway borings. The laboratory testing program included grain-size analyses, percent passing the No. 200 sieve, organic content determination, moisture content determination, and FDOT Environmental Classification Testing.

9. Inputting the asphalt pavement core information into the FDOT Pavement Coring Reporting (PCR) System.

10. Preparing a preliminary roadway soils survey report which summarizes the course of study pursued, the preliminary field and laboratory data generated, subsurface conditions encountered, preliminary analyses, preliminary design recommendations, preliminary construction considerations and report limitations.

Report Format

This report begins with a discussion of the preliminary field and laboratory testing programs followed by general and specific subsurface conditions, preliminary geotechnical engineering evaluations and recommendations, construction considerations, and report limitations. The site vicinity map, USDA soil survey map, boring location information, test location plans, Roadway Soil Profiles, and Roadway Soil Survey sheet are presented in Appendix "A" of this report. The laboratory test results are presented in Appendix "B". The results of the pavement coring program, preliminary settlement estimates for the proposed roadway embankment and a Geogrid Placement Detail are presented in Appendix “C”. The borehole exfiltration test results are presented in Appendix “D” of this report. The FHWA Checklist is presented in Appendix “E”.

SITE DESCRIPTION

The site of the study is generally located along SR 994/SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of 127th Avenue in Miami-Dade County, Florida. Within the project limits SR 994 is classified as a rural minor arterial to the center of SW 137th Avenue, and as an urban minor arterial east of NW 137th Avenue. The existing typical roadway section generally consists of a two (2) lane (one in each direction) roadway with paved outside shoulders and turning lanes. Residential areas are generally present within the project limits.

PRELIMINARY FIELD EXPLORATION PROGRAM

General

In order to evaluate the subsurface conditions along the proposed roadway alignment and drainage improvement areas, Standard Penetration Test (SPT) borings, asphalt pavement coring, and borehole exfiltration testing were performed as follows:

- A total of 15 SPT borings to depths of 10 feet at general spacing of 600 feet for proposed roadway widening, sidewalks and bike lanes,
- A total of two (2) pavement cores (C-1 and C-2) from the travel lanes along SR 994 with 2 ft SPT boring at each core locations,
- A total of two (2) pavement cores (SC-1 and SC-2) from the shoulders along SR 994 with 2 ft SPT boring at each core locations,
- One (1) pavement core (C-3) on the SR 994 over Black Creek Canal bridge deck.
- A total of two (2) Borehole Exfiltration tests (EX-1 and EX-2) at depths of 10, 15, and 20 feet at general spacing of 2,000 feet

The tests were performed at the proposed roadway and drainage improvement areas and performed in locations accessible to a truck-mounted drill rig. The preliminary field exploration program was performed between August 16 and 26, 2021.

Field Test Locations

The test locations were marked in the field by representatives of GEOSOL utilizing the concept plans provided to us by GF on that show the proposed improvement limits, standard taping procedures and existing landmarks. The tests were performed as close as possible to the proposed improvements considering constraints such as existing utilities and equipment accessibility. Latitude and longitude coordinates were obtained using a hand-held Global Positioning System (GPS) device (Garmin eTrex 20X) at the test boring location. The GPS data were converted to northing and easting coordinates using the U.S. Army Corps of Engineers software "Corpscon". The ground surface elevations from each test boring location have not been provided to us. The test boring location information is presented in Table 1 of Appendix "A" and the Test Location Plans in Sheets 4 through 18 of Appendix "A".

Standard Penetration Test (SPT) Borings

The borings were performed utilizing a Foremost Mobile Model B-53 truck-mounted drill rig. The SPT borings were all performed with a recently calibrated automatic hammer. The borings were performed in general accordance with the American Society of Testing and Materials (ASTM) test designation D-1586 tilted "Standard Practice for Penetration Test and Split-Barrel Sampling of Soils". All soil samples were classified in the field and placed in air-tight jars for transportation to our office for review by a Geotechnical Engineer and laboratory testing. The test boring location information is provided in Table No. 1 and in the Test Location Plan sheets in Appendix "A".

Pavement Coring

The pavement cores were obtained using a 6-inch diameter core barrel that was attached to an AWJ diameter drilling rod and to a truck mounted drill rig. The core barrel was advanced by slowly drilling through the pavement. Water was used to aid the drilling process and to keep the core barrel cool. Upon reaching the surface of the base materials, the coring process was terminated and the pavement core was retrieved. The total thickness of the pavement was measured and recorded. Measurements of the rut depth and cross slope were measured prior to the performance of the pavement coring program. We have prepared a Pavement Evaluation and Condition Data Sheet and is presented in Appendix "C" along with pavement core and site photographs. The approximate location of the pavement cores is presented in Table 1 and on the Test Location Plan sheets in Appendix "A".

Borehole Exfiltration Tests

The exfiltration tests were performed in general accordance with the FDOT District 6 Exfiltration Trench Reference Manual (ETRM). The tests were performed to determine the hydraulic conductivity values (k) of the subsurface materials. As requested, the borehole exfiltration testing was performed at depths of 10, 15 and 20 feet below existing grades. After completion of the exfiltration tests, the borehole was backfilled with cement grout, the surface was restored, and the site was cleaned as required. The hydraulic conductivity values (k) were determined from the test results and are tabulated and presented in Table 4 of Appendix "D". The hydraulic conductivity values are reported in units of cubic feet per second per square foot of seepage area per foot of head (cfs/ft2-ft.).

Water Level Measurements

Water level depths were obtained during the field testing operations. They are noted on the Roadway Soil Profiles presented in Appendix "A" of this report. In relatively pervious soils/rock, such as the near surface granular soils and porous limestone formation, the indicated water level depths are usually reliable groundwater levels. Seasonal variations, tidal conditions, temperature, land-use, and recent rainfall conditions may influence the depths of the groundwater.

Traffic Control and Signs

Barricades, cones, and sign devices were continuously used in general compliance with Roadway and Traffic Design Standards Index Drawings.

LABORATORY TESTING

General

Representative samples collected from the test boring locations were visually reviewed in the laboratory by a Geotechnical Engineer to confirm the field classifications. The samples from the roadway borings were classified using the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification System in general accordance with the American Society of Testing and Materials (ASTM) test designation D-3282, titled "Classification of Soils and Soils-Aggregate Mixtures for Highway Construction Purposes". The classification was based on visual observations with the aids of laboratory testing results, which consisted of moisture content, grain-size analysis, and percent passing the No. 200 sieve determination. In addition, FDOT Environmental Classification testing was performed on select water samples obtained from SPT borings performed. A summary of the laboratory test results are presented in Table Nos. 2 and 3 of Appendix “B”.

Moisture Content

The laboratory moisture content test consists of the determination of the percentage of moisture contents in selected samples in general accordance with FDOT Test Designation FM1-T265 (ASTM Test Designation D-2216, titled "Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures"). Briefly, the moisture content is determined by weighing a sample of the selected material and then drying it in a warm oven. Care is taken to use a gentle heat so as not to destroy any organics. The sample is removed from the oven and re-weighed. The difference of the two weights is the amount of moisture removed from the sample. The weight of the moisture divided by the weight of the dry soil sample is the percentage by weight of moisture in the sample. The test results are summarized in Table No. 2 of Appendix "B".

Grain-Size Analysis

The grain-size analyses were conducted in general accordance with the FDOT Test Designation FM1-T88 (ASTM Test Designation D-422, titled "Particle-Size Analysis of Soils"). In this manner, the grain-size distribution of a soil is measured. The percentage by weight passing the No. 200 Sieve is also measured, which is the amount of silt and clay sized particles in a particular soil sample. The test results are summarized in Table 2 of Appendix “B”.

Organic Content

Organic content test consists of the determination of the percentage of organic content in selected samples in general accordance with FDOT Test Designation FM1-T267 (ASTM Test Designation D-2974, titled "Moisture, Ash, and Organic Matter of Peat and Other Organic Soils"). Briefly, the organic content is determined by weighing a sample of the selected material and then burning off the organic material in a hot oven. The sample is removed from the oven and re-weighed. The difference of the two weights is the amount of organic material removed from the sample. The weight of the organic material divided by the weight of the dry soil sample is the percentage by weight of organic material in the sample. The organic content test results are summarized in Table No. 2 of Appendix "B".

Environmental Classification

As part of the laboratory testing program, environmental corrosion tests on a water sample recovered from an SPT boring. Environmental corrosion tests include parameters such as pH, resistivity, sulfates content and chlorides content. The environmental corrosion tests were conducted in general accordance with the FDOT Test Designations FM5-550, 5-551, 5-552, and 5-553. Based on the FDOT's “Structures Design Guidelines”, Section 1.3, the environment in the improvements area has been classified as slightly aggressive for the superstructures and moderately aggressive for the substructures and indicated in the Soil Profiles Sheets in Appendix “A”. The test results obtained are presented on Table 3 in Appendix “B”.

GENERALIZED SUBSURFACE CONDITIONS

Regional Geology

The Miami area of southern Florida is underlain by an alternating sequence of cemented and uncemented Pleistocene sedimentary deposits (Pleistocene Epoch, deposited 10,000 to 2 million years before the present). A near surface poorly cemented, oolitic Miami Limestone is underlain by a wide variety of loose to dense quartz sands and coarse to fine-grained limestones (Fort Thompson Formation). However, in many portions of Miami-Dade, surface sand deposits of the Pamlico Formation and man-made fill materials are encountered. The Pamlico Formation is composed of unfossiliferous, unconsolidated quartz fine sand. The man-made fill deposit generally consists of granular fill material. The thickness of these deposits is in the order of three (3) to five (5) feet. Generally, the Pamlico formation overlies the Miami Limestone Formation. In the west part of the county, portions of the Everglades interfingers with the Pamlico Formation sands. The Everglades soils consist of peat, organic silt and calcareous silt marl. Generally, the Everglades soils have a thickness in the order of three (3) to seven (7) feet and overlie the Miami Limestone Formation.

The limestones found in the Miami area are much softer than the hard rock formations found elsewhere in the U.S. Although the limestone in Miami can be very porous and have a sponge-like open interconnected network of vugs and small voids, large cavities prone to sinkhole activity are not generally found in the Miami area because the rock formations of South Florida are relatively young, as compared to those encountered in other parts of Florida.

Miami-Dade County Soil Survey

The *Soil Survey of Miami-Dade County Area, Florida*, published by the United States Department of Agriculture (USDA), was reviewed for general near-surface soil information within the general project vicinity. This information indicates that there are four (4) primary mapping units for this project. The map soil units encountered are as follow:

- Perine marl, drained (6)
- Krome very gravelly loam (7)
- Biscayne marl, drained (16)
- Water (99)

A reproduction of the USDA map for the project area is illustrated on Sheet 2 in Appendix "A".

SITE SUBSURFACE AND GROUNDWATER CONDITIONS

Site Subsurface Conditions

The subsurface conditions disclosed by the borings are generally consistent with the previously described regional geology. The stratification is based on visual examination of the recovered soil/rock samples, laboratory testing, and interpretation of the field boring logs by a Geotechnical Engineer. The boring stratification lines represent the approximate boundaries between soil types of significantly different engineering properties; however, the actual transition may be gradual. In some cases, small variations in properties not considered pertinent to our preliminary engineering evaluation may have been abbreviated for clarity. The borings present the subsurface conditions at the particular boring location and slight variations do occur among the borings. The Roadway Soil Profiles presented in Appendix "A" provide the conditions at the particular test locations.

Presented in Appendix "A" is the site vicinity map, USDA soil survey map, boring location information, Roadway Soil Profiles along with the soil legend and other pertinent information such as measured groundwater table levels. A detailed description of the subsurface materials encountered at the project site is presented below. Specifically, we have identified six (6) strata in the subsoils (besides the existing roadway pavement) along the limits of the project and are described below:

Stratum	Soil Description	AASHTO Group
0	Asphalt Pavement	N/A
1	Dark Brown Organic Silty Fine SAND with Grass (TOPSOIL)	A-8
2	Brown Silty Fine to Coarse SAND with Little to Mostly Limerock Fragments (FILL)	A-1-b

3	Brown Clean to Slightly Silty Fine to Medium SAND with Little Limestone Fragments	A-3
4	Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL)	A-2-4
5	Brown Sandy SILT	A-4
6	Brown Sandy LIMESTONE	N/A

Specific details concerning the subsurface materials and conditions encountered at each test location may be obtained from the Roadway Soil Profiles presented in Appendix "A".

Groundwater Conditions

The groundwater table was measured at each boring location during the performance of the test borings and confirmed immediately following completion of drilling operations. Test borings were performed during the wet season. The groundwater table depths within the roadway borings were measured after a short stabilization period. The groundwater depths ranged from approximately 6.1 to 8.9 feet, with an average of about 7.9 feet, below existing grades. This information is shown on the Roadway Soil Profiles presented in Appendix “A” of this report. Fluctuation in the observed groundwater levels should be expected due to rainfall variation, construction activity and other factors. We recommend that The Designer consider the possibility of such fluctuation.

Estimated Seasonal High Water Table

The estimated seasonal high water table each year is the level in the August-September period at the end of the rainy season during a year of average (normal) rainfall. The water table elevations associated with a flood would be much higher than the seasonal high water table elevations. The normal high water levels would more approximate the seasonal high water table elevations. The seasonal high water table is affected by a number of factors. The drainage characteristic of the soils, the land surface elevation, relief points such as lakes, canals, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high water table elevation.

The borings performed by GEOSOL were generally done during the wet season and the SHGWT is expected to be slightly above the levels measured at the borings performed for this study. Based on our interpretation of the site conditions using the results of our test boring data, we estimate that the normal seasonal high water table is about 6 to 12 inches above the water levels measured in the boring locations.

Based on our interpretation of the site conditions using the results of our test boring data, Miami-Dade County historical groundwater maps, and United States Geological Survey (USGS) historical groundwater data, we estimate that the normal seasonal high water table should range from about +4 to +5 feet (NGVD, 1929). With these recommendations, in our opinion, the roadway base clearance exceeds three (3) feet, which is satisfactory for the performance of the roadway improvements. The range in SHGWT is presented due to the fact that limited groundwater data was collected during the PD&E study. The recommendation for SHGWT should be refined and revisited during final design phase.

PRELIMINARY ENGINEERING EVALUATIONS AND RECOMMENDATIONS FOR ROADWAY DESIGN

General

Results of the soil survey indicate that the project alignment is generally suitable for the proposed roadway improvements when viewed from a geotechnical engineering perspective. However, planning for the roadway improvement should carefully consider the impact of the existing low strength and highly compressible sandy silt (A-4/Stratum 5) to the performance of the proposed roadway improvements. Sandy silt (A-4/Stratum 5) materials were encountered in two (2) test locations (A-6 and A-15) at depths ranging from 2.0 to 7.3 feet below existing grades, with thickness ranging from 1.9 to 3.8 feet and an average thickness of about 2.9 feet.

The use of the following ground improvement alternatives will be considered during final design for the proposed roadway improvements and the most practical and economical selected:

(a) Complete removal of unsuitable soils (A-4) and replacement with select fill material.
(b) No removal of unsuitable soils (A-4) with geogrid reinforcement and geotextile separator. This involves leaving unsuitable soils (A-4) in place and utilizing a geotextile to serve as a separator between the shallow in-situ silt soils and the stabilized subgrade materials as well as a geogrid to serve as reinforcement for the base materials.
(c) Surcharging of silty (A-4) soils without removal (with biaxial geogrid reinforcement).

The following sections of the report preliminarily discuss the advantages and disadvantages of the above-referenced options. Final evaluations will be made during final design based on the results of final design level geotechnical investigations and once the roadway profile and cross-sections are available.

Option (a) above is the best alternative because it eliminates future settlements associated with the proposed roadway widening operations and eliminates roadway maintenance issues. However, this option may not be the most feasible due to the complexity and cost of removing the unsuitable soils (especially at locations where the unsuitable soils were encountered at depths of up to 7.3 feet below existing grades). In addition, the removal of the unsuitable soils may be difficult if underground utility lines are present at the site, as well as MOT requirements during construction.

Alternatives (b) and (c) requires that the compressible silty (A-4) materials remain in place and likely induce primary (i.e. consolidation) and secondary (i.e. long term) settlements after completion of construction as a result of the roadway construction operations and traffic loading. It should be understood that alternatives (b) and (c) do not eliminate long-term settlements and will require periodic roadway maintenance as a result of on-going consolidation (i.e. consolidation) and secondary (i.e. long term) settlements of the silty soils. Alternative (b) preliminarily appears to more effective in that differential settlements are minimized.

For further evaluations of the surcharging alternative (Alternative c), undisturbed soil sampling and testing of the A-4 soils will be required during final design to finalize the settlement analysis. Alternative (c) has a time factor associated with it which must be taken into account, as well as the time and cost associated with the use of excess fill which must be hauled-off the site after surcharging. The final alternative will need to be selected during after design.

TABLE "B" SUMMARY OF GROUND IMPROVEMENT ALTERNATIVES

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
a) Complete Removal of unsuitable (A-4) Soils and Replacement with fill	• Lowest risk to Owner • No quarantine period to dissipate settlement • No future differential settlement • No future maintenance • No impact to drainage • Proven track record	• Cost of removal and disposal of unsuitable (A-4) soils • Cannot compact new fill material under water • Requires select fill with less than 10% fines under water • Impact to local residents • Impact to Maintenance of Traffic (MOT) • Stability of open trench adjacent to traffic
b) No removal of unsuitable soils (A-4) with geogrid reinforcement and geotextile separator	• Moderate risk to Owner • No disposal of A-4 soils • No environmental impact • No impact to drainage • Proven track record	• Long term consolidation of unsuitable (A-4) • Differential settlement between existing and new roadway • Impact to Maintenance of Traffic (MOT)
c) Surcharging Without Removal of Unsuitable (A-4) Soils	• Moderate risk to Owner • No disposal of A-4 soils • No environmental impact • No impact to drainage • Proven track record	• Impact to construction schedule due to surcharge • Cost and maintenance of instrumentation • 1 to 2 months quarantine time to dissipate settlement • Long term consolidation of unsuitable (A-4) soils • Requires significant amount of surcharge fill • Cost of placement and hauling off excess surcharge fill • Differential settlement between existing and new roadway • Impact to local residents • Impact to Maintenance of Traffic (MOT)

It is to be noted that for this phase of the project, the preliminary field exploration program was limited to borings performed at a general spacing of 600 feet center-to-center, which is not sufficient for final design or to properly delineate the vertical and/or horizontal limits of the unsuitable sandy silt (A-4/Stratum 5) materials. During the final design phase once a final design-level field investigation is performed, areas that encountered sandy silt (A-4/Stratum 5) should be further investigated to delineate the extent of these soils. Additionally, the ground improvement for these soils (A-4/Stratum 5) shall be further re-visited with the goal of selecting the most feasible and economical method for improving these soils. The following section presents our preliminary site preparation recommendations.

Settlement Analysis in Areas Where Unsuitable (A-4) Soils are Left in Place

If either Alternatives (b) or (c) are selected, the magnitude of primary consolidation settlement depends on several factors including the coefficient of primary consolidation of the material, thickness of the silt layer, initial void ratio, and moisture content. Additionally, given the variation of Stratum 5 (A-4) thickness, which ranges from 1.9 to 3.8 feet, with an average thickness of about 2.9 feet, differential settlements are also expected. Primary (consolidation) settlement should be expected in areas of new construction where grades will be raised and/or new traffic loading will occur. In areas of the existing roadway shoulder pavement where grades will not be raised, primary consolidations are expected to be negligible since the silt soils have been already compressed/consolidated for a long period of time by the existing fill and roadway traffic.

Based on our analyses, we expect consolidation settlements to range from about 2.8 inch to 3.3 inches if grades are raised by one (1) to two (2) feet, respectfully. The results of our settlement evaluations are summarized in Appendix "C" of this report. It should be noted that these are estimates based on empirical correlations between the initial void ratio and water content of the silt soils and coefficient of primary consolidation, as well as our experience in similar projects. Consolidation test results performed on undisturbed silt or organic samples (Shelby tubes) would yield more accurate settlement estimates.

Geosynthetic Reinforcement (Alternative "b")

If selected, ground improvement Alternative "b" requires that the new stabilized base be reinforced with a biaxial geogrid layer to create a stable roadway base. Additionally, the use of a woven geotextile is required to serve as a separator between the proposed stabilized subgrade materials and the in-situ silt soils that were encountered close to the ground surface. The proposed pavement section would then be constructed on the geogrid-reinforced base with a geotextile serving as a separator. The use of a geogrid will provide increase rigidity and a more uniform stress distribution throughout the base, thus reducing cracking, rutting and erratic pavement profile changes. Also, the use of the geotextile will prevent fines from the in-situ sandy silt layer from pumping up to the base/stabilized subgrade layer and thus reducing the strength of these layers.

We recommend that a geogrid reinforcement layer be placed at the bottom of the proposed base material elevation to provide reinforcement for the new pavement construction areas as well as to minimize any differential settlement between the existing and new pavement construction areas. Also, the geotextile shall be placed below the bottom of the stabilized subgrade material elevation. The biaxial geogrid and geotextile layers shall extend a minimum of three (3) feet measured from the edge of the proposed pavement into the existing adjacent pavement and cover the entire widened area. The biaxial geogrid shall be Type R-2 Geosynthetic and shall provide strength of at least 400 lb/ft at 2% strain in both the machine and cross-machine directions. The geogrid and geotextile material shall be selected from the FDOT Approved Products List (APL). A preliminary Geogrid Placement Detail is presented in Sheet 22 of Appendix "C".

Prior to the placement of the structural asphalt course, we recommend that the site be constructed to the top of the base elevation and remain as such for a period of two (2) weeks in order to allow silty (A-4/Stratum 5) materials to undergo most of the predicted primary (consolidation), as well as a portion of the long term settlement. This waiting period will help to minimize total settlements of the asphalt pavement section. After a minimum period of two (2) weeks, the construction may proceed with the placement of asphalt pavement.

It is to be noted that the use of geogrid reinforcement beneath the pavement section has shown noticeable reduction in future maintenance cycles caused by long-term settlements. However, FDOT and The Designer shall be aware that the use of a biaxial geogrid does not eliminate settlement but help to minimize stretching of the base course materials and pavement surface as future settlement occurs.

Surcharge (Alternative "c")

If ultimately selected, ground improvement Alternative "c" requires a surcharge program to accelerate consolidation settlement of unsuitable subsurface compressible soils (A-4) in the proposed roadway improvements areas. The surcharge geometry, dimensions, and duration shall be determined during the final design. However, generally, three (3) to five (5) feet of fill above the finished grade, and a time frame of one (1) to three (3) months, may be assumed. Additionally, settlement plates will be required for the purpose of monitoring the rate and amount of consolidation settlement and general performance of the surcharge fill. Further, Alternative "c" requires the preparation of Technical Special Provisions during final design.

Site Preparation

Site preparation for roadway widening will most likely include striping of asphalt pavement or vegetation, backfilling, and asphalt pavement construction. Site preparation shall be in accordance with the latest version of the FDOT *Standard Specifications for Road and Bridge Construction*. The following are our preliminary discussions regarding the utilization and the site preparation requirements of the subsurface soils.

- The material from Stratum 0 is the asphalt pavement.
- The material from Stratum 1 is topsoil (A-8) and considered to be unsuitable (muck) and shall be removed. Removal shall be paid as subsoil excavation.
- The material from Strata Numbers 2 and 3 (A-1-b and A-3 soils) are considered to be select and should be utilized in accordance with FDOT Standard Plans for Road and Bridge Construction Index 120-001.
- The materials from Stratum Number 4 (A-2-4) is considered to be select and should be utilized in accordance with FDOT Standard Plans for Road and Bridge Construction Index 120-001. Certain types of A-2-4 material are likely to retain excess moisture and may be difficult to dry and compact. It should be used in the embankment above the water level existing at time of construction.

- The material from Stratum Number 5 (A-4) is considered to be plastic. This material was encountered in two (2) test locations (A-6 and A-15) at depths ranging from 2.0 to 7.3 feet below existing grades, with thickness ranging from 1.9 to 3.8 feet and an average thickness of about 2.9 feet. The preliminary field exploration program performed to this point is not sufficient to properly delineate the vertical and/or horizontal limits of this materials. During the final design phase once a final design-level field investigation is performed, areas that encountered sandy silt (A-4/Stratum 5) should be further investigated to delineate the extent of these soils. Additionally, the ground improvement for these soils (A-4/Stratum 5) will need to be further re-visited with the goal of selecting the most feasible and economical method for improving these soils.

- The material from Stratum Number 6 is the natural limestone formation. This material may be difficult to dewater, excavate and/or penetrate and may require special equipment to do so.

Fill Material

The embankment fill should consist of select material, meeting the requirements of FDOT Standard Plans for Road and Bridge Construction Index 120-001 and shall be constructed in general accordance of Section 120.8 of the FDOT Standard Specifications for Road and Bridge Construction.

Existing Resilient Modulus (M_R) Value

As part of the pavement coring program, SPT borings were performed at the coring location to explore the type and thickness of the base and subgrade materials. The base and subgrade materials encountered at the asphalt pavement coring locations consisted of fine to medium sand with variable percentages of limerock fragments (A-1-b soils). Based on our evaluation of the SPT data and our local experience, the existing base and subgrade soils encountered at the asphalt pavement coring locations appear to have been stabilized and most probably meets a design M_R value of 12,000 pounds per square inch (psi) typically used by FDOT for design. However, for confirmation purposes and if required, we recommend that The Designer makes arrangements through the District Pavement Design Engineer to obtain the M_R (resilient modulus) values of the existing pavement by performing Falling Weight Deflectometer (FWD) testing.

Milling and Resurfacing Recommendations

GEOSOL inputted the asphalt pavement core information into FDOT's Pavement Coring Reporting (PCR) database. The Pavement Section of the FDOT Districts 4 and 6 Materials Office provided us with the milling and resurfacing recommendations for the asphaltic concrete pavement of this project on September 16, 2021. The milling and resurfacing recommendations provided by the Pavement Section of the FDOT Districts 4 and 6 Materials Office are included in Appendix "C".

The District Pavement Materials Engineer, Mr. Jesus Caballero, P.E., has provided the following milling and resurfacing recommendations:

"Base and subgrade consists of slightly silty fine to medium sand with some limerock fragments(A-1-b) cores 1,2, and 4 have 5-in, 5-in, 6-in of asphalt base course (ABC), respectively. Milling recommendations: mill 1.5 inches and repave with 1.5 inches FC-12.5"

These recommendations are based solely on the condition of the existing pavement evaluation and cracking. These recommendations should not be considered final and are subject to change based on the anticipated design loadings, as this information has not been taken into consideration during the preparation of this report.

PRELIMINARY CONSTRUCTION CONSIDERATIONS

Preliminary General Roadway Construction Recommendations

Site preparation shall be in accordance with sections 110 and 120 of the FDOT Standard Specifications for Road and Bridge Construction and FDOT Standard Plan Indices 120-001 and 120-002.

Groundwater Control

Dewatering may be required depending on the construction technique utilized, the invert elevation of the proposed structures and the time of the year when the construction occurs. Successful removal of the existing subsurface materials and installation of the drainage structures may necessitate that the work be performed in-the-dry, thereby requiring temporary lowering of the groundwater table in the proposed excavation areas. De-watering involves lowering the ambient groundwater table below the existing groundwater levels. The Contractor shall be aware that dewatering of the limestone formation may be difficult due to the relatively high permeability of the rock formation. The water from the on-site dewatering operations should be directed to a suitable discharge point and must be adequate to satisfy any local, state or federal regulatory agency. The decision about construction dewatering is left to The Contractor depending on the means and method of the proposed construction.

FHWA REPORT CHECKLIST

In conformance with FDOT and FHWA, a report "Checklist and Guidelines for Review of Geotechnical Reports and Final Plans and Specifications" is required when preparing geotechnical reports. The FHWA checklist for this report is enclosed in Appendix "E".

RECOMMENDATIONS FOR FURTHER GEOTECHNICAL STUDIES

For this PD&E phase of the project, a limited number of test borings were performed for the proposed roadway improvements. Once the preferred alternative for the roadway improvements is chosen, a final design-level geotechnical investigation program will be required for the roadway and drainage improvements. The final design-level geotechnical investigation program should be performed in accordance with the latest version of the FDOT *Soils and Foundations Handbook*. The final design-level field investigation should delineate the extent of areas that encountered silty (A-4) soils.

REPORT LIMITATIONS

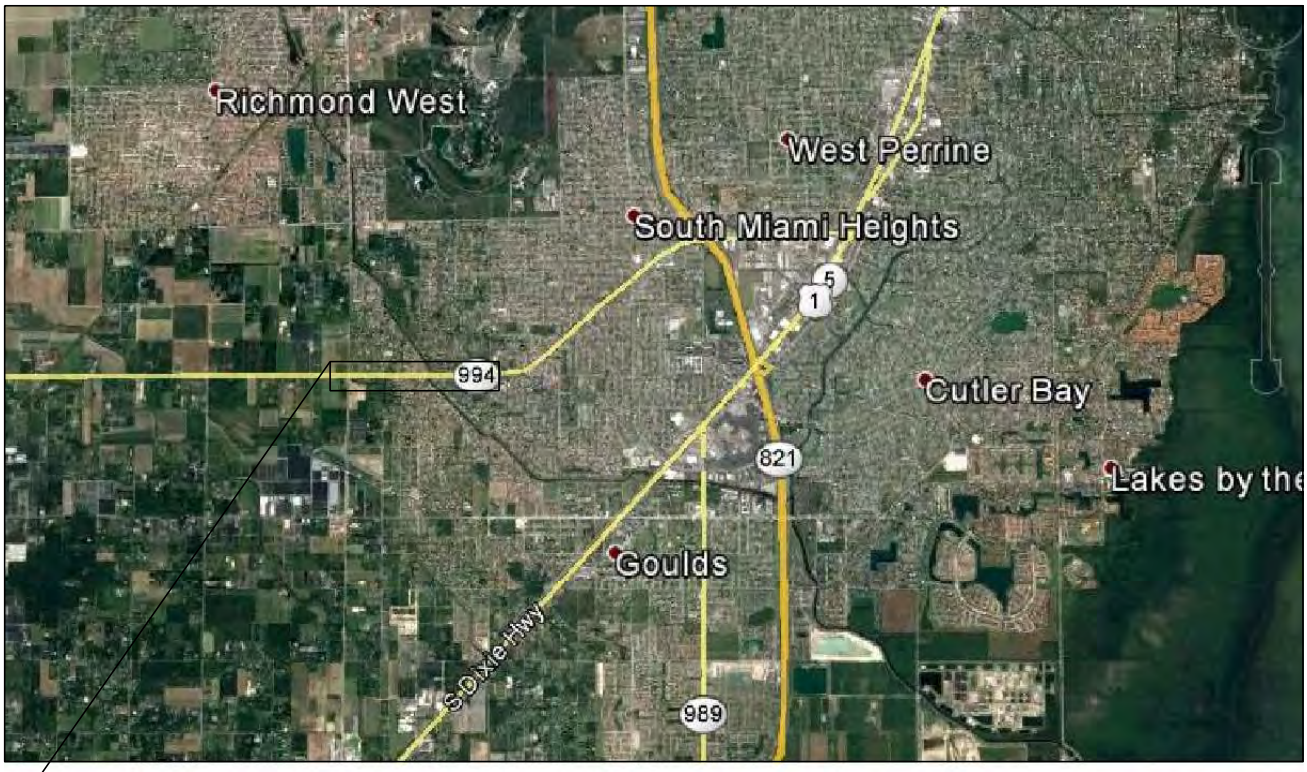
Our professional services have been performed, our preliminary findings obtained, and our preliminary recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on these data. No other warranties are expressed or implied.

The preliminary scope of the investigation was intended to evaluate soil conditions within the influence of the expected roadway and drainage improvements for the PD&E phase of the project. The preliminary analysis and preliminary recommendations submitted in this report are based upon the preliminary data obtained from the soil borings performed at the locations indicated. If any subsoil variations become evident during the course of this project, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the proposed roadway alignment.

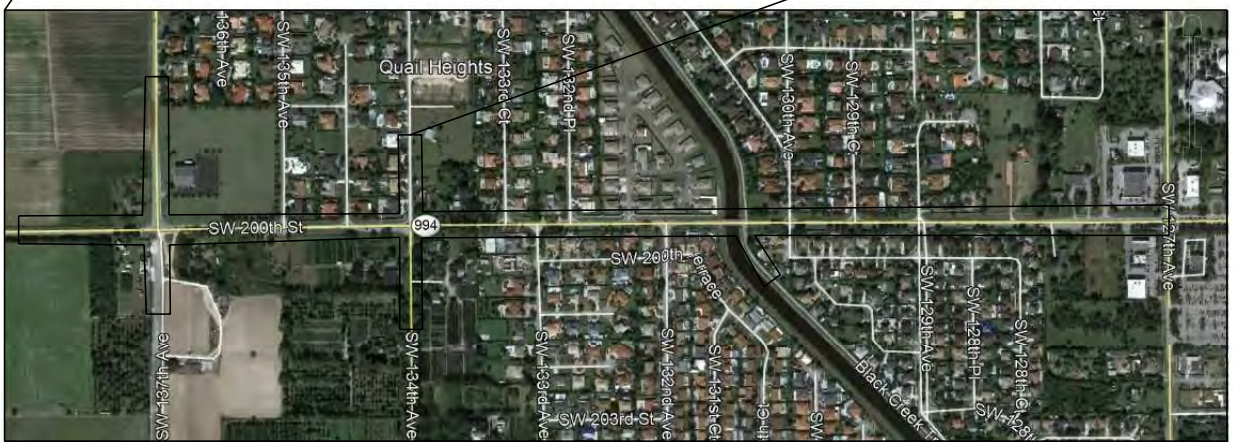
The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

APPENDIX "A"

Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: US Geologic Survey Map
Table 1 - Summary of Field Test Locations
Sheets 4 through 18: Test Location Plans
Sheets 19 and 20: Roadway Soil Profiles
Sheet 21: Roadway Soils Survey Sheet



APPROXIMATE SITE LOCATION



SITE VICINITY MAP

COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: GOOGLE EARTH, 2021

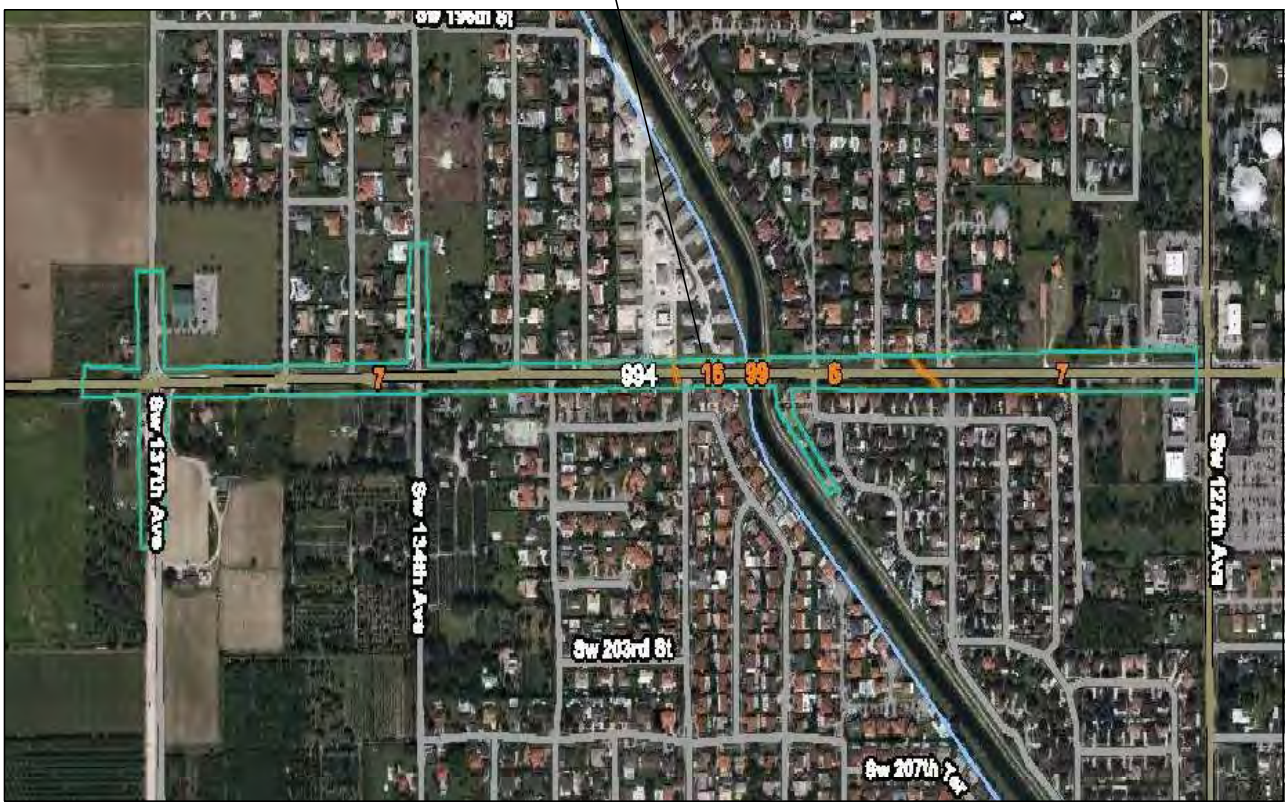
DATE: SEPTEMBER, 2021

SITE VICINITY MAP

SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 1

APPROXIMATE SITE LOCATION



USDA SOILS SURVEY MAP

MAP UNIT	SOIL NAME
6	Perine marl, drained
7	Krome very gravelly loam
16	Biscayne marl, drained
99	Water

COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: NRCS WEB SOILS SURVEY, 2021

DATE: SEPTEMBER, 2021

USDA SOILS SURVEY MAP

SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

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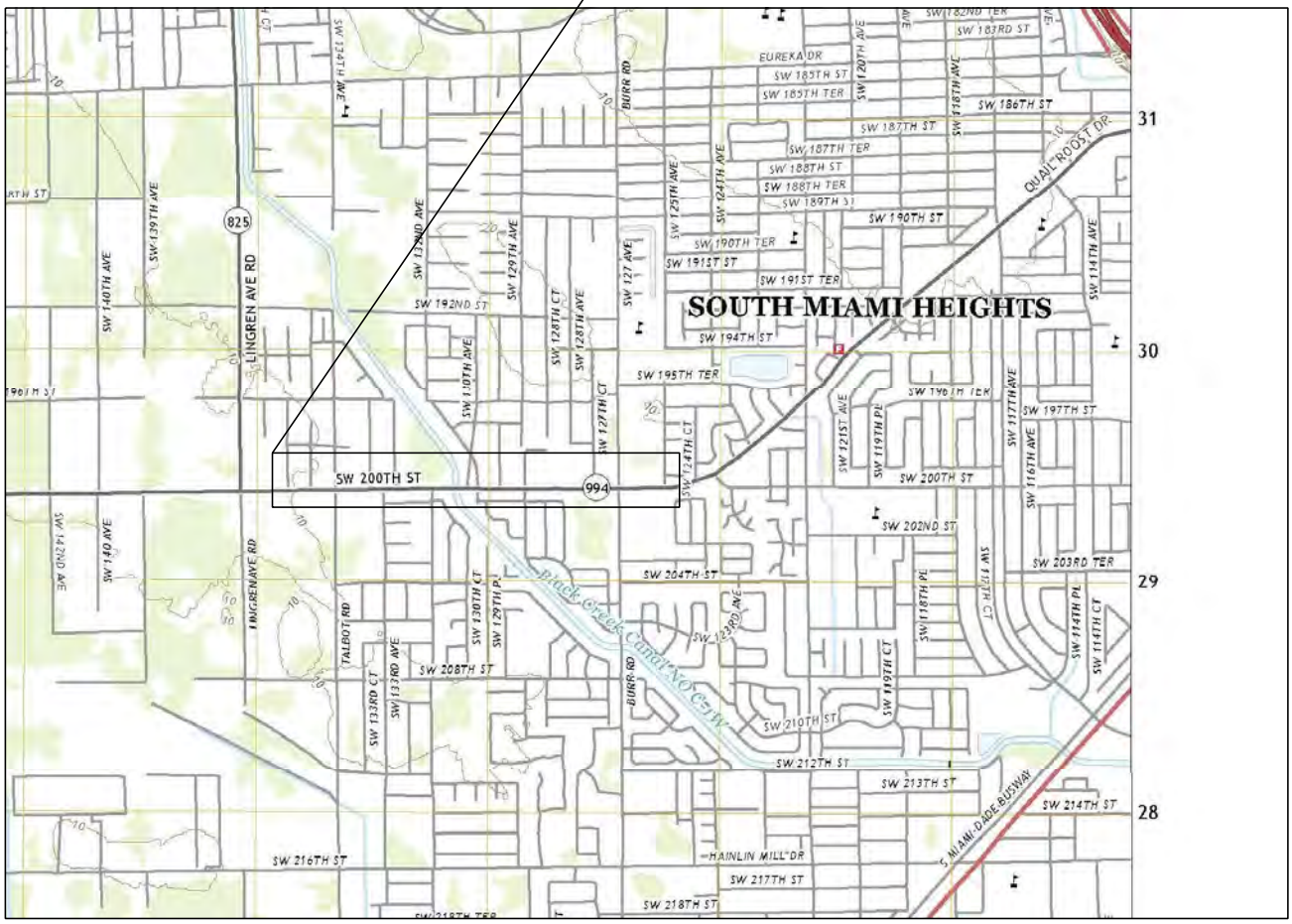
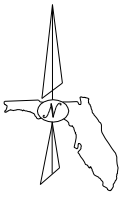
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 2

APPROXIMATE SITE LOCATION



US GEOLOGIC SURVEY MAP



COUNTY: GOULDS, FLORIDA

REFERENCE: MIAMI, FL
U.S. GEOLOGIC SURVEY, 2018

DATE: SEPTEMBER, 2021

US GEOLOGIC SURVEY MAP

SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 3

PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to
East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

TABLE 1 - SUMMARY OF TEST BORING LOCATIONS

BORING / TEST No.	APPROXIMATE TEST LOCATION (FEET)				GROUND SURFACE ELEVATION (FEET)
	NORTHING	EASTING	LATITUDE	LONGITUDE	
A-1	453708	849176	25.580656	-80.414435	N/A
A-2	453716	849685	25.580673	-80.412889	NA
A-3	453767	850378	25.580804	-80.410786	NA
A-4	453787	851018	25.580851	-80.408843	NA
A-5	453801	851602	25.580884	-80.407072	NA
A-6	453761	852205	25.580766	-80.405243	NA
A-7	453764	853275	25.580761	-80.401997	NA
A-8	453833	853874	25.580943	-80.400180	NA
A-9	453762	854496	25.580740	-80.398293	NA
A-10	453392	849591	25.579782	-80.413179	NA
A-11	453983	849585	25.581407	-80.413187	NA
A-12	454546	849565	25.582956	-80.413241	NA
A-13	453221	850895	25.579295	-80.409224	NA
A-14	454212	850892	25.582022	-80.409220	NA
A-15	453658	852690	25.580476	-80.403772	NA
C-1	453775	851023	25.580819	-80.408828	NA
SC-1	453761	849658	25.580796	-80.412972	NA
C-2	453782	852489	25.580819	-80.404383	NA
SC-2	453779	854083	25.580792	-80.399545	NA
C-3	453783	852643	25.580821	-80.403913	NA
EX-1	453801	851853	25.580878	-80.406311	NA
EX-2	453762	854580	25.580738	-80.398037	NA

LEGEND

- A-1: APPROXIMATE SPT BORING LOCATION
- C-1: APPROXIMATE PAVEMENT CORING LOCATION
- EX-1: APPROXIMATE BOREHOLE EXFILTRATION TEST LOCATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 4

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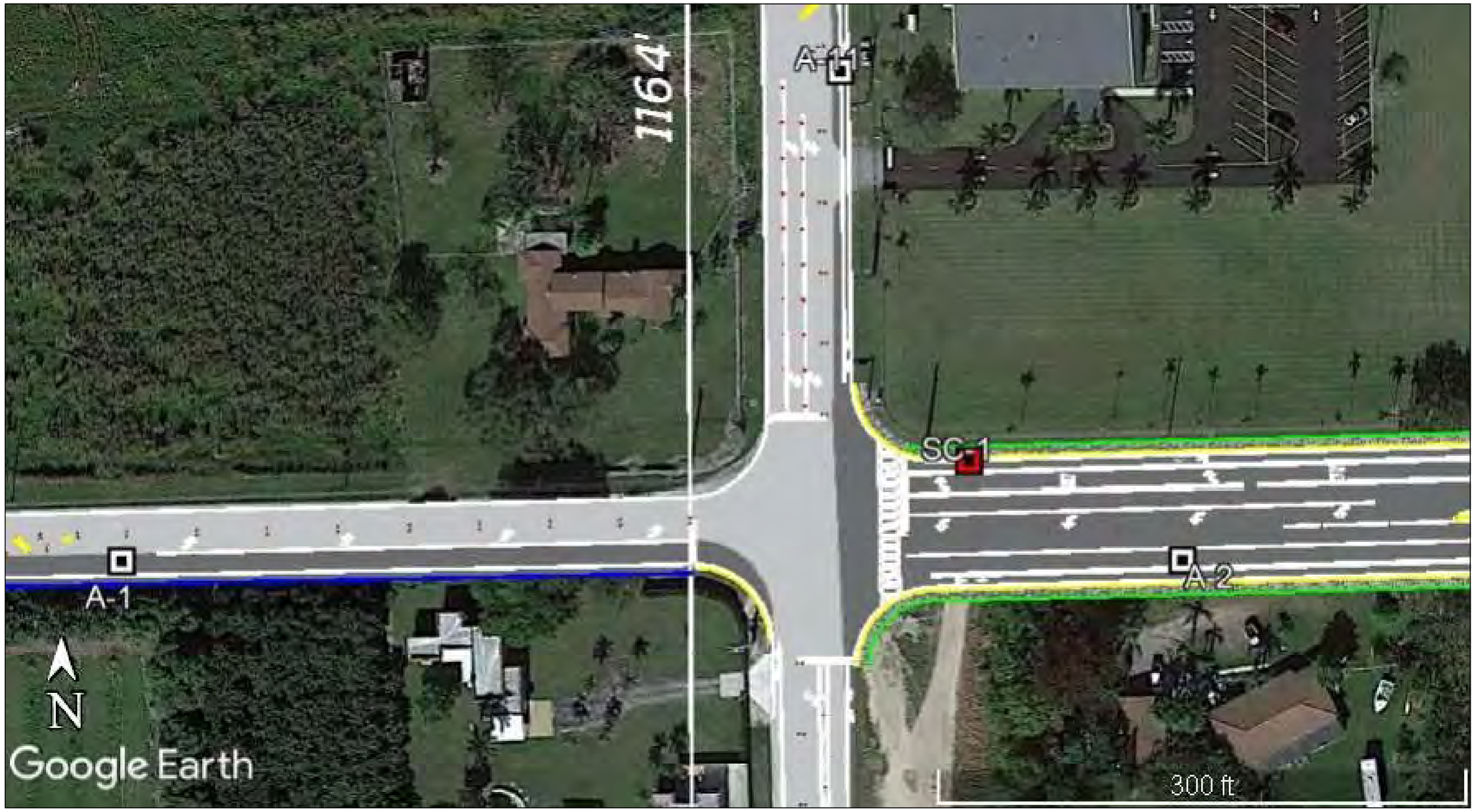

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FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

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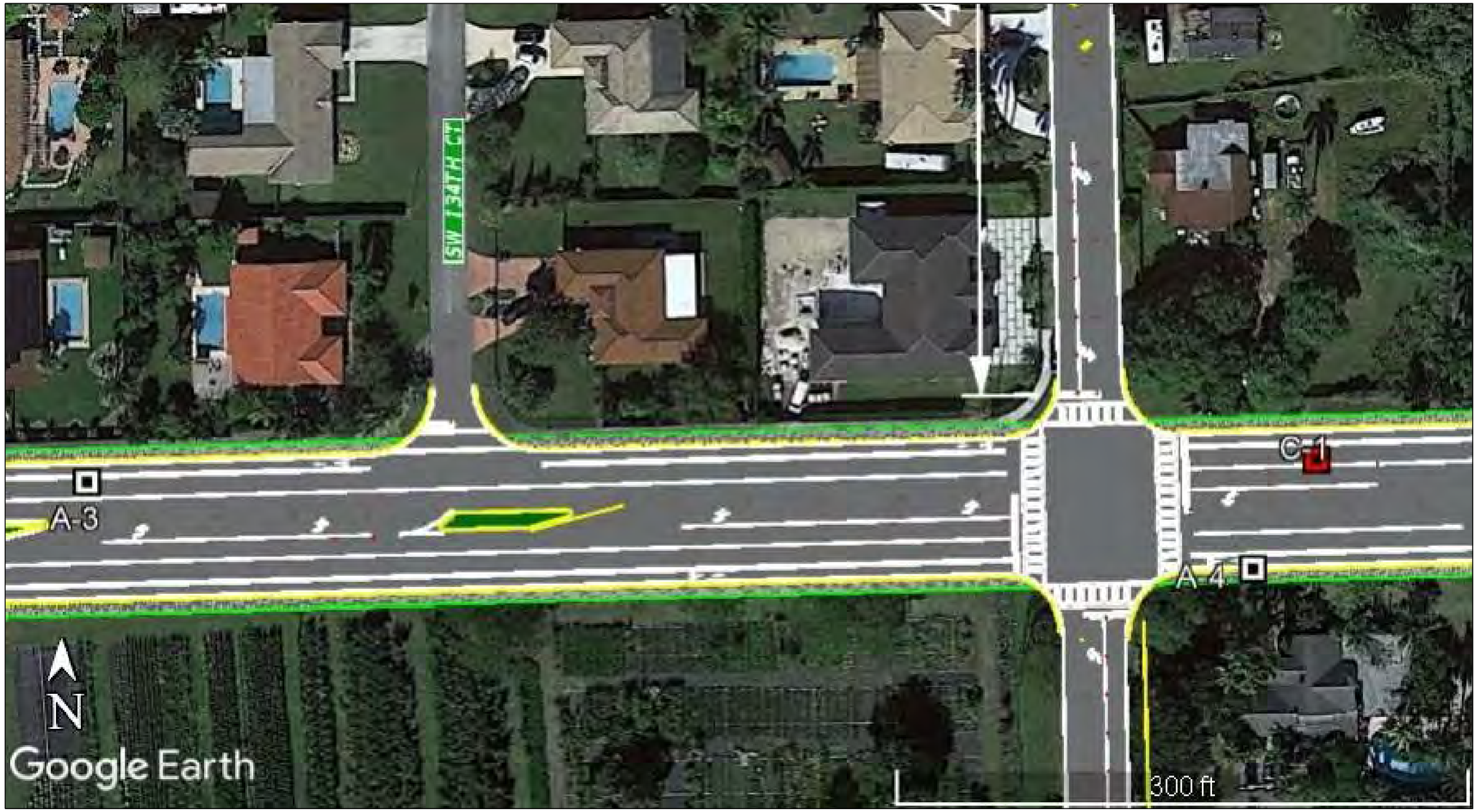

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FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

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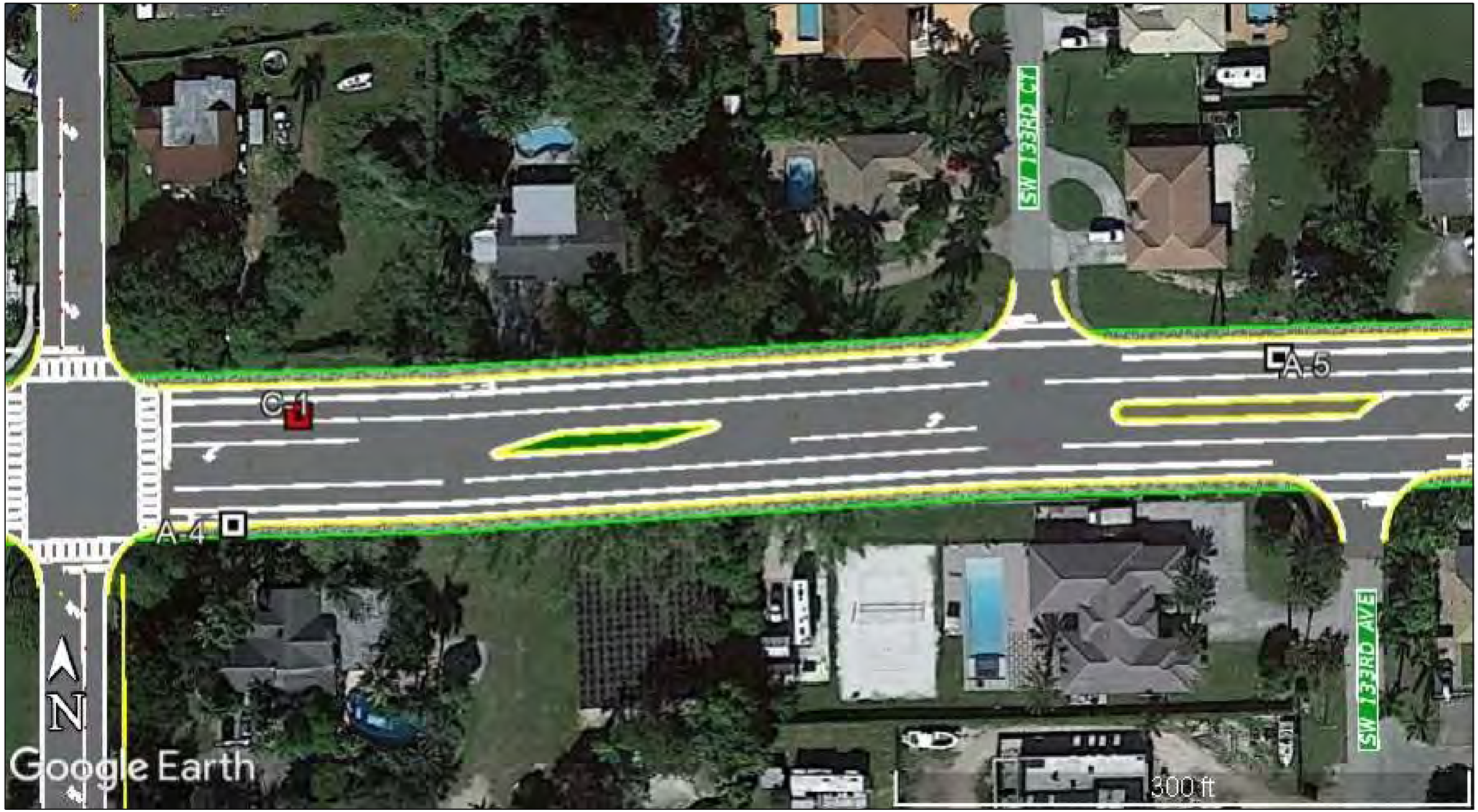

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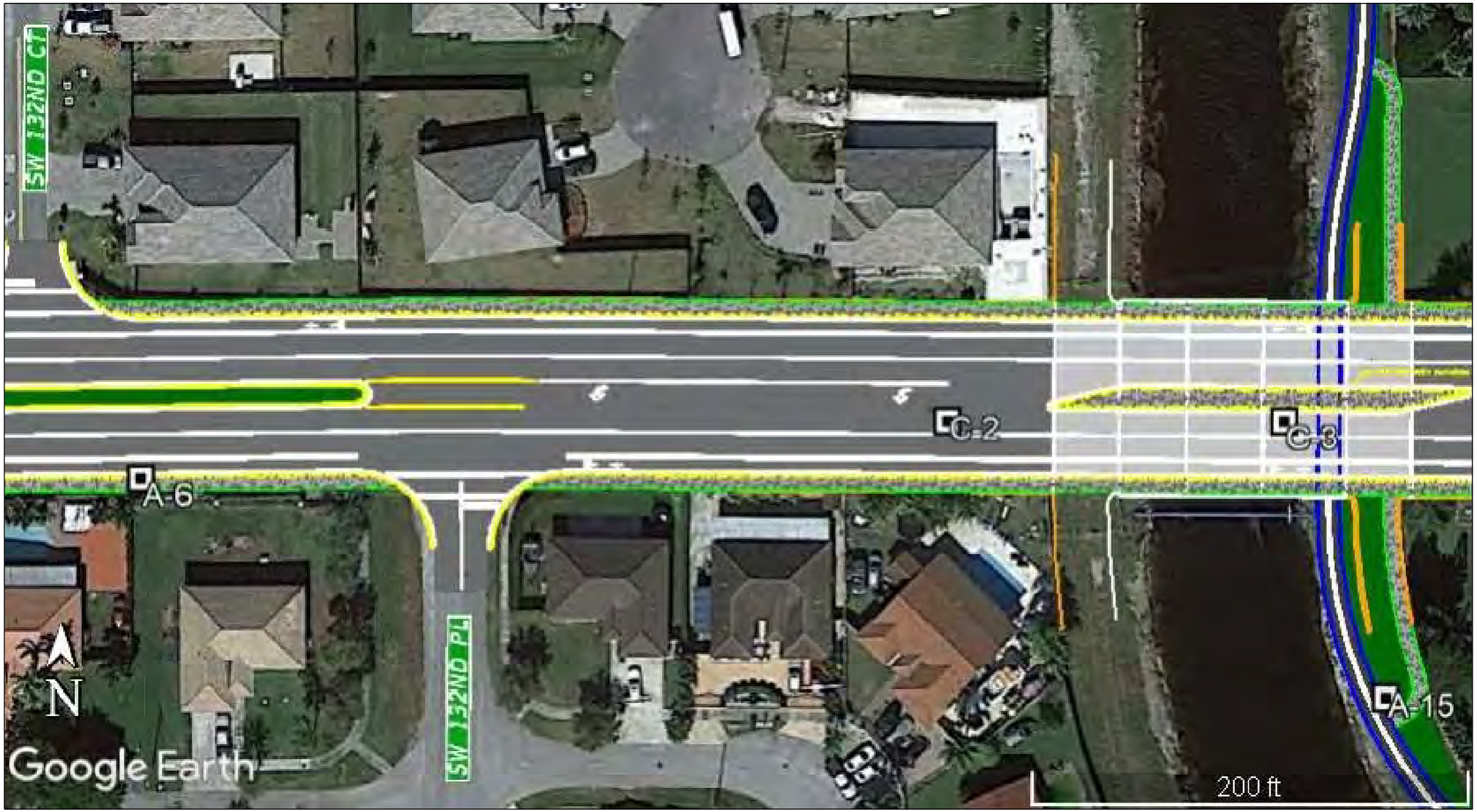

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REF. DWG. NO.

SHEET NO. 12

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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REF. DWG. NO.

SHEET NO. 13

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
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ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

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SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 14

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
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PHONE: (305) 828-4367

DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 15

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 16

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
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5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 17

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REVISIONS					
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ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 18

Juan 9/15/2021 2:56:42 PM Z:\2021\221126\TLP\221126 - TLP-15.dgn

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

LEGEND

0) Asphalt Pavement

1) Dark Brown Organic Silty SAND with Roots (TOPSOIL; A-8)

2) Brown Silty Fine to Coarse SAND with Little to Mostly Limerock (FILL; A-1-b)

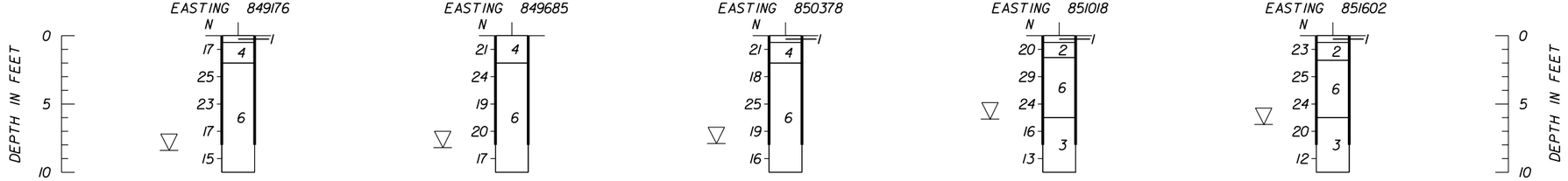
3) Brown Clean to Slightly Silty Fine to Medium SAND with Little Limestone Fragments (A-3)

4) Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL; A-2-4)

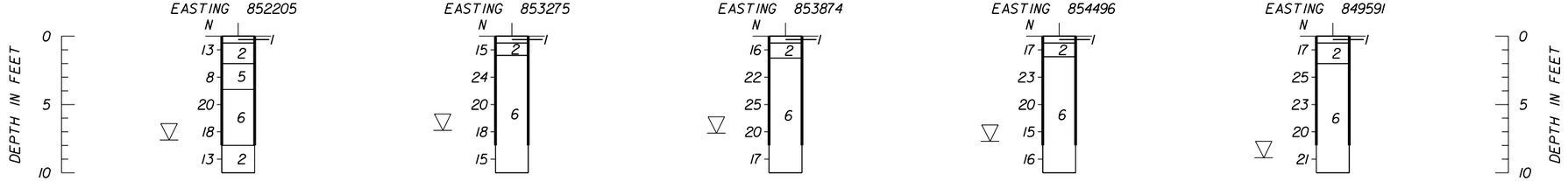
5) Brown Sandy SILT (A-4)

6) Brown Sandy LIMESTONE

	A-1	A-2	A-3	A-4	A-5
BOR #	A-1	A-2	A-3	A-4	A-5
DATE	8/25/2021	8/25/2021	8/25/2021	8/16/2021	8/16/2021
DRILLER	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.
HAMMER	Auto	Auto	Auto	Auto	Auto
RIG	B-53	B-53	B-53	B-53	B-53
LATITUDE	25.580656	25.580673	25.580804	25.580851	25.580884
LONGITUDE	-80.414435	-80.412889	-80.410786	-80.408843	-80.407072
NORTHING	453708	453716	453767	453787	453801
EASTING	849176	849685	850378	851018	851602
N	17, 25, 23, 17, 15	21, 24, 19, 20, 17	21, 18, 25, 19, 16	20, 29, 24, 16, 13	23, 25, 24, 20, 12
Boring Terminated at Depth of 10ft					
Casing Length 8ft					



	A-6	A-7	A-8	A-9	A-10
BOR #	A-6	A-7	A-8	A-9	A-10
DATE	8/26/2021	8/17/2021	8/17/2021	8/17/2021	8/25/2021
DRILLER	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.	R.Morales - GEOSOL, Inc.
HAMMER	Auto	Auto	Auto	Auto	Auto
RIG	B-53	B-53	B-53	B-53	B-53
LATITUDE	25.580766	25.580761	25.580943	25.58074	25.579782
LONGITUDE	-80.405243	-80.401997	-80.40018	-80.398293	-80.413179
NORTHING	453761	453764	453833	453762	453392
EASTING	852205	853275	853874	854496	849591
N	13, 8, 20, 18, 13	15, 24, 20, 18, 15	16, 22, 25, 20, 17	17, 23, 20, 15, 16	17, 25, 23, 20, 21
Boring Terminated at Depth of 10ft					
Casing Length 8ft					



NOTES:

1) SPT BORINGS PERFORMED PER ASTM D-1586 WITH A HAMMER WEIGHT OF 140 LBS FALLING 30 INCHES.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12" PENETRATION (UNLESS OTHER WISE NOTED).

WOH WEIGHT OF HAMMER

2) ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: MODERATELY AGGRESSIVE

WATER:

pH: 8.0

CHLORIDE: 56 PPM

SULFATE: 9 PPM

RESISTIVITY: 1,067 OHM-CM

GRANULAR MATERIALS- RELATIVE DENSITY	AUTOMATIC SPT HAMMER (BLOWS PER FOOT)
VERY LOOSE	LESS THAN 3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS CONSISTANCY	AUTOMATIC SPT HAMMER (BLOWS PER FOOT)
VERY SOFT	LESS THAN 1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	GREATER THAN 24

0 2 10

Feet

VERTICAL SCALE

HORIZONTAL SCALE: N.T.S.

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

ROADWAY SOIL PROFILES

SHEET NO. 19

LEGEND

0) Asphalt Pavement

1) Dark Brown Organic Silty SAND with Roots (TOPSOIL; A-8)

2) Brown Silty Fine to Coarse SAND with Little to Mostly Limerock (FILL; A-1-b)

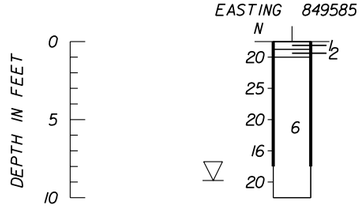
3) Brown Clean to Slightly Silty Fine to Medium SAND with Little Limestone Fragments (A-3)

4) Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL; A-2-4)

5) Brown Sandy SILT (A-4)

6) Brown Sandy LIMESTONE

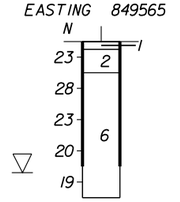
BOR #	A-11
DATE	8/25/2021
DRILLER	R.Morales - GEOSOL, Inc.
HAMMER	Auto
RIG	B-53
LATITUDE	25.581407
LONGITUDE	-80.413187
NORTHING	453983
EASTING	849585



Boring Terminated at Depth of 10ft

Casing Length 8ft

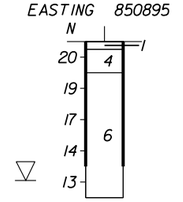
BOR #	A-12
DATE	8/25/2021
DRILLER	R.Morales - GEOSOL, Inc.
HAMMER	Auto
RIG	B-53
LATITUDE	25.582956
LONGITUDE	-80.413241
NORTHING	454546
EASTING	849565



Boring Terminated at Depth of 10ft

Casing Length 8ft

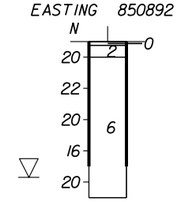
BOR #	A-13
DATE	8/26/2021
DRILLER	R.Morales - GEOSOL, Inc.
HAMMER	Auto
RIG	B-53
LATITUDE	25.579295
LONGITUDE	-80.409224
NORTHING	453221
EASTING	850895



Boring Terminated at Depth of 10ft

Casing Length 8ft

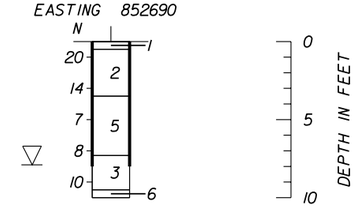
BOR #	A-14
DATE	8/26/2021
DRILLER	R.Morales - GEOSOL, Inc.
HAMMER	Auto
RIG	B-53
LATITUDE	25.582022
LONGITUDE	-80.40922
NORTHING	454212
EASTING	850892



Boring Terminated at Depth of 10ft

Casing Length 8ft

BOR #	A-15
DATE	8/26/2021
DRILLER	R.Morales - GEOSOL, Inc.
HAMMER	Auto
RIG	B-53
LATITUDE	25.580476
LONGITUDE	-80.403772
NORTHING	453658
EASTING	852690



Boring Terminated at Depth of 10ft

Casing Length 8ft

NOTES:

1) SPT BORINGS PERFORMED PER ASTM D-1586 WITH A HAMMER WEIGHT OF 140 LBS FALLING 30 INCHES.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12" PENETRATION (UNLESS OTHER WISE NOTED).

WOH WEIGHT OF HAMMER

2) ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

SUBSTRUCTURE: MODERATELY AGGRESSIVE

WATER:

pH:	8.0
CHLORIDE:	56 PPM
SULFATE:	9 PPM
RESISTIVITY:	1,067 OHM-CM

GRANULAR MATERIALS-RELATIVE DENSITY	AUTOMATIC SPT HAMMER (BLOWS PER FOOT)
VERY LOOSE	LESS THAN 3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS CONSISTANCY	**AUTOMATIC SPT HAMMER (BLOWS PER FOOT)**
VERY SOFT	LESS THAN 1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	GREATER THAN 24

0 2 10

Feet

VERTICAL SCALE

HORIZONTAL SCALE: N.T.S.

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

ROADWAY SOIL PROFILES

SHEET NO. 20

DATE OF SURVEY: 8/16/2021 - 8/26/2021
SURVEY MADE BY: ORACIO RICCOBONO, P.E.
SUBMITTED BY: GEOSOL, Inc.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
MATERIALS AND RESEARCH

FPID NO. 445804-1-22-01
PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA

DISTRICT: 6
ROAD NO.: SR 994
COUNTY: MIAMI-DADE

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA. : N/A SURVEY ENDS STA. : N/A REFERENCE: N/A

	MOISTURE CONTENT		ORGANIC CONTENT		SIEVE ANALYSIS RESULTS PERCENT PASS											CORROSION TEST RESULTS				
STRATUM NO.	NO. OF TESTS	MOISTURE CONTENT	NO. OF TESTS	% ORGANIC	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	AASHTO GROUP	DESCRIPTION	NO. OF TESTS	RESISTIVITY ohms cm	CHLORIDE ppm	SULFATES ppm	pH
0														N/A	Asphalt Pavement					
1	5	18-63	5	7-24										A-8	Dark Brown Organic Silty Fine SAND with Grass (TOPSOIL)					
2	2	13-19			2	43-65	32-50	28-39	23-24	12-20				A-1-b	Brown Silty Fine to Coarse SAND with Little to Mostly Limerock Fragments (FILL)					
3	2	24-27			2	72-79	64-71	47-54	16-18	8				A-3	Brown Clean to Slightly Silty Fine to Medium SAND with Little Limestone Fragments					
4	4	10-15			4	60-82	50-69	34-56	27-41	20-34				A-2-4	Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL)					
5	2	37-51			2					90-96				A-4	Brown Sandy SILT					
6														N/A	Brown Sandy LIMESTONE					
N/A														N/A	Water	1	1,067	56	9	8.0

EMBANKMENT AND SUBGRADE MATERIAL

STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.

▽ - WATER TABLE ENCOUNTERED

GNE - GROUNDWATER NOT ENCOUNTERED

Notes:

1) The material from Stratum 0 is the asphalt pavement.

2) The material from Stratum 1 is topsoil (A-8) and considered to be unsuitable (muck) and shall be removed. Removal shall be paid as subsoil excavation.

3) The material from Strata Numbers 2 and 3 (A-1-b and A-3 soils) are considered to be select and should be utilized in accordance with FDOT Standard Plans for Road and Bridge Construction Index 120-001.

4) The materials from Stratum Number 4 (A-2-4) is considered to be select and should be utilized in accordance with FDOT Standard Plans for Road and Bridge Construction Index 120-001. Certain types of A-2-4 material are likely to retain excess moisture and may be difficult to dry and compact. It should be used in the embankment above the water level existing at time of construction.

5) The material from Stratum Number 5 (A-4) is considered to be plastic. This material was encountered in two (2) test locations (A-6 and A-15) at depths ranging from 2.0 to 7.3 feet below existing grades, with thickness ranging from 1.9 to 3.8 feet and an average thickness of about 2.9 feet. The preliminary field exploration program performed to this point is not sufficient to properly delineate the vertical and/or horizontal limits of this materials. During the final design phase once a final design-level field investigation is performed, areas that encountered sandy silt (A-4/Stratum 5) should be further investigated to delineate the extent of these soils. Additionally, the ground improvement for these soils (A-4/Stratum 5) shall be further re-visited with the goal of selecting the most feasible and economical method for improving these soils.

6) The material from Stratum Number 6 is the natural limestone formation. This material may be difficult to dewater, excavate and/or penetrate and may require special equipment to do so.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FPID No.
SR 994	MIAMI-DADE	445804-1-22-01

ROADWAY SOILS SURVEY

SHEET NO. 21

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

APPENDIX "B"

Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Moisture Content Test Results
Material Passing the No. 200 Sieve Test Results
Grain-Size Analysis Test Results and Curves
Organic Content Test Results
Environmental Classification Test Results
SFWMD Readings at the S-148 Spillway on Canal C-1 at FEC Railroad
Dade County Design Standard WC-2.2: Average October Ground Water Level

TABLE 2 - SUMMARY OF LABORATORY TEST RESULTS
Proposed Quail Roost Drive PDE_GANNETT FLEMING
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No.: 221126

BORING NUMBER	SAMPLE NUMBER	STRATUM NUMBER	AASHTO Group	Sample Depth (FEET)	Sieve Analysis (Percent Passing)									Organic Content (%)	Natural Moisture Content (%)
					1"	3/4"	3/8"	#4	#10	#40	#60	#100	#200		
A-10	1	1	A-8	0.0 - 0.5	-	-	-	-	-	-	-	-	-	8	19
A-11	1	1	A-8	0.0 - 0.5	-	-	-	-	-	-	-	-	-	9	26
A-4	1	1	A-8	0.0 - 0.5	-	-	-	-	-	-	-	-	-	7	26
A-5	1	1	A-8	0.0 - 0.5	-	-	-	-	-	-	-	-	-	24	63
A-7	1	1	A-8	0.0 - 0.5	-	-	-	-	-	-	-	-	-	9	18
A-12	1	2	A-1-b	0.5 - 2.0	100	97	69	55	43	32	28	24	20	-	13
A-9	1	2	A-1-b	0.5 - 1.5	100	100	92	81	65	50	39	23	12	-	19
A-4	5	3	A-3	8.0 - 10.0	100	100	89	83	79	71	54	18	8	-	24
A-5	5	3	A-3	8.0 - 10.0	100	100	89	79	72	64	47	16	8	-	27
A-1	1	4	A-2-4	0.5 - 2.0	100	94	84	75	70	61	53	39	32	-	10
A-13	1	4	A-2-4	0.5 - 2.0	100	100	89	78	69	61	52	39	33	-	14
A-2	1	4	A-2-4	0.0 - 2.0	100	95	82	66	60	50	34	27	20	-	12
A-3	1	4	A-2-4	0.5 - 2.0	100	96	89	86	82	69	56	41	34	-	15
A-15	3	5	A-4	4.0 - 6.0	-	-	-	-	-	-	-	-	90	-	51
A-6	2	5	A-4	2.0 - 3.9	-	-	-	-	-	-	-	-	96	-	37

TABLE 3 - SUMMARY OF ENVIRONMENTAL CLASSIFICATION TEST RESULTS
Proposed Quail Roost Drive PDE_GANNETT FLEMING
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No.: 221126

Sample Location	Sample Type	Depth (ft)	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	FDOT ENVIRONMENTAL CLASSIFICATION	
							Steel	Concrete
A-15	WATER	7.9	8.0	1,067	56	9	MA	MA

NOTES: (1) The following FDOT laboratory test methods were utilized.

4500H+ (pH)

EPA 120.1 (Equivalent to FM5-551: Resistivity)

EPA-300 (Equivalent to FM5-552: Chlorides)

EPA-300 (Equivalent to FM5-553: Sulfates)

(2) SA: SLIGHTLY AGGRESSIVE

(3) MA: MODERATELY AGGRESSIVE

(4) EA: EXTREMELY AGGRESSIVE

FDOT Criteria for Substructure Environmental Classification (FDOT *Structures Design Guidelines*)

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO_4	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	< 500		< 500	
	SO_4	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					
pH = acidity ($-\log_{10}H^+$; potential of Hydrogen), Cl = chloride content, SO_4 = Sulfate content.						

MOISTURE CONTENT TEST RESULTS (ASTM D-2216)

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 9/1/2021

Boring No.	A-4	A-5	A-5	A-4	A-7
Sample No.	1	1	5	5	1
Sample Depth (Feet)	0-0.5	0-0.5	8-10	8-10	0-0.5
Tare No.	4E	11	4Y	10	4R
Tare plus wet soil (grams)	37.5	52.6	383.9	387.4	40.3
Tare plus dry soil (grams)	31.3	35.2	304.0	313.3	35.4
Water Ww (grams)	6.2	17.4	79.9	74.1	4.9
Tare (grams)	7.7	7.7	7.5	7.6	7.6
Dry soil Ws (grams)	23.6	27.5	296.5	305.7	27.8
Water Content w (%)	26.3	63.3	26.9	24.2	17.6

Boring No.	A-9	A-11	A-10	A-3	A-1
Sample No.	1	1	1	1	1
Sample Depth (Feet)	0.5-1.5	0-0.5	0-0.5	0.5-2	0.5-2
Tare No.	30	4Q	31	4D	4I
Tare plus wet soil (grams)	104.5	48.8	42.5	265.4	354.1
Tare plus dry soil (grams)	89.2	40.4	36.9	232.2	323.1
Water Ww (grams)	15.3	8.4	5.6	33.2	31.0
Tare (grams)	7.4	7.6	7.3	7.7	7.8
Dry soil Ws (grams)	81.8	32.8	29.6	224.5	315.3
Water Content w (%)	18.7	25.6	18.9	14.8	9.8

Boring No.	A-2	A-12	A-13	A-15	A-6
Sample No.	1	1	1	3	2
Sample Depth (Feet)	0-2	0.5-2	0.5-2	4-6	2-3.9
Tare No.	M	C-2	10	C-4	04
Tare plus wet soil (grams)	330.8	364.8	379.1	240.9	279.2
Tare plus dry soil (grams)	295.2	325.1	332.4	161.8	205.8
Water Ww (grams)	35.6	39.7	46.7	79.1	73.4
Tare (grams)	7.2	7.6	7.7	7.7	7.6
Dry soil Ws (grams)	288.0	317.5	324.7	154.1	198.2
Water Content w (%)	12.4	12.5	14.4	51.3	37.0

MATERIAL PASSING THE # 200 SIEVE TEST RESULTS (AASHTO T-11)

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 9/1/2021

Boring No.	A-5	A-4	A-9	A-3	A-1
Sample No.	5	5	1	1	1
Sample Depth (Feet)	8-10	8-10	0.5-1.5	0.5-2	0.5-2
Original Dry Weight of Soil (grams)	296.5	305.7	81.8	224.5	315.3
Weight of Soil After Washing (grams)	273.6	281.2	71.7	147.5	213.4
Weight of Soil Passing 200 Sieve (grams)	22.9	24.5	10.1	77.0	101.9
Percent of Soil Passing 200 Sieve (%)	7.7	8.0	12.3	34.3	32.3

Boring No.	A-2	A-12	A-13	A-15	A-6
Sample No.	1	1	1	3	2
Sample Depth (Feet)	0-2	0.5-2	0.5-2	4-6	2-3.9
Original Dry Weight of Soil (grams)	288.0	317.5	324.7	154.1	198.2
Weight of Soil After Washing (grams)	230.9	254.3	218.8	15.7	7.4
Weight of Soil Passing 200 Sieve (grams)	57.1	63.2	105.9	138.4	190.8
Percent of Soil Passing 200 Sieve (%)	19.8	19.9	32.6	89.8	96.3

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-5
Sample No. 5
Depth (feet) 8-10

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND with Little of Limestone Fragments (A-3)

Tare #	Dry Soil Wt.
4Y	296.5

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	33.6	11.3	88.7	88.7	33.6
4.75	4.75mm #4	62.4	21.0	79.0	79.0	28.8
2.36	2 mm #10	81.8	27.6	72.4	72.4	19.4
0.6	425um #40	107.2	36.2	63.8	63.8	25.4
0.3	250um #60	155.8	52.5	47.5	47.5	48.6
0.15	150um #100	249.0	84.0	16.0	16.0	93.2
0.075	75um #200	273.6	92.3	7.7	7.7	24.6
PAN	-	296.5	100.0	0.0	0.0	22.9

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

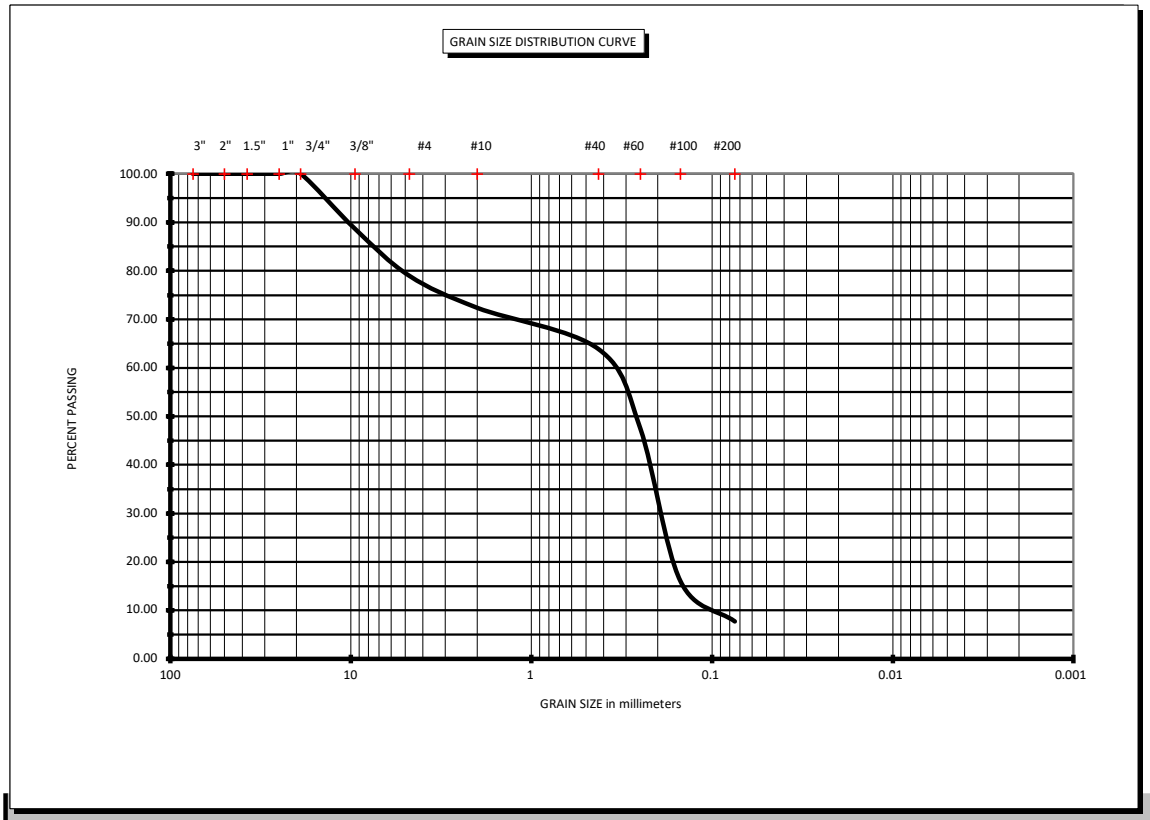
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-5 **SAMPLE #** 5 **Depth (feet)** 8-10

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND with Little of Limestone Fragments (A-3)

Natural Moisture Content: 26.9%

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-4
Sample No. 5
Depth (feet) 8-10

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND with Little of Limestone Fragments (A-3)

Tare #	Dry Soil Wt.
10	305.7

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	33.3	10.9	89.1	89.1	33.3
4.75	4.75mm #4	50.8	16.6	83.4	83.4	17.5
2.36	2 mm #10	64.3	21.0	79.0	79.0	13.5
0.6	425um #40	89.7	29.3	70.7	70.7	25.4
0.3	250um #60	139.9	45.8	54.2	54.2	50.2
0.15	150um #100	251.1	82.1	17.9	17.9	111.2
0.075	75um #200	281.2	92.0	8.0	8.0	30.1
PAN	-	305.7	100.0	0.0	0.0	24.5

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

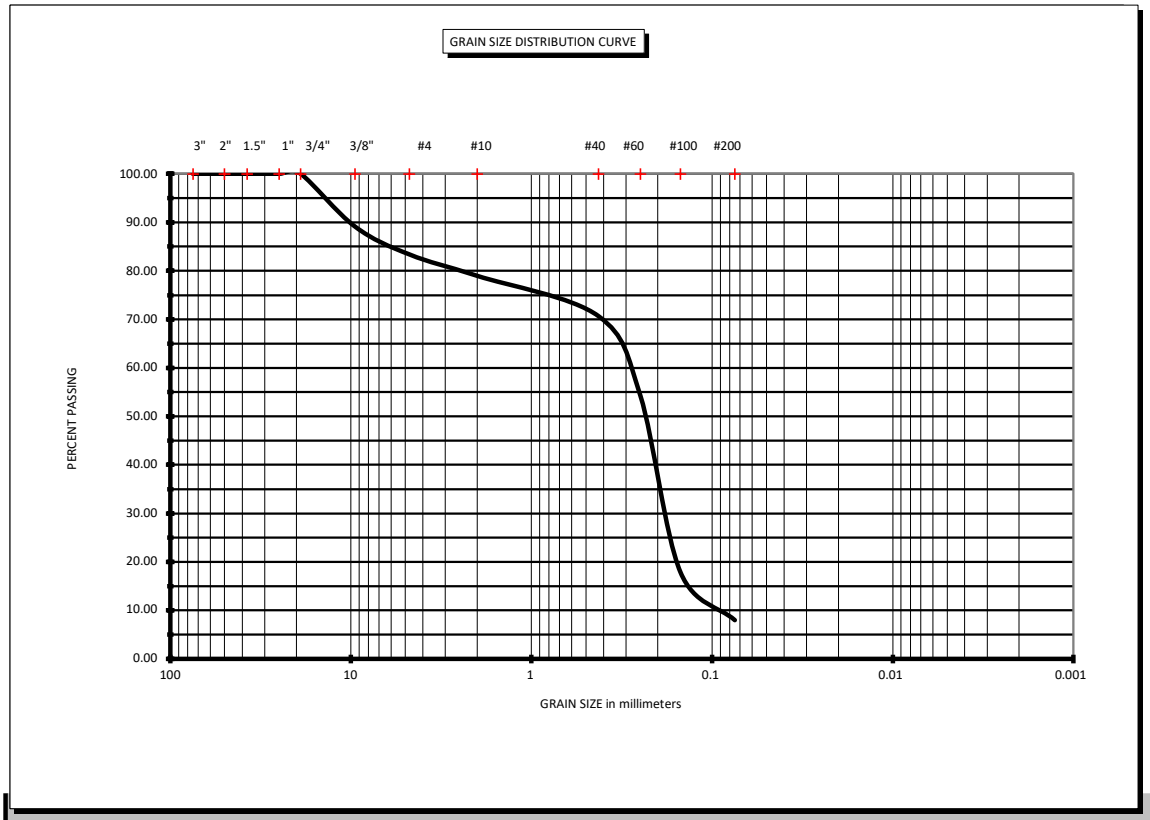
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-4 **SAMPLE #** 5 **Depth (feet)** 8-10

SOIL DESCRIPTION: Brown Slightly Silty Fine to Medium SAND with Little of Limestone Fragments (A-3)

Natural Moisture Content: 24.2%

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-9
Sample No. 1
Depth (feet) 0.5-1.5

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Little of Limerock Fragments (FILL; A-1-b)

Tare #	Dry Soil Wt.
30	81.8

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	6.4	7.8	92.2	92.2	6.4
4.75	4.75mm #4	15.7	19.2	80.8	80.8	9.3
2.36	2 mm #10	28.5	34.8	65.2	65.2	12.8
0.6	425um #40	41.2	50.4	49.6	49.6	12.7
0.3	250um #60	49.6	60.6	39.4	39.4	8.4
0.15	150um #100	62.9	76.9	23.1	23.1	13.3
0.075	75um #200	71.7	87.7	12.3	12.3	8.8
PAN	-	81.8	100.0	0.0	0.0	10.1

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

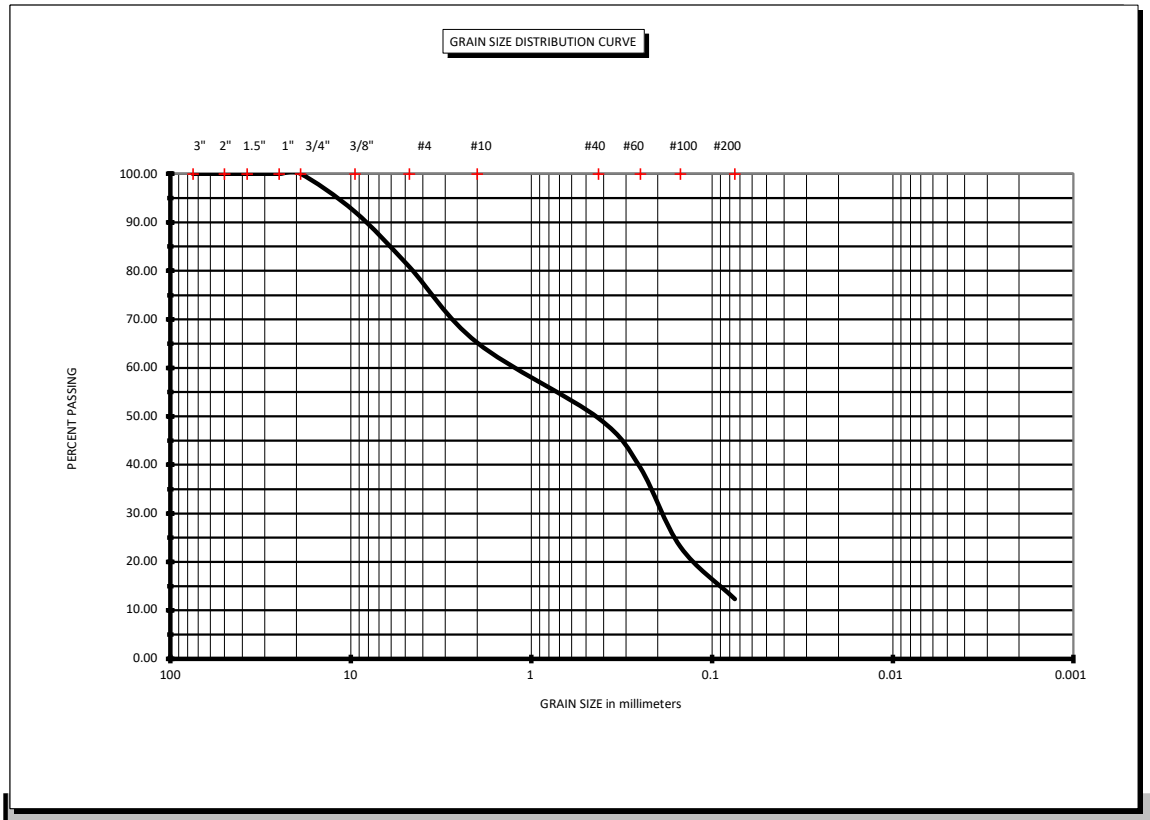
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-9 **SAMPLE #** 1 **Depth (feet)** 0.5-1.5

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Little of Limerock Fragments (FILL; A-1-b)

Natural Moisture Content: 18.7%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-3
Sample No. 1
Depth (feet) 0.5-2

SOIL DESCRIPTION: Brown Silty Fine SAND with Few to Little Limestone Fragments (A-2-4)

Tare #	Dry Soil Wt.
4D	224.5

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	8.3	3.7	96.3	96.3	8.3
9.5	9.5mm 3/8"	25.5	11.4	88.6	88.6	17.2
4.75	4.75mm #4	31.3	13.9	86.1	86.1	5.8
2.36	2 mm #10	40.9	18.2	81.8	81.8	9.6
0.6	425um #40	70.3	31.3	68.7	68.7	29.4
0.3	250um #60	98.4	43.8	56.2	56.2	28.1
0.15	150um #100	131.9	58.8	41.2	41.2	33.5
0.075	75um #200	147.5	65.7	34.3	34.3	15.6
PAN	-	224.5	100.0	0.0	0.0	77.0

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

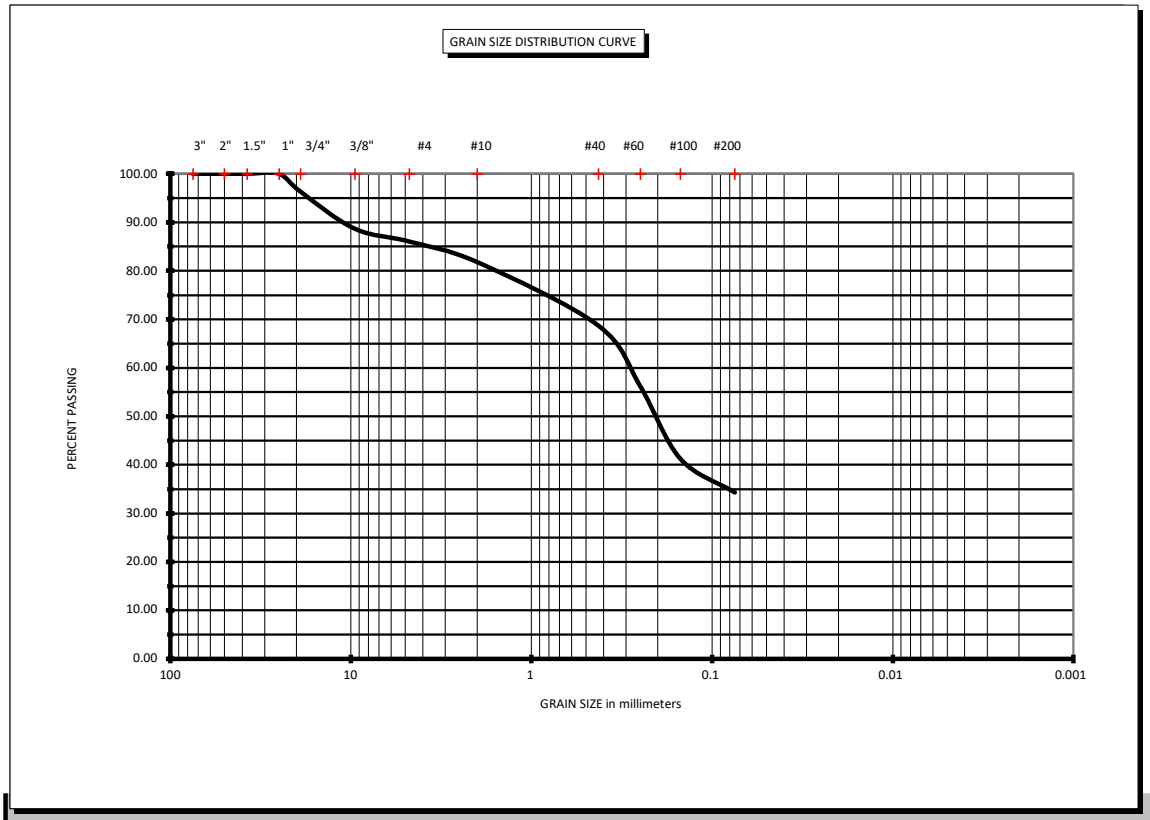
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-3 **SAMPLE #** 1 **Depth (feet)** 0.5-2

SOIL DESCRIPTION: Brown Silty Fine SAND with Few to Little Limestone Fragments (A-2-4)

Natural Moisture Content: 14.8%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-1
Sample No. 1
Depth (feet) 0.5-2

SOIL DESCRIPTION: Brown Silty Fine SAND with Little Limestone Fragments (A-2-4)

Tare #	Dry Soil Wt.
4I	315.3

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	18.5	5.9	94.1	94.1	18.5
9.5	9.5mm 3/8"	52.0	16.5	83.5	83.5	33.5
4.75	4.75mm #4	77.7	24.6	75.4	75.4	25.7
2.36	2 mm #10	94.3	29.9	70.1	70.1	16.6
0.6	425um #40	121.6	38.6	61.4	61.4	27.3
0.3	250um #60	146.8	46.6	53.4	53.4	25.2
0.15	150um #100	192.8	61.1	38.9	38.9	46.0
0.075	75um #200	213.4	67.7	32.3	32.3	20.6
PAN	-	315.3	100.0	0.0	0.0	101.9

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

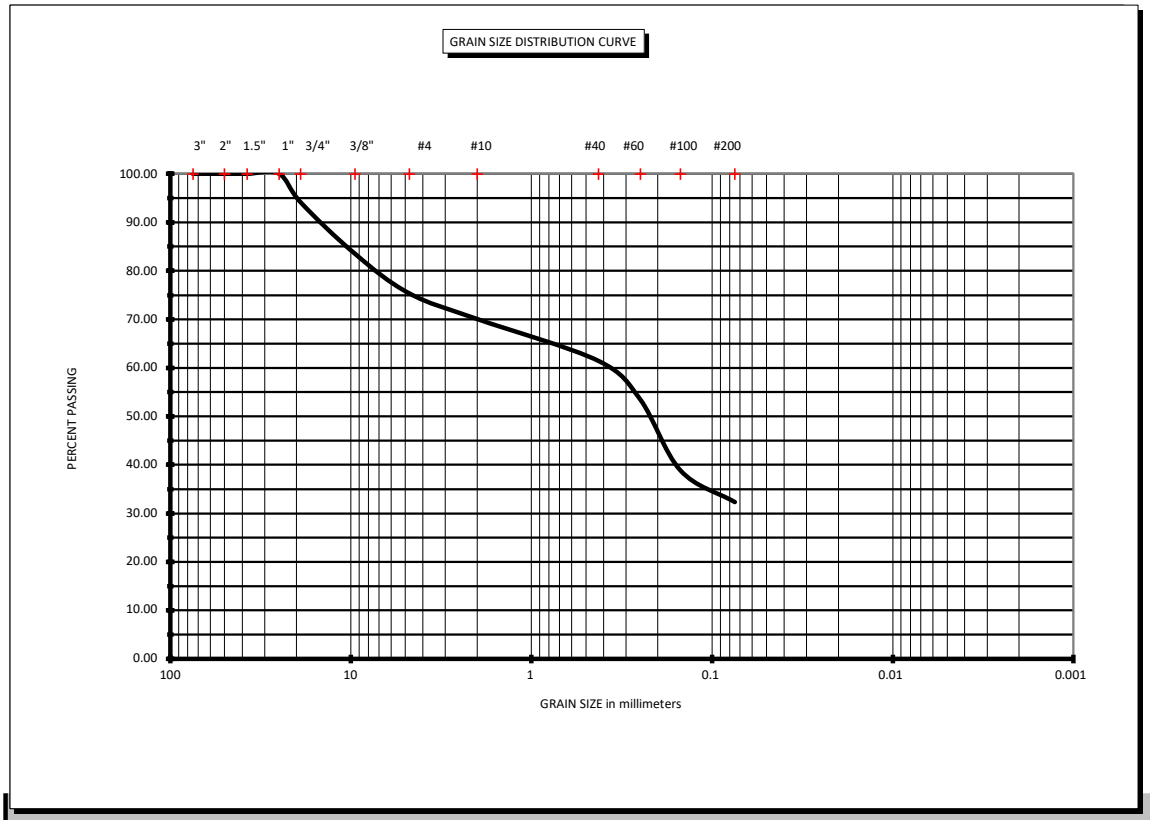
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-1 **SAMPLE #** 1 **Depth (feet)** 0.5-2

SOIL DESCRIPTION: Brown Silty Fine SAND with Little Limestone Fragments (A-2-4)

Natural Moisture Content: 9.8%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-2
Sample No. 1
Depth (feet) 0-2

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Some Limerock Fragments (FILL; A-2-4)

Tare #	Dry Soil Wt.
M	288.0

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	13.4	4.7	95.3	95.3	13.4
9.5	9.5mm 3/8"	51.4	17.8	82.2	82.2	38.0
4.75	4.75mm #4	96.8	33.6	66.4	66.4	45.4
2.36	2 mm #10	116.0	40.3	59.7	59.7	19.2
0.6	425um #40	143.8	49.9	50.1	50.1	27.8
0.3	250um #60	191.5	66.5	33.5	33.5	47.7
0.15	150um #100	210.3	73.0	27.0	27.0	18.8
0.075	75um #200	230.9	80.2	19.8	19.8	20.6
PAN	-	288.0	100.0	0.0	0.0	57.1

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

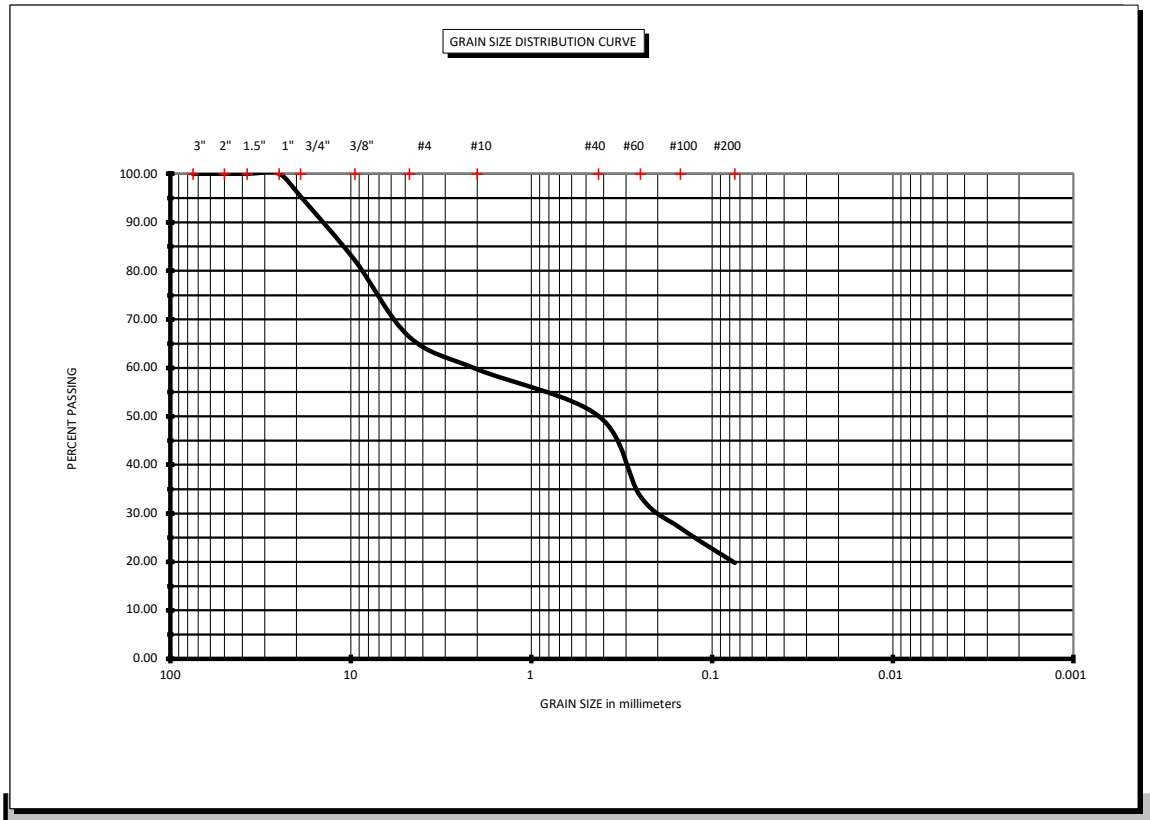
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-2 **SAMPLE #** 1 **Depth (feet)** 0-2

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Some Limerock Fragments (FILL; A-2-4)

Natural Moisture Content: 12.4%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-12
Sample No. 1
Depth (feet) 0.5-2

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Some to Mostly Limerock Fragments (FILL; A-1-b)

Tare #	Dry Soil Wt.
C-2	317.5

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	8.8	2.8	97.2	97.2	8.8
9.5	9.5mm 3/8"	98.0	30.9	69.1	69.1	89.2
4.75	4.75mm #4	144.1	45.4	54.6	54.6	46.1
2.36	2 mm #10	180.0	56.7	43.3	43.3	35.9
0.6	425um #40	215.2	67.8	32.2	32.2	35.2
0.3	250um #60	227.9	71.8	28.2	28.2	12.7
0.15	150um #100	242.6	76.4	23.6	23.6	14.7
0.075	75um #200	254.3	80.1	19.9	19.9	11.7
PAN	-	317.5	100.0	0.0	0.0	63.2

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

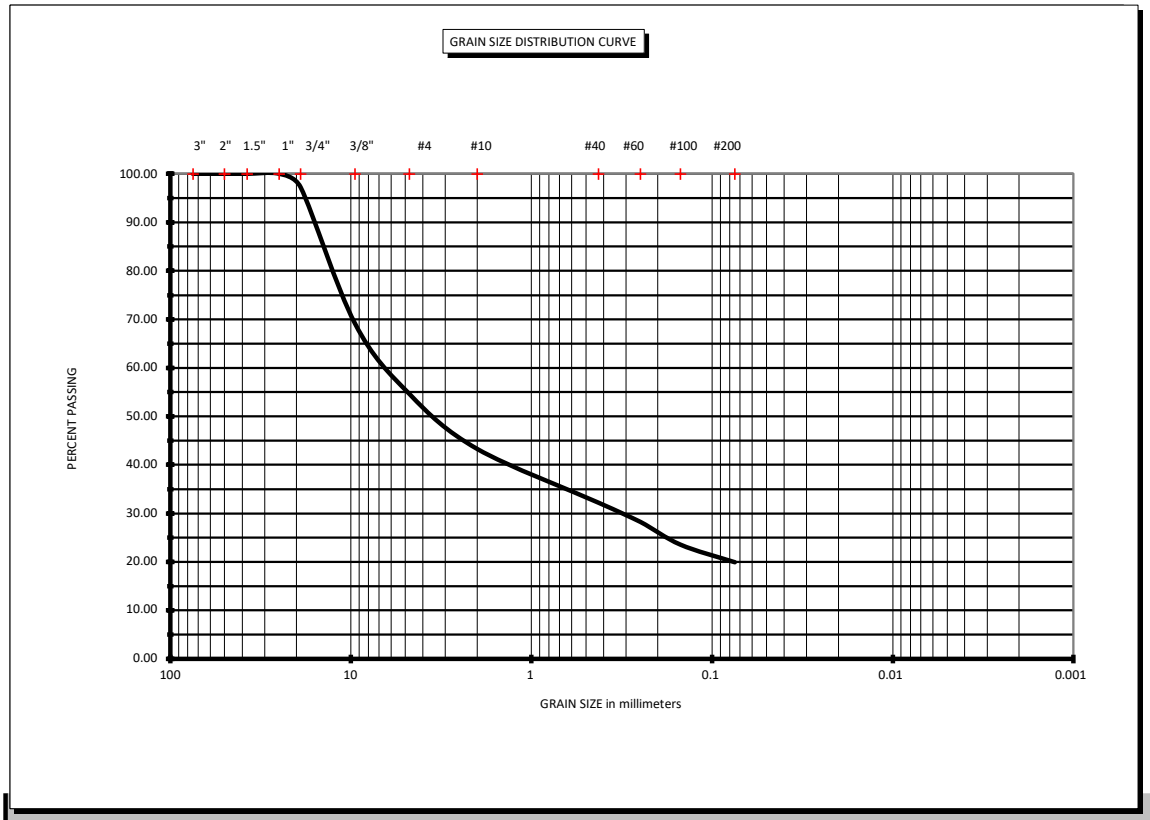
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-12 **SAMPLE #** 1 **Depth (feet)** 0.5-2

SOIL DESCRIPTION: Brown Silty Fine to Coarse SAND with Some to Mostly Limerock Fragments (FILL; A-1-b)

Natural Moisture Content: 12.5%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. A-13
Sample No. 1
Depth (feet) 0.5-2

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little of Limerock Fragments (FILL; A-2-4)

Tare #	Dry Soil Wt.
10	324.7

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	34.1	10.5	89.5	89.5	34.1
4.75	4.75mm #4	72.3	22.3	77.7	77.7	38.2
2.36	2 mm #10	101.4	31.2	68.8	68.8	29.1
0.6	425um #40	128.2	39.5	60.5	60.5	26.8
0.3	250um #60	154.3	47.5	52.5	52.5	26.1
0.15	150um #100	199.4	61.4	38.6	38.6	45.1
0.075	75um #200	218.8	67.4	32.6	32.6	19.4
PAN	-	324.7	100.0	0.0	0.0	105.9

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

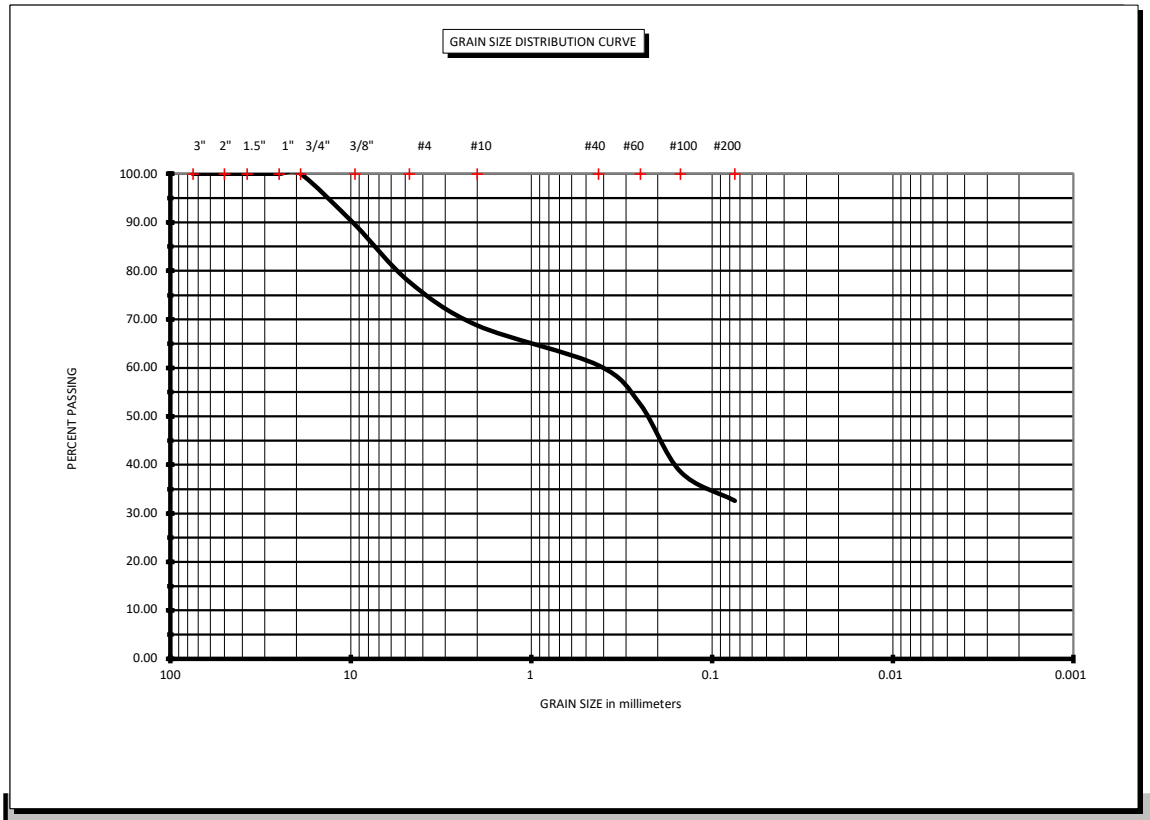
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # A-13 **SAMPLE #** 1 **Depth (feet)** 0.5-2

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little of Limerock Fragments (FILL; A-2-4)

Natural Moisture Content: 14.4%

ORGANIC CONTENT TEST RESULTS (ASTM D-2974)

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 9/1/2021

Boring No.	A-4	A-5	A-7	A-11
Sample No.	1	1	1	1
Sample Depth (Feet)	0-0.5	0-0.5	0-0.5	0-0.5
Crucible No.	B5	M5	B5	5
Weight of Crucible and Oven-Dried Sample (grams)	61.5	94.7	65.5	90.1
Weight of Crucible and Sample after Ignition (grams)	59.4	88.2	63.0	87.1
Weight of Crucible (grams)	31.7	67.4	37.8	57.3
Weight of Oven-Dried Soil (grams)	29.8	27.3	27.7	32.8
Weight Loss due to Ignition (grams)	2.1	6.5	2.5	3.0
Percent Organics (%)	7.0	23.8	9.0	9.1

Boring No.	A-10
Sample No.	1
Sample Depth (Feet)	0-0.5
Crucible No.	M5
Weight of Crucible and Oven-Dried Sample (grams)	97.0
Weight of Crucible and Sample after Ignition (grams)	94.5
Weight of Crucible (grams)	67.4
Weight of Oven-Dried Soil (grams)	29.6
Weight Loss due to Ignition (grams)	2.5
Percent Organics (%)	8.4

Pace Analytical Services, LLC
3610 Park Central Blvd N
Pompano Beach, FL 33064
(954)582-4300

ANALYTICAL RESULTS

Project: Proposed Quail Roost Drive PDE
Pace Project No.: 35659013

Sample: A-15 **Lab ID: 35659013001** Collected: 08/26/21 17:00 Received: 08/27/21 16:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Ormond Beach								
pH at 25 Degrees C	**8.0**	Std. Units	0.10	0.10	1		09/08/21 16:26		Q
Resistivity	Analytical Method: EPA 120.1 Resistivity Pace Analytical Services - Ormond Beach								
Resistivity	**1067**	ohms-cm	0.50	0.50	1		09/02/21 15:38		N2
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Ormond Beach								
Chloride	**55.9**	mg/L	5.0	2.5	1		08/29/21 11:56	16887-00-6	
Sulfate	**9.2**	mg/L	5.0	2.5	1		08/29/21 11:56	14808-79-8	

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DBHYDRO | reports

DBKEY	STATION	TYPE	UNITS	FQ	STAT	STRATA	OPNUM	RCDR	AGENCY	START	END	CNTY	LAT	LONG	SEC	TWP	RNG	ALTERNATE ID
16188	S148_H	STG	ft NGVD29	DA	MEAN	0		TELE	WMD	1995	2021	DAD	253412	802259	12	56	39	S148-H

Period of Record Statistical Summary by Year Month For DBKEY 16188
For Period 19950331 to 20210915

DBKEY	Station	Data Type	Year	Month	Sample Size	Minimum	Mean	Maximum	Median	Std. Dev.
16188	S148_H	STG	1995	04	27	4.279	4.445	4.667	4.451	.11
16188	S148_H	STG	1995	05	31	3.824	4.374	4.725	4.502	.27
16188	S148_H	STG	1995	06	30	2.355	4.131	5.258	4.587	1.02
16188	S148_H	STG	1995	07	31	2.307	2.784	3.293	2.712	.33
16188	S148_H	STG	1995	08	31	1.915	2.392	2.847	2.421	.27
16188	S148_H	STG	1995	09	30	1.989	2.317	2.605	2.308	.16
16188	S148_H	STG	1995	10	31	2.257	2.641	3.359	2.599	.31
16188	S148_H	STG	1995	11	30	1.936	3.801	5.100	4.883	1.41
16188	S148_H	STG	1995	12	31	4.854	4.938	5.046	4.928	.05
16188	S148_H	STG	1996	01	31	4.071	4.744	5.014	4.824	.28
16188	S148_H	STG	1996	02	29	3.634	4.143	4.547	4.216	.34
16188	S148_H	STG	1996	03	31	3.254	3.473	3.621	3.505	.12
16188	S148_H	STG	1996	04	30	3.198	3.440	3.668	3.440	.15
16188	S148_H	STG	1996	05	31	3.337	3.800	4.956	3.649	.47
16188	S148_H	STG	1996	06	30	3.805	4.385	5.114	4.256	.40
16188	S148_H	STG	1996	07	31	4.162	4.815	5.139	4.859	.28
16188	S148_H	STG	1996	08	31	3.780	4.783	5.082	4.876	.28
16188	S148_H	STG	1996	09	30	3.814	4.671	5.149	4.667	.31
16188	S148_H	STG	1996	10	31	2.225	3.055	4.922	2.777	.90
16188	S148_H	STG	1996	11	30	2.337	3.972	4.810	4.602	1.00
16188	S148_H	STG	1996	12	31	3.608	3.820	4.639	3.757	.23
16188	S148_H	STG	1997	01	31	3.454	3.569	3.725	3.557	.07
16188	S148_H	STG	1997	02	28	3.374	3.542	3.803	3.480	.14
16188	S148_H	STG	1997	03	31	3.196	3.369	3.491	3.389	.07
16188	S148_H	STG	1997	04	30	3.297	3.572	4.668	3.424	.42
16188	S148_H	STG	1997	05	31	3.999	4.188	4.593	4.166	.15
16188	S148_H	STG	1997	06	30	1.670	3.088	4.642	2.676	.94
16188	S148_H	STG	1997	07	31	2.638	4.335	5.078	4.793	.82
16188	S148_H	STG	1997	08	31	3.732	4.735	5.147	4.858	.41
16188	S148_H	STG	1997	09	30	2.439	3.293	4.887	3.031	.77
16188	S148_H	STG	1997	10	31	2.298	4.365	4.955	4.778	.93
16188	S148_H	STG	1997	11	30	3.863	4.207	4.539	4.236	.23
16188	S148_H	STG	1997	12	31	2.541	4.178	4.760	4.508	.66
16188	S148_H	STG	1998	01	31	4.077	4.402	4.707	4.457	.21
16188	S148_H	STG	1998	02	28	3.159	3.405	4.140	3.333	.26
16188	S148_H	STG	1998	03	31	3.141	3.409	3.778	3.393	.15
16188	S148_H	STG	1998	04	30	3.119	3.471	3.669	3.515	.15
16188	S148_H	STG	1998	05	31	3.329	3.565	4.034	3.497	.17
16188	S148_H	STG	1998	06	30	3.531	3.775	4.175	3.761	.17
16188	S148_H	STG	1998	07	31	3.162	4.236	4.939	4.325	.42
16188	S148_H	STG	1998	08	31	3.317	4.443	5.130	4.420	.56
16188	S148_H	STG	1998	09	30	2.737	4.186	5.118	4.508	.94
16188	S148_H	STG	1998	10	31	2.712	4.495	5.149	5.032	.98
16188	S148_H	STG	1998	11	30	3.850	4.915	5.145	4.976	.28
16188	S148_H	STG	1998	12	31	4.931	5.079	5.133	5.094	.05
16188	S148_H	STG	1999	01	31	4.790	5.004	5.148	5.019	.11
16188	S148_H	STG	1999	02	28	4.725	4.955	5.123	4.989	.12
16188	S148_H	STG	1999	03	31	4.392	4.553	4.724	4.546	.09
16188	S148_H	STG	1999	04	30	3.977	4.214	4.459	4.168	.15
16188	S148_H	STG	1999	05	31	3.967	4.281	4.765	4.195	.26
16188	S148_H	STG	1999	06	30	4.158	4.694	5.061	4.737	.24
16188	S148_H	STG	1999	07	31	3.236	4.598	4.976	4.788	.51
16188	S148_H	STG	1999	08	31	2.910	4.499	5.002	4.560	.38
16188	S148_H	STG	1999	09	30	2.289	4.048	5.133	4.480	.88
16188	S148_H	STG	1999	10	31	2.117	2.983	4.941	2.383	1.01
16188	S148_H	STG	1999	11	30	1.977	3.519	5.059	3.730	1.42
16188	S148_H	STG	1999	12	31	4.945	5.025	5.078	5.033	.03
16188	S148_H	STG	2000	01	31	4.667	4.846	4.975	4.875	.10
16188	S148_H	STG	2000	02	29	4.774	4.969	5.128	4.970	.12
16188	S148_H	STG	2000	03	31	4.018	4.828	5.125	4.917	.30
16188	S148_H	STG	2000	04	30	3.701	4.520	5.207	4.992	.65
16188	S148_H	STG	2000	05	31	3.589	4.256	5.005	4.072	.58
16188	S148_H	STG	2000	06	30	3.616	4.555	5.028	4.805	.51
16188	S148_H	STG	2000	07	31	4.711	5.022	5.224	5.019	.14
16188	S148_H	STG	2000	08	31	2.410	4.419	5.106	4.864	.89
16188	S148_H	STG	2000	09	30	2.524	4.854	5.208	5.033	.59
16188	S148_H	STG	2000	10	31	2.343	4.097	5.204	4.681	1.10
16188	S148_H	STG	2000	11	30	3.855	4.552	5.169	4.611	.54
16188	S148_H	STG	2000	12	31	3.720	4.176	4.966	3.991	.43
16188	S148_H	STG	2001	01	31	3.366	3.843	4.951	3.771	.39
16188	S148_H	STG	2001	02	28	2.810	3.070	3.335	3.068	.17
16188	S148_H	STG	2001	03	31	2.731	2.848	3.086	2.851	.07
16188	S148_H	STG	2001	04	30	2.674	3.085	3.492	3.111	.29
16188	S148_H	STG	2001	05	31	2.689	3.218	3.596	3.264	.24
16188	S148_H	STG	2001	06	30	3.277	3.532	4.168	3.514	.21
16188	S148_H	STG	2001	07	31	3.927	4.499	5.078	4.605	.39
16188	S148_H	STG	2001	08	31	3.192	4.022	4.863	3.958	.35
16188	S148_H	STG	2001	09	30	2.214	4.073	5.106	4.027	.89
16188	S148_H	STG	2001	10	31	2.014	3.856	5.153	4.354	1.26
16188	S148_H	STG	2001	11	30	2.321	4.653	5.144	5.059	.94
16188	S148_H	STG	2001	12	31	4.819	4.988	5.167	5.015	.10
16188	S148_H	STG	2002	01	31	3.972	4.762	5.107	4.784	.22
16188	S148_H	STG	2002	02	28	3.737	4.292	4.870	4.478	.42
16188	S148_H	STG	2002	03	31	3.933	4.125	4.342	4.097	.10
16188	S148_H	STG	2002	04	30	3.162	3.579	3.935	3.585	.25
16188	S148_H	STG	2002	05	31	2.696	2.884	3.140	2.877	.13
16188	S148_H	STG	2002	06	30	3.181	3.687	4.303	3.592	.35
16188	S148_H	STG	2002	07	31	3.189	3.772	4.896	3.643	.55
16188	S148_H	STG	2002	08	31	3.200	3.340	3.509	3.329	.08
16188	S148_H	STG	2002	09	30	3.181	3.433	3.772	3.479	.15
16188	S148_H	STG	2002	10	31	3.323	4.119	5.166	3.589	.78
16188	S148_H	STG	2002	11	30	3.785	4.446	5.145	4.603	.35
16188	S148_H	STG	2002	12	31	4.398	4.643	4.966	4.644	.14
16188	S148_H	STG	2003	01	31	4.164	4.480	4.812	4.433	.19
16188	S148_H	STG	2003	02	28	3.945	4.356	4.801	4.288	.29
16188	S148_H	STG	2003	03	31	3.716	4.331	4.869	4.359	.39
16188	S148_H	STG	2003	04	30	3.865	4.489	4.877	4.601	.35
16188	S148_H	STG	2003	05	31	3.848	4.319	4.957	4.279	.29
16188	S148_H	STG	2003	06	30	2.417	4.200	4.850	4.258	.49
16188	S148_H	STG	2003	07	31	4.275	4.657	5.156	4.637	.27
16188	S148_H	STG	2003	08	31	3.303	4.465	5.021	4.568	.40
16188	S148_H	STG	2003	09	30	3.444	3.990	4.761	4.006	.23
16188	S148_H	STG	2003	10	31	3.386	4.289	4.718	4.280	.31
16188	S148_H	STG	2003	11	30	3.108	3.507	4.335	3.348	.37

16188	S148_H	STG	2003	12	31	3.068	4.652	5.060	4.805	.55
16188	S148_H	STG	2004	01	31	3.574	3.957	4.895	3.741	.42
16188	S148_H	STG	2004	02	29	3.546	3.845	4.960	3.702	.41
16188	S148_H	STG	2004	03	31	3.606	4.354	5.072	4.287	.55
16188	S148_H	STG	2004	04	30	3.281	3.502	3.769	3.487	.15
16188	S148_H	STG	2004	05	31	3.122	3.775	4.551	3.778	.43
16188	S148_H	STG	2004	06	30	2.949	3.082	3.307	3.051	.10
16188	S148_H	STG	2004	07	31	2.846	3.085	3.609	2.971	.23
16188	S148_H	STG	2004	08	31	3.135	3.418	4.348	3.393	.24
16188	S148_H	STG	2004	09	30	3.185	3.423	3.764	3.438	.16
16188	S148_H	STG	2004	10	31	3.160	3.622	5.059	3.324	.63
16188	S148_H	STG	2004	11	30	3.145	3.386	3.508	3.414	.09
16188	S148_H	STG	2004	12	31	3.058	3.470	3.782	3.412	.23
16188	S148_H	STG	2005	01	31	3.363	3.450	3.564	3.442	.06
16188	S148_H	STG	2005	02	28	3.174	3.340	3.477	3.343	.10
16188	S148_H	STG	2005	03	31	3.131	3.396	3.646	3.304	.20
16188	S148_H	STG	2005	04	30	3.368	3.535	3.643	3.533	.08
16188	S148_H	STG	2005	05	31	3.370	3.661	4.263	3.635	.18
16188	S148_H	STG	2005	06	30	3.145	3.909	5.164	3.852	.71
16188	S148_H	STG	2005	07	31	1.986	3.443	3.905	3.609	.50
16188	S148_H	STG	2005	08	31	1.929	3.441	4.908	3.564	.57
16188	S148_H	STG	2005	09	30	1.924	3.133	5.113	3.210	.88
16188	S148_H	STG	2005	10	31	1.844	3.381	4.878	3.347	.85
16188	S148_H	STG	2005	11	30	4.879	4.980	5.117	4.935	.09
16188	S148_H	STG	2005	12	31	4.653	5.009	5.183	5.029	.14
16188	S148_H	STG	2006	01	31	3.721	4.333	4.839	4.508	.40
16188	S148_H	STG	2006	02	28	3.664	4.131	4.482	4.230	.28
16188	S148_H	STG	2006	03	31	3.592	4.007	4.748	3.846	.40
16188	S148_H	STG	2006	04	30	3.115	3.340	3.576	3.347	.14
16188	S148_H	STG	2006	05	31	2.809	3.145	3.521	3.097	.21
16188	S148_H	STG	2006	06	30	3.395	3.517	3.618	3.511	.06
16188	S148_H	STG	2006	07	31	3.216	4.139	4.711	4.222	.41
16188	S148_H	STG	2006	08	31	2.300	4.296	5.072	4.749	.77
16188	S148_H	STG	2006	09	30	3.807	4.339	5.153	4.160	.52
16188	S148_H	STG	2006	10	31	3.813	4.099	4.932	3.960	.30
16188	S148_H	STG	2006	11	30	4.121	4.781	5.135	4.864	.23
16188	S148_H	STG	2006	12	31	3.714	4.284	4.910	4.194	.45
16188	S148_H	STG	2007	01	31	3.680	4.138	4.686	4.013	.39
16188	S148_H	STG	2007	02	28	3.480	3.624	3.722	3.646	.07
16188	S148_H	STG	2007	03	31	3.182	3.356	3.482	3.368	.10
16188	S148_H	STG	2007	04	30	3.066	3.638	4.125	3.702	.37
16188	S148_H	STG	2007	05	31	3.331	3.513	3.722	3.495	.10
16188	S148_H	STG	2007	06	30	3.139	3.741	4.861	3.691	.50
16188	S148_H	STG	2007	07	31	3.840	4.540	4.941	4.643	.28
16188	S148_H	STG	2007	08	31	4.122	4.730	5.087	4.823	.28
16188	S148_H	STG	2007	09	30	3.499	4.094	4.712	4.098	.19
16188	S148_H	STG	2007	10	31	3.248	4.381	5.154	4.900	.77
16188	S148_H	STG	2007	11	30	3.773	4.096	4.564	3.962	.27
16188	S148_H	STG	2007	12	31	3.432	3.631	3.892	3.608	.14
16188	S148_H	STG	2008	01	31	3.148	3.284	3.462	3.275	.08
16188	S148_H	STG	2008	02	29	2.959	3.171	3.312	3.202	.12
16188	S148_H	STG	2008	03	31	3.051	3.154	3.240	3.161	.06
16188	S148_H	STG	2008	04	30	3.196	3.713	4.102	3.750	.31
16188	S148_H	STG	2008	05	31	3.149	3.349	3.591	3.329	.13
16188	S148_H	STG	2008	06	30	3.057	3.286	3.699	3.222	.20
16188	S148_H	STG	2008	07	31	3.037	3.465	3.941	3.298	.36
16188	S148_H	STG	2008	08	31	2.659	3.218	3.627	3.212	.23
16188	S148_H	STG	2008	09	30	3.119	3.261	3.745	3.205	.15
16188	S148_H	STG	2008	10	31	3.161	3.272	3.503	3.253	.09
16188	S148_H	STG	2008	11	30	3.121	3.293	3.583	3.254	.13
16188	S148_H	STG	2008	12	31	3.637	4.070	4.327	4.148	.24
16188	S148_H	STG	2009	01	31	3.512	3.686	3.992	3.658	.14
16188	S148_H	STG	2009	02	28	3.207	3.355	3.500	3.339	.08
16188	S148_H	STG	2009	03	31	2.941	3.136	3.285	3.146	.11
16188	S148_H	STG	2009	04	30	2.723	2.970	3.243	2.952	.17
16188	S148_H	STG	2009	05	31	2.196	2.771	4.068	2.625	.52
16188	S148_H	STG	2009	06	30	3.091	3.794	4.503	3.564	.48
16188	S148_H	STG	2009	07	31	3.075	3.261	4.157	3.170	.27
16188	S148_H	STG	2009	08	31	3.459	4.224	4.647	4.122	.32
16188	S148_H	STG	2009	09	30	3.822	3.927	4.112	3.897	.09
16188	S148_H	STG	2009	10	31	3.832	4.468	4.823	4.704	.39
16188	S148_H	STG	2009	11	30	3.839	4.175	4.767	4.083	.28
16188	S148_H	STG	2009	12	31	4.074	4.316	4.678	4.299	.17
16188	S148_H	STG	2010	01	31	3.813	3.949	4.198	3.916	.11
16188	S148_H	STG	2010	02	28	3.990	4.283	4.548	4.270	.13
16188	S148_H	STG	2010	03	31	3.952	4.265	4.575	4.274	.18
16188	S148_H	STG	2010	04	30	4.266	4.403	4.627	4.387	.10
16188	S148_H	STG	2010	05	31	4.220	4.377	4.590	4.345	.11
16188	S148_H	STG	2010	06	30	3.742	4.236	4.736	4.238	.30
16188	S148_H	STG	2010	07	31	3.227	4.235	4.613	4.450	.38
16188	S148_H	STG	2010	08	31	3.976	4.204	4.435	4.189	.12
16188	S148_H	STG	2010	09	30	3.586	4.180	4.426	4.204	.18
16188	S148_H	STG	2010	10	31	3.169	4.183	4.775	4.120	.41
16188	S148_H	STG	2010	11	30	3.808	4.077	4.346	4.052	.16
16188	S148_H	STG	2010	12	31	3.523	3.646	3.819	3.638	.08
16188	S148_H	STG	2011	01	31	3.408	3.630	3.895	3.561	.16
16188	S148_H	STG	2011	02	28	3.153	3.490	3.798	3.506	.20
16188	S148_H	STG	2011	03	31	2.688	2.913	3.160	2.930	.15
16188	S148_H	STG	2011	04	30	2.355	2.638	2.859	2.630	.17
16188	S148_H	STG	2011	05	31	1.894	2.144	2.341	2.173	.13
16188	S148_H	STG	2011	06	30	1.604	1.778	2.185	1.732	.16
16188	S148_H	STG	2011	07	31	2.260	3.312	3.896	3.438	.54
16188	S148_H	STG	2011	08	31	3.772	4.278	4.689	4.365	.32
16188	S148_H	STG	2011	09	30	4.148	4.467	4.711	4.464	.18
16188	S148_H	STG	2011	10	31	4.062	4.280	4.660	4.278	.17
16188	S148_H	STG	2011	11	30	4.051	4.568	4.961	4.557	.28
16188	S148_H	STG	2011	12	31	4.414	4.654	4.768	4.707	.10
16188	S148_H	STG	2012	01	31	4.124	4.350	4.490	4.392	.11
16188	S148_H	STG	2012	02	29	3.911	4.288	4.642	4.292	.23
16188	S148_H	STG	2012	03	31	3.443	3.696	3.995	3.680	.14
16188	S148_H	STG	2012	04	30	3.214	3.399	3.867	3.372	.15
16188	S148_H	STG	2012	05	31	3.505	4.131	4.556	4.129	.27
16188	S148_H	STG	2012	06	30	3.569	3.678	3.851	3.668	.07
16188	S148_H	STG	2012	07	31	3.582	3.778	4.199	3.733	.16
16188	S148_H	STG	2012	08	31	3.159	3.914	4.427	4.037	.40
16188	S148_H	STG	2012	09	30	3.142	3.341	3.832	3.278	.19
16188	S148_H	STG	2012	10	31	3.056	3.281	3.496	3.245	.14
16188	S148_H	STG	2012	11	30	3.932	4.305	4.445	4.326	.13
16188	S148_H	STG	2012	12	31	3.614	4.086	4.679	4.078	.29
16188	S148_H	STG	2013	01	31	3.473	3.531	3.596	3.529	.03
16188	S148_H	STG	2013	02	28	3.346	3.471	3.571	3.481	.08
16188	S148_H	STG	2013	03	31	3.106	3.282	3.503	3.239	.11
16188	S148_H	STG	2013	04	30	3.078	3.436	3.628	3.460	.16
16188	S148_H	STG	2013	05	31	3.223	3.998	4.361	4.133	.30
16188	S148_H	STG	2013	06	30	3.047	3.186	3.393	3.181	.09
16188	S148_H	STG	2013	07	7	3.181	3.394	3.612	3.433	.18
16188	S148_H	STG	2013	08	30	3.058	3.191	3.334	3.203	.09
16188	S148_H	STG	2013	09	30	3.087	3.227	3.523	3.191	.10
16188	S148_H	STG	2013	10	31	3.180	3.925	4.789	3.911	.65
16188	S148_H	STG	2013	11	30	3.653	4.335	4.763	4.304	.23
16188	S148_H	STG	2013	12	31	3.231	4.350	4.798	4.374	.37
16188	S148_H	STG	2014	01	31	3.912	4.223	4.432	4.272	.14

16188	S148_H	STG	2014	02	28	3.933	4.134	4.389	4.115	.12
16188	S148_H	STG	2014	03	31	3.605	3.753	4.012	3.686	.13
16188	S148_H	STG	2014	04	30	3.246	3.472	3.683	3.469	.12
16188	S148_H	STG	2014	05	31	2.893	3.029	3.286	3.001	.11
16188	S148_H	STG	2014	06	30	2.914	3.721	4.407	3.833	.50
16188	S148_H	STG	2014	07	31	3.288	3.880	4.455	3.765	.35
16188	S148_H	STG	2014	08	31	3.633	4.171	4.445	4.171	.17
16188	S148_H	STG	2014	09	30	3.476	4.053	4.408	4.042	.18
16188	S148_H	STG	2014	10	31	3.730	3.929	4.332	3.829	.20
16188	S148_H	STG	2014	11	30	3.862	4.034	4.263	4.023	.10
16188	S148_H	STG	2014	12	31	3.642	3.750	3.856	3.740	.07
16188	S148_H	STG	2015	01	31	3.563	3.705	3.948	3.645	.13
16188	S148_H	STG	2015	02	28	3.371	3.479	3.717	3.454	.09
16188	S148_H	STG	2015	03	31	3.017	3.191	3.355	3.204	.10
16188	S148_H	STG	2015	04	30	2.681	2.817	3.135	2.786	.11
16188	S148_H	STG	2015	05	31	2.894	3.173	3.391	3.220	.18
16188	S148_H	STG	2015	06	30	2.851	3.128	3.331	3.132	.16
16188	S148_H	STG	2015	07	31	2.929	3.187	3.608	3.091	.23
16188	S148_H	STG	2015	08	31	3.670	3.963	4.127	3.963	.09
16188	S148_H	STG	2015	09	30	3.781	4.231	4.765	4.299	.34
16188	S148_H	STG	2015	10	31	3.747	4.299	4.770	4.384	.33
16188	S148_H	STG	2015	11	30	4.005	4.211	4.412	4.220	.13
16188	S148_H	STG	2015	12	31	3.090	3.460	4.440	3.307	.36
16188	S148_H	STG	2016	01	31	3.079	3.197	3.394	3.185	.07
16188	S148_H	STG	2016	02	29	2.567	2.892	3.336	2.790	.24
16188	S148_H	STG	2016	03	31	2.590	2.692	2.875	2.680	.07
16188	S148_H	STG	2016	04	30	2.573	2.778	3.297	2.746	.19
16188	S148_H	STG	2016	05	31	3.084	3.315	3.504	3.320	.11
16188	S148_H	STG	2016	06	30	3.055	3.201	3.647	3.163	.13
16188	S148_H	STG	2016	07	31	3.072	3.275	3.420	3.313	.11
16188	S148_H	STG	2016	08	31	3.016	3.547	4.200	3.362	.43
16188	S148_H	STG	2016	09	30	3.111	3.696	4.152	3.830	.33
16188	S148_H	STG	2016	10	31	3.077	3.244	3.427	3.241	.10
16188	S148_H	STG	2016	11	30	3.130	3.831	4.170	3.890	.30
16188	S148_H	STG	2016	12	31	3.665	3.804	3.928	3.786	.07
16188	S148_H	STG	2017	01	31	3.476	3.603	3.871	3.604	.09
16188	S148_H	STG	2017	02	28	3.149	3.306	3.471	3.301	.09
16188	S148_H	STG	2017	03	31	3.065	3.209	3.383	3.176	.10
16188	S148_H	STG	2017	04	30	2.944	3.241	3.680	3.186	.23
16188	S148_H	STG	2017	05	31	2.765	3.103	3.483	3.082	.25
16188	S148_H	STG	2017	06	30	2.753	3.176	3.434	3.191	.17
16188	S148_H	STG	2017	07	31	3.055	3.200	3.375	3.186	.09
16188	S148_H	STG	2017	08	31	3.067	3.179	3.376	3.165	.06
16188	S148_H	STG	2017	09	30	1.509	2.615	5.817	2.264	.88
16188	S148_H	STG	2017	10	30	2.037	2.584	2.985	2.710	.27
16188	S148_H	STG	2017	11	30	2.698	2.749	2.822	2.740	.03
16188	S148_H	STG	2017	12	31	2.681	2.770	2.920	2.768	.06
16188	S148_H	STG	2018	01	31	2.697	3.172	3.554	3.169	.29
16188	S148_H	STG	2018	02	28	3.501	3.805	4.012	3.859	.16
16188	S148_H	STG	2018	03	31	3.344	3.609	3.943	3.596	.17
16188	S148_H	STG	2018	04	30	3.094	3.201	3.328	3.191	.07
16188	S148_H	STG	2018	05	31	3.087	3.336	3.691	3.312	.15
16188	S148_H	STG	2018	06	30	3.126	3.237	3.458	3.209	.09
16188	S148_H	STG	2018	07	31	3.146	3.288	3.445	3.277	.09
16188	S148_H	STG	2018	08	31	2.389	3.105	3.539	3.143	.23
16188	S148_H	STG	2018	09	30	2.274	2.627	3.177	2.656	.26
16188	S148_H	STG	2018	10	31	2.880	3.638	3.859	3.681	.19
16188	S148_H	STG	2018	11	30	3.665	3.800	4.008	3.779	.09
16188	S148_H	STG	2018	12	31	3.539	3.635	3.718	3.641	.05
16188	S148_H	STG	2019	01	31	3.433	3.585	3.841	3.570	.11
16188	S148_H	STG	2019	02	28	3.665	3.770	3.868	3.765	.06
16188	S148_H	STG	2019	03	31	3.532	3.621	3.699	3.613	.05
16188	S148_H	STG	2019	04	30	3.539	3.713	3.858	3.735	.09
16188	S148_H	STG	2019	05	31	3.426	3.611	3.774	3.625	.09
16188	S148_H	STG	2019	06	30	3.111	3.635	4.189	3.665	.31
16188	S148_H	STG	2019	07	31	3.083	3.430	3.855	3.399	.25
16188	S148_H	STG	2019	08	31	3.056	3.253	3.652	3.210	.16
16188	S148_H	STG	2019	09	30	3.069	3.775	4.168	3.925	.36
16188	S148_H	STG	2019	10	31	3.665	4.034	4.290	4.039	.16
16188	S148_H	STG	2019	11	30	3.815	3.922	4.023	3.925	.06
16188	S148_H	STG	2019	12	31	3.721	3.927	4.344	3.835	.21
16188	S148_H	STG	2020	01	31	3.671	3.934	4.310	3.894	.18
16188	S148_H	STG	2020	02	29	3.886	4.015	4.179	3.996	.08
16188	S148_H	STG	2020	03	31	3.184	3.532	3.862	3.546	.20
16188	S148_H	STG	2020	04	30	2.686	2.898	3.169	2.901	.13
16188	S148_H	STG	2020	05	31	2.471	2.928	3.941	2.779	.40
16188	S148_H	STG	2020	06	30	3.084	3.310	3.896	3.241	.22
16188	S148_H	STG	2020	07	31	3.101	3.739	4.273	3.916	.40
16188	S148_H	STG	2020	08	31	3.054	3.452	3.835	3.520	.26
16188	S148_H	STG	2020	09	30	3.353	3.716	3.949	3.752	.16
16188	S148_H	STG	2020	10	31	3.210	3.633	4.305	3.492	.38
16188	S148_H	STG	2020	11	30	3.191	3.371	3.780	3.351	.12
16188	S148_H	STG	2020	12	31	2.712	2.965	3.654	2.765	.36
16188	S148_H	STG	2021	01	31	2.576	2.840	3.328	2.746	.23
16188	S148_H	STG	2021	02	28	3.137	3.366	3.524	3.400	.10
16188	S148_H	STG	2021	03	31	3.190	3.383	3.498	3.375	.07
16188	S148_H	STG	2021	04	30	3.094	3.226	3.421	3.212	.08
16188	S148_H	STG	2021	05	31	3.250	3.503	3.715	3.492	.13
16188	S148_H	STG	2021	06	30	3.403	3.873	4.405	3.797	.27
16188	S148_H	STG	2021	07	31	3.206	3.839	4.296	3.822	.22
16188	S148_H	STG	2021	08	31	3.658	3.976	4.164	3.972	.12
16188	S148_H	STG	2021	09	13	3.770	3.934	4.133	3.950	.13

Provisional data are excluded from this statistical report.

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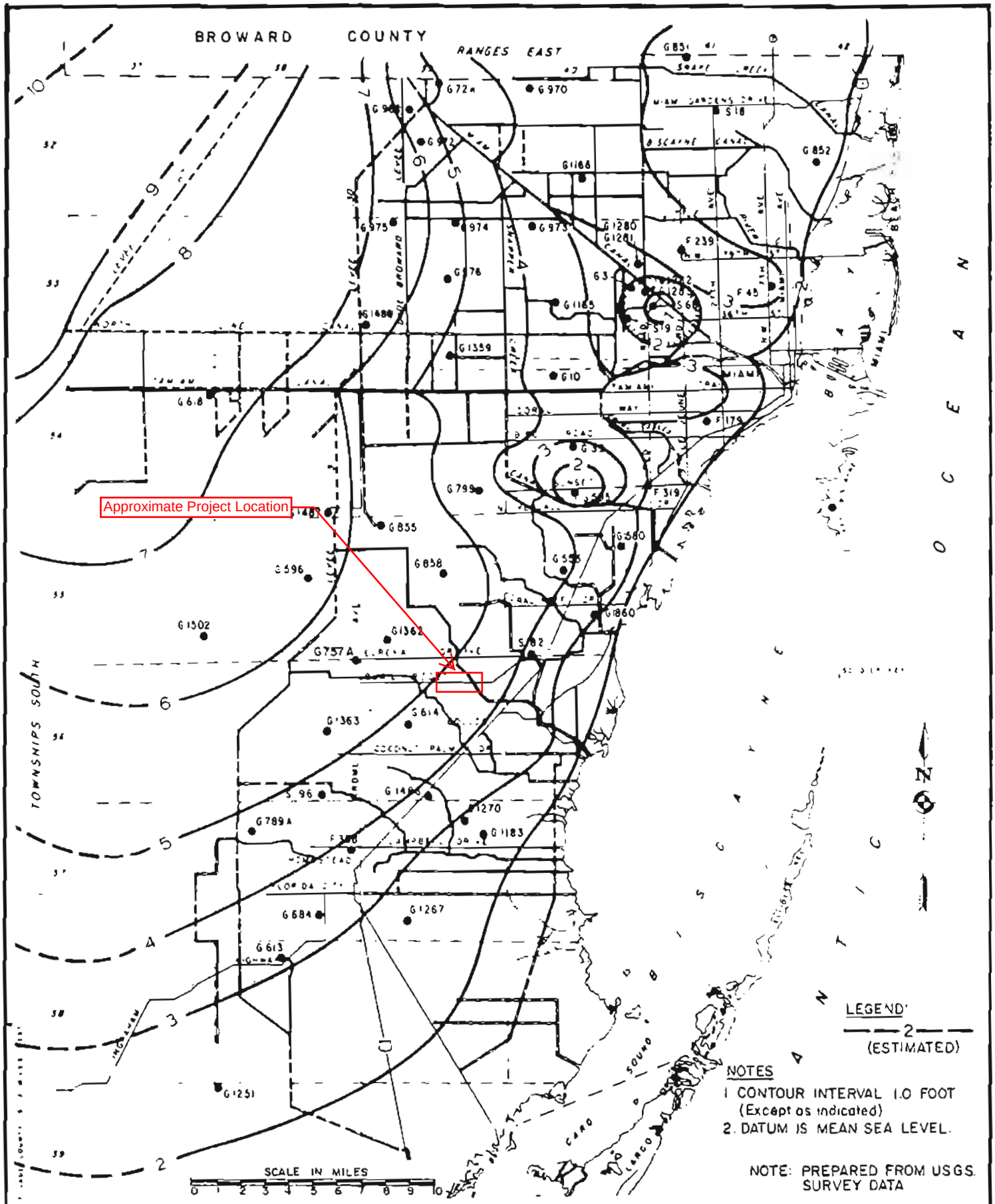


METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED 4/5 72	REVISED 2/19/75 4/14/77	DESIGN STANDARDS AVERAGE OCTOBER GROUND WATER LEVEL 1960–75	W.C. 2.2 SHEET 1 OF 1

APPENDIX "C"

Pavement Evaluation Coring and Condition Data
Asphalt Pavement Site and Core Photographs
Test Boring Records (Pavement Coring Locations)
Preliminary Sample Settlement Evaluations (EMBANK Software)
Sheet 22: Geogrid Placement Detail

GEOSOL, Inc.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PAVEMENT EVALUATION CORING AND CONDITION DATA

Cored by: R. Morales - Geosol, Inc. Date: 08/18/21 Page _____ of _____ Typical Section No.: _____

W.P.I. No.:		Name:	PD&E STUDY - SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE	Lanes:	Varies
Fin. Proj. ID:	445804-1-52-01	From:	WEST OF SW 137TH AVENUE	Shoulder Type and Condition:	
F.A. Proj. No.:		To:	EAST OF SW 127TH AVENUE	Inside:	Y - Paved
County:	MIAMI-DADE	SR No.:	Beg MP: End MP: Length	Outside:	N
Median Curbed (Y / N):	N	Paved, Lawn, Other: Median Lawn		Curb & Gutter (Y / N):	N

Core No.	Mile Post or Sta. No.	Lane	Wheel Path	Core Offset	Pavement Layer Type (in.) Top F95	FC5	S1									SAHM	Pavement Thickness (in.)	Base LR	ABC			Total	Stabilized Subgrade Yes / No	Thickness	Crack Depth (in.)	Full Depth	Type	Class	Extent	Pvmt Cond	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direction	Comments	Latitude	Longitude
1	-	L1	Yes		1.0		1.0										2.0		5.0			5.0	Yes	12.0						Fair	0.13	3.1		C-1	25.58082	-80.4088
2	-	R1	Yes		1.0		1.0										2.0		5.0			5.0	Yes	12.0						Fair	0.13	2.1		C-2	25.58082	-80.4044
3	-	R1	Yes		1.0		1.0										2.0	12.0				12.0	Yes	12.0						Fair	0.13	1.4		C-3	25.58082	-80.4039
4	-	OL	Yes		1.0		2.5										3.5		6.0			6.0	Yes	12.0						Fair		3.1		SC-1	25.58080	-80.4130
5	-	OR	Yes		1.0		4.8										5.8	12.0				12.0	Yes	12.0						Poor	0.50	1.7		SC-2	25.58079	-80.3995

GEOSOL, INC
PROJECT NAME:
SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
LOCATION:
DADE, FLORIDA
FM NO.:
445804-1-22-01
GEOSOL PROJECT NO.:
221126
COUNTY:
DADE
CORE NO.:
C-1
LANE NO.:
L1
WHEEL PATH:
Yes
TOTAL CORE LENGTH:
2 inch

82

GEOSOL, INC
PROJECT NAME: SR 994/SW 200th Street/Quail Roost Drive From West of SW 157th Avenue to East of SW 127th Avenue
LOCATION: DADE, FLORIDA
FM NO.: 445804-1-22-01
GEOSOL PROJECT NO.: 221126
CORE NO.: C-2
WHEEL PATH: Yes
TOTAL CORE LENGTH: 2 Inch
COUNTY: DADE
LANE NO.: R1

GEOSOL, INC
PROJECT NAME: SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
LOCATION: DADE, FLORIDA
FM NO.: 445804-1-22-01
GEOSOL PROJECT NO.: 221126
COUNTY: DADE
CORE NO.: C-3
LANE NO.: R1
WHEEL PATH: Yes
TOTAL CORE LENGTH: 2 inch

SW 137 AV
SC-1

GEOSOL, INC
PROJECT NAME: SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
LOCATION: DADE, FLORIDA
FM NO.: 445804-1-22-01
GEOSOL PROJECT NO.: 221126
CORE NO.: SC-1
WHEEL PATH: Yes
TOTAL CORE LENGTH: 3.5 inch
COUNTY: DADE
LANE NO.: OL

SC2

GEOSOL, INC
PROJECT NAME: SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
LOCATION: DADE, FLORIDA
FM NO.: 445804-1-22-01
GEOSOL PROJECT NO.: 221126
CORE NO.: SC-2
WHEEL PATH: Yes
TOTAL CORE LENGTH: 5.8 Inch
COUNTY: DADE
LANE NO.: OR

GEOSOL, Inc. MIAMI LAKES, FL	TEST BORING RECORD (ASTM D-1586)	BORING No. C-1

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE

SHEET No. 1 OF 1

CLIENT: GANNETT FLEMING

GEOSOL PROJECT No. 221126

BORING LOCATION: NORTHING (ft): EASTING (ft): ELEVATION (ft):

GROUNDWATER (FEET): N/A

DATE	TIME	DEPTH (ft)	CASING	TYPE	CASING	SAMPLE	CORE	TUBE
				TYPE	NW	SS		
			L (ft)	DIA.(in)	3	1 - 3/8 ID		
			-	WT.(lbs)		140		
				FALL(in)		30		

DATUM (ft):	NGVD, 1929
DATE START:	8/18/2021
DATE FINISH:	8/18/2021
DRILLER:	R. Morales
EQUIP./HAMMER:	B-53/ AUTO.

DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION	REMARKS
			-			0 to 7": Asphalt Pavement	
1	S-1		16 12	21		7" to 2.6': Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (Base/Stabilized Subgrade; A-1-b)	BORING TERMINATED AT DEPTH OF 2.6 ft. BOREHOLE GROUTED
2			9 7				
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

BLOWS/FT	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION	
0-3	Very Loose	0-1	Very Soft	H - Hand Auger	FILL
3-8	Loose	1-3	Soft	S - Split Spoon	SAND
8-24	Medium Dense	3-6	Medium Stiff	T - Thin Wall Tube	ORGANIC SOILS / MUCK
24-40	Dense	6-12	Stiff	U - Undisturbed Piston	SILT
> 40	Very Dense	12-24	Very Stiff	C - Diamond Core	CLAY
		> 24	Hard	W - Wash Sample	LIMESTONE
					SANDSTONE

GEOSOL, Inc. MIAMI LAKES, FL	TEST BORING RECORD (ASTM D-1586)	BORING No. C-2

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE

SHEET No. 1 OF 1

CLIENT: GANNETT FLEMING

GEOSOL PROJECT No. 221126

BORING LOCATION: NORTHING (ft): EASTING (ft): ELEVATION (ft):

GROUNDWATER (FEET): N/A

DATE	TIME	DEPTH (ft)	CASING	TYPE	CASING	SAMPLE	CORE	TUBE
			L (ft)	DIA.(in)	NW	SS		
			-	WT.(lbs)	3	1 - 3/8 ID		
				FALL(in)		140		
						30		

DATUM (ft):	NGVD, 1929
DATE START:	8/18/2021
DATE FINISH:	8/18/2021
DRILLER:	R. Morales
EQUIP./HAMMER:	B-53/ AUTO.

DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION	REMARKS
			-			0 to 7": Asphalt Pavement	
1	S-1		13 10	18		7" to 2.6': Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (Base/Stabilized Subgrade; A-1-b)	BORING TERMINATED AT DEPTH OF 2.6 ft. BOREHOLE GROUTED
2			8 7				
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

BLOWS/FT.	DENSITY
0-3	Very Loose
3-8	Loose
8-24	Medium Dense
24-40	Dense
> 40	Very Dense

BLOWS/FT.	CONSISTENCY
0-1	Very Soft
1-3	Soft
3-6	Medium Stiff
6-12	Stiff
12-24	Very Stiff
> 24	Hard

SAMPLE IDENTIFICATION

- H - Hand Auger
- S - Split Spoon
- T - Thin Wall Tube
- U - Undisturbed Piston
- C - Diamond Core
- W - Wash Sample

- FILL
- SAND
- ORGANIC SOILS / MUCK
- SILT
- CLAY
- LIMESTONE
- SANDSTONE

GEOSOL, Inc. MIAMI LAKES, FL	TEST BORING RECORD (ASTM D-1586)	BORING No. SC-1

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE

SHEET No. 1 OF 1

CLIENT: GANNETT FLEMING

GEOSOL PROJECT No. 221126

BORING LOCATION: NORTHING (ft): EASTING (ft): ELEVATION (ft):

GROUNDWATER (FEET): N/A

DATE	TIME	DEPTH (ft)	CASING	TYPE	CASING	SAMPLE	CORE	TUBE
			L (ft)	DIA.(in)	NW	SS		
			-	WT.(lbs)	3	1 - 3/8 ID		
				FALL(in)		140		
						30		

DATUM (ft):	NGVD, 1929
DATE START:	8/18/2021
DATE FINISH:	8/18/2021
DRILLER:	R. Morales
EQUIP./HAMMER:	B-53/ AUTO.

DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION	REMARKS
			-			0 to 9.5": Asphalt Pavement	
1	S-1		-				
			15			9.5" to 2.8': Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (Base/Stabilized Subgrade; A-1-b)	BORING TERMINATED AT DEPTH OF 2.8 ft. BOREHOLE GROUTED
2			12	20			
			8				
3			7				
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY
0-3	Very Loose	0-1	Very Soft
3-8	Loose	1-3	Soft
8-24	Medium Dense	3-6	Medium Stiff
24-40	Dense	6-12	Stiff
> 40	Very Dense	12-24	Very Stiff
		> 24	Hard

SAMPLE IDENTIFICATION

- H - Hand Auger
- S - Split Spoon
- T - Thin Wall Tube
- U - Undisturbed Piston
- C - Diamond Core
- W - Wash Sample

- FILL
- SAND
- ORGANIC SOILS / MUCK
- SILT
- CLAY
- LIMESTONE
- SANDSTONE

GEOSOL, Inc. MIAMI LAKES, FL	TEST BORING RECORD (ASTM D-1586)	BORING No. SC-2
PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE		SHEET No. 1 OF 1
CLIENT: GANNETT FLEMING		GEOSOL PROJECT No. 221126
BORING LOCATION: NORTHING (ft):	EASTING (ft): ELEVATION (ft):	

GROUNDWATER (FEET): N/A					CASING	SAMPLE	CORE	TUBE	DATUM (ft):	NGVD, 1929
DATE	TIME	DEPTH (ft)	CASING	TYPE	NW	SS			DATE START:	8/18/2021
			L (ft)	DIA.(in)	3	1 - 3/8 ID			DATE FINISH:	8/18/2021
			-	WT.(lbs)		140			DRILLER:	R. Morales
				FALL(in)		30			EQUIP./HAMMER:	B-53/ AUTO.

DEPTH, ft	SAMPLE No.	STRATUM No.	BLOWS / 6"	N Value (bpf)	SYMBOL	MATERIAL DESCRIPTION	REMARKS
			-			0 to 5.8": Asphalt Pavement	
1	S-1		13 11	22		5.8" to 2.5': Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments (Base/Stabilized Subgrade; A-1-b)	BORING TERMINATED AT DEPTH OF 2.5 ft. BOREHOLE GROUTED
2			11 9				
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

BLOWS/FT	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLE IDENTIFICATION	
0-3	Very Loose	0-1	Very Soft	- H - Hand Auger	- FILL
3-8	Loose	1-3	Soft	- S - Split Spoon	- SAND
8-24	Medium Dense	3-6	Medium Stiff	- T - Thin Wall Tube	- ORGANIC SOILS / MUCK
24-40	Dense	6-12	Stiff	- U - Undisturbed Piston	- SILT
> 40	Very Dense	12-24	Very Stiff	- C - Diamond Core	- CLAY
		> 24	Hard	- W - Wash Sample	- LIMESTONE - SANDSTONE

PAVEMENT EVALUATION CORING AND CONDITION DATA
INPUT DATA REPORT

MANDIST	FINPROJ	TYPSECT	MESSAGE
06	445804-1-52-01	01	THE CONTROL CARD IS CORRECT

PAVEMENT EVALUATION CORING AND CONDITION DATA

FIN PROJ: 445804-1-52-01

TYP SECT: 01

FA PROJ:

COUNTY: MIAMI-DADE

SR NUMBER: NOTFOUND

MEDIAN:

CURBED: NO

NAME:

FROM:

TO:

BEG MP: 4.00

END MP: 4.96 LENGTH: .96

PROJECT MEASUREMENT: ENGLISH

CORED BY: GEOSOL, INC

DATE: 2021-09-10

LANES: @ FEET

SHOULDER TYPE

INSIDE:

OUTSIDE:

CURB & GUTTER: NO

PAVEMENT EVALUATION CORING AND CONDITION DATA

CORE NO.	MILE POST	VFY	LN	W P	--TOP F95	------- PAVEMENT LAYER ------ S1					CORE LNGTH	BASE LR	SUB ST40	----- CRACK ------ DEPTH	TYP	CLSS	EXT	PMT CND	RUT DPTH	CROSS SLOPE	COMMENTS
1	.000	N	L1	Y	1.00	1.00					2.00	12.0	12.0					F	.13	3.10	C-1 (Y:453775,X:851023)
2	.000	N	R1	Y	1.00	1.00					2.00	12.0	12.0					F	.13	2.10	C-2 (Y:453782,X:852489)
3	.000	N	R1	Y	1.00	1.00					2.00	12.0	12.0					F	.13	1.40	C-3 (Y:453783,X:852643)
4	.000	N	OL	Y	1.00	2.50					3.50	12.0	12.0					F		3.10	SC-1 (Y:453761,X:849658
5	.000	N	OR	Y	1.00	4.80					5.80	12.0	12.0					P	.50	1.70	SC-2 (Y:453779,X:854083
	.000																				

PAVEMENT EVALUATION CORING AND CONDITION DATA

COMMENTS

SEQ	
1	BASE AND SUBGRADE CONSISTS OF SLIGHTLY SILTY FINE
2	TO MEDIUM SAND WITH SOME LIMEROCK FRAGMENTS(A-1-B)
3	CORES 1,2, AND 4 HAVE 5-IN, 5-IN, 6-IN OF ASPHALT
4	BASE COURSE (ABC), RESPECTIVELY.
5	MILLING RECOMENDATIONS: MILL 1.5 INCHES AND REPAVE
6	WITH 1.5 INCHES FC-12.5

CODE DESCRIPTIONS

CRACK TYPE	TYPE DESCRIPTION
A	ALLIGATORING IN WHEELPATH
B	BLOCK CRACKING
C	COMBINATION OF TYPES

CRACK EXTNT	EXTENT DESCRIPTION
L	LIGHT
M	MEDIUM
S	SEVERE

CRACK CLASS	CLASS DESCRIPTION
IB	UNKNOWN
II	UNKNOWN
III	UNKNOWN

CODE DESCRIPTIONS

SURFACE LAYER CODE	DESCRIPTION
ARMI	ASPHALT RUBBER MEMBRANE INTERL
BIND	ASPHALT BINDER COURSE
BRCK	BRICK PAVERS
CONC	PORTLAND CEMENT CONCRETE
CRL	CRACK RELIEF LAYER
FAB	PAVEMENT OVERLAY FABRIC
FC	FRICTION COURSE
FC1	FRICTION COURSE 1
FC2	FRICTION COURSE 2
FC3	FRICTION COURSE 3
FC4	FRICTION COURSE 4
FC5	FRICTION COURSE 5
FC5B	FRICTION COURSE 5 BONDED
FC6	FRICTION COURSE 6
F12M	FRIC. COURSE 12.5 MODIFIED
F125	FRICTION COURSE 12.5
F95	FRICTION COURSE 9.5
F95M	FRIC. COURSE 9.5 MODIFIED
S	TYPE S ASPHALTIC CONCRETE
SAHM	SAND ASPHALT HOT MIX
SP1C	9.5 SUPERPAVE COARSE GRADED
SP1F	9.5 SUPERPAVE FINE GRADED
SP2C	12.5 SUPERPAVE COARSE GRADED
SP2F	12.5 SUPERPAVE FINE GRADED
SP3C	19.0 SUPERPAVE COARSE GRADED
SP3F	19.0 SUPERPAVE FINE GRADED
ST	SURFACE TREATMENT
S1	TYPE S-I ASPHALTIC CONCRETE
S2	TYPE S-II ASPHALTIC CONCRETE
S3	TYPE S-III ASPHALTIC CONCRETE
T1	TYPE I ASPHALTIC CONCRETE
T2	TYPE II ASPHALTIC CONCRETE
T3	TYPE III ASPHALTIC CONCRETE
UNIM	UNIMPROVED SURFACE
UNKW	UNKNOWN
WC	WEARING COURSE
WC1	WEARING COURSE 1
WC2	WEARING COURSE 2
WC3	WEARING COURSE 3
WC4	WEARING COURSE 4
WC5	WEARING COURSE 5
WC6	WEARING COURSE 6
WC7	WEARING COURSE 7
WC8	WEARING COURSE 8

SETTLEMENT EVALUATIONS

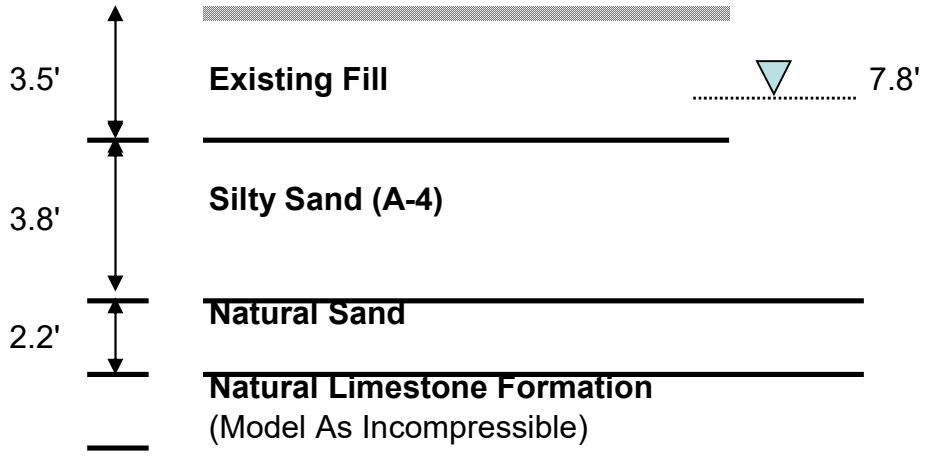
Project: SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
Location: Miami-Dade County, Florida
By: AI **Date:** 9/16/2021
Checked By: OR **Date:** 9/16/2021

Purpose: Evaluate consolidation settlement for critical conditions
(Boring A-15)

Idealized Subsurface Profile

N.T.S.

Assume 3' of Surcharge Loading = 360 pcf
(1 Foot of New Fill and New Traffic Loading)



SETTLEMENT EVALUATIONS

Project: SR 994/SW 200th Street/Quail Roost Drive
Location: Miami-Dade County, Florida
By: AI **Date:** 9/16/2021
Checked By: OR **Date:** 9/16/2021

Soil Compression Properties

A) Existing Limerock Fill:

- Average SPT N-Value (N_{60}) = **20** bpf
- Total Unit Weight (γ_t) = 115 pcf
- Bearing Capacity Index (C') = 75 (See attached chart)
- $\frac{C_c}{1+e_o} = \frac{1}{C'} =$ **0.013** (See attached chart)

B) Silt:

- Average SPT N-Value (N_{60}) = 9 bpf
- Total Unit Weight (γ_t) = **90** pcf
- Bearing Capacity Index (C') = 27 (See attached chart)
- $\frac{C_c}{1+e_o} = \frac{1}{C'} =$ **0.037** (See attached chart)

C) Natural Sand:

- Average SPT N-Value (N_{60}) = **12** bpf
- Total Unit Weight (γ_t) = 110 pcf
- Bearing Capacity Index (C') = 65 (See attached chart)
- $\frac{C_c}{1+e_o} = \frac{1}{C'} =$ **0.015** (See attached chart)

```
ÚÄÄÄÄÄ ONE DIMENSIONAL SETTLEMENT ANALYSIS/Federal Highway Administration ÄÄÄÄÄ¿
³                 STRIP SYMMETRICAL VERTICAL EMBANKMENT LOADING                ³
³                                                                              ³
³ Project Name   : SR997 IMPROVEMENTS   Client          : FDOT                ³
³ File Name      : SR25.EMB             Project Manager : O. RICCOBONO        ³
³ Date           : 09/16/21             Computed by     : AI                  ³
³                                                                              ³
³                                                                              ³
³                           Settlement for X-Direction                         ³
³                                                                              ³
³ Embankment slope a      =    0.01 (ft)  Height of fill H    =    3.00 (ft)  ³
³ Embankment top width    =    9.99 (ft)  Unit weight of fill =  120.00 (pcf) ³
³ Embankment bottom width =   10.01 (ft)  p load/unit area    =  360.00 (psf) ³
³ Ground Surface Elev.    =    0.00 (ft)  Foundation Elev.    =    0.00 (ft)  ³
³ Water table Elev.       =   -7.80 (ft)  Unit weight of Wat. =   62.40 (pcf) ³
³                                                                              ³
³                                                                              ³
³           LAYER            COMP.   RECOMP.   SWELL.     UNIT                ³
³      N§.  TYPE  THICK.              RATIO              WEIGHT               ³
³                 (ft)                                     (pcf)               ³
³                                                                              ³
³       1   COMP.   3.5      0.130    0.000    0.000     115.00               ³
³       2   COMP.   3.8      0.037    0.000    0.000      90.00               ³
³       3   COMP.   2.2      0.015    0.000    0.000     110.00               ³
³       4  INCOMP. 10.5   -----  -----  -----   120.00                        ³
³                                                                              ³
³            SUBLAYER                   SOIL STRESSES                         ³
³     N§.     THICK.        ELEV.          INITIAL      MAX.PAST PRESS.       ³
³             (ft)          (ft)            (psf)           (psf)             ³
³                                                                              ³
³     1        3.50         -1.75          201.25          201.25             ³
³     2        3.80         -5.40          573.50          573.50             ³
³     3        2.20         -8.40          828.06          828.06             ³
³     4  INCOMP.                                                               ³
³                                                                              ³
³                                                                              ³
³                                                                              ³
³        X =     0.00     X =     1.00     X =     2.00     X =     3.00      ³
³ Layer  Stress  Sett.    Stress  Sett.    Stress  Sett.    Stress  Sett.     ³
³       (psf)   (in.)    (psf)   (in.)    (psf)   (in.)    (psf)   (in.)     ³
³                                                                              ³
³   1    178.95   1.51    287.94   2.11    333.54   2.32    348.21   2.38     ³
³   2    170.97   0.19    209.94   0.23    242.92   0.26    266.79   0.28     ³
³   3    156.26   0.03    178.04   0.03    196.95   0.04    211.51   0.04     ³
³   4  INCOMP.  INCOMP.  INCOMP.  INCOMP.                                     ³
³               ------           ------           ------           ------     ³
³                 1.73             2.37             2.61             2.70      ³
³                                                                              ³
³                                                                              ³
³        X =     4.00     X =     5.00     X =     6.00     X =     7.00      ³
³ Layer  Stress  Sett.    Stress  Sett.    Stress  Sett.    Stress  Sett.     ³
³       (psf)   (in.)    (psf)   (in.)    (psf)   (in.)    (psf)   (in.)     ³
³                                                                              ³
³   1    353.09   2.40    354.30   2.41    353.12   2.40    348.29   2.38     ³
³   2    280.83   0.29    285.44   0.30    280.92   0.29    266.97   0.28     ³
³   3    220.65   0.04    223.78   0.04    220.71   0.04    211.63   0.04     ³
³   4  INCOMP.  INCOMP.  INCOMP.  INCOMP.                                     ³
³               ------           ------           ------           ------     ³
³                 2.74             2.74             2.74             2.70      ³
³                                                                              ³
³                                                                              ³
³        X =     8.00     X =     9.00     X =    10.00                       ³
³ Layer  Stress  Sett.    Stress  Sett.    Stress  Sett.                      ³
³       (psf)   (in.)    (psf)   (in.)    (psf)   (in.)                      ³
³                                                                              ³
³   1    333.78   2.32    288.69   2.11    180.26   1.52                      ³
³   2    243.21   0.26    210.31   0.23    171.37   0.19                      ³
```

```
³   3    197.12   0.04    178.24   0.03    156.49   0.03                      ³
³   4  INCOMP.  INCOMP.  INCOMP.                                               ³
³               ------           ------           ------                      ³
³                 2.61             2.37             1.74                      ³
³                                                                              ³
³                                                                              ³
³                                                                              ³
ÀÄÄÄÄÄ Hit arrow keys to display next screen. <F8> Print. <F10> Main Menu ÄÄÄÄÄÙ
```

SETTLEMENT EVALUATIONS

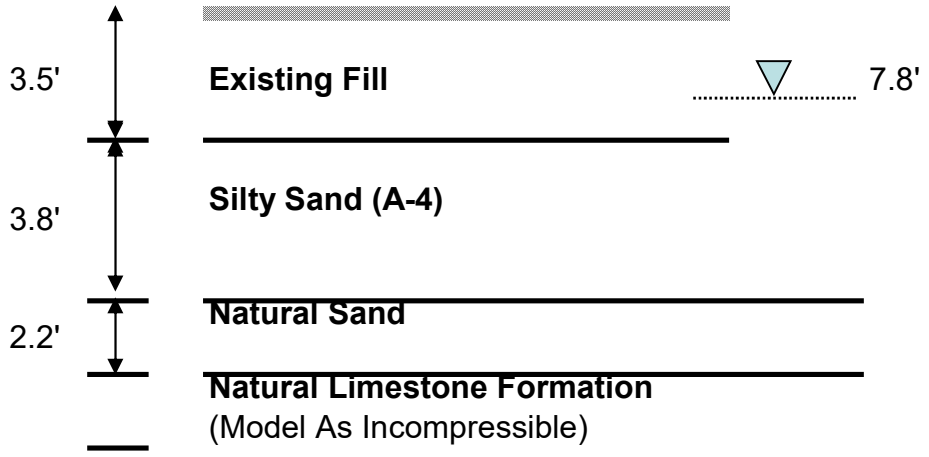
Project: SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
Location: Miami-Dade County, Florida
By: AI **Date:** 9/16/2021
Checked By: OR **Date:** 9/16/2021

Purpose: Evaluate consolidation settlement for critical conditions
(Boring A-15)

Idealized Subsurface Profile

N.T.S.

Assume 4' of Surcharge Loading = 480 pcf
(2 Feet of New Fill and New Traffic Loading)



SETTLEMENT EVALUATIONS

Project: SR 994/SW 200th Street/Quail Roost Drive
Location: Miami-Dade County, Florida
By: AI **Date:** 9/16/2021
Checked By: OR **Date:** 9/16/2021

Soil Compression Properties

A) Existing Limerock Fill:

- Average SPT N-Value (N_{60}) = **20** bpf
- Total Unit Weight (γ_t) = 115 pcf
- Bearing Capacity Index (C') = 75 (See attached chart)
- $\frac{C_c}{1+e_o} = \frac{1}{C'} =$ **0.013** (See attached chart)

B) Silt:

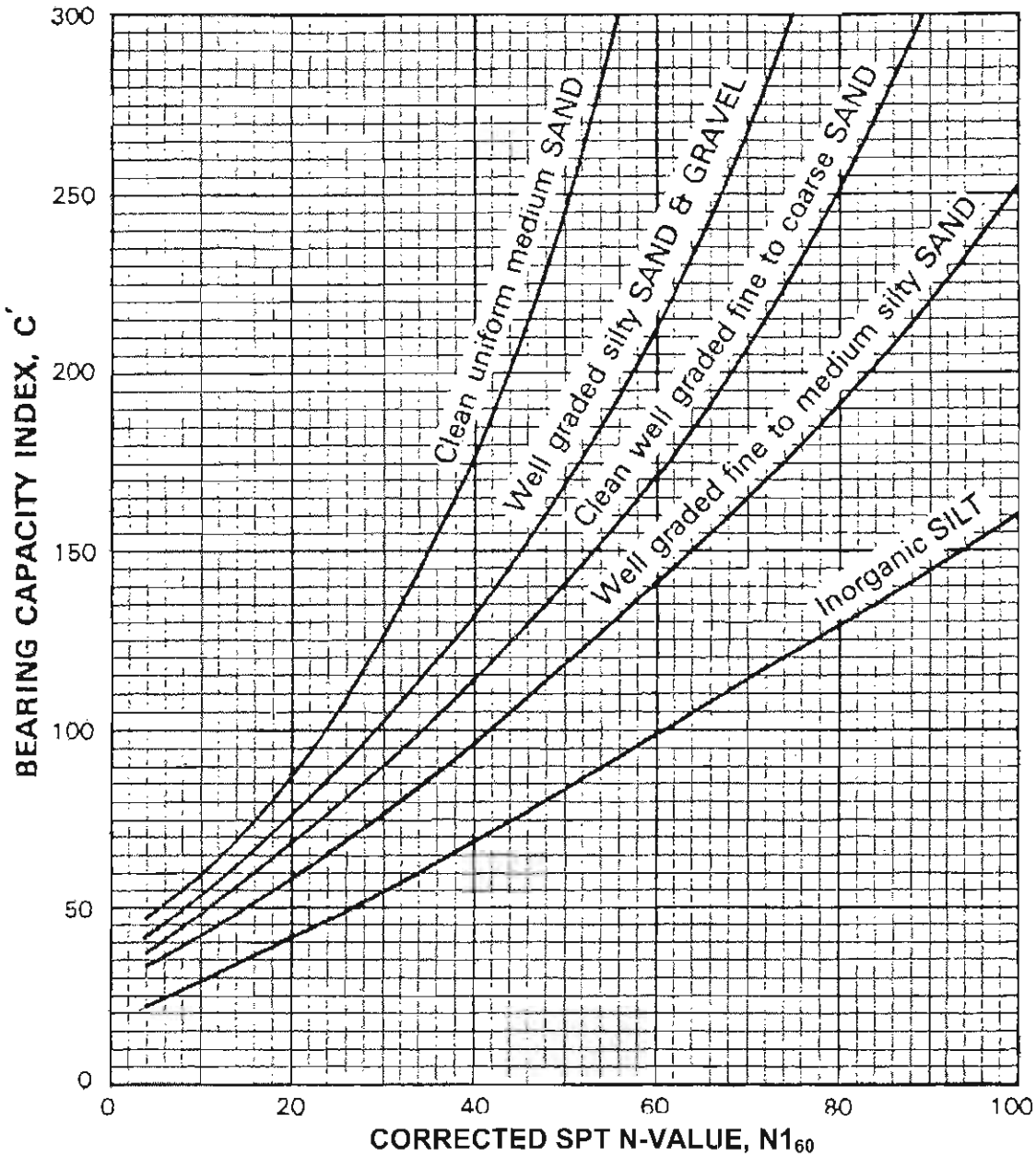
- Average SPT N-Value (N_{60}) = 9 bpf
- Total Unit Weight (γ_t) = **90** pcf
- Bearing Capacity Index (C') = 27 (See attached chart)
- $\frac{C_c}{1+e_o} = \frac{1}{C'} =$ **0.037** (See attached chart)

C) Natural Sand:

- Average SPT N-Value (N_{60}) = **12** bpf
- Total Unit Weight (γ_t) = 110 pcf
- Bearing Capacity Index (C') = 65 (See attached chart)
- $\frac{C_c}{1+e_o} = \frac{1}{C'} =$ **0.015** (See attached chart)

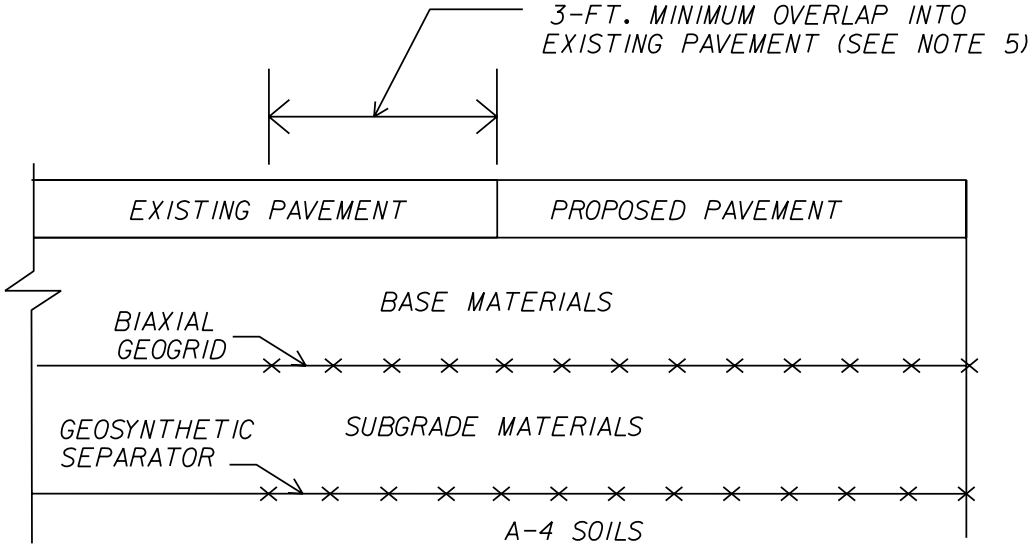
```
ÚÄÄÄÄÄ ONE DIMENSIONAL SETTLEMENT ANALYSIS/Federal Highway Administration ÄÄÄÄÄ¿
³                 STRIP SYMMETRICAL VERTICAL EMBANKMENT LOADING                ³
³                                                                              ³
³ Project Name   : SR997 IMPROVEMENTS   Client          : FDOT                ³
³ File Name      : SR25.EMB             Project Manager : O. RICCOBONO        ³
³ Date           : 09/16/21             Computed by     : AI                  ³
³                                                                              ³
³                                                                              ³
³                          Settlement for X-Direction                          ³
³                                                                              ³
³ Embankment slope a      =    0.01 (ft)  Height of fill H    =    4.00 (ft)  ³
³ Embankment top width    =    9.99 (ft)  Unit weight of fill =  120.00 (pcf) ³
³ Embankment bottom width =   10.01 (ft)  p load/unit area    =  480.00 (psf) ³
³ Ground Surface Elev.    =    0.00 (ft)  Foundation Elev.    =    0.00 (ft)  ³
³ Water table Elev.       =   -7.80 (ft)  Unit weight of Wat. =   62.40 (pcf) ³
³                                                                              ³
³                                                                              ³
³           LAYER            COMP.   RECOMP.   SWELL.     UNIT                ³
³      N§.  TYPE  THICK.              RATIO              WEIGHT               ³
³                 (ft)                                     (pcf)               ³
³                                                                              ³
³       1   COMP.   3.5      0.130    0.000    0.000     115.00               ³
³       2   COMP.   3.8      0.037    0.000    0.000      90.00               ³
³       3   COMP.   2.2      0.015    0.000    0.000     110.00               ³
³       4  INCOMP. 10.5   -----  -----  -----   120.00                        ³
³                                                                              ³
³            SUBLAYER                   SOIL STRESSES                         ³
³     N§.     THICK.        ELEV.          INITIAL      MAX.PAST PRESS.       ³
³             (ft)          (ft)            (psf)           (psf)             ³
³                                                                              ³
³     1        3.50         -1.75          201.25          201.25             ³
³     2        3.80         -5.40          573.50          573.50             ³
³     3        2.20         -8.40          828.06          828.06             ³
³     4  INCOMP.                                                               ³
³                                                                              ³
³                                                                              ³
³                                                                              ³
³        X =     0.00     X =     1.00     X =     2.00     X =     3.00      ³
³ Layer  Stress  Sett.    Stress  Sett.    Stress  Sett.    Stress  Sett.     ³
³       (psf)   (in.)    (psf)   (in.)    (psf)   (in.)    (psf)   (in.)     ³
³                                                                              ³
³   1    238.60   1.85    383.92   2.53    444.72   2.77    464.28   2.84     ³
³   2    227.96   0.25    279.93   0.29    323.90   0.33    355.71   0.35     ³
³   3    208.35   0.04    237.38   0.04    262.60   0.05    282.02   0.05     ³
³   4  INCOMP.  INCOMP.  INCOMP.  INCOMP.                                     ³
³               ------           ------           ------           ------     ³
³                 2.14             2.87             3.14             3.24     ³
³                                                                              ³
³                                                                              ³
³        X =     4.00     X =     5.00     X =     6.00     X =     7.00      ³
³ Layer  Stress  Sett.    Stress  Sett.    Stress  Sett.    Stress  Sett.     ³
³       (psf)   (in.)    (psf)   (in.)    (psf)   (in.)    (psf)   (in.)     ³
³                                                                              ³
³   1    470.79   2.86    472.40   2.86    470.82   2.86    464.39   2.84     ³
³   2    374.43   0.37    380.59   0.37    374.56   0.37    355.97   0.35     ³
³   3    294.20   0.05    298.37   0.05    294.28   0.05    282.17   0.05     ³
³   4  INCOMP.  INCOMP.  INCOMP.  INCOMP.                                     ³
³               ------           ------           ------           ------     ³
³                 3.28             3.29             3.28             3.24     ³
³                                                                              ³
³                                                                              ³
³        X =     8.00     X =     9.00     X =    10.00                       ³
³ Layer  Stress  Sett.    Stress  Sett.    Stress  Sett.                      ³
³       (psf)   (in.)    (psf)   (in.)    (psf)   (in.)                      ³
³                                                                              ³
³   1    445.04   2.77    384.91   2.53    240.35   1.86                      ³
³   2    324.28   0.33    280.41   0.29    228.50   0.25                      ³
```

```
³   3    262.83   0.05    237.66   0.04    208.65   0.04                      ³
³   4  INCOMP.  INCOMP.  INCOMP.                                               ³
³               ------           ------           ------                      ³
³                 3.14             2.87             2.15                      ³
³                                                                              ³
³                                                                              ³
³                                                                              ³
ÀÄÄÄÄÄ Hit arrow keys to display next screen. <F8> Print. <F10> Main Menu ÄÄÄÄÄÙ
```



(Note: The "Inorganic SILT" curve should generally not be applied to soils that exhibit plasticity because N-values in such soils are unreliable)

Figure 7-7. Bearing capacity index (C') values used in Modified Hough method for computing immediate settlements of embankments (AASHTO, 2004 with 2006 Interims; modified after Hough, 1959).



NOTES:

1) THE GEOGRID AND GEOSYNTHETIC SHALL BE SELECTED FROM THE FDOT APPROVED PRODUCT LIST (APL).TYPE R-2 GEOSYNTHETIC SHALL PROVIDE STRENGTH OF AT LEAST 400 LB/FT AT 2% STRAIN IN BOTH THE MACHINE AND CROSS-MACHINE DIRECTIONS.
2) GEOGRID SHALL BE PLACED AT THE BOTTOM OF THE BASE MATERIAL ELEVATION.
3) GEOGRID SHALL BE PLACED UNDER THE ENTIRE FOOTPRINT OF THE PROPOSED ROADWAY RECONSTRUCTION.
4) GEOGRID SHALL HAVE A MINIMUM OF 36-INCHES OVERLAP FOR MORE THAN ONE ROLL OF GEOGRID.
5) GEOGRID SHALL EXTEND A MINIMUM OF THREE (3) FEET MEASURED FROM THE EDGE OF THE PROPOSED PAVEMENT INTO THE EXISTING PAVEMENT IN ORDER TO MINIMIZE DIFFERENTIAL SETTLEMENT AT THE INTERFACE BETWEEN THE EXISTING AND PROPOSED PAVEMENT AND TO PROVIDE THE REQUIRED DEVELOPMENT LENGTH.

GEOSOL, INC.

GEOGRID PLACEMENT DETAIL

SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
AI	N.T.S.	221121
CHECKED	DATE	
OR	SEPT., 2021	SHEET 22

APPENDIX "D"

Table 4 – Summary of Constant Head Exfiltration Test Results
Schematics of Constant Head Borehole Exfiltration Testing

TABLE 4 - SUMMARY OF CONSTANT HEAD BOREHOLE EXFILTRATION TEST RESULTS

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

Test No.	Date Performed	Diameter Casing (Inches)	Diameter Hole (Inches)	Depth of Hole (Feet)	Screen Interval (Feet)	Depth to Groundwater Level Below Ground Surface (Feet) Prior to Test	Depth to Groundwater Level Below Ground Surface (Feet) During Test	SATURATED HOLE DEPTH Ds (Feet)	Corrected Depth of Hole (Feet)	Average Flow Rate (gpm)	Average Flow Rate (cfs)	K, Hydraulic Conductivity (cfs/ft^2-Ft Head)
EX-1	08/16/21	6.00	6.75	10	0-10	6.3	0.00	3.70	10.00	7.7	1.7E-02	2.24E-04
		6.00	6.75	15	10-15	6.3	5.30	8.70	9.70	13.8	3.1E-02	3.48E-03
		6.00	6.75	20	15-20	6.3	5.30	13.70	14.70	16.1	3.6E-02	4.05E-03
EX-2	08/17/21	6.00	6.75	10	0-10	7.9	0.00	2.10	10.00	6.3	1.4E-02	1.66E-04
		6.00	6.75	15	10-15	7.9	6.90	7.10	8.10	12.4	2.8E-02	3.12E-03
		6.00	6.75	20	15-20	7.9	6.90	12.10	13.10	16.1	3.6E-02	4.06E-03

NOTES:

(1) The above hydraulic conductivity values are for a French drain installed to the same depth as the borehole tests. The values represent an ultimate value. The designer should decide on the required factor of safety.

(2) The hydraulic conductivity values were calculated based on the procedure shown in the Florida Department of Transportation District 6 Exfiltration Trench Reference Manual.

(3) The diameter of the CASING was used in the computation of the hydraulic conductivity values presented in the above table.

(4) Loss of circulation was NOT encountered during the performance of the borehole exfiltration test.

(5) A Standard Penetration Test (SPT) boring was performed at the borehole exfiltration test location. Refer to the Report of Core Borings for subsurface stratification information.

TEST No.	TEST LOCATION (FEET) LATITUDE	TEST LOCATION (FEET) LONGITUDE	DEPTH (FEET) FROM	DEPTH (FEET) TO	GENERAL MATERIAL DESCRIPTION
EX-1	25.580878	-80.406311	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.50	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments
			1.50	6.00	Brown Sandy Limestone
			1.50	10.00	Brown Fine to Medium SAND with Some Limestone Fragments
			10.00	20.00	Brown Sandy Limestone
EX-2	25.580738	-80.398037	0.00	0.50	Dark Brown Organic Silty Fine Sand with Grass (TOPSOIL)
			0.50	1.50	Brown Slightly Silty Fine to Medium SAND with Some Limerock Fragments
			1.50	20.00	Brown Sandy Limestone

12. Auger a hole from 15 feet to 20 feet deep to accommodate a 3 and 3/16 – inch perforated casing.
13. Lower a 10 feet long, 3 and 3/16 - inch casing, with the lower 5 feet perforated.
14. Pump test water into the hole with the same method as the one used in the determination of the percolation rate for the 10-foot section of the test-hole (Item 5 above).

The hydraulic conductivity at the different stratums can then be determined using the results from the percolation tests performed at the defined stratums and the equations in **Sections 2.3.1** through **2.3.3**. The application of the procedures and equations in **Sections 2.3** and **2.3.1** through **2.3.3** for determining hydraulic conductivity in which the water table is more than 10 feet deep does not yield accurate results and should not be used.

2.3.1 Hydraulic Conductivity Equations – 0- to 10-foot Stratum

The hydraulic conductivity for the 0- to 10-foot stratum (K_{10}) is determined by **Equation 2.3-1** and correlates to the percolation test parameters for a 10-foot test depicted in **Figure 2.3-1**.

$$K_{10} = \frac{P_{10}}{\sum S\,h} \qquad \textbf{Equation 2.3-1}$$

Where P_{10} = Percolation test pump discharge for 0 to 10-casing, in cfs
S = Surface area perpendicular to the direction of flow, in ft^2
h = Average hydraulic head inducing exfiltration through S, in ft

In **Figure 2.3-1**, D_s represents the saturated depth which is the vertical distance from the observed groundwater surface to the bottom of the test hole (10-feet below the existing ground elevation for K_{10}) and D_u represents the unsaturated depth which is the vertical distance from the stabilized water surface during the test to the observed groundwater surface.

It should be noted that **Equations 2.2-1**, **2.2-2** and **2.3-1** imply a linear relationship between flow and hydraulic head, even though the flow is directly proportional to the head elevated to a power less than 1. However, as depicted in **Figure 2.3-2**, the error, e, and Δ are relatively small and thus acceptable in assuming a linear relation.

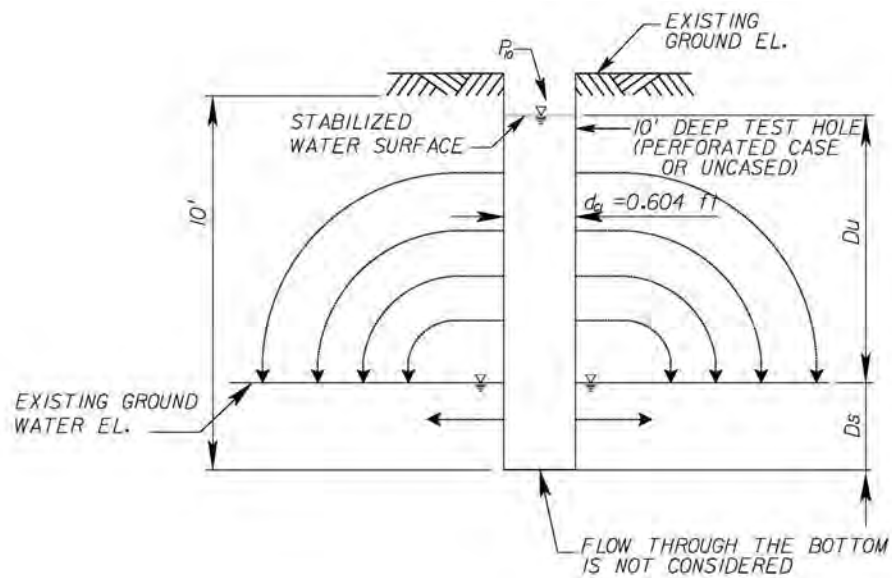


Figure 2.3-1 - Schematic of the key percolation test parameters for a 10-foot test hole

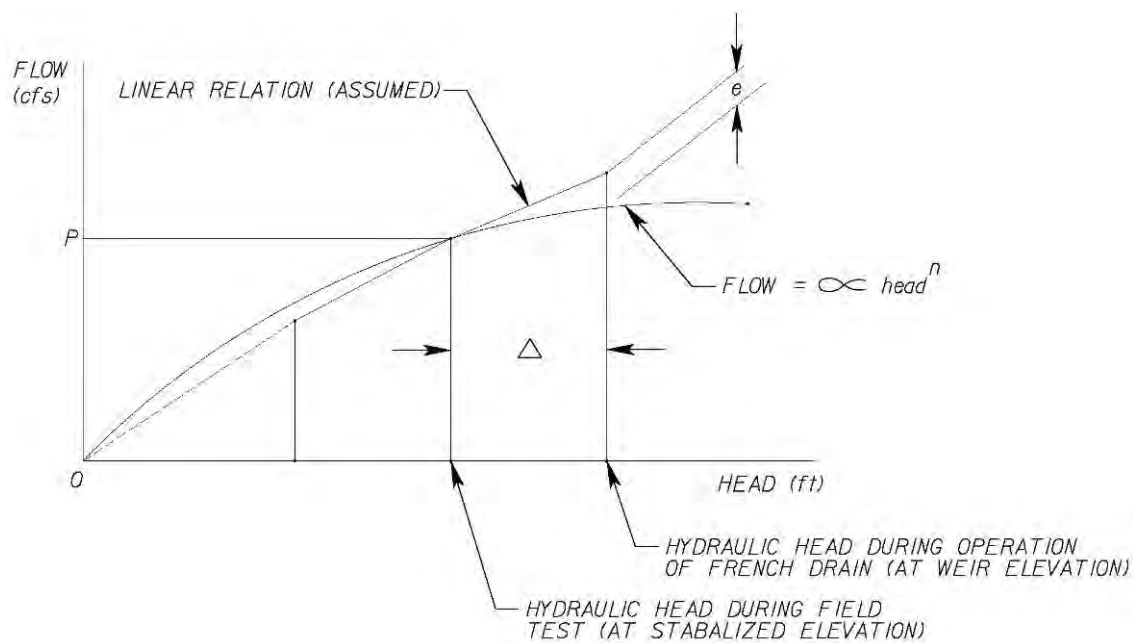


Figure 2.3-2 - Schematic of Percolation Flow versus Head Relationship

Under this assumption, the hydraulic conductivity for the 10-foot stratum can be expressed by **Equation 2.3-2**.

$$K_{10} = \frac{P_{10}}{(S_u\, h_u + S_s\, h_s)} \qquad \textbf{Equation 2.3-2}$$

Where S_u = Unsaturated area, in $ft^2 = \pi\, d_1\, D_u$

h_u = Average head for the unsaturated area, in ft = D_u / 2
S_s = Saturated area, in ft^2 = $\pi\ d_{C1}\ D_s$
h_s = Average head for the saturated area, in ft = D_u
d_{C1}, D_s, and D_u, in ft, from **Figure 2.3.1**

Equation 2.3-2 can then be transformed into **Equation 2.3-3**.

$$K_{10} = \frac{P_{10}}{[(\pi\ d_{C1}\ D_u\ \{D_u/2\}) + (\pi\ d_{C1}\ D_s\ D_u)]}$$ **Equation 2.3-3**

Equation 2.3-3 can be further reduced to **Equation 2.3-4**, which is the equation used to determine the hydraulic conductivity for the 10-foot stratum of the percolation test hole.

$$K_{10} = \frac{P_{10}}{\pi\ d_{C1}\ D_u\ [D_u/2 + D_s]}$$ **Equation 2.3-4**

As noted in **Section 2.3**, **Equation 2.3-4** implies that the groundwater table at the percolation test location is less than 10 feet deep and within the 0- to 10-foot stratum.

2.3.2 Hydraulic Conductivity Equations – 10- to 15-foot Stratum

Figure 2.3-3 shows a schematic of the key percolation test parameters for a 15-foot test hole to determine the hydraulic conductivity for the 10- to 15-foot stratum (K_{15}).

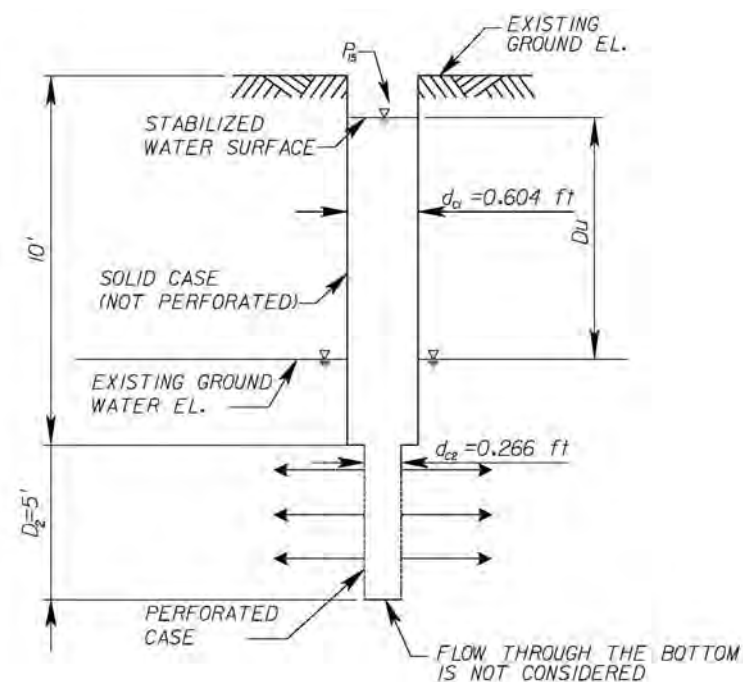


Figure 2.3-3 - Schematic of the key percolation test parameters for a 15-foot test hole

In **Figure 2.3-3**, D_u is the vertical distance from existing groundwater elevation to the stabilized water surface inside the test hole.

The hydraulic conductivity for the 10- to 15-foot stratum (K_{15}) can be expressed by **Equation 2.3-5**.

$$K_{15} = \frac{P_{15}}{\sum S\,h} \qquad \textbf{Equation 2.3-5}$$

Where P_{15} = Percolation test pump discharge for 10 to 15 foot casing, in cfs
S = Area of any vertical surface perpendicular to the direction of flow, in $ft^2 = \pi\, d_{C2}\, D_2$
h = Average hydraulic head affecting the movement of water through S, in ft = D_u
d_{C2}, D_2, and D_u, in ft, from **Figure 2.3.3**

Equation 2.3-5 can be further refined into **Equation 2.3-6**.

$$K_{15} = \frac{P_{15}}{\pi\, d_{C2}\, D_2\, D_u} \qquad \textbf{Equation 2.3-6}$$

2.3.3 Hydraulic Conductivity Equations – 15 to 20 foot Stratum

Similarly, **Figure 2.3-4** shows a schematic of the key percolation test parameters for a 20-foot test hole to determine the hydraulic conductivity for the 15- to 20-foot stratum (K_{20}).

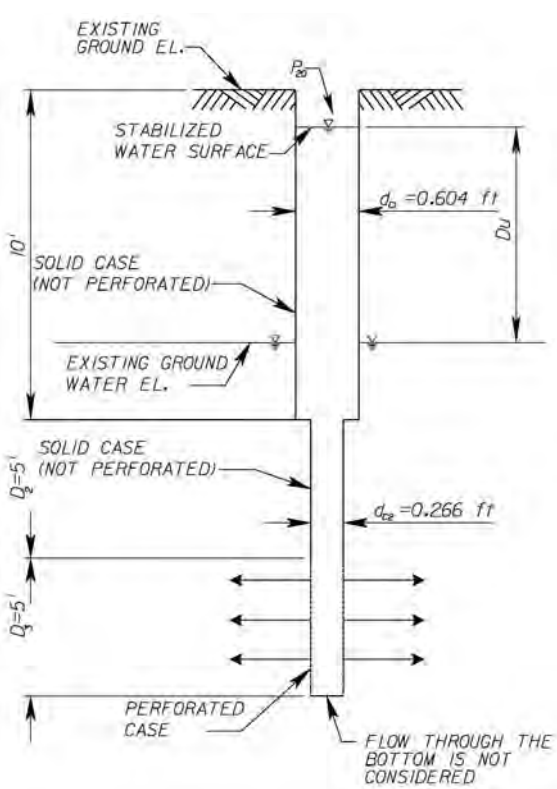


Figure 2.3-4 - Schematic of the key percolation test parameters for a 20-foot test hole

The hydraulic conductivity for the 15- to 20-foot stratum can be expressed by **Equation 2.3-7**.

$$K_{20} = \frac{P_{20}}{\sum S\,h} \qquad \textbf{Equation 2.3-7}$$

Where P_{20} = Percolation test pump discharge for 15 to 20 foot casing, in cfs
S = Area of any vertical surface perpendicular to the direction of flow, in $ft^2 = \pi\, d_{C2}\, D_3$
h = Average hydraulic head affecting the movement of water through S, in ft = D_u

Equation 2.3-7 can be further refined into **Equation 2.3-8**.

$$K_{20} = \frac{P_{20}}{\pi\, d_{C2}\, D_3\, D_u} \qquad \textbf{Equation 2.3-8}$$

2.4 Exfiltration Rate Equations

The exfiltration capacity of exfiltration trenches depends on where the DHW and control elevations are in relation to the exfiltration trench aggregate media. There are typically three scenarios:

- Scenario 1: Design High Water and Control Elevations are within the Aggregate Media
- Scenario 2: Design High Water and Control Elevations are Above the Aggregate Media
- Scenario 3: Design High Water is within the Aggregate Media and Control Elevation is Above the Aggregate Media

The following sections summarize the approach for determining the exfiltration rate for exfiltration trenches for each of these scenarios.

2.4.1 Scenario 1: Design High Water and Control Elevations are within the Aggregate Media

This section applies when the DHW elevation and the control or weir elevations are within the exfiltration trench aggregate media as depicted on **Figure 2.4-1**. The total exfiltration rate per foot of trench out of an exfiltration trench can be calculated using **Figure 2.4-1**, **Equations 2.4-5** through **2.4-7,** and the supporting equations in this section, depending on the depth and geometry of the exfiltration trench.

Equation 2.4-1 is the basic equation used in order to calculate total exfiltration out of an exfiltration trench per foot of trench.

$$E_t = E_{10} + E_{15} + E_{20} \qquad \textbf{Equation 2.4-1}$$

APPENDIX "E"

FHWA Checklist

GEOTECHNICAL REPORT REVIEW CHECKLISTS

The following checklists cover the major information and recommendations which should be addressed in project geotechnical reports.

Section A covers site investigation information which will be common to all geotechnical reports for any type of geotechnical feature.

Sections B through I cover the basic information and recommendations which should be presented in geotechnical reports for specific geotechnical features: centerline cuts and embankments, embankments over soft ground, landslides, retaining walls, structure foundations and material sites.

Subject	Page
SECTION A, Site Investigation Information	2
SECTION B, Centerline Cuts and Embankments	4
SECTION C, Embankments Over Soft Ground	6
SECTION D, Landslide Corrections	8
SECTION E, Retaining Walls	10
SECTION F, Structure Foundations - Spread Footings	11
SECTION G, Structure Foundations - Piles	12
SECTION H, Structure Foundations - Drilled Shafts	15
SECTION I, Materials Sites	16

In most sections and subsections, the user has been provided supplemental page references to the Soils and Foundations Workshop Manual. These page numbers appear in parentheses ( ) immediately adjacent to the section or subsection topic. Generalist engineers are particularly encouraged to read these references. Additional reference information on these topics is available in the Geotechnical Notebook, a copy of which is kept in all Division Offices by either the Bridge Engineer or the engineer with the soils responsibility.

Certain checklist items are of vital importance to have been included in the geotechnical report. These checklist items have been marked with an asterisk (*). A negative response to any of these asterisked items is cause to contact the geotechnical engineer for clarification of this omission.

"GTR REVIEW CHECKLIST" (SITE INVESTIGATION)

A. Site Investigation Information

Since the most important step in the geotechnical design process is the conduct of an adequate site investigation, presentation of the subsurface information in the geotechnical report and on the plans deserves careful attention.

Geotechnical Report Text (Introduction) (Pages 322-325)	Yes	No	Unknown or N/A
1. Is the general location of the investigation described and/or vicinity map included?	X		
2. Is scope and purpose of the investigation summarized?	X		
3. Is concise description given of geologic setting and topography of area?	X		
4. Are the field explorations and laboratory tests on which the report is based listed?	X		
5. Is general description of subsurface soil, rock, and groundwater conditions given?	X		
*6. Is the following information included with the geotechnical report (typically included in report appendices):			
a. Test hole logs? (Pages 25-33)	X		
b. Field test data?	X		
c. Laboratory test data? (Pages 74-75)	X		
d. Photographs (if pertinent)?	X		
Plan and Subsurface Profile (Pages 24, 47-49, 335)			
*7. Is a plan and subsurface profile of the investigation site provided?	X		

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

A. Site Investigation Information (Cont.)	Yes	No	Unknown or N/A
8. Are the field explorations located on the plan view?	X		
*9. Does the conducted site investigation meet minimum criteria outlined in Table 2?	X		
10. Are the explorations plotted and correctly numbered on the profile at their true elevation and location?	X		
11. Does the subsurface profile contain a word description and/or graphic depiction of soil and rock types?	X		
12. Are groundwater levels and data measured shown on the subsurface profile?	X		
Subsurface Profile or Field Boring Log (Pages 16-17, 25-29)			
13. Are sample types and depths noted?	X		
*14. Are SPT blow counts, percent core recovery, and RQD values shown?	X		
15. If cone penetration tests were made, are plots of cone resistance and friction ratio shown with depth?			X
Laboratory Test Data (Pages 60, 74-75)			
*16. Were lab soil classification tests such as natural moisture content, gradation, Atterberg limits, performed on selected representative samples to verify field visual soil identifications?	X		
17. Are laboratory test results such as shear strength (Page 62), consolidation (Page 68), etc., included and/or summarized?			X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

"GTR REVIEW CHECKLIST" (CENTERLINE CUTS AND EMBANKMENTS)

B. Centerline Cuts and Embankments (Pages 6-9)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

Are station to station descriptions included for:	Yes	No	Unknown or N/A
1. Existing surface and subsurface drainage?	___	___	X
2. Evidence of springs and excessively wet areas?	___	___	X
3. Slides, slumps, and faults noted along the alignment?	___	___	X
Are station to station recommendations included for the following:			
General Soil Cut or Fill			
4. Specific surface/subsurface drainage recommendations.	___	___	X
5. Excavation limits of unsuitable materials?	___	___	X
*6. Erosion protection measures for backslopes, side slopes, and ditches, including riprap recommendations or special slope treatments?	___	___	X
Soil Cuts (Pages 101-102)			
*7. Recommended cut slope design?	___	___	X
8. Are clay cut slopes designed for minimum F.S. = 1.50?	___	___	X
9. Special usage of excavated soils?	___	___	X
10. Estimated shrink-swell factors for excavated materials?	___	___	X
11. If answer to 3 is yes, are recommendations	___	___	X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

B. Centerline Cuts and Embankments (Cont.)	Yes	No	Unknown or N/A
Fills (Pages 77-79)			
11. Recommended fill slope design?	___	___	X
12. Will fill slope design provide minimum F.S. = 1.25?	___	___	X
Rock Slopes			
*13. Are recommended slope designs and blasting specifications provided?	___	___	X
*14. Is the need for special rock slope stabilization measures, e.g., rockfall catch ditch, wire mesh slope protection, shotcrete, rock bolts, addressed?	___	___	X
15. Has the use of "template" designs been avoided (such as designing all rock slopes on 1/4 to 1 rather than designing based on orientation of major rock jointing)?	___	___	X
*16. Have effects of blast induced vibrations on adjacent structures been evaluated?	___	___	X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (EMBANKMENTS OVER SOFT GROUND)

C. Embankments over Soft Ground

Where embankments must be built over soft ground (such as soft clays, organic silts, or peat), stability and settlement of the fill should be carefully evaluated. In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

Embankment Stability (Pages 77-79, 95-97)	Yes	No	Unknown or N/A
*1. Has the stability of the embankment been evaluated for minimum safety factors of 1.25 for side slope stability and 1.30 for end slope stability of bridge approach embankments?			
*2. Has the shear strength of the foundation soil been determined from lab testing and/or field vane shear or static cone penetrometer tests?			
*3. If the proposed embankment does not provide minimum factors of safety given above, are recommendations given for feasible treatment alternates which will increase factor of safety to minimum acceptable (such as change alignment, lower grade, use stabilizing counterberms, excavate and replace weak subsoil, fill stage construction, lightweight fill, geotextile fabric reinforcement, etc.)?			
*4. Are cost comparisons of treatment alternates given and a specific alternate recommended?			
Settlement of Subsoil (Pages 146-160)			
5. Have consolidation properties of fine grained soils been determined from laboratory consolidation tests?			
*6. Have settlement amount and settlement time been estimated?			
7. For bridge approach embankments, are recommendations made to get the settlement out before the bridge abutment is constructed (waiting period, surcharge, or wick drains)?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

C. Embankments Over Soft Ground (Cont.)	Yes	No	Unknown or N/A
8. If geotechnical instrumentation is proposed to monitor fill stability and settlement, are detailed recommendations provided on the number, type, and specific locations of the proposed instruments?			
9. Construction Considerations (Pages 183, 331-334)			
a. If excavation and replacement of unsuitable shallow surface deposits (peat, muck, topsoil) is recommended. Are vertical and lateral limits of recommended excavation provided?			
b. Where a surcharge treatment is recommended, are plan and cross-section of surcharge treatment provided in geotechnical report for benefit of the roadway designer?			
c. Are instructions or specifications providing concerning instrumentation, fill placement rates and estimated delay times for the contractor?			
d. Are recommendations provided for disposal of surcharge material after the settlement period is complete?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

GTR REVIEW CHECKLIST" (LANDSLIDE CORRECTIONS)

D. Landslide Corrections (Pages 77-80, 103-105)

In addition to the basic information listed in Section A, is the following information provided in the landslide study geotechnical report? (Refer to Table 4 for guidance on the necessary technical support data for correction of slope instabilities)

	Yes	No	Unknown or N/A
*1. Is a site plan and scaled cross-section provided showing ground surface conditions both before and after failure?			
*2. Is the past history of the slide area summarized - including movement history, summary of maintenance work and costs, and previous corrective measures taken (if any)?			
*3. Is a summary given of results of site investigation, field and lab testing, and stability analysis, including cause(s) of the slide?			
Plan			
4. Are detailed slide features - including locations of ground surface cracks, head scarp, and toe bulge - shown on the site plan?			
Cross Section			
*5. Are the cross sections used for stability analysis included with the soil profile, water table, soil unit weights, soil shear strengths, and failure plane shown as it exists?			
6. Is slide failure plane location determined from slope indicators?			
*7. For an active slide, was soil strength along the slide failure plane backfigured using a safety factor equal to 1.0 at the time of failure?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

D. Landslide Corrections (Cont.)

	Yes	No	Unknown or N/A
Text			
*8. Is the following information presented for each proposed correction alternate: (typical correction methods include buttress, shear key, rebuild slope, surface drainage, subsurface drainage-interceptor, drain trenches or horizontal drains and retaining structures)?			
a. Cross-section of proposed alternate?			
b. Estimated safety factor?			
c. Estimated cost?			
d. Advantages and disadvantages?			
9. Is a recommended correction alternate(s) given which provide a minimum F.S. = 1.25?			
10. If horizontal drains are proposed as part of slide correction, has subsurface investigation located definite water bearing strata that can be tapped with horizontal drains?			
11. If a toe counterberm is proposed to stabilize an active slide, has field investigation confirmed that the toe of the existing slide does not extend beyond the toe of the proposed counterberm?			
12. Construction Considerations			
a. Where proposed correction will require excavation into the toe of an active slide (such as for buttress or shear key), has the "during construction backslope F.S." with open excavation been determined?			
b. If open excavation F.S. is near 1.0, has excavation stage construction been proposed?			
c. Has seasonal fluctuation of groundwater table been considered?			
d. Are special construction features, techniques and materials described and specified?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (RETAINING WALLS)

E. Retaining Walls (See Section 5 of "Geotechnical Engineering Notebook")

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

	Yes	No	Unknown or N/A
*1. Does the geotechnical report include recommended soil strength parameters and groundwater elevation for use in computing wall design lateral earth pressures and factor of safety for overturning, sliding, and external slope stability?			
2. Is it proposed to bid alternate wall designs?			
*3. Are acceptable reasons given for the choice and/or exclusion of certain wall types (gravity, reinforced soil, tieback, cantilever, etc.)?			
*4. Is an analysis of the wall stability included with minimum acceptable factors of safety against overturning (F.S. = 2.0), sliding (F.S. = 1.5), and external slope stability (F.S. = 1.5)?			
5. If wall will be placed on compressible foundation soils, is estimated total settlement, differential settlement, and time rate of settlement given?			
6. Will wall types selected for compressible foundation soils allow differential movement without distress?			
7. Are wall drainage details including materials and compaction provided?			
8. Construction Considerations:			
a. Are excavation requirements covered - safe slopes for open excavations, need for sheeting or shoring?			
b. Fluctuation of groundwater table?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (SPREAD FOOTINGS)

F. Structure Foundations - Spread Footings (Pages 191-205)

In addition to the basic information listed in Section A, is the following information provided in the project foundation report?

	Yes	No	Unknown or N/A
*1. Are spread footings recommended for foundation support? If not, are reasons for not using them discussed.			
*2. Is recommended bottom of footing elevation and reason for recommendation (e.g., based on frost depth, estimated scour depth, or depth to competent bearing material) given?			
*3. Is recommended allowable soil or rock bearing pressure given?			
*4. Is estimated footing settlement and time given?			
*5. Where spread footings are recommended to support abutments placed in the bridge end fills, are special gradation and compaction requirements provided for select end fill and backwall drainage material? (Pages 137-141)			
6. Construction Considerations:			
a. Have the materials been adequately described on which the footing is to be placed so the project inspector can verify that material is as expected?			
b. Have excavation requirements been included for safe slopes in open excavations, need for sheeting or shoring, etc.?			
c. Has fluctuations of the groundwater table been addressed?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (PILE FOUNDATIONS)

G. Structure Foundations - Piles (Pages 224-311)

In addition to the basic information listed in Section A, if pile support is recommended or given as an alternate, conclusions/recommendations should be provided in the project geotechnical report for the following:

	Yes	No	Unknown or N/A
*1. Is the recommended pile type given (displacement, nondisplacement, pipe pile, concrete pile, H-pile, etc.) with valid reasons given for choice and/or exclusion? (Pages 224-226)			
2. Do you consider the recommended pile type(s) to be the most suitable and economical?			
*3. Are estimated pile lengths and estimated tip elevations given for the recommended allowable pile design loads?			
4. Do you consider the recommended design loads to be reasonable?			
5. Has pile group settlement been estimated (only of practical significance for friction pile groups ending in cohesive soil)? (Pages 245-247)			
6. If a specified or minimum pile tip elevation is recommended, is a clear reason given for the required tip elevation, such as underlying soft layers, scour, downdrag, piles uneconomically long, etc.?			
*7. Has design analysis (wave equation analysis) verified that the recommended pile section can be driven to the estimated or specified tip elevation without damage (especially applicable where dense gravel-cobble-boulder layers or other obstructions have to be penetrated?			
8. Where scour piles are required, have pile design and driving criteria been established based on mobilizing the full pile design capacity below the scour zone?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. Pile Foundations (Cont.)	Yes	No	Unknown or N/A
9. Where lateral load capacity of large diameter piles is an important design consideration, are p-y curves (load vs. deflection) or soil parameters given in the geotechnical report to allow the structural engineer to evaluate lateral load capacity of all piles?			
*10. For pile supported bridge abutments over soft ground:			
a. Has abutment pile downdrag load been estimated and solutions such as bitumen coating considered in design? Not generally required if surcharging of the fill is being performed. (Pages 248-251)			
b. Is bridge approach slab recommended to moderate differential settlement between bridge ends and fill?			
c. If the majority of subsoil settlement will not be removed prior to abutment construction (by surcharging), has estimate been made of the amount of abutment rotation that can occur due to lateral squeeze of soft subsoil? (Pages 114-115)			
d. Does the geotechnical report specifically alert the structural designer to the estimated horizontal abutment movement?			
11. If bridge project is large, has pile load test program been recommended? (Pages 229-302)			
12. For a major structure in high seismic risk area, has assessment been made of liquefaction potential of foundation soil during design earthquake (note: only loose saturated sands and silts are "susceptible" to liquefaction)?			

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for clarification and/or to discuss the project.

G. Pile Foundations (Cont.)

	Yes	No	Unknown or N/A
13. Construction Considerations: (Pages 279-311)			
Have the following important construction considerations been adequately addressed?			
a. Pile driving details such as: boulders, or obstructions which may be encountered during driving - need for preaugering, jetting, spudding, need for pile tip reinforcement, driving shoes, etc.?			
b. Excavation requirements - safe slope for open excavations, need for sheeting or shoring? Fluctuation of groundwater table?			
c. Have effects of pile driving operation on adjacent structures been evaluated such as protection against damage caused by footing excavations or pile driving vibrations?			
d. Is preconstruction condition survey to be made of adjacent structures to prevent unwarranted damage claims?			
e. On large pile driving projects have other methods of pile driving control been considered such as dynamic testing or wave equation analysis?			

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (DRILLED SHAFTS)

H. Structure Foundations - Drilled Shafts (Pages 252-260)

In addition to the basic information listed in Section A, if drilled shaft support is recommended or given as an alternate, are conclusions/recommendations provided in the project foundation report for the following:

	Yes	No	Unknown or N/A
*1. Are recommended shaft diameter(s) and length(s) for allowable design loads based on an analysis using soil parameters for side friction and end bearing?			
*2. Settlement estimated for recommended design load?			
*3. Where lateral load capacity of shaft is an important design consideration, are P-Y (load vs. deflection) curves or soils data provided in geotechnical report which will allow structural engineer to evaluate lateral load capacity of shaft?			
4. Is static load test (to plunging failure) recommended?			
5. Construction Considerations:			
a. Have construction methods been evaluated, i.e., can less expensive dry method or slurry method be used or will casing be required?			
b. If casing will be required, can casing be pulled as shaft is concreted (this can result in significant cost savings or very large diameter shafts)?			
c. If artesian water was encountered in explorations, have design provisions been included to handle it (such as by requiring casing and tremie seal)?			
d. Will boulders be encountered? (Note: If boulders will be encountered, then the use of shafts should be seriously questioned due to construction installation difficulties and resultant higher cost the boulders can cause.)			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (MATERIAL SITES)

I. Material Sites

In addition to the basic information listed in Section A, is the following information provided in the project Material Site Report?:

	Yes	No	Unknown or N/A
1. Material site location, including description of existing or proposed access routes and bridge load limits (if any)?			
*2. Have soil samples representative of all materials encountered during the pit investigation been submitted and tested?			
*3. Are laboratory quality test results included in the report?			
4. For aggregate sources, do the laboratory quality test results (such as L.A. abrasion, sodium sulfate, degradation, absorption, reactive aggregate, etc.) indicate if specification materials can be obtained from the deposit using normal processing methods?			
5. If the lab quality test results indicate that specification material cannot be obtained from the pit materials as they exist naturally - has the source been rejected or are detailed recommendations provided for processing or controlling production so as to ensure a satisfactory product.			
*6. For soil borrow sources, have possible difficulties been noted - such as above optimum moisture content clay-silt soils, waste due to high PI, boulders, etc?			
*7. Where high moisture content clay-silt soils must be used, are recommendations provided on the need for aeration to allow the materials to dry out sufficiently to meet compaction requirements?			
8. Are estimated shrink-swell factors provided?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

I. Material Sites (Cont.)	Yes	No	Unknown or N/A
*9. Do the proven material site quantities satisfy the estimated project quantity needs?			
10. Where materials will be excavated from below the water table, has seasonal fluctuation of the water table been determined?			
11. Are special permit requirements covered?			
12. Have pit reclamation requirements been covered adequately?			
13. Has a material site sketch (plan and profile) been provided for inclusion in the plans, which contains:			
➢ Material site number?			
➢ North arrow and legal subdivision?			
➢ Test hole or test pit logs, location, number and date?			
➢ Water table elevation and date?			
➢ Depth of unsuitable overburden which will have to be stripped?			
➢ Suggested overburden disposal area?			
➢ Proposed mining area and previously mined areas?			
➢ Existing stockpile locations?			
➢ Existing or suggested access roads?			
➢ Bridge load limits?			
➢ Reclamation details?			
14. Are recommended special provisions provided?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

Appendix G – Preliminary Geotechnical Report for Bridge Widening/Replacement

PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE
TO EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FPID No. 445804-1-22-01

FINAL PRELIMINARY GEOTECHNICAL REPORT FOR BRIDGE WIDENING/REPLACEMENT

SR 997 BRIDGE OVER BLACK CREEK CANAL (BRIDGE NO. 870633)

PREPARED FOR: GANNETT FLEMING, INC.

PREPARED BY: GEOSOL, INC.

OCTOBER 5, 2021

Gannett Fleming, Inc.
800 NW 62nd Avenue, Suite 490
Miami, Florida 33126

October 5, 2021

Attention: Ms. Alina Fernandez, P.E. - Vice President

Re: **Final Preliminary Geotechnical Report for Bridges Widening/Replacement**
SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Project Development and Environment (PD&E) Study
SR 994/ SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue
To East of SW 127th Avenue
Miami-Dade County, Florida
FPID No. 445804-1-22-01
GEOSOL Project No. 221126

Dear Ms. Fernandez:

GEOSOL, Inc. (GEOSOL) is pleased to submit the enclosed final preliminary geotechnical report for the proposed widening/replacement of the SR 997 bridge over Black Creek Canal (Bridged No. 870633) associated with the above-referenced project. As we understand it, this geotechnical report will be used as documentation for the Project Development and Environmental (PD&E) studies for this project. These services were provided in accordance with the FDOT's *Soils and Foundation Handbook* and our scope of services negotiated with FDOT on May 5, 2021. Authorization for our services was provided by means of a Subconsultant Agreement between Gannett Fleming, Inc. and GEOSOL dated June 17, 2021. This report was reviewed by FDOT District 4 and 6 Materials Office (DMO) with no review comments.

The results of the preliminary field exploration and laboratory testing programs, together with our preliminary geotechnical engineering evaluations and recommendations for the proposed bridge widening/replacement that is part of the project are presented in the accompanying report. For the final design phase of this project, it is recommended that a final design-level geotechnical exploration program be performed in accordance with the latest version of the FDOT's *Soils and Foundations Handbook*.

GEOSOL appreciates the opportunity to submit this geotechnical report and looks forward to a successful team effort on this and future projects. If you have any questions, please do not hesitate to call our office.

Sincerely,
GEOSOL, INC.
10/5/21

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TABLE OF CONTENTS

ITEM **PAGE**

1.0 INTRODUCTION 1
1.1 PROJECT INFORMATION 1
1.2 PURPOSE 1
2.0 SCOPE OF STUDY 2
2.1 GEOTECHNICAL SCOPE 2
2.2 REPORT FORMAT 2
3.0 SITE DESCRIPTION 3
4.0 FIELD EXPLORATION 3
4.1 GENERAL 3
4.2 FIELD TEST LOCATIONS 3
4.3 STANDARD PENETRATION TEST (SPT) 4
4.4 WATER LEVEL MEASUREMENTS 4
4.5 TRAFFIC CONTROL AND SIGNS 4
4.6 ROCK CORING 4
5.0 LABORATORY TESTING 5
5.1 GENERAL 5
5.2 GRAIN-SIZE ANALYSIS 5
5.3 MOISTURE CONTENT 5
5.4 ENVIRONMENTAL CLASSIFICATION 6
6.0 GENERALIZED SUBSURFACE CONDITIONS 6
6.1 REGIONAL GEOLOGY 6
6.2 MIAMI-DADE COUNTY SOIL SURVEY 7
7.0 SITE SUBSURFACE CONDITIONS 7
7.1 GENERAL 7
7.2 GROUNDWATER CONDITIONS 7
8.0 GEOTECHNICAL DESIGN PARAMETERS FOR FOUNDATION DESIGN 8
8.1 GENERAL 8
9.0 PRELIMINARY BRIDGE FOUNDATION EVALUATION 11
9.1 GENERAL 11
9.2 FOUNDATION ALTERNATIVES FOR BRIDGE STRUCTURES 11
9.2.1 SHALLOW FOUNDATIONS 11
9.2.2 DRILLED SHAFTS 12
9.2.3 STEEL PILES 15
9.2.4 PRECAST PRESTRESSED CONCRETE DRIVEN PILES 15
9.2.5 AUGER CAST-IN-PLACE (ACIP) PILES 18
9.2.6 SCOUR 21
10.0 EXCAVATION RECOMMENDATIONS 21

GEOSOL, Inc.

TABLE OF CONTENTS (CONTINUED)

ITEM **PAGE**

11.0 FHWA REPORT CHECKLIST 22

12.0 RECOMMENDATIONS FOR FURTHER GEOTECHNICAL STUDIES 22

13.0 REPORT LIMITATIONS 22

APPENDICES

Appendix "A"
Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: US Geologic Survey Map
Table 1: Summary of Field Test Locations
Sheet 4: Boring Location Plan
Sheet 5: Report of Core Borings

Appendix "B"
Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Grain Size Analysis Test Curves
Natural Moisture Content Test Results
Percent Passing the No. 200 Sieve Test Results
Organic Content Test Results
Environmental Classification Test Results
SFWMD Readings at the S-148 Spillway on Canal C-1 at FEC Railroad
Dade County Design Standard WC-2.2: Average October Ground Water Level

Appendix "C"
Driven Piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Drilled Shafts: "FB-Deep" Axial Compression Shaft Capacity
Graphs & Output Printouts
ACIP piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Derivation of Geotechnical Design Parameters
FB-MultiPier Geotechnical Parameters

Appendix "D"
FHWA Geotechnical Report Checklist

1.0 INTRODUCTION

1.1 Project Information

The Florida Department of Transportation (FDOT) District 6 is conducting a Project Development and Environmental (PD&E) study for the improvement of SR 994/ SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue (MP 4.000 to MP 5.162) in Miami-Dade County, Florida. We understand that the objective of the PD&E study is to evaluate the widening of SR 994/ SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue and document information necessary for FDOT to reach a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility. The total length of the project is about 1.162 miles (about 6,135 feet). Sheet 1 of Appendix "A" presents a Site Vicinity Map.

Based on our review of the preliminary plans and the project information provided to us, we understand that the proposed improvements that are part of the project include either the widening or replacement of the existing SR 993 bridge over Black Creek Canal (Canal C-1W) from two (2) lanes to four (4) lanes roadway section. The existing bridge is located approximately 300 feet east of SW 132nd Avenue, and has a typical section that includes two (2) undivided travel lanes approximately 11 feet wide and 6-ft concrete sidewalks adjacent to each travel lane. The bridge is a three-span structure approximately 95 feet long and 38 feet wide.

This report was specifically prepared to obtain preliminary geotechnical information for the above-referenced bridge widening or replacement. This report presents our preliminary field exploration and laboratory testing programs as well as our preliminary geotechnical engineering evaluations and recommendations for the proposed bridge wall structures. A separate preliminary report was prepared for the proposed roadway improvements that are being considered for this project.

For this preliminary report, we considered supporting the proposed bridge widening or replacement on deep foundation systems, including drilled shafts, driven piles, and Auger Cast-in-Place (ACIP) piles. It is to be noted, though, that if ACIP piles are used, it will require approval from FDOT Central Office. We also considered a shallow foundation system (spread footings). As we understand it, the final foundation systems will be selected after the final design level geotechnical investigation and analyses is performed.

1.2 Purpose

The purpose of this preliminary study was to evaluate the underground conditions (i.e. subsoil, rock and groundwater conditions) in light of the planned bridges widening or replacement described above. The results of the field and laboratory testing programs together with our preliminary geotechnical engineering recommendations for the proposed bridge foundations are included in this report.

2.0 SCOPE OF STUDY

2.1 Geotechnical Scope

In preparation of this preliminary geotechnical report, we have performed the following services:

1. Discussed with GF the scope of the field exploration program.
2. Performed site reconnaissance and marked the location of the test borings in the field.
3. Filed for a roadway closure permit with the FDOT Traffic Operations Section.
4. Obtained underground utility clearance notifications at each test boring location.
5. Provided Maintenance of Traffic during the performance of the field testing in accordance with the Index Plan 102-600 series of the FDOT Roadway and Traffic Design Standards.
6. Performed a total of two (2) Standard Penetration Test (SPT) borings to depths of 80 feet below existing grades for the proposed bridge widening/replacement.
7. Patched the surface of the test boring locations and restored the sites to their original condition.
8. Inspected retained soil/rock samples for visual classification and performed laboratory and corrosion tests on selected representative samples.
9. Reviewed the field and laboratory data and evaluated the data for various foundation systems.
10. Prepared a preliminary geotechnical engineering report summarizing the results of the preliminary field and laboratory testing programs as well as the preliminary foundation evaluations.

2.2 Report Format

This preliminary geotechnical report begins with a discussion of the field and laboratory testing programs followed by a general discussion regarding the subsurface conditions, preliminary geotechnical engineering evaluations and recommendations, construction considerations, and report limitations. The site vicinity, USDA soils survey, and USGS maps, the boring location plan sheets, and Report of Core Boring sheets are presented in Appendix “A”. The laboratory test results are presented in Appendix “B”. The results of the preliminary bridge foundation evaluations are presented in Appendix “C”. The FHWA Report Checklist is presented in Appendix “D”.

3.0 SITE DESCRIPTION

The site of the study is generally located along SR 994/SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of 127th Avenue in Miami-Dade County, Florida. Within the project limits SR 994 is classified as a rural minor arterial to the center of SW 137th Avenue, and as an urban minor arterial east of NW 137th Avenue. The existing typical roadway section generally consists of a two (2) lane (one in each direction) roadway with paved outside shoulders and turning lanes. Residential areas are generally present within the project limits.

4.0 FIELD EXPLORATION

4.1 General

A field exploration program was conducted consisting of Standard Penetration Test (SPT) borings performed at the site of the proposed bridge widening/replacement. A total of two (2) SPT borings (BR-1 and BR-2) were performed for this phase of the project on land to depths of 80 feet below existing grades. Additionally, one (1) sample (D50) was collected from the canal bottom for D50 analyses for use in scour evaluations.

The field exploration program was performed between August 20 and 24. The Boring Location Plan sheet is presented on Sheet 4 in Appendix “A”. The Report of Core Boring sheet is shown on Sheet 5 in Appendix "A". This sheet presents the boring location information, subsurface conditions and groundwater levels encountered at the time of drilling. In addition, these profiles present the results of the laboratory testing on selected representative soil samples.

4.2 Field Test Locations

The test locations were marked in the field by representatives of GEOSOL utilizing the Google Earth KMZ file provided to us by GF that show the proposed improvement limits, standard taping procedures and existing landmarks. The tests were performed as close as possible to the proposed improvements considering constraints such as existing utilities and equipment accessibility. The latitude and longitude coordinates were obtained using a hand-held Global Positioning System (GPS) device (Garmin eTrex 20X) at the test boring location. The GPS data were converted to northing and easting coordinates using the U.S. Army Corps of Engineers software “Corpscon”. The ground surface elevations from each test boring location were not provided to us at this point. The test boring location information is presented in Table 1 of Appendix “A” and the Boring Location Plans in Sheet 4 of Appendix “A”.

4.3 Standard Penetration Test (SPT)

The SPT borings performed were drilled utilizing truck-mounted drill rigs (Foremost-Mobile model B-53) equipped with recently calibrated automatic hammers. The SPT boring procedure was conducted in general conformance with ASTM D-1586. After seating the sampler six (6) inches, the number of successive blows required to drive the sampler twelve (12) inches into the soil constitutes the test result commonly referred to as the "N"-value. The “N”-value has been empirically correlated with various soil properties and is considered to be indicative of the relative density of cohesionless soils and the consistency of cohesive soils. The N-value information for each SPT boring is presented in the Report of Core Boring sheet. The recovered split spoon samples from the SPT borings were visually classified in the field with representative portions of the samples placed in jars and transported to our office for review by a Geotechnical Engineer and verification of the field classification.

4.4 Water Level Measurements

Water level depths were obtained during the test boring operations. They are noted on the Report of Core Boring Sheets presented in Appendix “A”. In relatively pervious soils such as sandy soils and porous rocks the indicated depths are usually groundwater levels. Seasonal variations, tidal conditions, temperature, land-use, and recent rainfall conditions may influence the depths of the groundwater.

4.5 Traffic Control and Signs

Barricades, cones, sign devices, and off-duty police officers were continuously used as necessary and in general compliance with Roadway and Traffic Design Standards Index Drawings.

4.6 Rock Coring

For the PD&E study, rock coring was not performed at the bridge site. If drilled shafts, ACIP piles, or spread footings are ultimately selected for bridge support, rock coring and strength testing will be required in accordance with the latest version of the FDOT *Soils and Foundations Handbook*.

5.0 LABORATORY TESTING

5.1 General

Representative soil and rock samples collected from the SPT borings were visually reviewed in the laboratory by a geotechnical engineer to confirm the field classifications. The soil samples were then classified using the Unified Soil Classification System (USCS) in general accordance with the American Society of Testing and Materials (ASTM) test designation D-2488, titled "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)" and ASTM D-2487 titled "Standard Test Method for Classification of Soils for Engineering Purposes". The soil classification was based on visual observations with the aids of laboratory testing results, which consist of grain-size analysis, percent passing the No. 200 sieve, and natural moisture content. In addition, environmental classification testing was performed on water samples obtained from the SPT borings. The tests were performed on selected samples believed to be representative of the materials encountered. A summary of the laboratory test results is provided in Tables 2 and 3 in Appendix "B" of this report.

5.2 Grain-Size Analysis

The grain-size analyses were conducted in general accordance with the FDOT Test Designation FM1-T88 (ASTM Test Designation D-422, titled "Particle-Size Analysis of Soils"). The grain-size analysis test measures the percentage passing the No. 200 Sieve. In this manner, the grain-size distribution of a soil is measured. The percentage by weight passing the No. 200 sieve is the amount of silt and clay sized particles. A summary of these test results are presented on Table 2 in Appendix "B". The grain-size analysis curves are presented in Appendix "B" of this report.

5.3 Moisture Content

Laboratory moisture content test consists of the determination of the percentage of moisture contents in selected samples in general accordance with FDOT Test Designation FM1-T265 {ASTM Test Designation D-2216, titled "Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures"}. Briefly, the moisture content is determined by weighing a sample of the selected material and then drying it in a warm oven. Care is taken to use a gentle heat so as not to destroy any organics. The sample is removed from the oven and reweighed. The difference of the two weights is the amount of moisture removed from the sample. The weight of the moisture divided by the weight of the dry soil sample is the percentage by weight of moisture in the sample. The moisture content test results are presented in Table No. 2 attached in Appendix "B".

5.4 Environmental Classification

As part of the laboratory testing program, environmental corrosion tests on water samples recovered from the SPT borings in the vicinity of the proposed bridges. Environmental corrosion tests include parameters such as pH, resistivity, sulfates content and chlorides content. The environmental corrosion tests were conducted in general accordance with the FDOT Test Designations FM5-550, 5-551, 5-552, and 5-553. Based on the FDOT's "Structures Design Guidelines", Section 1.3, the environment in the bridge areas has been classified as slightly aggressive for the superstructures and moderately aggressive for the substructures and indicated in the Report of Core Boring Sheet in Appendix "A". The test results obtained are presented on Table 3 in Appendix "B".

6.0 GENERALIZED SUBSURFACE CONDITIONS

6.1 Regional Geology

The Miami area of southern Florida is underlain by an alternating sequence of cemented and uncemented Pleistocene sedimentary deposits (Pleistocene Epoch, deposited 10,000 to 2 million years before the present). A near surface poorly cemented, oolitic Miami Limestone is underlain by a wide variety of loose to dense quartz sands and coarse to fine-grained limestones (Fort Thompson Formation). However, in many portions of Miami-Dade, surface sand deposits of the Pamlico Formation and man-made fill materials are encountered. The Pamlico Formation is composed of unfossiliferous, unconsolidated quartz fine sand. The man-made fill deposit generally consists of granular fill material. The thickness of these deposits is in the order of three (3) to five (5) feet. Generally, the Pamlico formation overlies the Miami Limestone Formation. In the west part of the county, portions of the Everglades interfingers with the Pamlico Formation sands. The Everglades soils consist of peat, organic silt and calcareous silt marl. Generally, the Everglades soils have a thickness in the order of three (3) to seven (7) feet and overlie the Miami Limestone Formation.

The limestones found in the Miami area are much softer than the hard rock formations found elsewhere in the U.S. Although the limestone in Miami can be very porous and have a sponge-like open interconnected network of vugs and small voids, large cavities prone to sinkhole activity are not generally found in the Miami area because the rock formations of South Florida are relatively young, as compared to those encountered in other parts of Florida.

6.2 Miami-Dade County Soil Survey

The *Soil Survey of Miami-Dade County Area, Florida*, published by the United States Department of Agriculture (USDA), was reviewed for general near-surface soil information within the general project vicinity. This information indicates that there are three (3) primary mapping units for this project. The map soil units encountered are as follow:

- Perine marl, drained (6)
- Biscayne marl, drained (16)
- Water (99)

A reproduction of the USDA map for the project area is illustrated on Sheet 2 in Appendix "A".

7.0 SITE SUBSURFACE CONDITIONS

7.1 General

The groundwater table was measured at each boring location during the performance of the test borings and confirmed immediately following completion of drilling operations. Test borings were performed during the wet season. The groundwater table depths within the roadway borings were measured after a short stabilization period. The groundwater depths ranged from approximately 6.2 to 6.9 feet, with an average of about 6.6 feet, below existing grades. This information is shown on the Report of Core Boring sheet presented in Appendix "A" of this report. Fluctuation in the observed groundwater levels should be expected due to rainfall variation, construction activity and other factors. We recommend that The Designer consider the possibility of such fluctuation.

7.2 Groundwater Conditions

The estimated seasonal high water table each year is the level in the August-September period at the end of the rainy season during a year of average (normal) rainfall. The water table elevations associated with a flood would be much higher than the seasonal high water table elevations. The normal high water levels would more approximate the seasonal high water table elevations. The seasonal high water table is affected by a number of factors. The drainage characteristic of the soils, the land surface elevation, relief points such as lakes, canals, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high water table elevation.

The borings performed by GEOSOL were generally done during the wet season and the SHGWT is expected to be slightly above the levels measured at the borings performed for this study. Based on our interpretation of the site conditions using the results of our test boring data, we estimate that the normal seasonal high water table is about 6 to 12 inches above the water levels measured in the boring locations.

Based on our interpretation of the site conditions using the results of our test boring data, Miami-Dade County historical groundwater maps, and United States Geological Survey (USGS) historical groundwater data, we estimate that the normal seasonal high water table should range from about +4 to +5 feet (NGVD, 1929). The range in SHGWT is presented due to the fact that limited groundwater data was collected during the PD&E study. The recommendation for SHGWT should be refined and revisited during final design phase.

8.0 GEOTECHNICAL DESIGN PARAMETERS FOR FOUNDATION DESIGN

8.1 General

The geotechnical design parameters for this study were obtained on the basis of empirical relationships between the SPT "N"-values and the shear strength of the soil/rock strata. The subsequent sections provide derivation of geotechnical design parameters for use in preliminary foundation design for the proposed bridge widening. The derivation of the geotechnical design parameters are presented in Appendix "C". It is to be noted that the SPT borings performed by GEOSOL were done with the use of an automatic hammer and The SPT "N"-values obtained from each boring were corrected for hammer efficiency – in order to use the empirical relationships that were derived based on the safety hammer N-values - in accordance with the recommended relationship presented in the FDOT *Soils and Foundations Handbook* (N_{safety} = 1.24*$N_{automatic}$). Hence, any references to SPT "N"-values in the following paragraphs only have been corrected to safety hammer N-values (N_{safety}) for use in foundation design.

The ground surface at the boring locations was covered by either a topsoil layer or an asphalt pavement layer. The following stratification was encountered either below the topsoil layer or below the asphalt pavement at the borings performed by GEOSOL:

❖ **Granular Fill:**

The soils from this layer generally consist of fine to medium-grained sand. The materials from this stratum may classify as SP, SP-SM, or SM in accordance with the USCS. The relative density of this layer is medium dense with N_{safety}-values ranging between 21 and 26, with a statistical average N_{safety}-value of about 24 bpf. Based on established empirical relationship between the N-value and the internal friction angle (ϕ) as well as statistical evaluation of the data, we recommend an internal friction angle (ϕ) and total unit weight (γ_t) of 34 degrees and 115 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.26, 5.15 and 0.44, respectively.

❖ **Sandy Silt:**

This layer was generally encountered below the granular fill layer at depths ranging from 2 and 9.5, with thickness ranging from 5.5 to 6 feet, with an average thickness of about 5.8 feet. The materials from this Stratum consist of sandy silt and classify as ML in accordance with the USCS. The consistency of this layer is stiff with N-values ranging from 9 to 11 blows per foot, with a statistical average N-value of 10 bpf. Based on established empirical relationship between the N-value and the internal friction angle (ϕ) as well as statistical evaluation of the data, we recommend an internal friction angle (ϕ) and total unit weight (γ_t) of 23 degrees and 90 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.44, 2.28 and 0.61, respectively.

❖ **Natural Upper Limestone Formation:**

The upper rock formation at the site is soft, occasionally moderately hard. This material was generally intermittingly with the upper sand layer. This formation is very porous. Based on results of the SPT borings, the N_{safety}-values obtained from the SPT borings ranged from 10 to 17 blows per foot (bpf), with a statistical average N_{safety}-value of about 14 bpf. Based on the variable strength properties of the limestone formation, and in accordance with FDOT's *Soils and Foundation Handbook*, we recommend that the limestone be modeled as gravel with an internal friction angle (ϕ) and total unit weight (γ_t) of 35 degrees and 120 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.25, 5.63 and 0.43, respectively.

❖ **Natural Sand:**

The sand stratum was encountered below the sandy silt and intermittingly with the upper limestone formation. The soils from this layer generally consist of fine to medium-grained sand. The materials from this stratum may classify as SP in accordance with the USCS. The relative density of this layer is medium dense with N_{safety}-values ranging between 10 and 11, with a statistical average N_{safety}-value of about 10 bpf. Based on established empirical relationship between the N-value and the internal friction angle (ϕ) as well as statistical evaluation of the data, we recommend an internal friction angle (ϕ) and total unit weight (γ_t) of 31 degrees and 110 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.29, 4.28 and 0.48, respectively.

❖ **Natural Lower Limestone Formation:**

The natural lower limestone formation was generally encountered below the sand layer. The natural lower limestone formation is the bearing stratum for deep foundations in Miami-Dade County. The strength of the limestone formation encountered throughout the project alignment was variable. Since rock cores have not been obtained, the shear strength properties of this rock formation were obtained from established empirical correlations. Based on results of the SPT borings, the N_{safety}-values obtained from the SPT borings ranged from 29 bpf and over 50 blows per 2 inches of penetration (split-spoon sampler refusal conditions), with a statistical average N_{safety}-value of about 38 bpf. Based on the variable strength properties of the limestone formation, we recommend that the limestone be modeled as rock with a design unit skin friction (f_{su}) value of 3.5 tons per square foot (tsf) and a Cohesion (c) value of 7.0 tsf. We recommend a total unit weight (γ_t) of 120 pcf. The shear strength value was derived based on empirical correlations presented in the FDOT's *Soils and Foundations Handbook*.

Table "A" below presents a summary of preliminary geotechnical soil/rock parameters for use in preliminary foundation analyses and design. For specific subsurface stratification, refer to the Report of Core Boring sheet presented in Appendix "A".

TABLE "A"- SUMMARY OF PRELIMINARY GEOTECHNICAL DESIGN PARAMETERS

GENERAL MATERIAL DESCRIPTION	UNIT WEIGHT, γ (PCF)		FRICTION ANGLE, ϕ (Degrees)	DESIGN UNIT SKIN FRICTION, f_{su} (TSF)	COHESION (C) (TSF)	EARTH PRESSURE COEFFICIENTS		
	TOTAL	EFFECTIVE				ACTIVE (Ka)	PASSIVE (Kp)	AT-REST (Ko)
Granular Fill (SP/SP-SM/SM)	115	53	34	-	-	0.26	5.15	0.44
Sandy Silt (ML)	90	28	23	-	-	0.44	2.28	0.61
Natural Upper Limestone	120	58	35	-	-	0.25	5.63	0.43
Natural Sand (SP)	110	48	31	-	-	0.29	4.28	0.48
Natural Lower Limestone	120	58	-	3.5	7.0	-	-	-

Included in Appendix "C" are preliminary FB-Multipier Parameters for use in laterally loaded driven pile/drilled shaft/ACIP pile analyses.

9.0 PRELIMINARY BRIDGE FOUNDATION EVALUATION

9.1 General

We understand that the existing bridges are either being considered for widening or replacement. The existing bridges are supported by square precast prestressed concrete driven pile foundations. The project is in PD&E phase and final design loading information is not yet available. We understand that the bridge design methodology will be Load and Resistance Factor Design.

The PD&E study phase of the project consists of preparing a preliminary geotechnical report to aid FDOT in reaching a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility. Deep foundations (driven piles, drilled shafts, and ACIP piles), as well as shallow foundations were considered for support of the proposed bridge improvements. Each of the foundation alternatives is discussed individually in the following sections.

9.2 Foundation Alternatives for Bridge Structures

Foundation alternatives for the project considered the results of our field study and performance of foundation systems near the project site. Based on our experience with similar projects, we considered the following foundation alternatives:

- Shallow Foundations
- Straight Sided Drilled Shafts
- Steel Piles, Including Pipe and H-Sections
- Precast Prestressed Concrete Piles
- Auger Cast-in-Place (ACIP) Piles

The following sections discuss our preliminary foundation recommendations for each alternative:

9.2.1 Shallow Foundations

For the most part, the soil borings performed for the proposed bridge widening or replacement disclosed loose sandy soils and unsuitable sandy silt (ML) in the upper part of the subsurface profile. The use of shallow foundations will require extensive excavations for the removal of the unsuitable sandy silt (ML) that were encountered at the bridge boring locations at depths ranging from 2 and 9.5, with thickness ranging from 5.5 to 6 feet, with an average thickness of about 5.8 feet.

Additionally, due to the groundwater levels measured during the field exploration program, dewatering will likely be required to cast the spread footings in the dry, which can add a significant cost to the project and excessive settlement to the existing utilities.

Also, given the relatively large magnitude of the applied loads, large footings would be required and relatively large settlements would result, making the use of shallow foundations uneconomical and unfeasible.

Further, spread footings will be subjected to the effects of scour due to the fact that the bridges cross over the Black Creek Canal. Also, Substantial dewatering and possible cofferdam with tremie seal will be required to cast the footings in the dry, which can add a significant cost to the project.

Furthermore, the difficulties associated with spread footing construction, presence of underground utilities, and potential MOT impacts due to relatively large footing sizes make them an unpractical and not cost effective, in our opinion, foundation alternative.

However, when a final-design level geotechnical investigation is performed, a re-evaluation may be performed to determine feasibility of using a shallow foundation system for bridge support.

9.2.2 Drilled Shafts

- *General*

Drilled shafts are a feasible foundation alternative for the support of the proposed bridge widening or replacement. Drilled shafts have the advantage of being able to develop high axial and lateral capacities in a single unit and their use reduces construction vibration concerns (using special vibration free-oscillatory type equipment for case installation) and noise in the vicinity of existing structures. However, the quality control of drilled shaft installation requires more engineering judgment and precaution compared to the driven piles to ensure that the specifications are complied. Also, drilled shafts require additional testing (i.e. cross-hole-sonic logging, static or dynamic load testing, shaft inspection device, etc.) that typically make them more expensive than driven piles. The minimum drilled shaft diameters allowed by the FDOT *Structures Design Guidelines* for redundant and non-redundant foundations are 42 and 48 inches, respectively.

We are providing evaluations and recommendations for the PD&E study phase of the project. It should be noted that for this preliminary report, rock coring and testing have not been performed in order to derive the design shear strength parameters for drilled shaft foundation design in accordance with the FDOT's *Soils and Foundations Handbook*. Therefore, for this report we have evaluated drilled shaft capacities using established empirical relationships between the SPT N-value and the shear strength of the rock strata as presented in the FDOT's *Soils and Foundations Handbook*. If drilled shafts are ultimately selected for support of any of the bridge improvements, rock coring and testing will be required to confirm the preliminary shear strength parameters and to provide final recommendations regarding drilled shaft foundations.

Drilled shafts were evaluated using the manual entitled *Drilled Shafts: Construction Procedures and LRFD Design Methods,* published by the Federal Highway Administration (FHWA), and the FDOT *Soils and Foundations Handbook*. The drilled shaft capacities were evaluated by using the preliminary soil/rock shear strength properties previously summarized in Table "A" of this report.

❖ *Axial Capacity*

For this preliminary phase, we have prepared curves of axial capacity versus depth for drilled shaft diameters of 42, 48, 54, 60, and 72 inches. The curves were prepared using the software for axially loaded drilled shafts, "FB-Deep" v3.0.0, which was developed based on the procedures outlined in based upon Federal Highway Administration report "Drilled Shafts: Construction Procedure and Design Methods". As previously stated the SPT "N"-values from the borings performed of this study were obtained using an automatic hammer. Per FDOT Soils and Foundation Handbook a correction factor of Nsafety = 1.24*Nautomatic was used for the program FB-Deep software input. The FB-Deep runs for borings performed by GEOSOL are presented in Appendix "C".

The nominal resistances that the drilled shafts may develop were multiplied by resistance factors of 0.5 and 0.6 for non-redundant and redundant drilled shaft foundations, respectively. These resistance factors were selected because our preliminary shaft capacities based on side friction resistance only. Appendix "C" presents our preliminary drilled shaft capacity evaluations.

Since it is early in the design phase, the drilled shaft foundation configuration (i.e. # of shafts) has not been determined. If at all possible, we recommend that non-redundant drilled shaft foundations not be used, as significantly more stringent FDOT design and construction requirements apply (i.e. shaft inspection device at each shaft, cross-hole sonic logging at each shaft, SPT boring and rock coring at each shaft location, etc.). The performance of a load testing program may be required to allow for an opportunity to evaluate end bearing capacity of the drilled shafts and possibly shortening the shaft lengths. The axial capacities presented in Appendix "C" are based on side friction resistance only, since the full mobilization of end bearing capacity would require large tip movement and on the order of 5 to 10 percent of the shaft diameter.

If drilled shafts are to be selected for foundation support, requirements for a load testing program, including the recommended type, will be specified during the final design phase. If load testing is performed for the drilled shafts of this project, then the resistance factor (ϕ) could be increased. For example, for Statnamic load testing, ϕ can be increased from 0.60 to 0.70.

- *Lateral Deflections*

At this point the design loading information is not available. During the final design phase if drilled shafts are selected for bridge support, lateral deflections will need to be checked and minimum tip elevations will need to be established once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *Drilled Shaft Settlement*

Settlements of drilled shaft supported bridge foundations are typically small and tolerable for a typical shaft group. At this point the design loading information is not available. During the final design phase if drilled shafts are selected for bridge support, settlements will need to be checked at the Service limit state once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *Drilled Shaft Construction*

The installation of the drilled shafts should be carried out in accordance with Section 455 of the FDOT *Standard Specifications for Road and Bridge Construction*.

- *Load Testing*

Load test types include static load tests, dynamic load tests, Osterberg load tests and Statnamic load tests. Factors to be considered when evaluating the benefits and costs of providing loaded tested shafts include: subsurface conditions, design loads, testing equipment, mobilization and vibration concerns. Generally, the more variable the subsurface conditions at the site the less cost effective are static load tests. If drilled shafts are selected, we recommend that the load test be of either Statnamic or Oesterberg types. Generally, Statnamic load tests are less expensive and quicker to perform than Oesterberg type load tests. However, given the explosive nature of the Statnamic load test and the nearby residential and commercial structures, we do not recommend the use of a Statnamic load test. The Osterberg load test appears to be the most feasible type of load testing program.

If drilled shaft foundations are selected for bridge support, we recommend that as a minimum one (1) compression load test is planned. The location of the load tests should be selected considering the subsurface conditions and design loading. We recommend that load testing be performed in the vicinity of a test boring at the intended location of the drilled shaft where significant shortening of the shafts could be realized. Potential bent location for load testing will be selected during final design if drilled shafts are selected. The test shafts should be instrumented in order to gain information regarding the unit skin friction characteristics of each subsurface stratum as well as end bearing load behavior. The recommended load testing location and load testing recommendations will be provided in the final geotechnical report.

9.2.3 Steel Piles

Steel pile types include pipe piles and H-sections. Previous experience has shown that steel H-piles sections and pipe piles are generally more expensive per linear foot than prestressed concrete piles. Steel piles are well suited to conditions with high variability in anticipated penetration depths where frequent splicing is expected. Typical sizes of pipe piles range from 13 to 16 inches in diameter. The steel piles do not develop as much compression and tension capacities for similar penetration depths as square driven prestressed concrete piles and rough cost data indicates that the steel pipe piles are more expensive than similar sizes of square prestressed concrete piles. Steel H-sections are inappropriate for this project because of inferior capacities compared to pipe piles at similar costs. As a result, we did not consider this alternative any further.

9.2.4 Precast Prestressed Concrete Driven Piles

Square precast prestressed concrete driven piles are also considered an appropriate foundation type. They are a widely used and proven foundation system in South Florida. Precast prestressed concrete piles are readily available and generally have a lower cost per ton of capacity than other driven pile types. The minimum size for prestressed concrete piles should be 18-inch square, as referenced in the FDOT *Structures Design Guideline*s. However, 24 or 30-inch square precast concrete piles may also be utilized based on the requirements of the structural design.

❖ *Compression Capacity*

We have prepared curves of axial capacity versus tip elevation for 18-, 24-, and 30-inch square driven piles based on the borings performed for this project. These curves were prepared using software for axially loaded driven piles, "FB-Deep" v3.0.0, which was developed based on the procedures outlined in FDOT Research Bulletin 121. As previously stated the SPT "N"-values from the borings performed of this study were obtained using an automatic hammer. Since the program FB-Deep software uses SPT "N"-values obtained with a safety hammer, the SPT "N"-values obtained from the borings performed on land with the use of an automatic hammer were converted to safety hammer "N"-values using the FDOT *Soils and Foundation Handbook* correction of $N_{safety} = 1.24*N_{automatic}$. The FB-Deep runs for borings performed by GEOSOL are presented in Appendix "C".

From the FB-Deep computer outputs, the Davisson Capacity values shall be used to predict the Nominal Bearing Resistance (NBR). The nominal bearing resistance may be estimated as follows:

$$R_n = \frac{\text{Factored Design Load} + \text{Downdrag} + \text{Net Scour}}{\Phi}$$

where,

Φ = Resistance Factor = 0.75 compression design with 100% dynamic testing or
Resistance Factor = 0.65 compression design with at least 5% dynamic testing

Once design loads, scour information and pile cut-off elevation information is available during the final design phase, recommendations for test pile lengths and required nominal bearing resistance can be provided by the Geotechnical Engineer of Record.

❖ *Lateral Deflections*

At this point, the final design loading information is not yet available. During the final design phase if driven piles are selected for bridge support, lateral deflections will need to be checked and minimum tip elevations will need to be established once the design loads are available and once a final design-level geotechnical field investigation has been performed.

❖ *Pile Settlements*

Settlements of driven pile supported bridge foundations are typically small and tolerable for a typical pile group. At this point the design loading information is not available. During the final design phase if driven piles are selected for bridge support, settlements will need to be checked at the Service limit state once the design loads are available and once a final design-level geotechnical field investigation has been performed.

❖ *Pile Installation*

The installation on the driven piles for the proposed bridges widening should be carried out in accordance with Section 455 of the FDOT *Standard Specifications for Road and Bridge Construction*.

❖ *Preforming*

Given the presence of dense fill materials, and due to the close proximity of the proposed bridge widening/replacement to existing structures and/or utilities, preforming will likely be required in order to prevent refusal conditions and pile damage, and to protect the existing structures and/or utilities during pile driving operations. The need for preforming shall be evaluated during the final design phase once design loading information is available and once a final design-level geotechnical investigation has been performed. All preforming shall be carried out in accordance with Sections 455 of the FDOT *"Standard Specifications for Road and Bridge Construction"*. Additionally, all preformed pile holes shall be backfilled in accordance with Section 455 of the FDOT *"Standard Specifications for Road and Bridge Construction"*.

❖ *Protection of Existing Structures*

All structures and substructure located in the vicinity of pile driving operations should be protected as well as monitored and surveyed for possible vibration damage and settlement in accordance with Sections 108 and 455-1.1 of the FDOT *Standard Specifications for Road and Bridge Construction*. Pre-forming may be required to reduce vibration impacts to existing structures and substructures and will be specified at a later time. Additionally, 100% dynamic testing during pile driving may be considered to reduce vibration impacts to existing structures and substructures. During final design, based on the selected foundation type, specific structures and substructures to be monitored will be identified.

- *Summary of Foundation Design*

  As previously stated, the final design loading information has not been provided to us at this time. Once the design loading information is available and once a final design-level geotechnical field investigation has been performed, the preliminary foundation analyses will need to be revisited in order to provide final recommendations regarding the required nominal bearing resistance, minimum tip elevations and test pile lengths. The pile lengths required for production will be determined at the time of test pile installation and monitoring using dynamic load testing.

- *Pile Data Table*

  As previously stated, the final design loading information has not been provided to us at this time. Once the design loading information is available and once a final design-level geotechnical field investigation has been performed, a pile data table for the proposed driven piles will need to be prepared. The pile lengths required for production will be determined at the time of test pile installation and monitoring using dynamic load testing.

9.2.5 Auger Cast-in-Place (ACIP) Piles

Auger Cast-in-Place (ACIP) Piles were also considered for support of the proposed bridge widening or replacement. Typically, ACIP piles are installed by rotating a continuous flight hollow-stem auger into the ground to the required pile depth with sufficient crowd (downward thrust) to prevent mining of the soil. While the auger is drilled into the ground, the flights of the auger are filled with soil, providing lateral support and maintaining the stability of the hole. Grout is injected through the hollow center of the auger shaft under continuous positive pressure as the auger is being withdrawn. Simultaneous pumping of the grout or concrete and withdrawing of the auger provides continuous support of the hole. A reinforcing steel cage, as specified, is inserted into the column of fluid grout immediately following the completion of grout placement and withdrawal of the auger.

It is to be noted that for the interior piers that are located in the Black Creek Canal, substantial dewatering and possible cofferdam with tremie seal will be required to cast the pile cap, which can add a significant cost to the project, and may make the use of ACIP pile foundation systems for support of the proposed bridge improvement not feasible.

ACIP pile installation reduces construction vibration concerns and noise in the vicinity of existing structures and/or utilities when compared to driven piles. Additionally, ACIP piles greatly alleviate the quality control issues and additional testing (i.e. cross-hole-sonic logging, shaft inspection device, etc.) associated with drilled shafts.

ACIP piles have been successfully used on numerous transportation infrastructure projects in Miami-Dade County including the Miami-Dade Transit elevated guideway bridges, Miami International Airport (MIA) parking garages, MIA transportation hub, MIA vehicular bridges, City of Miami Beach West Avenue vehicular bridge, and a 200-foot high air traffic control tower at the Miami-Opa-Locka Executive Airport. We are providing preliminary evaluations and recommendations for this phase of the project.

Per FDOT Structure Design Guidelines, the use of ACIP pile for support of bridges requires the approval of the State Structure Design Engineer.

❖ *Axial Capacity*

For this preliminary phase, we have prepared curves of axial capacity versus depth for ACIP pile diameter of 24 inches. The curves were prepared using the software for axially loaded drilled shafts, "FB-Deep" v3.0.0, which was developed based on the procedures outlined in based upon Federal Highway Administration report "Drilled Shafts: Construction Procedure and Design Methods". As previously stated the SPT "N"-values from the borings performed of this study were obtained using an automatic hammer. Per FDOT Soils and Foundation Handbook a correction factor of $N_{safety} = 1.24*N_{automatic}$ was used for the program FB-Deep software input. The FB-Deep runs for borings performed by GEOSOL are presented in Appendix "C".

It should be noted that for this preliminary report, rock coring and testing have not been performed in order to derive the design shear strength parameters for ACIP pile foundation design in accordance with the FDOT's *Soils and Foundations Handbook*. Therefore, for this report we have evaluated ACIP pile capacities using established empirical relationships between the SPT N-value and the shear strength of the rock strata as presented in the FDOT's *Soils and Foundations Handbook*. If ACIP piles are ultimately selected for support of any of the bridge improvements, rock coring and testing will be required to confirm the preliminary shear strength parameters and to provide final recommendations regarding ACIP pile foundations.

The factored compression and uplift capacities predictions of the ACIP piles were obtained by multiplying the ultimate capacities by a resistance factor (ϕ) for Load and Resistance Factor Design (LRFD). Resistance factors (ϕ) of 0.50 and 0.40 were selected for the factored compression and uplift capacities, respectively, for the ACIP piles in accordance with Section 3.5.20 of the FDOT Structures Design Guidelines (SDG).

The axial capacities presented in Appendix "C" are based on side friction resistance only, and ignore the contribution of soil layers as required by Section 3.5.20 of the FDOT SDG. Additionally, the axial capacities ignore the ACIP pile end bearing capacity, since the full mobilization of end bearing capacity would require large tip movement and on the order of 5 to 10 percent of the pile diameter.

If ACIP piles are to be selected for foundation support, requirements for a load testing program, including the recommended type, will be required during the final design phase.

- *Lateral Deflections*

At this point the design loading information is not available. During the final design phase if ACIP piles are selected for bridge support, lateral deflections will need to be checked and minimum tip elevations will need to be established once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *ACIP Pile Settlement*

Settlements of ACIP pile supported bridge foundations are typically small and tolerable for a typical pile group. At this point the design loading information is not available. During the final design phase if ACIP piles are selected for bridge support, settlements will need to be checked at the Service limit state once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *ACIP pile Construction*

The installation and testing of the ACIP Piles shall be carried out in accordance with the latest version of the FDOT Developmental Specifications for Auger Cast Piles Including Bridges (Dev455ACP for Projects Including Bridges).

- *Load Testing*

ACIP piles are typically load tested in accordance with ASTM D-1143 (Standard Test Methods for Deep Foundations Under Static Axial Compressive Load), ASTM D-3689 (Standard Test Methods for Deep Foundations Under Static Axial Tensile Load), and ASTM D 3966 (Standard Test Methods for Deep Foundations Under Lateral Load).

If ACIP pile foundations are selected for bridge support, we recommend that as a minimum of one (1) compression load test is planned. The location of the load test should be selected considering the subsurface conditions and design loading. We recommend that load testing be performed in the vicinity of a test boring at the intended location of the ACIP piles. Potential location for load testing and load testing recommendations shall be selected during final design if ACIP piles are selected.

9.2.6 Scour

We understand that scour is a concern for the proposed bridge crossing over the Black Creek Canal. At this point, the scour elevations are not yet available. Once the design loads are available, foundation analyses and recommendations will need to consider scour elevations. Table "B" below presents a summary D_{50} analysis performed on soils collected from the canal bottom for use in preliminary scour analysis.

TABLE "B" – SUMMARY OF D_{50} VALUES FOR SCOUR ANALYSIS

LOCATION	MATERIAL TYPE	USCS SYMBOL	SAMPLE No.	SAMPLE DEPTH BELOW MUDLINE (FEET)	D_{50} (mm)
Center Middle of Black Creek Canal Adjacent to Existing Bridge	Brown Silty Fine to Medium SAND with Some Limestone Fragments	SM	1	0-2	0.8

10.0 EXCAVATION RECOMMENDATIONS

If required temporary excavations of the existing subsurface materials may be accomplished as follows:

- **Granular Soils**: Temporary excavation maximum side slopes of 1V:2H in the granular subsurface materials are stable and have a minimum factor of safety of 1.3.

- **Sandy Silt**: Temporary excavation maximum side slopes of 1V:3H in the sandy silt are stable and have a minimum factor of safety of 1.3.

- **Limestone Formations**: Temporary excavation maximum side slopes of 1V:1H in the natural limestone formations are stable and also have a minimum factor of safety of 1.3.

If steeper side slopes are required, The Designer should evaluate the need for temporary ground support systems such as temporary sheet piles during excavation. The temporary ground support systems may be designed using the preliminary soil/rock parameters presented in Table "A" of this report.

11.0 FHWA REPORT CHECKLIST

As referenced in the Structures Design Guidelines, conformance to the FHWA Report "Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications" prepared by the Geotechnical and Materials Branch, FHWA, Washington, D.C. is required when preparing geotechnical reports. The FHWA checklist for this report is enclosed in Appendix "D".

12.0 RECOMMENDATIONS FOR FURTHER GEOTECHNICAL STUDIES

For this PD&E phase of the project, a limited number of test borings were performed to support the bridge foundation design. Once the preferred alternative and foundation system for the bridges is chosen, a final design-level geotechnical investigation program will be required for the bridge structure. The final design-level geotechnical investigation program should be performed in accordance with the latest version of the FDOT *Soils and Foundations Handbook*. If drilled shafts, ACIP piles, or spread footings are chosen as a foundation for support of the proposed bridges, rock coring and laboratory testing on rock core specimens will be required for final design of the foundations in accordance with the latest version of the FDOT *Soils and Foundations Handbook*.

13.0 REPORT LIMITATIONS

Our professional services have been performed, our preliminary findings obtained, and our preliminary recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on the data collected. No other warranties are expressed or implied.

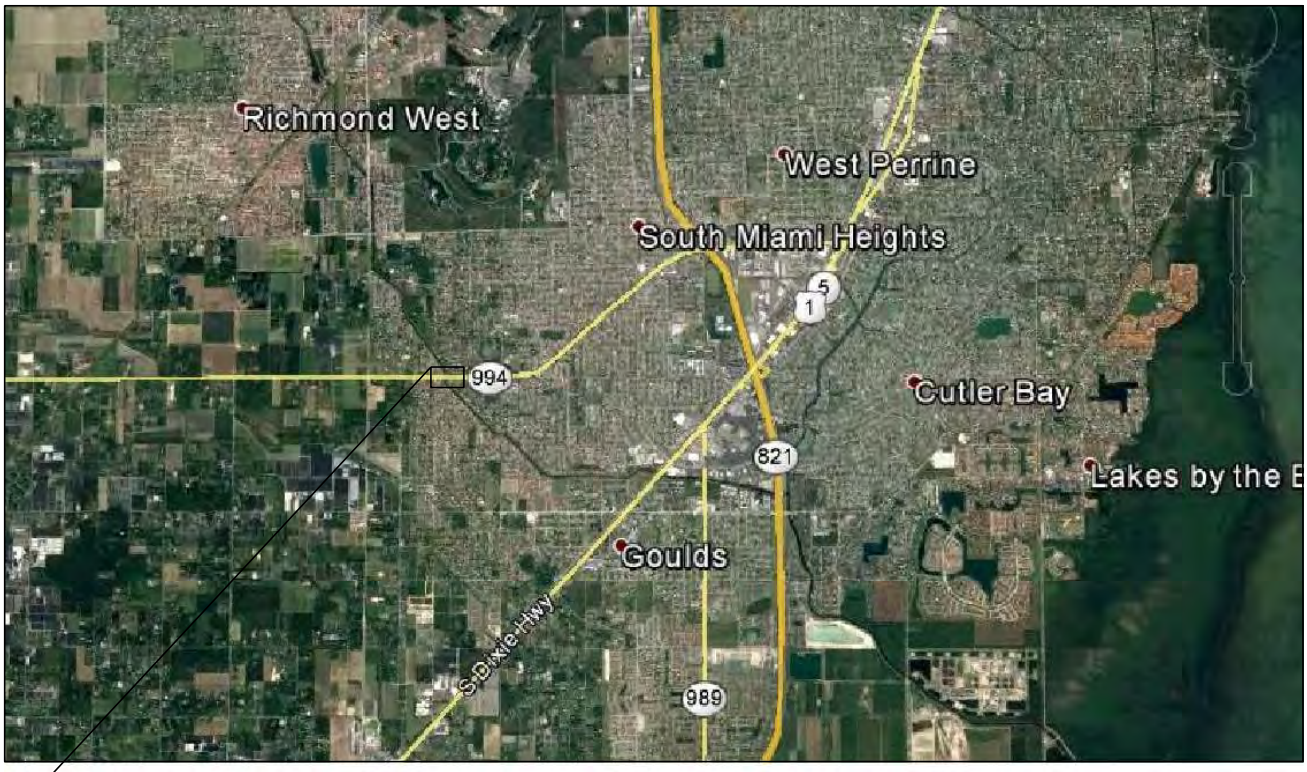
The preliminary scope of the investigation was intended to evaluate subsurface conditions within the influence of the expected bridge foundations for the PD&E phase of the project. The preliminary analyses and preliminary recommendations submitted in this report are based upon the preliminary data obtained from the test borings performed at the locations indicated. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the proposed bridge structure.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

APPENDIX "A"

Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: US Geologic Survey Map
Table 1: Summary of Field Test Locations
Sheet 4: Boring Location Plan
Sheet 5: Report of Core Borings

GEOSOL, Inc.



APPROXIMATE SITE LOCATION

SITE VICINITY MAP

COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: GOOGLE EARTH, 2021

DATE: SEPTEMBER, 2021

SITE VICINITY MAP

SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 1

APPROXIMATE SITE LOCATION

USDA SOILS SURVEY MAP

MAP UNIT	SOIL NAME
6	Perine marl, drained
16	Biscayne marl, drained
99	Water

COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: NRCS WEB SOILS SURVEY, 2021

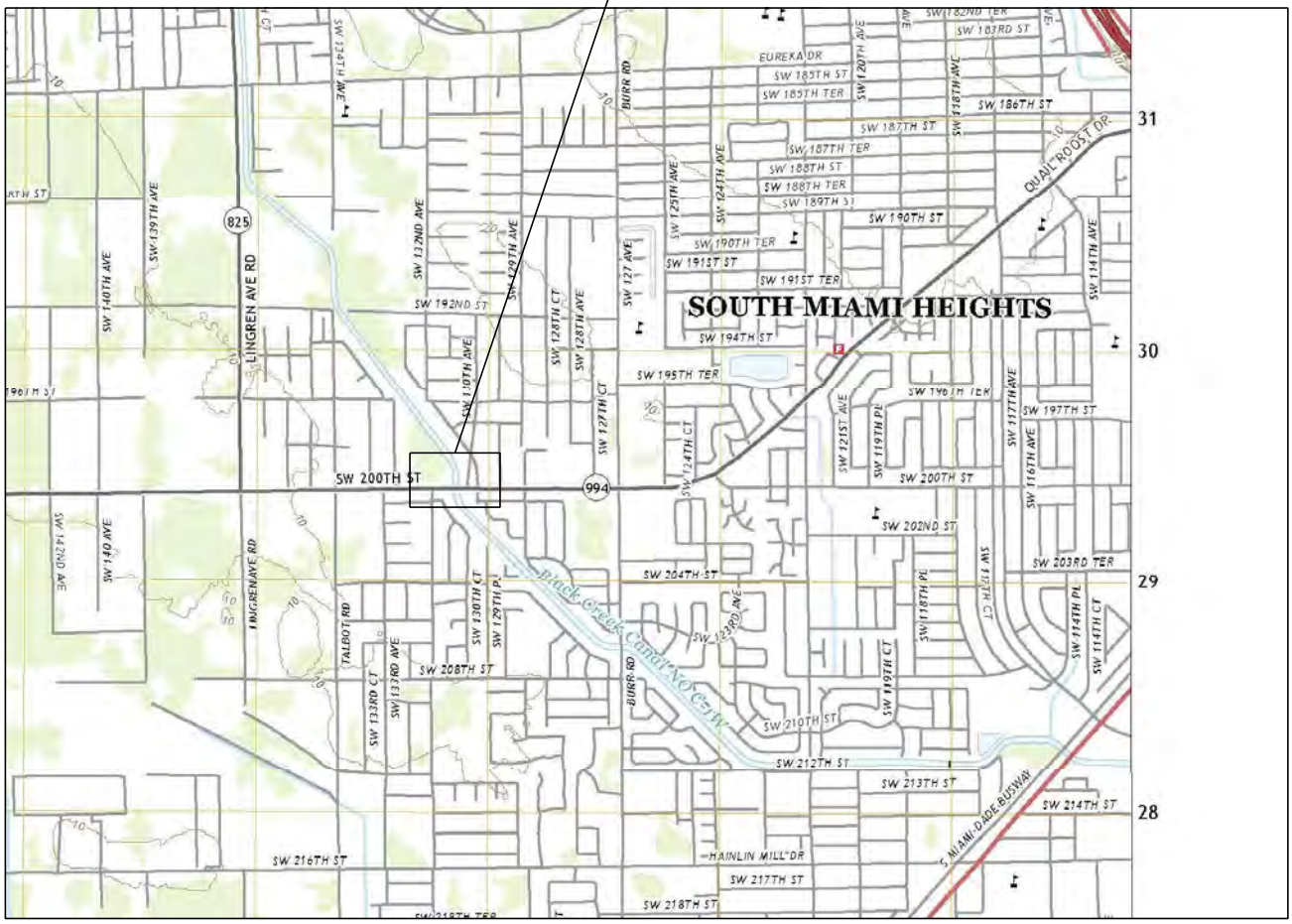
DATE: SEPTEMBER, 2021

USDA SOILS SURVEY MAP

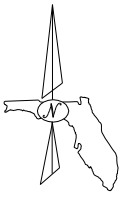
SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 2

APPROXIMATE SITE LOCATION



US GEOLOGIC SURVEY MAP



COUNTY: GOULDS, FLORIDA

REFERENCE: MIAMI, FL
U.S. GEOLOGIC SURVEY, 2018

DATE: SEPTEMBER, 2021

US GEOLOGIC SURVEY MAP

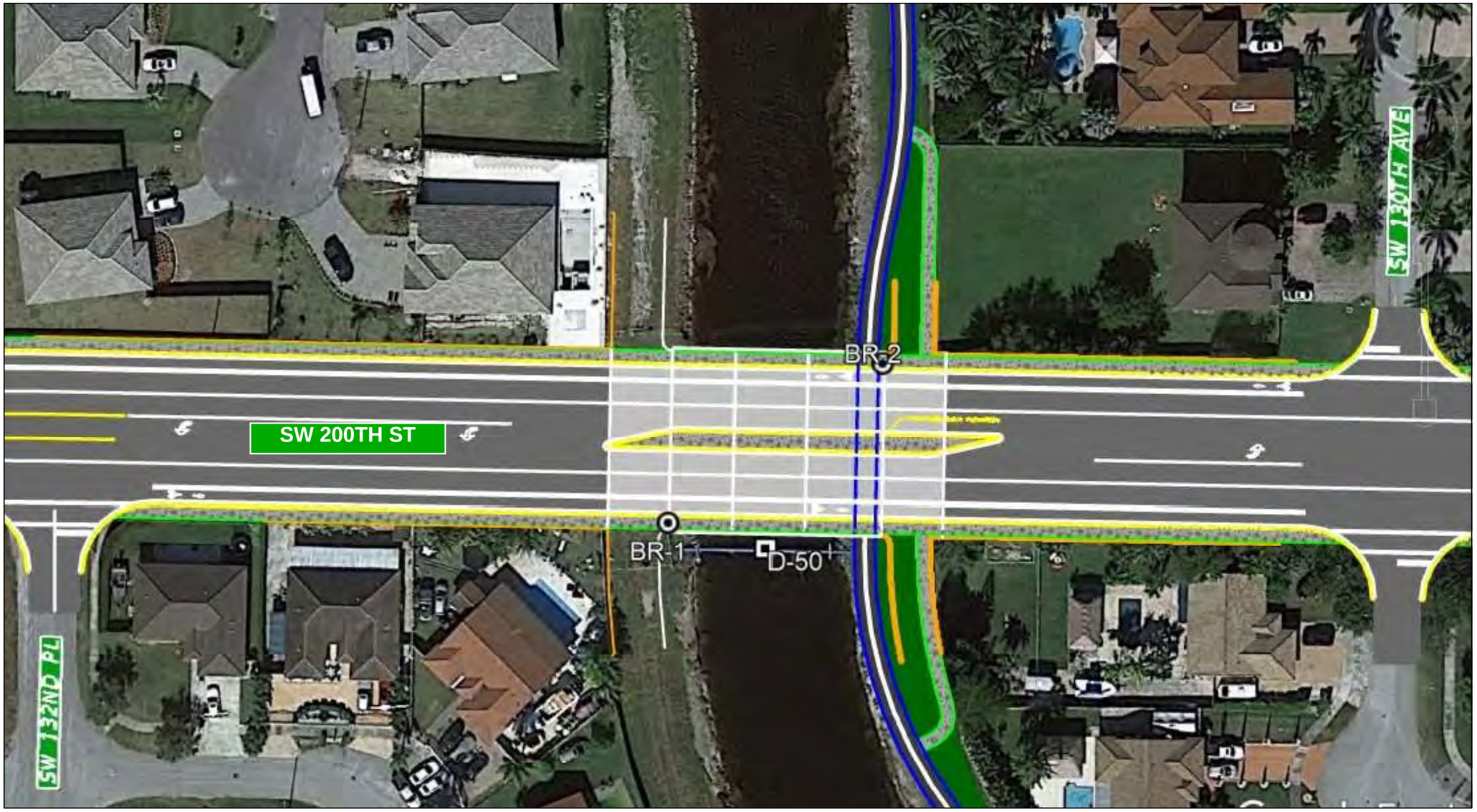
SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 3

PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE
TO EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No. 221126

TABLE 1 - SUMMARY OF TEST BORING LOCATIONS

BORING / TEST No.	APPROXIMATE TEST LOCATION (FEET)				GROUND SURFACE ELEVATION (FEET)
	NORTHING	EASTING	LATITUDE	LONGITUDE	
BR-1	453753	852567	25.580739	-80.404145	N/A
BR-2	453832	852670	25.580956	-80.403833	N/A
D-50	453742	852615	25.580707	-80.404000	N/A



LEGEND

BR-1: APPROXIMATE SPT BORING LOCATION

D-50: APPROXIMATE PARTICLE SIZE DISTRIBUTION (D-50) TEST LOCATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
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DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 4

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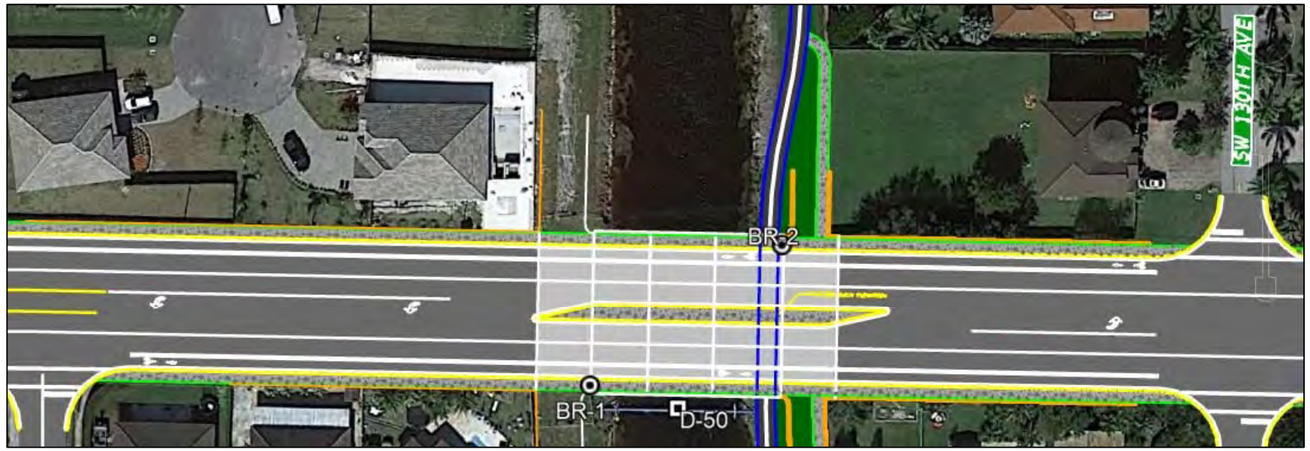
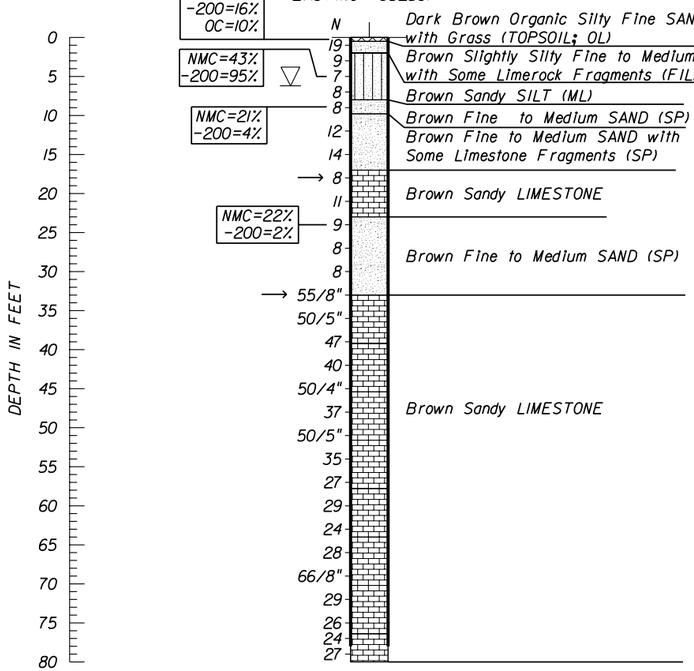


0 4 20
Feet
VERTICAL SCALE
HORIZONTAL SCALE: N.T.S.

BORING LOCATION PLAN

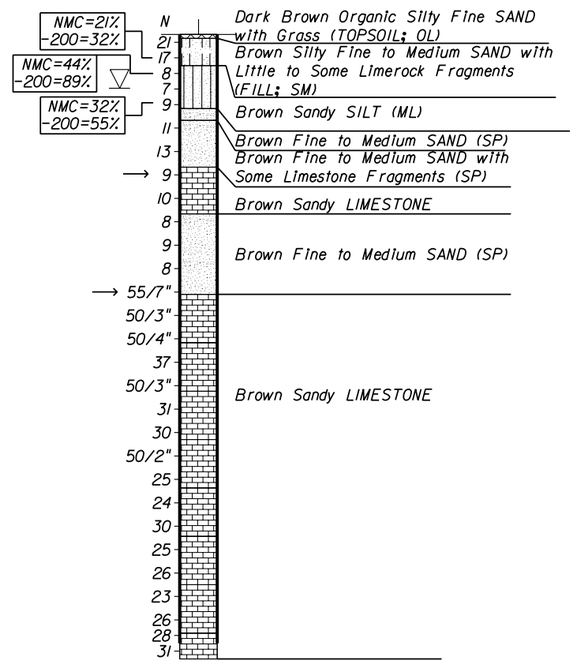
BOR #	BR-1
DATE	8/24/2021
DRILLER	R.Morales
RIG	B-53
HAMMER	Auto
LATITUDE	25.580739
LONGITUDE	-80.404145
NORTHING	453753
EASTING	852567



Boring Terminated at Depth of 80ft

Casing Length 78ft

BOR #	BR-2
DATE	8/20/2021
DRILLER	R.Morales
RIG	B-53
HAMMER	Auto
LATITUDE	25.580956
LONGITUDE	-80.403833
NORTHING	453832
EASTING	852670



Boring Terminated at Depth of 80ft

Casing Length 78ft

LEGEND

- TOPSOIL
- SAND (FILL; SP-SM)
- SANDY SAND (FILL; SM)
- SANDY SILT (ML)
- SAND (SP)
- LIMESTONE
- WATER TABLE AT TIME OF DRILLING
- SPT BORING LOCATION
- D50 SAMPLE LOCATION
- CASING USED
- N — NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12" PENETRATION (UNLESS OTHERWISE NOTED).
- NMC — NATURAL MOISTURE CONTENT (%)
- -200 — FINES PASSING THE #200 SIEVE (%)
- OC — ORGANIC CONTENT (%)
- → — PERIODIC TOTAL LOSS OF DRILLING FLUID CIRCULATION (100%)

NOTES:

SPT BORINGS PERFORMED PER ASTM D-1586 WITH A HAMMER WEIGHT OF 140 LBS FALLING 30 INCHES.

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE
SUBSTRUCTURE: MODERATELY AGGRESSIVE

WATER:

pH: 8.0 SULFATE: 9
CHLORIDE: 56 RESISTIVITY: 1,067

CONSTRUCTION NOTES:

1) THE STRATA ENCOUNTERED WITHIN THE PROJECT SITE CORRESPOND TO DENSE SOILS THAT OFFER HIGH RESISTANCE TO DRIVING AND EXCAVATION. SPECIAL EQUIPMENT AND BREAKING TOOLS ARE TYPICALLY REQUIRED TO EXCAVATE OR PENETRATE THESE LAYERS. THESE LAYERS ARE ALSO DIFFICULT TO DEWATER DUE TO THEIR HIGH POROSITY AND PERMEABILITY. FOR DRILLED SHAFTS/DRIVEN PILES/ACIP PILES RELATED WORK, THESE LAYERS TYPICALLY REQUIRE PREFORMING HOLES TO MINIMUM TIP ELEVATION TO PREVENT REFUSAL CONDITIONS, STRUCTURAL DAMAGE, OR TO MINIMIZE VIBRATION-INDUCED DAMAGE TO NEARBY STRUCTURES.
2) THE CONTRACTOR IS ADVISED THAT CAVING SATURATED SANDY SOILS MAY BE ENCOUNTERED DURING THE EXCAVATION FOR INSTALLATION OF THE DRILLED SHAFT/DRIVEN PILES/ACIP PILES FOUNDATIONS.
3) THE CONTRACTOR IS ADVISED THAT PERIODIC TOTAL LOSS OF CIRCULATION WAS EXPERIENCED DURING THE PERFORMANCE OF THE BORINGS WHICH MAY MAKE IT DIFFICULT TO MAINTAIN THE FLUID LEVEL IN THE EXCAVATION.

GRANULAR MATERIALS-RELATIVE DENSITY	AUTOMATIC SPT HAMMER (BLOWS PER FOOT)
VERY LOOSE	LESS THAN 3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS CONSISTANCY	**AUTOMATIC SPT HAMMER (BLOWS PER FOOT)**
VERY SOFT	LESS THAN 1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	GREATER THAN 24

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REVISIONS

BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
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PHONE: (305) 828-4367

DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: REPORT OF CORE BORINGS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 5

APPENDIX "B"

Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Grain Size Analysis Test Curves
Natural Moisture Content Test Results
Percent Passing the No. 200 Sieve Test Results
Organic Content Test Results
Environmental Classification Test Results
SFWMD Readings at the S-148 Spillway on Canal C-1 at FEC Railroad
Dade County Design Standard WC-2.2: Average October Ground Water Level

TABLE 2 - SUMMARY OF LABORATORY TEST RESULTS
SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No.: 221126

BORING NUMBER	SAMPLE NUMBER	USCS SYMBOL	Sample Depth (FEET)	Sieve Analysis (Percent Passing)									Organic Content (%)	Natural Moisture Content (%)
				1"	3/4"	3/8"	#4	#10	#40	#60	#100	#200		
BR-1	1	OL	0.0 - 0.5	-	-	-	-	-	-	-	-	16	10	15
BR-1	3	ML	4.0 - 6.0	100	100	100	100	100	100	100	98	95	-	43
BR-1	5	SP	8.0 - 9.8	100	100	100	100	100	95	70	18	4	-	21
BR-1	10	SP	23.0 - 25.0	100	100	100	100	99	88	64	14	2	-	22
BR-2	2	SM	2.0 - 4.0	94	87	81	73	66	58	50	40	32	-	21
BR-2	3	ML	4.0 - 6.0	100	100	100	100	100	97	95	93	89	-	44
BR-2	5	ML	8.0 - 9.5	100	100	100	100	100	93	87	76	55	-	32
D-50	1	SM	22.0 - 24.0	85	83	73	62	56	46	40	32	28	-	58

TABLE 3 - SUMMARY OF ENVIRONMENTAL CLASSIFICATION TEST RESULTS
SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No.: 221126

Sample Location	Sample Type	Depth (ft)	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	FDOT ENVIRONMENTAL CLASSIFICATION	
							Steel	Concrete
A-15	WATER	7.9	8.0	1,067	56	9	MA	MA

NOTES: (1) The following FDOT laboratory test methods were utilized.

4500H+ (pH)
EPA 120.1 (Equivalent to FM5-551: Resistivity)
EPA-300 (Equivalent to FM5-552: Chlorides)
EPA-300 (Equivalent to FM5-553: Sulfates)

(2) SA: SLIGHTLY AGGRESSIVE
(3) MA: MODERATELY AGGRESSIVE
(4) EA: EXTREMELY AGGRESSIVE

FDOT Criteria for Substructure Environmental Classification (FDOT *Structures Design Guidelines*)

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO_4	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	< 500		< 500	
	SO_4	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					
pH = acidity ($-\log_{10}H^+$; potential of Hydrogen), Cl = chloride content, SO_4 = Sulfate content.						

MOISTURE CONTENT TEST RESULTS (ASTM D-2216)

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 8/30/2021

Boring No.	BR-2	BR-2	BR-2	BR-1
Sample No.	2	3	5	5
Sample Depth (Feet)	2-4	4-6	8-9.5	8-9.8
Tare No.	4M	941	232	4K
Tare plus wet soil (grams)	385.6	338.3	330.8	364.1
Tare plus dry soil (grams)	319.3	237.8	252.9	301.4
Water Ww (grams)	66.3	100.5	77.9	62.7
Tare (grams)	7.7	7.3	7.7	7.6
Dry soil Ws (grams)	311.6	230.5	245.2	293.8
Water Content w (%)	21.3	43.6	31.8	21.3

Boring No.	BR-1	BR-1	BR-1	D-50
Sample No.	3	10	1	1
Sample Depth (Feet)	4-6	23-25	0-0.5	22-24
Tare No.	C-1	B-5	N-2	04
Tare plus wet soil (grams)	316.5	447.2	277.5	528.3
Tare plus dry soil (grams)	223.7	366.5	242.5	336.1
Water Ww (grams)	92.8	80.7	35.0	192.2
Tare (grams)	7.5	7.7	7.5	7.5
Dry soil Ws (grams)	216.2	358.8	235.0	328.6
Water Content w (%)	42.9	22.5	14.9	58.5

MATERIAL PASSING THE # 200 SIEVE TEST RESULTS (AASHTO T-11)

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVI
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 8/30/2021

Boring No.	BR-2	BR-2	BR-2	BR-1
Sample No.	2	3	5	5
Sample Depth (Feet)	2-4	4-6	8-9.5	8-9.8
Original Dry Weight of Soil (grams)	311.6	230.5	245.2	293.8
Weight of Soil After Washing (grams)	210.8	24.7	109.5	283.3
Weight of Soil Passing 200 Sieve (grams)	100.8	205.8	135.7	10.5
Percent of Soil Passing 200 Sieve (%)	32.3	89.3	55.3	3.6

Boring No.	BR-1	BR-1	BR-1	D-50
Sample No.	3	10	1	1
Sample Depth (Feet)	4-6	23-25	0-0.5	22-24
Original Dry Weight of Soil (grams)	216.2	358.8	150.0	328.6
Weight of Soil After Washing (grams)	11.8	350.4	126.5	237.2
Weight of Soil Passing 200 Sieve (grams)	204.4	8.4	23.5	91.4
Percent of Soil Passing 200 Sieve (%)	94.5	2.3	15.7	27.8

GRAIN SIZE DATA SHEET

DATE: 8/24/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH A
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-2
Sample No. 2
Depth (feet) 2-4

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL; SM)

Tare #	Dry Soil Wt.
4M	311.6

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	18.1	5.8	94.2	94.2	18.1
19	19mm 3/4"	39.3	12.6	87.4	87.4	21.2
9.5	9.5mm 3/8"	60.6	19.4	80.6	80.6	21.3
4.75	4.75mm #4	83.1	26.7	73.3	73.3	22.5
2.36	2 mm #10	104.5	33.5	66.5	66.5	21.4
0.6	425um #40	129.8	41.7	58.3	58.3	25.3
0.3	250um #60	154.6	49.6	50.4	50.4	24.8
0.15	150um #100	185.5	59.5	40.5	40.5	30.9
0.075	75um #200	210.8	67.7	32.3	32.3	25.3
PAN	-	311.6	100.0	0.0	0.0	100.8

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

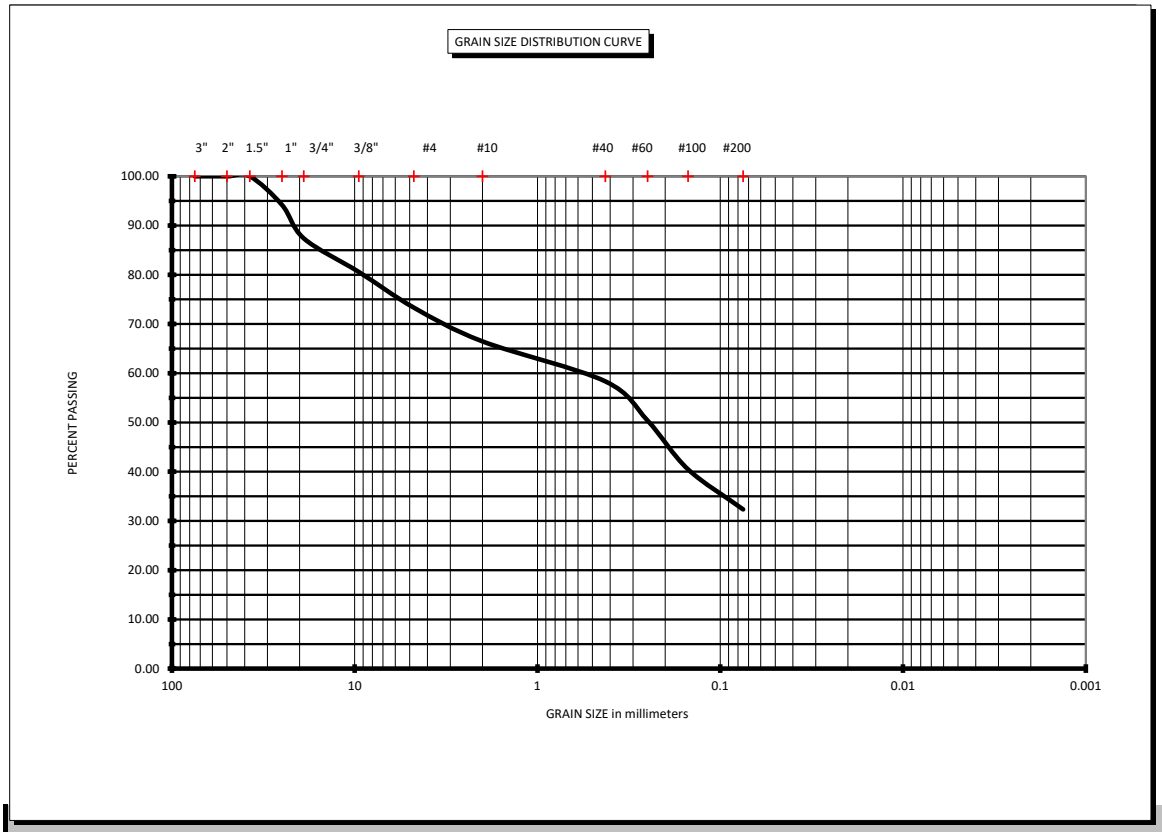
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: E. Masis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/24/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-2 **SAMPLE #** 2 **Depth (feet)** 2-4

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL; SM)

Natural Moisture Content: 21.3%

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-2
Sample No. 3
Depth (feet) 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Tare #	Dry Soil Wt.
941	230.5

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	7.0	3.0	97.0	97.0	7.0
0.3	250um #60	11.1	4.8	95.2	95.2	4.1
0.15	150um #100	16.0	6.9	93.1	93.1	4.9
0.075	75um #200	24.7	10.7	89.3	89.3	8.7
PAN	-	230.5	100.0	0.0	0.0	205.8

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

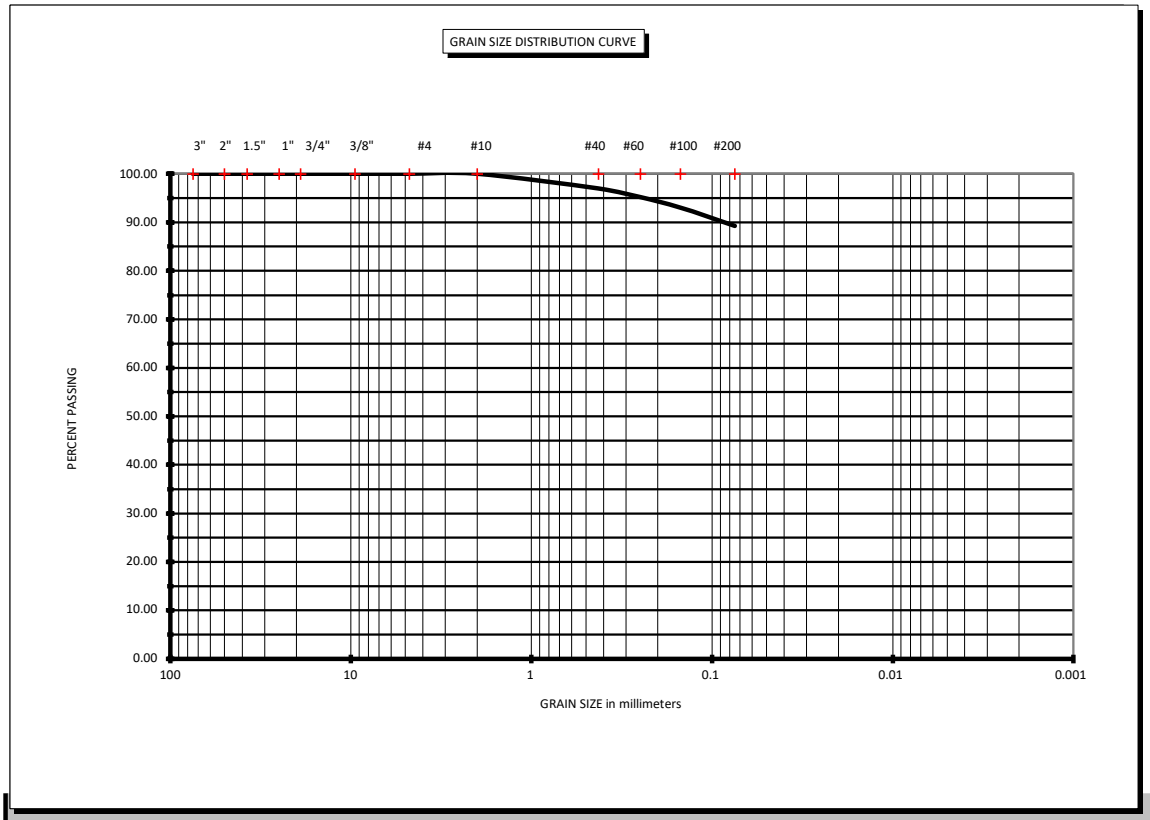
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: E. Masis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-2 **SAMPLE #** 3 **Depth (feet)** 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Natural Moisture Content: 43.6%

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-2
Sample No. 5
Depth (feet) 8-9.5

SOIL DESCRIPTION: Brown Sandy SILT with Roots (ML)

Tare #	Dry Soil Wt.
232	245.2

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	18.0	7.3	92.7	92.7	18.0
0.3	250um #60	32.8	13.4	86.6	86.6	14.8
0.15	150um #100	58.7	23.9	76.1	76.1	25.9
0.075	75um #200	109.5	44.7	55.3	55.3	50.8
PAN	-	245.2	100.0	0.0	0.0	135.7

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

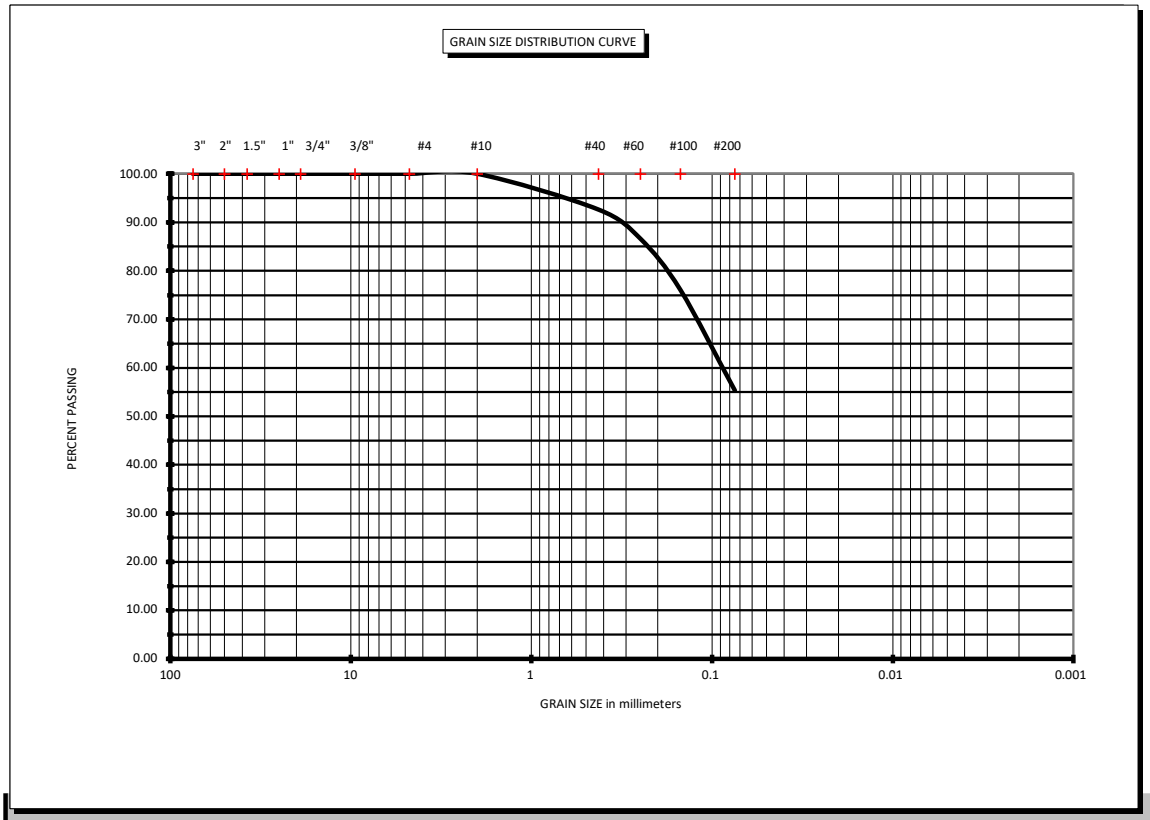
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: E. Masis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-2 **SAMPLE #** 5 **Depth (feet)** 8-9.5

SOIL DESCRIPTION: Brown Sandy SILT with Roots (ML)

Natural Moisture Content: 31.8%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-1
Sample No. 5
Depth (feet) 8-9.8

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Tare #	Dry Soil Wt.
4K	293.8

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	14.0	4.8	95.2	95.2	14.0
0.3	250um #60	87.7	29.9	70.1	70.1	73.7
0.15	150um #100	239.9	81.7	18.3	18.3	152.2
0.075	75um #200	283.3	96.4	3.6	3.6	43.4
PAN	-	293.8	100.0	0.0	0.0	10.5

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

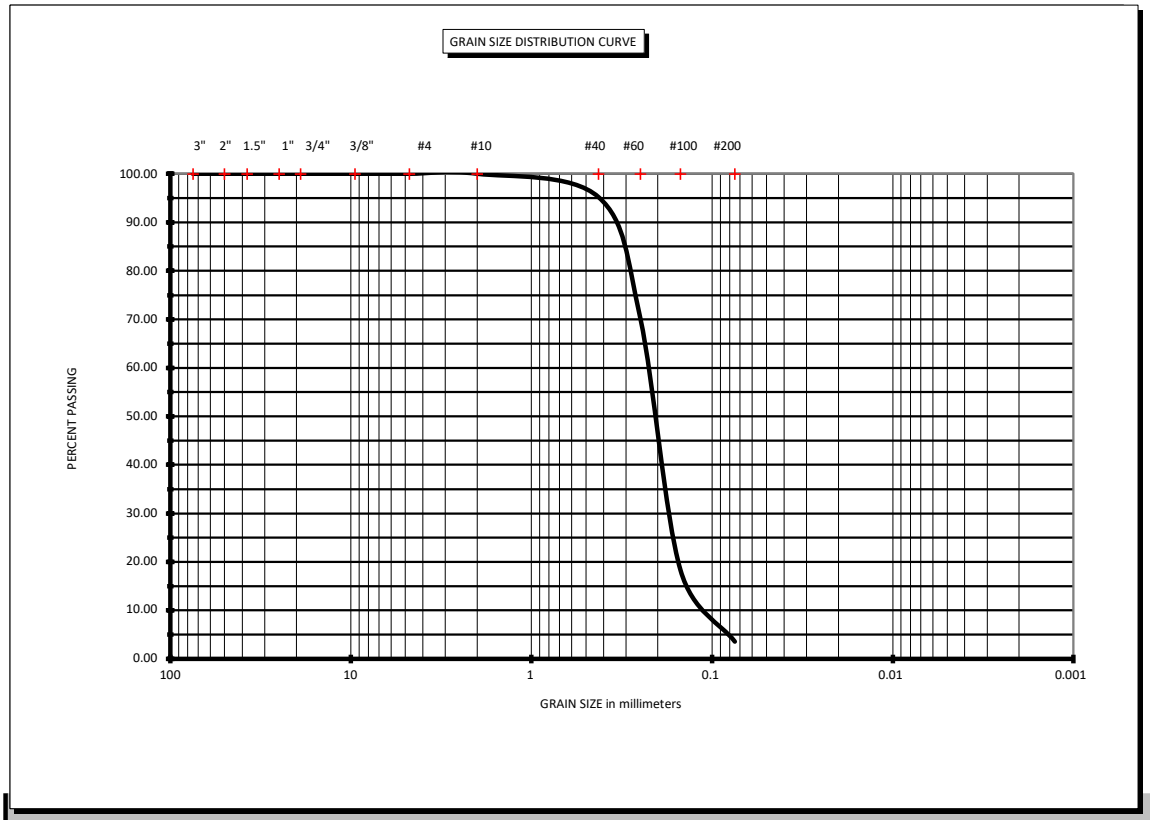
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-1 **SAMPLE #** 5 **Depth (feet)** 8-9.8

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Natural Moisture Content: 21.3%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-1
Sample No. 3
Depth (feet) 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Tare #	Dry Soil Wt.
C-1	216.2

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	0.0	0.0	100.0	100.0	0.0
0.3	250um #60	0.8	0.4	99.6	99.6	0.8
0.15	150um #100	3.4	1.6	98.4	98.4	2.6
0.075	75um #200	11.8	5.5	94.5	94.5	8.4
PAN	-	216.2	100.0	0.0	0.0	204.4

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

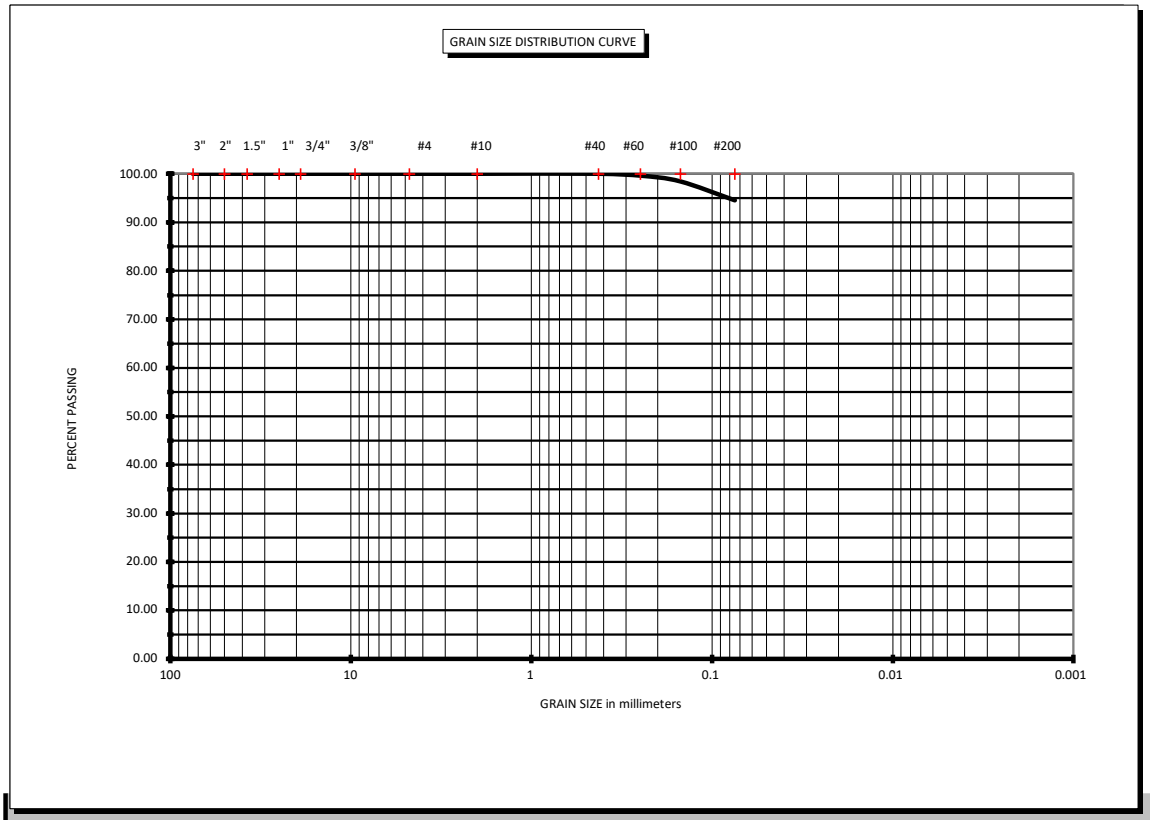
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-1 **SAMPLE #** 3 **Depth (feet)** 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Natural Moisture Content: 42.9%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-1
Sample No. 10
Depth (feet) 23-25

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Tare #	Dry Soil Wt.
B-5	358.8

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	1.9	0.5	99.5	99.5	1.9
0.6	425um #40	43.1	12.0	88.0	88.0	41.2
0.3	250um #60	128.3	35.8	64.2	64.2	85.2
0.15	150um #100	309.3	86.2	13.8	13.8	181.0
0.075	75um #200	350.4	97.7	2.3	2.3	41.1
PAN	-	358.8	100.0	0.0	0.0	8.4

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

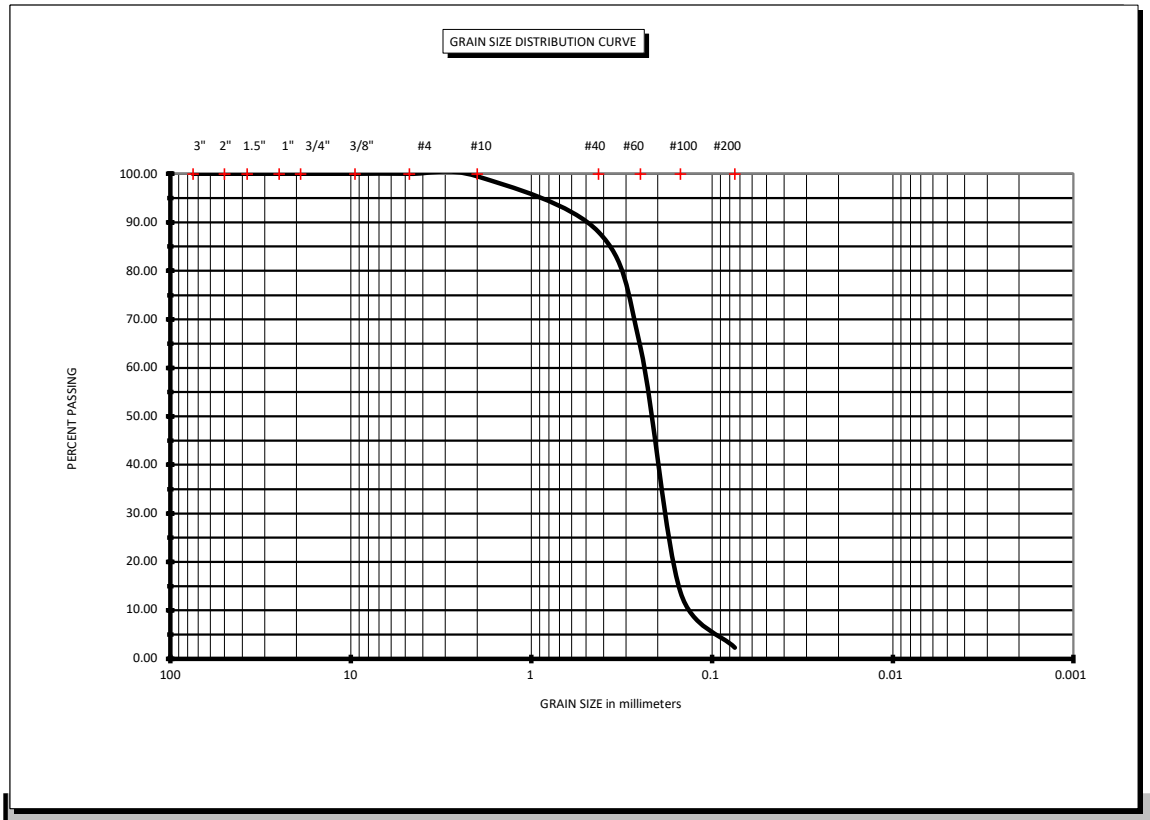
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-1 **SAMPLE #** 10 **Depth (feet)** 23-25

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Natural Moisture Content: 22.5%

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. D-50
Sample No. 1
Depth (feet) 22-24

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Some Limestone Fragments (SM)

Tare #	Dry Soil Wt.
04	328.6

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	50.0	15.2	84.8	84.8	50.0
19	19mm 3/4"	56.5	17.2	82.8	82.8	6.5
9.5	9.5mm 3/8"	87.8	26.7	73.3	73.3	31.3
4.75	4.75mm #4	123.9	37.7	62.3	62.3	36.1
2.36	2 mm #10	145.4	44.2	55.8	55.8	21.5
0.6	425um #40	176.0	53.6	46.4	46.4	30.6
0.3	250um #60	197.4	60.1	39.9	39.9	21.4
0.15	150um #100	222.3	67.7	32.3	32.3	24.9
0.075	75um #200	237.2	72.2	27.8	27.8	14.9
PAN	-	328.6	100.0	0.0	0.0	91.4

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

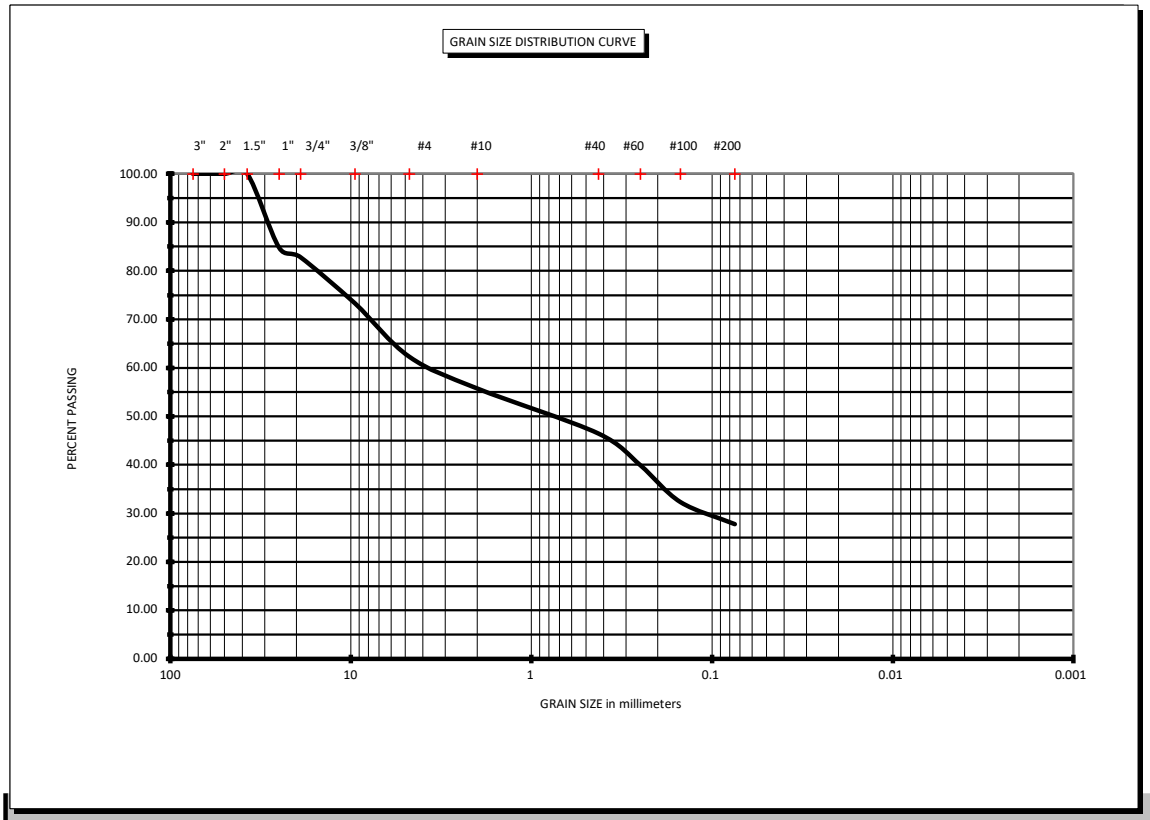
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # D-50 **SAMPLE #** 1 **Depth (feet)** 22-24

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Some Limestone Fragments (SM)

Natural Moisture Content: 58.5%

ORGANIC CONTENT TEST RESULTS (ASTM D-2974)

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH A
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 8/30/2021

Boring No.	BR-1
Sample No.	1
Sample Depth (Feet)	0-0.5
Crucible No.	O8
Weight of Crucible and Oven-Dried Sample (grams)	77.0
Weight of Crucible and Sample after Ignition (grams)	72.5
Weight of Crucible (grams)	34.0
Weight of Oven-Dried Soil (grams)	43.0
Weight Loss due to Ignition (grams)	4.5
Percent Organics (%)	10.5

Pace Analytical Services, LLC
3610 Park Central Blvd N
Pompano Beach, FL 33064
(954)582-4300

ANALYTICAL RESULTS

Project: Proposed Quail Roost Drive PDE
Pace Project No.: 35659013

Sample: A-15 **Lab ID: 35659013001** Collected: 08/26/21 17:00 Received: 08/27/21 16:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Ormond Beach								
pH at 25 Degrees C	**8.0**	Std. Units	0.10	0.10	1		09/08/21 16:26		Q
Resistivity	Analytical Method: EPA 120.1 Resistivity Pace Analytical Services - Ormond Beach								
Resistivity	**1067**	ohms-cm	0.50	0.50	1		09/02/21 15:38		N2
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Ormond Beach								
Chloride	**55.9**	mg/L	5.0	2.5	1		08/29/21 11:56	16887-00-6	
Sulfate	**9.2**	mg/L	5.0	2.5	1		08/29/21 11:56	14808-79-8	

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DBHYDRO | reports

DBKEY	STATION	TYPE	UNITS	FQ	STAT	STRATA	OPNUM	RCDR	AGENCY	START	END	CNTY	LAT	LONG	SEC	TWP	RNG	ALTERNATE ID
16188	S148_H	STG	ft NGVD29	DA	MEAN	0		TELE	WMD	1995	2021	DAD	253412	802259	12	56	39	S148-H

Period of Record Statistical Summary by Year Month For DBKEY 16188
For Period 19950331 to 20210915

DBKEY	Station	Data Type	Year	Month	Sample Size	Minimum	Mean	Maximum	Median	Std. Dev.
16188	S148_H	STG	1995	04	27	4.279	4.445	4.667	4.451	.11
16188	S148_H	STG	1995	05	31	3.824	4.374	4.725	4.502	.27
16188	S148_H	STG	1995	06	30	2.355	4.131	5.258	4.587	1.02
16188	S148_H	STG	1995	07	31	2.307	2.784	3.293	2.712	.33
16188	S148_H	STG	1995	08	31	1.915	2.392	2.847	2.421	.27
16188	S148_H	STG	1995	09	30	1.989	2.317	2.605	2.308	.16
16188	S148_H	STG	1995	10	31	2.257	2.641	3.359	2.599	.31
16188	S148_H	STG	1995	11	30	1.936	3.801	5.100	4.883	1.41
16188	S148_H	STG	1995	12	31	4.854	4.938	5.046	4.928	.05
16188	S148_H	STG	1996	01	31	4.071	4.744	5.014	4.824	.28
16188	S148_H	STG	1996	02	29	3.634	4.143	4.547	4.216	.34
16188	S148_H	STG	1996	03	31	3.254	3.473	3.621	3.505	.12
16188	S148_H	STG	1996	04	30	3.198	3.440	3.668	3.440	.15
16188	S148_H	STG	1996	05	31	3.337	3.800	4.956	3.649	.47
16188	S148_H	STG	1996	06	30	3.805	4.385	5.114	4.256	.40
16188	S148_H	STG	1996	07	31	4.162	4.815	5.139	4.859	.28
16188	S148_H	STG	1996	08	31	3.780	4.783	5.082	4.876	.28
16188	S148_H	STG	1996	09	30	3.814	4.671	5.149	4.667	.31
16188	S148_H	STG	1996	10	31	2.225	3.055	4.922	2.777	.90
16188	S148_H	STG	1996	11	30	2.337	3.972	4.810	4.602	1.00
16188	S148_H	STG	1996	12	31	3.608	3.820	4.639	3.757	.23
16188	S148_H	STG	1997	01	31	3.454	3.569	3.725	3.557	.07
16188	S148_H	STG	1997	02	28	3.374	3.542	3.803	3.480	.14
16188	S148_H	STG	1997	03	31	3.196	3.369	3.491	3.389	.07
16188	S148_H	STG	1997	04	30	3.297	3.572	4.668	3.424	.42
16188	S148_H	STG	1997	05	31	3.999	4.188	4.593	4.166	.15
16188	S148_H	STG	1997	06	30	1.670	3.088	4.642	2.676	.94
16188	S148_H	STG	1997	07	31	2.638	4.335	5.078	4.793	.82
16188	S148_H	STG	1997	08	31	3.732	4.735	5.147	4.858	.41
16188	S148_H	STG	1997	09	30	2.439	3.293	4.887	3.031	.77
16188	S148_H	STG	1997	10	31	2.298	4.365	4.955	4.778	.93
16188	S148_H	STG	1997	11	30	3.863	4.207	4.539	4.236	.23
16188	S148_H	STG	1997	12	31	2.541	4.178	4.760	4.508	.66
16188	S148_H	STG	1998	01	31	4.077	4.402	4.707	4.457	.21
16188	S148_H	STG	1998	02	28	3.159	3.405	4.140	3.333	.26
16188	S148_H	STG	1998	03	31	3.141	3.409	3.778	3.393	.15
16188	S148_H	STG	1998	04	30	3.119	3.471	3.669	3.515	.15
16188	S148_H	STG	1998	05	31	3.329	3.565	4.034	3.497	.17
16188	S148_H	STG	1998	06	30	3.531	3.775	4.175	3.761	.17
16188	S148_H	STG	1998	07	31	3.162	4.236	4.939	4.325	.42
16188	S148_H	STG	1998	08	31	3.317	4.443	5.130	4.420	.56
16188	S148_H	STG	1998	09	30	2.737	4.186	5.118	4.508	.94
16188	S148_H	STG	1998	10	31	2.712	4.495	5.149	5.032	.98
16188	S148_H	STG	1998	11	30	3.850	4.915	5.145	4.976	.28
16188	S148_H	STG	1998	12	31	4.931	5.079	5.133	5.094	.05
16188	S148_H	STG	1999	01	31	4.790	5.004	5.148	5.019	.11
16188	S148_H	STG	1999	02	28	4.725	4.955	5.123	4.989	.12
16188	S148_H	STG	1999	03	31	4.392	4.553	4.724	4.546	.09
16188	S148_H	STG	1999	04	30	3.977	4.214	4.459	4.168	.15
16188	S148_H	STG	1999	05	31	3.967	4.281	4.765	4.195	.26
16188	S148_H	STG	1999	06	30	4.158	4.694	5.061	4.737	.24
16188	S148_H	STG	1999	07	31	3.236	4.598	4.976	4.788	.51
16188	S148_H	STG	1999	08	31	2.910	4.499	5.002	4.560	.38
16188	S148_H	STG	1999	09	30	2.289	4.048	5.133	4.480	.88
16188	S148_H	STG	1999	10	31	2.117	2.983	4.941	2.383	1.01
16188	S148_H	STG	1999	11	30	1.977	3.519	5.059	3.730	1.42
16188	S148_H	STG	1999	12	31	4.945	5.025	5.078	5.033	.03
16188	S148_H	STG	2000	01	31	4.667	4.846	4.975	4.875	.10
16188	S148_H	STG	2000	02	29	4.774	4.969	5.128	4.970	.12
16188	S148_H	STG	2000	03	31	4.018	4.828	5.125	4.917	.30
16188	S148_H	STG	2000	04	30	3.701	4.520	5.207	4.992	.65
16188	S148_H	STG	2000	05	31	3.589	4.256	5.005	4.072	.58
16188	S148_H	STG	2000	06	30	3.616	4.555	5.028	4.805	.51
16188	S148_H	STG	2000	07	31	4.711	5.022	5.224	5.019	.14
16188	S148_H	STG	2000	08	31	2.410	4.419	5.106	4.864	.89
16188	S148_H	STG	2000	09	30	2.524	4.854	5.208	5.033	.59
16188	S148_H	STG	2000	10	31	2.343	4.097	5.204	4.681	1.10
16188	S148_H	STG	2000	11	30	3.855	4.552	5.169	4.611	.54
16188	S148_H	STG	2000	12	31	3.720	4.176	4.966	3.991	.43
16188	S148_H	STG	2001	01	31	3.366	3.843	4.951	3.771	.39
16188	S148_H	STG	2001	02	28	2.810	3.070	3.335	3.068	.17
16188	S148_H	STG	2001	03	31	2.731	2.848	3.086	2.851	.07
16188	S148_H	STG	2001	04	30	2.674	3.085	3.492	3.111	.29
16188	S148_H	STG	2001	05	31	2.689	3.218	3.596	3.264	.24
16188	S148_H	STG	2001	06	30	3.277	3.532	4.168	3.514	.21
16188	S148_H	STG	2001	07	31	3.927	4.499	5.078	4.605	.39
16188	S148_H	STG	2001	08	31	3.192	4.022	4.863	3.958	.35
16188	S148_H	STG	2001	09	30	2.214	4.073	5.106	4.027	.89
16188	S148_H	STG	2001	10	31	2.014	3.856	5.153	4.354	1.26
16188	S148_H	STG	2001	11	30	2.321	4.653	5.144	5.059	.94
16188	S148_H	STG	2001	12	31	4.819	4.988	5.167	5.015	.10
16188	S148_H	STG	2002	01	31	3.972	4.762	5.107	4.784	.22
16188	S148_H	STG	2002	02	28	3.737	4.292	4.870	4.478	.42
16188	S148_H	STG	2002	03	31	3.933	4.125	4.342	4.097	.10
16188	S148_H	STG	2002	04	30	3.162	3.579	3.935	3.585	.25
16188	S148_H	STG	2002	05	31	2.696	2.884	3.140	2.877	.13
16188	S148_H	STG	2002	06	30	3.181	3.687	4.303	3.592	.35
16188	S148_H	STG	2002	07	31	3.189	3.772	4.896	3.643	.55
16188	S148_H	STG	2002	08	31	3.200	3.340	3.509	3.329	.08
16188	S148_H	STG	2002	09	30	3.181	3.433	3.772	3.479	.15
16188	S148_H	STG	2002	10	31	3.323	4.119	5.166	3.589	.78
16188	S148_H	STG	2002	11	30	3.785	4.446	5.145	4.603	.35
16188	S148_H	STG	2002	12	31	4.398	4.643	4.966	4.644	.14
16188	S148_H	STG	2003	01	31	4.164	4.480	4.812	4.433	.19
16188	S148_H	STG	2003	02	28	3.945	4.356	4.801	4.288	.29
16188	S148_H	STG	2003	03	31	3.716	4.331	4.869	4.359	.39
16188	S148_H	STG	2003	04	30	3.865	4.489	4.877	4.601	.35
16188	S148_H	STG	2003	05	31	3.848	4.319	4.957	4.279	.29
16188	S148_H	STG	2003	06	30	2.417	4.200	4.850	4.258	.49
16188	S148_H	STG	2003	07	31	4.275	4.657	5.156	4.637	.27
16188	S148_H	STG	2003	08	31	3.303	4.465	5.021	4.568	.40
16188	S148_H	STG	2003	09	30	3.444	3.990	4.761	4.006	.23
16188	S148_H	STG	2003	10	31	3.386	4.289	4.718	4.280	.31
16188	S148_H	STG	2003	11	30	3.108	3.507	4.335	3.348	.37

16188	S148_H	STG	2003	12	31	3.068	4.652	5.060	4.805	.55
16188	S148_H	STG	2004	01	31	3.574	3.957	4.895	3.741	.42
16188	S148_H	STG	2004	02	29	3.546	3.845	4.960	3.702	.41
16188	S148_H	STG	2004	03	31	3.606	4.354	5.072	4.287	.55
16188	S148_H	STG	2004	04	30	3.281	3.502	3.769	3.487	.15
16188	S148_H	STG	2004	05	31	3.122	3.775	4.551	3.778	.43
16188	S148_H	STG	2004	06	30	2.949	3.082	3.307	3.051	.10
16188	S148_H	STG	2004	07	31	2.846	3.085	3.609	2.971	.23
16188	S148_H	STG	2004	08	31	3.135	3.418	4.348	3.393	.24
16188	S148_H	STG	2004	09	30	3.185	3.423	3.764	3.438	.16
16188	S148_H	STG	2004	10	31	3.160	3.622	5.059	3.324	.63
16188	S148_H	STG	2004	11	30	3.145	3.386	3.508	3.414	.09
16188	S148_H	STG	2004	12	31	3.058	3.470	3.782	3.412	.23
16188	S148_H	STG	2005	01	31	3.363	3.450	3.564	3.442	.06
16188	S148_H	STG	2005	02	28	3.174	3.340	3.477	3.343	.10
16188	S148_H	STG	2005	03	31	3.131	3.396	3.646	3.304	.20
16188	S148_H	STG	2005	04	30	3.368	3.535	3.643	3.533	.08
16188	S148_H	STG	2005	05	31	3.370	3.661	4.263	3.635	.18
16188	S148_H	STG	2005	06	30	3.145	3.909	5.164	3.852	.71
16188	S148_H	STG	2005	07	31	1.986	3.443	3.905	3.609	.50
16188	S148_H	STG	2005	08	31	1.929	3.441	4.908	3.564	.57
16188	S148_H	STG	2005	09	30	1.924	3.133	5.113	3.210	.88
16188	S148_H	STG	2005	10	31	1.844	3.381	4.878	3.347	.85
16188	S148_H	STG	2005	11	30	4.879	4.980	5.117	4.935	.09
16188	S148_H	STG	2005	12	31	4.653	5.009	5.183	5.029	.14
16188	S148_H	STG	2006	01	31	3.721	4.333	4.839	4.508	.40
16188	S148_H	STG	2006	02	28	3.664	4.131	4.482	4.230	.28
16188	S148_H	STG	2006	03	31	3.592	4.007	4.748	3.846	.40
16188	S148_H	STG	2006	04	30	3.115	3.340	3.576	3.347	.14
16188	S148_H	STG	2006	05	31	2.809	3.145	3.521	3.097	.21
16188	S148_H	STG	2006	06	30	3.395	3.517	3.618	3.511	.06
16188	S148_H	STG	2006	07	31	3.216	4.139	4.711	4.222	.41
16188	S148_H	STG	2006	08	31	2.300	4.296	5.072	4.749	.77
16188	S148_H	STG	2006	09	30	3.807	4.339	5.153	4.160	.52
16188	S148_H	STG	2006	10	31	3.813	4.099	4.932	3.960	.30
16188	S148_H	STG	2006	11	30	4.121	4.781	5.135	4.864	.23
16188	S148_H	STG	2006	12	31	3.714	4.284	4.910	4.194	.45
16188	S148_H	STG	2007	01	31	3.680	4.138	4.686	4.013	.39
16188	S148_H	STG	2007	02	28	3.480	3.624	3.722	3.646	.07
16188	S148_H	STG	2007	03	31	3.182	3.356	3.482	3.368	.10
16188	S148_H	STG	2007	04	30	3.066	3.638	4.125	3.702	.37
16188	S148_H	STG	2007	05	31	3.331	3.513	3.722	3.495	.10
16188	S148_H	STG	2007	06	30	3.139	3.741	4.861	3.691	.50
16188	S148_H	STG	2007	07	31	3.840	4.540	4.941	4.643	.28
16188	S148_H	STG	2007	08	31	4.122	4.730	5.087	4.823	.28
16188	S148_H	STG	2007	09	30	3.499	4.094	4.712	4.098	.19
16188	S148_H	STG	2007	10	31	3.248	4.381	5.154	4.900	.77
16188	S148_H	STG	2007	11	30	3.773	4.096	4.564	3.962	.27
16188	S148_H	STG	2007	12	31	3.432	3.631	3.892	3.608	.14
16188	S148_H	STG	2008	01	31	3.148	3.284	3.462	3.275	.08
16188	S148_H	STG	2008	02	29	2.959	3.171	3.312	3.202	.12
16188	S148_H	STG	2008	03	31	3.051	3.154	3.240	3.161	.06
16188	S148_H	STG	2008	04	30	3.196	3.713	4.102	3.750	.31
16188	S148_H	STG	2008	05	31	3.149	3.349	3.591	3.329	.13
16188	S148_H	STG	2008	06	30	3.057	3.286	3.699	3.222	.20
16188	S148_H	STG	2008	07	31	3.037	3.465	3.941	3.298	.36
16188	S148_H	STG	2008	08	31	2.659	3.218	3.627	3.212	.23
16188	S148_H	STG	2008	09	30	3.119	3.261	3.745	3.205	.15
16188	S148_H	STG	2008	10	31	3.161	3.272	3.503	3.253	.09
16188	S148_H	STG	2008	11	30	3.121	3.293	3.583	3.254	.13
16188	S148_H	STG	2008	12	31	3.637	4.070	4.327	4.148	.24
16188	S148_H	STG	2009	01	31	3.512	3.686	3.992	3.658	.14
16188	S148_H	STG	2009	02	28	3.207	3.355	3.500	3.339	.08
16188	S148_H	STG	2009	03	31	2.941	3.136	3.285	3.146	.11
16188	S148_H	STG	2009	04	30	2.723	2.970	3.243	2.952	.17
16188	S148_H	STG	2009	05	31	2.196	2.771	4.068	2.625	.52
16188	S148_H	STG	2009	06	30	3.091	3.794	4.503	3.564	.48
16188	S148_H	STG	2009	07	31	3.075	3.261	4.157	3.170	.27
16188	S148_H	STG	2009	08	31	3.459	4.224	4.647	4.122	.32
16188	S148_H	STG	2009	09	30	3.822	3.927	4.112	3.897	.09
16188	S148_H	STG	2009	10	31	3.832	4.468	4.823	4.704	.39
16188	S148_H	STG	2009	11	30	3.839	4.175	4.767	4.083	.28
16188	S148_H	STG	2009	12	31	4.074	4.316	4.678	4.299	.17
16188	S148_H	STG	2010	01	31	3.813	3.949	4.198	3.916	.11
16188	S148_H	STG	2010	02	28	3.990	4.283	4.548	4.270	.13
16188	S148_H	STG	2010	03	31	3.952	4.265	4.575	4.274	.18
16188	S148_H	STG	2010	04	30	4.266	4.403	4.627	4.387	.10
16188	S148_H	STG	2010	05	31	4.220	4.377	4.590	4.345	.11
16188	S148_H	STG	2010	06	30	3.742	4.236	4.736	4.238	.30
16188	S148_H	STG	2010	07	31	3.227	4.235	4.613	4.450	.38
16188	S148_H	STG	2010	08	31	3.976	4.204	4.435	4.189	.12
16188	S148_H	STG	2010	09	30	3.586	4.180	4.426	4.204	.18
16188	S148_H	STG	2010	10	31	3.169	4.183	4.775	4.120	.41
16188	S148_H	STG	2010	11	30	3.808	4.077	4.346	4.052	.16
16188	S148_H	STG	2010	12	31	3.523	3.646	3.819	3.638	.08
16188	S148_H	STG	2011	01	31	3.408	3.630	3.895	3.561	.16
16188	S148_H	STG	2011	02	28	3.153	3.490	3.798	3.506	.20
16188	S148_H	STG	2011	03	31	2.688	2.913	3.160	2.930	.15
16188	S148_H	STG	2011	04	30	2.355	2.638	2.859	2.630	.17
16188	S148_H	STG	2011	05	31	1.894	2.144	2.341	2.173	.13
16188	S148_H	STG	2011	06	30	1.604	1.778	2.185	1.732	.16
16188	S148_H	STG	2011	07	31	2.260	3.312	3.896	3.438	.54
16188	S148_H	STG	2011	08	31	3.772	4.278	4.689	4.365	.32
16188	S148_H	STG	2011	09	30	4.148	4.467	4.711	4.464	.18
16188	S148_H	STG	2011	10	31	4.062	4.280	4.660	4.278	.17
16188	S148_H	STG	2011	11	30	4.051	4.568	4.961	4.557	.28
16188	S148_H	STG	2011	12	31	4.414	4.654	4.768	4.707	.10
16188	S148_H	STG	2012	01	31	4.124	4.350	4.490	4.392	.11
16188	S148_H	STG	2012	02	29	3.911	4.288	4.642	4.292	.23
16188	S148_H	STG	2012	03	31	3.443	3.696	3.995	3.680	.14
16188	S148_H	STG	2012	04	30	3.214	3.399	3.867	3.372	.15
16188	S148_H	STG	2012	05	31	3.505	4.131	4.556	4.129	.27
16188	S148_H	STG	2012	06	30	3.569	3.678	3.851	3.668	.07
16188	S148_H	STG	2012	07	31	3.582	3.778	4.199	3.733	.16
16188	S148_H	STG	2012	08	31	3.159	3.914	4.427	4.037	.40
16188	S148_H	STG	2012	09	30	3.142	3.341	3.832	3.278	.19
16188	S148_H	STG	2012	10	31	3.056	3.281	3.496	3.245	.14
16188	S148_H	STG	2012	11	30	3.932	4.305	4.445	4.326	.13
16188	S148_H	STG	2012	12	31	3.614	4.086	4.679	4.078	.29
16188	S148_H	STG	2013	01	31	3.473	3.531	3.596	3.529	.03
16188	S148_H	STG	2013	02	28	3.346	3.471	3.571	3.481	.08
16188	S148_H	STG	2013	03	31	3.106	3.282	3.503	3.239	.11
16188	S148_H	STG	2013	04	30	3.078	3.436	3.628	3.460	.16
16188	S148_H	STG	2013	05	31	3.223	3.998	4.361	4.133	.30
16188	S148_H	STG	2013	06	30	3.047	3.186	3.393	3.181	.09
16188	S148_H	STG	2013	07	7	3.181	3.394	3.612	3.433	.18
16188	S148_H	STG	2013	08	30	3.058	3.191	3.334	3.203	.09
16188	S148_H	STG	2013	09	30	3.087	3.227	3.523	3.191	.10
16188	S148_H	STG	2013	10	31	3.180	3.925	4.789	3.911	.65
16188	S148_H	STG	2013	11	30	3.653	4.335	4.763	4.304	.23
16188	S148_H	STG	2013	12	31	3.231	4.350	4.798	4.374	.37
16188	S148_H	STG	2014	01	31	3.912	4.223	4.432	4.272	.14

16188	S148_H	STG	2014	02	28	3.933	4.134	4.389	4.115	.12
16188	S148_H	STG	2014	03	31	3.605	3.753	4.012	3.686	.13
16188	S148_H	STG	2014	04	30	3.246	3.472	3.683	3.469	.12
16188	S148_H	STG	2014	05	31	2.893	3.029	3.286	3.001	.11
16188	S148_H	STG	2014	06	30	2.914	3.721	4.407	3.833	.50
16188	S148_H	STG	2014	07	31	3.288	3.880	4.455	3.765	.35
16188	S148_H	STG	2014	08	31	3.633	4.171	4.445	4.171	.17
16188	S148_H	STG	2014	09	30	3.476	4.053	4.408	4.042	.18
16188	S148_H	STG	2014	10	31	3.730	3.929	4.332	3.829	.20
16188	S148_H	STG	2014	11	30	3.862	4.034	4.263	4.023	.10
16188	S148_H	STG	2014	12	31	3.642	3.750	3.856	3.740	.07
16188	S148_H	STG	2015	01	31	3.563	3.705	3.948	3.645	.13
16188	S148_H	STG	2015	02	28	3.371	3.479	3.717	3.454	.09
16188	S148_H	STG	2015	03	31	3.017	3.191	3.355	3.204	.10
16188	S148_H	STG	2015	04	30	2.681	2.817	3.135	2.786	.11
16188	S148_H	STG	2015	05	31	2.894	3.173	3.391	3.220	.18
16188	S148_H	STG	2015	06	30	2.851	3.128	3.331	3.132	.16
16188	S148_H	STG	2015	07	31	2.929	3.187	3.608	3.091	.23
16188	S148_H	STG	2015	08	31	3.670	3.963	4.127	3.963	.09
16188	S148_H	STG	2015	09	30	3.781	4.231	4.765	4.299	.34
16188	S148_H	STG	2015	10	31	3.747	4.299	4.770	4.384	.33
16188	S148_H	STG	2015	11	30	4.005	4.211	4.412	4.220	.13
16188	S148_H	STG	2015	12	31	3.090	3.460	4.440	3.307	.36
16188	S148_H	STG	2016	01	31	3.079	3.197	3.394	3.185	.07
16188	S148_H	STG	2016	02	29	2.567	2.892	3.336	2.790	.24
16188	S148_H	STG	2016	03	31	2.590	2.692	2.875	2.680	.07
16188	S148_H	STG	2016	04	30	2.573	2.778	3.297	2.746	.19
16188	S148_H	STG	2016	05	31	3.084	3.315	3.504	3.320	.11
16188	S148_H	STG	2016	06	30	3.055	3.201	3.647	3.163	.13
16188	S148_H	STG	2016	07	31	3.072	3.275	3.420	3.313	.11
16188	S148_H	STG	2016	08	31	3.016	3.547	4.200	3.362	.43
16188	S148_H	STG	2016	09	30	3.111	3.696	4.152	3.830	.33
16188	S148_H	STG	2016	10	31	3.077	3.244	3.427	3.241	.10
16188	S148_H	STG	2016	11	30	3.130	3.831	4.170	3.890	.30
16188	S148_H	STG	2016	12	31	3.665	3.804	3.928	3.786	.07
16188	S148_H	STG	2017	01	31	3.476	3.603	3.871	3.604	.09
16188	S148_H	STG	2017	02	28	3.149	3.306	3.471	3.301	.09
16188	S148_H	STG	2017	03	31	3.065	3.209	3.383	3.176	.10
16188	S148_H	STG	2017	04	30	2.944	3.241	3.680	3.186	.23
16188	S148_H	STG	2017	05	31	2.765	3.103	3.483	3.082	.25
16188	S148_H	STG	2017	06	30	2.753	3.176	3.434	3.191	.17
16188	S148_H	STG	2017	07	31	3.055	3.200	3.375	3.186	.09
16188	S148_H	STG	2017	08	31	3.067	3.179	3.376	3.165	.06
16188	S148_H	STG	2017	09	30	1.509	2.615	5.817	2.264	.88
16188	S148_H	STG	2017	10	30	2.037	2.584	2.985	2.710	.27
16188	S148_H	STG	2017	11	30	2.698	2.749	2.822	2.740	.03
16188	S148_H	STG	2017	12	31	2.681	2.770	2.920	2.768	.06
16188	S148_H	STG	2018	01	31	2.697	3.172	3.554	3.169	.29
16188	S148_H	STG	2018	02	28	3.501	3.805	4.012	3.859	.16
16188	S148_H	STG	2018	03	31	3.344	3.609	3.943	3.596	.17
16188	S148_H	STG	2018	04	30	3.094	3.201	3.328	3.191	.07
16188	S148_H	STG	2018	05	31	3.087	3.336	3.691	3.312	.15
16188	S148_H	STG	2018	06	30	3.126	3.237	3.458	3.209	.09
16188	S148_H	STG	2018	07	31	3.146	3.288	3.445	3.277	.09
16188	S148_H	STG	2018	08	31	2.389	3.105	3.539	3.143	.23
16188	S148_H	STG	2018	09	30	2.274	2.627	3.177	2.656	.26
16188	S148_H	STG	2018	10	31	2.880	3.638	3.859	3.681	.19
16188	S148_H	STG	2018	11	30	3.665	3.800	4.008	3.779	.09
16188	S148_H	STG	2018	12	31	3.539	3.635	3.718	3.641	.05
16188	S148_H	STG	2019	01	31	3.433	3.585	3.841	3.570	.11
16188	S148_H	STG	2019	02	28	3.665	3.770	3.868	3.765	.06
16188	S148_H	STG	2019	03	31	3.532	3.621	3.699	3.613	.05
16188	S148_H	STG	2019	04	30	3.539	3.713	3.858	3.735	.09
16188	S148_H	STG	2019	05	31	3.426	3.611	3.774	3.625	.09
16188	S148_H	STG	2019	06	30	3.111	3.635	4.189	3.665	.31
16188	S148_H	STG	2019	07	31	3.083	3.430	3.855	3.399	.25
16188	S148_H	STG	2019	08	31	3.056	3.253	3.652	3.210	.16
16188	S148_H	STG	2019	09	30	3.069	3.775	4.168	3.925	.36
16188	S148_H	STG	2019	10	31	3.665	4.034	4.290	4.039	.16
16188	S148_H	STG	2019	11	30	3.815	3.922	4.023	3.925	.06
16188	S148_H	STG	2019	12	31	3.721	3.927	4.344	3.835	.21
16188	S148_H	STG	2020	01	31	3.671	3.934	4.310	3.894	.18
16188	S148_H	STG	2020	02	29	3.886	4.015	4.179	3.996	.08
16188	S148_H	STG	2020	03	31	3.184	3.532	3.862	3.546	.20
16188	S148_H	STG	2020	04	30	2.686	2.898	3.169	2.901	.13
16188	S148_H	STG	2020	05	31	2.471	2.928	3.941	2.779	.40
16188	S148_H	STG	2020	06	30	3.084	3.310	3.896	3.241	.22
16188	S148_H	STG	2020	07	31	3.101	3.739	4.273	3.916	.40
16188	S148_H	STG	2020	08	31	3.054	3.452	3.835	3.520	.26
16188	S148_H	STG	2020	09	30	3.353	3.716	3.949	3.752	.16
16188	S148_H	STG	2020	10	31	3.210	3.633	4.305	3.492	.38
16188	S148_H	STG	2020	11	30	3.191	3.371	3.780	3.351	.12
16188	S148_H	STG	2020	12	31	2.712	2.965	3.654	2.765	.36
16188	S148_H	STG	2021	01	31	2.576	2.840	3.328	2.746	.23
16188	S148_H	STG	2021	02	28	3.137	3.366	3.524	3.400	.10
16188	S148_H	STG	2021	03	31	3.190	3.383	3.498	3.375	.07
16188	S148_H	STG	2021	04	30	3.094	3.226	3.421	3.212	.08
16188	S148_H	STG	2021	05	31	3.250	3.503	3.715	3.492	.13
16188	S148_H	STG	2021	06	30	3.403	3.873	4.405	3.797	.27
16188	S148_H	STG	2021	07	31	3.206	3.839	4.296	3.822	.22
16188	S148_H	STG	2021	08	31	3.658	3.976	4.164	3.972	.12
16188	S148_H	STG	2021	09	13	3.770	3.934	4.133	3.950	.13

Provisional data are excluded from this statistical report.

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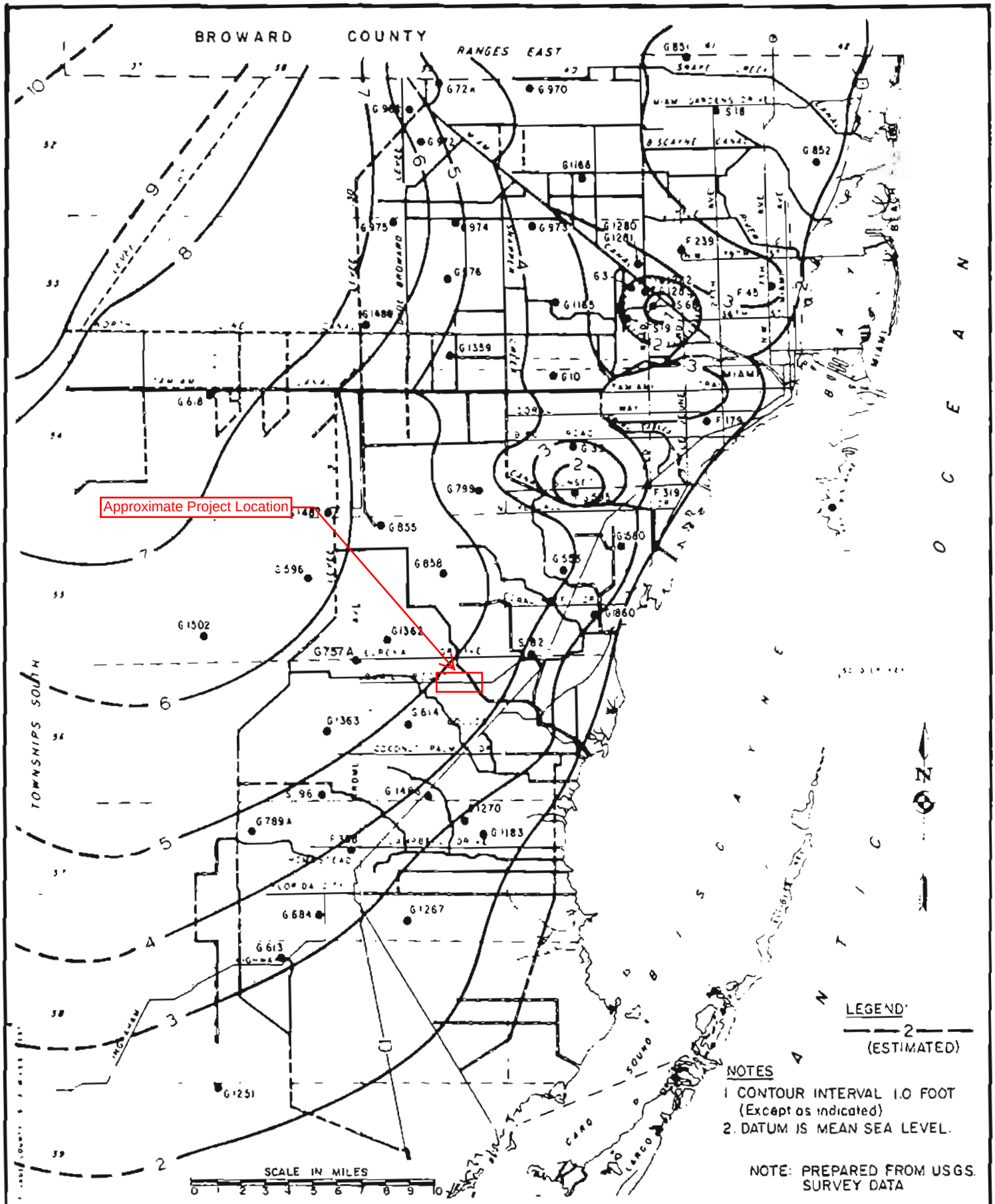
SFWMD Headquarters: 3301 Gun Club Road, West Palm Beach, Florida 33406
561-686-8800 | 1-800-432-2045 (Florida Only)



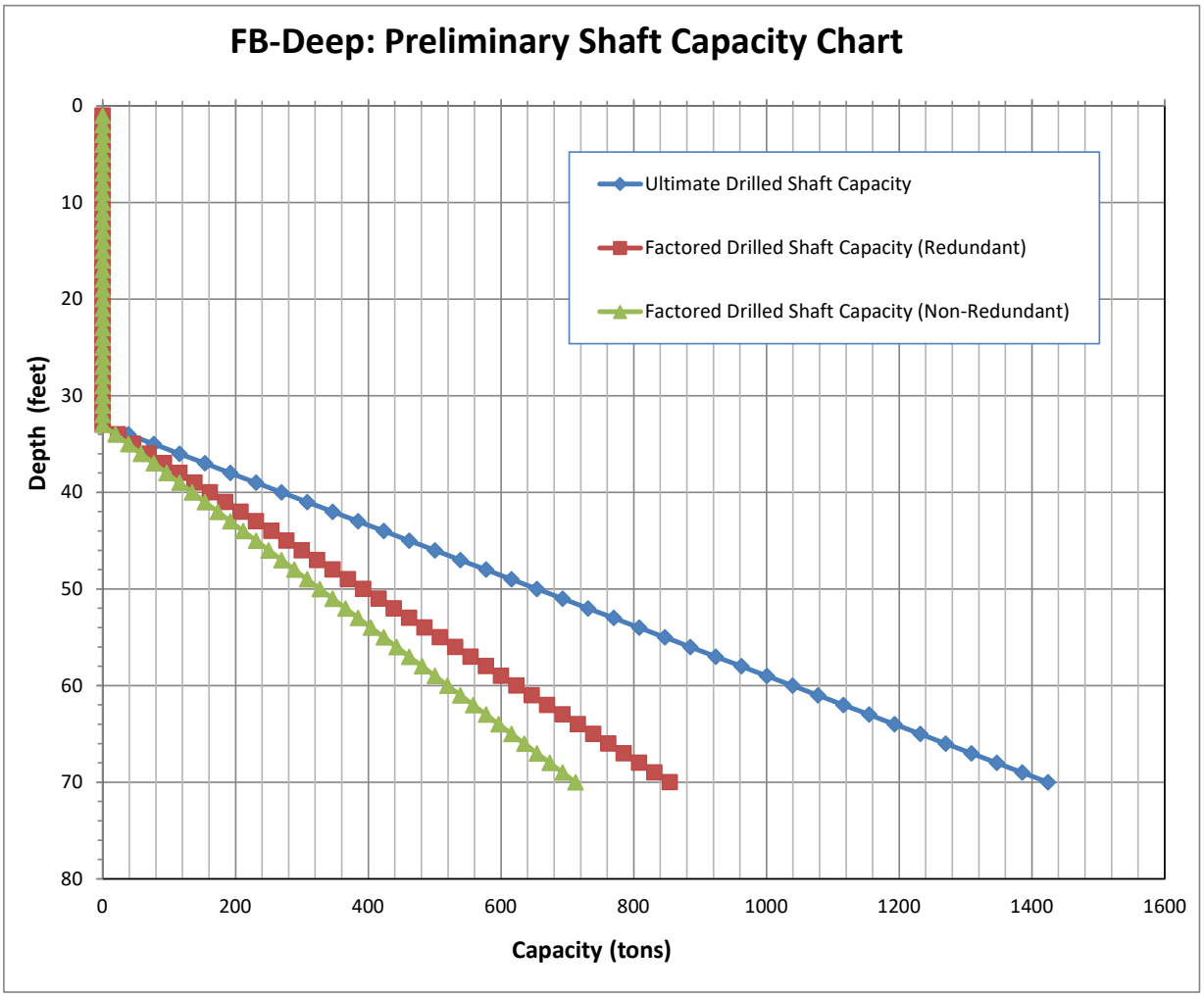
METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED 4/5 72	REVISED 2/19/75 4/14/77	DESIGN STANDARDS AVERAGE OCTOBER GROUND WATER LEVEL 1960–75	W.C. 2.2 SHEET 1 OF 1

APPENDIX "C"

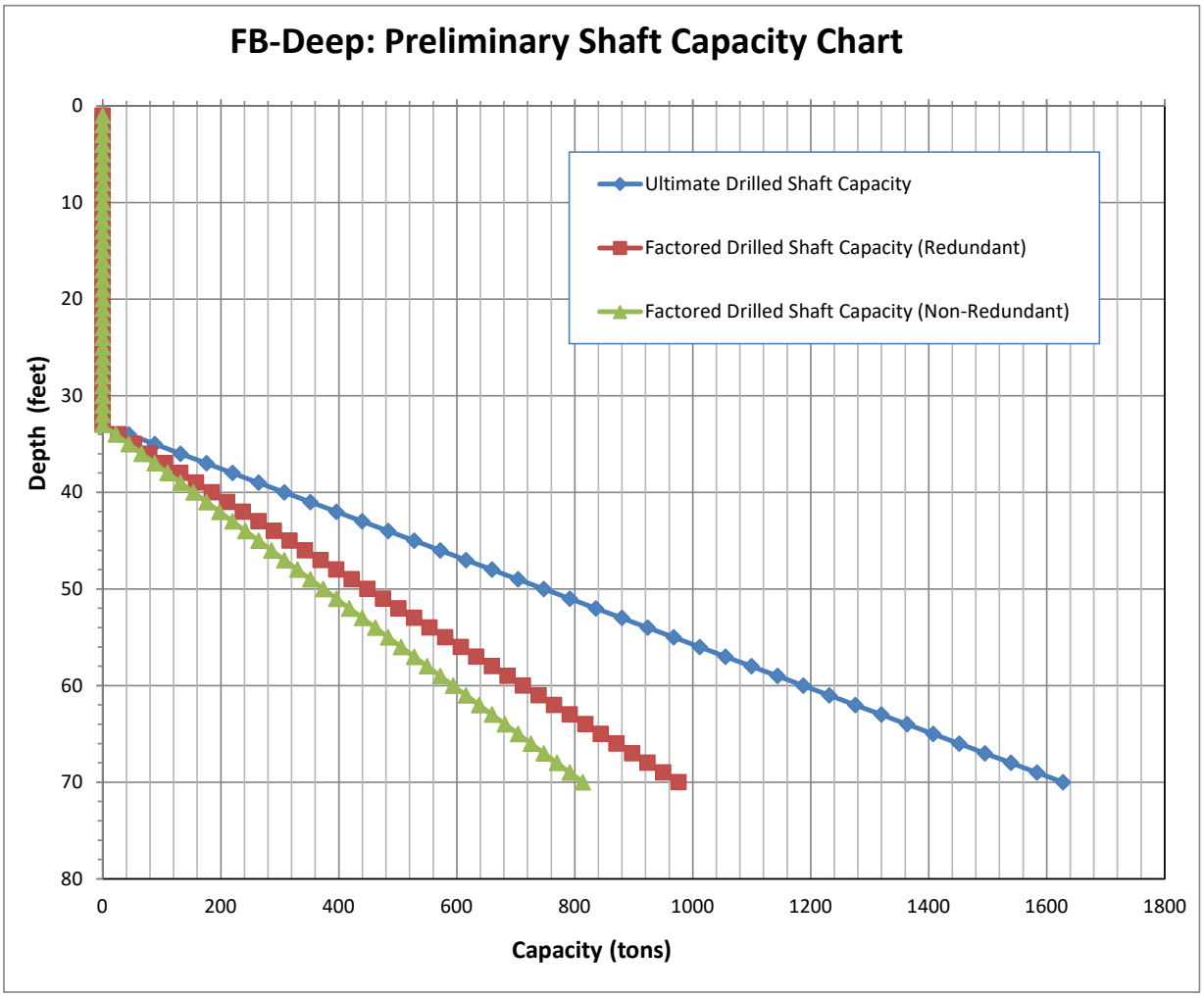
Driven Piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Drilled Shafts: "FB-Deep" Axial Compression Shaft Capacity
Graphs & Output Printouts
ACIP piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Derivation of Geotechnical Design Parameters
FB-MultiPier Geotechnical Parameters

GEOSOL, Inc.

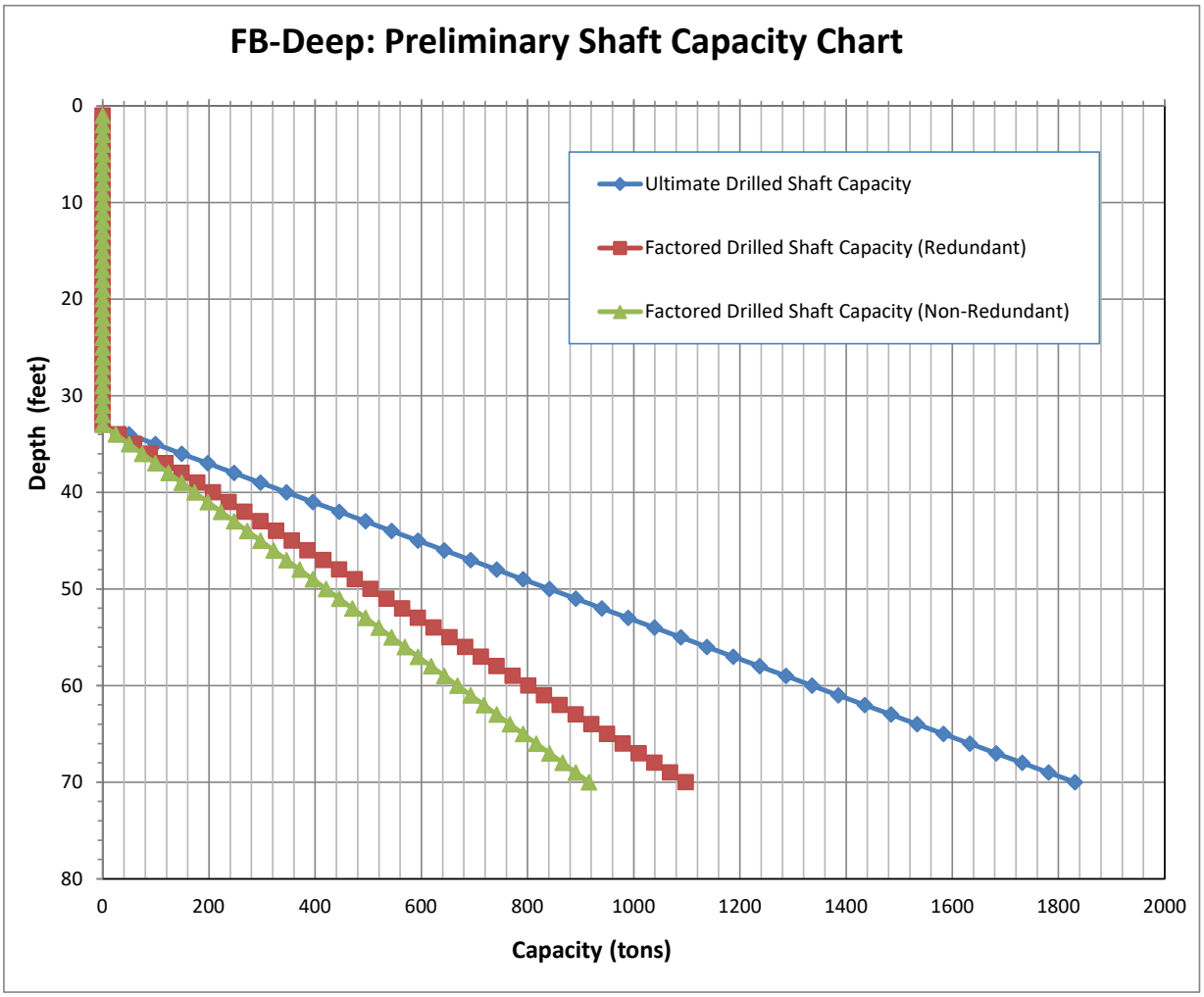
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 42-inch Diameter Drilled Shaft



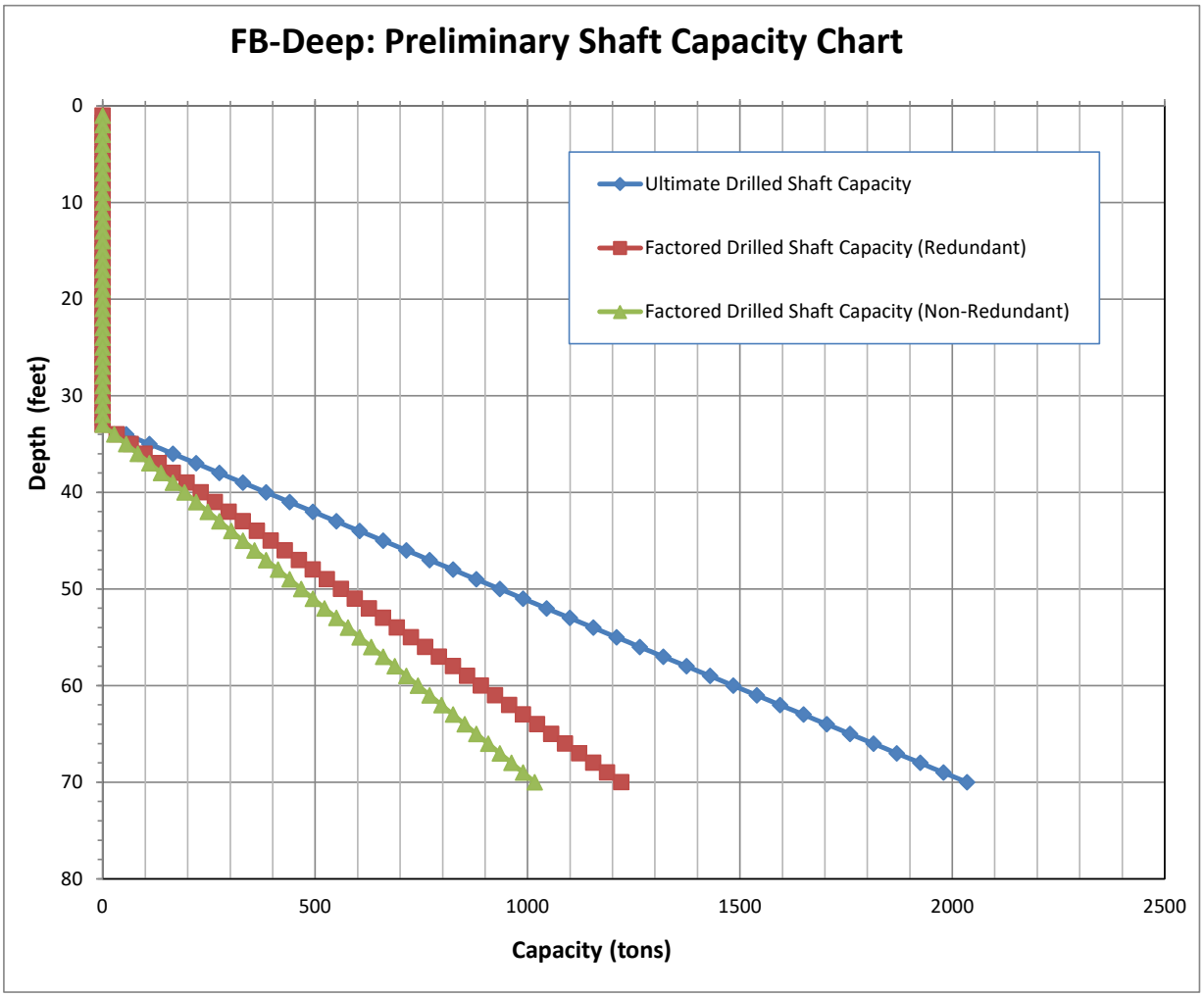
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 48-inch Diameter Drilled Shaft



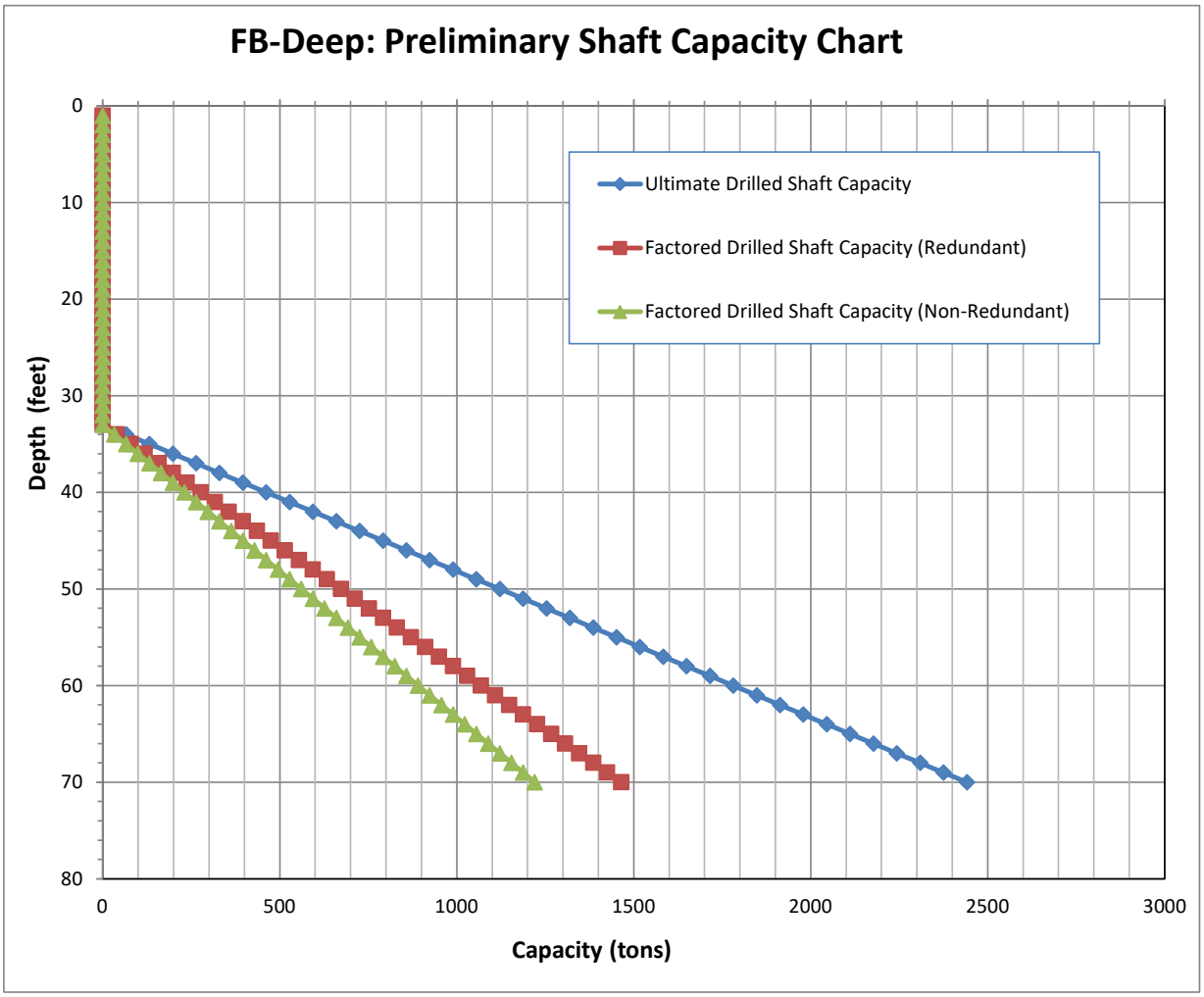
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 54-inch Diameter Drilled Shaft



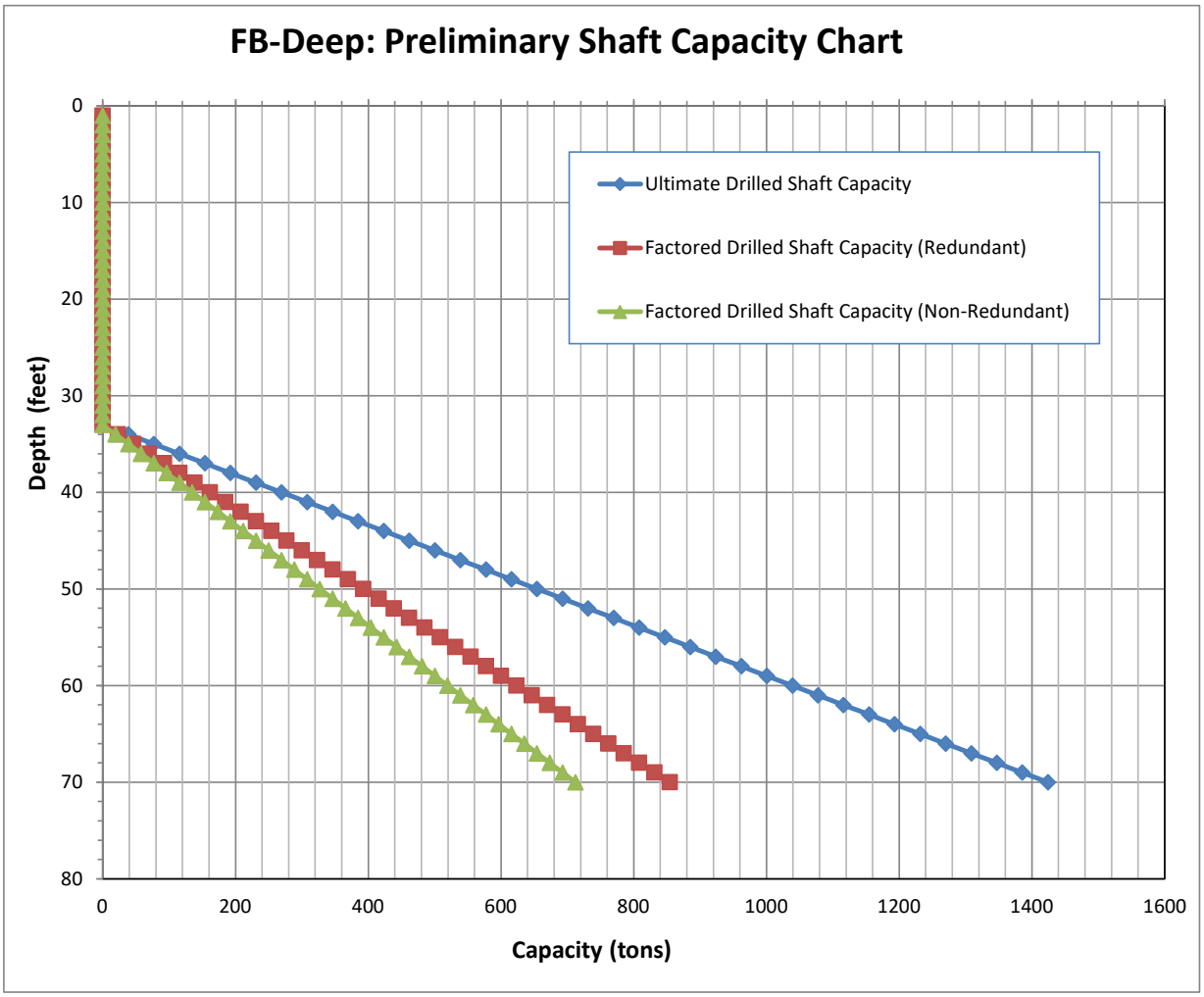
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 60-inch Diameter Drilled Shaft



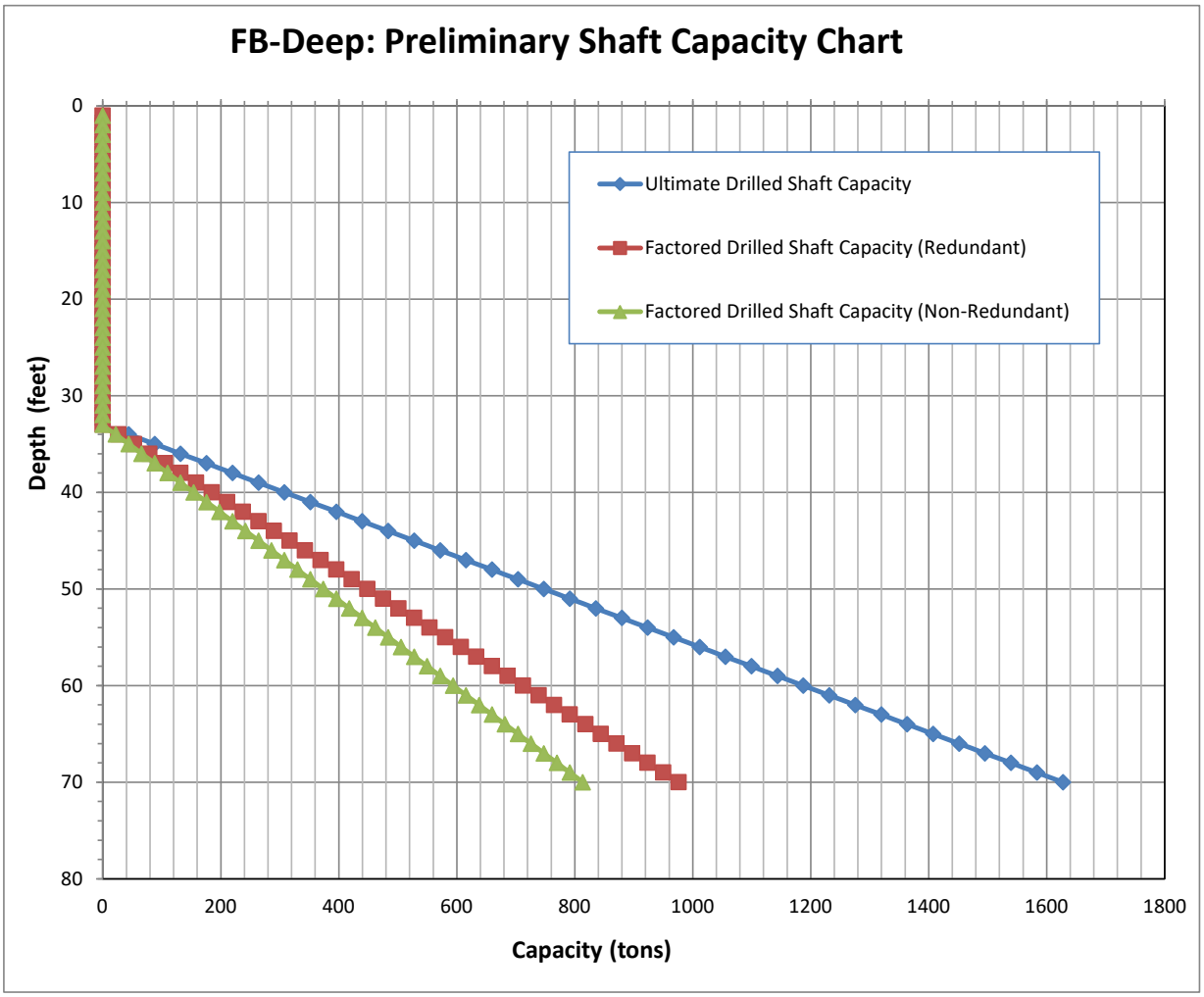
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 72-inch Diameter Drilled Shaft



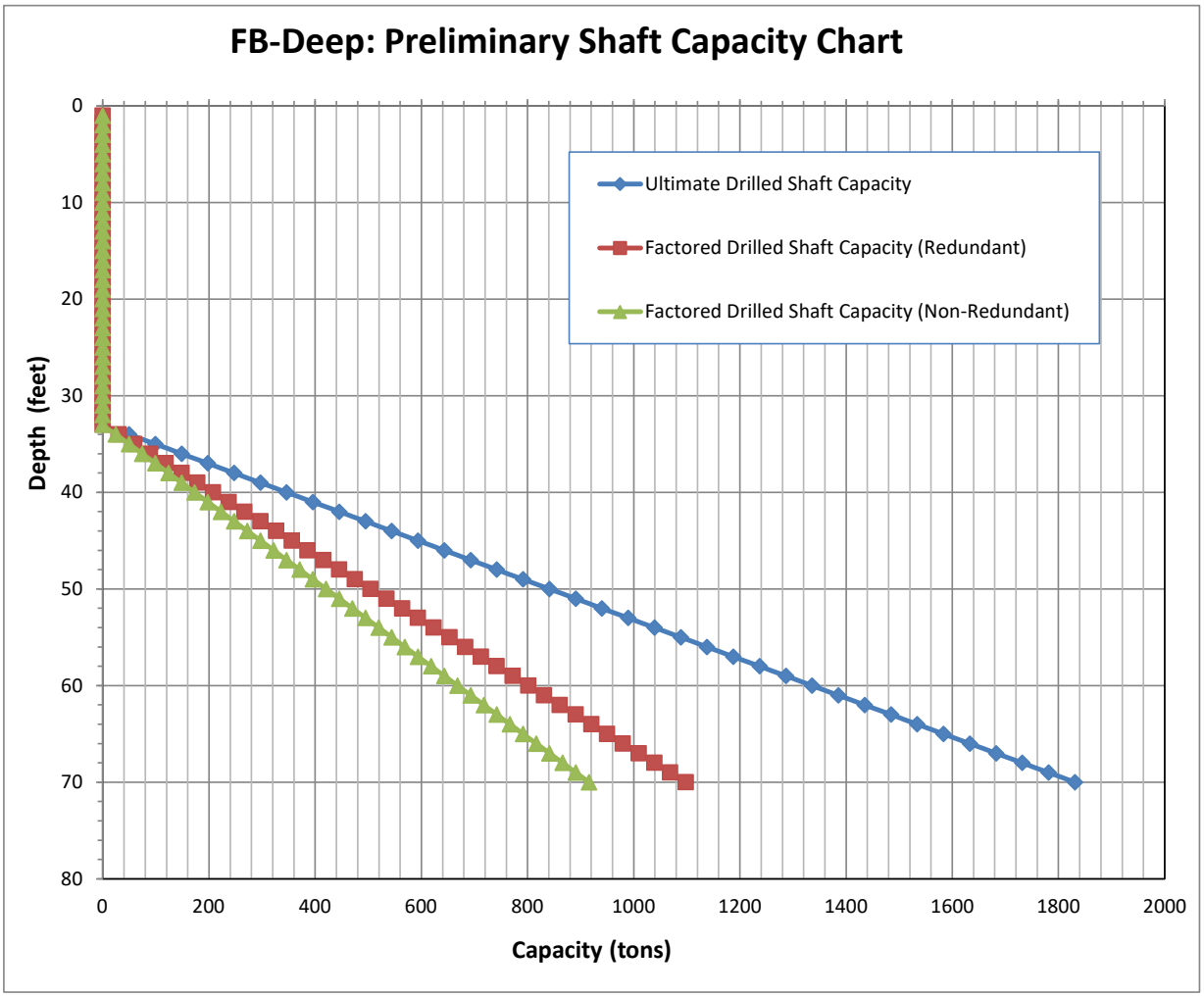
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 42-inch Diameter Drilled Shaft



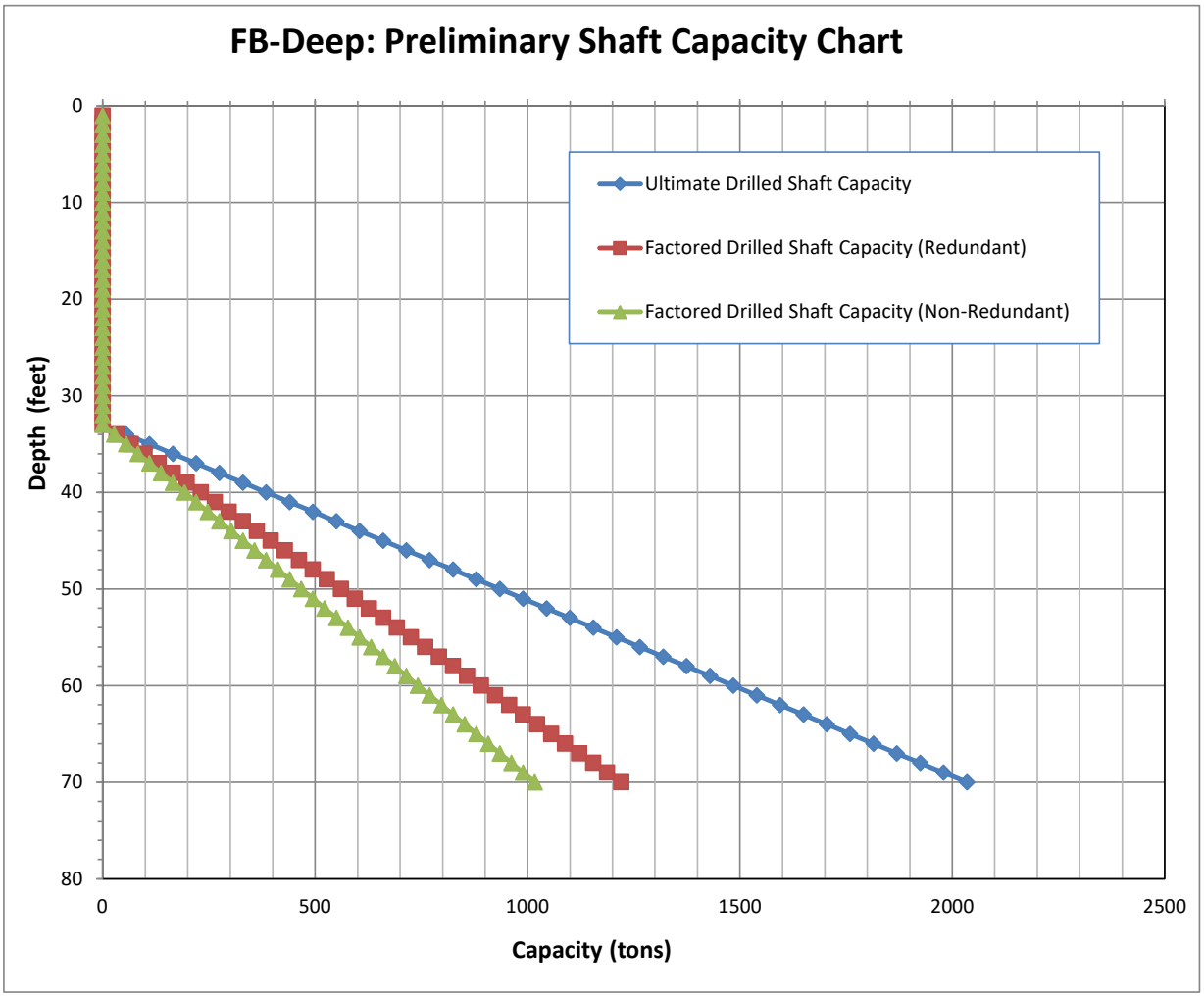
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 48-inch Diameter Drilled Shaft



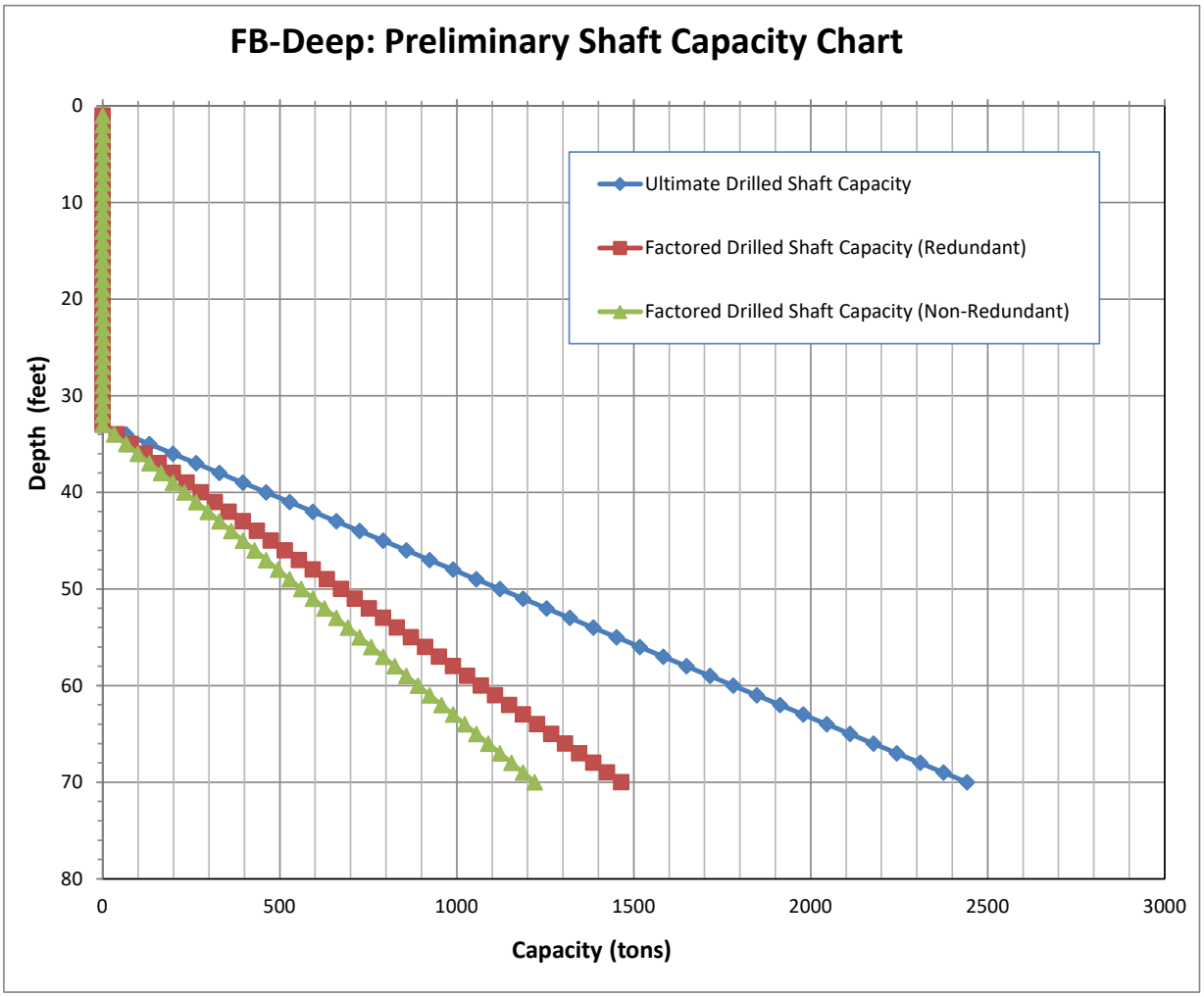
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 54-inch Diameter Drilled Shaft



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 60-inch Diameter Drilled Shaft



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 72-inch Diameter Drilled Shaft



Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:27:32

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	5.00	42.00	42.00	0.00
2	2.00	-2.00	5.00	42.00	42.00	0.00
3	3.00	-3.00	5.00	42.00	42.00	0.00
4	4.00	-4.00	5.00	42.00	42.00	0.00
5	5.00	-5.00	5.00	42.00	42.00	0.00
6	6.00	-6.00	5.00	42.00	42.00	0.00
7	7.00	-7.00	5.00	42.00	42.00	0.00
8	8.00	-8.00	5.00	42.00	42.00	0.00
9	9.00	-9.00	5.00	42.00	42.00	0.00
10	10.00	-10.00	5.00	42.00	42.00	0.00
11	11.00	-11.00	5.00	42.00	42.00	0.00
12	12.00	-12.00	5.00	42.00	42.00	0.00
13	13.00	-13.00	5.00	42.00	42.00	0.00
14	14.00	-14.00	5.00	42.00	42.00	0.00
15	15.00	-15.00	5.00	42.00	42.00	0.00

16	16.00	-16.00	5.00	42.00	42.00	0.00
17	17.00	-17.00	5.00	42.00	42.00	0.00
18	18.00	-18.00	5.00	42.00	42.00	0.00
19	19.00	-19.00	5.00	42.00	42.00	0.00
20	20.00	-20.00	5.00	42.00	42.00	0.00
21	21.00	-21.00	5.00	42.00	42.00	0.00
22	22.00	-22.00	5.00	42.00	42.00	0.00
23	23.00	-23.00	5.00	42.00	42.00	0.00
24	24.00	-24.00	5.00	42.00	42.00	0.00
25	25.00	-25.00	5.00	42.00	42.00	0.00
26	26.00	-26.00	5.00	42.00	42.00	0.00
27	27.00	-27.00	5.00	42.00	42.00	0.00
28	28.00	-28.00	5.00	42.00	42.00	0.00
29	29.00	-29.00	5.00	42.00	42.00	0.00
30	30.00	-30.00	5.00	42.00	42.00	0.00
31	31.00	-31.00	5.00	42.00	42.00	0.00
32	32.00	-32.00	5.00	42.00	42.00	0.00
33	33.00	-33.00	5.00	42.00	42.00	0.00
34	34.00	-34.00	5.00	42.00	42.00	0.00
35	35.00	-35.00	5.00	42.00	42.00	0.00
36	36.00	-36.00	5.00	42.00	42.00	0.00
37	37.00	-37.00	5.00	42.00	42.00	0.00
38	38.00	-38.00	5.00	42.00	42.00	0.00
39	39.00	-39.00	5.00	42.00	42.00	0.00
40	40.00	-40.00	5.00	42.00	42.00	0.00
41	41.00	-41.00	5.00	42.00	42.00	0.00
42	42.00	-42.00	5.00	42.00	42.00	0.00
43	43.00	-43.00	5.00	42.00	42.00	0.00
44	44.00	-44.00	5.00	42.00	42.00	0.00
45	45.00	-45.00	5.00	42.00	42.00	0.00
46	46.00	-46.00	5.00	42.00	42.00	0.00
47	47.00	-47.00	5.00	42.00	42.00	0.00
48	48.00	-48.00	5.00	42.00	42.00	0.00
49	49.00	-49.00	5.00	42.00	42.00	0.00
50	50.00	-50.00	5.00	42.00	42.00	0.00
51	51.00	-51.00	5.00	42.00	42.00	0.00
52	52.00	-52.00	5.00	42.00	42.00	0.00
53	53.00	-53.00	5.00	42.00	42.00	0.00
54	54.00	-54.00	5.00	42.00	42.00	0.00
55	55.00	-55.00	5.00	42.00	42.00	0.00
56	56.00	-56.00	5.00	42.00	42.00	0.00
57	57.00	-57.00	5.00	42.00	42.00	0.00
58	58.00	-58.00	5.00	42.00	42.00	0.00
59	59.00	-59.00	5.00	42.00	42.00	0.00
60	60.00	-60.00	5.00	42.00	42.00	0.00
61	61.00	-61.00	5.00	42.00	42.00	0.00
62	62.00	-62.00	5.00	42.00	42.00	0.00
63	63.00	-63.00	5.00	42.00	42.00	0.00
64	64.00	-64.00	5.00	42.00	42.00	0.00
65	65.00	-65.00	5.00	42.00	42.00	0.00
66	66.00	-66.00	5.00	42.00	42.00	0.00
67	67.00	-67.00	5.00	42.00	42.00	0.00
68	68.00	-68.00	5.00	42.00	42.00	0.00
69	69.00	-69.00	5.00	42.00	42.00	0.00
70	70.00	-70.00	5.00	42.00	42.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000
13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000

16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	0.000	0.000
34	42.00	34.00	38.485	0.000	38.485
35	42.00	35.00	76.969	0.000	76.969
36	42.00	36.00	115.454	0.000	115.454
37	42.00	37.00	153.938	0.000	153.938
38	42.00	38.00	192.423	0.000	192.423
39	42.00	39.00	230.907	0.000	230.907
40	42.00	40.00	269.392	0.000	269.392
41	42.00	41.00	307.876	0.000	307.876
42	42.00	42.00	346.361	0.000	346.361
43	42.00	43.00	384.845	0.000	384.845
44	42.00	44.00	423.330	0.000	423.330
45	42.00	45.00	461.814	0.000	461.814
46	42.00	46.00	500.299	0.000	500.299
47	42.00	47.00	538.783	0.000	538.783
48	42.00	48.00	577.268	0.000	577.268
49	42.00	49.00	615.752	0.000	615.752
50	42.00	50.00	654.237	0.000	654.237
51	42.00	51.00	692.721	0.000	692.721
52	42.00	52.00	731.206	0.000	731.206
53	42.00	53.00	769.690	0.000	769.690
54	42.00	54.00	808.175	0.000	808.175
55	42.00	55.00	846.659	0.000	846.659
56	42.00	56.00	885.144	0.000	885.144
57	42.00	57.00	923.628	0.000	923.628
58	42.00	58.00	962.113	0.000	962.113
59	42.00	59.00	1000.597	0.000	1000.597
60	42.00	60.00	1039.082	0.000	1039.082
61	42.00	61.00	1077.566	0.000	1077.566
62	42.00	62.00	1116.051	0.000	1116.051
63	42.00	63.00	1154.535	0.000	1154.535
64	42.00	64.00	1193.020	0.000	1193.020
65	42.00	65.00	1231.504	0.000	1231.504
66	42.00	66.00	1269.989	0.000	1269.989
67	42.00	67.00	1308.473	0.000	1308.473
68	42.00	68.00	1346.958	0.000	1346.958
69	42.00	69.00	1385.442	0.000	1385.442
70	42.00	70.00	1423.927	0.000	1423.927

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==========
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000

13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000
16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	2910.251	2910.251
34	42.00	34.00	38.292	3226.895	3265.187
35	42.00	35.00	76.203	2028.125	2104.328
36	42.00	36.00	113.740	1545.660	1659.401
37	42.00	37.00	150.909	1274.692	1425.601
38	42.00	38.00	187.716	1097.679	1285.395
39	42.00	39.00	224.166	971.458	1195.624
40	42.00	40.00	260.265	876.132	1136.398
41	42.00	41.00	296.758	865.404	1162.162
42	42.00	42.00	333.103	853.883	1186.986
43	42.00	43.00	369.306	841.969	1211.275
44	42.00	44.00	405.373	829.908	1235.280
45	42.00	45.00	441.306	817.852	1259.158
46	42.00	46.00	477.109	805.900	1283.009
47	42.00	47.00	512.786	794.110	1306.896
48	42.00	48.00	548.340	782.521	1330.861
49	42.00	49.00	583.774	771.153	1354.927
50	42.00	50.00	619.090	760.020	1379.110
51	42.00	51.00	654.290	749.126	1403.416
52	42.00	52.00	689.377	738.470	1427.847
53	42.00	53.00	724.352	728.051	1452.404
54	42.00	54.00	759.218	717.864	1477.082
55	42.00	55.00	793.977	707.902	1501.879
56	42.00	56.00	828.630	698.159	1526.789
57	42.00	57.00	863.179	688.627	1551.805
58	42.00	58.00	897.625	679.298	1576.923
59	42.00	59.00	931.970	670.166	1602.137
60	42.00	60.00	966.216	661.223	1627.439
61	42.00	61.00	1000.364	652.461	1652.825
62	42.00	62.00	1034.414	643.874	1678.288
63	42.00	63.00	1068.370	635.454	1703.824
64	42.00	64.00	1102.231	627.195	1729.425
65	42.00	65.00	1135.998	619.090	1755.088
66	42.00	66.00	1169.674	611.133	1780.808
67	42.00	67.00	1203.259	603.319	1806.579
68	42.00	68.00	1236.755	595.643	1832.397
69	42.00	69.00	1270.161	588.097	1858.259
70	42.00	70.00	1303.480	580.679	1884.159

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:27:43

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
71	1.00	-1.00	5.00	48.00	48.00	0.00
72	2.00	-2.00	5.00	48.00	48.00	0.00
73	3.00	-3.00	5.00	48.00	48.00	0.00
74	4.00	-4.00	5.00	48.00	48.00	0.00
75	5.00	-5.00	5.00	48.00	48.00	0.00
76	6.00	-6.00	5.00	48.00	48.00	0.00
77	7.00	-7.00	5.00	48.00	48.00	0.00
78	8.00	-8.00	5.00	48.00	48.00	0.00
79	9.00	-9.00	5.00	48.00	48.00	0.00
80	10.00	-10.00	5.00	48.00	48.00	0.00
81	11.00	-11.00	5.00	48.00	48.00	0.00
82	12.00	-12.00	5.00	48.00	48.00	0.00
83	13.00	-13.00	5.00	48.00	48.00	0.00
84	14.00	-14.00	5.00	48.00	48.00	0.00
85	15.00	-15.00	5.00	48.00	48.00	0.00

86	16.00	-16.00	5.00	48.00	48.00	0.00
87	17.00	-17.00	5.00	48.00	48.00	0.00
88	18.00	-18.00	5.00	48.00	48.00	0.00
89	19.00	-19.00	5.00	48.00	48.00	0.00
90	20.00	-20.00	5.00	48.00	48.00	0.00
91	21.00	-21.00	5.00	48.00	48.00	0.00
92	22.00	-22.00	5.00	48.00	48.00	0.00
93	23.00	-23.00	5.00	48.00	48.00	0.00
94	24.00	-24.00	5.00	48.00	48.00	0.00
95	25.00	-25.00	5.00	48.00	48.00	0.00
96	26.00	-26.00	5.00	48.00	48.00	0.00
97	27.00	-27.00	5.00	48.00	48.00	0.00
98	28.00	-28.00	5.00	48.00	48.00	0.00
99	29.00	-29.00	5.00	48.00	48.00	0.00
100	30.00	-30.00	5.00	48.00	48.00	0.00
101	31.00	-31.00	5.00	48.00	48.00	0.00
102	32.00	-32.00	5.00	48.00	48.00	0.00
103	33.00	-33.00	5.00	48.00	48.00	0.00
104	34.00	-34.00	5.00	48.00	48.00	0.00
105	35.00	-35.00	5.00	48.00	48.00	0.00
106	36.00	-36.00	5.00	48.00	48.00	0.00
107	37.00	-37.00	5.00	48.00	48.00	0.00
108	38.00	-38.00	5.00	48.00	48.00	0.00
109	39.00	-39.00	5.00	48.00	48.00	0.00
110	40.00	-40.00	5.00	48.00	48.00	0.00
111	41.00	-41.00	5.00	48.00	48.00	0.00
112	42.00	-42.00	5.00	48.00	48.00	0.00
113	43.00	-43.00	5.00	48.00	48.00	0.00
114	44.00	-44.00	5.00	48.00	48.00	0.00
115	45.00	-45.00	5.00	48.00	48.00	0.00
116	46.00	-46.00	5.00	48.00	48.00	0.00
117	47.00	-47.00	5.00	48.00	48.00	0.00
118	48.00	-48.00	5.00	48.00	48.00	0.00
119	49.00	-49.00	5.00	48.00	48.00	0.00
120	50.00	-50.00	5.00	48.00	48.00	0.00
121	51.00	-51.00	5.00	48.00	48.00	0.00
122	52.00	-52.00	5.00	48.00	48.00	0.00
123	53.00	-53.00	5.00	48.00	48.00	0.00
124	54.00	-54.00	5.00	48.00	48.00	0.00
125	55.00	-55.00	5.00	48.00	48.00	0.00
126	56.00	-56.00	5.00	48.00	48.00	0.00
127	57.00	-57.00	5.00	48.00	48.00	0.00
128	58.00	-58.00	5.00	48.00	48.00	0.00
129	59.00	-59.00	5.00	48.00	48.00	0.00
130	60.00	-60.00	5.00	48.00	48.00	0.00
131	61.00	-61.00	5.00	48.00	48.00	0.00
132	62.00	-62.00	5.00	48.00	48.00	0.00
133	63.00	-63.00	5.00	48.00	48.00	0.00
134	64.00	-64.00	5.00	48.00	48.00	0.00
135	65.00	-65.00	5.00	48.00	48.00	0.00
136	66.00	-66.00	5.00	48.00	48.00	0.00
137	67.00	-67.00	5.00	48.00	48.00	0.00
138	68.00	-68.00	5.00	48.00	48.00	0.00
139	69.00	-69.00	5.00	48.00	48.00	0.00
140	70.00	-70.00	5.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000
13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000

16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	0.000	0.000
34	48.00	34.00	43.982	0.000	43.982
35	48.00	35.00	87.965	0.000	87.965
36	48.00	36.00	131.947	0.000	131.947
37	48.00	37.00	175.929	0.000	175.929
38	48.00	38.00	219.911	0.000	219.911
39	48.00	39.00	263.894	0.000	263.894
40	48.00	40.00	307.876	0.000	307.876
41	48.00	41.00	351.858	0.000	351.858
42	48.00	42.00	395.841	0.000	395.841
43	48.00	43.00	439.823	0.000	439.823
44	48.00	44.00	483.805	0.000	483.805
45	48.00	45.00	527.788	0.000	527.788
46	48.00	46.00	571.770	0.000	571.770
47	48.00	47.00	615.752	0.000	615.752
48	48.00	48.00	659.734	0.000	659.734
49	48.00	49.00	703.717	0.000	703.717
50	48.00	50.00	747.699	0.000	747.699
51	48.00	51.00	791.681	0.000	791.681
52	48.00	52.00	835.664	0.000	835.664
53	48.00	53.00	879.646	0.000	879.646
54	48.00	54.00	923.628	0.000	923.628
55	48.00	55.00	967.611	0.000	967.611
56	48.00	56.00	1011.593	0.000	1011.593
57	48.00	57.00	1055.575	0.000	1055.575
58	48.00	58.00	1099.557	0.000	1099.557
59	48.00	59.00	1143.540	0.000	1143.540
60	48.00	60.00	1187.522	0.000	1187.522
61	48.00	61.00	1231.504	0.000	1231.504
62	48.00	62.00	1275.487	0.000	1275.487
63	48.00	63.00	1319.469	0.000	1319.469
64	48.00	64.00	1363.451	0.000	1363.451
65	48.00	65.00	1407.434	0.000	1407.434
66	48.00	66.00	1451.416	0.000	1451.416
67	48.00	67.00	1495.398	0.000	1495.398
68	48.00	68.00	1539.380	0.000	1539.380
69	48.00	69.00	1583.363	0.000	1583.363
70	48.00	70.00	1627.345	0.000	1627.345

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000

13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000
16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	3801.144	3801.144
34	48.00	34.00	43.790	4609.176	4652.966
35	48.00	35.00	87.198	2896.898	2984.096
36	48.00	36.00	130.231	2207.764	2337.994
37	48.00	37.00	172.893	1820.722	1993.615
38	48.00	38.00	215.190	1567.884	1783.074
39	48.00	39.00	257.128	1387.594	1644.722
40	48.00	40.00	298.711	1251.435	1550.146
41	48.00	41.00	339.946	1144.336	1484.282
42	48.00	42.00	381.665	1132.146	1513.811
43	48.00	43.00	423.237	1119.102	1542.339
44	48.00	44.00	464.667	1105.586	1570.253
45	48.00	45.00	505.958	1091.847	1597.805
46	48.00	46.00	547.115	1078.047	1625.162
47	48.00	47.00	588.141	1064.296	1652.437
48	48.00	48.00	629.039	1050.666	1679.705
49	48.00	49.00	669.812	1037.205	1707.017
50	48.00	50.00	710.463	1023.944	1734.407
51	48.00	51.00	750.994	1010.904	1761.898
52	48.00	52.00	791.407	998.096	1789.503
53	48.00	53.00	831.704	985.526	1817.230
54	48.00	54.00	871.889	973.195	1845.083
55	48.00	55.00	911.961	961.102	1873.063
56	48.00	56.00	951.924	949.245	1901.168
57	48.00	57.00	991.778	937.618	1929.397
58	48.00	58.00	1031.527	926.217	1957.744
59	48.00	59.00	1071.170	915.036	1986.206
60	48.00	60.00	1110.710	904.068	2014.777
61	48.00	61.00	1150.148	893.306	2043.454
62	48.00	62.00	1189.485	882.745	2072.229
63	48.00	63.00	1228.723	872.377	2101.099
64	48.00	64.00	1267.863	862.195	2130.058
65	48.00	65.00	1306.906	852.195	2159.100
66	48.00	66.00	1345.853	842.368	2188.221
67	48.00	67.00	1384.706	832.710	2217.416
68	48.00	68.00	1423.466	823.214	2246.680
69	48.00	69.00	1462.133	813.875	2276.009
70	48.00	70.00	1500.710	804.688	2305.397

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:28:07

General Information:
==========
Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
Boring date: 8/24/2021
Boring number: BR-1
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = -6.20(ft)

Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
141	1.00	-1.00	5.00	54.00	54.00	0.00
142	2.00	-2.00	5.00	54.00	54.00	0.00
143	3.00	-3.00	5.00	54.00	54.00	0.00
144	4.00	-4.00	5.00	54.00	54.00	0.00
145	5.00	-5.00	5.00	54.00	54.00	0.00
146	6.00	-6.00	5.00	54.00	54.00	0.00
147	7.00	-7.00	5.00	54.00	54.00	0.00
148	8.00	-8.00	5.00	54.00	54.00	0.00
149	9.00	-9.00	5.00	54.00	54.00	0.00
150	10.00	-10.00	5.00	54.00	54.00	0.00
151	11.00	-11.00	5.00	54.00	54.00	0.00
152	12.00	-12.00	5.00	54.00	54.00	0.00
153	13.00	-13.00	5.00	54.00	54.00	0.00
154	14.00	-14.00	5.00	54.00	54.00	0.00
155	15.00	-15.00	5.00	54.00	54.00	0.00

156	16.00	-16.00	5.00	54.00	54.00	0.00
157	17.00	-17.00	5.00	54.00	54.00	0.00
158	18.00	-18.00	5.00	54.00	54.00	0.00
159	19.00	-19.00	5.00	54.00	54.00	0.00
160	20.00	-20.00	5.00	54.00	54.00	0.00
161	21.00	-21.00	5.00	54.00	54.00	0.00
162	22.00	-22.00	5.00	54.00	54.00	0.00
163	23.00	-23.00	5.00	54.00	54.00	0.00
164	24.00	-24.00	5.00	54.00	54.00	0.00
165	25.00	-25.00	5.00	54.00	54.00	0.00
166	26.00	-26.00	5.00	54.00	54.00	0.00
167	27.00	-27.00	5.00	54.00	54.00	0.00
168	28.00	-28.00	5.00	54.00	54.00	0.00
169	29.00	-29.00	5.00	54.00	54.00	0.00
170	30.00	-30.00	5.00	54.00	54.00	0.00
171	31.00	-31.00	5.00	54.00	54.00	0.00
172	32.00	-32.00	5.00	54.00	54.00	0.00
173	33.00	-33.00	5.00	54.00	54.00	0.00
174	34.00	-34.00	5.00	54.00	54.00	0.00
175	35.00	-35.00	5.00	54.00	54.00	0.00
176	36.00	-36.00	5.00	54.00	54.00	0.00
177	37.00	-37.00	5.00	54.00	54.00	0.00
178	38.00	-38.00	5.00	54.00	54.00	0.00
179	39.00	-39.00	5.00	54.00	54.00	0.00
180	40.00	-40.00	5.00	54.00	54.00	0.00
181	41.00	-41.00	5.00	54.00	54.00	0.00
182	42.00	-42.00	5.00	54.00	54.00	0.00
183	43.00	-43.00	5.00	54.00	54.00	0.00
184	44.00	-44.00	5.00	54.00	54.00	0.00
185	45.00	-45.00	5.00	54.00	54.00	0.00
186	46.00	-46.00	5.00	54.00	54.00	0.00
187	47.00	-47.00	5.00	54.00	54.00	0.00
188	48.00	-48.00	5.00	54.00	54.00	0.00
189	49.00	-49.00	5.00	54.00	54.00	0.00
190	50.00	-50.00	5.00	54.00	54.00	0.00
191	51.00	-51.00	5.00	54.00	54.00	0.00
192	52.00	-52.00	5.00	54.00	54.00	0.00
193	53.00	-53.00	5.00	54.00	54.00	0.00
194	54.00	-54.00	5.00	54.00	54.00	0.00
195	55.00	-55.00	5.00	54.00	54.00	0.00
196	56.00	-56.00	5.00	54.00	54.00	0.00
197	57.00	-57.00	5.00	54.00	54.00	0.00
198	58.00	-58.00	5.00	54.00	54.00	0.00
199	59.00	-59.00	5.00	54.00	54.00	0.00
200	60.00	-60.00	5.00	54.00	54.00	0.00
201	61.00	-61.00	5.00	54.00	54.00	0.00
202	62.00	-62.00	5.00	54.00	54.00	0.00
203	63.00	-63.00	5.00	54.00	54.00	0.00
204	64.00	-64.00	5.00	54.00	54.00	0.00
205	65.00	-65.00	5.00	54.00	54.00	0.00
206	66.00	-66.00	5.00	54.00	54.00	0.00
207	67.00	-67.00	5.00	54.00	54.00	0.00
208	68.00	-68.00	5.00	54.00	54.00	0.00
209	69.00	-69.00	5.00	54.00	54.00	0.00
210	70.00	-70.00	5.00	54.00	54.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000
13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000

16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	0.000	0.000
34	54.00	34.00	49.480	0.000	49.480
35	54.00	35.00	98.960	0.000	98.960
36	54.00	36.00	148.440	0.000	148.440
37	54.00	37.00	197.920	0.000	197.920
38	54.00	38.00	247.400	0.000	247.400
39	54.00	39.00	296.881	0.000	296.881
40	54.00	40.00	346.361	0.000	346.361
41	54.00	41.00	395.841	0.000	395.841
42	54.00	42.00	445.321	0.000	445.321
43	54.00	43.00	494.801	0.000	494.801
44	54.00	44.00	544.281	0.000	544.281
45	54.00	45.00	593.761	0.000	593.761
46	54.00	46.00	643.241	0.000	643.241
47	54.00	47.00	692.721	0.000	692.721
48	54.00	48.00	742.201	0.000	742.201
49	54.00	49.00	791.681	0.000	791.681
50	54.00	50.00	841.161	0.000	841.161
51	54.00	51.00	890.642	0.000	890.642
52	54.00	52.00	940.122	0.000	940.122
53	54.00	53.00	989.602	0.000	989.602
54	54.00	54.00	1039.082	0.000	1039.082
55	54.00	55.00	1088.562	0.000	1088.562
56	54.00	56.00	1138.042	0.000	1138.042
57	54.00	57.00	1187.522	0.000	1187.522
58	54.00	58.00	1237.002	0.000	1237.002
59	54.00	59.00	1286.482	0.000	1286.482
60	54.00	60.00	1335.962	0.000	1335.962
61	54.00	61.00	1385.442	0.000	1385.442
62	54.00	62.00	1434.922	0.000	1434.922
63	54.00	63.00	1484.403	0.000	1484.403
64	54.00	64.00	1533.883	0.000	1533.883
65	54.00	65.00	1583.363	0.000	1583.363
66	54.00	66.00	1632.843	0.000	1632.843
67	54.00	67.00	1682.323	0.000	1682.323
68	54.00	68.00	1731.803	0.000	1731.803
69	54.00	69.00	1781.283	0.000	1781.283
70	54.00	70.00	1830.763	0.000	1830.763

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000

13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000
16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	4810.823	4810.823
34	54.00	34.00	49.287	6312.487	6361.775
35	54.00	35.00	98.193	3967.441	4065.633
36	54.00	36.00	146.721	3023.638	3170.360
37	54.00	37.00	194.878	2493.566	2688.444
38	54.00	38.00	242.668	2147.292	2389.960
39	54.00	39.00	290.095	1900.377	2190.472
40	54.00	40.00	337.165	1713.900	2051.065
41	54.00	41.00	383.883	1567.223	1951.106
42	54.00	42.00	430.254	1448.300	1878.554
43	54.00	43.00	477.201	1434.651	1911.852
44	54.00	44.00	524.001	1420.097	1944.098
45	54.00	45.00	570.658	1405.004	1975.662
46	54.00	46.00	617.176	1389.617	2006.793
47	54.00	47.00	663.558	1374.107	2037.665
48	54.00	48.00	709.809	1358.590	2068.399
49	54.00	49.00	755.930	1343.150	2099.080
50	54.00	50.00	801.925	1327.845	2129.770
51	54.00	51.00	847.796	1312.712	2160.508
52	54.00	52.00	893.545	1297.781	2191.326
53	54.00	53.00	939.175	1283.068	2222.244
54	54.00	54.00	984.688	1268.586	2253.274
55	54.00	55.00	1030.086	1254.339	2284.425
56	54.00	56.00	1075.370	1240.332	2315.702
57	54.00	57.00	1120.542	1226.564	2347.107
58	54.00	58.00	1165.605	1213.034	2378.639
59	54.00	59.00	1210.559	1199.738	2410.297
60	54.00	60.00	1255.406	1186.673	2442.079
61	54.00	61.00	1300.147	1173.833	2473.980
62	54.00	62.00	1344.785	1161.213	2505.998
63	54.00	63.00	1389.320	1148.808	2538.128
64	54.00	64.00	1433.753	1136.612	2570.366
65	54.00	65.00	1478.087	1124.619	2602.706
66	54.00	66.00	1522.321	1112.823	2635.144
67	54.00	67.00	1566.458	1101.218	2667.676
68	54.00	68.00	1610.499	1089.798	2700.297
69	54.00	69.00	1654.444	1078.559	2733.002
70	54.00	70.00	1698.294	1067.493	2765.787

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:28:18

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
211	1.00	-1.00	5.00	60.00	60.00	0.00
212	2.00	-2.00	5.00	60.00	60.00	0.00
213	3.00	-3.00	5.00	60.00	60.00	0.00
214	4.00	-4.00	5.00	60.00	60.00	0.00
215	5.00	-5.00	5.00	60.00	60.00	0.00
216	6.00	-6.00	5.00	60.00	60.00	0.00
217	7.00	-7.00	5.00	60.00	60.00	0.00
218	8.00	-8.00	5.00	60.00	60.00	0.00
219	9.00	-9.00	5.00	60.00	60.00	0.00
220	10.00	-10.00	5.00	60.00	60.00	0.00
221	11.00	-11.00	5.00	60.00	60.00	0.00
222	12.00	-12.00	5.00	60.00	60.00	0.00
223	13.00	-13.00	5.00	60.00	60.00	0.00
224	14.00	-14.00	5.00	60.00	60.00	0.00
225	15.00	-15.00	5.00	60.00	60.00	0.00

226	16.00	-16.00	5.00	60.00	60.00	0.00
227	17.00	-17.00	5.00	60.00	60.00	0.00
228	18.00	-18.00	5.00	60.00	60.00	0.00
229	19.00	-19.00	5.00	60.00	60.00	0.00
230	20.00	-20.00	5.00	60.00	60.00	0.00
231	21.00	-21.00	5.00	60.00	60.00	0.00
232	22.00	-22.00	5.00	60.00	60.00	0.00
233	23.00	-23.00	5.00	60.00	60.00	0.00
234	24.00	-24.00	5.00	60.00	60.00	0.00
235	25.00	-25.00	5.00	60.00	60.00	0.00
236	26.00	-26.00	5.00	60.00	60.00	0.00
237	27.00	-27.00	5.00	60.00	60.00	0.00
238	28.00	-28.00	5.00	60.00	60.00	0.00
239	29.00	-29.00	5.00	60.00	60.00	0.00
240	30.00	-30.00	5.00	60.00	60.00	0.00
241	31.00	-31.00	5.00	60.00	60.00	0.00
242	32.00	-32.00	5.00	60.00	60.00	0.00
243	33.00	-33.00	5.00	60.00	60.00	0.00
244	34.00	-34.00	5.00	60.00	60.00	0.00
245	35.00	-35.00	5.00	60.00	60.00	0.00
246	36.00	-36.00	5.00	60.00	60.00	0.00
247	37.00	-37.00	5.00	60.00	60.00	0.00
248	38.00	-38.00	5.00	60.00	60.00	0.00
249	39.00	-39.00	5.00	60.00	60.00	0.00
250	40.00	-40.00	5.00	60.00	60.00	0.00
251	41.00	-41.00	5.00	60.00	60.00	0.00
252	42.00	-42.00	5.00	60.00	60.00	0.00
253	43.00	-43.00	5.00	60.00	60.00	0.00
254	44.00	-44.00	5.00	60.00	60.00	0.00
255	45.00	-45.00	5.00	60.00	60.00	0.00
256	46.00	-46.00	5.00	60.00	60.00	0.00
257	47.00	-47.00	5.00	60.00	60.00	0.00
258	48.00	-48.00	5.00	60.00	60.00	0.00
259	49.00	-49.00	5.00	60.00	60.00	0.00
260	50.00	-50.00	5.00	60.00	60.00	0.00
261	51.00	-51.00	5.00	60.00	60.00	0.00
262	52.00	-52.00	5.00	60.00	60.00	0.00
263	53.00	-53.00	5.00	60.00	60.00	0.00
264	54.00	-54.00	5.00	60.00	60.00	0.00
265	55.00	-55.00	5.00	60.00	60.00	0.00
266	56.00	-56.00	5.00	60.00	60.00	0.00
267	57.00	-57.00	5.00	60.00	60.00	0.00
268	58.00	-58.00	5.00	60.00	60.00	0.00
269	59.00	-59.00	5.00	60.00	60.00	0.00
270	60.00	-60.00	5.00	60.00	60.00	0.00
271	61.00	-61.00	5.00	60.00	60.00	0.00
272	62.00	-62.00	5.00	60.00	60.00	0.00
273	63.00	-63.00	5.00	60.00	60.00	0.00
274	64.00	-64.00	5.00	60.00	60.00	0.00
275	65.00	-65.00	5.00	60.00	60.00	0.00
276	66.00	-66.00	5.00	60.00	60.00	0.00
277	67.00	-67.00	5.00	60.00	60.00	0.00
278	68.00	-68.00	5.00	60.00	60.00	0.00
279	69.00	-69.00	5.00	60.00	60.00	0.00
280	70.00	-70.00	5.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000
13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000

16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	0.000	0.000
34	60.00	34.00	54.978	0.000	54.978
35	60.00	35.00	109.956	0.000	109.956
36	60.00	36.00	164.934	0.000	164.934
37	60.00	37.00	219.911	0.000	219.911
38	60.00	38.00	274.889	0.000	274.889
39	60.00	39.00	329.867	0.000	329.867
40	60.00	40.00	384.845	0.000	384.845
41	60.00	41.00	439.823	0.000	439.823
42	60.00	42.00	494.801	0.000	494.801
43	60.00	43.00	549.779	0.000	549.779
44	60.00	44.00	604.757	0.000	604.757
45	60.00	45.00	659.734	0.000	659.734
46	60.00	46.00	714.712	0.000	714.712
47	60.00	47.00	769.690	0.000	769.690
48	60.00	48.00	824.668	0.000	824.668
49	60.00	49.00	879.646	0.000	879.646
50	60.00	50.00	934.624	0.000	934.624
51	60.00	51.00	989.602	0.000	989.602
52	60.00	52.00	1044.580	0.000	1044.580
53	60.00	53.00	1099.557	0.000	1099.557
54	60.00	54.00	1154.535	0.000	1154.535
55	60.00	55.00	1209.513	0.000	1209.513
56	60.00	56.00	1264.491	0.000	1264.491
57	60.00	57.00	1319.469	0.000	1319.469
58	60.00	58.00	1374.447	0.000	1374.447
59	60.00	59.00	1429.425	0.000	1429.425
60	60.00	60.00	1484.403	0.000	1484.403
61	60.00	61.00	1539.380	0.000	1539.380
62	60.00	62.00	1594.358	0.000	1594.358
63	60.00	63.00	1649.336	0.000	1649.336
64	60.00	64.00	1704.314	0.000	1704.314
65	60.00	65.00	1759.292	0.000	1759.292
66	60.00	66.00	1814.270	0.000	1814.270
67	60.00	67.00	1869.248	0.000	1869.248
68	60.00	68.00	1924.226	0.000	1924.226
69	60.00	69.00	1979.203	0.000	1979.203
70	60.00	70.00	2034.181	0.000	2034.181

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000

13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000
16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	5939.288	5939.288
34	60.00	34.00	54.785	8363.210	8417.996
35	60.00	35.00	109.188	5256.334	5365.521
36	60.00	36.00	163.213	4005.921	4169.133
37	60.00	37.00	216.865	3303.645	3520.510
38	60.00	38.00	270.148	2844.878	3115.026
39	60.00	39.00	323.067	2517.748	2840.814
40	60.00	40.00	375.625	2270.690	2646.315
41	60.00	41.00	427.829	2076.363	2504.192
42	60.00	42.00	479.683	1918.806	2398.489
43	60.00	43.00	531.190	1788.025	2319.215
44	60.00	44.00	583.366	1772.918	2356.284
45	60.00	45.00	635.394	1756.865	2392.260
46	60.00	46.00	687.279	1740.213	2427.492
47	60.00	47.00	739.025	1723.204	2462.229
48	60.00	48.00	790.635	1706.011	2496.646
49	60.00	49.00	842.112	1688.760	2530.872
50	60.00	50.00	893.459	1671.540	2564.998
51	60.00	51.00	944.678	1654.416	2599.094
52	60.00	52.00	995.771	1637.436	2633.207
53	60.00	53.00	1046.742	1620.633	2667.375
54	60.00	54.00	1097.593	1604.030	2701.623
55	60.00	55.00	1148.324	1587.645	2735.970
56	60.00	56.00	1198.939	1571.489	2770.428
57	60.00	57.00	1249.439	1555.567	2805.006
58	60.00	58.00	1299.825	1539.884	2839.709
59	60.00	59.00	1350.100	1524.440	2874.540
60	60.00	60.00	1400.265	1509.235	2909.500
61	60.00	61.00	1450.321	1494.267	2944.589
62	60.00	62.00	1500.271	1479.533	2979.803
63	60.00	63.00	1550.114	1465.028	3015.142
64	60.00	64.00	1599.853	1450.750	3050.603
65	60.00	65.00	1649.489	1436.691	3086.180
66	60.00	66.00	1699.023	1422.849	3121.872
67	60.00	67.00	1748.457	1409.217	3157.674
68	60.00	68.00	1797.790	1395.791	3193.581
69	60.00	69.00	1847.026	1382.564	3229.591
70	60.00	70.00	1896.164	1369.533	3265.697

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:28:30

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
281	1.00	-1.00	5.00	72.00	72.00	0.00
282	2.00	-2.00	5.00	72.00	72.00	0.00
283	3.00	-3.00	5.00	72.00	72.00	0.00
284	4.00	-4.00	5.00	72.00	72.00	0.00
285	5.00	-5.00	5.00	72.00	72.00	0.00
286	6.00	-6.00	5.00	72.00	72.00	0.00
287	7.00	-7.00	5.00	72.00	72.00	0.00
288	8.00	-8.00	5.00	72.00	72.00	0.00
289	9.00	-9.00	5.00	72.00	72.00	0.00
290	10.00	-10.00	5.00	72.00	72.00	0.00
291	11.00	-11.00	5.00	72.00	72.00	0.00
292	12.00	-12.00	5.00	72.00	72.00	0.00
293	13.00	-13.00	5.00	72.00	72.00	0.00
294	14.00	-14.00	5.00	72.00	72.00	0.00
295	15.00	-15.00	5.00	72.00	72.00	0.00

296	16.00	-16.00	5.00	72.00	72.00	0.00
297	17.00	-17.00	5.00	72.00	72.00	0.00
298	18.00	-18.00	5.00	72.00	72.00	0.00
299	19.00	-19.00	5.00	72.00	72.00	0.00
300	20.00	-20.00	5.00	72.00	72.00	0.00
301	21.00	-21.00	5.00	72.00	72.00	0.00
302	22.00	-22.00	5.00	72.00	72.00	0.00
303	23.00	-23.00	5.00	72.00	72.00	0.00
304	24.00	-24.00	5.00	72.00	72.00	0.00
305	25.00	-25.00	5.00	72.00	72.00	0.00
306	26.00	-26.00	5.00	72.00	72.00	0.00
307	27.00	-27.00	5.00	72.00	72.00	0.00
308	28.00	-28.00	5.00	72.00	72.00	0.00
309	29.00	-29.00	5.00	72.00	72.00	0.00
310	30.00	-30.00	5.00	72.00	72.00	0.00
311	31.00	-31.00	5.00	72.00	72.00	0.00
312	32.00	-32.00	5.00	72.00	72.00	0.00
313	33.00	-33.00	5.00	72.00	72.00	0.00
314	34.00	-34.00	5.00	72.00	72.00	0.00
315	35.00	-35.00	5.00	72.00	72.00	0.00
316	36.00	-36.00	5.00	72.00	72.00	0.00
317	37.00	-37.00	5.00	72.00	72.00	0.00
318	38.00	-38.00	5.00	72.00	72.00	0.00
319	39.00	-39.00	5.00	72.00	72.00	0.00
320	40.00	-40.00	5.00	72.00	72.00	0.00
321	41.00	-41.00	5.00	72.00	72.00	0.00
322	42.00	-42.00	5.00	72.00	72.00	0.00
323	43.00	-43.00	5.00	72.00	72.00	0.00
324	44.00	-44.00	5.00	72.00	72.00	0.00
325	45.00	-45.00	5.00	72.00	72.00	0.00
326	46.00	-46.00	5.00	72.00	72.00	0.00
327	47.00	-47.00	5.00	72.00	72.00	0.00
328	48.00	-48.00	5.00	72.00	72.00	0.00
329	49.00	-49.00	5.00	72.00	72.00	0.00
330	50.00	-50.00	5.00	72.00	72.00	0.00
331	51.00	-51.00	5.00	72.00	72.00	0.00
332	52.00	-52.00	5.00	72.00	72.00	0.00
333	53.00	-53.00	5.00	72.00	72.00	0.00
334	54.00	-54.00	5.00	72.00	72.00	0.00
335	55.00	-55.00	5.00	72.00	72.00	0.00
336	56.00	-56.00	5.00	72.00	72.00	0.00
337	57.00	-57.00	5.00	72.00	72.00	0.00
338	58.00	-58.00	5.00	72.00	72.00	0.00
339	59.00	-59.00	5.00	72.00	72.00	0.00
340	60.00	-60.00	5.00	72.00	72.00	0.00
341	61.00	-61.00	5.00	72.00	72.00	0.00
342	62.00	-62.00	5.00	72.00	72.00	0.00
343	63.00	-63.00	5.00	72.00	72.00	0.00
344	64.00	-64.00	5.00	72.00	72.00	0.00
345	65.00	-65.00	5.00	72.00	72.00	0.00
346	66.00	-66.00	5.00	72.00	72.00	0.00
347	67.00	-67.00	5.00	72.00	72.00	0.00
348	68.00	-68.00	5.00	72.00	72.00	0.00
349	69.00	-69.00	5.00	72.00	72.00	0.00
350	70.00	-70.00	5.00	72.00	72.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000
13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000

16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	0.000	0.000
34	72.00	34.00	65.973	0.000	65.973
35	72.00	35.00	131.947	0.000	131.947
36	72.00	36.00	197.920	0.000	197.920
37	72.00	37.00	263.894	0.000	263.894
38	72.00	38.00	329.867	0.000	329.867
39	72.00	39.00	395.841	0.000	395.841
40	72.00	40.00	461.814	0.000	461.814
41	72.00	41.00	527.788	0.000	527.788
42	72.00	42.00	593.761	0.000	593.761
43	72.00	43.00	659.734	0.000	659.734
44	72.00	44.00	725.708	0.000	725.708
45	72.00	45.00	791.681	0.000	791.681
46	72.00	46.00	857.655	0.000	857.655
47	72.00	47.00	923.628	0.000	923.628
48	72.00	48.00	989.602	0.000	989.602
49	72.00	49.00	1055.575	0.000	1055.575
50	72.00	50.00	1121.549	0.000	1121.549
51	72.00	51.00	1187.522	0.000	1187.522
52	72.00	52.00	1253.495	0.000	1253.495
53	72.00	53.00	1319.469	0.000	1319.469
54	72.00	54.00	1385.442	0.000	1385.442
55	72.00	55.00	1451.416	0.000	1451.416
56	72.00	56.00	1517.389	0.000	1517.389
57	72.00	57.00	1583.363	0.000	1583.363
58	72.00	58.00	1649.336	0.000	1649.336
59	72.00	59.00	1715.310	0.000	1715.310
60	72.00	60.00	1781.283	0.000	1781.283
61	72.00	61.00	1847.256	0.000	1847.256
62	72.00	62.00	1913.230	0.000	1913.230
63	72.00	63.00	1979.203	0.000	1979.203
64	72.00	64.00	2045.177	0.000	2045.177
65	72.00	65.00	2111.150	0.000	2111.150
66	72.00	66.00	2177.124	0.000	2177.124
67	72.00	67.00	2243.097	0.000	2243.097
68	72.00	68.00	2309.071	0.000	2309.071
69	72.00	69.00	2375.044	0.000	2375.044
70	72.00	70.00	2441.017	0.000	2441.017

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000

13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000
16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	8552.574	8552.574
34	72.00	34.00	65.781	13607.770	13673.550
35	72.00	35.00	131.178	8552.574	8683.752
36	72.00	36.00	196.197	6518.029	6714.225
37	72.00	37.00	260.840	5375.357	5636.197
38	72.00	38.00	325.112	4628.898	4954.010
39	72.00	39.00	389.017	4096.624	4485.641
40	72.00	40.00	452.557	3694.637	4147.195
41	72.00	41.00	515.739	3378.448	3894.187
42	72.00	42.00	578.565	3122.087	3700.652
43	72.00	43.00	641.041	2909.293	3550.334
44	72.00	44.00	703.168	2729.320	3432.488
45	72.00	45.00	764.952	2574.756	3339.708
46	72.00	46.00	827.587	2556.738	3384.325
47	72.00	47.00	890.075	2537.708	3427.783
48	72.00	48.00	952.420	2517.979	3470.399
49	72.00	49.00	1014.625	2497.785	3512.409
50	72.00	50.00	1076.692	2477.300	3553.992
51	72.00	51.00	1138.626	2456.656	3595.282
52	72.00	52.00	1200.428	2435.954	3636.383
53	72.00	53.00	1262.101	2415.271	3677.373
54	72.00	54.00	1323.647	2394.666	3718.313
55	72.00	55.00	1385.068	2374.183	3759.251
56	72.00	56.00	1446.367	2353.856	3800.222
57	72.00	57.00	1507.544	2333.711	3841.255
58	72.00	58.00	1568.602	2313.767	3882.369
59	72.00	59.00	1629.543	2294.038	3923.582
60	72.00	60.00	1690.369	2274.535	3964.903
61	72.00	61.00	1751.080	2255.263	4006.343
62	72.00	62.00	1811.678	2236.229	4047.907
63	72.00	63.00	1872.166	2217.433	4089.598
64	72.00	64.00	1932.543	2198.876	4131.419
65	72.00	65.00	1992.812	2180.559	4173.371
66	72.00	66.00	2052.974	2162.479	4215.454
67	72.00	67.00	2113.030	2144.635	4257.665
68	72.00	68.00	2172.982	2127.023	4300.005
69	72.00	69.00	2232.830	2109.641	4342.471
70	72.00	70.00	2292.576	2092.484	4385.060

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:29:32

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	5.00	42.00	42.00	0.00
2	2.00	-2.00	5.00	42.00	42.00	0.00
3	3.00	-3.00	5.00	42.00	42.00	0.00
4	4.00	-4.00	5.00	42.00	42.00	0.00
5	5.00	-5.00	5.00	42.00	42.00	0.00
6	6.00	-6.00	5.00	42.00	42.00	0.00
7	7.00	-7.00	5.00	42.00	42.00	0.00
8	8.00	-8.00	5.00	42.00	42.00	0.00
9	9.00	-9.00	5.00	42.00	42.00	0.00
10	10.00	-10.00	5.00	42.00	42.00	0.00
11	11.00	-11.00	5.00	42.00	42.00	0.00
12	12.00	-12.00	5.00	42.00	42.00	0.00
13	13.00	-13.00	5.00	42.00	42.00	0.00
14	14.00	-14.00	5.00	42.00	42.00	0.00
15	15.00	-15.00	5.00	42.00	42.00	0.00

16	16.00	-16.00	5.00	42.00	42.00	0.00
17	17.00	-17.00	5.00	42.00	42.00	0.00
18	18.00	-18.00	5.00	42.00	42.00	0.00
19	19.00	-19.00	5.00	42.00	42.00	0.00
20	20.00	-20.00	5.00	42.00	42.00	0.00
21	21.00	-21.00	5.00	42.00	42.00	0.00
22	22.00	-22.00	5.00	42.00	42.00	0.00
23	23.00	-23.00	5.00	42.00	42.00	0.00
24	24.00	-24.00	5.00	42.00	42.00	0.00
25	25.00	-25.00	5.00	42.00	42.00	0.00
26	26.00	-26.00	5.00	42.00	42.00	0.00
27	27.00	-27.00	5.00	42.00	42.00	0.00
28	28.00	-28.00	5.00	42.00	42.00	0.00
29	29.00	-29.00	5.00	42.00	42.00	0.00
30	30.00	-30.00	5.00	42.00	42.00	0.00
31	31.00	-31.00	5.00	42.00	42.00	0.00
32	32.00	-32.00	5.00	42.00	42.00	0.00
33	33.00	-33.00	5.00	42.00	42.00	0.00
34	34.00	-34.00	5.00	42.00	42.00	0.00
35	35.00	-35.00	5.00	42.00	42.00	0.00
36	36.00	-36.00	5.00	42.00	42.00	0.00
37	37.00	-37.00	5.00	42.00	42.00	0.00
38	38.00	-38.00	5.00	42.00	42.00	0.00
39	39.00	-39.00	5.00	42.00	42.00	0.00
40	40.00	-40.00	5.00	42.00	42.00	0.00
41	41.00	-41.00	5.00	42.00	42.00	0.00
42	42.00	-42.00	5.00	42.00	42.00	0.00
43	43.00	-43.00	5.00	42.00	42.00	0.00
44	44.00	-44.00	5.00	42.00	42.00	0.00
45	45.00	-45.00	5.00	42.00	42.00	0.00
46	46.00	-46.00	5.00	42.00	42.00	0.00
47	47.00	-47.00	5.00	42.00	42.00	0.00
48	48.00	-48.00	5.00	42.00	42.00	0.00
49	49.00	-49.00	5.00	42.00	42.00	0.00
50	50.00	-50.00	5.00	42.00	42.00	0.00
51	51.00	-51.00	5.00	42.00	42.00	0.00
52	52.00	-52.00	5.00	42.00	42.00	0.00
53	53.00	-53.00	5.00	42.00	42.00	0.00
54	54.00	-54.00	5.00	42.00	42.00	0.00
55	55.00	-55.00	5.00	42.00	42.00	0.00
56	56.00	-56.00	5.00	42.00	42.00	0.00
57	57.00	-57.00	5.00	42.00	42.00	0.00
58	58.00	-58.00	5.00	42.00	42.00	0.00
59	59.00	-59.00	5.00	42.00	42.00	0.00
60	60.00	-60.00	5.00	42.00	42.00	0.00
61	61.00	-61.00	5.00	42.00	42.00	0.00
62	62.00	-62.00	5.00	42.00	42.00	0.00
63	63.00	-63.00	5.00	42.00	42.00	0.00
64	64.00	-64.00	5.00	42.00	42.00	0.00
65	65.00	-65.00	5.00	42.00	42.00	0.00
66	66.00	-66.00	5.00	42.00	42.00	0.00
67	67.00	-67.00	5.00	42.00	42.00	0.00
68	68.00	-68.00	5.00	42.00	42.00	0.00
69	69.00	-69.00	5.00	42.00	42.00	0.00
70	70.00	-70.00	5.00	42.00	42.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000
13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000

16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	0.000	0.000
34	42.00	34.00	38.485	0.000	38.485
35	42.00	35.00	76.969	0.000	76.969
36	42.00	36.00	115.454	0.000	115.454
37	42.00	37.00	153.938	0.000	153.938
38	42.00	38.00	192.423	0.000	192.423
39	42.00	39.00	230.907	0.000	230.907
40	42.00	40.00	269.392	0.000	269.392
41	42.00	41.00	307.876	0.000	307.876
42	42.00	42.00	346.361	0.000	346.361
43	42.00	43.00	384.845	0.000	384.845
44	42.00	44.00	423.330	0.000	423.330
45	42.00	45.00	461.814	0.000	461.814
46	42.00	46.00	500.299	0.000	500.299
47	42.00	47.00	538.783	0.000	538.783
48	42.00	48.00	577.268	0.000	577.268
49	42.00	49.00	615.752	0.000	615.752
50	42.00	50.00	654.237	0.000	654.237
51	42.00	51.00	692.721	0.000	692.721
52	42.00	52.00	731.206	0.000	731.206
53	42.00	53.00	769.690	0.000	769.690
54	42.00	54.00	808.175	0.000	808.175
55	42.00	55.00	846.659	0.000	846.659
56	42.00	56.00	885.144	0.000	885.144
57	42.00	57.00	923.628	0.000	923.628
58	42.00	58.00	962.113	0.000	962.113
59	42.00	59.00	1000.597	0.000	1000.597
60	42.00	60.00	1039.082	0.000	1039.082
61	42.00	61.00	1077.566	0.000	1077.566
62	42.00	62.00	1116.051	0.000	1116.051
63	42.00	63.00	1154.535	0.000	1154.535
64	42.00	64.00	1193.020	0.000	1193.020
65	42.00	65.00	1231.504	0.000	1231.504
66	42.00	66.00	1269.989	0.000	1269.989
67	42.00	67.00	1308.473	0.000	1308.473
68	42.00	68.00	1346.958	0.000	1346.958
69	42.00	69.00	1385.442	0.000	1385.442
70	42.00	70.00	1423.927	0.000	1423.927

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000

13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000
16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	2910.251	2910.251
34	42.00	34.00	38.292	3226.895	3265.187
35	42.00	35.00	76.203	2028.125	2104.328
36	42.00	36.00	113.740	1545.660	1659.401
37	42.00	37.00	150.909	1274.692	1425.601
38	42.00	38.00	187.716	1097.679	1285.395
39	42.00	39.00	224.166	971.458	1195.624
40	42.00	40.00	260.265	876.132	1136.398
41	42.00	41.00	296.758	865.404	1162.162
42	42.00	42.00	333.103	853.883	1186.986
43	42.00	43.00	369.306	841.969	1211.275
44	42.00	44.00	405.373	829.908	1235.280
45	42.00	45.00	441.306	817.852	1259.158
46	42.00	46.00	477.109	805.900	1283.009
47	42.00	47.00	512.786	794.110	1306.896
48	42.00	48.00	548.340	782.521	1330.861
49	42.00	49.00	583.774	771.153	1354.927
50	42.00	50.00	619.090	760.020	1379.110
51	42.00	51.00	654.290	749.126	1403.416
52	42.00	52.00	689.377	738.470	1427.847
53	42.00	53.00	724.352	728.051	1452.404
54	42.00	54.00	759.218	717.864	1477.082
55	42.00	55.00	793.977	707.902	1501.879
56	42.00	56.00	828.630	698.159	1526.789
57	42.00	57.00	863.179	688.627	1551.805
58	42.00	58.00	897.625	679.298	1576.923
59	42.00	59.00	931.970	670.166	1602.137
60	42.00	60.00	966.216	661.223	1627.439
61	42.00	61.00	1000.364	652.461	1652.825
62	42.00	62.00	1034.414	643.874	1678.288
63	42.00	63.00	1068.370	635.454	1703.824
64	42.00	64.00	1102.231	627.195	1729.425
65	42.00	65.00	1135.998	619.090	1755.088
66	42.00	66.00	1169.674	611.133	1780.808
67	42.00	67.00	1203.259	603.319	1806.579
68	42.00	68.00	1236.755	595.643	1832.397
69	42.00	69.00	1270.161	588.097	1858.259
70	42.00	70.00	1303.480	580.679	1884.159

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:29:45

General Information:
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Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
Boring date: 8/20/2021
Boring number: BR-2
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = -6.20(ft)

Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
71	1.00	-1.00	5.00	48.00	48.00	0.00
72	2.00	-2.00	5.00	48.00	48.00	0.00
73	3.00	-3.00	5.00	48.00	48.00	0.00
74	4.00	-4.00	5.00	48.00	48.00	0.00
75	5.00	-5.00	5.00	48.00	48.00	0.00
76	6.00	-6.00	5.00	48.00	48.00	0.00
77	7.00	-7.00	5.00	48.00	48.00	0.00
78	8.00	-8.00	5.00	48.00	48.00	0.00
79	9.00	-9.00	5.00	48.00	48.00	0.00
80	10.00	-10.00	5.00	48.00	48.00	0.00
81	11.00	-11.00	5.00	48.00	48.00	0.00
82	12.00	-12.00	5.00	48.00	48.00	0.00
83	13.00	-13.00	5.00	48.00	48.00	0.00
84	14.00	-14.00	5.00	48.00	48.00	0.00
85	15.00	-15.00	5.00	48.00	48.00	0.00

86	16.00	-16.00	5.00	48.00	48.00	0.00
87	17.00	-17.00	5.00	48.00	48.00	0.00
88	18.00	-18.00	5.00	48.00	48.00	0.00
89	19.00	-19.00	5.00	48.00	48.00	0.00
90	20.00	-20.00	5.00	48.00	48.00	0.00
91	21.00	-21.00	5.00	48.00	48.00	0.00
92	22.00	-22.00	5.00	48.00	48.00	0.00
93	23.00	-23.00	5.00	48.00	48.00	0.00
94	24.00	-24.00	5.00	48.00	48.00	0.00
95	25.00	-25.00	5.00	48.00	48.00	0.00
96	26.00	-26.00	5.00	48.00	48.00	0.00
97	27.00	-27.00	5.00	48.00	48.00	0.00
98	28.00	-28.00	5.00	48.00	48.00	0.00
99	29.00	-29.00	5.00	48.00	48.00	0.00
100	30.00	-30.00	5.00	48.00	48.00	0.00
101	31.00	-31.00	5.00	48.00	48.00	0.00
102	32.00	-32.00	5.00	48.00	48.00	0.00
103	33.00	-33.00	5.00	48.00	48.00	0.00
104	34.00	-34.00	5.00	48.00	48.00	0.00
105	35.00	-35.00	5.00	48.00	48.00	0.00
106	36.00	-36.00	5.00	48.00	48.00	0.00
107	37.00	-37.00	5.00	48.00	48.00	0.00
108	38.00	-38.00	5.00	48.00	48.00	0.00
109	39.00	-39.00	5.00	48.00	48.00	0.00
110	40.00	-40.00	5.00	48.00	48.00	0.00
111	41.00	-41.00	5.00	48.00	48.00	0.00
112	42.00	-42.00	5.00	48.00	48.00	0.00
113	43.00	-43.00	5.00	48.00	48.00	0.00
114	44.00	-44.00	5.00	48.00	48.00	0.00
115	45.00	-45.00	5.00	48.00	48.00	0.00
116	46.00	-46.00	5.00	48.00	48.00	0.00
117	47.00	-47.00	5.00	48.00	48.00	0.00
118	48.00	-48.00	5.00	48.00	48.00	0.00
119	49.00	-49.00	5.00	48.00	48.00	0.00
120	50.00	-50.00	5.00	48.00	48.00	0.00
121	51.00	-51.00	5.00	48.00	48.00	0.00
122	52.00	-52.00	5.00	48.00	48.00	0.00
123	53.00	-53.00	5.00	48.00	48.00	0.00
124	54.00	-54.00	5.00	48.00	48.00	0.00
125	55.00	-55.00	5.00	48.00	48.00	0.00
126	56.00	-56.00	5.00	48.00	48.00	0.00
127	57.00	-57.00	5.00	48.00	48.00	0.00
128	58.00	-58.00	5.00	48.00	48.00	0.00
129	59.00	-59.00	5.00	48.00	48.00	0.00
130	60.00	-60.00	5.00	48.00	48.00	0.00
131	61.00	-61.00	5.00	48.00	48.00	0.00
132	62.00	-62.00	5.00	48.00	48.00	0.00
133	63.00	-63.00	5.00	48.00	48.00	0.00
134	64.00	-64.00	5.00	48.00	48.00	0.00
135	65.00	-65.00	5.00	48.00	48.00	0.00
136	66.00	-66.00	5.00	48.00	48.00	0.00
137	67.00	-67.00	5.00	48.00	48.00	0.00
138	68.00	-68.00	5.00	48.00	48.00	0.00
139	69.00	-69.00	5.00	48.00	48.00	0.00
140	70.00	-70.00	5.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000
13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000

16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	0.000	0.000
34	48.00	34.00	43.982	0.000	43.982
35	48.00	35.00	87.965	0.000	87.965
36	48.00	36.00	131.947	0.000	131.947
37	48.00	37.00	175.929	0.000	175.929
38	48.00	38.00	219.911	0.000	219.911
39	48.00	39.00	263.894	0.000	263.894
40	48.00	40.00	307.876	0.000	307.876
41	48.00	41.00	351.858	0.000	351.858
42	48.00	42.00	395.841	0.000	395.841
43	48.00	43.00	439.823	0.000	439.823
44	48.00	44.00	483.805	0.000	483.805
45	48.00	45.00	527.788	0.000	527.788
46	48.00	46.00	571.770	0.000	571.770
47	48.00	47.00	615.752	0.000	615.752
48	48.00	48.00	659.734	0.000	659.734
49	48.00	49.00	703.717	0.000	703.717
50	48.00	50.00	747.699	0.000	747.699
51	48.00	51.00	791.681	0.000	791.681
52	48.00	52.00	835.664	0.000	835.664
53	48.00	53.00	879.646	0.000	879.646
54	48.00	54.00	923.628	0.000	923.628
55	48.00	55.00	967.611	0.000	967.611
56	48.00	56.00	1011.593	0.000	1011.593
57	48.00	57.00	1055.575	0.000	1055.575
58	48.00	58.00	1099.557	0.000	1099.557
59	48.00	59.00	1143.540	0.000	1143.540
60	48.00	60.00	1187.522	0.000	1187.522
61	48.00	61.00	1231.504	0.000	1231.504
62	48.00	62.00	1275.487	0.000	1275.487
63	48.00	63.00	1319.469	0.000	1319.469
64	48.00	64.00	1363.451	0.000	1363.451
65	48.00	65.00	1407.434	0.000	1407.434
66	48.00	66.00	1451.416	0.000	1451.416
67	48.00	67.00	1495.398	0.000	1495.398
68	48.00	68.00	1539.380	0.000	1539.380
69	48.00	69.00	1583.363	0.000	1583.363
70	48.00	70.00	1627.345	0.000	1627.345

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000

13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000
16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	3801.144	3801.144
34	48.00	34.00	43.790	4609.176	4652.966
35	48.00	35.00	87.198	2896.898	2984.096
36	48.00	36.00	130.231	2207.764	2337.994
37	48.00	37.00	172.893	1820.722	1993.615
38	48.00	38.00	215.190	1567.884	1783.074
39	48.00	39.00	257.128	1387.594	1644.722
40	48.00	40.00	298.711	1251.435	1550.146
41	48.00	41.00	339.946	1144.336	1484.282
42	48.00	42.00	381.665	1132.146	1513.811
43	48.00	43.00	423.237	1119.102	1542.339
44	48.00	44.00	464.667	1105.586	1570.253
45	48.00	45.00	505.958	1091.847	1597.805
46	48.00	46.00	547.115	1078.047	1625.162
47	48.00	47.00	588.141	1064.296	1652.437
48	48.00	48.00	629.039	1050.666	1679.705
49	48.00	49.00	669.812	1037.205	1707.017
50	48.00	50.00	710.463	1023.944	1734.407
51	48.00	51.00	750.994	1010.904	1761.898
52	48.00	52.00	791.407	998.096	1789.503
53	48.00	53.00	831.704	985.526	1817.230
54	48.00	54.00	871.889	973.195	1845.083
55	48.00	55.00	911.961	961.102	1873.063
56	48.00	56.00	951.924	949.245	1901.168
57	48.00	57.00	991.778	937.618	1929.397
58	48.00	58.00	1031.527	926.217	1957.744
59	48.00	59.00	1071.170	915.036	1986.206
60	48.00	60.00	1110.710	904.068	2014.777
61	48.00	61.00	1150.148	893.306	2043.454
62	48.00	62.00	1189.485	882.745	2072.229
63	48.00	63.00	1228.723	872.377	2101.099
64	48.00	64.00	1267.863	862.195	2130.058
65	48.00	65.00	1306.906	852.195	2159.100
66	48.00	66.00	1345.853	842.368	2188.221
67	48.00	67.00	1384.706	832.710	2217.416
68	48.00	68.00	1423.466	823.214	2246.680
69	48.00	69.00	1462.133	813.875	2276.009
70	48.00	70.00	1500.710	804.688	2305.397

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:29:57

General Information:
==========
Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
Boring date: 8/20/2021
Boring number: BR-2
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = -6.20(ft)

Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
141	1.00	-1.00	5.00	54.00	54.00	0.00
142	2.00	-2.00	5.00	54.00	54.00	0.00
143	3.00	-3.00	5.00	54.00	54.00	0.00
144	4.00	-4.00	5.00	54.00	54.00	0.00
145	5.00	-5.00	5.00	54.00	54.00	0.00
146	6.00	-6.00	5.00	54.00	54.00	0.00
147	7.00	-7.00	5.00	54.00	54.00	0.00
148	8.00	-8.00	5.00	54.00	54.00	0.00
149	9.00	-9.00	5.00	54.00	54.00	0.00
150	10.00	-10.00	5.00	54.00	54.00	0.00
151	11.00	-11.00	5.00	54.00	54.00	0.00
152	12.00	-12.00	5.00	54.00	54.00	0.00
153	13.00	-13.00	5.00	54.00	54.00	0.00
154	14.00	-14.00	5.00	54.00	54.00	0.00
155	15.00	-15.00	5.00	54.00	54.00	0.00

156	16.00	-16.00	5.00	54.00	54.00	0.00
157	17.00	-17.00	5.00	54.00	54.00	0.00
158	18.00	-18.00	5.00	54.00	54.00	0.00
159	19.00	-19.00	5.00	54.00	54.00	0.00
160	20.00	-20.00	5.00	54.00	54.00	0.00
161	21.00	-21.00	5.00	54.00	54.00	0.00
162	22.00	-22.00	5.00	54.00	54.00	0.00
163	23.00	-23.00	5.00	54.00	54.00	0.00
164	24.00	-24.00	5.00	54.00	54.00	0.00
165	25.00	-25.00	5.00	54.00	54.00	0.00
166	26.00	-26.00	5.00	54.00	54.00	0.00
167	27.00	-27.00	5.00	54.00	54.00	0.00
168	28.00	-28.00	5.00	54.00	54.00	0.00
169	29.00	-29.00	5.00	54.00	54.00	0.00
170	30.00	-30.00	5.00	54.00	54.00	0.00
171	31.00	-31.00	5.00	54.00	54.00	0.00
172	32.00	-32.00	5.00	54.00	54.00	0.00
173	33.00	-33.00	5.00	54.00	54.00	0.00
174	34.00	-34.00	5.00	54.00	54.00	0.00
175	35.00	-35.00	5.00	54.00	54.00	0.00
176	36.00	-36.00	5.00	54.00	54.00	0.00
177	37.00	-37.00	5.00	54.00	54.00	0.00
178	38.00	-38.00	5.00	54.00	54.00	0.00
179	39.00	-39.00	5.00	54.00	54.00	0.00
180	40.00	-40.00	5.00	54.00	54.00	0.00
181	41.00	-41.00	5.00	54.00	54.00	0.00
182	42.00	-42.00	5.00	54.00	54.00	0.00
183	43.00	-43.00	5.00	54.00	54.00	0.00
184	44.00	-44.00	5.00	54.00	54.00	0.00
185	45.00	-45.00	5.00	54.00	54.00	0.00
186	46.00	-46.00	5.00	54.00	54.00	0.00
187	47.00	-47.00	5.00	54.00	54.00	0.00
188	48.00	-48.00	5.00	54.00	54.00	0.00
189	49.00	-49.00	5.00	54.00	54.00	0.00
190	50.00	-50.00	5.00	54.00	54.00	0.00
191	51.00	-51.00	5.00	54.00	54.00	0.00
192	52.00	-52.00	5.00	54.00	54.00	0.00
193	53.00	-53.00	5.00	54.00	54.00	0.00
194	54.00	-54.00	5.00	54.00	54.00	0.00
195	55.00	-55.00	5.00	54.00	54.00	0.00
196	56.00	-56.00	5.00	54.00	54.00	0.00
197	57.00	-57.00	5.00	54.00	54.00	0.00
198	58.00	-58.00	5.00	54.00	54.00	0.00
199	59.00	-59.00	5.00	54.00	54.00	0.00
200	60.00	-60.00	5.00	54.00	54.00	0.00
201	61.00	-61.00	5.00	54.00	54.00	0.00
202	62.00	-62.00	5.00	54.00	54.00	0.00
203	63.00	-63.00	5.00	54.00	54.00	0.00
204	64.00	-64.00	5.00	54.00	54.00	0.00
205	65.00	-65.00	5.00	54.00	54.00	0.00
206	66.00	-66.00	5.00	54.00	54.00	0.00
207	67.00	-67.00	5.00	54.00	54.00	0.00
208	68.00	-68.00	5.00	54.00	54.00	0.00
209	69.00	-69.00	5.00	54.00	54.00	0.00
210	70.00	-70.00	5.00	54.00	54.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000
13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000

16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	0.000	0.000
34	54.00	34.00	49.480	0.000	49.480
35	54.00	35.00	98.960	0.000	98.960
36	54.00	36.00	148.440	0.000	148.440
37	54.00	37.00	197.920	0.000	197.920
38	54.00	38.00	247.400	0.000	247.400
39	54.00	39.00	296.881	0.000	296.881
40	54.00	40.00	346.361	0.000	346.361
41	54.00	41.00	395.841	0.000	395.841
42	54.00	42.00	445.321	0.000	445.321
43	54.00	43.00	494.801	0.000	494.801
44	54.00	44.00	544.281	0.000	544.281
45	54.00	45.00	593.761	0.000	593.761
46	54.00	46.00	643.241	0.000	643.241
47	54.00	47.00	692.721	0.000	692.721
48	54.00	48.00	742.201	0.000	742.201
49	54.00	49.00	791.681	0.000	791.681
50	54.00	50.00	841.161	0.000	841.161
51	54.00	51.00	890.642	0.000	890.642
52	54.00	52.00	940.122	0.000	940.122
53	54.00	53.00	989.602	0.000	989.602
54	54.00	54.00	1039.082	0.000	1039.082
55	54.00	55.00	1088.562	0.000	1088.562
56	54.00	56.00	1138.042	0.000	1138.042
57	54.00	57.00	1187.522	0.000	1187.522
58	54.00	58.00	1237.002	0.000	1237.002
59	54.00	59.00	1286.482	0.000	1286.482
60	54.00	60.00	1335.962	0.000	1335.962
61	54.00	61.00	1385.442	0.000	1385.442
62	54.00	62.00	1434.922	0.000	1434.922
63	54.00	63.00	1484.403	0.000	1484.403
64	54.00	64.00	1533.883	0.000	1533.883
65	54.00	65.00	1583.363	0.000	1583.363
66	54.00	66.00	1632.843	0.000	1632.843
67	54.00	67.00	1682.323	0.000	1682.323
68	54.00	68.00	1731.803	0.000	1731.803
69	54.00	69.00	1781.283	0.000	1781.283
70	54.00	70.00	1830.763	0.000	1830.763

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000

13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000
16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	4810.823	4810.823
34	54.00	34.00	49.287	6312.487	6361.775
35	54.00	35.00	98.193	3967.441	4065.633
36	54.00	36.00	146.721	3023.638	3170.360
37	54.00	37.00	194.878	2493.566	2688.444
38	54.00	38.00	242.668	2147.292	2389.960
39	54.00	39.00	290.095	1900.377	2190.472
40	54.00	40.00	337.165	1713.900	2051.065
41	54.00	41.00	383.883	1567.223	1951.106
42	54.00	42.00	430.254	1448.300	1878.554
43	54.00	43.00	477.201	1434.651	1911.852
44	54.00	44.00	524.001	1420.097	1944.098
45	54.00	45.00	570.658	1405.004	1975.662
46	54.00	46.00	617.176	1389.617	2006.793
47	54.00	47.00	663.558	1374.107	2037.665
48	54.00	48.00	709.809	1358.590	2068.399
49	54.00	49.00	755.930	1343.150	2099.080
50	54.00	50.00	801.925	1327.845	2129.770
51	54.00	51.00	847.796	1312.712	2160.508
52	54.00	52.00	893.545	1297.781	2191.326
53	54.00	53.00	939.175	1283.068	2222.244
54	54.00	54.00	984.688	1268.586	2253.274
55	54.00	55.00	1030.086	1254.339	2284.425
56	54.00	56.00	1075.370	1240.332	2315.702
57	54.00	57.00	1120.542	1226.564	2347.107
58	54.00	58.00	1165.605	1213.034	2378.639
59	54.00	59.00	1210.559	1199.738	2410.297
60	54.00	60.00	1255.406	1186.673	2442.079
61	54.00	61.00	1300.147	1173.833	2473.980
62	54.00	62.00	1344.785	1161.213	2505.998
63	54.00	63.00	1389.320	1148.808	2538.128
64	54.00	64.00	1433.753	1136.612	2570.366
65	54.00	65.00	1478.087	1124.619	2602.706
66	54.00	66.00	1522.321	1112.823	2635.144
67	54.00	67.00	1566.458	1101.218	2667.676
68	54.00	68.00	1610.499	1089.798	2700.297
69	54.00	69.00	1654.444	1078.559	2733.002
70	54.00	70.00	1698.294	1067.493	2765.787

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:30:09

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: Drilled Shaft Analysis

Soil Information:
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  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
211	1.00	-1.00	5.00	60.00	60.00	0.00
212	2.00	-2.00	5.00	60.00	60.00	0.00
213	3.00	-3.00	5.00	60.00	60.00	0.00
214	4.00	-4.00	5.00	60.00	60.00	0.00
215	5.00	-5.00	5.00	60.00	60.00	0.00
216	6.00	-6.00	5.00	60.00	60.00	0.00
217	7.00	-7.00	5.00	60.00	60.00	0.00
218	8.00	-8.00	5.00	60.00	60.00	0.00
219	9.00	-9.00	5.00	60.00	60.00	0.00
220	10.00	-10.00	5.00	60.00	60.00	0.00
221	11.00	-11.00	5.00	60.00	60.00	0.00
222	12.00	-12.00	5.00	60.00	60.00	0.00
223	13.00	-13.00	5.00	60.00	60.00	0.00
224	14.00	-14.00	5.00	60.00	60.00	0.00
225	15.00	-15.00	5.00	60.00	60.00	0.00

226	16.00	-16.00	5.00	60.00	60.00	0.00
227	17.00	-17.00	5.00	60.00	60.00	0.00
228	18.00	-18.00	5.00	60.00	60.00	0.00
229	19.00	-19.00	5.00	60.00	60.00	0.00
230	20.00	-20.00	5.00	60.00	60.00	0.00
231	21.00	-21.00	5.00	60.00	60.00	0.00
232	22.00	-22.00	5.00	60.00	60.00	0.00
233	23.00	-23.00	5.00	60.00	60.00	0.00
234	24.00	-24.00	5.00	60.00	60.00	0.00
235	25.00	-25.00	5.00	60.00	60.00	0.00
236	26.00	-26.00	5.00	60.00	60.00	0.00
237	27.00	-27.00	5.00	60.00	60.00	0.00
238	28.00	-28.00	5.00	60.00	60.00	0.00
239	29.00	-29.00	5.00	60.00	60.00	0.00
240	30.00	-30.00	5.00	60.00	60.00	0.00
241	31.00	-31.00	5.00	60.00	60.00	0.00
242	32.00	-32.00	5.00	60.00	60.00	0.00
243	33.00	-33.00	5.00	60.00	60.00	0.00
244	34.00	-34.00	5.00	60.00	60.00	0.00
245	35.00	-35.00	5.00	60.00	60.00	0.00
246	36.00	-36.00	5.00	60.00	60.00	0.00
247	37.00	-37.00	5.00	60.00	60.00	0.00
248	38.00	-38.00	5.00	60.00	60.00	0.00
249	39.00	-39.00	5.00	60.00	60.00	0.00
250	40.00	-40.00	5.00	60.00	60.00	0.00
251	41.00	-41.00	5.00	60.00	60.00	0.00
252	42.00	-42.00	5.00	60.00	60.00	0.00
253	43.00	-43.00	5.00	60.00	60.00	0.00
254	44.00	-44.00	5.00	60.00	60.00	0.00
255	45.00	-45.00	5.00	60.00	60.00	0.00
256	46.00	-46.00	5.00	60.00	60.00	0.00
257	47.00	-47.00	5.00	60.00	60.00	0.00
258	48.00	-48.00	5.00	60.00	60.00	0.00
259	49.00	-49.00	5.00	60.00	60.00	0.00
260	50.00	-50.00	5.00	60.00	60.00	0.00
261	51.00	-51.00	5.00	60.00	60.00	0.00
262	52.00	-52.00	5.00	60.00	60.00	0.00
263	53.00	-53.00	5.00	60.00	60.00	0.00
264	54.00	-54.00	5.00	60.00	60.00	0.00
265	55.00	-55.00	5.00	60.00	60.00	0.00
266	56.00	-56.00	5.00	60.00	60.00	0.00
267	57.00	-57.00	5.00	60.00	60.00	0.00
268	58.00	-58.00	5.00	60.00	60.00	0.00
269	59.00	-59.00	5.00	60.00	60.00	0.00
270	60.00	-60.00	5.00	60.00	60.00	0.00
271	61.00	-61.00	5.00	60.00	60.00	0.00
272	62.00	-62.00	5.00	60.00	60.00	0.00
273	63.00	-63.00	5.00	60.00	60.00	0.00
274	64.00	-64.00	5.00	60.00	60.00	0.00
275	65.00	-65.00	5.00	60.00	60.00	0.00
276	66.00	-66.00	5.00	60.00	60.00	0.00
277	67.00	-67.00	5.00	60.00	60.00	0.00
278	68.00	-68.00	5.00	60.00	60.00	0.00
279	69.00	-69.00	5.00	60.00	60.00	0.00
280	70.00	-70.00	5.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000
13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000

16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	0.000	0.000
34	60.00	34.00	54.978	0.000	54.978
35	60.00	35.00	109.956	0.000	109.956
36	60.00	36.00	164.934	0.000	164.934
37	60.00	37.00	219.911	0.000	219.911
38	60.00	38.00	274.889	0.000	274.889
39	60.00	39.00	329.867	0.000	329.867
40	60.00	40.00	384.845	0.000	384.845
41	60.00	41.00	439.823	0.000	439.823
42	60.00	42.00	494.801	0.000	494.801
43	60.00	43.00	549.779	0.000	549.779
44	60.00	44.00	604.757	0.000	604.757
45	60.00	45.00	659.734	0.000	659.734
46	60.00	46.00	714.712	0.000	714.712
47	60.00	47.00	769.690	0.000	769.690
48	60.00	48.00	824.668	0.000	824.668
49	60.00	49.00	879.646	0.000	879.646
50	60.00	50.00	934.624	0.000	934.624
51	60.00	51.00	989.602	0.000	989.602
52	60.00	52.00	1044.580	0.000	1044.580
53	60.00	53.00	1099.557	0.000	1099.557
54	60.00	54.00	1154.535	0.000	1154.535
55	60.00	55.00	1209.513	0.000	1209.513
56	60.00	56.00	1264.491	0.000	1264.491
57	60.00	57.00	1319.469	0.000	1319.469
58	60.00	58.00	1374.447	0.000	1374.447
59	60.00	59.00	1429.425	0.000	1429.425
60	60.00	60.00	1484.403	0.000	1484.403
61	60.00	61.00	1539.380	0.000	1539.380
62	60.00	62.00	1594.358	0.000	1594.358
63	60.00	63.00	1649.336	0.000	1649.336
64	60.00	64.00	1704.314	0.000	1704.314
65	60.00	65.00	1759.292	0.000	1759.292
66	60.00	66.00	1814.270	0.000	1814.270
67	60.00	67.00	1869.248	0.000	1869.248
68	60.00	68.00	1924.226	0.000	1924.226
69	60.00	69.00	1979.203	0.000	1979.203
70	60.00	70.00	2034.181	0.000	2034.181

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000

13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000
16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	5939.288	5939.288
34	60.00	34.00	54.785	8363.210	8417.996
35	60.00	35.00	109.188	5256.334	5365.521
36	60.00	36.00	163.213	4005.921	4169.133
37	60.00	37.00	216.865	3303.645	3520.510
38	60.00	38.00	270.148	2844.878	3115.026
39	60.00	39.00	323.067	2517.748	2840.814
40	60.00	40.00	375.625	2270.690	2646.315
41	60.00	41.00	427.829	2076.363	2504.192
42	60.00	42.00	479.683	1918.806	2398.489
43	60.00	43.00	531.190	1788.025	2319.215
44	60.00	44.00	583.366	1772.918	2356.284
45	60.00	45.00	635.394	1756.865	2392.260
46	60.00	46.00	687.279	1740.213	2427.492
47	60.00	47.00	739.025	1723.204	2462.229
48	60.00	48.00	790.635	1706.011	2496.646
49	60.00	49.00	842.112	1688.760	2530.872
50	60.00	50.00	893.459	1671.540	2564.998
51	60.00	51.00	944.678	1654.416	2599.094
52	60.00	52.00	995.771	1637.436	2633.207
53	60.00	53.00	1046.742	1620.633	2667.375
54	60.00	54.00	1097.593	1604.030	2701.623
55	60.00	55.00	1148.324	1587.645	2735.970
56	60.00	56.00	1198.939	1571.489	2770.428
57	60.00	57.00	1249.439	1555.567	2805.006
58	60.00	58.00	1299.825	1539.884	2839.709
59	60.00	59.00	1350.100	1524.440	2874.540
60	60.00	60.00	1400.265	1509.235	2909.500
61	60.00	61.00	1450.321	1494.267	2944.589
62	60.00	62.00	1500.271	1479.533	2979.803
63	60.00	63.00	1550.114	1465.028	3015.142
64	60.00	64.00	1599.853	1450.750	3050.603
65	60.00	65.00	1649.489	1436.691	3086.180
66	60.00	66.00	1699.023	1422.849	3121.872
67	60.00	67.00	1748.457	1409.217	3157.674
68	60.00	68.00	1797.790	1395.791	3193.581
69	60.00	69.00	1847.026	1382.564	3229.591
70	60.00	70.00	1896.164	1369.533	3265.697

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:30:20

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
281	1.00	-1.00	5.00	72.00	72.00	0.00
282	2.00	-2.00	5.00	72.00	72.00	0.00
283	3.00	-3.00	5.00	72.00	72.00	0.00
284	4.00	-4.00	5.00	72.00	72.00	0.00
285	5.00	-5.00	5.00	72.00	72.00	0.00
286	6.00	-6.00	5.00	72.00	72.00	0.00
287	7.00	-7.00	5.00	72.00	72.00	0.00
288	8.00	-8.00	5.00	72.00	72.00	0.00
289	9.00	-9.00	5.00	72.00	72.00	0.00
290	10.00	-10.00	5.00	72.00	72.00	0.00
291	11.00	-11.00	5.00	72.00	72.00	0.00
292	12.00	-12.00	5.00	72.00	72.00	0.00
293	13.00	-13.00	5.00	72.00	72.00	0.00
294	14.00	-14.00	5.00	72.00	72.00	0.00
295	15.00	-15.00	5.00	72.00	72.00	0.00

296	16.00	-16.00	5.00	72.00	72.00	0.00
297	17.00	-17.00	5.00	72.00	72.00	0.00
298	18.00	-18.00	5.00	72.00	72.00	0.00
299	19.00	-19.00	5.00	72.00	72.00	0.00
300	20.00	-20.00	5.00	72.00	72.00	0.00
301	21.00	-21.00	5.00	72.00	72.00	0.00
302	22.00	-22.00	5.00	72.00	72.00	0.00
303	23.00	-23.00	5.00	72.00	72.00	0.00
304	24.00	-24.00	5.00	72.00	72.00	0.00
305	25.00	-25.00	5.00	72.00	72.00	0.00
306	26.00	-26.00	5.00	72.00	72.00	0.00
307	27.00	-27.00	5.00	72.00	72.00	0.00
308	28.00	-28.00	5.00	72.00	72.00	0.00
309	29.00	-29.00	5.00	72.00	72.00	0.00
310	30.00	-30.00	5.00	72.00	72.00	0.00
311	31.00	-31.00	5.00	72.00	72.00	0.00
312	32.00	-32.00	5.00	72.00	72.00	0.00
313	33.00	-33.00	5.00	72.00	72.00	0.00
314	34.00	-34.00	5.00	72.00	72.00	0.00
315	35.00	-35.00	5.00	72.00	72.00	0.00
316	36.00	-36.00	5.00	72.00	72.00	0.00
317	37.00	-37.00	5.00	72.00	72.00	0.00
318	38.00	-38.00	5.00	72.00	72.00	0.00
319	39.00	-39.00	5.00	72.00	72.00	0.00
320	40.00	-40.00	5.00	72.00	72.00	0.00
321	41.00	-41.00	5.00	72.00	72.00	0.00
322	42.00	-42.00	5.00	72.00	72.00	0.00
323	43.00	-43.00	5.00	72.00	72.00	0.00
324	44.00	-44.00	5.00	72.00	72.00	0.00
325	45.00	-45.00	5.00	72.00	72.00	0.00
326	46.00	-46.00	5.00	72.00	72.00	0.00
327	47.00	-47.00	5.00	72.00	72.00	0.00
328	48.00	-48.00	5.00	72.00	72.00	0.00
329	49.00	-49.00	5.00	72.00	72.00	0.00
330	50.00	-50.00	5.00	72.00	72.00	0.00
331	51.00	-51.00	5.00	72.00	72.00	0.00
332	52.00	-52.00	5.00	72.00	72.00	0.00
333	53.00	-53.00	5.00	72.00	72.00	0.00
334	54.00	-54.00	5.00	72.00	72.00	0.00
335	55.00	-55.00	5.00	72.00	72.00	0.00
336	56.00	-56.00	5.00	72.00	72.00	0.00
337	57.00	-57.00	5.00	72.00	72.00	0.00
338	58.00	-58.00	5.00	72.00	72.00	0.00
339	59.00	-59.00	5.00	72.00	72.00	0.00
340	60.00	-60.00	5.00	72.00	72.00	0.00
341	61.00	-61.00	5.00	72.00	72.00	0.00
342	62.00	-62.00	5.00	72.00	72.00	0.00
343	63.00	-63.00	5.00	72.00	72.00	0.00
344	64.00	-64.00	5.00	72.00	72.00	0.00
345	65.00	-65.00	5.00	72.00	72.00	0.00
346	66.00	-66.00	5.00	72.00	72.00	0.00
347	67.00	-67.00	5.00	72.00	72.00	0.00
348	68.00	-68.00	5.00	72.00	72.00	0.00
349	69.00	-69.00	5.00	72.00	72.00	0.00
350	70.00	-70.00	5.00	72.00	72.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000
13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000

16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	0.000	0.000
34	72.00	34.00	65.973	0.000	65.973
35	72.00	35.00	131.947	0.000	131.947
36	72.00	36.00	197.920	0.000	197.920
37	72.00	37.00	263.894	0.000	263.894
38	72.00	38.00	329.867	0.000	329.867
39	72.00	39.00	395.841	0.000	395.841
40	72.00	40.00	461.814	0.000	461.814
41	72.00	41.00	527.788	0.000	527.788
42	72.00	42.00	593.761	0.000	593.761
43	72.00	43.00	659.734	0.000	659.734
44	72.00	44.00	725.708	0.000	725.708
45	72.00	45.00	791.681	0.000	791.681
46	72.00	46.00	857.655	0.000	857.655
47	72.00	47.00	923.628	0.000	923.628
48	72.00	48.00	989.602	0.000	989.602
49	72.00	49.00	1055.575	0.000	1055.575
50	72.00	50.00	1121.549	0.000	1121.549
51	72.00	51.00	1187.522	0.000	1187.522
52	72.00	52.00	1253.495	0.000	1253.495
53	72.00	53.00	1319.469	0.000	1319.469
54	72.00	54.00	1385.442	0.000	1385.442
55	72.00	55.00	1451.416	0.000	1451.416
56	72.00	56.00	1517.389	0.000	1517.389
57	72.00	57.00	1583.363	0.000	1583.363
58	72.00	58.00	1649.336	0.000	1649.336
59	72.00	59.00	1715.310	0.000	1715.310
60	72.00	60.00	1781.283	0.000	1781.283
61	72.00	61.00	1847.256	0.000	1847.256
62	72.00	62.00	1913.230	0.000	1913.230
63	72.00	63.00	1979.203	0.000	1979.203
64	72.00	64.00	2045.177	0.000	2045.177
65	72.00	65.00	2111.150	0.000	2111.150
66	72.00	66.00	2177.124	0.000	2177.124
67	72.00	67.00	2243.097	0.000	2243.097
68	72.00	68.00	2309.071	0.000	2309.071
69	72.00	69.00	2375.044	0.000	2375.044
70	72.00	70.00	2441.017	0.000	2441.017

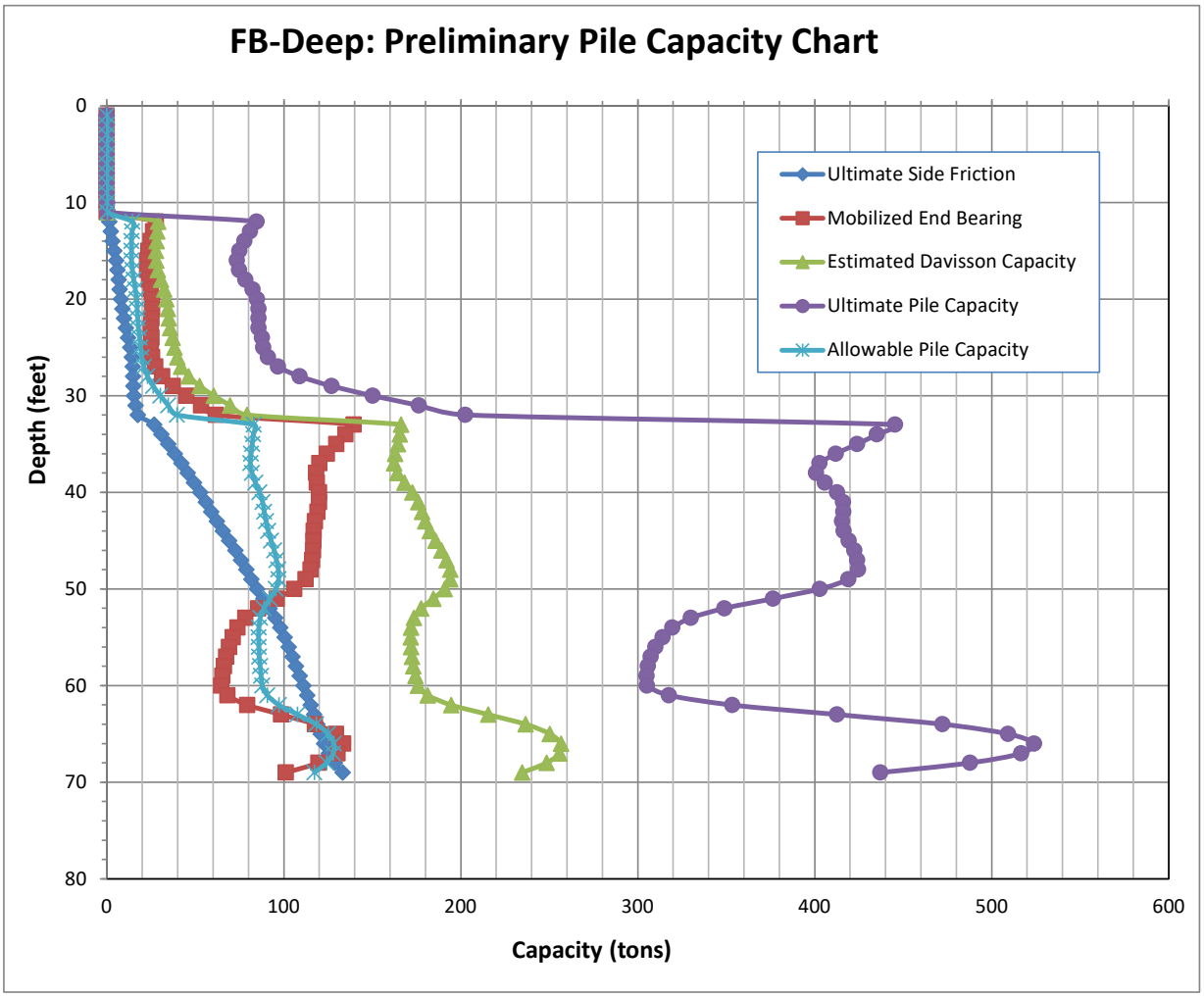
Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==========
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

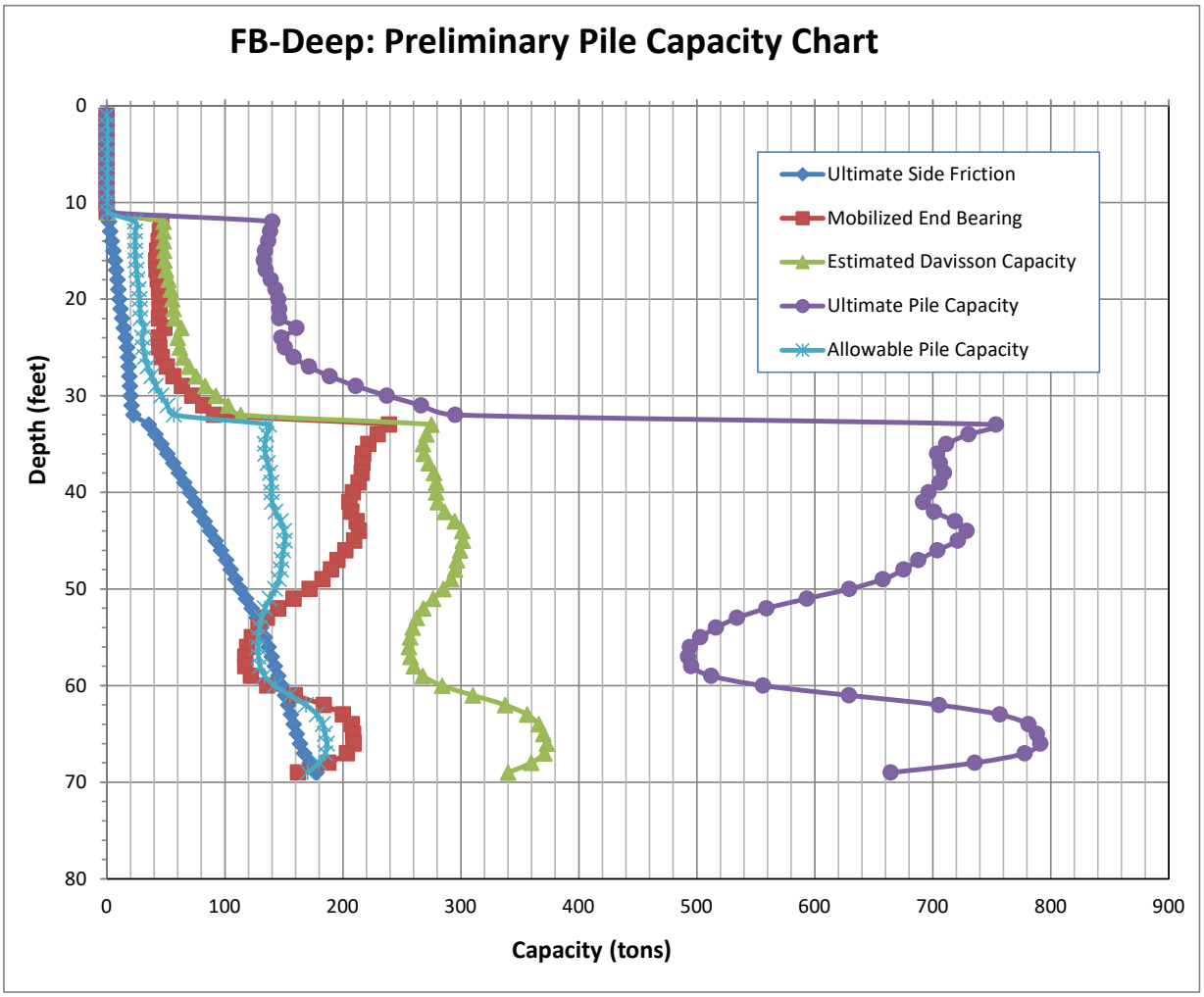
ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000

13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000
16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	8552.574	8552.574
34	72.00	34.00	65.781	13607.770	13673.550
35	72.00	35.00	131.178	8552.574	8683.752
36	72.00	36.00	196.197	6518.029	6714.225
37	72.00	37.00	260.840	5375.357	5636.197
38	72.00	38.00	325.112	4628.898	4954.010
39	72.00	39.00	389.017	4096.624	4485.641
40	72.00	40.00	452.557	3694.637	4147.195
41	72.00	41.00	515.739	3378.448	3894.187
42	72.00	42.00	578.565	3122.087	3700.652
43	72.00	43.00	641.041	2909.293	3550.334
44	72.00	44.00	703.168	2729.320	3432.488
45	72.00	45.00	764.952	2574.756	3339.708
46	72.00	46.00	827.587	2556.738	3384.325
47	72.00	47.00	890.075	2537.708	3427.783
48	72.00	48.00	952.420	2517.979	3470.399
49	72.00	49.00	1014.625	2497.785	3512.409
50	72.00	50.00	1076.692	2477.300	3553.992
51	72.00	51.00	1138.626	2456.656	3595.282
52	72.00	52.00	1200.428	2435.954	3636.383
53	72.00	53.00	1262.101	2415.271	3677.373
54	72.00	54.00	1323.647	2394.666	3718.313
55	72.00	55.00	1385.068	2374.183	3759.251
56	72.00	56.00	1446.367	2353.856	3800.222
57	72.00	57.00	1507.544	2333.711	3841.255
58	72.00	58.00	1568.602	2313.767	3882.369
59	72.00	59.00	1629.543	2294.038	3923.582
60	72.00	60.00	1690.369	2274.535	3964.903
61	72.00	61.00	1751.080	2255.263	4006.343
62	72.00	62.00	1811.678	2236.229	4047.907
63	72.00	63.00	1872.166	2217.433	4089.598
64	72.00	64.00	1932.543	2198.876	4131.419
65	72.00	65.00	1992.812	2180.559	4173.371
66	72.00	66.00	2052.974	2162.479	4215.454
67	72.00	67.00	2113.030	2144.635	4257.665
68	72.00	68.00	2172.982	2127.023	4300.005
69	72.00	69.00	2232.830	2109.641	4342.471
70	72.00	70.00	2292.576	2092.484	4385.060

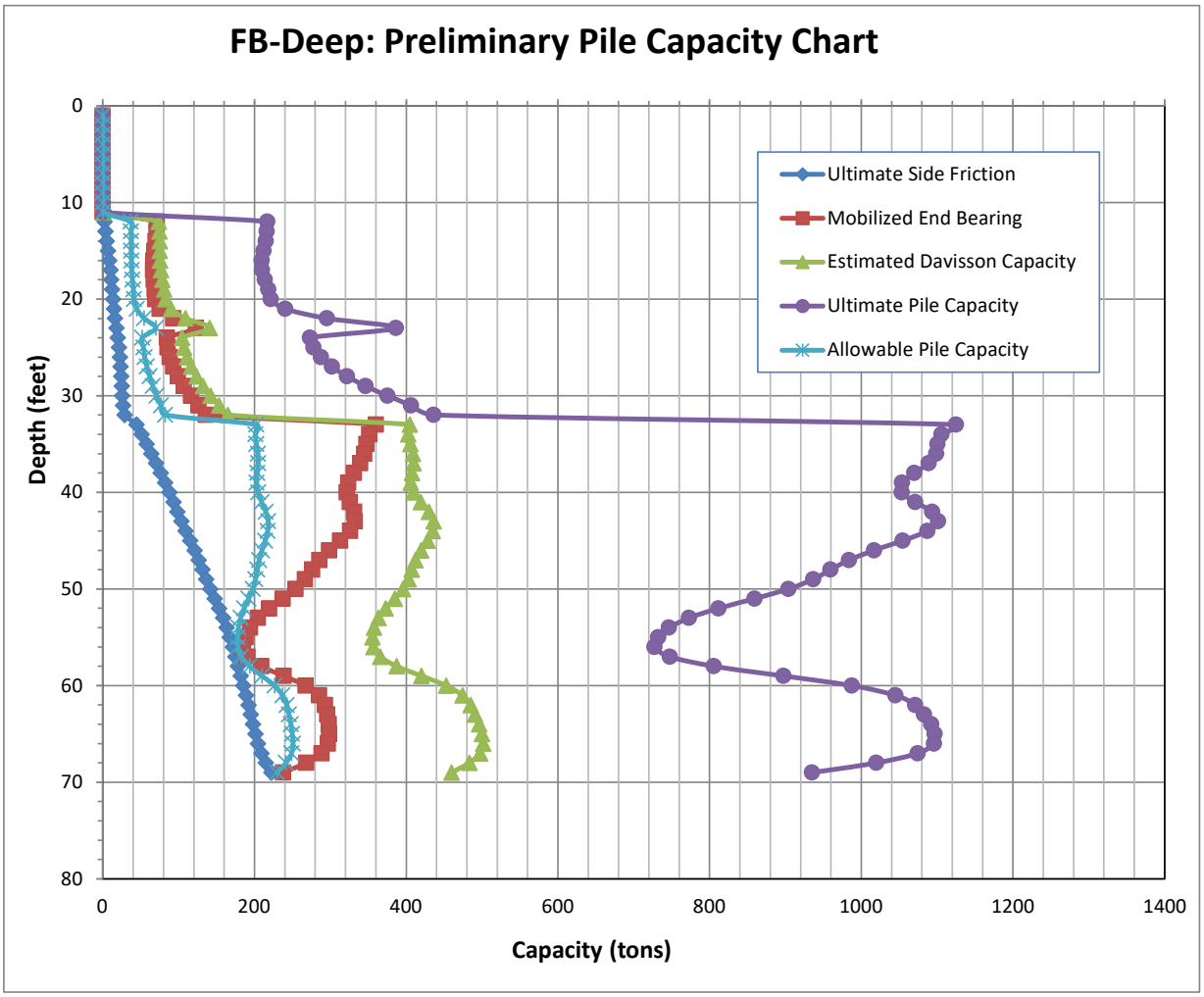
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 18-inch Concrete Driven Piles - End Bents



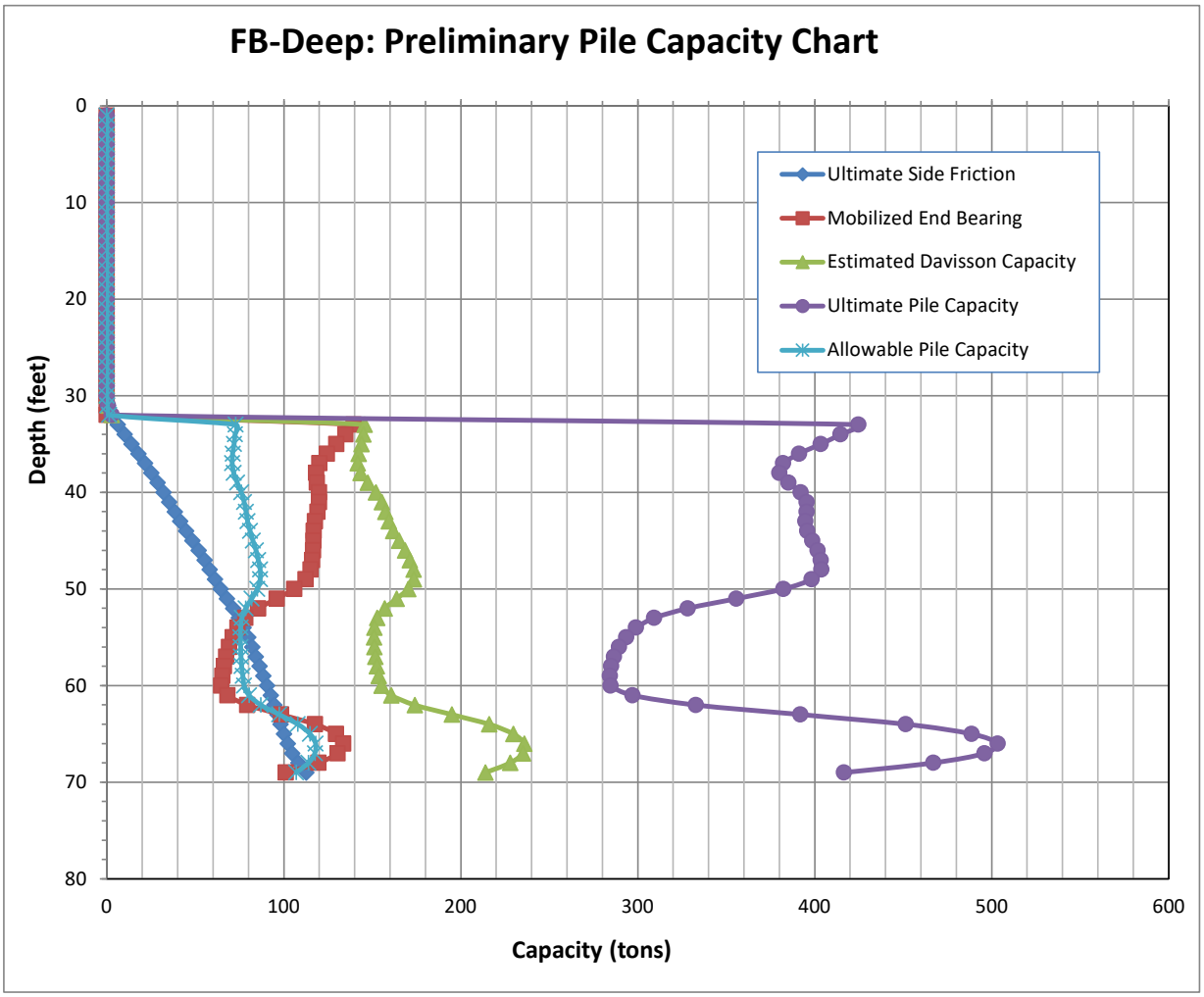
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Concrete Driven Piles - End Bents



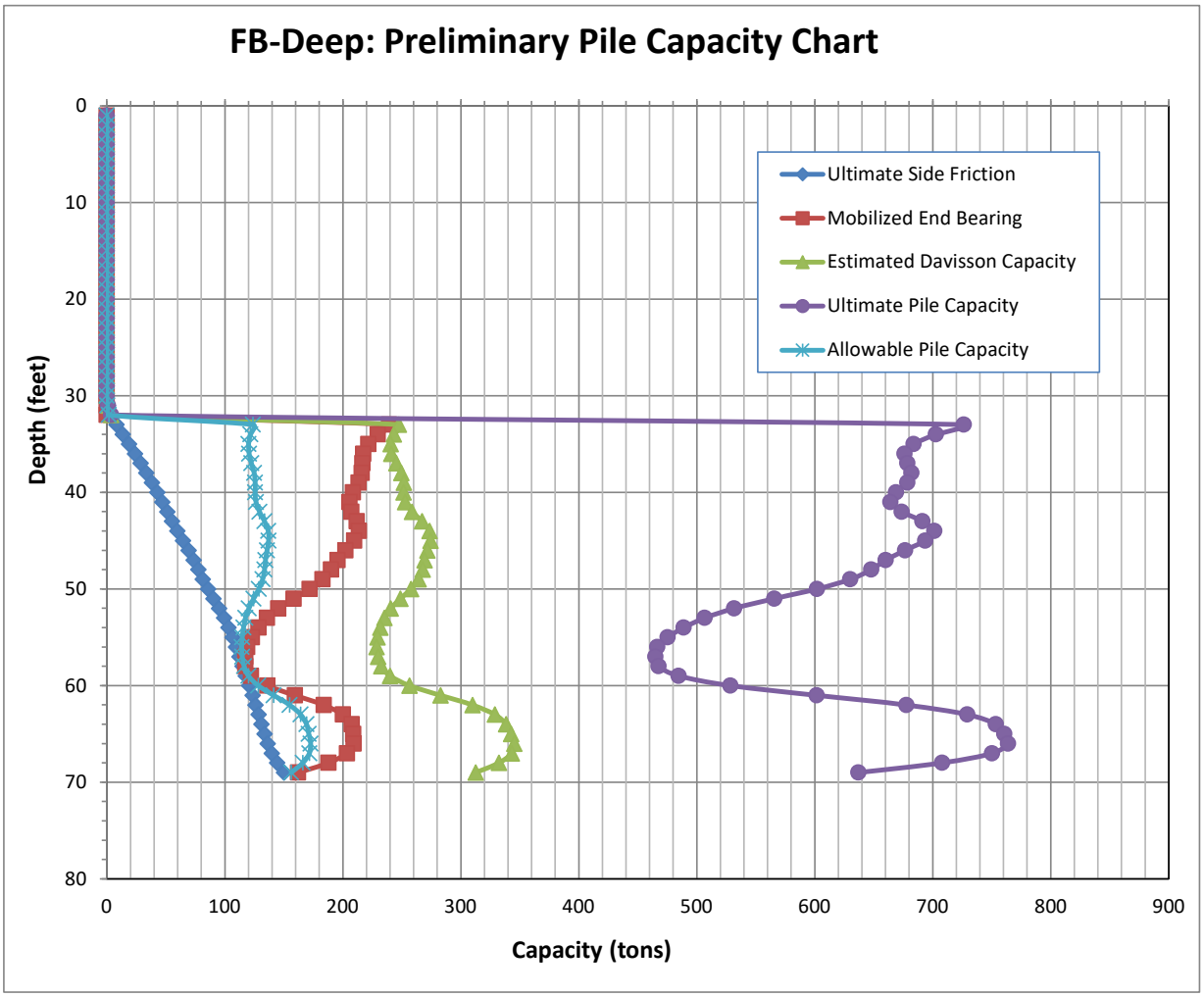
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 30-inch Concrete Driven Piles - End Bents



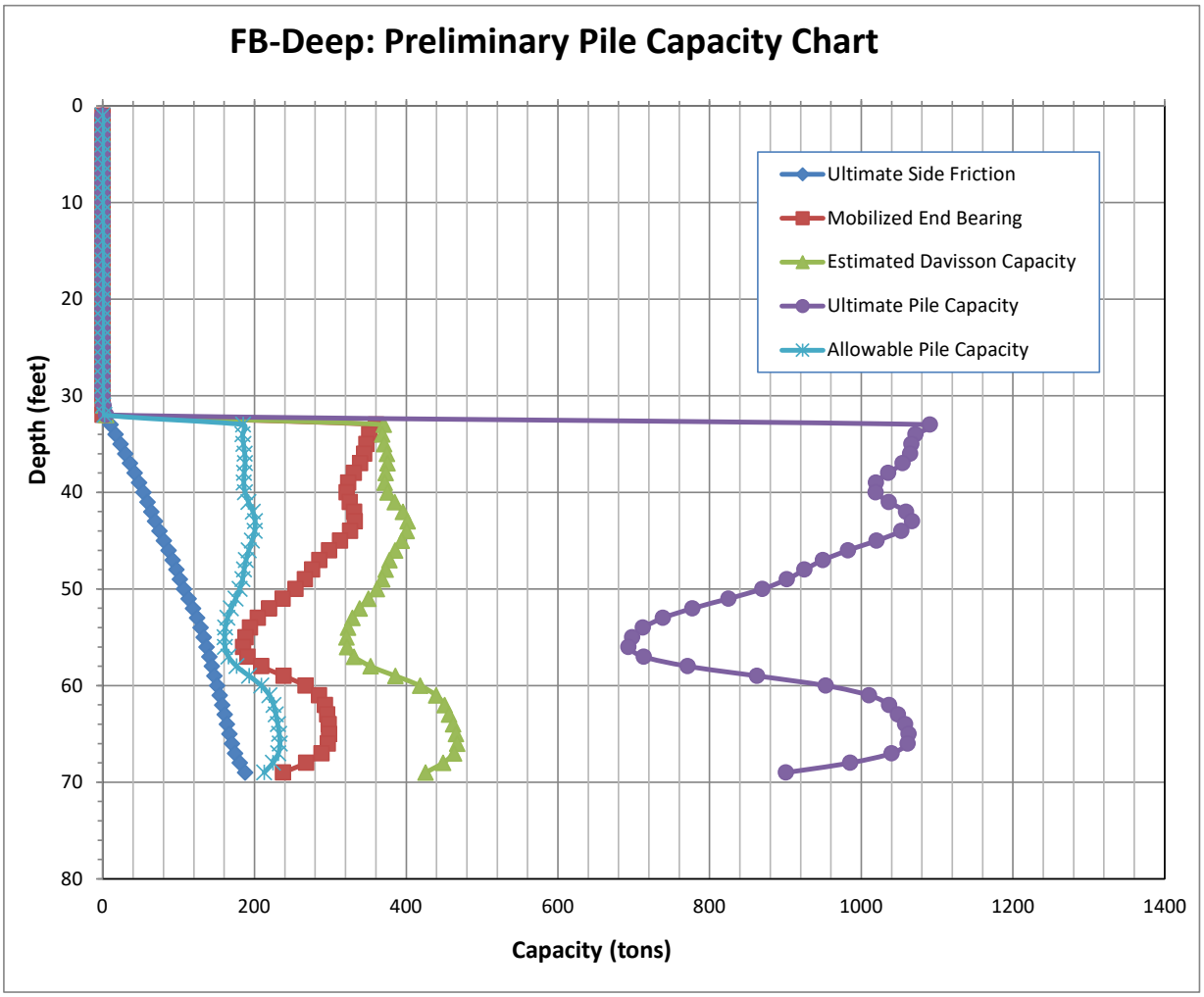
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 18-inch Concrete Driven Piles - Interior Piers



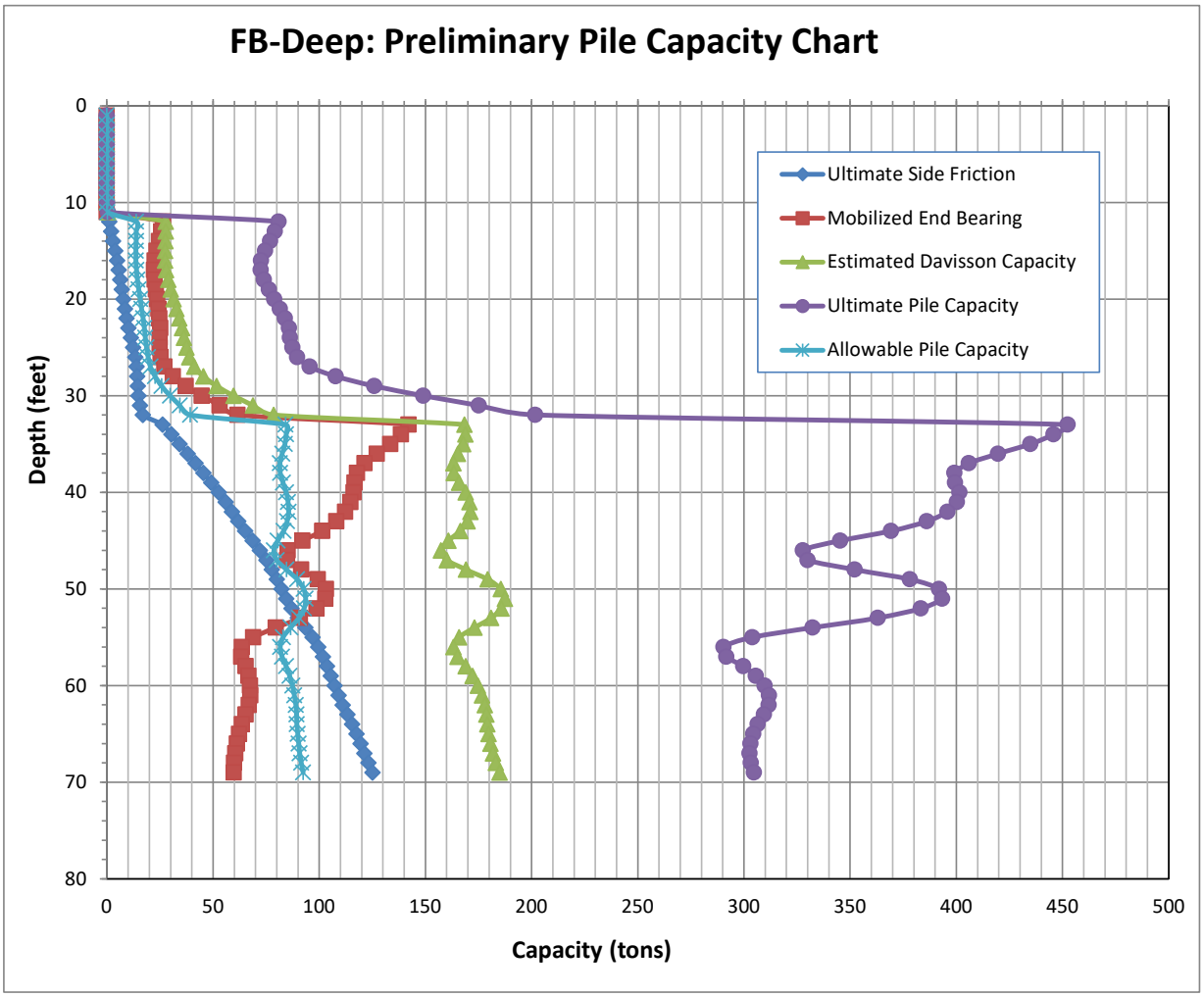
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Concrete Driven Piles - Interior Piers



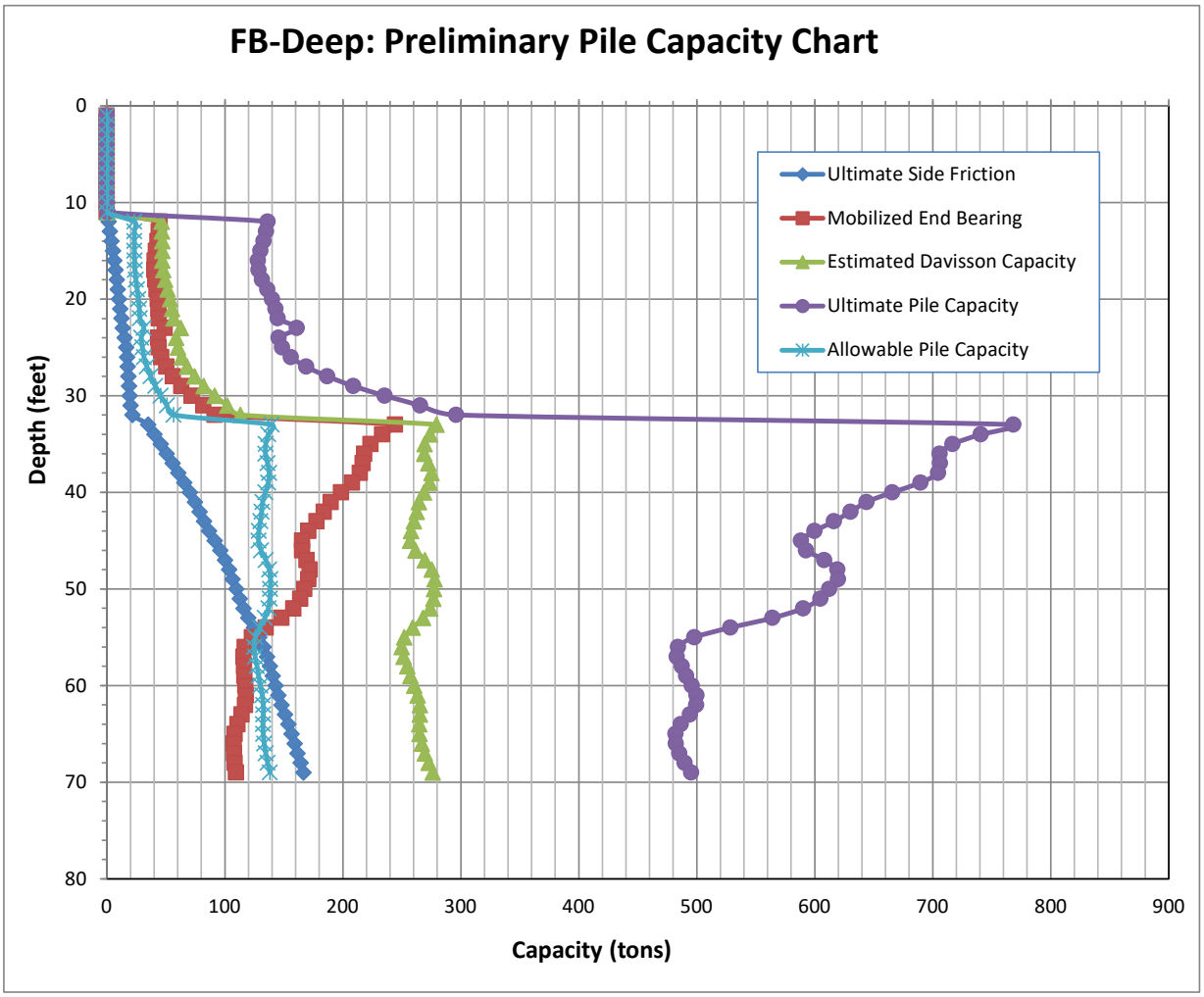
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 30-inch Concrete Driven Piles - Interior Piers



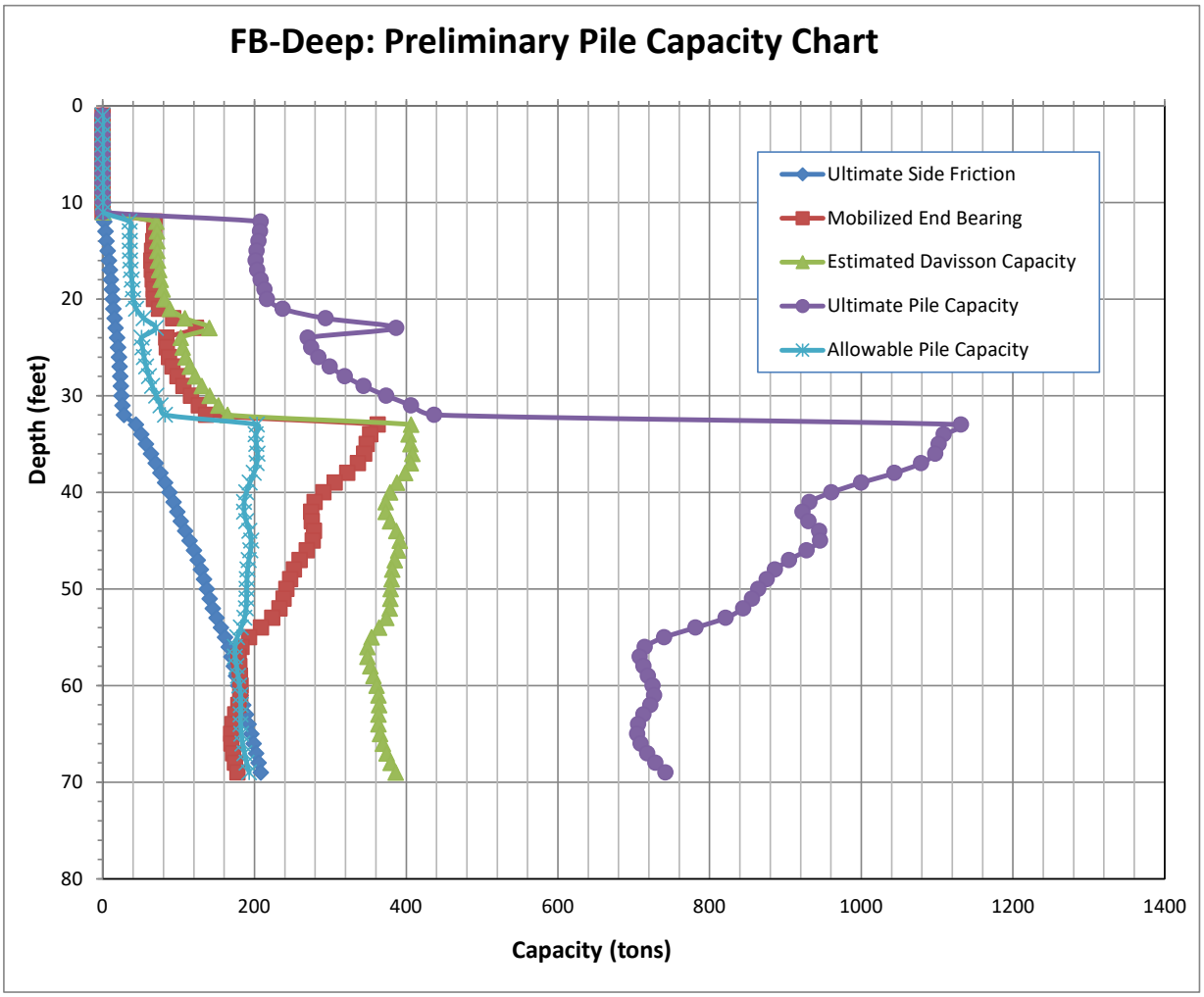
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 18-inch Concrete Driven Piles - End Bents



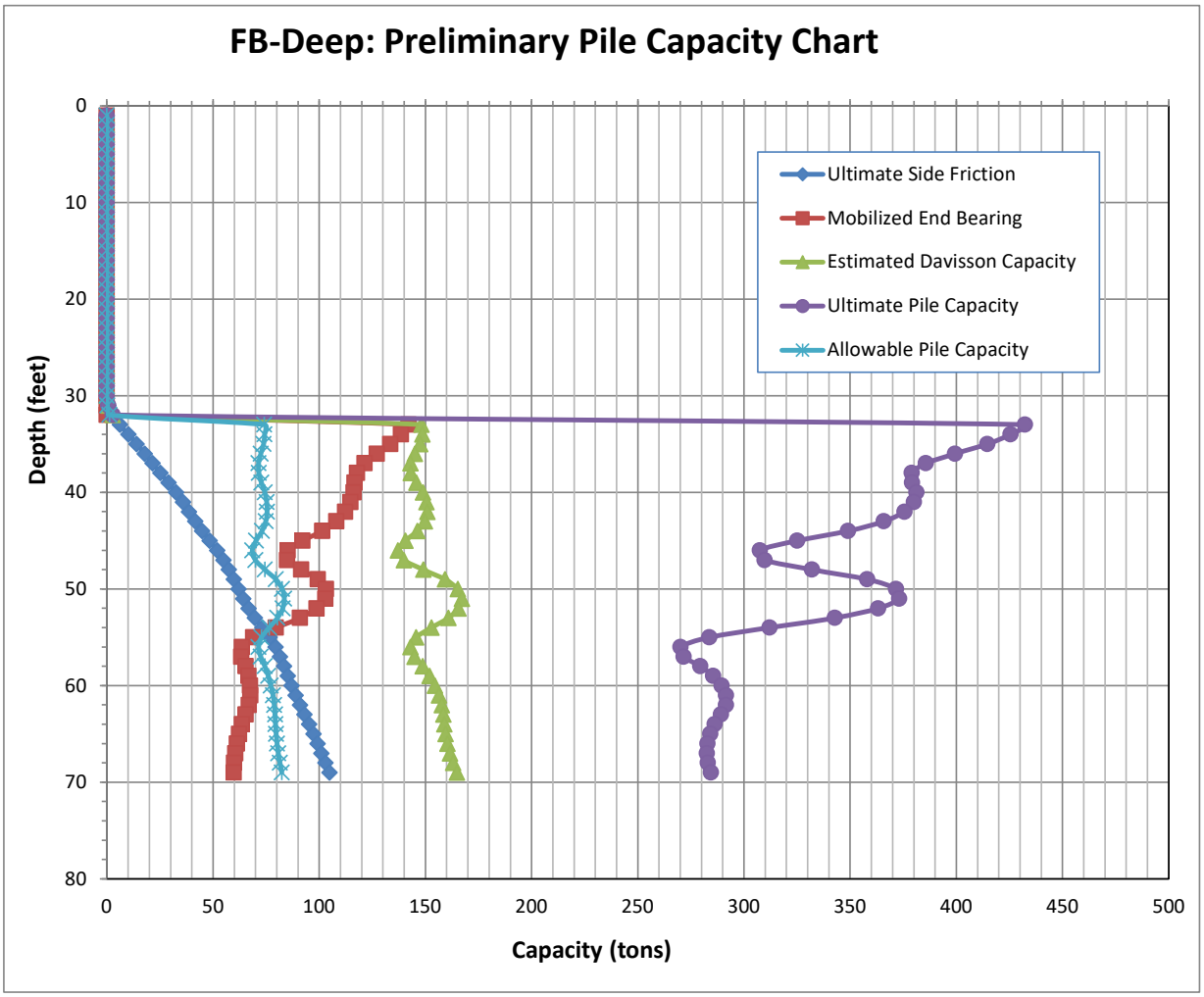
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Concrete Driven Piles - End Bents



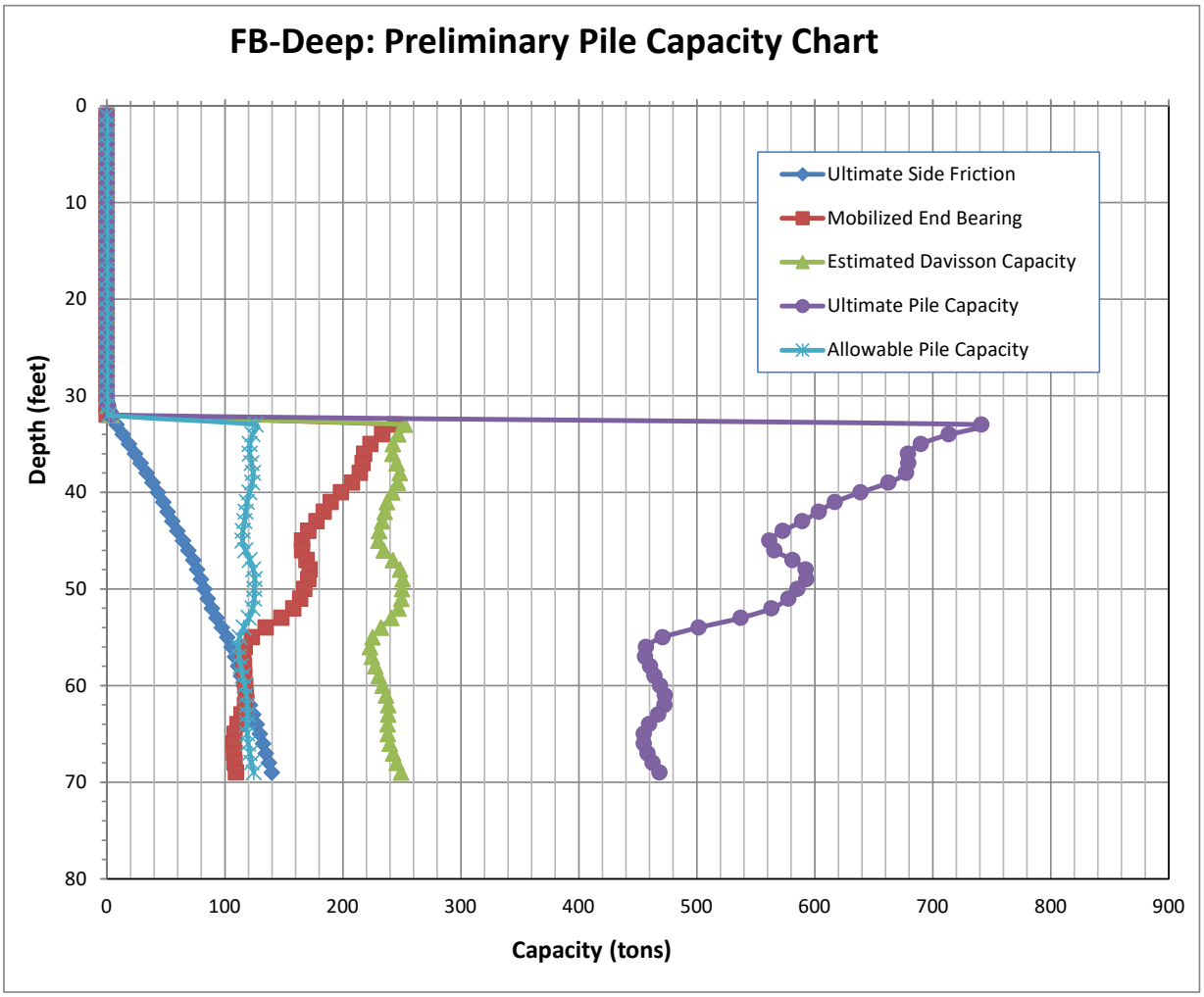
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 30-inch Concrete Driven Piles - End Bents



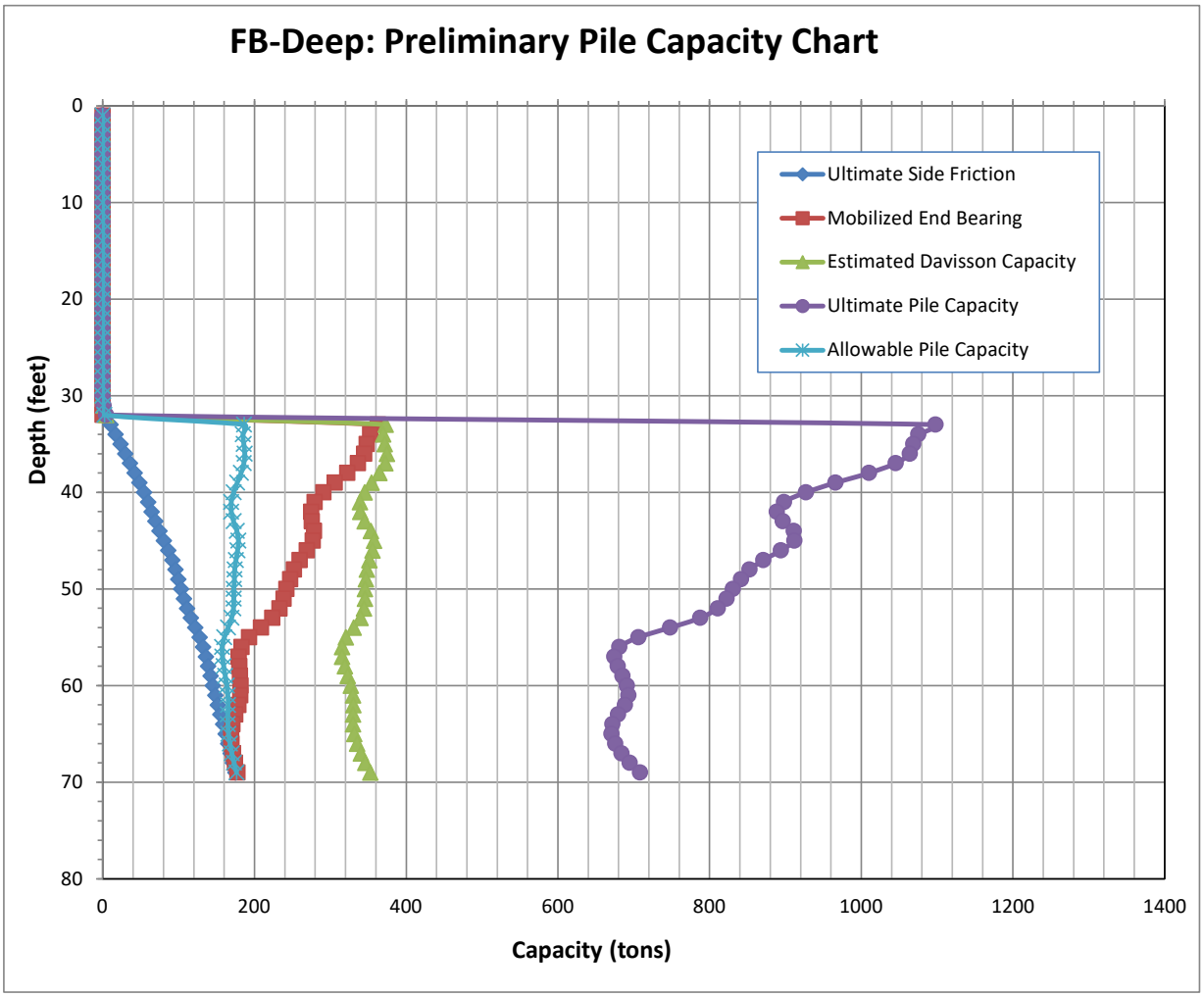
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 18-inch Concrete Driven Piles - Interior Piers



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Concrete Driven Piles - Interior Piers



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 30-inch Concrete Driven Piles - Interior Piers



Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:29:57

General Information:
==========
Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - End Bents.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
Boring date: 8/24/2021, Boring Number: BR-1
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	4- Lime Stone/Very shelly sand
8	15.00	14.00	4- Lime Stone/Very shelly sand
9	18.00	8.00	4- Lime Stone/Very shelly sand
10	21.00	11.00	4- Lime Stone/Very shelly sand
11	24.00	9.00	3- Clean sand
12	27.00	8.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	9.17	5-Void
2	-12.00	-24.00	12.00	11.25	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.15	0.00	0.15	0.07	0.15
11.00	18.0	0.60	0.00	0.60	0.30	0.60
12.00	18.0	1.34	27.79	29.13	14.57	84.71
13.00	18.0	2.26	26.26	28.52	14.26	81.04
14.00	18.0	3.22	24.85	28.08	14.04	77.78
15.00	18.0	4.24	23.57	27.81	13.91	74.95
16.00	18.0	5.21	22.79	28.00	14.00	73.58
17.00	18.0	6.03	22.90	28.93	14.46	74.72
18.00	18.0	6.70	23.89	30.59	15.29	78.37
19.00	18.0	7.33	25.05	32.38	16.19	82.47
20.00	18.0	8.04	25.64	33.68	16.84	84.96
21.00	18.0	8.82	25.67	34.49	17.24	85.83
22.00	18.0	9.71	25.38	35.09	17.55	85.85
23.00	18.0	10.76	25.01	35.76	17.88	85.78
24.00	18.0	11.95	25.25	37.20	18.60	87.70
25.00	18.0	13.20	25.05	38.25	19.13	88.35
26.00	18.0	14.19	25.63	39.82	19.91	91.09
27.00	18.0	14.68	27.37	42.05	21.02	96.78
28.00	18.0	14.88	31.35	46.22	23.11	108.91
29.00	18.0	15.13	37.32	52.45	26.22	127.10
30.00	18.0	15.48	44.93	60.41	30.21	150.26
31.00	18.0	16.22	53.39	69.61	34.80	176.39
32.00	18.0	17.58	61.66	79.25	39.62	202.57
33.00	18.0	26.78	139.52	166.30	83.15	445.34
34.00	18.0	30.81	134.78	165.59	82.80	435.15
35.00	18.0	34.72	129.76	164.48	82.24	423.99
36.00	18.0	38.50	124.45	162.95	81.48	411.85
37.00	18.0	42.18	120.19	162.38	81.19	402.76
38.00	18.0	45.79	118.31	164.11	82.05	400.73
39.00	18.0	49.33	118.81	168.14	84.07	405.76
40.00	18.0	52.74	119.96	172.70	86.35	412.61
41.00	18.0	55.97	120.03	176.01	88.00	416.07
42.00	18.0	59.04	119.03	178.07	89.03	416.12
43.00	18.0	62.14	117.75	179.88	89.94	415.37
44.00	18.0	65.48	116.98	182.46	91.23	416.41
45.00	18.0	69.08	116.72	185.80	92.90	419.24
46.00	18.0	72.64	116.55	189.19	94.60	422.29
47.00	18.0	75.88	116.05	191.93	95.96	424.03
48.00	18.0	78.79	115.21	194.00	97.00	424.43
49.00	18.0	81.70	112.41	194.11	97.05	418.92
50.00	18.0	84.94	105.99	190.93	95.46	402.91
51.00	18.0	88.50	95.97	184.46	92.23	376.40
52.00	18.0	92.03	85.62	177.66	88.83	348.91
53.00	18.0	95.19	78.26	173.45	86.73	329.97
54.00	18.0	97.98	73.87	171.85	85.93	319.59
55.00	18.0	100.49	71.22	171.71	85.85	314.14
56.00	18.0	102.80	69.08	171.88	85.94	310.04
57.00	18.0	104.90	67.46	172.36	86.18	307.27
58.00	18.0	106.94	66.24	173.17	86.59	305.65
59.00	18.0	109.02	65.32	174.34	87.17	304.97
60.00	18.0	111.15	64.70	175.85	87.93	305.25
61.00	18.0	113.25	68.14	181.39	90.69	317.67
62.00	18.0	115.22	79.41	194.63	97.31	353.44
63.00	18.0	117.07	98.49	215.56	107.78	412.55
64.00	18.0	118.90	117.74	236.64	118.32	472.12
65.00	18.0	120.84	129.47	250.31	125.16	509.26
66.00	18.0	122.87	133.70	256.57	128.28	523.96
67.00	18.0	125.43	130.41	255.83	127.92	516.64
68.00	18.0	128.92	119.59	248.52	124.26	487.71
69.00	18.0	133.36	101.26	234.63	117.31	437.15

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:30:12

General Information:
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  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	4- Lime Stone/Very shelly sand
8	15.00	14.00	4- Lime Stone/Very shelly sand
9	18.00	8.00	4- Lime Stone/Very shelly sand
10	21.00	11.00	4- Lime Stone/Very shelly sand
11	24.00	9.00	3- Clean sand
12	27.00	8.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	9.17	5-Void
2	-12.00	-24.00	12.00	11.25	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.20	0.00	0.20	0.10	0.20
11.00	24.0	0.79	0.00	0.79	0.40	0.79
12.00	24.0	1.79	46.19	47.97	23.99	140.35
13.00	24.0	3.01	45.20	48.21	24.11	138.62
14.00	24.0	4.30	44.18	48.47	24.24	136.83
15.00	24.0	5.65	42.89	48.55	24.27	134.33
16.00	24.0	6.94	42.07	49.02	24.51	133.17
17.00	24.0	8.04	42.27	50.31	25.15	134.85
18.00	24.0	8.93	43.32	52.25	26.12	138.89
19.00	24.0	9.77	44.42	54.19	27.09	143.03
20.00	24.0	10.71	44.88	55.59	27.80	145.35
21.00	24.0	11.76	44.81	56.56	28.28	146.18
22.00	24.0	12.95	44.42	57.37	28.68	146.21
23.00	24.0	14.34	48.79	63.13	31.56	160.71
24.00	24.0	15.94	44.05	59.98	29.99	148.08
25.00	24.0	17.31	44.57	61.89	30.94	151.04
26.00	24.0	18.11	46.75	64.86	32.43	158.36
27.00	24.0	18.61	50.91	69.52	34.76	171.34
28.00	24.0	19.09	56.67	75.76	37.88	189.09
29.00	24.0	19.59	63.87	83.46	41.73	211.19
30.00	24.0	20.14	72.46	92.60	46.30	237.52
31.00	24.0	21.06	81.79	102.85	51.43	266.43
32.00	24.0	22.70	90.89	113.59	56.79	295.36
33.00	24.0	35.71	239.38	275.09	137.54	753.84
34.00	24.0	41.09	229.71	270.80	135.40	730.23
35.00	24.0	46.29	221.72	268.01	134.01	711.46
36.00	24.0	51.34	217.44	268.78	134.39	703.66
37.00	24.0	56.25	216.61	272.85	136.43	706.07
38.00	24.0	61.06	216.18	277.24	138.62	709.59
39.00	24.0	65.77	213.39	279.16	139.58	705.95
40.00	24.0	70.32	208.71	279.03	139.52	696.46
41.00	24.0	74.63	205.71	280.34	140.17	691.75
42.00	24.0	78.72	207.48	286.19	143.10	701.14
43.00	24.0	82.85	211.97	294.82	147.41	718.77
44.00	24.0	87.31	213.83	301.14	150.57	728.80
45.00	24.0	92.11	209.71	301.82	150.91	721.25
46.00	24.0	96.85	202.39	299.24	149.62	704.02
47.00	24.0	101.17	195.54	296.71	148.35	687.79
48.00	24.0	105.05	190.09	295.14	147.57	675.32
49.00	24.0	108.94	182.93	291.87	145.94	657.74
50.00	24.0	113.25	172.03	285.28	142.64	629.34
51.00	24.0	118.00	158.43	276.43	138.22	593.30
52.00	24.0	122.71	145.47	268.19	134.09	559.14
53.00	24.0	126.93	135.76	262.69	131.35	534.22
54.00	24.0	130.65	128.58	259.23	129.61	516.39
55.00	24.0	133.99	123.00	256.99	128.49	502.99
56.00	24.0	137.06	119.02	256.09	128.04	494.13
57.00	24.0	139.87	117.57	257.44	128.72	492.58
58.00	24.0	142.58	117.57	260.16	130.08	495.30
59.00	24.0	145.36	122.27	267.63	133.82	512.18
60.00	24.0	148.20	135.97	284.17	142.09	556.10
61.00	24.0	151.00	159.37	310.37	155.18	629.11
62.00	24.0	153.63	183.90	337.53	168.76	705.33
63.00	24.0	156.09	200.26	356.35	178.17	756.86
64.00	24.0	158.54	207.52	366.06	183.03	781.10
65.00	24.0	161.12	209.06	370.18	185.09	788.29
66.00	24.0	163.83	209.16	372.99	186.50	791.31
67.00	24.0	167.23	203.53	370.77	185.38	777.84
68.00	24.0	171.90	187.89	359.78	179.89	735.56
69.00	24.0	177.82	162.23	340.04	170.02	664.50

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:31:01

General Information:
==========
  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	4- Lime Stone/Very shelly sand
8	15.00	14.00	4- Lime Stone/Very shelly sand
9	18.00	8.00	4- Lime Stone/Very shelly sand
10	21.00	11.00	4- Lime Stone/Very shelly sand
11	24.00	9.00	3- Clean sand
12	27.00	8.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	9.17	5-Void
2	-12.00	-24.00	12.00	11.25	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.25	0.00	0.25	0.12	0.25
11.00	30.0	0.99	0.00	0.99	0.50	0.99
12.00	30.0	2.23	71.53	73.76	36.88	216.83
13.00	30.0	3.76	70.84	74.60	37.30	216.28
14.00	30.0	5.37	69.83	75.20	37.60	214.85
15.00	30.0	7.07	68.29	75.36	37.68	211.94
16.00	30.0	8.68	66.92	75.60	37.80	209.45
17.00	30.0	10.04	66.62	76.66	38.33	209.90
18.00	30.0	11.16	67.51	78.67	39.34	213.70
19.00	30.0	12.21	68.75	80.96	40.48	218.46
20.00	30.0	13.39	69.32	82.72	41.36	221.37
21.00	30.0	14.69	75.32	90.01	45.01	240.65
22.00	30.0	16.18	93.08	109.26	54.63	295.42
23.00	30.0	17.93	122.86	140.79	70.39	386.51
24.00	30.0	19.92	84.48	104.40	52.20	273.35
25.00	30.0	21.58	85.45	107.03	53.52	277.92
26.00	30.0	22.69	88.30	110.99	55.49	287.59
27.00	30.0	23.52	92.93	116.45	58.23	302.31
28.00	30.0	24.25	99.23	123.48	61.74	321.95
29.00	30.0	24.94	107.16	132.10	66.05	346.41
30.00	30.0	25.65	116.55	142.19	71.10	375.29
31.00	30.0	26.82	126.52	153.35	76.67	406.39
32.00	30.0	28.93	135.79	164.72	82.36	436.30
33.00	30.0	44.64	360.11	404.75	202.38	1124.98
34.00	30.0	51.36	351.53	402.88	201.44	1105.94
35.00	30.0	57.87	347.59	405.45	202.73	1100.63
36.00	30.0	64.17	344.84	409.01	204.50	1098.68
37.00	30.0	70.31	339.48	409.79	204.90	1088.76
38.00	30.0	76.32	331.19	407.51	203.75	1069.88
39.00	30.0	82.21	323.82	406.04	203.02	1053.68
40.00	30.0	87.90	321.86	409.75	204.88	1053.46
41.00	30.0	93.29	325.86	419.15	209.57	1070.87
42.00	30.0	98.39	331.67	430.07	215.03	1093.41
43.00	30.0	103.56	332.58	436.14	218.07	1101.30
44.00	30.0	109.14	326.02	435.16	217.58	1087.20
45.00	30.0	115.13	313.15	428.28	214.14	1054.58
46.00	30.0	121.07	298.58	419.64	209.82	1016.79
47.00	30.0	126.46	285.75	412.21	206.10	983.71
48.00	30.0	131.32	276.00	407.31	203.66	959.31
49.00	30.0	136.17	266.77	402.94	201.47	936.47
50.00	30.0	141.57	254.17	395.74	197.87	904.08
51.00	30.0	147.50	237.31	384.81	192.41	859.44
52.00	30.0	153.39	219.46	372.85	186.42	811.76
53.00	30.0	158.66	204.76	363.42	181.71	772.94
54.00	30.0	163.31	194.37	357.68	178.84	746.42
55.00	30.0	167.48	188.29	355.77	177.88	732.34
56.00	30.0	171.33	185.35	356.68	178.34	727.38
57.00	30.0	174.84	190.94	365.78	182.89	747.66
58.00	30.0	178.23	209.09	387.32	193.66	805.51
59.00	30.0	181.70	238.49	420.19	210.09	897.16
60.00	30.0	185.26	267.49	452.75	226.37	987.72
61.00	30.0	188.75	285.38	474.12	237.06	1044.88
62.00	30.0	192.03	293.04	485.08	242.54	1071.17
63.00	30.0	195.11	295.86	490.97	245.48	1082.68
64.00	30.0	198.17	298.02	496.20	248.10	1092.24
65.00	30.0	201.40	298.40	499.79	249.90	1096.59
66.00	30.0	204.79	296.99	501.77	250.89	1095.74
67.00	30.0	209.04	288.43	497.47	248.74	1074.33
68.00	30.0	214.87	268.30	483.17	241.59	1019.78
69.00	30.0	222.27	237.56	459.83	229.92	934.96

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:31:56

General Information:
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  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	5- Cavity layer
8	15.00	14.00	5- Cavity layer
9	18.00	8.00	5- Cavity layer
10	21.00	11.00	5- Cavity layer
11	24.00	9.00	5- Cavity layer
12	27.00	8.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	9.70	5-Void
2	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.00	0.00	0.00	0.00	0.00
20.00	18.0	0.00	0.00	0.00	0.00	0.00
21.00	18.0	0.00	0.00	0.00	0.00	0.00
22.00	18.0	0.00	0.00	0.00	0.00	0.00
23.00	18.0	0.00	0.00	0.00	0.00	0.00
24.00	18.0	0.00	0.00	0.00	0.00	0.00
25.00	18.0	0.00	0.00	0.00	0.00	0.00
26.00	18.0	0.00	0.00	0.00	0.00	0.00
27.00	18.0	0.00	0.00	0.00	0.00	0.00
28.00	18.0	0.00	0.00	0.00	0.00	0.00
29.00	18.0	0.00	0.00	0.00	0.00	0.00
30.00	18.0	0.00	0.00	0.00	0.00	0.00
31.00	18.0	0.68	0.00	0.68	0.34	0.68
32.00	18.0	2.73	0.00	2.73	1.36	2.73
33.00	18.0	6.14	139.52	145.66	72.83	424.70
34.00	18.0	10.17	134.78	144.95	72.47	414.50
35.00	18.0	14.07	129.76	143.83	71.91	403.34
36.00	18.0	17.86	124.45	142.31	71.15	391.21
37.00	18.0	21.54	120.19	141.73	70.87	382.12
38.00	18.0	25.15	118.31	143.46	71.73	380.09
39.00	18.0	28.68	118.81	147.49	73.75	385.11
40.00	18.0	32.09	119.96	152.05	76.02	391.97
41.00	18.0	35.33	120.03	155.36	77.68	395.42
42.00	18.0	38.39	119.03	157.42	78.71	395.48
43.00	18.0	41.49	117.75	159.24	79.62	394.73
44.00	18.0	44.84	116.98	161.81	80.91	395.77
45.00	18.0	48.43	116.72	165.15	82.58	398.59
46.00	18.0	51.99	116.55	168.55	84.27	401.65
47.00	18.0	55.23	116.05	171.28	85.64	403.38
48.00	18.0	58.14	115.21	173.36	86.68	403.78
49.00	18.0	61.06	112.41	173.46	86.73	398.28
50.00	18.0	64.29	105.99	170.28	85.14	382.26
51.00	18.0	67.85	95.97	163.82	81.91	355.75
52.00	18.0	71.39	85.62	157.01	78.51	328.26
53.00	18.0	74.55	78.26	152.81	76.40	309.32
54.00	18.0	77.34	73.87	151.21	75.60	298.94
55.00	18.0	79.84	71.22	151.06	75.53	293.50
56.00	18.0	82.15	69.08	151.23	75.62	289.39
57.00	18.0	84.26	67.46	151.71	75.86	286.63
58.00	18.0	86.29	66.24	152.53	76.26	285.00
59.00	18.0	88.37	65.32	153.69	76.85	284.33
60.00	18.0	90.51	64.70	155.21	77.60	284.60
61.00	18.0	92.60	68.14	160.74	80.37	297.02
62.00	18.0	94.57	79.41	173.98	86.99	332.79
63.00	18.0	96.42	98.49	194.92	97.46	391.90
64.00	18.0	98.26	117.74	216.00	108.00	451.47
65.00	18.0	100.19	129.47	229.66	114.83	488.61
66.00	18.0	102.23	133.70	235.92	117.96	503.32
67.00	18.0	104.78	130.41	235.19	117.59	496.00
68.00	18.0	108.28	119.59	227.87	113.94	467.06
69.00	18.0	112.72	101.26	213.98	106.99	416.51

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:32:06

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	5- Cavity layer
8	15.00	14.00	5- Cavity layer
9	18.00	8.00	5- Cavity layer
10	21.00	11.00	5- Cavity layer
11	24.00	9.00	5- Cavity layer
12	27.00	8.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	9.70	5-Void
2	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:

==========

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.00	0.00	0.00	0.00	0.00
20.00	24.0	0.00	0.00	0.00	0.00	0.00
21.00	24.0	0.00	0.00	0.00	0.00	0.00
22.00	24.0	0.00	0.00	0.00	0.00	0.00
23.00	24.0	0.00	0.00	0.00	0.00	0.00
24.00	24.0	0.00	0.00	0.00	0.00	0.00
25.00	24.0	0.00	0.00	0.00	0.00	0.00
26.00	24.0	0.00	0.00	0.00	0.00	0.00
27.00	24.0	0.00	0.00	0.00	0.00	0.00
28.00	24.0	0.00	0.00	0.00	0.00	0.00
29.00	24.0	0.00	0.00	0.00	0.00	0.00
30.00	24.0	0.00	0.00	0.00	0.00	0.00
31.00	24.0	0.91	0.00	0.91	0.45	0.91
32.00	24.0	3.64	0.00	3.64	1.82	3.64
33.00	24.0	8.18	239.38	247.56	123.78	726.32
34.00	24.0	13.56	229.71	243.27	121.64	702.70
35.00	24.0	18.77	221.72	240.49	120.24	683.93
36.00	24.0	23.81	217.44	241.25	120.63	676.13
37.00	24.0	28.72	216.61	245.33	122.66	678.54
38.00	24.0	33.53	216.18	249.71	124.85	682.06
39.00	24.0	38.24	213.39	251.64	125.82	678.42
40.00	24.0	42.79	208.71	251.50	125.75	668.93
41.00	24.0	47.10	205.71	252.81	126.41	664.22
42.00	24.0	51.19	207.48	258.66	129.33	673.61
43.00	24.0	55.32	211.97	267.30	133.65	691.24
44.00	24.0	59.78	213.83	273.61	136.81	701.27
45.00	24.0	64.58	209.71	274.29	137.15	693.72
46.00	24.0	69.32	202.39	271.71	135.86	676.49
47.00	24.0	73.64	195.54	269.18	134.59	660.26
48.00	24.0	77.52	190.09	267.61	133.81	647.79
49.00	24.0	81.41	182.93	264.34	132.17	630.21
50.00	24.0	85.73	172.03	257.75	128.88	601.81
51.00	24.0	90.47	158.43	248.90	124.45	565.77
52.00	24.0	95.18	145.47	240.66	120.33	531.61
53.00	24.0	99.40	135.76	235.16	117.58	506.69
54.00	24.0	103.12	128.58	231.70	115.85	488.86
55.00	24.0	106.46	123.00	229.46	114.73	475.46
56.00	24.0	109.53	119.02	228.56	114.28	466.61
57.00	24.0	112.34	117.57	229.91	114.96	465.05
58.00	24.0	115.06	117.57	232.63	116.31	467.77
59.00	24.0	117.83	122.27	240.11	120.05	484.65
60.00	24.0	120.68	135.97	256.64	128.32	528.57
61.00	24.0	123.47	159.37	282.84	141.42	601.58
62.00	24.0	126.10	183.90	310.00	155.00	677.80
63.00	24.0	128.56	200.26	328.82	164.41	729.33
64.00	24.0	131.01	207.52	338.53	169.26	753.57
65.00	24.0	133.59	209.06	342.65	171.32	760.76
66.00	24.0	136.30	209.16	345.46	172.73	763.78
67.00	24.0	139.71	203.53	343.24	171.62	750.31
68.00	24.0	144.37	187.89	332.26	166.13	708.03
69.00	24.0	150.29	162.23	312.52	156.26	636.97

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:32:17

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	5- Cavity layer
8	15.00	14.00	5- Cavity layer
9	18.00	8.00	5- Cavity layer
10	21.00	11.00	5- Cavity layer
11	24.00	9.00	5- Cavity layer
12	27.00	8.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	9.70	5-Void
2	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.00	0.00	0.00	0.00	0.00
11.00	30.0	0.00	0.00	0.00	0.00	0.00
12.00	30.0	0.00	0.00	0.00	0.00	0.00
13.00	30.0	0.00	0.00	0.00	0.00	0.00
14.00	30.0	0.00	0.00	0.00	0.00	0.00
15.00	30.0	0.00	0.00	0.00	0.00	0.00
16.00	30.0	0.00	0.00	0.00	0.00	0.00
17.00	30.0	0.00	0.00	0.00	0.00	0.00
18.00	30.0	0.00	0.00	0.00	0.00	0.00
19.00	30.0	0.00	0.00	0.00	0.00	0.00
20.00	30.0	0.00	0.00	0.00	0.00	0.00
21.00	30.0	0.00	0.00	0.00	0.00	0.00
22.00	30.0	0.00	0.00	0.00	0.00	0.00
23.00	30.0	0.00	0.00	0.00	0.00	0.00
24.00	30.0	0.00	0.00	0.00	0.00	0.00
25.00	30.0	0.00	0.00	0.00	0.00	0.00
26.00	30.0	0.00	0.00	0.00	0.00	0.00
27.00	30.0	0.00	0.00	0.00	0.00	0.00
28.00	30.0	0.00	0.00	0.00	0.00	0.00
29.00	30.0	0.00	0.00	0.00	0.00	0.00
30.00	30.0	0.00	0.00	0.00	0.00	0.00
31.00	30.0	1.14	0.00	1.14	0.57	1.14
32.00	30.0	4.55	0.00	4.55	2.27	4.55
33.00	30.0	10.23	360.11	370.34	185.17	1090.57
34.00	30.0	16.95	351.53	368.47	184.24	1071.53
35.00	30.0	23.46	347.59	371.04	185.52	1066.22
36.00	30.0	29.76	344.84	374.60	187.30	1064.27
37.00	30.0	35.90	339.48	375.38	187.69	1054.35
38.00	30.0	41.91	331.19	373.10	186.55	1035.47
39.00	30.0	47.80	323.82	371.63	185.81	1019.27
40.00	30.0	53.49	321.86	375.34	187.67	1019.05
41.00	30.0	58.88	325.86	384.74	192.37	1036.46
42.00	30.0	63.98	331.67	395.66	197.83	1059.00
43.00	30.0	69.15	332.58	401.73	200.86	1066.89
44.00	30.0	74.73	326.02	400.75	200.38	1052.79
45.00	30.0	80.72	313.15	393.87	196.94	1020.17
46.00	30.0	86.66	298.58	385.23	192.62	982.38
47.00	30.0	92.05	285.75	377.80	188.90	949.30
48.00	30.0	96.91	276.00	372.90	186.45	924.90
49.00	30.0	101.76	266.77	368.53	184.26	902.06
50.00	30.0	107.16	254.17	361.33	180.66	869.67
51.00	30.0	113.09	237.31	350.40	175.20	825.03
52.00	30.0	118.98	219.46	338.44	169.22	777.35
53.00	30.0	124.25	204.76	329.01	164.50	738.53
54.00	30.0	128.90	194.37	323.27	161.63	712.01
55.00	30.0	133.07	188.29	321.36	160.68	697.93
56.00	30.0	136.92	185.35	322.27	161.13	692.97
57.00	30.0	140.43	190.94	331.37	165.68	713.25
58.00	30.0	143.82	209.09	352.91	176.46	771.10
59.00	30.0	147.29	238.49	385.78	192.89	862.75
60.00	30.0	150.85	267.49	418.34	209.17	953.31
61.00	30.0	154.34	285.38	439.71	219.86	1010.47
62.00	30.0	157.62	293.04	450.67	225.33	1036.76
63.00	30.0	160.70	295.86	456.56	228.28	1048.27
64.00	30.0	163.76	298.02	461.79	230.89	1057.83
65.00	30.0	166.99	298.40	465.38	232.69	1062.18
66.00	30.0	170.38	296.99	467.36	233.68	1061.33
67.00	30.0	174.63	288.43	463.06	231.53	1039.92
68.00	30.0	180.46	268.30	448.76	224.38	985.37
69.00	30.0	187.86	237.56	425.42	212.71	900.55

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:33:09

General Information:
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  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	4- Lime Stone/Very shelly sand
8	15.00	13.00	4- Lime Stone/Very shelly sand
9	18.00	9.00	4- Lime Stone/Very shelly sand
10	21.00	10.00	4- Lime Stone/Very shelly sand
11	24.00	8.00	3- Clean sand
12	27.00	9.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	11.08	5-Void
2	-12.00	-24.00	12.00	10.75	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.14	0.00	0.14	0.07	0.14
11.00	18.0	0.55	0.00	0.55	0.27	0.55
12.00	18.0	1.23	26.54	27.77	13.89	80.86
13.00	18.0	2.07	25.68	27.75	13.87	79.11
14.00	18.0	2.96	24.68	27.64	13.82	76.99
15.00	18.0	3.91	23.53	27.44	13.72	74.51
16.00	18.0	4.82	22.62	27.44	13.72	72.67
17.00	18.0	5.64	22.28	27.93	13.96	72.50
18.00	18.0	6.36	22.54	28.90	14.45	73.98
19.00	18.0	7.04	23.10	30.14	15.07	76.35
20.00	18.0	7.75	23.70	31.45	15.72	78.84
21.00	18.0	8.48	24.33	32.81	16.40	81.46
22.00	18.0	9.29	24.87	34.16	17.08	83.89
23.00	18.0	10.23	25.19	35.42	17.71	85.79
24.00	18.0	11.29	25.00	36.29	18.15	86.29
25.00	18.0	12.45	25.00	37.45	18.72	87.45
26.00	18.0	13.42	25.43	38.85	19.43	89.71
27.00	18.0	13.99	27.19	41.18	20.59	95.56
28.00	18.0	14.27	31.17	45.44	22.72	107.79
29.00	18.0	14.55	37.14	51.69	25.85	125.98
30.00	18.0	14.92	44.72	59.64	29.82	149.07
31.00	18.0	15.65	53.16	68.81	34.40	175.14
32.00	18.0	17.01	61.58	78.59	39.29	201.75
33.00	18.0	26.34	142.05	168.39	84.19	452.48
34.00	18.0	30.37	138.46	168.82	84.41	445.74
35.00	18.0	34.27	133.51	167.78	83.89	434.79
36.00	18.0	38.06	127.20	165.25	82.63	419.65
37.00	18.0	41.78	121.38	163.15	81.58	405.91
38.00	18.0	45.50	117.88	163.38	81.69	399.15
39.00	18.0	49.22	116.72	165.93	82.97	399.37
40.00	18.0	52.77	116.23	169.00	84.50	401.45
41.00	18.0	56.01	114.75	170.76	85.38	400.25
42.00	18.0	58.92	112.28	171.21	85.60	395.77
43.00	18.0	61.84	108.08	169.92	84.96	386.08
44.00	18.0	65.08	101.39	166.47	83.23	369.25
45.00	18.0	68.63	92.22	160.85	80.42	345.28
46.00	18.0	72.12	85.19	157.31	78.65	327.68
47.00	18.0	75.13	84.95	160.08	80.04	329.98
48.00	18.0	77.67	91.50	169.17	84.59	352.17
49.00	18.0	79.97	99.40	179.37	89.68	378.16
50.00	18.0	82.24	103.21	185.44	92.72	391.86
51.00	18.0	84.48	102.93	187.41	93.70	393.27
52.00	18.0	86.96	98.79	185.75	92.88	383.34
53.00	18.0	89.94	91.03	180.97	90.48	363.03
54.00	18.0	93.41	79.65	173.05	86.53	332.35
55.00	18.0	96.82	69.03	165.85	82.93	303.92
56.00	18.0	99.61	63.60	163.21	81.60	290.40
57.00	18.0	101.78	63.34	165.11	82.56	291.78
58.00	18.0	103.63	65.35	168.97	84.49	299.67
59.00	18.0	105.45	66.74	172.19	86.09	305.66
60.00	18.0	107.25	67.50	174.75	87.37	309.75
61.00	18.0	109.11	67.57	176.67	88.34	311.80
62.00	18.0	111.12	66.86	177.97	88.99	311.69
63.00	18.0	113.27	65.38	178.65	89.33	309.41
64.00	18.0	115.44	63.67	179.11	89.56	306.46
65.00	18.0	117.49	62.29	179.78	89.89	304.35
66.00	18.0	119.41	61.22	180.64	90.32	303.09
67.00	18.0	121.28	60.47	181.76	90.88	302.71
68.00	18.0	123.18	60.02	183.21	91.60	303.25
69.00	18.0	125.10	59.87	184.98	92.49	304.72

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:33:23

General Information:
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  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	4- Lime Stone/Very shelly sand
8	15.00	13.00	4- Lime Stone/Very shelly sand
9	18.00	9.00	4- Lime Stone/Very shelly sand
10	21.00	10.00	4- Lime Stone/Very shelly sand
11	24.00	8.00	3- Clean sand
12	27.00	9.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	11.08	5-Void
2	-12.00	-24.00	12.00	10.75	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.18	0.00	0.18	0.09	0.18
11.00	24.0	0.73	0.00	0.73	0.36	0.73
12.00	24.0	1.64	44.87	46.51	23.25	136.24
13.00	24.0	2.76	44.07	46.83	23.41	134.96
14.00	24.0	3.95	43.03	46.98	23.49	133.03
15.00	24.0	5.21	41.69	46.90	23.45	130.29
16.00	24.0	6.43	40.60	47.03	23.52	128.24
17.00	24.0	7.52	40.37	47.89	23.95	128.64
18.00	24.0	8.48	41.07	49.55	24.78	131.70
19.00	24.0	9.39	42.26	51.66	25.83	136.19
20.00	24.0	10.33	43.28	53.61	26.81	140.17
21.00	24.0	11.31	43.90	55.21	27.60	143.01
22.00	24.0	12.39	44.18	56.56	28.28	144.91
23.00	24.0	13.64	49.14	62.78	31.39	161.06
24.00	24.0	15.06	43.55	58.60	29.30	145.70
25.00	24.0	16.33	44.08	60.41	30.20	148.57
26.00	24.0	17.13	46.27	63.40	31.70	155.94
27.00	24.0	17.72	50.42	68.14	34.07	168.99
28.00	24.0	18.27	56.17	74.44	37.22	186.78
29.00	24.0	18.81	63.38	82.19	41.10	208.95
30.00	24.0	19.36	72.08	91.44	45.72	235.60
31.00	24.0	20.26	81.73	102.00	51.00	265.46
32.00	24.0	21.87	91.41	113.28	56.64	296.10
33.00	24.0	35.12	244.38	279.49	139.75	768.25
34.00	24.0	40.49	233.38	273.87	136.93	740.62
35.00	24.0	45.70	223.67	269.37	134.69	716.72
36.00	24.0	50.74	218.37	269.11	134.55	705.85
37.00	24.0	55.70	216.82	272.52	136.26	706.15
38.00	24.0	60.66	214.61	275.27	137.63	704.48
39.00	24.0	65.62	207.98	273.60	136.80	689.55
40.00	24.0	70.37	198.48	268.85	134.42	665.81
41.00	24.0	74.68	189.77	264.46	132.23	644.00
42.00	24.0	78.57	183.96	262.53	131.26	630.45
43.00	24.0	82.45	177.93	260.39	130.19	616.25
44.00	24.0	86.77	171.01	257.78	128.89	599.80
45.00	24.0	91.51	165.62	257.13	128.56	588.36
46.00	24.0	96.16	165.51	261.67	130.83	592.69
47.00	24.0	100.18	169.31	269.48	134.74	608.10
48.00	24.0	103.56	171.86	275.42	137.71	619.14
49.00	24.0	106.62	171.06	277.69	138.84	619.81
50.00	24.0	109.65	167.54	277.19	138.60	612.28
51.00	24.0	112.64	164.04	276.68	138.34	604.76
52.00	24.0	115.95	158.12	274.07	137.03	590.31
53.00	24.0	119.92	148.09	268.00	134.00	564.18
54.00	24.0	124.55	134.66	259.20	129.60	528.52
55.00	24.0	129.09	122.98	252.07	126.04	498.03
56.00	24.0	132.81	117.06	249.88	124.94	484.01
57.00	24.0	135.71	115.78	251.49	125.74	483.05
58.00	24.0	138.17	116.40	254.57	127.28	487.36
59.00	24.0	140.60	116.80	257.40	128.70	491.00
60.00	24.0	143.00	117.61	260.61	130.30	495.82
61.00	24.0	145.48	118.10	263.58	131.79	499.78
62.00	24.0	148.16	117.16	265.32	132.66	499.64
63.00	24.0	151.03	114.38	265.42	132.71	494.18
64.00	24.0	153.93	110.90	264.83	132.41	486.63
65.00	24.0	156.65	108.45	265.11	132.55	482.01
66.00	24.0	159.22	107.64	266.86	133.43	482.14
67.00	24.0	161.71	107.85	269.56	134.78	485.25
68.00	24.0	164.24	108.46	272.70	136.35	489.62
69.00	24.0	166.80	109.49	276.29	138.14	495.26

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:33:35

General Information:
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  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	4- Lime Stone/Very shelly sand
8	15.00	13.00	4- Lime Stone/Very shelly sand
9	18.00	9.00	4- Lime Stone/Very shelly sand
10	21.00	10.00	4- Lime Stone/Very shelly sand
11	24.00	8.00	3- Clean sand
12	27.00	9.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	11.08	5-Void
2	-12.00	-24.00	12.00	10.75	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.23	0.00	0.23	0.11	0.23
11.00	30.0	0.91	0.00	0.91	0.45	0.91
12.00	30.0	2.05	68.74	70.79	35.39	208.28
13.00	30.0	3.45	67.98	71.43	35.71	207.38
14.00	30.0	4.94	66.84	71.78	35.89	205.47
15.00	30.0	6.51	65.44	71.95	35.97	202.83
16.00	30.0	8.04	64.53	72.57	36.29	201.63
17.00	30.0	9.40	64.79	74.20	37.10	203.78
18.00	30.0	10.60	65.95	76.55	38.27	208.44
19.00	30.0	11.74	67.16	78.90	39.45	213.22
20.00	30.0	12.92	67.88	80.79	40.40	216.55
21.00	30.0	14.14	74.32	88.46	44.23	237.09
22.00	30.0	15.48	92.77	108.25	54.13	293.80
23.00	30.0	17.05	123.30	140.35	70.17	386.95
24.00	30.0	18.82	83.85	102.67	51.34	270.37
25.00	30.0	20.36	84.83	105.18	52.59	274.84
26.00	30.0	21.47	87.69	109.16	54.58	284.54
27.00	30.0	22.42	92.30	114.72	57.36	299.32
28.00	30.0	23.25	98.59	121.84	60.92	319.03
29.00	30.0	23.98	106.63	130.61	65.31	343.88
30.00	30.0	24.67	116.36	141.03	70.51	373.75
31.00	30.0	25.81	126.84	152.65	76.32	406.33
32.00	30.0	27.89	136.41	164.30	82.15	437.11
33.00	30.0	43.90	362.55	406.45	203.22	1131.56
34.00	30.0	50.61	352.69	403.30	201.65	1108.67
35.00	30.0	57.12	348.32	405.44	202.72	1102.07
36.00	30.0	63.43	344.75	408.17	204.09	1097.66
37.00	30.0	69.63	336.46	406.08	203.04	1079.00
38.00	30.0	75.83	322.65	398.47	199.24	1043.77
39.00	30.0	82.03	305.94	387.97	193.98	999.85
40.00	30.0	87.96	290.91	378.87	189.43	960.69
41.00	30.0	93.35	279.50	372.85	186.42	931.85
42.00	30.0	98.21	274.73	372.94	186.47	922.39
43.00	30.0	103.06	275.75	378.81	189.41	930.30
44.00	30.0	108.46	278.67	387.13	193.57	944.48
45.00	30.0	114.39	277.07	391.46	195.73	945.61
46.00	30.0	120.20	269.22	389.41	194.71	927.84
47.00	30.0	125.22	259.80	385.02	192.51	904.62
48.00	30.0	129.46	252.24	381.70	190.85	886.18
49.00	30.0	133.28	247.33	380.61	190.30	875.27
50.00	30.0	137.06	242.43	379.49	189.75	864.35
51.00	30.0	140.80	238.44	379.24	189.62	856.12
52.00	30.0	144.94	233.23	378.17	189.08	844.63
53.00	30.0	149.90	223.78	373.67	186.84	821.22
54.00	30.0	155.68	208.66	364.34	182.17	781.65
55.00	30.0	161.37	192.89	354.26	177.13	740.04
56.00	30.0	166.02	182.92	348.93	174.47	714.76
57.00	30.0	169.63	179.50	349.13	174.57	708.14
58.00	30.0	172.71	180.01	352.72	176.36	712.74
59.00	30.0	175.75	181.02	356.77	178.38	718.81
60.00	30.0	178.75	182.03	360.78	180.39	724.84
61.00	30.0	181.85	181.64	363.49	181.75	726.78
62.00	30.0	185.19	178.96	364.15	182.08	722.08
63.00	30.0	188.79	174.73	363.52	181.76	712.99
64.00	30.0	192.41	171.14	363.54	181.77	705.81
65.00	30.0	195.82	169.58	365.40	182.70	704.56
66.00	30.0	199.02	170.08	369.10	184.55	709.27
67.00	30.0	202.14	171.87	374.02	187.01	717.76
68.00	30.0	205.30	174.39	379.69	189.85	728.47
69.00	30.0	208.51	177.83	386.34	193.17	742.00

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:34:07

General Information:
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  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	5- Cavity layer
8	15.00	13.00	5- Cavity layer
9	18.00	9.00	5- Cavity layer
10	21.00	10.00	5- Cavity layer
11	24.00	8.00	5- Cavity layer
12	27.00	9.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	10.21	5-Void
2	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.00	0.00	0.00	0.00	0.00
20.00	18.0	0.00	0.00	0.00	0.00	0.00
21.00	18.0	0.00	0.00	0.00	0.00	0.00
22.00	18.0	0.00	0.00	0.00	0.00	0.00
23.00	18.0	0.00	0.00	0.00	0.00	0.00
24.00	18.0	0.00	0.00	0.00	0.00	0.00
25.00	18.0	0.00	0.00	0.00	0.00	0.00
26.00	18.0	0.00	0.00	0.00	0.00	0.00
27.00	18.0	0.00	0.00	0.00	0.00	0.00
28.00	18.0	0.00	0.00	0.00	0.00	0.00
29.00	18.0	0.00	0.00	0.00	0.00	0.00
30.00	18.0	0.00	0.00	0.00	0.00	0.00
31.00	18.0	0.68	0.00	0.68	0.34	0.68
32.00	18.0	2.73	0.00	2.73	1.36	2.73
33.00	18.0	6.14	142.05	148.19	74.09	432.28
34.00	18.0	10.17	138.46	148.62	74.31	425.54
35.00	18.0	14.07	133.51	147.58	73.79	414.59
36.00	18.0	17.86	127.20	145.05	72.53	399.45
37.00	18.0	21.58	121.38	142.95	71.48	385.71
38.00	18.0	25.30	117.88	143.18	71.59	378.95
39.00	18.0	29.02	116.72	145.74	72.87	379.17
40.00	18.0	32.57	116.23	148.80	74.40	381.25
41.00	18.0	35.81	114.75	150.56	75.28	380.05
42.00	18.0	38.73	112.28	151.01	75.50	375.57
43.00	18.0	41.64	108.08	149.72	74.86	365.88
44.00	18.0	44.88	101.39	146.27	73.13	349.05
45.00	18.0	48.43	92.22	140.65	70.32	325.08
46.00	18.0	51.92	85.19	137.11	68.55	307.48
47.00	18.0	54.93	84.95	139.88	69.94	309.78
48.00	18.0	57.47	91.50	148.97	74.49	331.97
49.00	18.0	59.77	99.40	159.17	79.58	357.96
50.00	18.0	62.04	103.21	165.24	82.62	371.66
51.00	18.0	64.28	102.93	167.21	83.60	373.07
52.00	18.0	66.76	98.79	165.55	82.78	363.14
53.00	18.0	69.74	91.03	160.77	80.38	342.83
54.00	18.0	73.21	79.65	152.86	76.43	312.15
55.00	18.0	76.62	69.03	145.65	72.83	283.72
56.00	18.0	79.41	63.60	143.01	71.50	270.20
57.00	18.0	81.58	63.34	144.91	72.46	271.59
58.00	18.0	83.43	65.35	148.77	74.39	279.47
59.00	18.0	85.25	66.74	151.99	75.99	285.46
60.00	18.0	87.05	67.50	154.55	77.27	289.55
61.00	18.0	88.91	67.57	156.47	78.24	291.60
62.00	18.0	90.92	66.86	157.77	78.89	291.49
63.00	18.0	93.07	65.38	158.45	79.23	289.21
64.00	18.0	95.24	63.67	158.92	79.46	286.26
65.00	18.0	97.29	62.29	159.58	79.79	284.15
66.00	18.0	99.21	61.22	160.44	80.22	282.89
67.00	18.0	101.08	60.47	161.56	80.78	282.51
68.00	18.0	102.98	60.02	163.01	81.50	283.05
69.00	18.0	104.90	59.87	164.78	82.39	284.52

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:34:18

General Information:
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  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	5- Cavity layer
8	15.00	13.00	5- Cavity layer
9	18.00	9.00	5- Cavity layer
10	21.00	10.00	5- Cavity layer
11	24.00	8.00	5- Cavity layer
12	27.00	9.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	10.21	5-Void
2	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.00	0.00	0.00	0.00	0.00
20.00	24.0	0.00	0.00	0.00	0.00	0.00
21.00	24.0	0.00	0.00	0.00	0.00	0.00
22.00	24.0	0.00	0.00	0.00	0.00	0.00
23.00	24.0	0.00	0.00	0.00	0.00	0.00
24.00	24.0	0.00	0.00	0.00	0.00	0.00
25.00	24.0	0.00	0.00	0.00	0.00	0.00
26.00	24.0	0.00	0.00	0.00	0.00	0.00
27.00	24.0	0.00	0.00	0.00	0.00	0.00
28.00	24.0	0.00	0.00	0.00	0.00	0.00
29.00	24.0	0.00	0.00	0.00	0.00	0.00
30.00	24.0	0.00	0.00	0.00	0.00	0.00
31.00	24.0	0.91	0.00	0.91	0.45	0.91
32.00	24.0	3.64	0.00	3.64	1.82	3.64
33.00	24.0	8.18	244.38	252.56	126.28	741.32
34.00	24.0	13.56	233.38	246.94	123.47	713.69
35.00	24.0	18.77	223.67	242.44	121.22	689.79
36.00	24.0	23.81	218.37	242.18	121.09	678.91
37.00	24.0	28.77	216.82	245.58	122.79	679.22
38.00	24.0	33.73	214.61	248.33	124.17	677.55
39.00	24.0	38.69	207.98	246.66	123.33	662.62
40.00	24.0	43.43	198.48	241.91	120.96	638.88
41.00	24.0	47.75	189.77	237.52	118.76	617.07
42.00	24.0	51.63	183.96	235.59	117.80	603.51
43.00	24.0	55.52	177.93	233.45	116.73	589.32
44.00	24.0	59.83	171.01	230.85	115.42	572.87
45.00	24.0	64.58	165.62	230.20	115.10	561.43
46.00	24.0	69.23	165.51	234.74	117.37	565.76
47.00	24.0	73.24	169.31	242.55	121.28	581.17
48.00	24.0	76.63	171.86	248.49	124.25	592.21
49.00	24.0	79.69	171.06	250.75	125.38	592.88
50.00	24.0	82.72	167.54	250.26	125.13	585.35
51.00	24.0	85.71	164.04	249.75	124.87	577.82
52.00	24.0	89.02	158.12	247.14	123.57	563.38
53.00	24.0	92.98	148.09	241.07	120.54	537.25
54.00	24.0	97.61	134.66	232.27	116.14	501.59
55.00	24.0	102.16	122.98	225.14	112.57	471.10
56.00	24.0	105.88	117.06	222.94	111.47	457.07
57.00	24.0	108.77	115.78	224.55	112.28	456.12
58.00	24.0	111.24	116.40	227.63	113.82	460.43
59.00	24.0	113.67	116.80	230.47	115.23	464.07
60.00	24.0	116.06	117.61	233.67	116.84	468.89
61.00	24.0	118.54	118.10	236.65	118.32	472.85
62.00	24.0	121.22	117.16	238.38	119.19	472.71
63.00	24.0	124.10	114.38	238.48	119.24	467.25
64.00	24.0	126.99	110.90	237.89	118.95	459.70
65.00	24.0	129.72	108.45	238.17	119.09	455.08
66.00	24.0	132.28	107.64	239.92	119.96	455.20
67.00	24.0	134.78	107.85	242.63	121.31	458.32
68.00	24.0	137.31	108.46	245.77	122.88	462.68
69.00	24.0	139.87	109.49	249.36	124.68	468.33

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:34:27

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	5- Cavity layer
8	15.00	13.00	5- Cavity layer
9	18.00	9.00	5- Cavity layer
10	21.00	10.00	5- Cavity layer
11	24.00	8.00	5- Cavity layer
12	27.00	9.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	10.21	5-Void
2	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.00	0.00	0.00	0.00	0.00
11.00	30.0	0.00	0.00	0.00	0.00	0.00
12.00	30.0	0.00	0.00	0.00	0.00	0.00
13.00	30.0	0.00	0.00	0.00	0.00	0.00
14.00	30.0	0.00	0.00	0.00	0.00	0.00
15.00	30.0	0.00	0.00	0.00	0.00	0.00
16.00	30.0	0.00	0.00	0.00	0.00	0.00
17.00	30.0	0.00	0.00	0.00	0.00	0.00
18.00	30.0	0.00	0.00	0.00	0.00	0.00
19.00	30.0	0.00	0.00	0.00	0.00	0.00
20.00	30.0	0.00	0.00	0.00	0.00	0.00
21.00	30.0	0.00	0.00	0.00	0.00	0.00
22.00	30.0	0.00	0.00	0.00	0.00	0.00
23.00	30.0	0.00	0.00	0.00	0.00	0.00
24.00	30.0	0.00	0.00	0.00	0.00	0.00
25.00	30.0	0.00	0.00	0.00	0.00	0.00
26.00	30.0	0.00	0.00	0.00	0.00	0.00
27.00	30.0	0.00	0.00	0.00	0.00	0.00
28.00	30.0	0.00	0.00	0.00	0.00	0.00
29.00	30.0	0.00	0.00	0.00	0.00	0.00
30.00	30.0	0.00	0.00	0.00	0.00	0.00
31.00	30.0	1.14	0.00	1.14	0.57	1.14
32.00	30.0	4.55	0.00	4.55	2.27	4.55
33.00	30.0	10.23	362.55	372.78	186.39	1097.89
34.00	30.0	16.95	352.69	369.63	184.82	1075.00
35.00	30.0	23.46	348.32	371.77	185.89	1068.41
36.00	30.0	29.76	344.75	374.51	187.25	1064.00
37.00	30.0	35.96	336.46	372.42	186.21	1045.34
38.00	30.0	42.16	322.65	364.81	182.40	1010.10
39.00	30.0	48.36	305.94	354.30	177.15	966.19
40.00	30.0	54.29	290.91	345.20	172.60	927.03
41.00	30.0	59.69	279.50	339.18	169.59	898.18
42.00	30.0	64.54	274.73	339.27	169.63	888.73
43.00	30.0	69.40	275.75	345.15	172.57	896.64
44.00	30.0	74.79	278.67	353.47	176.73	910.81
45.00	30.0	80.72	277.07	357.80	178.90	911.95
46.00	30.0	86.53	269.22	355.75	177.87	894.18
47.00	30.0	91.55	259.80	351.35	175.68	870.95
48.00	30.0	95.79	252.24	348.03	174.02	852.52
49.00	30.0	99.61	247.33	346.94	173.47	841.60
50.00	30.0	103.40	242.43	345.82	172.91	830.68
51.00	30.0	107.14	238.44	345.58	172.79	822.46
52.00	30.0	111.27	233.23	344.50	172.25	810.96
53.00	30.0	116.23	223.78	340.01	170.00	787.56
54.00	30.0	122.02	208.66	330.67	165.34	747.99
55.00	30.0	127.70	192.89	320.59	160.30	706.37
56.00	30.0	132.35	182.92	315.27	157.63	681.10
57.00	30.0	135.97	179.50	315.47	157.73	674.47
58.00	30.0	139.05	180.01	319.05	159.53	679.07
59.00	30.0	142.08	181.02	323.10	161.55	685.14
60.00	30.0	145.08	182.03	327.11	163.56	691.18
61.00	30.0	148.18	181.64	329.82	164.91	693.11
62.00	30.0	151.53	178.96	330.49	165.24	688.41
63.00	30.0	155.12	174.73	329.86	164.93	679.33
64.00	30.0	158.74	171.14	329.88	164.94	672.15
65.00	30.0	162.15	169.58	331.73	165.87	670.90
66.00	30.0	165.35	170.08	335.44	167.72	675.60
67.00	30.0	168.47	171.87	340.35	170.17	684.10
68.00	30.0	171.64	174.39	346.03	173.01	694.80
69.00	30.0	174.84	177.83	352.67	176.34	708.34

NOTES
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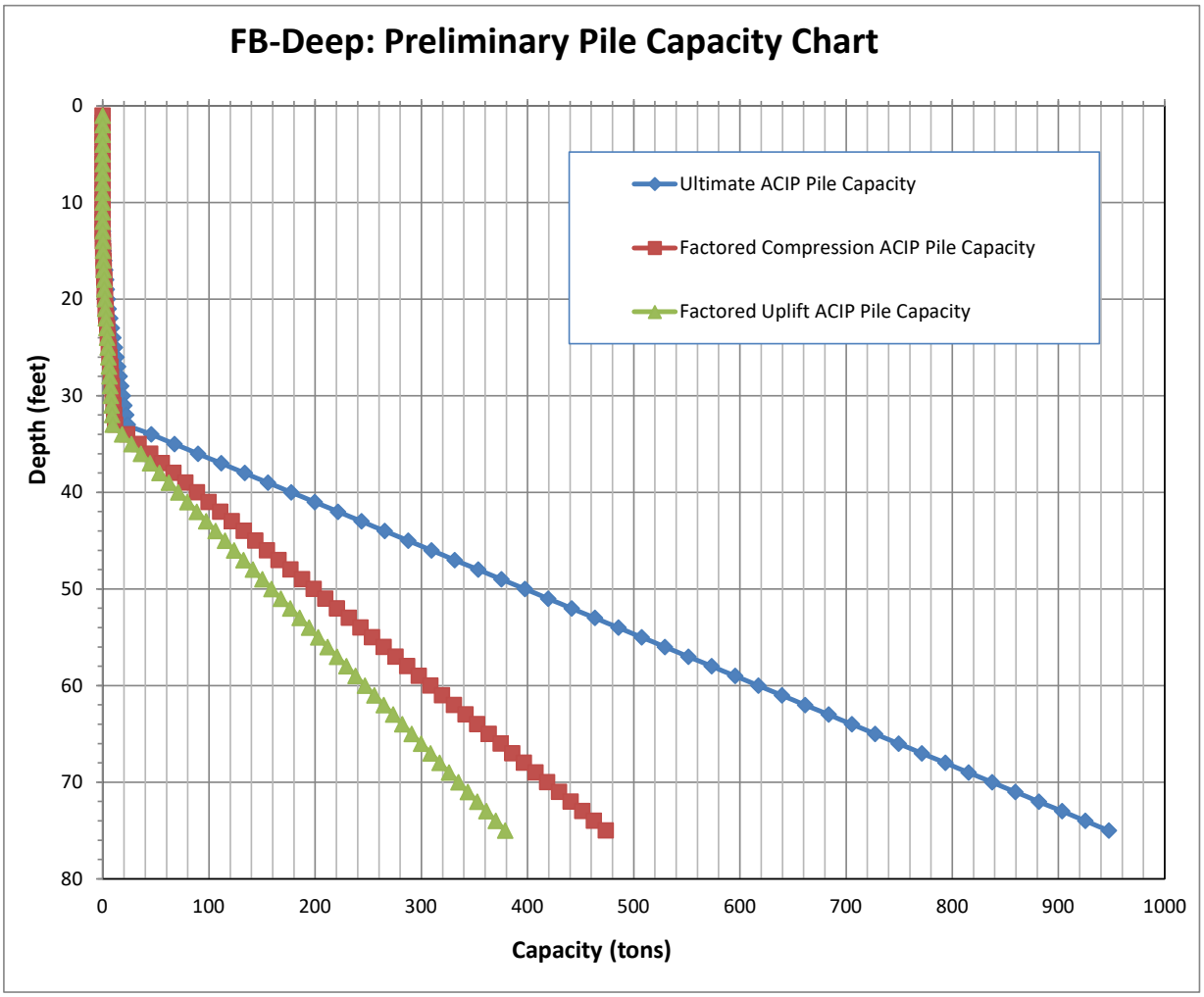
1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

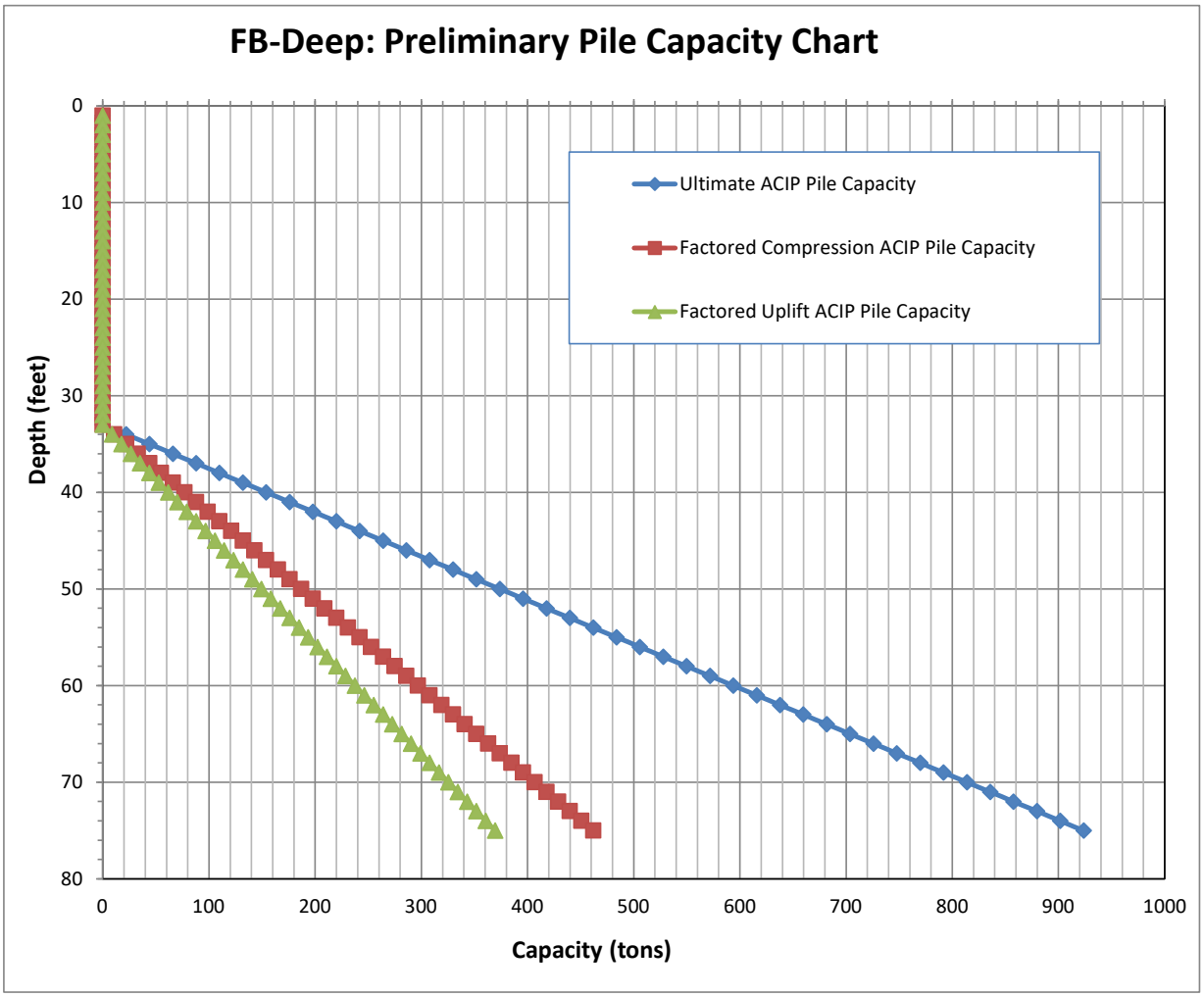
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

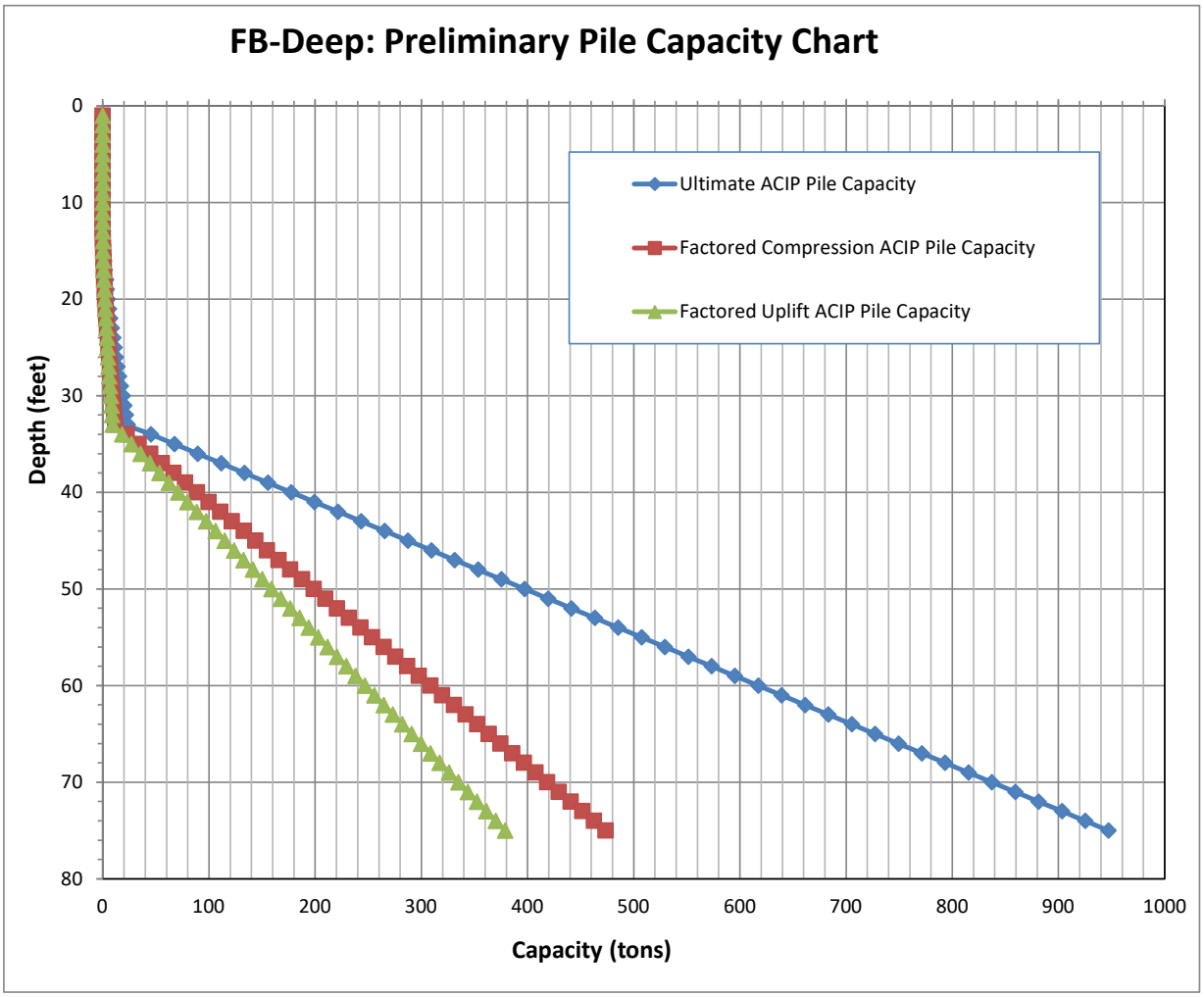
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Diameter ACIP Pile - End Bents



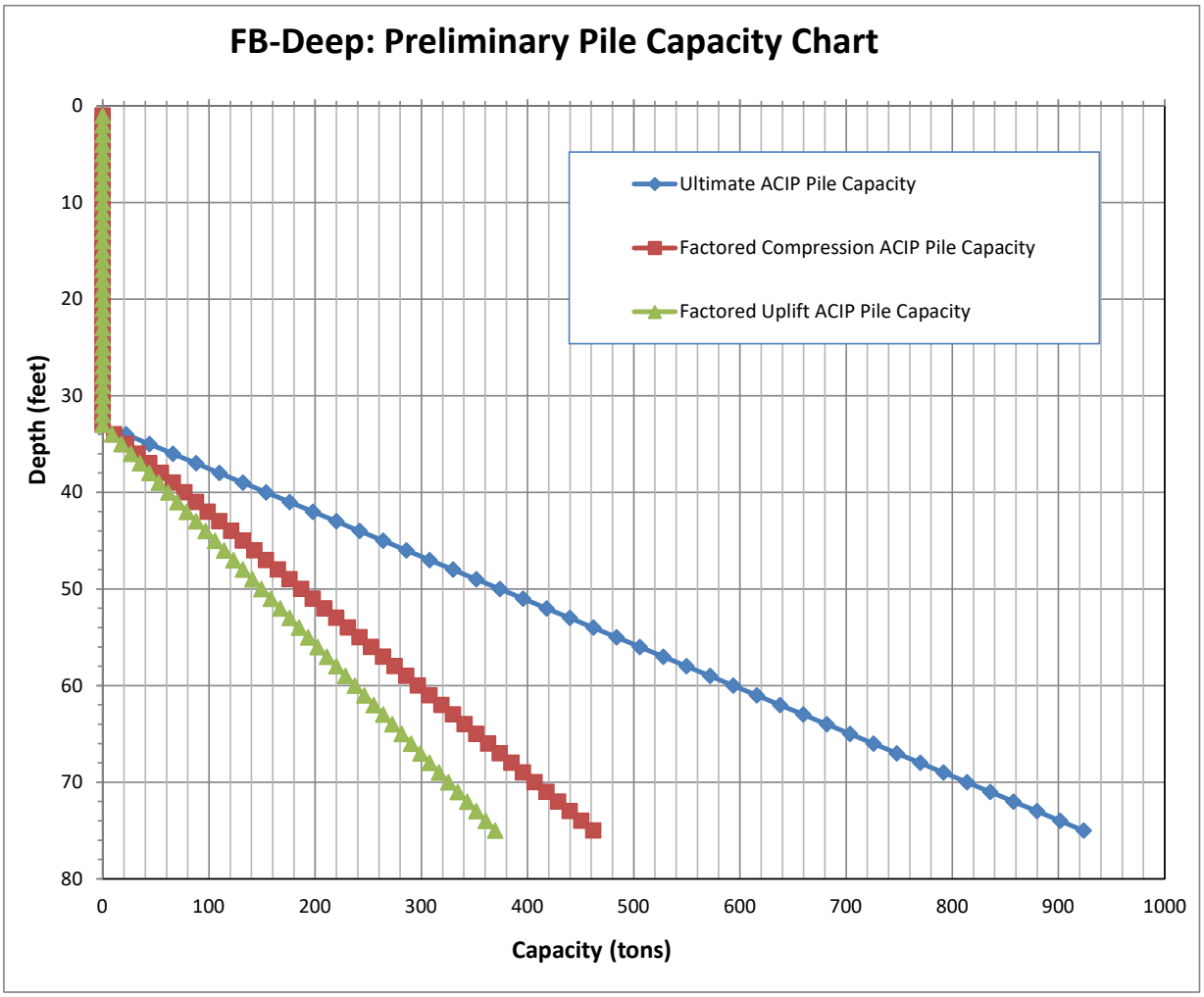
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Diameter ACIP Pile - Interior Piers



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Diameter ACIP Pile - End Bents



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Diameter ACIP Pile - Interior Piers



Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:24:09

General Information:
==========
  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-1 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method
  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	12.00	120.00	3- Clean sand
8	15.00	-15.00	14.00	120.00	3- Clean sand
9	18.00	-18.00	8.00	120.00	3- Clean sand
10	21.00	-21.00	11.00	120.00	3- Clean sand
11	24.00	-24.00	9.00	110.00	3- Clean sand
12	27.00	-27.00	8.00	110.00	3- Clean sand
13	30.00	-30.00	8.00	110.00	3- Clean sand
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A

12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00

15	15.00	-15.00	0.00	24.00	24.00	0.00
16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
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Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000

10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.092	0.000	0.092
14	24.00	14.00	0.364	0.000	0.364
15	24.00	15.00	0.811	0.000	0.811
16	24.00	16.00	1.424	0.000	1.424
17	24.00	17.00	2.201	0.000	2.201
18	24.00	18.00	3.136	0.000	3.136
19	24.00	19.00	3.851	0.000	3.851
20	24.00	20.00	4.663	0.000	4.663
21	24.00	21.00	5.569	0.000	5.569
22	24.00	22.00	6.936	0.000	6.936
23	24.00	23.00	8.422	0.000	8.422
24	24.00	24.00	10.025	0.000	10.025
25	24.00	25.00	11.415	0.000	11.415
26	24.00	26.00	12.875	0.000	12.875
27	24.00	27.00	14.401	0.000	14.401
28	24.00	28.00	15.813	0.000	15.813
29	24.00	29.00	17.279	0.000	17.279
30	24.00	30.00	18.799	0.000	18.799
31	24.00	31.00	20.367	0.000	20.367
32	24.00	32.00	21.984	0.000	21.984
33	24.00	33.00	23.649	0.000	23.649
34	24.00	34.00	45.640	0.000	45.640
35	24.00	35.00	67.631	0.000	67.631
36	24.00	36.00	89.622	0.000	89.622
37	24.00	37.00	111.613	0.000	111.613
38	24.00	38.00	133.604	0.000	133.604
39	24.00	39.00	155.595	0.000	155.595
40	24.00	40.00	177.587	0.000	177.587
41	24.00	41.00	199.578	0.000	199.578
42	24.00	42.00	221.569	0.000	221.569
43	24.00	43.00	243.560	0.000	243.560
44	24.00	44.00	265.551	0.000	265.551
45	24.00	45.00	287.542	0.000	287.542
46	24.00	46.00	309.533	0.000	309.533
47	24.00	47.00	331.525	0.000	331.525
48	24.00	48.00	353.516	0.000	353.516
49	24.00	49.00	375.507	0.000	375.507
50	24.00	50.00	397.498	0.000	397.498
51	24.00	51.00	419.489	0.000	419.489
52	24.00	52.00	441.480	0.000	441.480
53	24.00	53.00	463.471	0.000	463.471
54	24.00	54.00	485.463	0.000	485.463
55	24.00	55.00	507.454	0.000	507.454
56	24.00	56.00	529.445	0.000	529.445
57	24.00	57.00	551.436	0.000	551.436
58	24.00	58.00	573.427	0.000	573.427
59	24.00	59.00	595.418	0.000	595.418
60	24.00	60.00	617.410	0.000	617.410
61	24.00	61.00	639.401	0.000	639.401
62	24.00	62.00	661.392	0.000	661.392
63	24.00	63.00	683.383	0.000	683.383
64	24.00	64.00	705.374	0.000	705.374
65	24.00	65.00	727.365	0.000	727.365
66	24.00	66.00	749.356	0.000	749.356
67	24.00	67.00	771.348	0.000	771.348
68	24.00	68.00	793.339	0.000	793.339
69	24.00	69.00	815.330	0.000	815.330
70	24.00	70.00	837.321	0.000	837.321
71	24.00	71.00	859.312	0.000	859.312
72	24.00	72.00	881.303	0.000	881.303
73	24.00	73.00	903.294	0.000	903.294
74	24.00	74.00	925.286	0.000	925.286
75	24.00	75.00	947.277	0.000	947.277

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000

2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	15.079	15.079
13	24.00	13.00	0.090	14.693	14.782
14	24.00	14.00	0.356	13.533	13.889
15	24.00	15.00	0.793	27.114	27.907
16	24.00	16.00	1.393	26.357	27.750
17	24.00	17.00	2.153	25.438	27.591
18	24.00	18.00	3.067	24.117	27.184
19	24.00	19.00	3.767	22.812	26.579
20	24.00	20.00	4.561	22.184	26.745
21	24.00	21.00	5.448	22.281	27.728
22	24.00	22.00	6.784	22.490	29.274
23	24.00	23.00	8.238	22.152	30.390
24	24.00	24.00	9.806	21.314	31.120
25	24.00	25.00	11.165	20.364	31.529
26	24.00	26.00	12.593	19.639	32.231
27	24.00	27.00	14.086	20.344	34.430
28	24.00	28.00	15.466	23.637	39.103
29	24.00	29.00	16.901	29.468	46.369
30	24.00	30.00	18.387	33.018	51.405
31	24.00	31.00	19.921	39.444	59.366
32	24.00	32.00	21.503	49.083	70.586
33	24.00	33.00	23.131	950.286	973.417
34	24.00	34.00	44.930	724.224	769.155
35	24.00	35.00	66.353	455.180	521.533
36	24.00	36.00	87.410	346.899	434.309
37	24.00	37.00	108.111	286.084	394.195
38	24.00	38.00	128.928	279.776	408.703
39	24.00	39.00	149.599	272.962	422.561
40	24.00	40.00	170.133	266.074	436.207
41	24.00	41.00	190.536	259.301	449.837
42	24.00	42.00	210.813	252.726	463.539
43	24.00	43.00	230.969	246.381	477.350
44	24.00	44.00	251.007	240.275	491.283
45	24.00	45.00	270.932	234.405	505.337
46	24.00	46.00	290.746	228.759	519.505
47	24.00	47.00	310.452	223.327	533.779
48	24.00	48.00	330.054	218.094	548.148
49	24.00	49.00	349.552	213.049	562.601
50	24.00	50.00	368.950	208.178	577.127
51	24.00	51.00	388.249	203.469	591.718
52	24.00	52.00	407.452	198.912	606.364
53	24.00	53.00	426.561	194.496	621.056
54	24.00	54.00	445.576	190.211	635.788
55	24.00	55.00	464.501	186.050	650.551
56	24.00	56.00	483.336	182.004	665.339
57	24.00	57.00	502.082	178.066	680.148
58	24.00	58.00	520.742	174.228	694.971
59	24.00	59.00	539.317	170.486	709.803
60	24.00	60.00	557.808	166.832	724.640
61	24.00	61.00	576.217	163.262	739.479
62	24.00	62.00	594.544	159.771	754.315
63	24.00	63.00	612.791	156.354	769.145
64	24.00	64.00	630.959	153.007	783.966
65	24.00	65.00	649.049	149.726	798.775
66	24.00	66.00	667.062	146.507	813.569
67	24.00	67.00	684.999	143.348	828.347
68	24.00	68.00	702.862	140.243	843.105
69	24.00	69.00	720.651	137.192	857.842
70	24.00	70.00	738.367	134.190	872.556
71	24.00	71.00	756.011	131.235	887.246
72	24.00	72.00	773.584	128.324	901.908
73	24.00	73.00	791.087	125.456	916.543
74	24.00	74.00	808.521	122.627	931.148
75	24.00	75.00	825.887	119.835	945.722

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:24:43

General Information:
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  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-1 - Int. Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
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  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00
15	15.00	-15.00	0.00	24.00	24.00	0.00

16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000

11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	0.000	0.000
34	24.00	34.00	21.991	0.000	21.991
35	24.00	35.00	43.982	0.000	43.982
36	24.00	36.00	65.973	0.000	65.973
37	24.00	37.00	87.965	0.000	87.965
38	24.00	38.00	109.956	0.000	109.956
39	24.00	39.00	131.947	0.000	131.947
40	24.00	40.00	153.938	0.000	153.938
41	24.00	41.00	175.929	0.000	175.929
42	24.00	42.00	197.920	0.000	197.920
43	24.00	43.00	219.911	0.000	219.911
44	24.00	44.00	241.903	0.000	241.903
45	24.00	45.00	263.894	0.000	263.894
46	24.00	46.00	285.885	0.000	285.885
47	24.00	47.00	307.876	0.000	307.876
48	24.00	48.00	329.867	0.000	329.867
49	24.00	49.00	351.858	0.000	351.858
50	24.00	50.00	373.850	0.000	373.850
51	24.00	51.00	395.841	0.000	395.841
52	24.00	52.00	417.832	0.000	417.832
53	24.00	53.00	439.823	0.000	439.823
54	24.00	54.00	461.814	0.000	461.814
55	24.00	55.00	483.805	0.000	483.805
56	24.00	56.00	505.796	0.000	505.796
57	24.00	57.00	527.788	0.000	527.788
58	24.00	58.00	549.779	0.000	549.779
59	24.00	59.00	571.770	0.000	571.770
60	24.00	60.00	593.761	0.000	593.761
61	24.00	61.00	615.752	0.000	615.752
62	24.00	62.00	637.743	0.000	637.743
63	24.00	63.00	659.734	0.000	659.734
64	24.00	64.00	681.726	0.000	681.726
65	24.00	65.00	703.717	0.000	703.717
66	24.00	66.00	725.708	0.000	725.708
67	24.00	67.00	747.699	0.000	747.699
68	24.00	68.00	769.690	0.000	769.690
69	24.00	69.00	791.681	0.000	791.681
70	24.00	70.00	813.672	0.000	813.672
71	24.00	71.00	835.664	0.000	835.664
72	24.00	72.00	857.655	0.000	857.655
73	24.00	73.00	879.646	0.000	879.646
74	24.00	74.00	901.637	0.000	901.637
75	24.00	75.00	923.628	0.000	923.628

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000

3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	950.286	950.286
34	24.00	34.00	21.799	724.224	746.024
35	24.00	35.00	43.222	455.180	498.402
36	24.00	36.00	64.279	346.899	411.178
37	24.00	37.00	84.980	286.084	371.064
38	24.00	38.00	105.797	279.776	385.572
39	24.00	39.00	126.468	272.962	399.430
40	24.00	40.00	147.002	266.074	413.076
41	24.00	41.00	167.405	259.301	426.706
42	24.00	42.00	187.682	252.726	440.408
43	24.00	43.00	207.838	246.381	454.219
44	24.00	44.00	227.876	240.275	468.152
45	24.00	45.00	247.801	234.405	482.206
46	24.00	46.00	267.615	228.759	496.374
47	24.00	47.00	287.322	223.327	510.648
48	24.00	48.00	306.923	218.094	525.017
49	24.00	49.00	326.421	213.049	539.470
50	24.00	50.00	345.819	208.178	553.997
51	24.00	51.00	365.118	203.469	568.587
52	24.00	52.00	384.321	198.912	583.233
53	24.00	53.00	403.430	194.496	597.925
54	24.00	54.00	422.445	190.211	612.657
55	24.00	55.00	441.370	186.050	627.420
56	24.00	56.00	460.205	182.004	642.209
57	24.00	57.00	478.951	178.066	657.017
58	24.00	58.00	497.612	174.228	671.840
59	24.00	59.00	516.187	170.486	686.672
60	24.00	60.00	534.678	166.832	701.509
61	24.00	61.00	553.086	163.262	716.348
62	24.00	62.00	571.413	159.771	731.184
63	24.00	63.00	589.660	156.354	746.014
64	24.00	64.00	607.828	153.007	760.835
65	24.00	65.00	625.918	149.726	775.644
66	24.00	66.00	643.931	146.507	790.438
67	24.00	67.00	661.868	143.348	805.216
68	24.00	68.00	679.731	140.243	819.974
69	24.00	69.00	697.520	137.192	834.711
70	24.00	70.00	715.236	134.190	849.425
71	24.00	71.00	732.880	131.235	864.115
72	24.00	72.00	750.453	128.324	878.777
73	24.00	73.00	767.956	125.456	893.412
74	24.00	74.00	785.390	122.627	908.017
75	24.00	75.00	802.756	119.835	922.591

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:39:17

General Information:
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Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-2 - End Bents.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
Boring date: 8/20/2021
Boring number: BR-2
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = -6.20(ft)

Rock side-friction is calculated using: McVay's method
Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	11.00	120.00	3- Clean sand
8	15.00	-15.00	13.00	120.00	3- Clean sand
9	18.00	-18.00	9.00	120.00	3- Clean sand
10	21.00	-21.00	10.00	120.00	3- Clean sand
11	24.00	-24.00	8.00	110.00	3- Clean sand
12	27.00	-27.00	9.00	110.00	3- Clean sand
13	30.00	-30.00	8.00	110.00	3- Clean sand
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A

12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00

15	15.00	-15.00	0.00	24.00	24.00	0.00
16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000

10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.084	0.000	0.084
14	24.00	14.00	0.333	0.000	0.333
15	24.00	15.00	0.743	0.000	0.743
16	24.00	16.00	1.357	0.000	1.357
17	24.00	17.00	2.133	0.000	2.133
18	24.00	18.00	3.068	0.000	3.068
19	24.00	19.00	3.873	0.000	3.873
20	24.00	20.00	4.786	0.000	4.786
21	24.00	21.00	5.806	0.000	5.806
22	24.00	22.00	7.048	0.000	7.048
23	24.00	23.00	8.399	0.000	8.399
24	24.00	24.00	9.857	0.000	9.857
25	24.00	25.00	11.092	0.000	11.092
26	24.00	26.00	12.389	0.000	12.389
27	24.00	27.00	13.746	0.000	13.746
28	24.00	28.00	15.334	0.000	15.334
29	24.00	29.00	16.984	0.000	16.984
30	24.00	30.00	18.694	0.000	18.694
31	24.00	31.00	20.262	0.000	20.262
32	24.00	32.00	21.879	0.000	21.879
33	24.00	33.00	23.544	0.000	23.544
34	24.00	34.00	45.535	0.000	45.535
35	24.00	35.00	67.526	0.000	67.526
36	24.00	36.00	89.517	0.000	89.517
37	24.00	37.00	111.508	0.000	111.508
38	24.00	38.00	133.499	0.000	133.499
39	24.00	39.00	155.490	0.000	155.490
40	24.00	40.00	177.482	0.000	177.482
41	24.00	41.00	199.473	0.000	199.473
42	24.00	42.00	221.464	0.000	221.464
43	24.00	43.00	243.455	0.000	243.455
44	24.00	44.00	265.446	0.000	265.446
45	24.00	45.00	287.437	0.000	287.437
46	24.00	46.00	309.429	0.000	309.429
47	24.00	47.00	331.420	0.000	331.420
48	24.00	48.00	353.411	0.000	353.411
49	24.00	49.00	375.402	0.000	375.402
50	24.00	50.00	397.393	0.000	397.393
51	24.00	51.00	419.384	0.000	419.384
52	24.00	52.00	441.375	0.000	441.375
53	24.00	53.00	463.367	0.000	463.367
54	24.00	54.00	485.358	0.000	485.358
55	24.00	55.00	507.349	0.000	507.349
56	24.00	56.00	529.340	0.000	529.340
57	24.00	57.00	551.331	0.000	551.331
58	24.00	58.00	573.322	0.000	573.322
59	24.00	59.00	595.313	0.000	595.313
60	24.00	60.00	617.305	0.000	617.305
61	24.00	61.00	639.296	0.000	639.296
62	24.00	62.00	661.287	0.000	661.287
63	24.00	63.00	683.278	0.000	683.278
64	24.00	64.00	705.269	0.000	705.269
65	24.00	65.00	727.260	0.000	727.260
66	24.00	66.00	749.252	0.000	749.252
67	24.00	67.00	771.243	0.000	771.243
68	24.00	68.00	793.234	0.000	793.234
69	24.00	69.00	815.225	0.000	815.225
70	24.00	70.00	837.216	0.000	837.216
71	24.00	71.00	859.207	0.000	859.207
72	24.00	72.00	881.198	0.000	881.198
73	24.00	73.00	903.190	0.000	903.190
74	24.00	74.00	925.181	0.000	925.181
75	24.00	75.00	947.172	0.000	947.172

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000

2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	14.016	14.016
13	24.00	13.00	0.082	13.919	14.002
14	24.00	14.00	0.326	13.243	13.569
15	24.00	15.00	0.727	26.147	26.874
16	24.00	16.00	1.327	25.712	27.039
17	24.00	17.00	2.086	24.987	27.074
18	24.00	18.00	3.001	23.827	26.828
19	24.00	19.00	3.788	22.555	26.343
20	24.00	20.00	4.682	21.636	26.318
21	24.00	21.00	5.679	21.217	26.896
22	24.00	22.00	6.894	21.072	27.966
23	24.00	23.00	8.216	20.831	29.046
24	24.00	24.00	9.641	20.396	30.037
25	24.00	25.00	10.850	19.912	30.762
26	24.00	26.00	12.118	19.623	31.741
27	24.00	27.00	13.445	20.779	34.224
28	24.00	28.00	14.999	24.410	39.409
29	24.00	29.00	16.612	30.289	46.902
30	24.00	30.00	18.285	33.598	51.883
31	24.00	31.00	19.819	39.702	59.521
32	24.00	32.00	21.400	49.148	70.548
33	24.00	33.00	23.028	950.286	973.314
34	24.00	34.00	44.828	724.224	769.052
35	24.00	35.00	66.251	455.180	521.431
36	24.00	36.00	87.307	346.899	434.206
37	24.00	37.00	108.008	286.084	394.092
38	24.00	38.00	128.825	279.776	408.601
39	24.00	39.00	149.497	272.962	422.458
40	24.00	40.00	170.030	266.074	436.104
41	24.00	41.00	190.433	259.301	449.734
42	24.00	42.00	210.710	252.726	463.436
43	24.00	43.00	230.866	246.381	477.247
44	24.00	44.00	250.905	240.275	491.180
45	24.00	45.00	270.829	234.405	505.234
46	24.00	46.00	290.644	228.759	519.403
47	24.00	47.00	310.350	223.327	533.676
48	24.00	48.00	329.951	218.094	548.045
49	24.00	49.00	349.449	213.049	562.498
50	24.00	50.00	368.847	208.178	577.025
51	24.00	51.00	388.147	203.469	591.616
52	24.00	52.00	407.350	198.912	606.261
53	24.00	53.00	426.458	194.496	620.954
54	24.00	54.00	445.474	190.211	635.685
55	24.00	55.00	464.398	186.050	650.448
56	24.00	56.00	483.233	182.004	665.237
57	24.00	57.00	501.980	178.066	680.045
58	24.00	58.00	520.640	174.228	694.868
59	24.00	59.00	539.215	170.486	709.700
60	24.00	60.00	557.706	166.832	724.538
61	24.00	61.00	576.114	163.262	739.376
62	24.00	62.00	594.441	159.771	754.212
63	24.00	63.00	612.688	156.354	769.042
64	24.00	64.00	630.856	153.007	783.863
65	24.00	65.00	648.946	149.726	798.672
66	24.00	66.00	666.959	146.507	813.467
67	24.00	67.00	684.896	143.348	828.244
68	24.00	68.00	702.759	140.243	843.002
69	24.00	69.00	720.548	137.192	857.740
70	24.00	70.00	738.264	134.190	872.454
71	24.00	71.00	755.908	131.235	887.143
72	24.00	72.00	773.481	128.324	901.806
73	24.00	73.00	790.984	125.456	916.440
74	24.00	74.00	808.418	122.627	931.045
75	24.00	75.00	825.784	119.835	945.619

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:25:12

General Information:
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  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-2 - Int. Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
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  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00
15	15.00	-15.00	0.00	24.00	24.00	0.00

16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000

11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	0.000	0.000
34	24.00	34.00	21.991	0.000	21.991
35	24.00	35.00	43.982	0.000	43.982
36	24.00	36.00	65.973	0.000	65.973
37	24.00	37.00	87.965	0.000	87.965
38	24.00	38.00	109.956	0.000	109.956
39	24.00	39.00	131.947	0.000	131.947
40	24.00	40.00	153.938	0.000	153.938
41	24.00	41.00	175.929	0.000	175.929
42	24.00	42.00	197.920	0.000	197.920
43	24.00	43.00	219.911	0.000	219.911
44	24.00	44.00	241.903	0.000	241.903
45	24.00	45.00	263.894	0.000	263.894
46	24.00	46.00	285.885	0.000	285.885
47	24.00	47.00	307.876	0.000	307.876
48	24.00	48.00	329.867	0.000	329.867
49	24.00	49.00	351.858	0.000	351.858
50	24.00	50.00	373.850	0.000	373.850
51	24.00	51.00	395.841	0.000	395.841
52	24.00	52.00	417.832	0.000	417.832
53	24.00	53.00	439.823	0.000	439.823
54	24.00	54.00	461.814	0.000	461.814
55	24.00	55.00	483.805	0.000	483.805
56	24.00	56.00	505.796	0.000	505.796
57	24.00	57.00	527.788	0.000	527.788
58	24.00	58.00	549.779	0.000	549.779
59	24.00	59.00	571.770	0.000	571.770
60	24.00	60.00	593.761	0.000	593.761
61	24.00	61.00	615.752	0.000	615.752
62	24.00	62.00	637.743	0.000	637.743
63	24.00	63.00	659.734	0.000	659.734
64	24.00	64.00	681.726	0.000	681.726
65	24.00	65.00	703.717	0.000	703.717
66	24.00	66.00	725.708	0.000	725.708
67	24.00	67.00	747.699	0.000	747.699
68	24.00	68.00	769.690	0.000	769.690
69	24.00	69.00	791.681	0.000	791.681
70	24.00	70.00	813.672	0.000	813.672
71	24.00	71.00	835.664	0.000	835.664
72	24.00	72.00	857.655	0.000	857.655
73	24.00	73.00	879.646	0.000	879.646
74	24.00	74.00	901.637	0.000	901.637
75	24.00	75.00	923.628	0.000	923.628

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000

3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	950.286	950.286
34	24.00	34.00	21.799	724.224	746.024
35	24.00	35.00	43.222	455.180	498.402
36	24.00	36.00	64.279	346.899	411.178
37	24.00	37.00	84.980	286.084	371.064
38	24.00	38.00	105.797	279.776	385.572
39	24.00	39.00	126.468	272.962	399.430
40	24.00	40.00	147.002	266.074	413.076
41	24.00	41.00	167.405	259.301	426.706
42	24.00	42.00	187.682	252.726	440.408
43	24.00	43.00	207.838	246.381	454.219
44	24.00	44.00	227.876	240.275	468.152
45	24.00	45.00	247.801	234.405	482.206
46	24.00	46.00	267.615	228.759	496.374
47	24.00	47.00	287.322	223.327	510.648
48	24.00	48.00	306.923	218.094	525.017
49	24.00	49.00	326.421	213.049	539.470
50	24.00	50.00	345.819	208.178	553.997
51	24.00	51.00	365.118	203.469	568.587
52	24.00	52.00	384.321	198.912	583.233
53	24.00	53.00	403.430	194.496	597.925
54	24.00	54.00	422.445	190.211	612.657
55	24.00	55.00	441.370	186.050	627.420
56	24.00	56.00	460.205	182.004	642.209
57	24.00	57.00	478.951	178.066	657.017
58	24.00	58.00	497.612	174.228	671.840
59	24.00	59.00	516.187	170.486	686.672
60	24.00	60.00	534.678	166.832	701.509
61	24.00	61.00	553.086	163.262	716.348
62	24.00	62.00	571.413	159.771	731.184
63	24.00	63.00	589.660	156.354	746.014
64	24.00	64.00	607.828	153.007	760.835
65	24.00	65.00	625.918	149.726	775.644
66	24.00	66.00	643.931	146.507	790.438
67	24.00	67.00	661.868	143.348	805.216
68	24.00	68.00	679.731	140.243	819.974
69	24.00	69.00	697.520	137.192	834.711
70	24.00	70.00	715.236	134.190	849.425
71	24.00	71.00	732.880	131.235	864.115
72	24.00	72.00	750.453	128.324	878.777
73	24.00	73.00	767.956	125.456	893.412
74	24.00	74.00	785.390	122.627	908.017
75	24.00	75.00	802.756	119.835	922.591

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to
East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATA	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 28+N/4		N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 28+N/4
BR-1	Granular Fill	19	24	34			
BR-2	Granular Fill	21	26	35		24	34
	Granular Fill	17	21	33			
MINIMUM		17.0	21	33	MINIMUM	24	34
MAXIMUM		21.0	26	35	MAXIMUM	24	34
AVERAGE		19.0	24	34	AVERAGE	24	34
STA. DEV.		1.6	2	1	STA. DEV.	0	0
AVE-STA. DEV.		17.4	22	33	AVE-STA. DEV.	24	34
AVE+STA. DEV.		20.6	26	34	AVE+STA. DEV.	24	34

FOR PRELIMINARY DESIGN USE PHI = 34 DEGREES FOR GRANULAR FILL.

SR 994/SW 200th Street/Quail Roost Drive
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Miami-Dade County, Florida
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SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 20+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 20+N/4
BR-1	Sandy Silt	9	11	23		
	Sandy Silt	7	9	22		
	Sandy Silt	8	10	23	10	23
BR-2	Sandy Silt	8	10	23	10	23
	Sandy Silt	7	9	22		
	Sandy Silt	9	11	23		
MINIMUM		7.0	9	22	10	23
MAXIMUM		9.0	11	23	10	23
AVERAGE		8.0	10	23	10	23
STA. DEV.		0.8	1	0	0	0
AVE-STA. DEV.		7.2	9	22	10	23
AVE+STA. DEV.		8.8	11	23	10	23

FOR PRELIMINARY DESIGN LIMIT AND USE PHI = 23 DEGREES FOR SANDY SILT

SR 994/SW 200th Street/Quail Roost Drive
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SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4
BR-1	Granular Sand	8	10	31	10	31
	Granular Sand	9	11	31	10	31
	Granular Sand	8	10	31	10	31
	Granular Sand	8	10	31	10	31
BR-2	Granular Sand	8	10	31	10	31
	Granular Sand	9	11	31	11	31
	Granular Sand	8	10	31	11	31

MINIMUM	8.0	10	31	MINIMUM	10	31
MAXIMUM	9.0	11	31	MAXIMUM	11	31
AVERAGE	8.3	10	31	AVERAGE	10	31
STA. DEV.	0.5	0	0	STA. DEV.	0	0
AVE-STA. DEV.	7.8	10	30	AVE-STA. DEV.	10	30
AVE+STA. DEV.	8.7	11	31	AVE+STA. DEV.	11	31

FOR PRELIMINARY DESIGN USE PHI = 31 DEGREES FOR NATURAL SAND.

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to
East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 33+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4
BR-1	Upper Limestone	12	15	37		
	Upper Limestone	14	17	37	11	36
	Upper Limestone	8	10	36	12	36
	Upper Limestone	11	14	37	14	37
BR-2	Upper Limestone	11	14	37	14	37
	Upper Limestone	13	16	37	15	37
	Upper Limestone	9	11	36	16	37
	Upper Limestone	10	12	36		

MINIMUM	8.0	10	36	MINIMUM	11	36
MAXIMUM	14.0	17	37	MAXIMUM	16	37
AVERAGE	11.0	14	36	AVERAGE	14	36
STA. DEV.	1.9	2	1	STA. DEV.	2	0
AVE-STA. DEV.	9.1	11	36	AVE-STA. DEV.	12	36
AVE+STA. DEV.	12.9	16	37	AVE+STA. DEV.	15	37

FOR PRELIMINARY DESIGN USE PHI = 35 DEGREES FOR UPPER LIMESTONE.

SR 994/SW 200th Street/Quail Roost Drive
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Miami-Dade County, Florida
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SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	Fsu (TSF) = 0.1N	N VALUE SAFETY (BPF)	Fsu (TSF) = 0.1N
BR-1	Lower Limestone	55	68	6.8		
	Lower Limestone	50	62	6.2		
	Lower Limestone	47	58	5.8		
	Lower Limestone	40	50	5.0		
	Lower Limestone	50	62	6.2	31	3.1
	Lower Limestone	37	46	4.6	31	3.1
	Lower Limestone	50	62	6.2	32	3.2
	Lower Limestone	35	43	4.3	32	3.2
	Lower Limestone	27	33	3.3	32	3.2
	Lower Limestone	29	36	3.6	33	3.3
	Lower Limestone	24	30	3.0	33	3.3
	Lower Limestone	28	35	3.5	35	3.5
	Lower Limestone	66	82	8.2	35	3.5
	Lower Limestone	29	36	3.6	36	3.6
	Lower Limestone	26	32	3.2	36	3.6
	Lower Limestone	24	30	3.0	37	3.7
	Lower Limestone	27	33	3.3	37	3.7
BR-2	Lower Limestone	55	68	6.8	38	3.8
	Lower Limestone	50	62	6.2	38	3.8
	Lower Limestone	50	62	6.2	43	4.3
	Lower Limestone	37	46	4.6	46	4.6
	Lower Limestone	50	62	6.2	46	4.6
	Lower Limestone	31	38	3.8	50	5.0
	Lower Limestone	30	37	3.7	58	5.8
	Lower Limestone	50	62	6.2		
	Lower Limestone	25	31	3.1		
	Lower Limestone	24	30	3.0		
	Lower Limestone	30	37	3.7		
	Lower Limestone	25	31	3.1		
	Lower Limestone	26	32	3.2		
	Lower Limestone	23	29	2.9		
	Lower Limestone	26	32	3.2		
	Lower Limestone	28	35	3.5		
	Lower Limestone	31	38	3.8		

MINIMUM	23.0	29	3	MINIMUM	31	3
MAXIMUM	66.0	82	8	MAXIMUM	58	6
AVERAGE	36.3	45	5	AVERAGE	38	3.8
STA. DEV.	11.9	15	1	STA. DEV.	7	1
AVE-STA. DEV.	24.5	30	3	AVE-STA. DEV.	31	3
AVE+STA. DEV.	48.2	60	6	AVE+STA. DEV.	45	4

FOR PRELIMINARY DEEP FOUNDATION DESIGN LIMIT AND USE UNIT SKIN FRICTION (fsu) VALUE OF = 3.5 TSF, AND A COHESION VALUE OF 5.0 KSF.

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Drilled Shafts
Size (inch)	42, 48, 54, 60, 72

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Elevation (ft)	2.00	11.00	23.00	33.00	-63.90
	Average SPT N60-Value (Blows/ft)	24	10	14	10	38
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	34	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	120	110	120
	Subgrade Modulus (pci), k	62	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
AXIAL	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Total Unit Weight (pcf), γ_t	105	90	120	110	120
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Ultimate Unit Skin Friction (psf)	58	207	924	1047	7600
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	34	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Torsional Shear Stress (psf)	58	207	924	1047	7600
TIP	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	-	-	-	-	-
	Uncorrected SPT-N Value (blows/ft)	24	10	14	10	38
	Undrained Shear Strength (psf), C_u	-	-	-	-	5000
	Ultimate Unit End Bearing (ksi)	-	-	-	-	-
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - End Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	18.00
Base Area (ft^2)	2.25

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	80.00
	Average SPT N60-Value (Blows/ft)	8	10	14	10	27
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	30	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Subgrade Modulus (pci), k	14	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
AXIAL	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Ultimate Unit Skin Friction (psf)	304	380	532	380	540
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	30	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Torsional Shear Stress (psf)	304	380	532	380	540
TIP	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	115	144	202	144	437
	Uncorrected SPT-N Value (blows/ft)	8	10	14	10	27
	Undrained Shear Strength (psf), C_u	-	-	-	-	1800
	Ultimate Unit End Bearing (ksi)	0.4	0.4	0.6	0.4	1.4
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - End Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	24.00
Base Area (ft^2)	4

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	80.00
	Average SPT N60-Value (Blows/ft)	8	10	14	10	27
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	30	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Subgrade Modulus (pci), k	14	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
AXIAL	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Ultimate Unit Skin Friction (psf)	304	380	532	380	540
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	30	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Torsional Shear Stress (psf)	304	380	532	380	540
TIP	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	205	256	358	256	778
	Uncorrected SPT-N Value (blows/ft)	8	10	14	10	27
	Undrained Shear Strength (psf), C_u	-	-	-	-	1800
	Ultimate Unit End Bearing (ksi)	0.4	0.4	0.6	0.4	1.4
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - End Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	30.00
Base Area (ft^2)	6.25

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	80.00
	Average SPT N60-Value (Blows/ft)	8	10	14	10	38
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	30	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Subgrade Modulus (pci), k	14	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	19.0
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	2533
	Ultimate Unit Skin Friction (psf)	304	380	532	380	760
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	5067
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	30	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	2533
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	19.0
	Torsional Shear Stress (psf)	304	380	532	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	19.0
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	320	400	560	400	1710
	Uncorrected SPT-N Value (blows/ft)	8	10	14	10	38
	Undrained Shear Strength (psf), C_u	-	-	-	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	0.4	0.6	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - Interior Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	18.00
Base Area (ft^2)	2.25

	Layer No.	1	2
	Soil Description	Sand	Limestone
	Soil Type	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	23.00	33.00
	Bottom Boundary Depth (ft)	33.00	80.00
	Average SPT N60-Value (Blows/ft)	10	38

LATERAL	**Soil Model**	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	31	-
	Total Unit Weight (pcf), γ_t	110	120
	Subgrade Modulus (pci), k	20	-
	Undrained Shear Strength (psf), Cu	-	-
	Major Principal Strain @ ε_{50}	-	-
	Major Principal Strain @ ε_{100}	-	-
	Average Undrained Shear Strength (psf)	-	-
	Unconfined Compressive Strength (psf)	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	110	120
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, ν	0.3	4
	Vertical Failure Shear Stress (psf)	-	-
	Undrained Shear Strength (psf), Cu	-	2533
	Ultimate Unit Skin Friction (psf)	380	760
	Mass Modulus (ksi)	-	-
	Modulus Ratio	-	-
	Surface (Rough/Smooth)		
	Unconfined Compressive Strength (psf)	-	5067
	Split Tensile Strength (psf)	-	-
	Concrete Unit Weight (pcf)	150	150
	Slump (in)	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	110	120
	Internal Friction Angle, f	31	-
	Undrained Shear Strength (psf), Cu	-	2533
	Shear Modulus (ksi), G	1.2	19.0
	Torsional Shear Stress (psf)	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, n	0.3	4.0
	Axial Bearing Failure, kips	144	616
	Uncorrected SPT-N Value (blows/ft)	10	38
	Undrained Shear Strength (psf), C_u	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - Interior Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	24.00
Base Area (ft^2)	4

	Layer No.	1	2
	Soil Description	Sand	Limestone
	Soil Type	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	23.00	33.00
	Bottom Boundary Depth (ft)	33.00	80.00
	Average SPT N60-Value (Blows/ft)	10	38

LATERAL	**Soil Model**	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	31	-
	Total Unit Weight (pcf), γ_t	110	120
	Subgrade Modulus (pci), k	20	-
	Undrained Shear Strength (psf), Cu	-	-
	Major Principal Strain @ ε_{50}	-	-
	Major Principal Strain @ ε_{100}	-	-
	Average Undrained Shear Strength (psf)	-	-
	Unconfined Compressive Strength (psf)	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	110	120
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, ν	0.3	4
	Vertical Failure Shear Stress (psf)	-	-
	Undrained Shear Strength (psf), Cu	-	2533
	Ultimate Unit Skin Friction (psf)	380	760
	Mass Modulus (ksi)	-	-
	Modulus Ratio	-	-
	Surface (Rough/Smooth)		
	Unconfined Compressive Strength (psf)	-	5067
	Split Tensile Strength (psf)	-	-
	Concrete Unit Weight (pcf)	150	150
	Slump (in)	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	110	120
	Internal Friction Angle, f	31	-
	Undrained Shear Strength (psf), Cu	-	2533
	Shear Modulus (ksi), G	1.2	19.0
	Torsional Shear Stress (psf)	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, n	0.3	4.0
	Axial Bearing Failure, kips	256	1094
	Uncorrected SPT-N Value (blows/ft)	10	38
	Undrained Shear Strength (psf), C_u	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - Interior Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	30.00
Base Area (ft^2)	6.25

	Layer No.	1	2
	Soil Description	Sand	Limestone
	Soil Type	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	23.00	33.00
	Bottom Boundary Depth (ft)	33.00	80.00
	Average SPT N60-Value (Blows/ft)	10	38

LATERAL	**Soil Model**	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	31	-
	Total Unit Weight (pcf), γ_t	110	120
	Subgrade Modulus (pci), k	20	-
	Undrained Shear Strength (psf), Cu	-	-
	Major Principal Strain @ ε_{50}	-	-
	Major Principal Strain @ ε_{100}	-	-
	Average Undrained Shear Strength (psf)	-	-
	Unconfined Compressive Strength (psf)	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	110	120
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, ν	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-
	Undrained Shear Strength (psf), Cu	-	2533
	Ultimate Unit Skin Friction (psf)	380	760
	Mass Modulus (ksi)	-	-
	Modulus Ratio	-	-
	Surface (Rough/Smooth)		
	Unconfined Compressive Strength (psf)	-	5067
	Split Tensile Strength (psf)	-	-
	Concrete Unit Weight (pcf)	150	150
	Slump (in)	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	110	120
	Internal Friction Angle, f	31	-
	Undrained Shear Strength (psf), Cu	-	2533
	Shear Modulus (ksi), G	1.2	19.0
	Torsional Shear Stress (psf)	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, n	0.3	0.2
	Axial Bearing Failure, kips	400	1710
	Uncorrected SPT-N Value (blows/ft)	10	38
	Undrained Shear Strength (psf), C_u	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	ACIP
Size (inch)	24.00

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	-63.90
	Average SPT N60-Value (Blows/ft)	24	10	14	10	38
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	34	23	35	31	-
	Total Unit Weight (pcf), γ_t	115	90	120	110	120
	Subgrade Modulus (pci), k	62	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
AXIAL	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Total Unit Weight (pcf), γ_t	115	90	120	110	120
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Ultimate Unit Skin Friction (psf)	72	207	924	1047	7600
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	115	120	120	120	120
	Internal Friction Angle, f	34	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Torsional Shear Stress (psf)	72	207	924	1047	7600
TIP	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	-	-	-	-	-
	Uncorrected SPT-N Value (blows/ft)	24	10	14	10	38
	Undrained Shear Strength (psf), C_u	-	-	-	-	5000
	Ultimate Unit End Bearing (ksi)	-	-	-	-	-
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

APPENDIX "D"

FHWA Geotechnical Report Checklist

GEOSOL, Inc.

GEOTECHNICAL REPORT REVIEW CHECKLISTS

The following checklists cover the major information and recommendations which should be addressed in project geotechnical reports.

Section A covers site investigation information which will be common to all geotechnical reports for any type of geotechnical feature.

Sections B through I cover the basic information and recommendations which should be presented in geotechnical reports for specific geotechnical features: centerline cuts and embankments, embankments over soft ground, landslides, retaining walls, structure foundations and material sites.

Subject	Page
SECTION A, Site Investigation Information	2
SECTION B, Centerline Cuts and Embankments	4
SECTION C, Embankments Over Soft Ground	6
SECTION D, Landslide Corrections	8
SECTION E, Retaining Walls	10
SECTION F, Structure Foundations - Spread Footings	11
SECTION G, Structure Foundations - Piles	12
SECTION H, Structure Foundations - Drilled Shafts	15
SECTION I, Materials Sites	16

In most sections and subsections, the user has been provided supplemental page references to the Soils and Foundations Workshop Manual. These page numbers appear in parentheses ( ) immediately adjacent to the section or subsection topic. Generalist engineers are particularly encouraged to read these references. Additional reference information on these topics is available in the Geotechnical Notebook, a copy of which is kept in all Division Offices by either the Bridge Engineer or the engineer with the soils responsibility.

Certain checklist items are of vital importance to have been included in the geotechnical report. These checklist items have been marked with an asterisk (*). A negative response to any of these asterisked items is cause to contact the geotechnical engineer for clarification of this omission.

"GTR REVIEW CHECKLIST" (SITE INVESTIGATION)

A. Site Investigation Information

Since the most important step in the geotechnical design process is the conduct of an adequate site investigation, presentation of the subsurface information in the geotechnical report and on the plans deserves careful attention.

Geotechnical Report Text (Introduction) (Pages 322-325)	Yes	No	Unknown or N/A
1. Is the general location of the investigation described and/or vicinity map included?	X		
2. Is scope and purpose of the investigation summarized?	X		
3. Is concise description given of geologic setting and topography of area?	X		
4. Are the field explorations and laboratory tests on which the report is based listed?	X		
5. Is general description of subsurface soil, rock, and groundwater conditions given?	X		
*6. Is the following information included with the geotechnical report (typically included in report appendices):			
a. Test hole logs? (Pages 25-33)	X		
b. Field test data?	X		
c. Laboratory test data? (Pages 74-75)	X		
d. Photographs (if pertinent)?	X		
Plan and Subsurface Profile (Pages 24, 47-49, 335)			
*7. Is a plan and subsurface profile of the investigation site provided?	X		

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

A. Site Investigation Information (Cont.)	Yes	No	Unknown or N/A
8. Are the field explorations located on the plan view?	X		
*9. Does the conducted site investigation meet minimum criteria outlined in Table 2?	X		
10. Are the explorations plotted and correctly numbered on the profile at their true elevation and location?	X		
11. Does the subsurface profile contain a word description and/or graphic depiction of soil and rock types?	X		
12. Are groundwater levels and data measured shown on the subsurface profile?	X		
Subsurface Profile or Field Boring Log (Pages 16-17, 25-29)			
13. Are sample types and depths noted?	X		
*14. Are SPT blow counts, percent core recovery, and RQD values shown?	X		
15. If cone penetration tests were made, are plots of cone resistance and friction ratio shown with depth?			X
Laboratory Test Data (Pages 60, 74-75)			
*16. Were lab soil classification tests such as natural moisture content, gradation, Atterberg limits, performed on selected representative samples to verify field visual soil identifications?	X		
17. Are laboratory test results such as shear strength (Page 62), consolidation (Page 68), etc., included and/or summarized?			X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

"GTR REVIEW CHECKLIST" (CENTERLINE CUTS AND EMBANKMENTS)

B. Centerline Cuts and Embankments (Pages 6-9)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

Are station to station descriptions included for:	Yes	No	Unknown or N/A
1. Existing surface and subsurface drainage?	___	___	X
2. Evidence of springs and excessively wet areas?	___	___	X
3. Slides, slumps, and faults noted along the alignment?	___	___	X
Are station to station recommendations included for the following:			
General Soil Cut or Fill			
4. Specific surface/subsurface drainage recommendations.	___	___	X
5. Excavation limits of unsuitable materials?	___	___	X
*6. Erosion protection measures for backslopes, side slopes, and ditches, including riprap recommendations or special slope treatments?	___	___	X
Soil Cuts (Pages 101-102)			
*7. Recommended cut slope design?	___	___	X
8. Are clay cut slopes designed for minimum F.S. = 1.50?	___	___	X
9. Special usage of excavated soils?	___	___	X
10. Estimated shrink-swell factors for excavated materials?	___	___	X
11. If answer to 3 is yes, are recommendations	___	___	X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

B. Centerline Cuts and Embankments (Cont.)	Yes	No	Unknown or N/A
Fills (Pages 77-79)			
11. Recommended fill slope design?	___	___	X
12. Will fill slope design provide minimum F.S. = 1.25?	___	___	X
Rock Slopes			
*13. Are recommended slope designs and blasting specifications provided?	___	___	X
*14. Is the need for special rock slope stabilization measures, e.g., rockfall catch ditch, wire mesh slope protection, shotcrete, rock bolts, addressed?	___	___	X
15. Has the use of "template" designs been avoided (such as designing all rock slopes on 1/4 to 1 rather than designing based on orientation of major rock jointing)?	___	___	X
*16. Have effects of blast induced vibrations on adjacent structures been evaluated?	___	___	X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (EMBANKMENTS OVER SOFT GROUND)

C. Embankments over Soft Ground

Where embankments must be built over soft ground (such as soft clays, organic silts, or peat), stability and settlement of the fill should be carefully evaluated. In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

Embankment Stability (Pages 77-79, 95-97)	Yes	No	Unknown or N/A
*1. Has the stability of the embankment been evaluated for minimum safety factors of 1.25 for side slope stability and 1.30 for end slope stability of bridge approach embankments?			
*2. Has the shear strength of the foundation soil been determined from lab testing and/or field vane shear or static cone penetrometer tests?			
*3. If the proposed embankment does not provide minimum factors of safety given above, are recommendations given for feasible treatment alternates which will increase factor of safety to minimum acceptable (such as change alignment, lower grade, use stabilizing counterberms, excavate and replace weak subsoil, fill stage construction, lightweight fill, geotextile fabric reinforcement, etc.)?			
*4. Are cost comparisons of treatment alternates given and a specific alternate recommended?			
Settlement of Subsoil (Pages 146-160)			
5. Have consolidation properties of fine grained soils been determined from laboratory consolidation tests?			
*6. Have settlement amount and settlement time been estimated?			
7. For bridge approach embankments, are recommendations made to get the settlement out before the bridge abutment is constructed (waiting period, surcharge, or wick drains)?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

C. Embankments Over Soft Ground (Cont.)	Yes	No	Unknown or N/A
8. If geotechnical instrumentation is proposed to monitor fill stability and settlement, are detailed recommendations provided on the number, type, and specific locations of the proposed instruments?			
9. Construction Considerations (Pages 183, 331-334)			
a. If excavation and replacement of unsuitable shallow surface deposits (peat, muck, topsoil) is recommended. Are vertical and lateral limits of recommended excavation provided?			
b. Where a surcharge treatment is recommended, are plan and cross-section of surcharge treatment provided in geotechnical report for benefit of the roadway designer?			
c. Are instructions or specifications providing concerning instrumentation, fill placement rates and estimated delay times for the contractor?			
d. Are recommendations provided for disposal of surcharge material after the settlement period is complete?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

GTR REVIEW CHECKLIST" (LANDSLIDE CORRECTIONS)

D. Landslide Corrections (Pages 77-80, 103-105)

In addition to the basic information listed in Section A, is the following information provided in the landslide study geotechnical report? (Refer to Table 4 for guidance on the necessary technical support data for correction of slope instabilities)

	Yes	No	Unknown or N/A
*1. Is a site plan and scaled cross-section provided showing ground surface conditions both before and after failure?			
*2. Is the past history of the slide area summarized - including movement history, summary of maintenance work and costs, and previous corrective measures taken (if any)?			
*3. Is a summary given of results of site investigation, field and lab testing, and stability analysis, including cause(s) of the slide?			
Plan			
4. Are detailed slide features - including locations of ground surface cracks, head scarp, and toe bulge - shown on the site plan?			
Cross Section			
*5. Are the cross sections used for stability analysis included with the soil profile, water table, soil unit weights, soil shear strengths, and failure plane shown as it exists?			
6. Is slide failure plane location determined from slope indicators?			
*7. For an active slide, was soil strength along the slide failure plane backfigured using a safety factor equal to 1.0 at the time of failure?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

D. Landslide Corrections (Cont.)

	Yes	No	Unknown or N/A
Text			
*8. Is the following information presented for each proposed correction alternate: (typical correction methods include buttress, shear key, rebuild slope, surface drainage, subsurface drainage-interceptor, drain trenches or horizontal drains and retaining structures)?			
a. Cross-section of proposed alternate?			
b. Estimated safety factor?			
c. Estimated cost?			
d. Advantages and disadvantages?			
9. Is a recommended correction alternate(s) given which provide a minimum F.S. = 1.25?			
10. If horizontal drains are proposed as part of slide correction, has subsurface investigation located definite water bearing strata that can be tapped with horizontal drains?			
11. If a toe counterberm is proposed to stabilize an active slide, has field investigation confirmed that the toe of the existing slide does not extend beyond the toe of the proposed counterberm?			
12. Construction Considerations			
a. Where proposed correction will require excavation into the toe of an active slide (such as for buttress or shear key), has the "during construction backslope F.S." with open excavation been determined?			
b. If open excavation F.S. is near 1.0, has excavation stage construction been proposed?			
c. Has seasonal fluctuation of groundwater table been considered?			
d. Are special construction features, techniques and materials described and specified?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (RETAINING WALLS)

E. Retaining Walls (See Section 5 of "Geotechnical Engineering Notebook")

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

	Yes	No	Unknown or N/A
*1. Does the geotechnical report include recommended soil strength parameters and groundwater elevation for use in computing wall design lateral earth pressures and factor of safety for overturning, sliding, and external slope stability?			
2. Is it proposed to bid alternate wall designs?			
*3. Are acceptable reasons given for the choice and/or exclusion of certain wall types (gravity, reinforced soil, tieback, cantilever, etc.)?			
*4. Is an analysis of the wall stability included with minimum acceptable factors of safety against overturning (F.S. = 2.0), sliding (F.S. = 1.5), and external slope stability (F.S. = 1.5)?			
5. If wall will be placed on compressible foundation soils, is estimated total settlement, differential settlement, and time rate of settlement given?			
6. Will wall types selected for compressible foundation soils allow differential movement without distress?			
7. Are wall drainage details including materials and compaction provided?			
8. Construction Considerations:			
a. Are excavation requirements covered - safe slopes for open excavations, need for sheeting or shoring?			
b. Fluctuation of groundwater table?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (SPREAD FOOTINGS)

F. Structure Foundations - Spread Footings (Pages 191-205)

In addition to the basic information listed in Section A, is the following information provided in the project foundation report?

	Yes	No	Unknown or N/A
*1. Are spread footings recommended for foundation support? If not, are reasons for not using them discussed.			
*2. Is recommended bottom of footing elevation and reason for recommendation (e.g., based on frost depth, estimated scour depth, or depth to competent bearing material) given?			
*3. Is recommended allowable soil or rock bearing pressure given?			
*4. Is estimated footing settlement and time given?			
*5. Where spread footings are recommended to support abutments placed in the bridge end fills, are special gradation and compaction requirements provided for select end fill and backwall drainage material? (Pages 137-141)			
6. Construction Considerations:			
a. Have the materials been adequately described on which the footing is to be placed so the project inspector can verify that material is as expected?			
b. Have excavation requirements been included for safe slopes in open excavations, need for sheeting or shoring, etc.?			
c. Has fluctuations of the groundwater table been addressed?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (PILE FOUNDATIONS)

G. Structure Foundations - Piles (Pages 224-311)

In addition to the basic information listed in Section A, if pile support is recommended or given as an alternate, conclusions/recommendations should be provided in the project geotechnical report for the following:

	Yes	No	Unknown or N/A
*1. Is the recommended pile type given (displacement, nondisplacement, pipe pile, concrete pile, H-pile, etc.) with valid reasons given for choice and/or exclusion? (Pages 224-226)			
2. Do you consider the recommended pile type(s) to be the most suitable and economical?			
*3. Are estimated pile lengths and estimated tip elevations given for the recommended allowable pile design loads?			
4. Do you consider the recommended design loads to be reasonable?			
5. Has pile group settlement been estimated (only of practical significance for friction pile groups ending in cohesive soil)? (Pages 245-247)			
6. If a specified or minimum pile tip elevation is recommended, is a clear reason given for the required tip elevation, such as underlying soft layers, scour, downdrag, piles uneconomically long, etc.?			
*7. Has design analysis (wave equation analysis) verified that the recommended pile section can be driven to the estimated or specified tip elevation without damage (especially applicable where dense gravel-cobble-boulder layers or other obstructions have to be penetrated?			
8. Where scour piles are required, have pile design and driving criteria been established based on mobilizing the full pile design capacity below the scour zone?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. Pile Foundations (Cont.)	Yes	No	Unknown or N/A
9. Where lateral load capacity of large diameter piles is an important design consideration, are p-y curves (load vs. deflection) or soil parameters given in the geotechnical report to allow the structural engineer to evaluate lateral load capacity of all piles?			
*10. For pile supported bridge abutments over soft ground:			
a. Has abutment pile downdrag load been estimated and solutions such as bitumen coating considered in design? Not generally required if surcharging of the fill is being performed. (Pages 248-251)			
b. Is bridge approach slab recommended to moderate differential settlement between bridge ends and fill?			
c. If the majority of subsoil settlement will not be removed prior to abutment construction (by surcharging), has estimate been made of the amount of abutment rotation that can occur due to lateral squeeze of soft subsoil? (Pages 114-115)			
d. Does the geotechnical report specifically alert the structural designer to the estimated horizontal abutment movement?			
11. If bridge project is large, has pile load test program been recommended? (Pages 229-302)			
12. For a major structure in high seismic risk area, has assessment been made of liquefaction potential of foundation soil during design earthquake (note: only loose saturated sands and silts are "susceptible" to liquefaction)?			

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for clarification and/or to discuss the project.

G. Pile Foundations (Cont.)

	Yes	No	Unknown or N/A
13. Construction Considerations: (Pages 279-311)			
Have the following important construction considerations been adequately addressed?			
a. Pile driving details such as: boulders, or obstructions which may be encountered during driving - need for preaugering, jetting, spudding, need for pile tip reinforcement, driving shoes, etc.?			
b. Excavation requirements - safe slope for open excavations, need for sheeting or shoring? Fluctuation of groundwater table?			
c. Have effects of pile driving operation on adjacent structures been evaluated such as protection against damage caused by footing excavations or pile driving vibrations?			
d. Is preconstruction condition survey to be made of adjacent structures to prevent unwarranted damage claims?			
e. On large pile driving projects have other methods of pile driving control been considered such as dynamic testing or wave equation analysis?			

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (DRILLED SHAFTS)

H. Structure Foundations - Drilled Shafts (Pages 252-260)

In addition to the basic information listed in Section A, if drilled shaft support is recommended or given as an alternate, are conclusions/recommendations provided in the project foundation report for the following:

	Yes	No	Unknown or N/A
*1. Are recommended shaft diameter(s) and length(s) for allowable design loads based on an analysis using soil parameters for side friction and end bearing?			
*2. Settlement estimated for recommended design load?			
*3. Where lateral load capacity of shaft is an important design consideration, are P-Y (load vs. deflection) curves or soils data provided in geotechnical report which will allow structural engineer to evaluate lateral load capacity of shaft?			
4. Is static load test (to plunging failure) recommended?			
5. Construction Considerations:			
a. Have construction methods been evaluated, i.e., can less expensive dry method or slurry method be used or will casing be required?			
b. If casing will be required, can casing be pulled as shaft is concreted (this can result in significant cost savings or very large diameter shafts)?			
c. If artesian water was encountered in explorations, have design provisions been included to handle it (such as by requiring casing and tremie seal)?			
d. Will boulders be encountered? (Note: If boulders will be encountered, then the use of shafts should be seriously questioned due to construction installation difficulties and resultant higher cost the boulders can cause.)			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (MATERIAL SITES)

I. Material Sites

In addition to the basic information listed in Section A, is the following information provided in the project Material Site Report?:

	Yes	No	Unknown or N/A
1. Material site location, including description of existing or proposed access routes and bridge load limits (if any)?			
*2. Have soil samples representative of all materials encountered during the pit investigation been submitted and tested?			
*3. Are laboratory quality test results included in the report?			
4. For aggregate sources, do the laboratory quality test results (such as L.A. abrasion, sodium sulfate, degradation, absorption, reactive aggregate, etc.) indicate if specification materials can be obtained from the deposit using normal processing methods?			
5. If the lab quality test results indicate that specification material cannot be obtained from the pit materials as they exist naturally - has the source been rejected or are detailed recommendations provided for processing or controlling production so as to ensure a satisfactory product.			
*6. For soil borrow sources, have possible difficulties been noted - such as above optimum moisture content clay-silt soils, waste due to high PI, boulders, etc?			
*7. Where high moisture content clay-silt soils must be used, are recommendations provided on the need for aeration to allow the materials to dry out sufficiently to meet compaction requirements?			
8. Are estimated shrink-swell factors provided?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

I. Material Sites (Cont.)	Yes	No	Unknown or N/A
*9. Do the proven material site quantities satisfy the estimated project quantity needs?			
10. Where materials will be excavated from below the water table, has seasonal fluctuation of the water table been determined?			
11. Are special permit requirements covered?			
12. Have pit reclamation requirements been covered adequately?			
13. Has a material site sketch (plan and profile) been provided for inclusion in the plans, which contains:			
➢ Material site number?			
➢ North arrow and legal subdivision?			
➢ Test hole or test pit logs, location, number and date?			
➢ Water table elevation and date?			
➢ Depth of unsuitable overburden which will have to be stripped?			
➢ Suggested overburden disposal area?			
➢ Proposed mining area and previously mined areas?			
➢ Existing stockpile locations?			
➢ Existing or suggested access roads?			
➢ Bridge load limits?			
➢ Reclamation details?			
14. Are recommended special provisions provided?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

Appendix H – Utility Assessment Package

UTILITY ASSESSMENT PACKAGE

SR 994 / SW 200th St / Quail Roost Drive Project Development & Environment Study From SW 137th Avenue to SW 127th Avenue Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

January 2023

UTILITY ASSESSMENT PACKAGE

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From SW 137th Avenue to SW 127th Avenue

Miami-Dade County, Florida

Florida Department of Transportation – District 6

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

Prepared by:

M.G. Vera & Associates

January 2023

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION 1
2.0 EXISTING UTILITY FACILITIES 2
3.0 POTENTIAL UTILITY IMPACTS 7

FIGURES

Figure 1-1 Project Location 1
Figure 3-1 Build Alternative 1 Typical Section 8
Figure 3-2 Build Alternative 2 Typical Section 10
Figure 3-3 Build Alternative 3 Typical Section 12

TABLES

Table 2-1 Utility Agency Owners 2
Table 3-1 Alternatives Potential Utility Impacts 13

APPENDICES

Appendix A – Utility Agency Owners Responses

Appendix B – Potential Utility Impacts

1.0 PROJECT DESCRIPTION

This roadway project involves the potential widening of SR 994/SW 200th Street/Quail Roost Drive up to four lanes from west of SW 137th Avenue to east of SW 127th Avenue (Mile Post [MP] 4.000 - 5.162). The project corridor is approximately 1.162 miles in length. Within the project limits, the roadway is locally known as Quail Roost Drive.

While the project is located in southwest unincorporated Miami-Dade County, it occurs within the Miami Urbanized Area (as defined by the Miami-Dade County 2015 Urban Development Boundary). The project corridor primarily serves existing and future residential land uses and provides local east-west access and connectivity. Outside of the project limits, SR 994 connects directly to two Strategic Intermodal System (SIS) Highway Corridors at SR 997/Krome Avenue (west of study limits) and SR 821/HEFT (east of study limits).

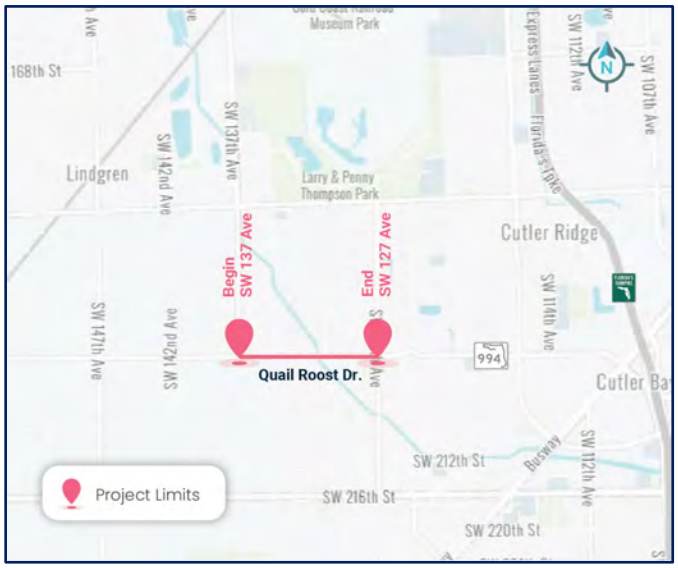


Figure 1-1 Project Location

Within the project limits, SR 994 is classified as a rural major collector from MP 4.000 to MP 4.075 (center of SW 137th Avenue) and an urban minor arterial from MP 4.075 to MP 5.162. The corridor primarily has a C3R Suburban Residential Context Classification and a posted speed of 40 miles per hour. Four major intersections are located along the project corridor, including two signalized intersections (SW 137th Avenue and SW 127th Avenue) and two unsignalized intersections (SW 134th Avenue and SW 132nd Avenue). Eight other minor (unsignalized) intersections are located within the study corridor.

Currently, SR 994 is a two-lane roadway (one lane in each direction) from west of 137th Avenue to west of 127th Avenue. From west of SW 127th Avenue to SR 821/HEFT, SR 994 is a four-lane roadway. The existing SR 994 typical section consists of two undivided 11.5-foot travel lanes with unpaved shoulders and open drainage. Curb and gutter exist at the SR 994/SR 134th Avenue intersection and east of SW 127th Avenue within the study limits. Sidewalks, varying in width, are noncontinuous and generally located at residential subdivisions along the study corridor. There are no existing designated bicycle lanes on SR 994 within the study limits. There is a pedestrian crossing just east of the bridge for access to the Black Creek Trail, which intersects SR 994.

In addition to the potential widening, the proposed roadway improvements may include operational enhancements at the existing intersections, widening/reconstruction of the bridge structure over Black Creek Canal, access management measures, and stormwater management facilities. The Project Development and Environment (PD&E) Study will evaluate typical section alternatives based on design criteria, safety and operational needs, and the minimization of environmental effects and right-of-way needs. The PD&E Study will evaluate the provision of ADA compliant facilities as well as new/enhanced pedestrian and bicycle infrastructure, including paved shoulders/designated bicycle lanes, sidewalks, and/or a shared-use path connection to the existing Black Creek Trail.

2.0 EXISTING UTILITY FACILITIES

Utility Agency Owners (UAOs) located in the vicinity of SR 994/Quail Roost Drive were contacted and requested to provide information regarding their utility facilities within the project area. A list of UAOs was obtained through Sunshine 811 on December 15, 2020. Utilities include electric, water, sewer, cable, and telephone. Existing UAOs and contact information are provided in ***Table 2-1***. Plans showing approximate location of the utility facilities are provided in ***Appendix A***.

Table 2-1 Utility Agency Owners

Utility Company	Facility	Contact Information	
AT&T DISTRIBUTION	TELEPHONE	Henry Urena 600 NW 79th Ave Room 360 Miami, FL Steve Low (future POC)	(954) 260-0615 (305) 913-1408 Henry.urena@att.com hu083j@att.com sl4504@att.com 305-607-8201
COMCAST	CATV, FIBER	Ricardo Davidson 6565 Nova Drive Davie, FL 33317	(754) 221-1254 ricardoa_davidson@comcast.com
CROWN CASTLE	FIBER	Danny Haskett 1601 NW 136th Avenue Suite A-200 Sunrise, FL 33323	(786) 610-7073 (786) 246-7827 Danny.Haskett@crowncastle.com
DCPWT	TRAFFIC SIGNALS	Octavio Vidal (No Response)	(305) 412-0891 Ext. 102
FPL (Distribution)	ELECTRIC	Emma McAskill 4200 W. Flagler St. (LFO) Miami, FL 33134	(305) 442-5129 (305) 298-2147 emma.mcaskill@fpl.com
MCI (Verizon)	FIBER, COMMUNICATION	Jason Matthews 16563 NW 15th Avenue Miami, FL 33169	(786) 224-8576 (954) 298-5606 Jason.matthews@verizon.com
MDC ITD	FIBER	Frank Dopico 5680 SW 87th Ave Suite 213 Miami, FL 33173	frank.dopico@miamidade.gov (305) 275-7813
MD-WASD	SEWER, WATER	Patrick Chong 3575 South LeJeune Rd Miami, FL 33146	(786) 552-4416 Patrick.Chong@miamidade.gov

The above contact list was developed based on letters sent to each UAO and/or via responses received from the UAO for the Quail Roost Drive corridor. See ***Appendix A*** for details.

The following is a summary of existing utility facilities within the study limits. The crossing roadways and distances described below are approximate locations.

AT&T DISTRIBUTION FLORIDA

AT&T operates the following facilities placed within the public right of way: overhead telephone/fiber, buried telephone, buried fiber, placed out of service facilities, pole, cabinets and handholes within the study limits. The following are locations based on markups provided by the UAO.

- **SR-994/Quail Roost Drive**
  - BT 1-1100 Pr. Cable, placed out of service on North side of corridor from Sta 312 to Sta 338.
  - BT 1-200 Pr. Cable from Sta 328 to Sta 333. BT 2-200 Pr Cable.
  - BT 1-Fiber Optic Cable from Sta 333 to Sta 338 converging into a cabinet and handhole on the north side of the corridor.
  - BT 1-4" PVC initiating from cabinet on north side of corridor crossing travel lanes onto south side of road where it joins a BT 1-Fiber Optic on south side of roadway and rises up onto overhead pole line.
  - OT 1 – Fiber Optic Cable on overhead pole line starting on south side of roadway starting at Sta 338 with another aerial facility OT 2-100 Pr cable introduced at Sta 340 to Sta 358 where it crosses travel lanes at Sta 358 and comes off pole line into a buried facility.
  - AT&T Pole on SW Corner of SR-994/Quail Roost Drive and SW 129th Avenue transitioning from overhead to buried telphone at pole in southbound trajectory.
  - OT 2- Fiber Optic Cables north side of roadway starting at Sta 353 to Sta 355 where comes off pole at SW 129th Avenue converting into a BT 1- Fiber Optic Cable.
  - BT 1-200 Pr Cable and BT 5-Fiber Optic Cable ductbank north side of roadway starting at Sta 358 terminating at SW 127 Avenue/Burr Road.
  - OT 1-Fiber Optic Cable and OT 1-300 Pr. Cable on north side of roadway located aerially starting at Sta 368 crossing SE 127th Avenue/Burr Road in eastbond trajectory to end of project limits.

- **SW 137th Avenue**, Overhead Telephone 1-500 Pr. Cable.
- **SW 134th Avenue/Talbot Road**, Overhead Telephone 1-500 Pr. Cable crossing aerially North/South.
- **SW 133 Court**, BT 1-Fiber Optic Cable on east side of roadway starting at Sta 333 in NB direction.
- **SW 133 Avenue**, BT 1-Fiber Optic Cable crossing from north side of SR-994/Quail Roost Drive fiber optic southbound trajectory transitioning to BT 2-Fiber Optic Cables.
- **SW 132nd Court**, BT 1 – Fiber Optic Cable
- **SW 130th Avenue**, BT 1 – Fiber Optic Cable
- **SW 129th Court**, BT 1-Fiber Optic Cable
- **SW 127th Avenue/Burr Road**, west side of roadway
  - OT 2-Fiber Optic Cables, OT 1-200 Pr. Cables located aerially on pole line
  - BT 1-600 Pr. Cable and BT 1-4" PVC ductbank

- **SW 127th Avenue/Burr Road**, east side of roadway
  - OT 2-Fiber Optic Cables, OT 1-300 Pr.Cables located aerially on pole line

COMCAST

Comcast operates aerial and buried facilities within the public right of way. Locations of existing aerial and buried facilities were provided by Comcast within the study corridor highlighted by solid and dashed orange lines on plan markups. The east/west trajectory along north and south side of Quail Roost Drive as attached to the existing FPL poles. Comcast utility information was provided via base map markups during the coordination phase.

- **SR-994/Quail Roost Drive**
  - Aerial facilities located as joint user on pole line on north side of SR-994/Quail Roost Drive from start of project Sta 312 to Sta 326
  - Aerial facilities on north side of roadway, starting at Sta 329 in eastbound direction to Sta 334 with aerial service crossings at Sta 329 and Sta 334
  - Aerial facilities crossing diagonally onto south side of roadway at Sta 334 to Sta 338 with an aerial service crossing onto north side of SR-994/Quail Roost Drive at Sta 336
  - Aerial service crossing onto north side of SR-994/Quail Roost Drive at Sta 336
  - Aerial facilities crossing diagonally onto south side of roadway at Sta 334 in eastbound direction with aerial crossing onto north side of travel lanes at Sta 351, crossing back onto south side until Sta 358 where aerial facilities stay on north side until Sta 369 end of project limits

- **SW 137th Avenue/Lindgren Road**
  - Underground facilities with cabinet/riser transitioning to overhead in north/south trajectory

- **SW 134th Avenue/Talbot Road**
  - Aerial facilities crossing SR-994/Quail Roost continuing in northbound trajectory on east side of SW 134th Avenue/Talbot Road
- **SW 132nd Place**
  - Aerial facilities crossing SR-994/Quail Roost to west side of SW 132 Place
- **SW 129th Avenue**
  - Aerial facilities crossing SR-994/Quail Roost to west side of SW 129 Place
- **SW 127th Avenue/Burr Road**
  - Aerial facilties crossing SR-994/Quail Roost drive on west side of travel lanes in southbound direction
  - Aerial facilitis on west side of roadway in northbound direction
- **Underground facilities**
  - Transfering off pole line at Sta 326 to 328/SW 134th Avenue/Talbot Road
  - Transfering off pole line approximately 200' west of SW 135th Avenue/Sta 323
  - Sta 338 to Sta 339 crossing roadway in northbound trajectory at SW 132nd Court

- Underground facilities on south side of SR-994/Quail Roost Drive transfering off pole at Sta 349 in westbound direction to SW 130th Avenue where buried fiber/television heads southbound on SW 130th Avenue

CROWN CASTLE

Crown Castle operates aerial and buried facilities within the public right of way. Locations of four (4) 1.5" HDPE conduits, aerial fiber, riser pole and hand holes within the study coridor were provided by the UAO. The following are the locations indicated by the UAO along Quail Roost Drive, both on the north and south side as attached to the exisitng FPL poles.

- **Aerial fiber**
  - SR-994/Quail Roost Drive west of Sta 312 beginning of project to Sta 315 crossing over SW 137th Avenue transfering off pole line into underground trajectory
  - South side of SR-994/Quail Roost Drive from Sta 344 to Sta 358, crossing roadway onto northside of corridor until Sta 364 where transitions off pole to buried facilities.
- **Undergound/buried (4) 1.5" HDPE Conduits**
  - East side of SW 137th Avenue in northbound direction
  - Crossing SR-994/Quail Roost Drive in southbound directon at Sta 315, continuing eastbound to Sta 344 where going up riser onto overhead pole line.
  - Sta 364 coming off pole line in eastbound direction to Sta 368/SW 127th Avenue/Burr Road to Sta 369 end of proejct limits
  - At NW corner of SW 127th Avenue/Burr Road and SR-994/Quail Roost Drive conduits cross underground in southbound direction to termination node on SW corner of intersections.

Nine (9) hand hole locations throughout marked plans located at the following locations:

- Hand hole – NE & SE corner of intersection of SW 137th Avenue and Quail Roost Drive
- Hand hole – south side of the intersection of SW 135th Avenue and Quail Roost Drive
- Hand hole – south side of intersection of SW 133rd Court and Quail Roost Drive
- Hand hole – SE corner of intersection of SW 132nd Avenue and Quail Roost Drive
- Hand hole – approximately 40' west of Canal C-1 on the south side of Quail Roost Drive
- Hand hole – NE & SE corner of intersection of SW 127th Avenue and Quail Roost Drive
- Hand hole – approximately 200' east of intersection of SW 127th Avenue and Quail Roost Drive

Additionally, it was noted in correspondence with UAO that the Crown Castle organization has appropriated Fibernet Direct and Sunesys facilities within study corridor.

FPL DISTRIBUTION

FPL operates aerial and buried facilities within the public right of way. The UAO provided markups, record drawings, as-built prints, check prints and referenced primary maps, documentation of the location of existing electric distribution facilities, consisting of 13kV and 120/240V overhead electric pole line along with underground buried electric street light circuit lines within the study limits. Listed below are the locations of FPL distribution lines:

- **Aerial Facilities**
  - SR-994/Quail Roost Drive,overhead 13KV power line on the north and south side of roadway from the beginning of the project lmits to the end
  - North and South along SW 137th Avenue – overhead 13KV powerline and 120/240OV powerline
  - North and South along SW 134th Avenue / Talbot Road – overhead 13KV powerline
  - North along SW 132nd Court – overhead 13KV powerline
  - North and South along SW 127th Avenue / Burr Road – overhead 13KV powerline
- **Underground Facilities**
  - SR-994/Quail Roost Drive, 13kV buried electric east of SW 132nd Place to Black Creek / Canal C-1
  - SW 135th Avenue, 120V buried electric streetlight circuits
  - SW 134th Court, 120V buried electric street light circuits
  - SW 130th Avenue – 13KV BE
  - SW 129th Court – 13KV BE

MCI/VERIZON

According to the review conducted by MCI/Verizon, the UAO does not have facilities within the proposed project limits. MCI/Verizon noted their facilities are within general area and should be contacted if project limits are extended to analyze potential impacts.

MDC ITD

The UAO indicated no conflict within the PD&E study limits.

MIAMI-DADE PUBLIC WORKS AND TRAFFIC

The location of the facilities was not provided by Miami-Dade Public Works at this phase. Potential impacts to street lighting and traffic signals (if any) are to be coordinated with Miami-Dade County Public Works and Traffic in future phases of the project.

MD-WASD

The UAO provided water and sewer as-builts and atlas for facilities within the project limits. ***Water Distribution System*** includes: 48” Concrete Water Main, 16” DIP Water Main, 12” DIP and 8” DIP Water Mains at intersecting streets 48” PCCP Water Main, along with tie-in to fire hydrants and residential/commercial water service lines, water valves, tapping valves. ***Sanitary Sewer System*** includes: 4” and 8” Force Main, sludge line, manholes, cleanouts, fire hydrants and water valves at the locations indicated below.

MD-WASD may consider entering into a Joint Participation Agreement (JPA) for relocation work, if needed, when project reaches 60% phase development.

As-Builts depict 5' Right of Way Easement at NW Corner of SW 127th Avenue and SR-994/Quail Roost Drive.

- **Water**
  - 16" DIP Water Main, SR-994/Quail Roost Drive, from west of 135th Avenue/Sta 319
    to east of SW 129th Avenue/Sta,357 crossing aerially over the Black Creek Canal
  - 16" DIP Water Main, SW 137th Avenue, west side of roadway in northbound direction
  - 16" DIP Water Main, SR-994/Quail Roost Drive/Sta 385 to Sta 369
  - 8" DIP tie-in/connections from existing 16" DIP to intersecting streets;
    SW 135th Avenue, SW 134th Court, SW 134th Avenue/Talbot Road, SW 133rd Court,
    SW 132nd Place, SW 13nd Court, SW 130th Avenue, SW 129th Court, SW 129th
  - 48" PCCP Water Main, SW 127th Ave, west side of roadway in north/southn direction
- **Sanitary**
  - 8" DIP sanitary sewer, SR-994/Quail Roost Drive north side of roadway from west side of
    SW 127th Court/Sta 365 westbound trajectory to SW 130th Avenue/ Sta 348
  - Connections to existing 8"DIP sanitary sewer system at
    - SW 130th Avenue
    - SW 129th Court
    - SW 127th Court

3.0 POTENTIAL UTILITY IMPACTS

A preliminary evaluation for potential utility impacts associated with the following three Build Alternatives was performed.

Build Alternative 1: This alternative maintains one lane of traffic in each direction, while adding a 16.5-ft median with exclusive left turn lanes along SR 994. Curb and Gutter Type F is being proposed on the outside of the travel lanes while Type B curb is the typical condition on the inside to maximize the available landscaping area within the raised islands. This alternative proposes a 10-ft Shared Use Path (SUP) along both sides of the corridor, which are intended to be utilized by pedestrians as well as bicyclists. A minimum 4.5-ft buffer is proposed from the back of curb to the front of the SUP. A 2-ft buffer is proposed behind the SUPs to accommodate signing and lighting features. A traffic signal is proposed at the intersection of SR 994/Quail Roost Drive and SW 134th Avenue. See ***Figure 3-1*** for details.

Figure 3-1 Build Alternative 1 Typical Section

The alternative proposes right of way expansion on the north and south sides of SR 994 at the intersections of SW 137 Avenue, SW 134 Avenue, and SW 127 Avenue to accommodate additional turn lanes as described below.

- *Quail Roost Drive and SW 137th Avenue*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	4	One left turn lane + two thru lanes + one right turn lane
Southbound	5	Two left turn lanes + two thru lanes + one right turn lane
Eastbound	3	Two left turn lanes + one shared thru/right lane
Westbound	5	Two left turn lanes + one thru lane + two right turn lanes

- *Quail Roost Drive and SW 134th Avenue/Talbot Drive*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	2	One left turn lane + one shared thru/right lane
Southbound	2	One left turn lane + one shared thru/right lane
Eastbound	3	One left turn lane + one thru lane + one right turn lane
Westbound	3	One left turn lane + one thru lane + one right turn lane

- *Quail Roost Drive and SW 127th Avenue*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	4	Two left turn lanes + one thru lane + one right turn lane
Southbound	3	One left turn lane + one thru lane + one right turn lane
Eastbound	3	One left turn lane + one thru lane + one shared thru/right lane
Westbound	5	Two left turn lanes + two thru lanes + one right turn lane

Conflicts Associated with Build Alternative 1 include the following. See ***Appendix B*** for details.

- **AT&T:** overhead joint user on FPL pole line; buried telephone (out of service) west of SW 137th Avenue to SW 134th Avenue/Talbot Drive.
- **Comcast:** aerial facilities on pole line, buried facilities with risers on/off pole line at SW 134th Avenue/Talbot Drive.
- **Crown Castle:** (4) 1.5" HDPE conduits/buried fiber, aerial crossing/riser onto electric pole line over Black Creek Canal, seven (7) handholes and one (1) node.
- **FPL Distribution:** overhead electric facilities/pole line consisting of over 50 poles wood/concrete throughout the entire project limits. Overhead joint tenants (AT&T, Comcast), AT&T buried telephone, hand holes, communication cabinets and pedestals and AT&T owned pole.
- **Miami-Dade Public Works Traffic Signals:** The location of the facilities was not provided by Miami-Dade Public Works at this phase. Potential impacts to street lighting and traffic signals (if any) are to be coordinated with Miami-Dade County Public Works and Traffic in future phases of the project.
- **MCI/Verizon:** No impacts anticipated. No facilities within project limits.
- **Miami-Dade ITD:** No conflicts identified by UAO.
- **Miami-Dade Water and Sewer**: 48" Concrete Water Main, 16" DIP Water Main, 12" DIP and 8" DIP Water Mains at intersecting streets 48" PCCP Water Main, along with tie-in to fire hydrants and residential/commercial water service lines, water valves, tapping valves. Sanitary Sewer System includes 4" and 8" Force Main, sludge line, manholes, cleanouts, fire hydrants and water valves at multiple locations.

Build Alternative 2: This alternative proposes one additional travel lane in each direction, for a total of two 11-ft lanes on each bound, and a 16.5-ft median with exclusive left turn lanes along SR 994. Curb and Gutter Type F is proposed on the outside of the travel lanes while Type B curb is the typical condition on the inside to maximize the available landscaping area within the raised islands. This alternative also proposes a 10-ft Shared Use Path (SUP) along both sides of the corridor, that are intended to be utilized by pedestrians as well as bicyclists. A minimum 4.5-ft buffer is proposed from the back of curb to the front of the SUP. A 2-ft buffer is proposed behind the SUPs to accommodate signing and lighting features. A traffic signal is proposed at the intersection of SR 994/Quail Roost Dr. and SW 134th Avenue. See ***Figure 3-2*** for details.

Figure 3-2 Build Alternative 2 Typical Section

The alternative proposes right of way expansion on the north and south sides of SR 994 at the intersections of SW 137 Avenue, SW 134 Avenue, and SW 127 Avenue to accommodate additional turn lanes as described below.

- *Quail Roost Drive and SW 137th Avenue*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	5	Two left turn lanes + two thru lanes + one right turn lane
Southbound	5	Two left turn lanes + two thru lanes + one right turn lane
Eastbound	4	Two left turn lanes + one thru lane + one shared thru/right lane
Westbound	6	Two left turn lanes + two thru lanes + two right turn lanes

- *Quail Roost Drive and SW 134th Avenue/Talbot Drive*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	2	One left turn lane + one shared thru/right lane
Southbound	2	One left turn lane + one shared thru/right lane
Eastbound	4	One left turn lane + two thru lanes + one right turn lane
Westbound	4	One left turn lane + two thru lanes + one right turn lane

- *Quail Roost Drive and SW 127th Avenue*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	3	One left turn lane + one thru lane + one right turn lane
Southbound	3	One left turn lane + one thru lane + one right turn lane
Eastbound	4	One left turn lane + two thru lanes + one right turn lane
Westbound	5	Two left turn lanes + two thru lanes + one right turn lane

Conflicts Associated with Build Alternative 2 include the following. See ***Appendix B*** for details.

- **AT&T:** overhead joint user on FPL pole line; buried telephone (out of service) west of SW 137th Avenue to SW 134th Avenue/Talbot Drive.
- **Comcast:** aerial facilities on pole line, buried facilities with risers on/off pole line at SW 134th Avenue/Talbot Drive.
- **Crown Castle:** (4) 1.5" HDPE conduits/buried fiber, aerial crossing/riser onto electric pole line over Black Creek Canal, seven (7) handholes and one (1) node.
- **FPL Distribution:** overhead electric facilities/pole line consisting of over 50 poles wood/concrete throughout the entire project limits. Overhead joint tenants (AT&T, Comcast), AT&T buried telephone, hand holes, communication cabinets and pedestals and AT&T owned pole.
- **Miami-Dade Public Works Traffic Signals:** The location of the facilities was not provided by Miami-Dade Public Works at this phase. Potential impacts to street lighting and traffic signals (if any) are to be coordinated with Miami-Dade County Public Works and Traffic in future phases of the project.
- **MCI/Verizon:** No impacts anticipated. No facilities within project limits.
- **Miami-Dade ITD:** No conflicts identified by UAO.
- **Miami-Dade Water and Sewer**: 48" Concrete Water Main, 16" DIP Water Main, 12" DIP and 8" DIP Water Mains at intersecting streets 48" PCCP Water Main, along with tie-in to fire hydrants and residential/commercial water service lines, water valves, tapping valves. Sanitary Sewer System includes 4" and 8" Force Main, sludge line, manholes, cleanouts, fire hydrants and water valves at multiple locations.

Build Alternative 3: Similar to Build Alternative 2, this alternative proposes adding one travel lane in each direction along SR 994 for a total of two 11-ft lanes on each bound. A 22-ft-wide raised median with exclusive left turn lanes is provided along the corridor, restricting access to the minor roads and driveways connecting to SR 994. At the intersections, a striped buffer is proposed at between the left turn lanes and the thru traffic. Curb and Gutter Type F is being proposed on the outside of the roadway while Type B curb is the typical condition on the inside to maximize the available landscaping area within the raised median when present. This alternative also proposes a 10-ft Shared Use Path (SUP) along both sides of the corridor, that are intended to be utilized by pedestrians as well as bicyclists. A minimum 4.5-ft buffer is proposed from the back of curb to the front of the SUP. A 2-ft buffer is proposed behind the SUPs to accommodate signing and lighting features. A traffic signal is proposed at the intersection of SR 994/Quail Roost Drive and SW 134th Avenue. This alternative has the greatest impact to the existing right-of-way and also the most access management restrictions. See ***Figure 3-3*** for details.

Figure 3-3 Build Alternative 3 Typical Section

The alternative proposes right of way expansion on the north and south sides of SR 994 at the intersections of SW 137 Avenue, SW 134 Avenue, and SW 127 Avenue to accommodate additional turn lanes as described below.

- *Quail Roost Drive and SW 137th Avenue*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	5	Two left turn lanes + two thru lanes + one right turn lane
Southbound	5	Two left turn lanes + two thru lanes + one right turn lane
Eastbound	4	Two left turn lanes + one thru lane + one shared thru/right lane
Westbound	6	Two left turn lanes + two thru lanes + two right turn lanes

- *Quail Roost Drive and SW 134th Avenue/Talbot Drive*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	2	One left turn lane + one shared thru/right lane
Southbound	2	One left turn lane + one shared thru/right lane
Eastbound	4	One left turn lane + two thru lanes + one right turn lane
Westbound	4	One left turn lane + two thru lanes + one right turn lane

- *Quail Roost Drive and SW 127th Avenue*

Approach	No. of Lanes	Lane Configuration at Intersection
Northbound	3	One left turn lane + one thru lane + one right turn lane
Southbound	3	One left turn lane + one thru lane + one right turn lane
Eastbound	4	One left turn lane + two thru lanes + one right turn lane
Westbound	5	Two left turn lanes + two thru lanes + one right turn lane

Conflicts Associated with Build Alternative 2 include the following. See ***Appendix B*** for details.

- **AT&T:** overhead joint user on FPL pole line; buried telephone (out of service) west of SW 137th Avenue to SW 134th Avenue/Talbot Drive.
- **Comcast:** aerial facilities on pole line, buried facilities with risers on/off pole line at SW 134th Avenue/Talbot Drive.
- **Crown Castle:** (4) 1.5" HDPE conduits/buried fiber, aerial crossing/riser onto electric pole line over Black Creek Canal, seven (7) handholes and one (1) node.
- **FPL Distribution:** overhead electric facilities/pole line consisting of over 50 poles wood/concrete throughout the entire project limits. Overhead joint tenants (AT&T, Comcast), AT&T buried telephone, hand holes, communication cabinets and pedestals and AT&T owned pole.
- **Miami-Dade Public Works Traffic Signals:** The location of the facilities was not provided by Miami-Dade Public Works at this phase. Potential impacts to street lighting and traffic signals (if any) are to be coordinated with Miami-Dade County Public Works and Traffic in future phases of the project.
- **MCI/Verizon:** No impacts anticipated. No facilities within project limits.
- **Miami-Dade ITD:** No conflicts identified by UAO.
- **Miami-Dade Water and Sewer**: 48" Concrete Water Main, 16" DIP Water Main, 12" DIP and 8" DIP Water Mains at intersecting streets 48" PCCP Water Main, along with tie-in to fire hydrants and residential/commercial water service lines, water valves, tapping valves. Sanitary Sewer System includes 4" and 8" Force Main, sludge line, manholes, cleanouts, fire hydrants and water valves at multiple locations.

In general, all the Build Alternatives impact the existing utilities. A summary of potential utility impacts to each UAO is presented in ***Table 3-1*** below.

Table 3-1 Alternatives Potential Utility Impacts

UAO	Utility Type	Roadway	Build Alternatives		
			1	2	3
AT&T	Overhead Telephone	SR-994/Quail Roost Drive	X	X	X
AT&T	Cabinet	SR-994/Quail Roost Drive		X	X
AT&T	Hand Hole	SR-994/Quail Roost Drive		X	X
AT&T	Communication Pole	SR-994/Quail Roost Drive	X	X	X
COMCAST	Overhead Facilties	SR-994/Quail Roost Drive	X	X	X
COMCAST	Underground Facilities	SR-994/Quail Roost Drive	X	X	X
COMCAST	Handholes	SR-994/Quail Roost Drive	X	X	X
CROWN CASTLE	Aerial Fiber	SR-994/Quail Roost Drive	X	X	X
CROWN CASTLE	(4) 1.5" HDPE BFO	SR-994/Quail Roost Drive	X	X	X
CROWN CASTLE	(9) Hand holes	SR-994/Quail Roost Drive	X	X	X
CROWN CASTLE	(4) 1.5" HDPE BFO	SW 137th Avenue	X	X	X

UAO	Utility Type	Roadway	Build Alternatives		
			1	2	3
FPL DIST.	13kV Overhead Electric Pole Line	SR-994/Quail Roost Drive	X	X	X
FPL DIST.	13kV Overhead Electric Pole Line	SW 137th Avenue	X	X	X
FPL DIST.	13kV Overhead Electric Pole Line	SW 127th Avenue/Burr Road	X	X	X
FPL DIST.	120/240V Overhead Electric Pole Line	SW 137th Avenue	X	X	X
FPL DIST.	120/240V Overhead Electric Pole Line	SW 134th Avenue/Talbot Drive	X	X	X
FPL DIST.	120V Street Light Circuit	SR-994/Quail Roost Drive	X	X	X
FPL DIST.	120V Street Light Circuit	SW 135th Avenue	X	X	X
FPL DIST.	120V Street Light Circuit	SW 134th Court	X	X	X
MD-WASD	16" DIP Water Main	SR-994/Quail Roost Drive	X	X	X
MD-WASD	8" DIP WM Tie In Connections	SR-994/Quail Roost Drive	X	X	X
MD-WASD	Water Valves	SR-994/Quail Roost Drive	X	X	X
MD-WASD	8" DIP Sanitary Sewer	SR-994/Quail Roost Drive	X	X	X
MD-WASD	Manholes	SR-994/Quail Roost Drive	X	X	X

SUMMARY

All the UAOs are within the public right of way and have not reported a compensable interest.

The proposed build alternatives will impact all the utilities within the corridor thereby requiring relocation to accommodate the final right-of-way requirement.

Overhead electric facilities may have to extend relocation beyond the project limits as well due to sudden change in alignment of impact to an existing pole that is relied on for structural support. If pad mounted transformers are installed at ground level, this may require an easement granted to FPL. Joint tenants on the overhead pole line will need to transfer from existing pole line to newly placed pole line once final right-of-way requirement is determined.

Underground utilities/facilities may need to relocate to accommodate widening; also access points such as manholes, handholes, pedestals, cabinets will need to be relocated depending on the final right-of-way requirement.

Miami-Dade Water and Sewer will determine if they intend to pursue a Joint Participation Agreement/ Utility Work by Highway Contractor when the project phase is at 60% phase development.

Appendix A – Utility Agency Owners Responses

UTILITY AGENCY CONTACT FORM

FPID NUMBER: **445804-1-22-01**

	LIST OF ALL UTILITIES CONTACTED	RESPONSES PROVIDED
1	AT&T	MARKED UP PLANS
2	COMCAST	MARKED UP PLANS
3	CROWN CASTLE	MARKED UP PLANS MARKED UP PLANS
4	FPL DISTRIBUTION	PRIMARY MAPS
5	DCPWT	NO RESPONSE
6	MCI/VERIZON	NO FACILITIES RESPONSE
7	MIAMI-DADE FIBER	NO CONFLICT RESPONSE
8	MIAM-DADE WATER & SEWER	WATER AND SEWER ATLAS SHEETS GIS RECORD MAPS

```
DESIGN TICKET
Ticket : 350002197 Rev:000 Taken: 12/15/20 10:20ET

State: FL Cnty: DADE GeoPlace: MIAMI
CallerPlace: MIAMI
Subdivision:

Address :
Street  : QUAIL ROOST DR
Cross 1 : KROME AVE
Within 1/4 mile: Y

Locat: DESIGN TICKET:  LOCATE BOTH SIDES OF QUAIL ROOST DRIVE FROM EAST OF
KROME AVENUE TO SW 137TH AVENUE, INCLUDE FROM R/O/W TO R/O/W INCLUDE SWALES,
EMBANKMENTS.
:
Remarks : IN RESPONSE TO RECEIPT OF A DESIGN TICKET, SSOCOF PROVIDES THE
ORIGINATOR OF THE DESIGN TICKET WITH A LIST OF SSOCOF MEMBERS IN THE VICINITY
OF THE DESIGN PROJECT.  SSOCOF DOES NOT NOTIFY SSOCOF MEMBERS OF THE RECEIPT BY
SSOCOF OF A DESIGN TICKET.  IT IS THE SOLE RESPONSIBILITY OF THE DESIGN
ENGINEER TO CONTACT SSOCOF MEMBERS TO REQUEST INFORMATION ABOUT THE LOCATION OF
SSOCOF MEMBERS' UNDERGROUND FACILITIES.  SUBMISSION OF A DESIGN TICKET WILL NOT
SATISFY THE REQUIREMENT OF CHAPTER 556, FLORIDA STATUTES, TO NOTIFY SSOCOF OF
AN INTENT TO EXCAVATE OR DEMOLISH.  THAT INTENT MUST BE MADE KNOWN SPECIFICALLY
TO SSOCOF IN THE MANNER REQUIRED BY LAW.  IN AN EFFORT TO SAVE TIME ON FUTURE
CALLS, SAVE YOUR DESIGN TICKET NUMBER IF YOU INTEND TO BEGIN EXCAVATION WITHIN
90 DAYS OF YOUR DESIGN REQUEST.  THE DESIGN TICKET CAN BE REFERENCED, AND THE
INFORMATION ON IT CAN BE USED TO SAVE TIME WHEN YOU CALL IN THE EXCAVATION
REQUEST.
*** LOOKUP BY MANUAL ***
:
Grids   : 2534A8024A   2534A8024B   2534A8025A   2534A8025B   2534A8025C
Grids   : 2534A8025D   2534A8026A   2534A8026B   2534A8026C   2534A8026D
Grids   : 2534A8027A   2534A8027B   2534A8027C   2534A8027D   2534A8028B
Grids   : 2534A8028C   2534A8028D   2534B8028B   2534B8028C

Work date: 12/15/20 Time: 10:15ET  Hrs notc: 000 Category: 6 Duration: UNKNOWN
Due Date : 12/17/20 Time: 23:59ET  Exp Date : 01/14/21 Time: 23:59ET
Work type: DESIGN  Boring: N  White-lined: N
Ug/Oh/Both: U  Machinery: N  Depth: UNK  Permits: N  N/A
Done for : DESIGN

Company : MANUEL G VERA AND ASSOCIATES  Type: CONT
Co addr : 13960 SW 47TH ST
City    : MIAMI State: FL Zip: 33175
Caller  : LYDIA SANTIAGO Phone: 561-203-2700 Ext: 4
BestTime: DAYTIME
Mobile  : 786-402-4577
Email   : LSANTIAGO@MGVERA.COM

Submitted: 12/15/20 10:20ET Oper: LYD Chan: WEB
Mbrs :  CC1279 DCPWT  FPLDAD MC2278 MCIU01 MDWS   NN1882 SBF23
```

** There aren't any Excavator comments, so the column is omitted **

Ex. Circum	Service Area	Utility Type(s)	Contact	Alt. Contact	Emergency Contact	Positive Response
No	COMCAST CABLE CC1279	CATV, FIBER	JOHN SCOTT STRAHN (561) 227-3417		USIC DISPATCH (800) 778-9140	
No	DADE COUNTY PUBLIC WORKS AND TRAFFIC DCPWT	STREET LIGHTS, TRAFFIC SIGNALS	OCTAVIO VIDAL (305) 412-0891 x102	OCTAVIO VIDAL (305) 412-0891 x102	FRANK AIRA P.E. (305) 592-3580 x233	
No	FLORIDA POWER & LIGHT--DADE FPLDAD	ELECTRIC	EDGAR AGUILAR (386) 586-6403		USIC DISPATCH CENTER (800) 778-9140	
No	MASTEC INC MC2278	FIBER MDC Fiber	RICKIE QUINN		JULIO OLEA (305) 803-0346	
No	MCI MCIU01	COMMUNICATION LINES, FIBER	MCIU01 INVESTIGATIONS (469) 886-4091	NATIONAL FIBER SECURITY DEPARTMENT (800) 624-9675	NATIONAL FIBER SECURITY DEPARTMENT (800) 624-9675	
No	MIAMI-DADE WATER & SEWER MDWS	SEWER, WATER	LAZARO GUERRA (786) 268-5273		RADIO COMMUNICATION CENTER (305) 274-9272	
No	CROWN CASTLE NG NN1882	FIBER	FIBERDIG TEAM (888) 632-0931 x2		CROWN CASTLE FIBER NOC (855) 933-4237 x1	
No	A T & T/ DISTRIBUTION SBF23	TELEPHONE	DINO FARRUGGIO (561) 683-2729	USIC DISPATCH OFFICE (CLS) (800) 778-9140	USIC DISPATCH OFFICE (CLS) (800) 778-9140	

December 8, 2021

Good afternoon UAOs,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

The PD&E is underway to evaluate widening of SR 994 from west of SW 137th Avenue to west of SW 127th Avenue and safety and operational improvements throughout the study limits from west of SW 137th Avenue to east of SW 127th Avenue in Miami-Dade County and document information necessary for the Department to reach a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility.

Base Plans dated 12-8-2021 are provided as part of the PD&E Request Package.

Using the standard color code *[Per 2017 UAM, Section 5.2 (4)]* **please mark one set of the plans**, which shall include verification and plotting the exact location of your existing and planned utility facilities. Additionally, power companies must indicate the voltage of all aboveground electric lines.

We also request you forward any information on easements, subordination information, as-built plans, and any possible need for UWHC and/or Reimbursement related to your facilities within the project limits.

To ensure we meet our project milestones we request you provide your response no later than **January 7, 2023**.

If you have any questions or need any additional information, please do not hesitate to contact us.

Sincerely,

Lydia Santiago

Lydia Santiago
Sr. Utility Coordinator
MG Vera & Associates, Inc.

From: Lydia Santiago
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; leonard_maxwell-newbold@comcast.com; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

CONTRACT PLANS COMPONENTS

ROADWAY PLANS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2 - 10	ROADWAY PLANS

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED Existing utilities that are:
(a) To be removed or relocated horizontally, or
(b) To be placed out-of-service (deactivated) but left in place.

GREEN Existing utilities: To remain in place with no adjustment.

BROWN Utilities that are:
(a) Existing and are to be adjusted vertically, but are to remain in the same horizontal alignment, or
(b) New utilities to be installed.

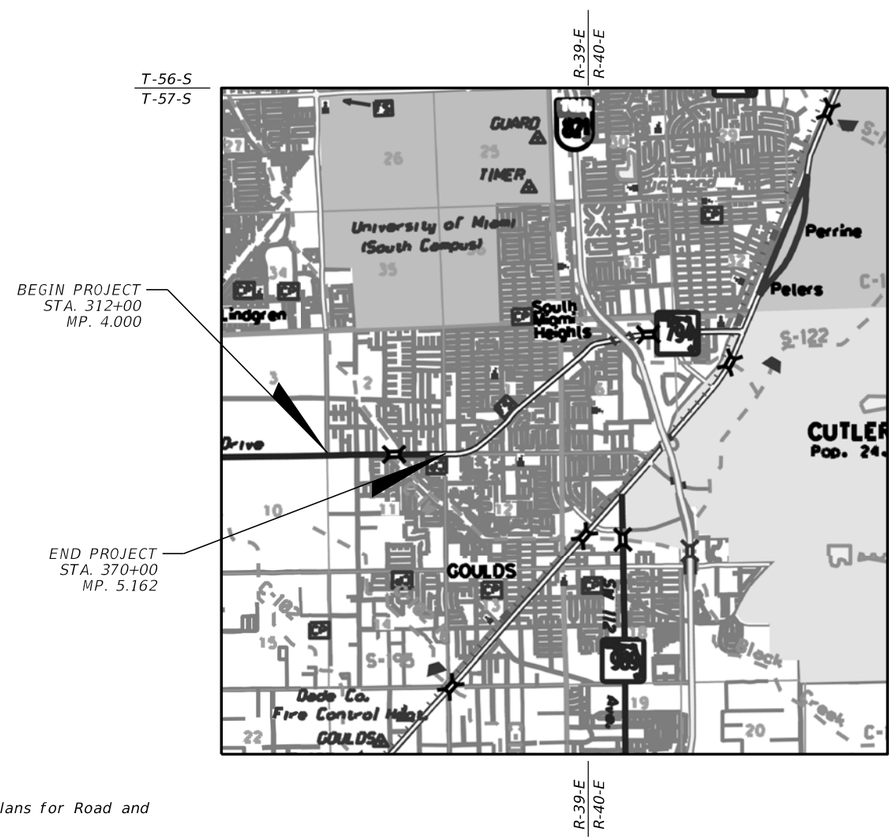
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

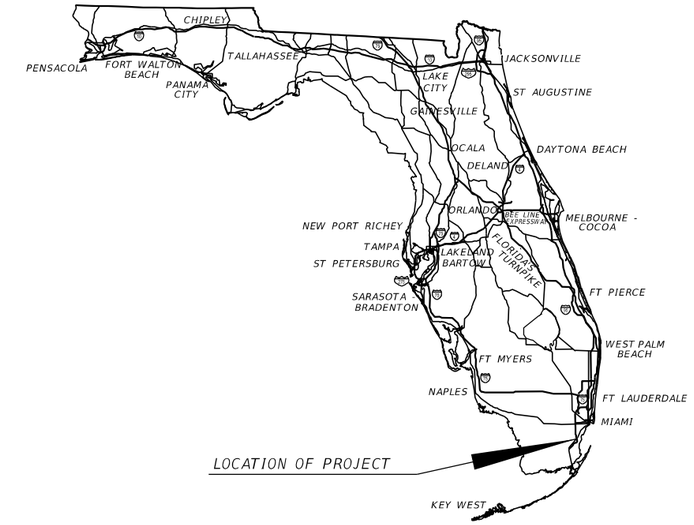
CONTRACT PLANS

FINANCIAL PROJECT ID 445804-1-22-01

MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994





N

ROADWAY PLANS
ENGINEER OF RECORD:

ALEJANDRO URIBE, P.E.
P.E. LICENSE NUMBER 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
CONTRACT NO.: C0000
VENDOR NO.: 00-000000

FDOT PROJECT MANAGER:

ELSA RIVEROL, P.E.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2022-23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: IR - -

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2022 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	22	1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

12/7/2021 9:22:23 PM vpranckevicius
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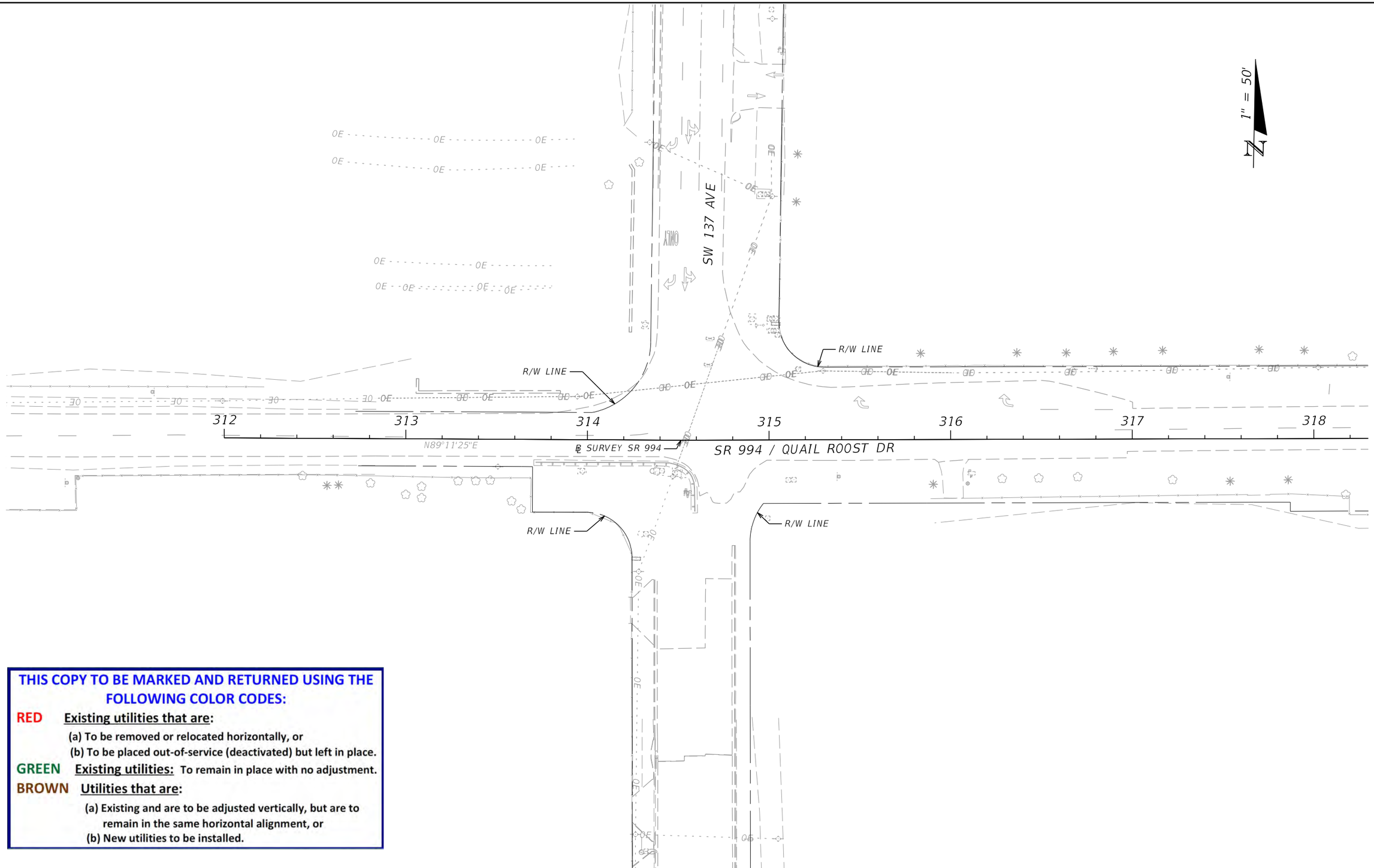

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

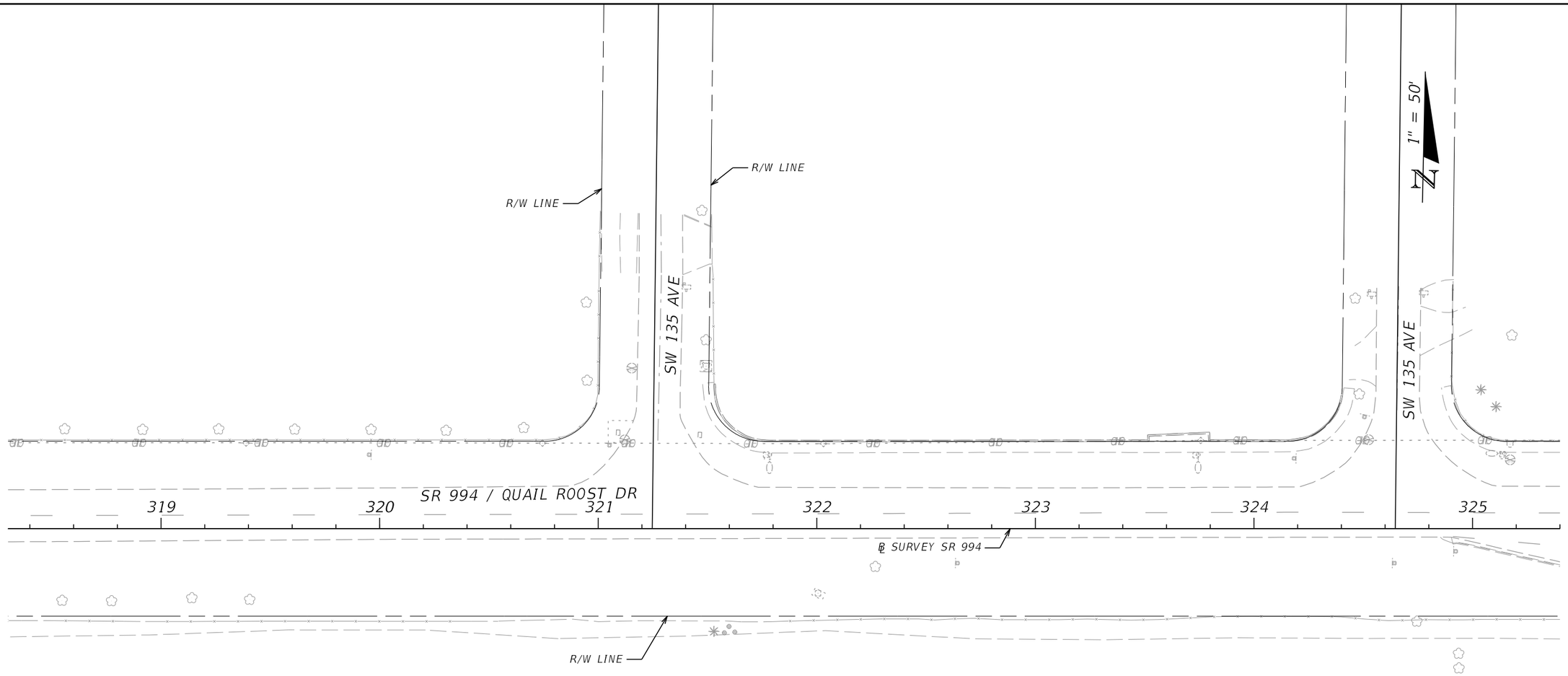
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 2

12/7/2021 9:28:44 PM vprancekevicius
C:\Worksets\FDOT_44580412201\Roadway\PLANRD01.dgn



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12/7/2021 9:28:45 PM vorankevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

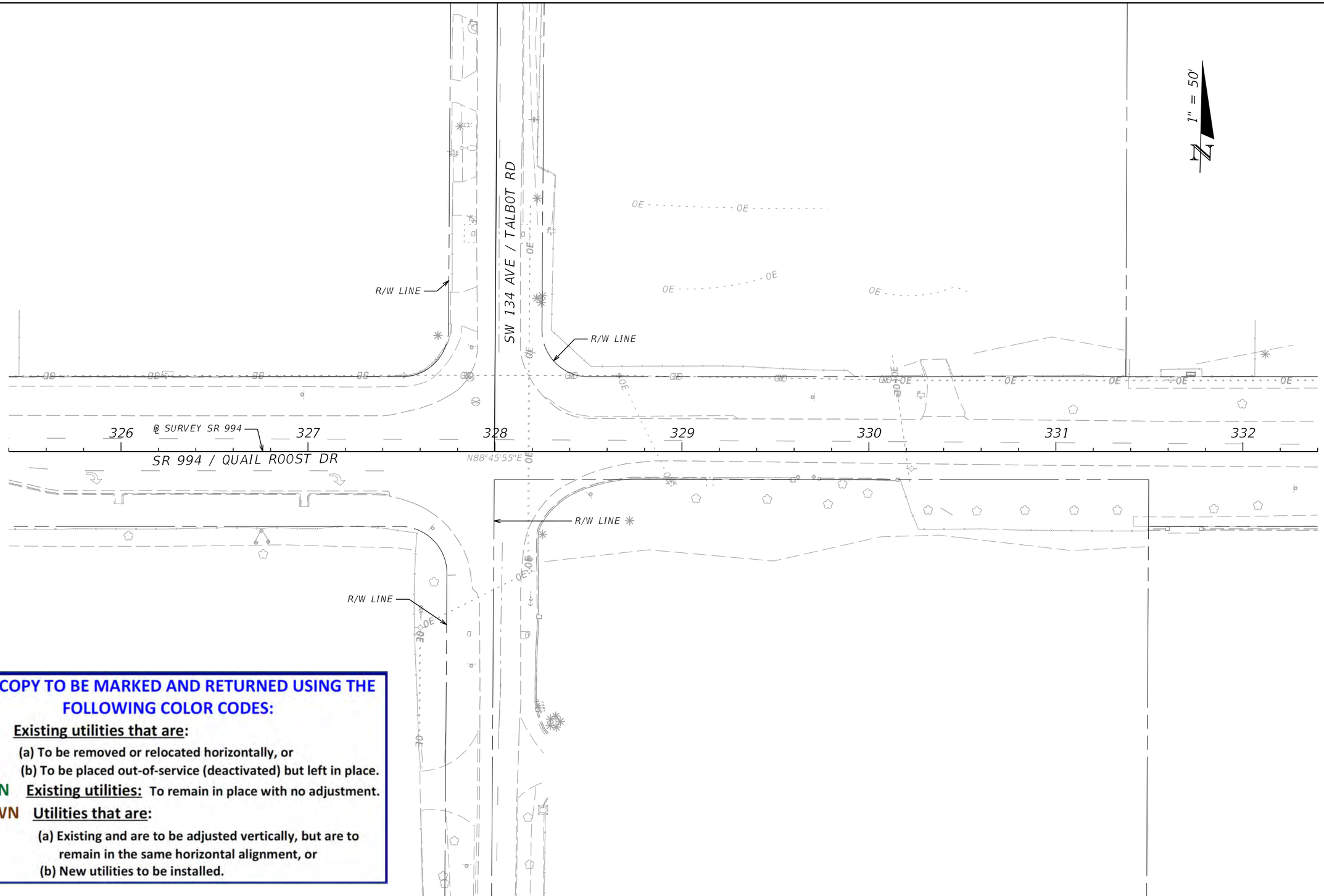
ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
3



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12/7/2021 9:28:45 PM vprancekevicius
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

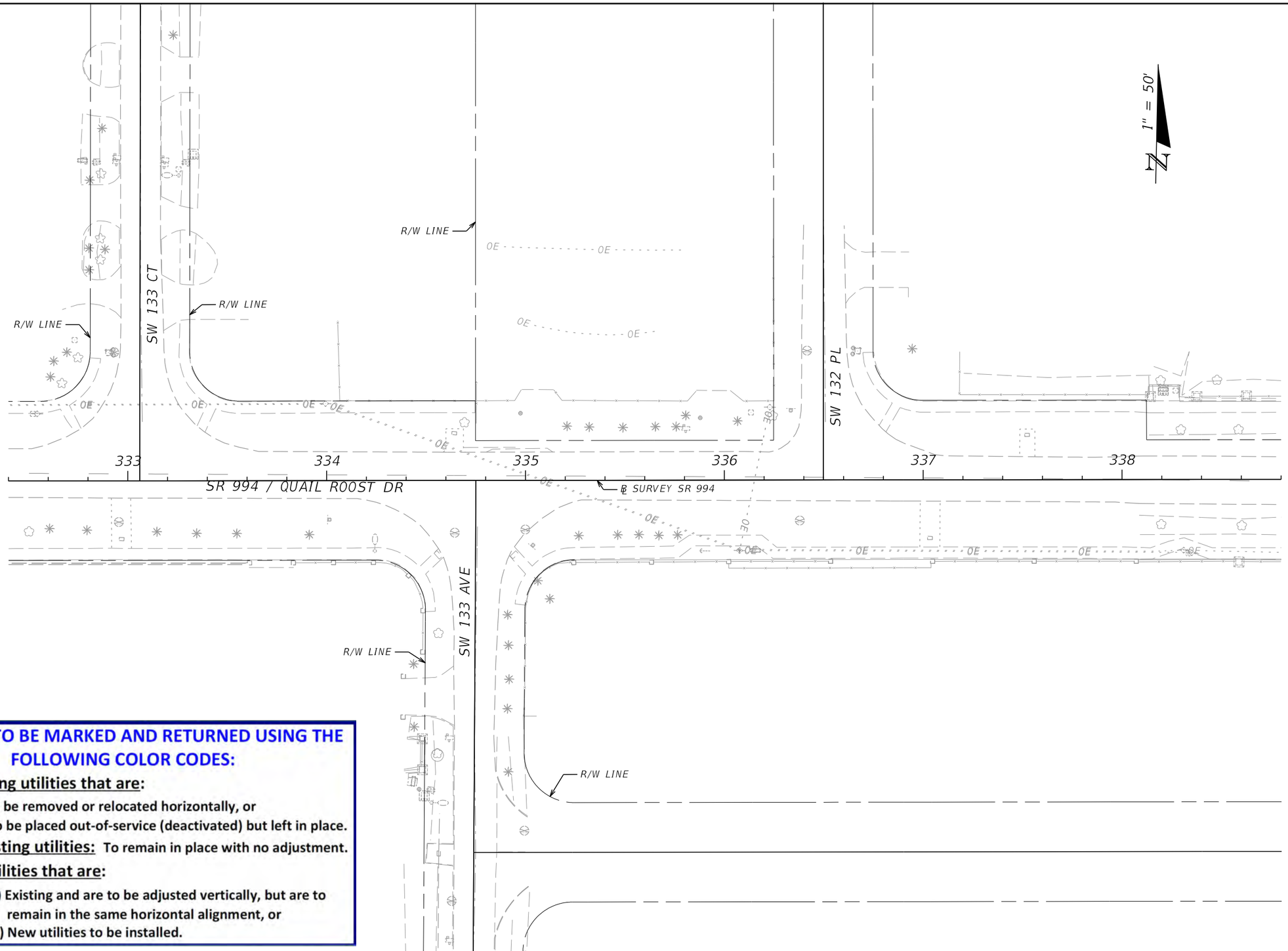
ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 4



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12/7/2021 9:28:46 PM vpranckevicius
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
5

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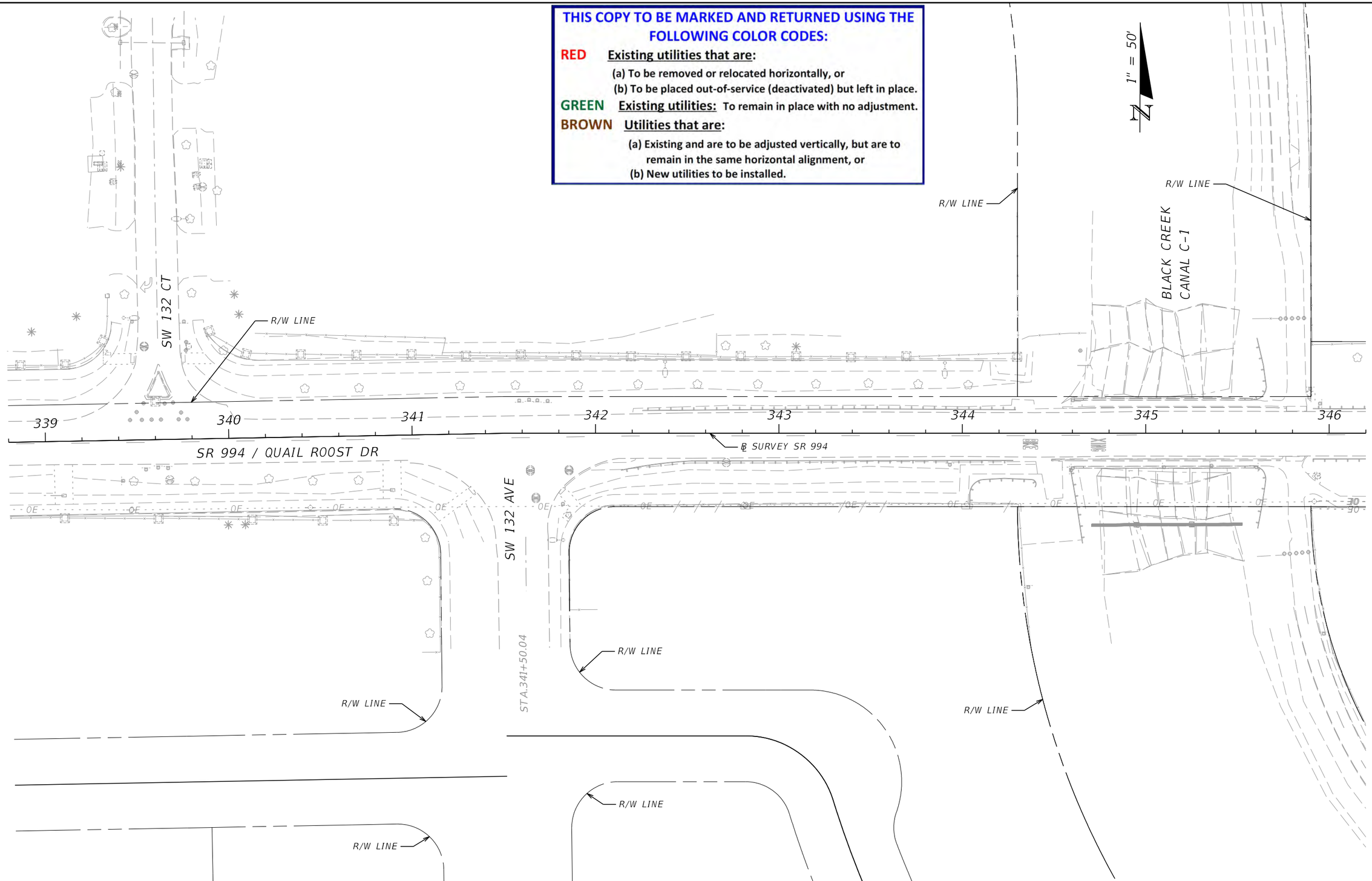

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
6

12/7/2021 9:28:46 PM vprancke\vicius
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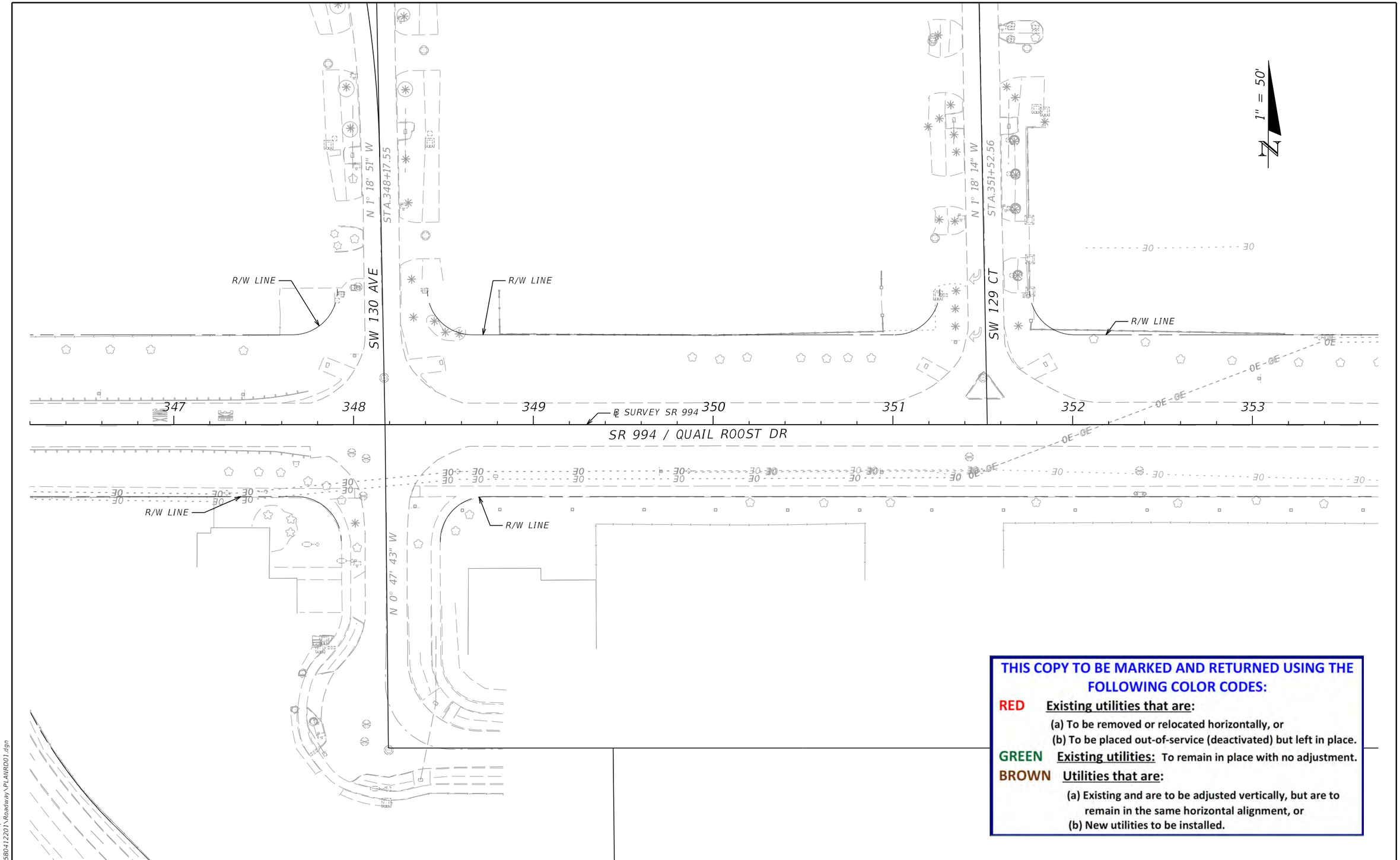

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DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
7

12/7/2021 9:28:47 PM vprancekevicius
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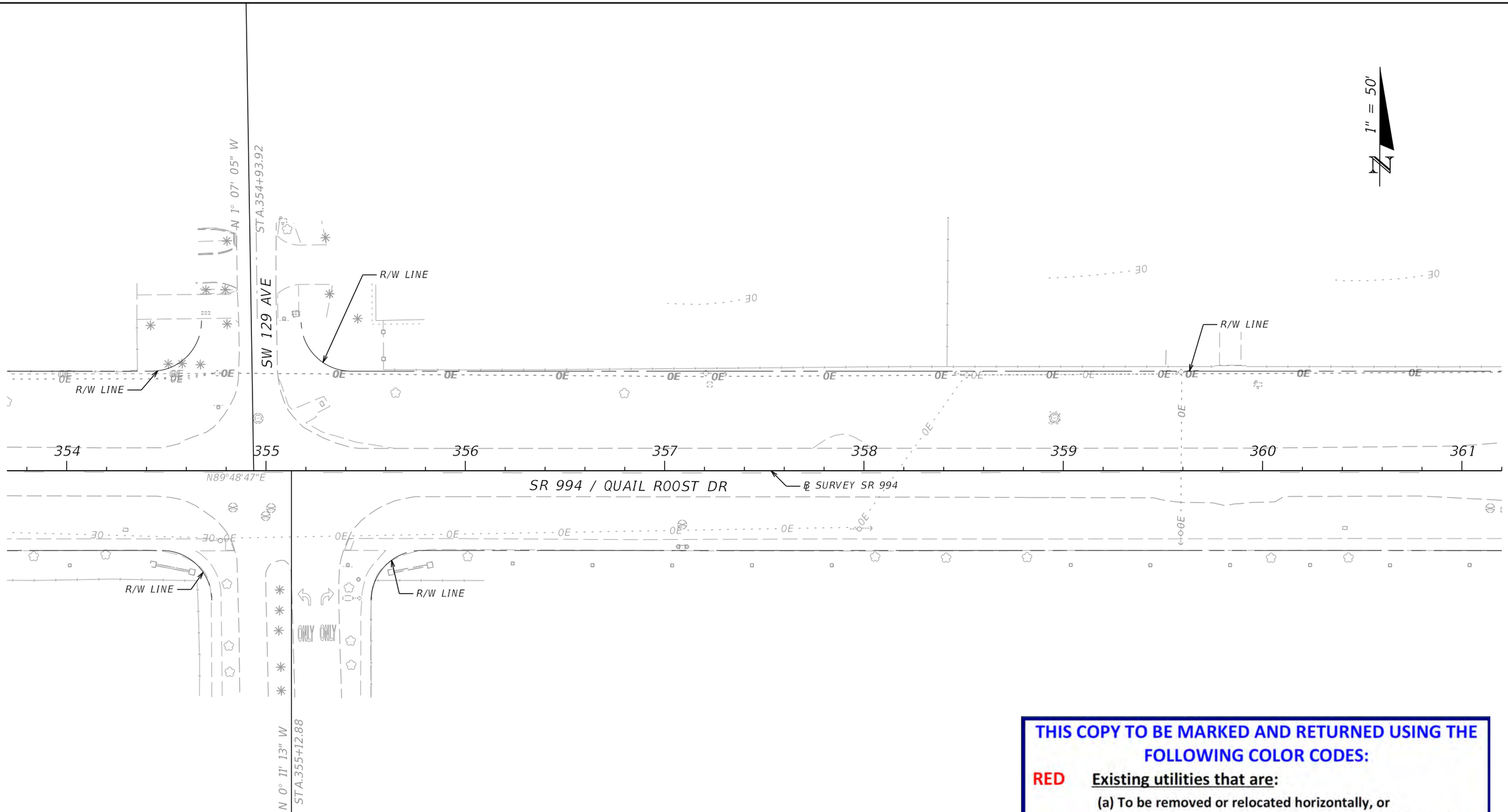

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
8

12/7/2021 9:28:47 PM vprankevicius
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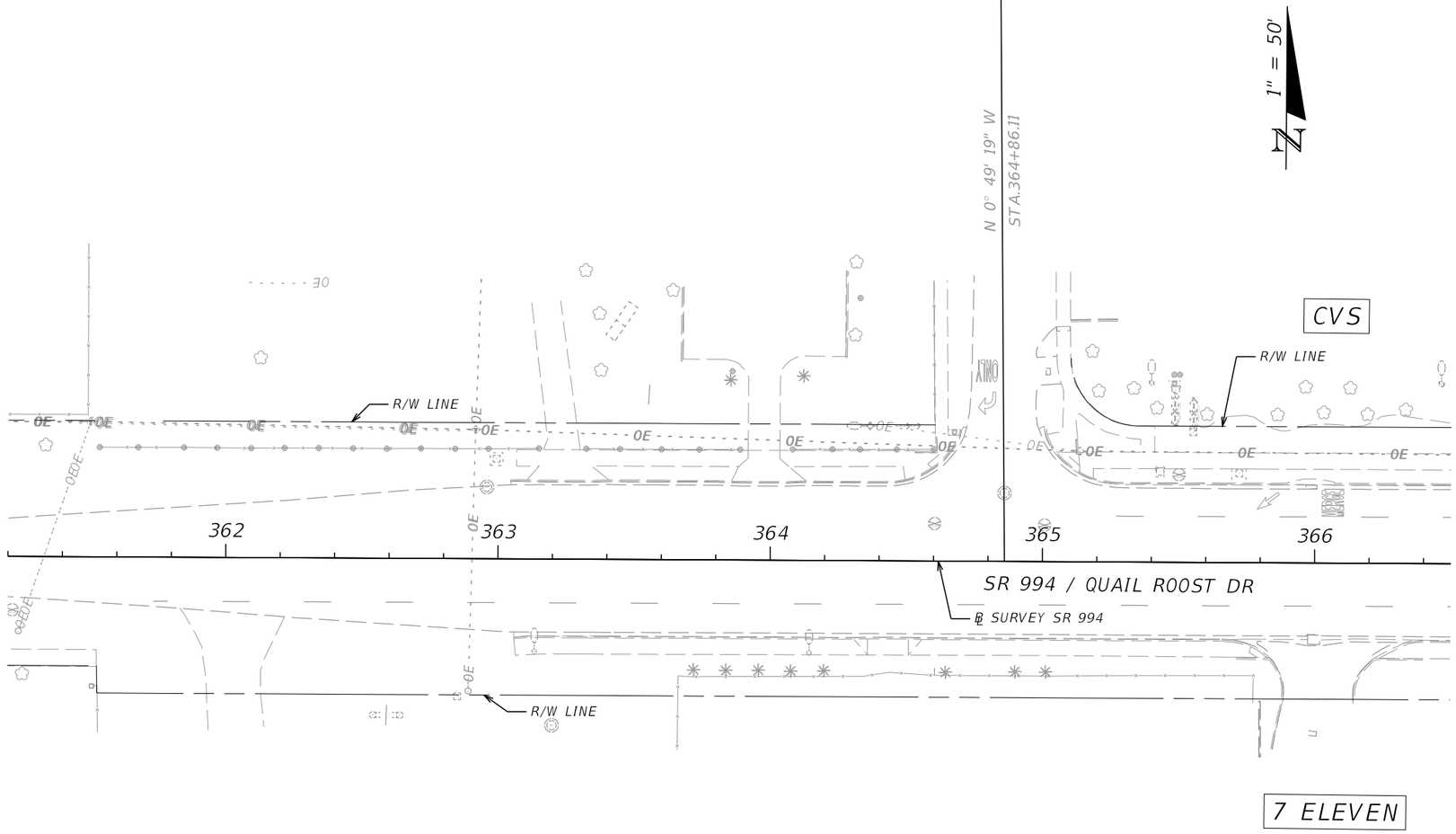

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 9

12/7/2021 9:28:48 PM vpranckevicius
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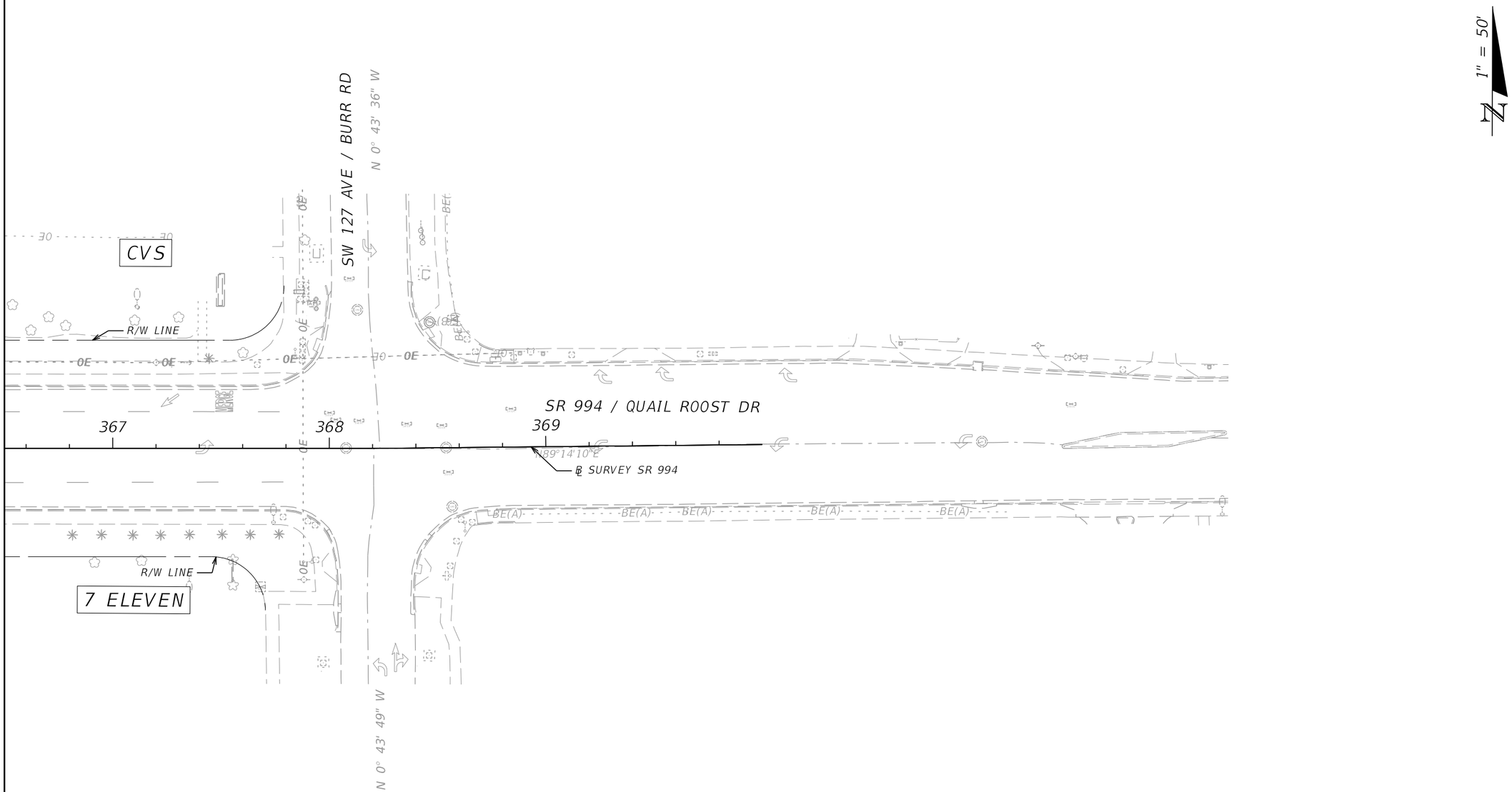

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
10

12/7/2021 9:28:48 PM vprancke\vicius
C:\Worksets\FDOT_44580412201\Roadway\PLANRD01.dgn

AT&T Distribution

Lydia Santiago

Sent: Monday, April 18, 2022 1:46 PM
To: Lydia Santiago
Cc: 'LOW, STEVE'; 'URENA, HENRY'; Joaquin Ferrer (JRA)
Subject: FP 445804-1-52-01 Quail Roost Drive - AT&T FL Markup
Attachments: AT&T Mark-up_445804-1-22-01 SR 994 Quail Roost Drive _ Initial Contact PD&E Base Plans.pdf

Good afternoon Lydia:

Hope this email finds you well.

Attached please find the markup for the above-referenced PD&E project.

Please any future correspondence on this project should be addressed to AT&T FL representative Steve Low.

Thanks,

Joaquin J. Ferrer, Jr.
Utility Coordinator

JRA, Inc.
engineers-planners
10661 North Kendall Drive
Ste. 207
Miami, Fl. 33176
Tel. 305-270-7800
Fax 305-279-2581
Cel 305-975-5376
E-mail: jrferrer@jraincengineers.com

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Lydia Santiago

From: URENA, HENRY <hu083j@att.com>
Sent: Tuesday, February 1, 2022 8:07 AM
To: Lydia Santiago
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Attachments: 445804-1-22-01 SR 994 Quail Roost Drive _Marked Up Plans.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Sorry about that I changed the aerial cables to light ble and left the buried cables as green. Let me know if you have any questions.
Thanks,

Henry Urena
Mgr. OSP Plng & Eng Design
ACE – East Region, Florida Construction & Engineering

AT&T
600 NW 79th Ave Room 360 Miami, FL.
O:305-913-1408
M:954-260-0615 | hu083j@att.com

- ***All correspondence and coordination herein is with regards to BellSouth Telecommunications, LLC d/b/a AT&T Florida (ATT-D) which is not responsible for facilities owned and managed by AT&T Corp (ATT-T). Any questions with regards to ATT-T facilities should be addressed to Inquiries@pea-inc.net.***

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From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Monday, January 31, 2022 4:22 PM
To: URENA, HENRY <hu083j@att.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Henry,

Thank you kindly!

If you can help me decipher if the green lines represent underground or aerial facilities, it would be great.

Thanks a million 😊

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: URENA, HENRY <hu083j@att.com>
Sent: Monday, January 31, 2022 4:15 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Lydia,
Sorry for the delay and thank you for your patience. Attached is the marked up plans. Let me know if you need anything else.
Thank you,

Henry Urena
Mgr. OSP Plng & Eng Design
ACE – East Region, Florida Construction & Engineering

AT&T
600 NW 79th Ave Room 360 Miami, FL.
O:305-913-1408
M:954-260-0615 | hu083j@att.com

- ***All correspondence and coordination herein is with regards to BellSouth Telecommunications, LLC d/b/a AT&T Florida (ATT-D) which is not responsible for facilities owned and managed by AT&T Corp (ATT-T). Any questions with regards to ATT-T facilities should be addressed to Inquiries@pea-inc.net.***

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From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Monday, January 31, 2022 8:34 AM
To: URENA, HENRY <hu083j@att.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Importance: High

Good morning Henry,

Hope you are staying warm 😊

Really need your help on this one.

Any news on the mark ups. I am also going to text like you had requested.

Thanks!

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Friday, January 14, 2022 9:39 AM
To: URENA, HENRY <hu083j@att.com>
Subject: FW: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Importance: High

Good morning Henry,

Happy New Year! 😊

Was reaching out to see if you have had a chance to look at this request or route internally to your subcontractor for mark-up.

Responses were due last week, please let me know when we can expect to receive it so I can alert the design team.

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Tuesday, January 4, 2022 2:08 PM
To: Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; URENA, HENRY <hu083j@att.com>; Jason.Matthews@verizon.com
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>

Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CORRECTION

Friendly reminder responses are due January 7, 2022.

I apologize for any confusion.
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Tuesday, January 4, 2022 12:11 PM
To: Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; URENA, HENRY <hu083j@att.com>; Jason.Matthews@verizon.com
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good morning all,

hope you are all doing well and had a great holiday season - Happy New Year!

This email serves as a friend reminder that your responses are due on January 7, 2023.

****** FRIENDLY REMINDER *******

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

From: Lydia Santiago
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; leonard_maxwell-newbold@comcast.com; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
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Jupiter, FL 33458
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Surveyors | Mappers | Subsurface Utilities | Utility Coordination

CONTRACT PLANS COMPONENTS

ROADWAY PLANS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2 - 10	ROADWAY PLANS

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED Existing utilities that are:
(a) To be removed or relocated horizontally, or
(b) To be placed out-of-service (deactivated) but left in place.

GREEN Existing utilities: To remain in place with no adjustment.

BROWN Utilities that are:
(a) Existing and are to be adjusted vertically, but are to remain in the same horizontal alignment, or
(b) New utilities to be installed.

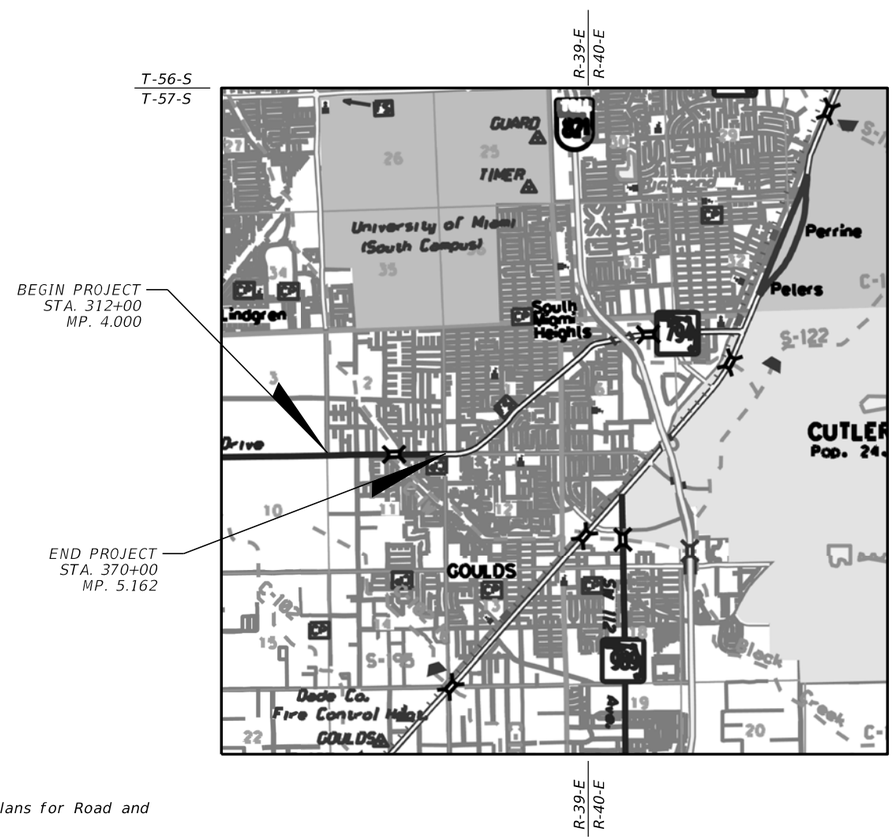
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

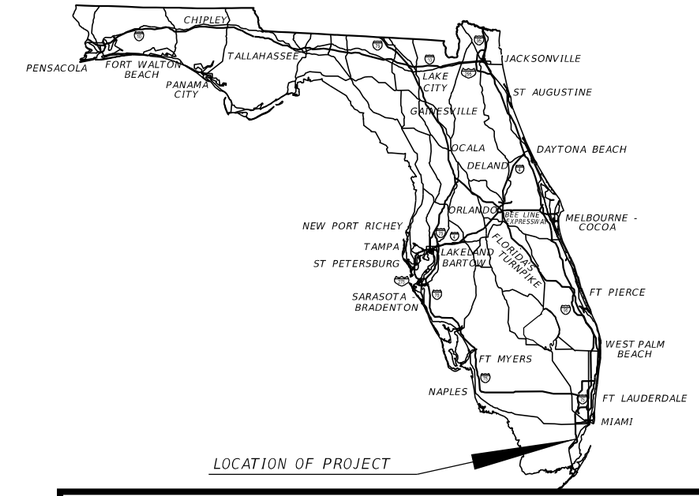
CONTRACT PLANS

FINANCIAL PROJECT ID 445804-1-22-01

MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994





NOTE: All cable locations reflected on this drawing are considered to be approximate (Level D) and should be verified by the design team with field location (Level B/C) prior to completion of design and by the contractor prior to the start of work operation. Call Sunshine ONE-CALL for field locations: 811 or 1-800-432-4770.

N

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2022-23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: IR - -

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2022 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

All correspondence and coordination herein is with regards to BellSouth Telecommunications, LLC d/b/a AT&T Florida (ATT-D) which is not affiliated with or responsible for facilities owned and managed by AT&T Corp (ATT-T). Any questions with regards to ATT-T facilities should be addressed to Inquiries@pea-inc.net.

ROADWAY PLANS
ENGINEER OF RECORD:

ALEJANDRO URIBE, P.E.
P.E. LICENSE NUMBER 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
CONTRACT NO.: C0000
VENDOR NO.: 00-000000

FDOT PROJECT MANAGER:

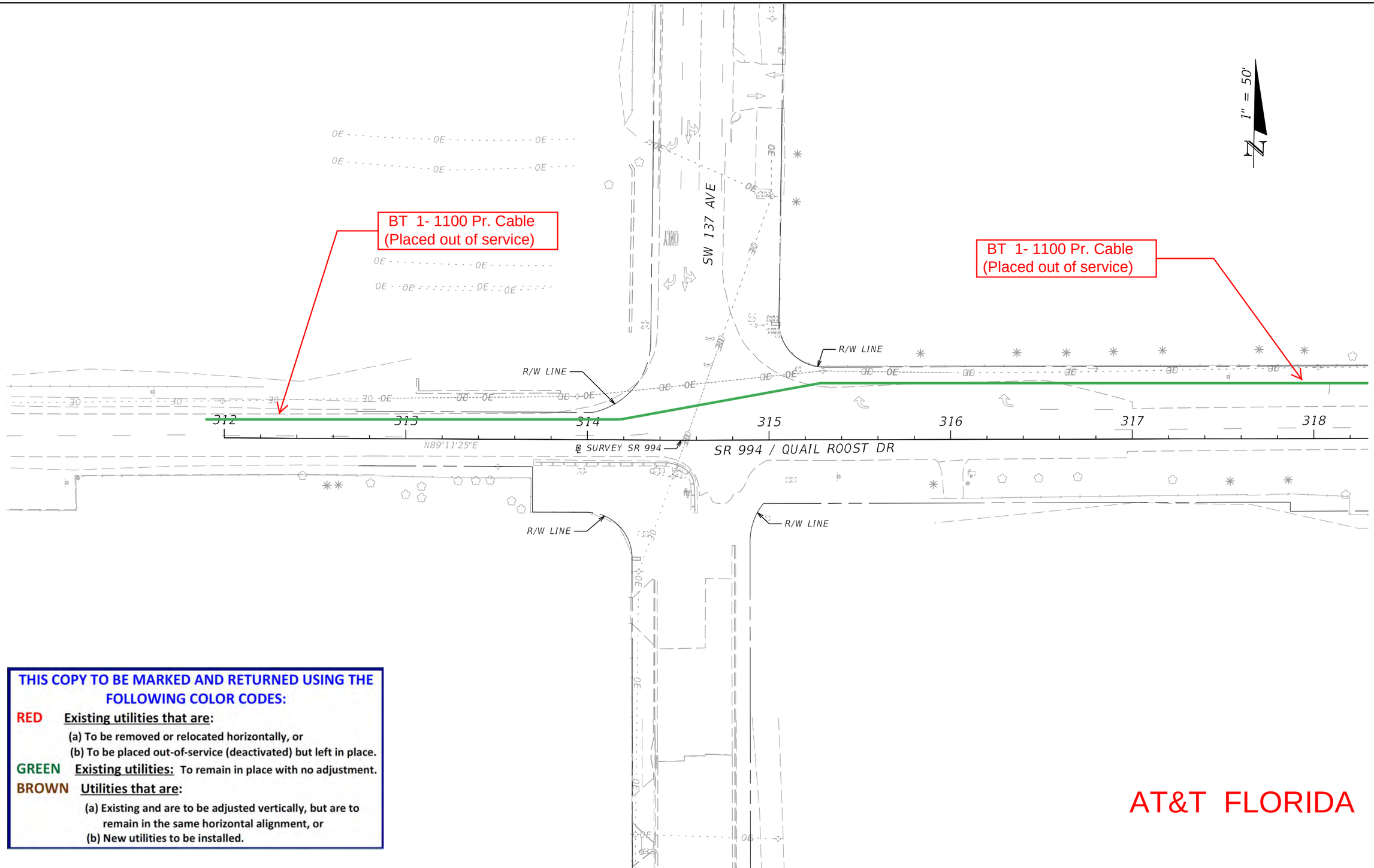
ELSA RIVEROL, P.E.

AT&T FLORIDA

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	22	1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

12/7/2021 9:22:23 PM vpranckevicius
C:\Worksets\FDOT\44580412201\roadway\KEYSRD01.dgn



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AT&T FLORIDA

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

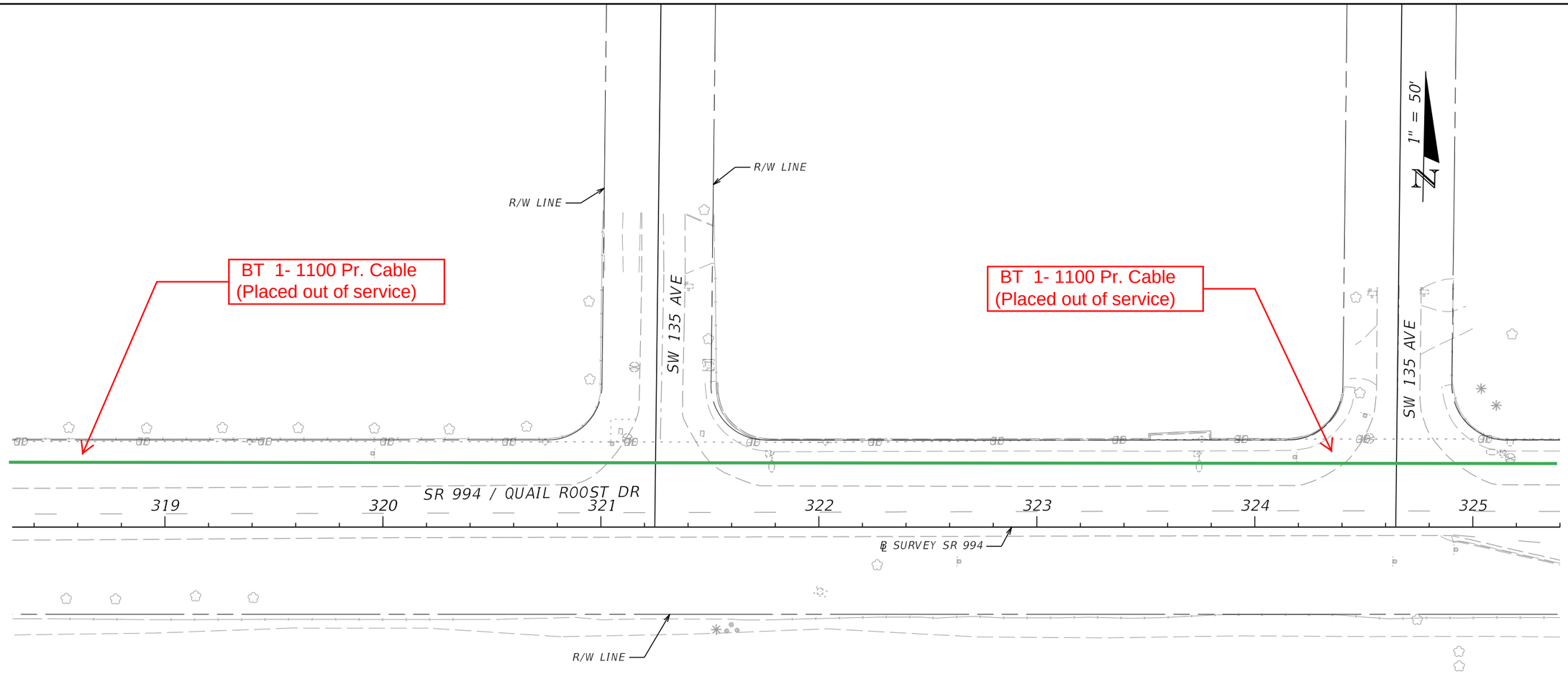
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 2

12/7/2021 9:28:44 PM vprancekevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn



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AT&T FLORIDA

12/7/2021 9:28:45 PM vorankevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

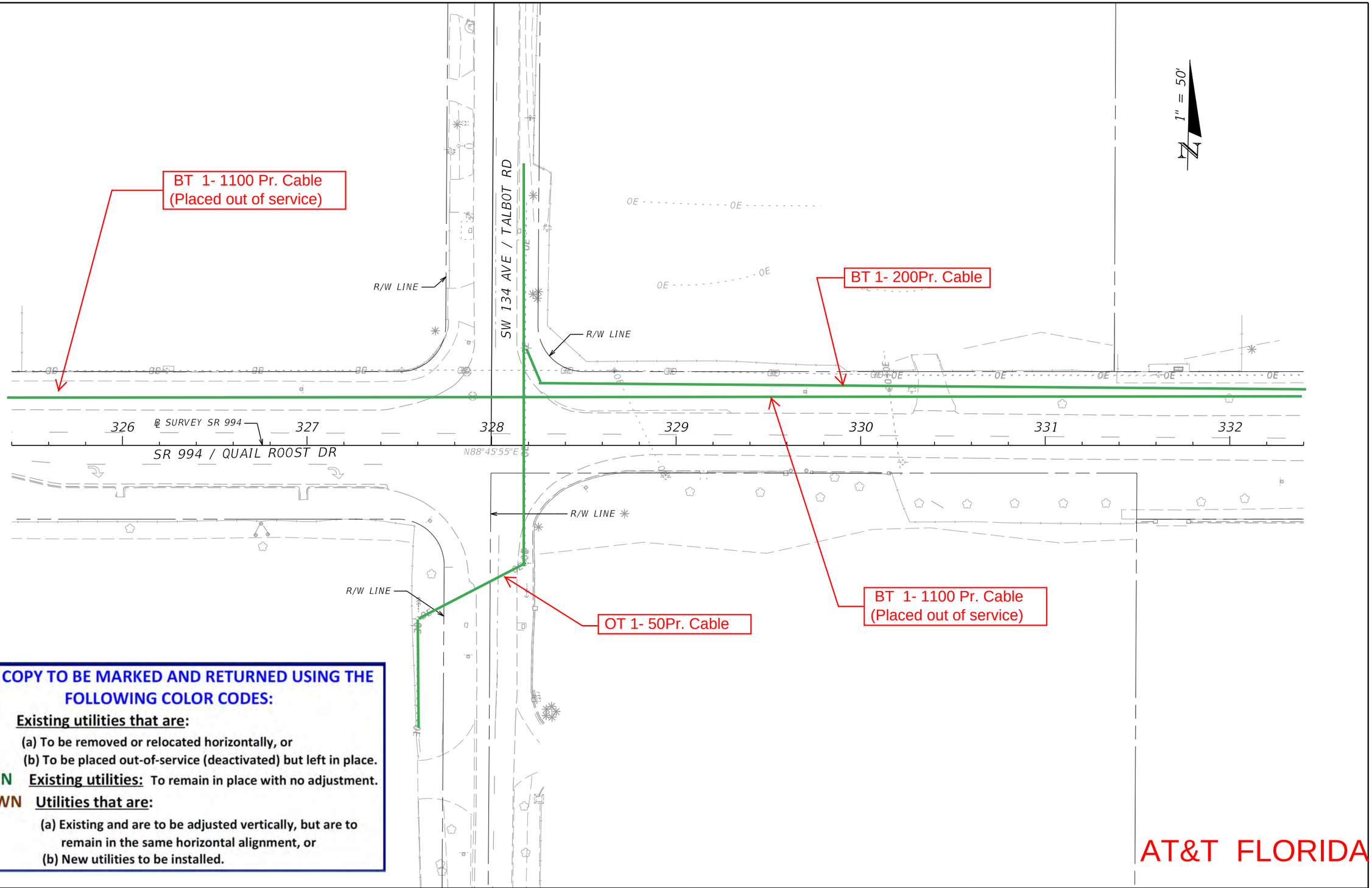
ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 3



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AT&T FLORIDA

12/7/2021 9:28:45 PM vprankevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

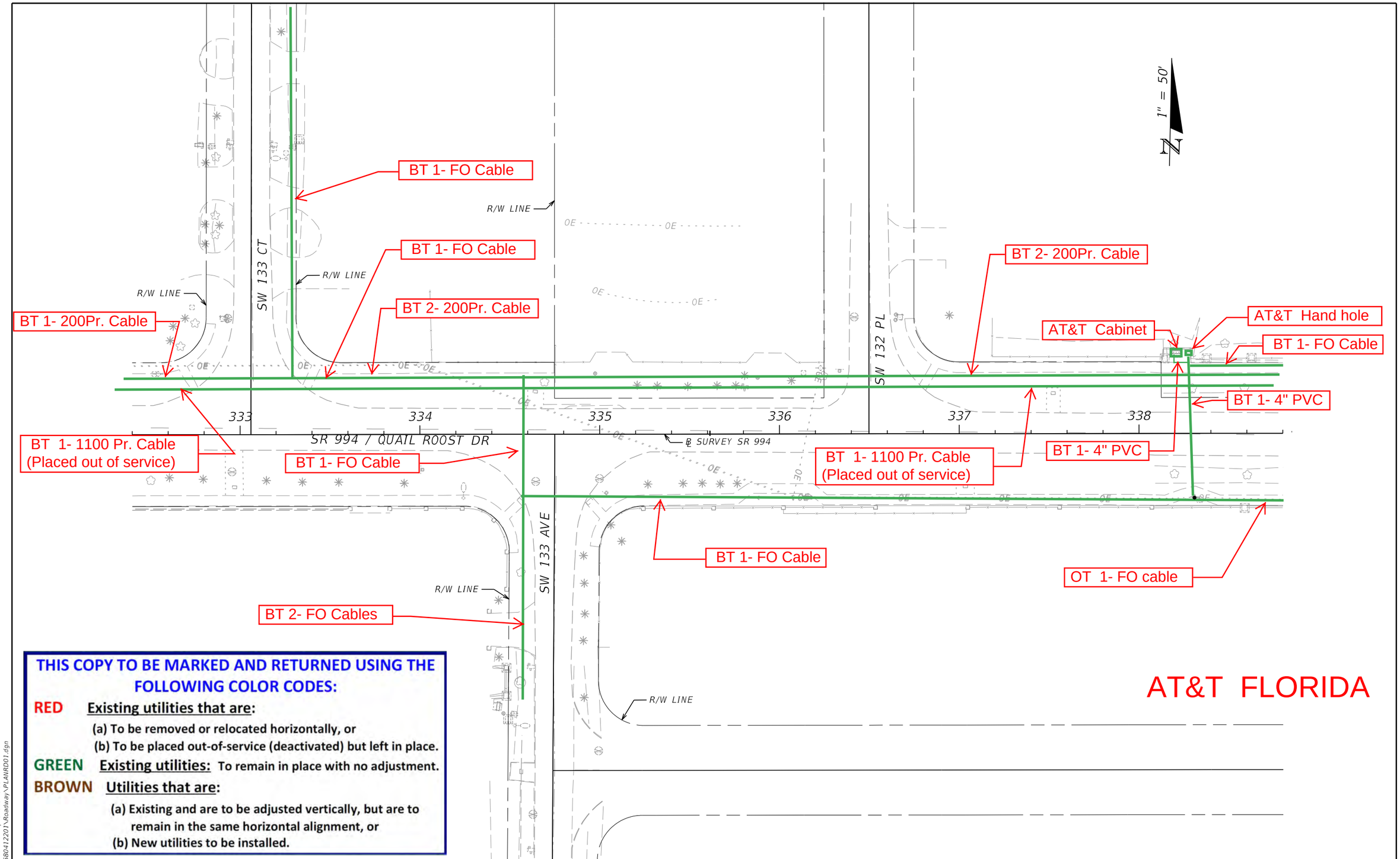
ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 4



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 5

12/7/2021 9:28:46 PM vgranckevicius
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THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

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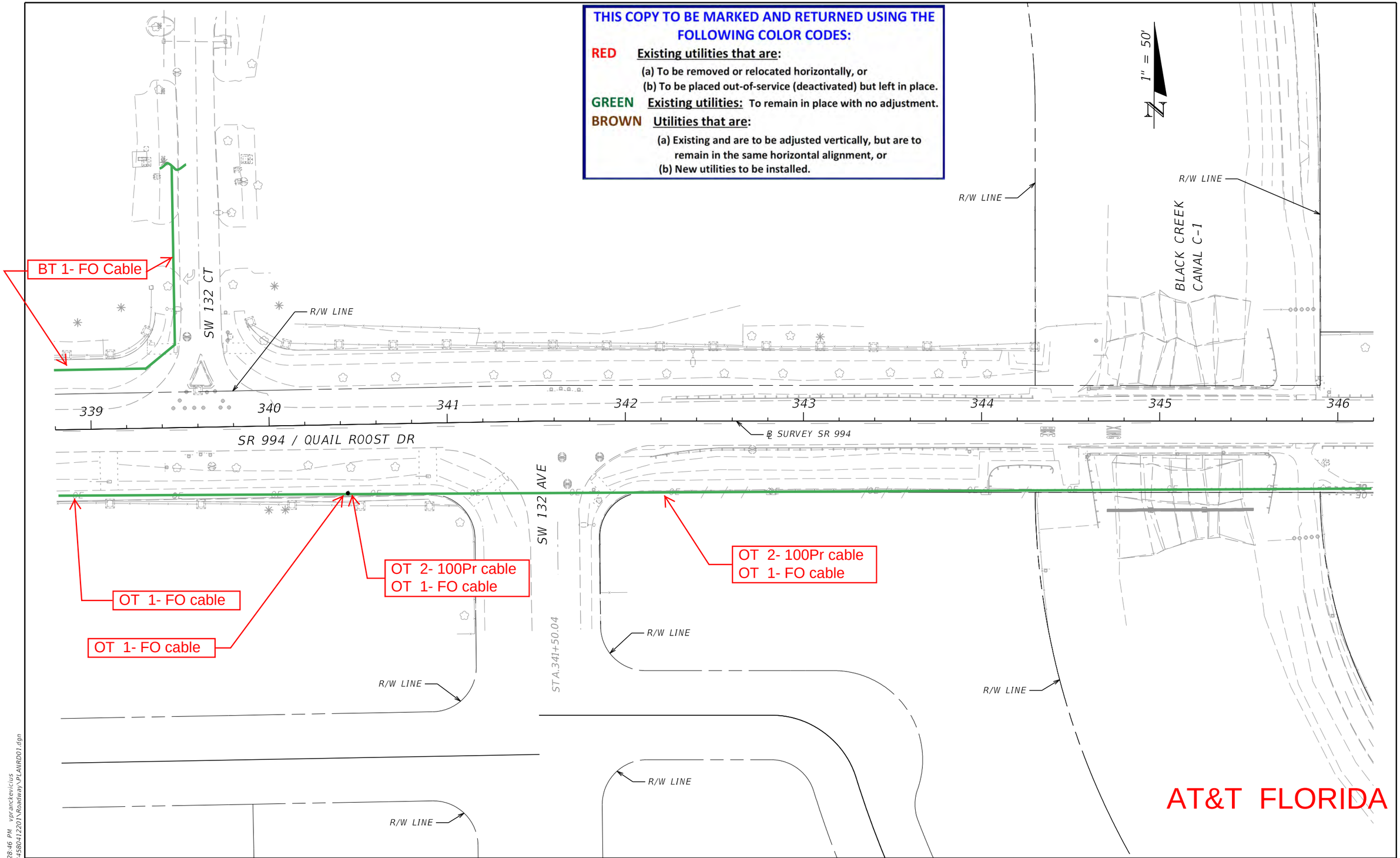

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
6

12/7/2021 9:28:46 PM vorancekevicius
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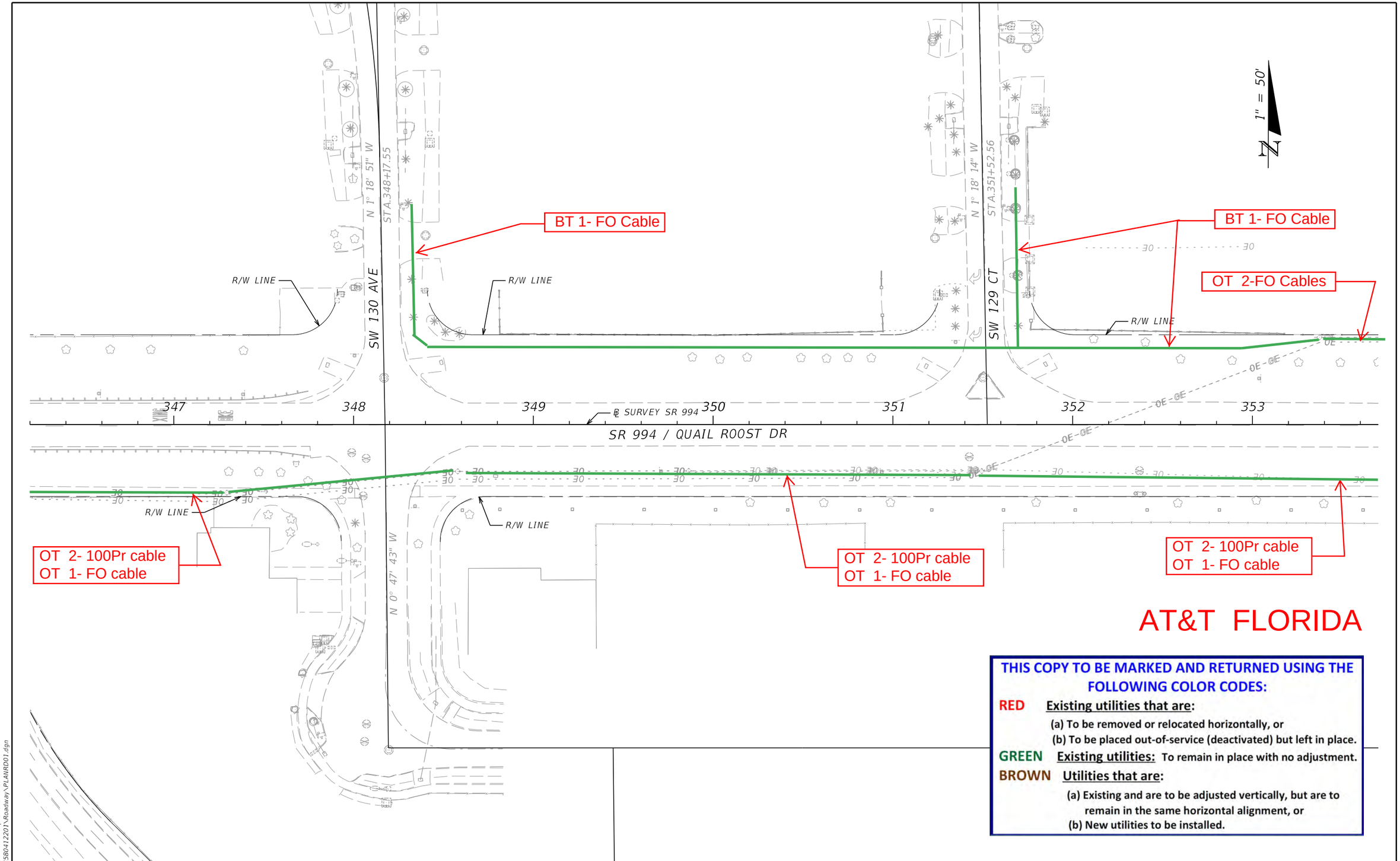

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 7

12/7/2021 9:28:47 PM vprancekevicius
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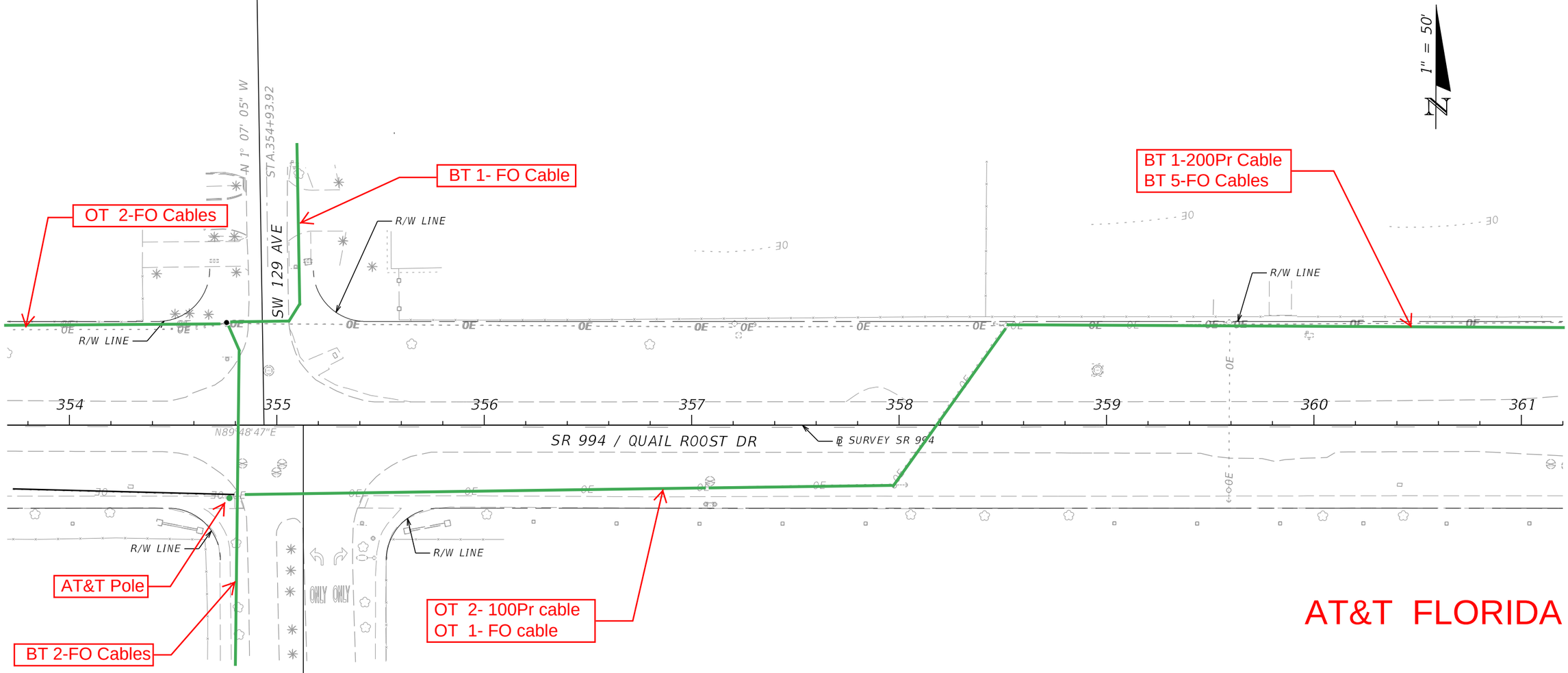

AT&T FLORIDA

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
8

12/7/2021 9:28:47 PM vprankevicius
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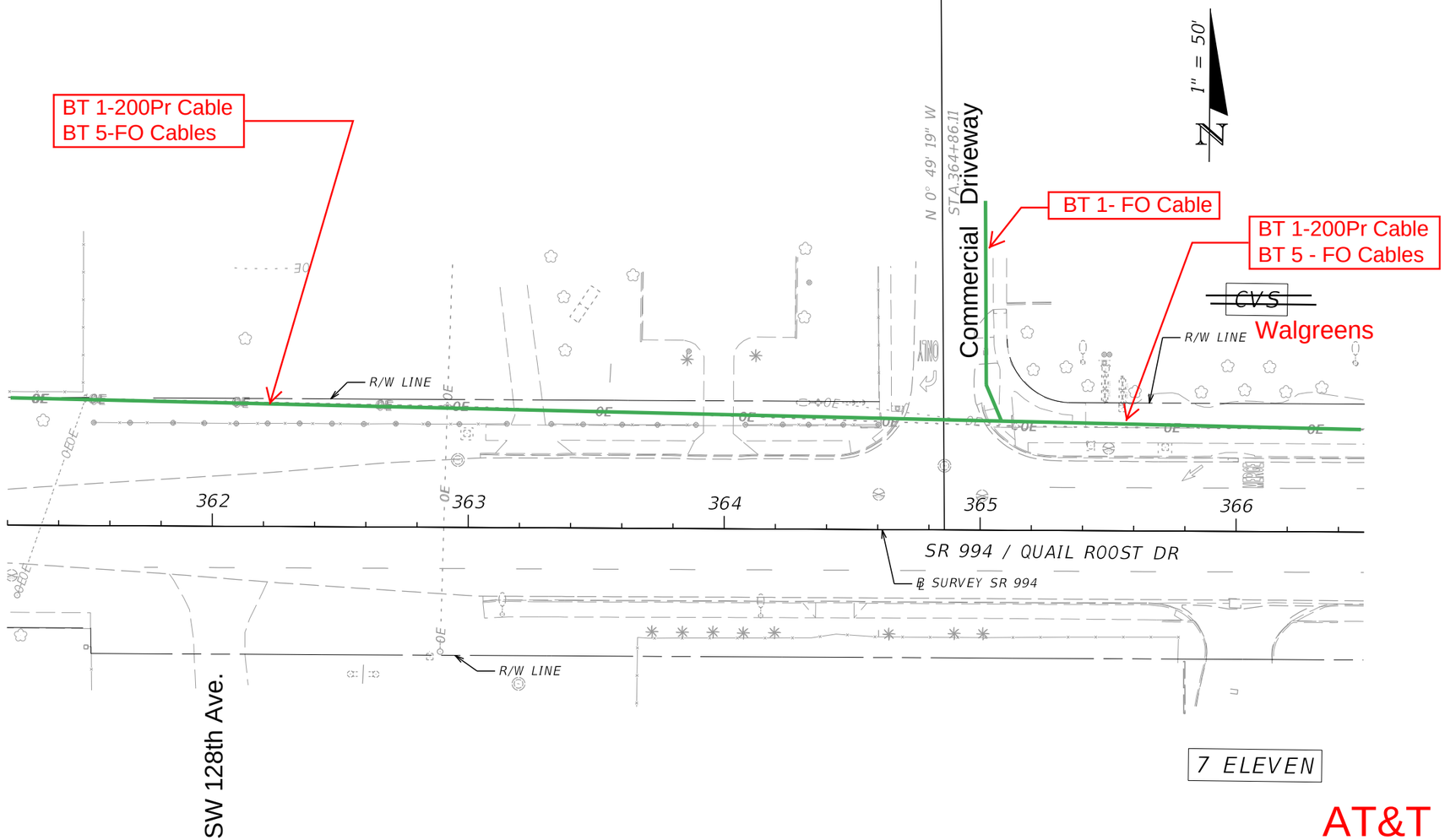

AT&T FLORIDA

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 9

12/7/2021 9:28:48 PM vpranckevicius
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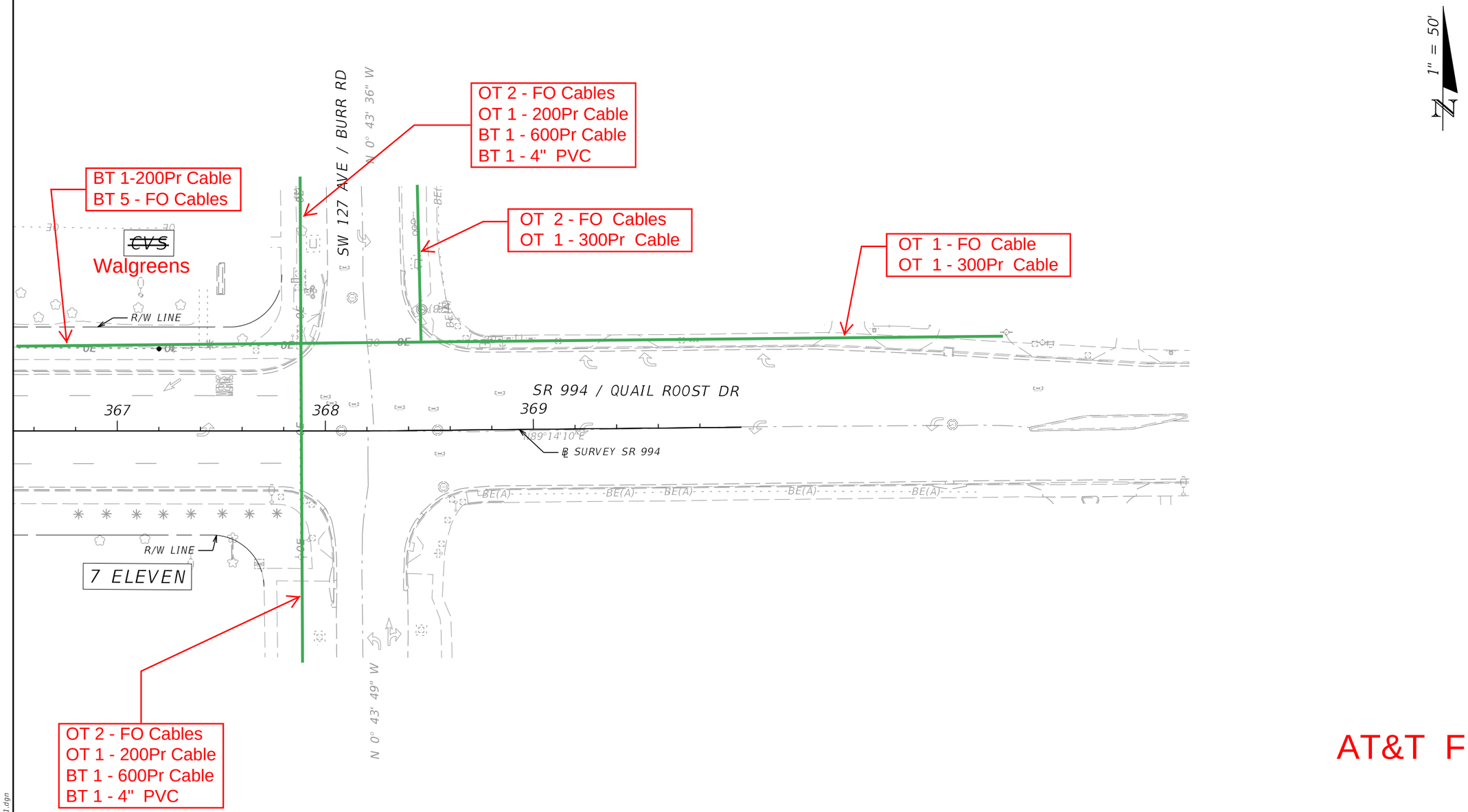

AT&T FLORIDA

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
10

12/7/2021 9:28:48 PM vprancke\vicius
C:\Worksets\FDOT_44580412201\Roadway\PLANRD01.dgn

Comcast

Lydia Santiago

From: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@comcast.com>
Sent: Wednesday, December 8, 2021 2:09 PM
To: Davidson, Ricardo A
Cc: Lydia Santiago
Subject: FW: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)
Attachments: 445804-1-22-01 SR 994 Quail Roost Drive _ Initial Contact PD&E Base Plans.pdf; SR 994 Quail Roost Dr. PDE UAO Intial Contact Letter.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Please execute this request and return

Thank-You
Leonard Maxwell-Newbold

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: [EXTERNAL] Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Project Job Description: PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

Lydia Santiago

From: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@comcast.com>
Sent: Tuesday, January 11, 2022 12:15 PM
To: Lydia Santiago
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn) (01/11/2022_lmn)

Follow Up Flag: Follow up
Flag Status: Flagged

Great !!!

Please Be Safe !!!

Leonard Maxwell-Newbold
Construction Specialist 2 / Regional Permits
6565 Nova Road Davie, Florida 330317
1-954-447-8405 office number / 1-954-444-5113 mobile number
Leonard_maxwell-newbold@cable.comcast.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 11, 2022 12:14 PM
To: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>
Subject: [EXTERNAL] RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Hi Leonard,

Happy New Year !

We are well – thanks for asking.
Hope you are your loved ones are also doing well 😊

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@comcast.com>
Sent: Tuesday, January 11, 2022 12:05 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: FW: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Hello

I Trust you and your family are doing well 😊

I just wanted to say Hello

COMCAST

Leonard Maxwell-Newbold
Construction Specialist 2 / Regional Permits
6565 Nova Road Davie, Florida 330317
1-954-447-8405 office number / 1-954-444-5113 mobile number
Leonard_maxwell-newbold@cable.comcast.com

From: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>
Sent: Tuesday, January 11, 2022 11:56 AM
To: Lydia Santiago <lsantiago@mgvera.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

It's due for tomorrow, I'll request a confirmation with BP.

Jose F Martinez
Comcast Corporation
Construction Specialist II
6565 Nova Drive, Davie, FL 33317
(754) 221-1318 work
Jose_martinez3@cable.comcast.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 11, 2022 11:54 AM
To: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>
Subject: [EXTERNAL] RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Hi Jose,

Understandably, as it was routed internally, it was originally sent out on December 8th. Any idea on when you anticipate it will be finalized?
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Martinez, JoseFL <Jose-FL_Martinez@comcast.com>
Sent: Tuesday, January 11, 2022 11:46 AM
To: Lydia Santiago <lsantiago@mgvera.com>; Davidson, Ricardo A <RicardoA_Davidson@comcast.com>
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

I received this on Jan4, still pending completion.

Jose F Martinez
Comcast Corporation
Construction Specialist II
6565 Nova Drive, Davie, FL 33317
(754) 221-1318 work
Jose_martinez3@cable.comcast.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 11, 2022 11:25 AM
To: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>

Subject: [EXTERNAL] RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Good morning Jose and Ricardo,

Was following up with you regarding the mark ups for this project. It was due on January 7, 2022.

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Martinez, JoseFL <Jose-FL_Martinez@comcast.com>
Sent: Tuesday, January 4, 2022 2:19 PM
To: Davidson, Ricardo A <RicardoA_Davidson@comcast.com>
Cc: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Received, thank you. Mark up requested.

Jose F Martinez
Comcast Corporation
Construction Specialist II
6565 Nova Drive, Davie, FL 33317
(754) 221-1318 work
Jose_martinez3@cable.comcast.com

From: Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>
Sent: Tuesday, January 4, 2022 1:46 PM
To: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>
Subject: FW: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Jose,

Please review attached file requesting Markup information.

Thanks,

Ricardo Davidson
Construction Supervisor
South Florida Regional Construction

6565 Nova Drive, Davie, FL 33317
Ricardoa_davidson@cable.comcast.com
Desk: 754-221-1322 Cell: 786-586-8505

COMCAST

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 4, 2022 12:10 PM
To: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>
Subject: [EXTERNAL] FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Good morning Leonard and Ricardo,

Happy New Year to both of you!

Friendly reminder that responses are due January 7, 2023.
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

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Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@comcast.com>
Sent: Wednesday, December 8, 2021 2:09 PM
To: Davidson, Ricardo A <RicardoA_Davidson@comcast.com>
Cc: Lydia Santiago <lsantiago@mgvera.com>
Subject: FW: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Please execute this request and return

Thank-You
Leonard Maxwell-Newbold

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: [EXTERNAL] Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
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Jupiter, FL 33458
www.mgvera.com

Lydia Santiago

From: Lydia Santiago
Sent: Wednesday, January 12, 2022 10:11 AM
To: Martinez, JoseFL; Davidson, Ricardo A; Maxwell-Newbold, Leonard
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Good morning Jose,

I am in receipt of your initial PD&E marked up plans for subject project.
Thank you kindly for the quick turnaround.

Kind Regards,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
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Jupiter, FL 33458
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Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Martinez, JoseFL <Jose-FL_Martinez@comcast.com>
Sent: Wednesday, January 12, 2022 9:51 AM
To: Lydia Santiago <lsantiago@mgvera.com>; Davidson, Ricardo A <RicardoA_Davidson@comcast.com>; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@comcast.com>
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Attached.

Jose F Martinez
Comcast Corporation
Construction Specialist II
6565 Nova Drive, Davie, FL 33317
(754) 221-1318 work
Jose_martinez3@cable.comcast.com

From: Martinez, JoseFL
Sent: Tuesday, January 11, 2022 11:56 AM
To: Lydia Santiago <lsantiago@mgvera.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>
Subject: RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

It's due for tomorrow, I'll request a confirmation with BP.

Jose F Martinez
Comcast Corporation
Construction Specialist II
6565 Nova Drive, Davie, FL 33317
(754) 221-1318 work
Jose_martinez3@cable.comcast.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 11, 2022 11:54 AM
To: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>
Subject: [EXTERNAL] RE: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Hi Jose,

Understandably, as it was routed internally, it was originally sent out on December 8th. Any idea on when you anticipate it will be finalized?
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

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To: Lydia Santiago <lsantiago@mgvera.com>; Davidson, Ricardo A <RicardoA_Davidson@comcast.com>
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6565 Nova Drive, Davie, FL 33317
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Sent: Tuesday, January 11, 2022 11:25 AM
To: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>
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Good morning Jose and Ricardo,

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Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
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To: Davidson, Ricardo A <RicardoA_Davidson@comcast.com>
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Received, thank you. Mark up requested.

Jose F Martinez
Comcast Corporation
Construction Specialist II
6565 Nova Drive, Davie, FL 33317
(754) 221-1318 work
Jose_martinez3@cable.comcast.com

From: Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>
Sent: Tuesday, January 4, 2022 1:46 PM
To: Martinez, JoseFL <Jose-FL_Martinez@cable.comcast.com>
Subject: FW: FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Jose,

Please review attached file requesting Markup information.

Thanks,

Ricardo Davidson
Construction Supervisor
South Florida Regional Construction
6565 Nova Drive, Davie, FL 33317
Ricardoa_davidson@cable.comcast.com
Desk: 754-221-1322 Cell: 786-586-8505

COMCAST

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 4, 2022 12:10 PM
To: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>; Davidson, Ricardo A <RicardoA_Davidson@cable.comcast.com>
Subject: [EXTERNAL] FRIENDLY REMINDER - RESPONSE DUE _ RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

Good morning Leonard and Ricardo,

Happy New Year to both of you!

Friendly reminder that responses are due January 7, 2023.
Thank you.

Lydia Santiago
Sr. Utility Coordinator
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Surveyors | Mappers | Subsurface Utilities | Utility Coordination

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From: Maxwell-Newbold, Leonard <leonard_maxwell-newbold@comcast.com>
Sent: Wednesday, December 8, 2021 2:09 PM
To: Davidson, Ricardo A <RicardoA_Davidson@comcast.com>
Cc: Lydia Santiago <lsantiago@mgvera.com>
Subject: FW: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue Mark-Up Request (12/08/2021_lmn)

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Thank-You
Leonard Maxwell-Newbold

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; Maxwell-Newbold, Leonard <leonard_maxwell-newbold@cable.comcast.com>; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: [EXTERNAL] Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

CONTRACT PLANS COMPONENTS

ROADWAY PLANS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2 - 10	ROADWAY PLANS

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED Existing utilities that are:
(a) To be removed or relocated horizontally, or
(b) To be placed out-of-service (deactivated) but left in place.

GREEN Existing utilities: To remain in place with no adjustment.

BROWN Utilities that are:
(a) Existing and are to be adjusted vertically, but are to remain in the same horizontal alignment, or
(b) New utilities to be installed.

STATE OF FLORIDA

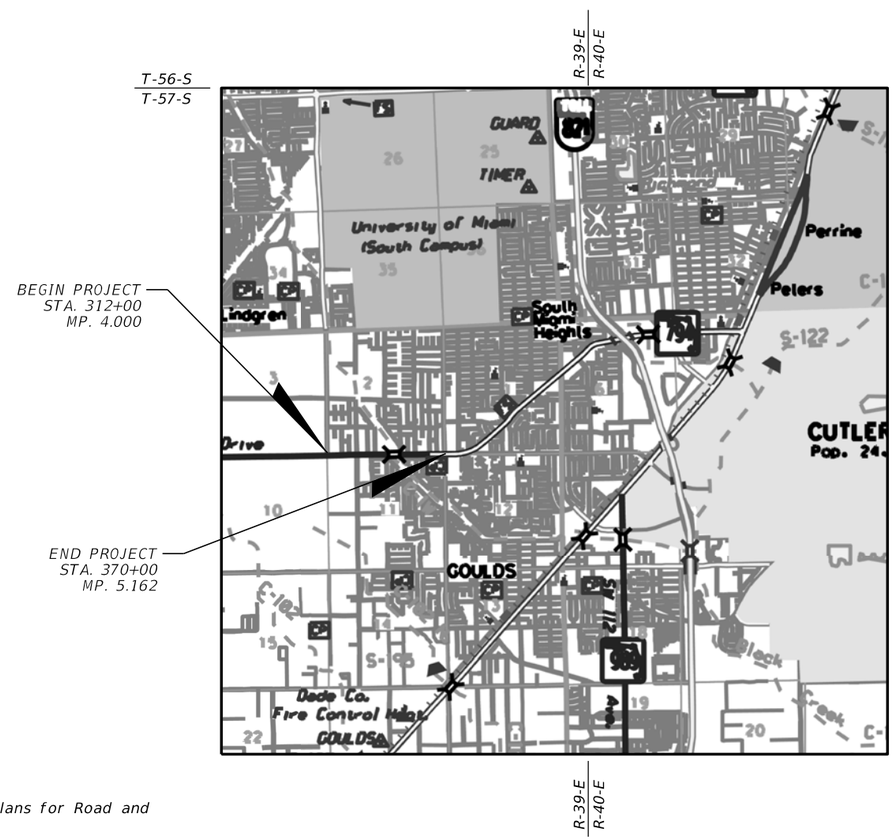
DEPARTMENT OF TRANSPORTATION

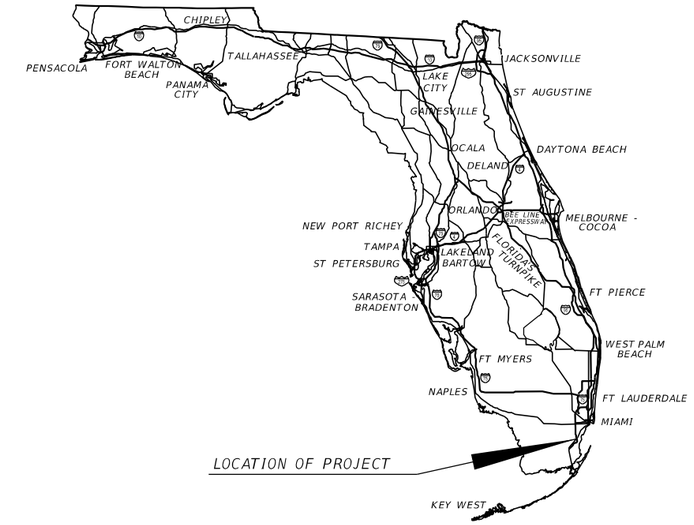
CONTRACT PLANS

FINANCIAL PROJECT ID 445804-1-22-01

MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994





N

ROADWAY PLANS
ENGINEER OF RECORD:

ALEJANDRO URIBE, P.E.
P.E. LICENSE NUMBER 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
CONTRACT NO.: C0000
VENDOR NO.: 00-000000

FDOT PROJECT MANAGER:

ELSA RIVEROL, P.E.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2022-23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: IR - -

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2022 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

COMCAST 1/10/2022

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	22	1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

12/7/2021 9:22:23 PM vpranckevicius
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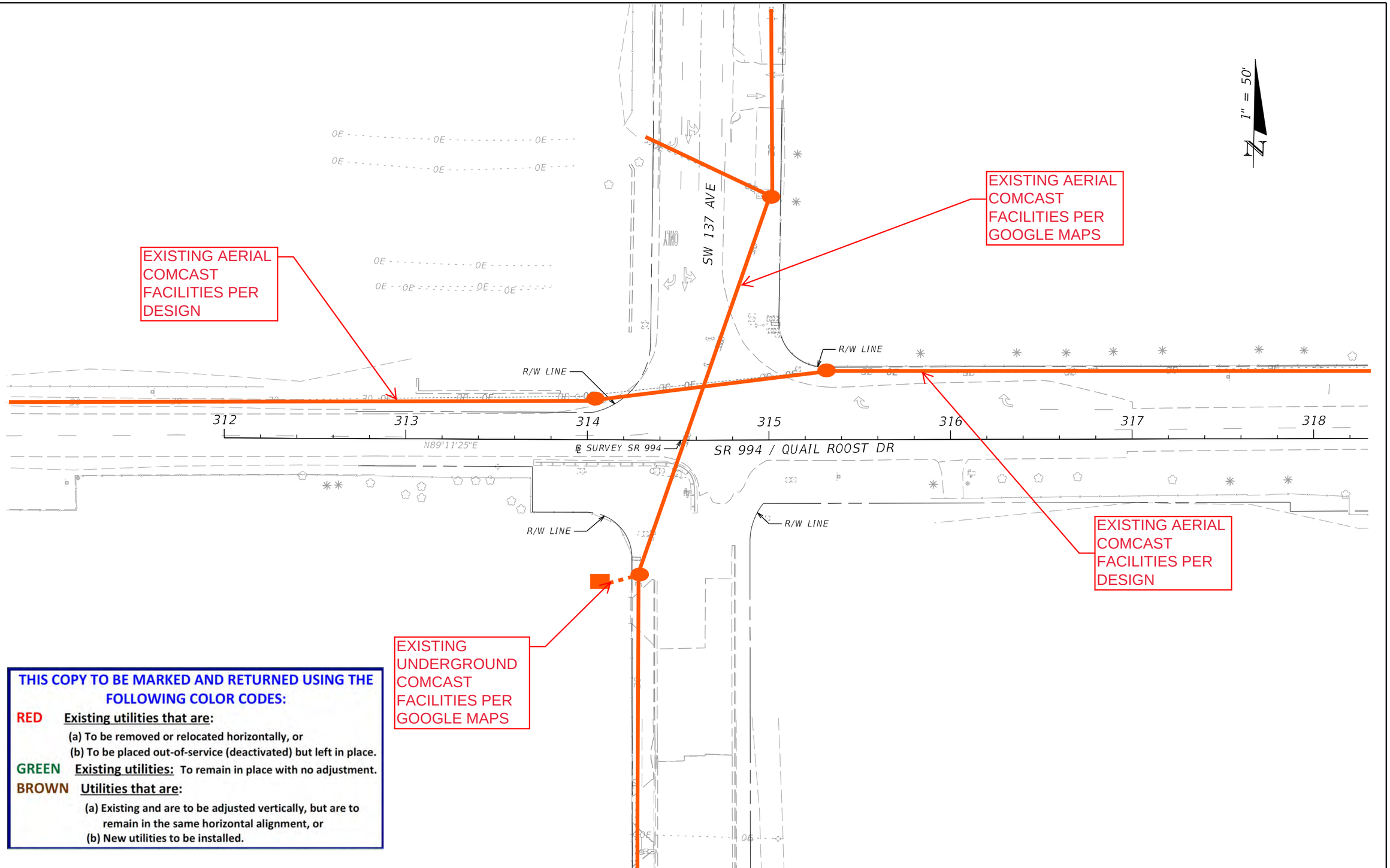

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED **Existing utilities that are:**

(a) To be removed or relocated horizontally, or

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GREEN **Existing utilities:** To remain in place with no adjustment.

BROWN **Utilities that are:**

(a) Existing and are to be adjusted vertically, but are to remain in the same horizontal alignment, or

(b) New utilities to be installed.

12/7/2021 9:28:44 PM vprancekevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

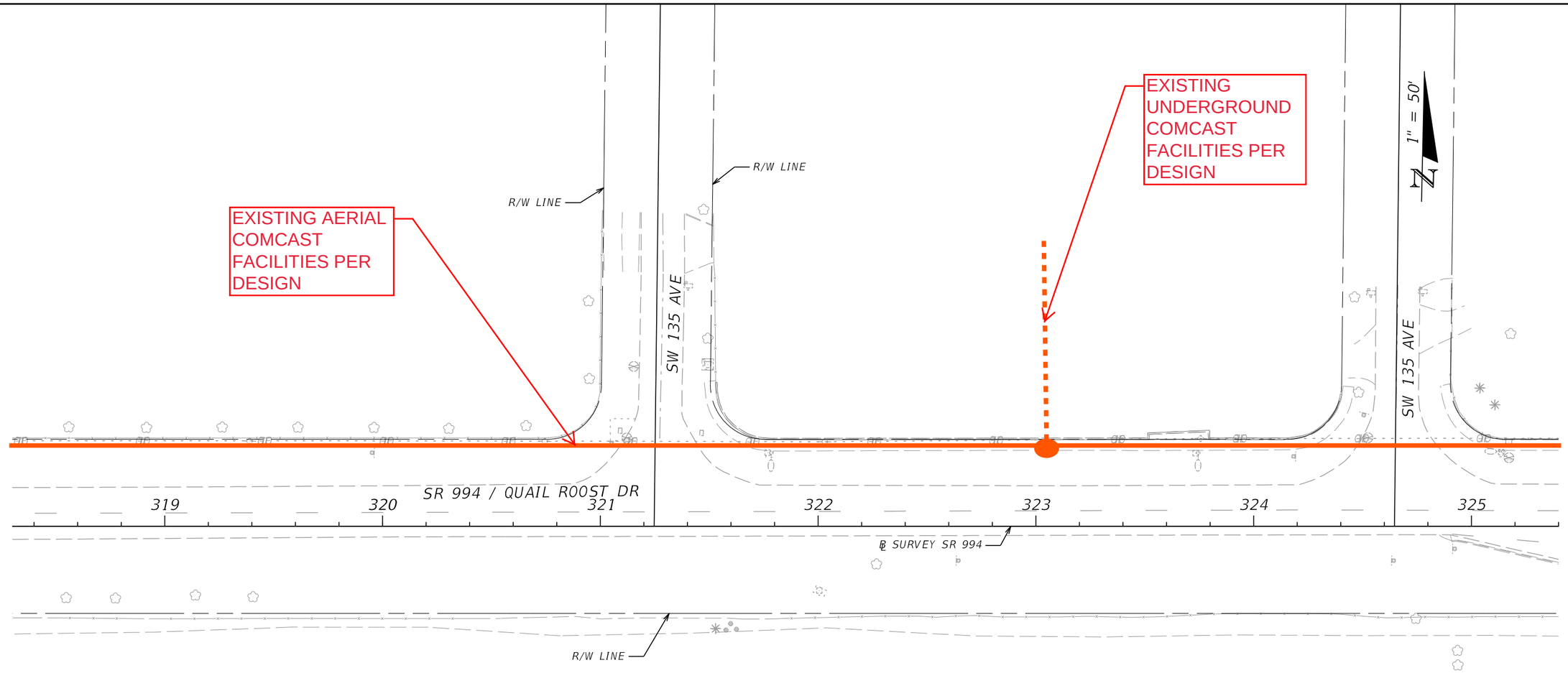
ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 2



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12/7/2021 9:28:45 PM vorankevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 3

EXISTING AERIAL COMCAST FACILITIES

EXISTING UNDERGROUND COMCAST FACILITIES PER DESIGN

EXISTING AERIAL COMCAST PER GOOGLE MAPS

EXISTING AERIAL COMCAST FACILITIES PER DESIGN

1" = 50'

SW 134 AVE / TALBOT RD

R/W LINE

R/W LINE

R/W LINE

R/W LINE

OE

326 ℄ SURVEY SR 994 327 328 329 330 331 332

SR 994 / QUAIL ROOST DR

N88°45'55"E

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

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12/7/2021 9:28:45 PM vpranckevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

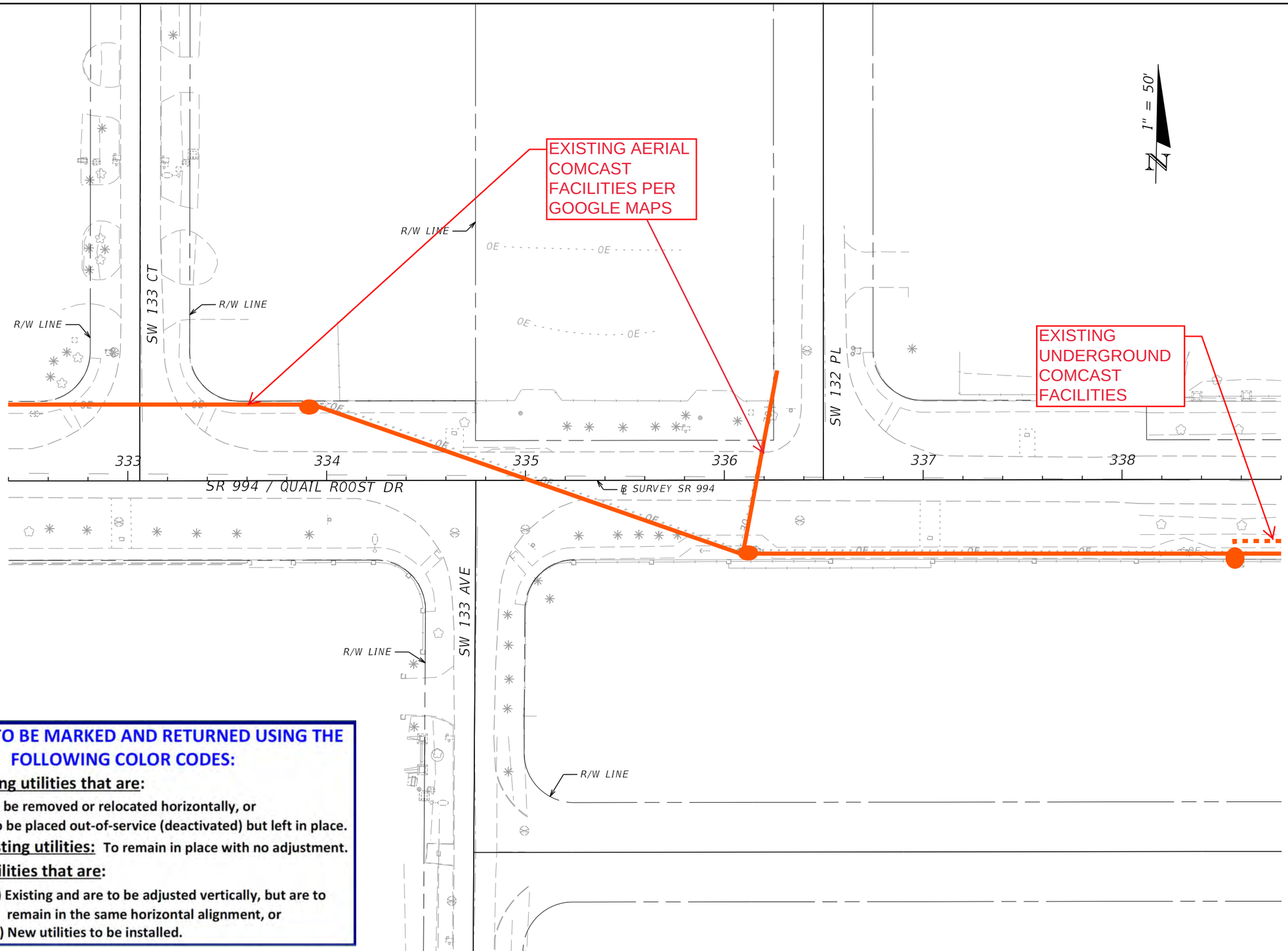
ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 4



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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 5

12/7/2021 9:28:46 PM vpranckevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

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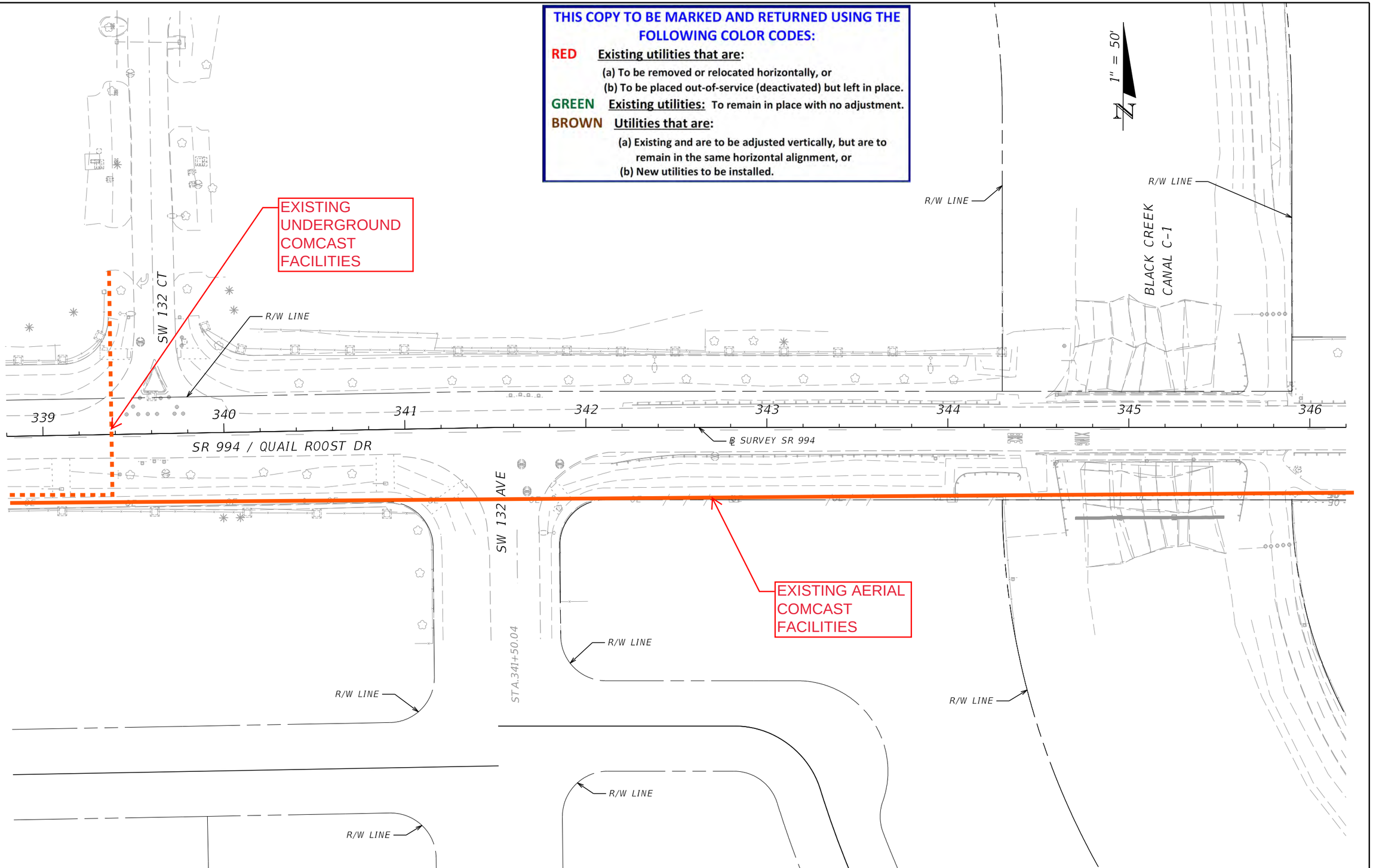

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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P.E. NO: 75596
GANNETT FLEMING, INC.
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MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
6

12/7/2021 9:28:46 PM vprancekevicius
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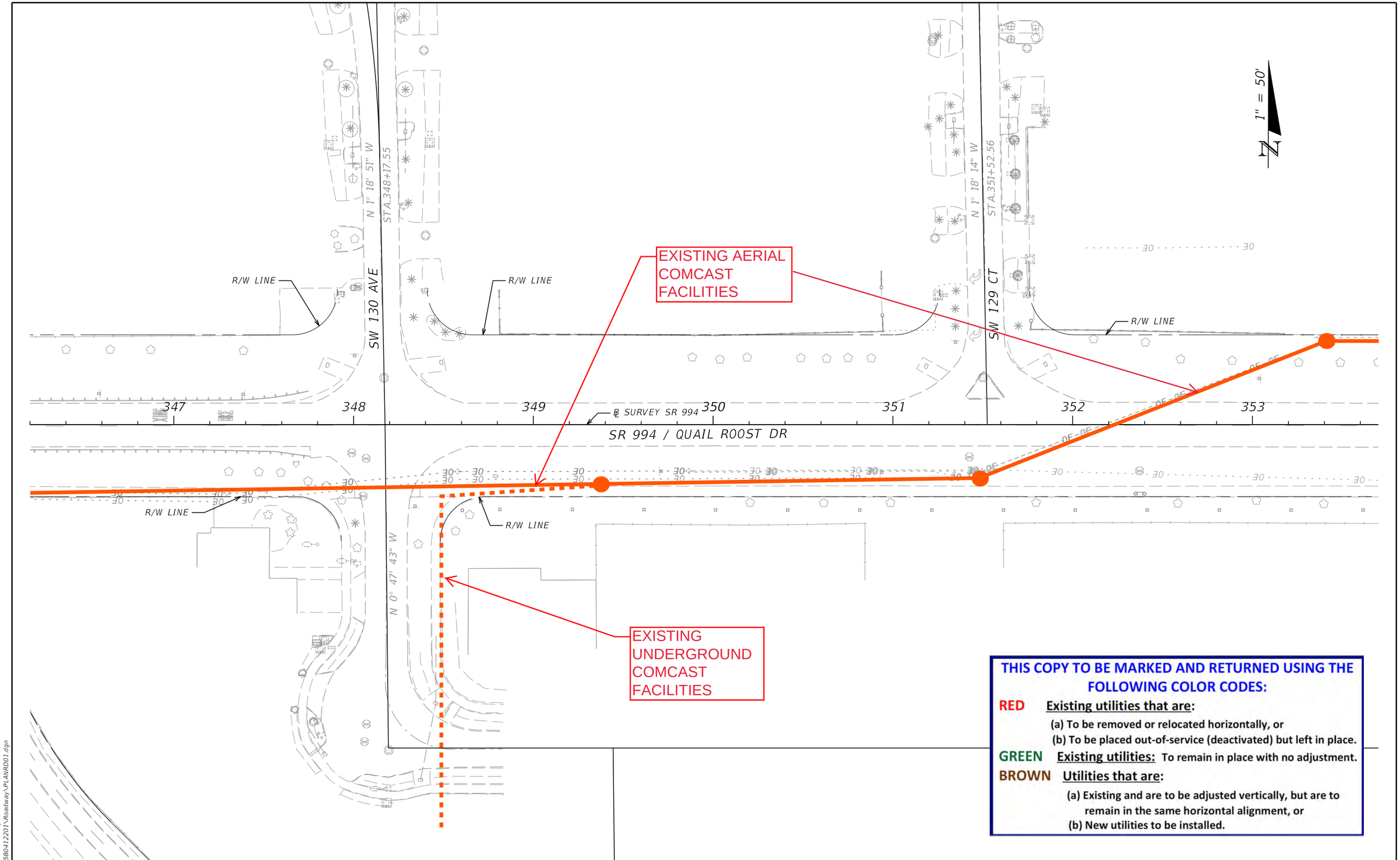

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED **Existing utilities that are:**
(a) To be removed or relocated horizontally, or
(b) To be placed out-of-service (deactivated) but left in place.

GREEN **Existing utilities:** To remain in place with no adjustment.

BROWN **Utilities that are:**
(a) Existing and are to be adjusted vertically, but are to remain in the same horizontal alignment, or
(b) New utilities to be installed.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
7

12/7/2021 9:28:47 PM vprancekevicius
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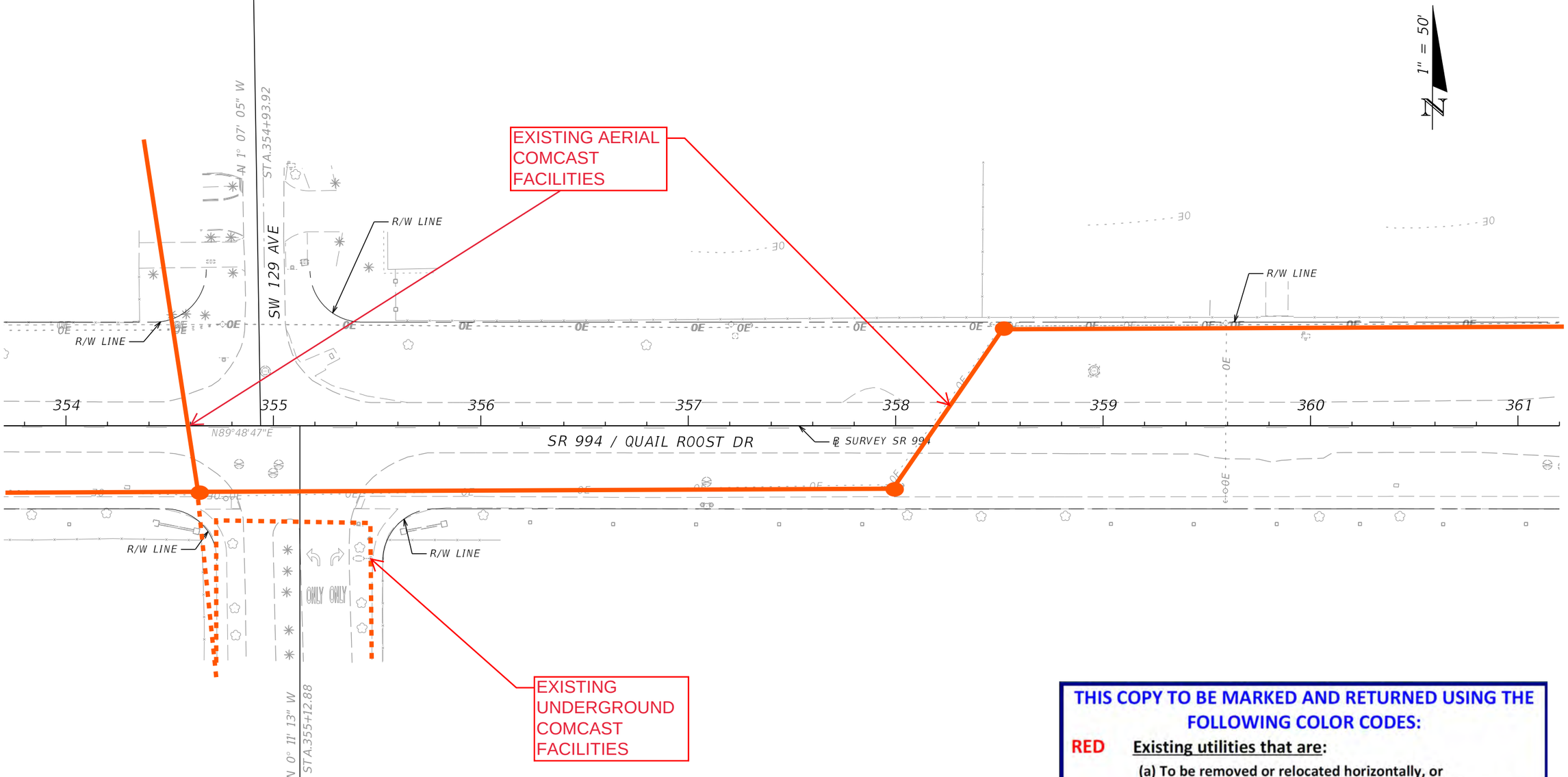

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
8

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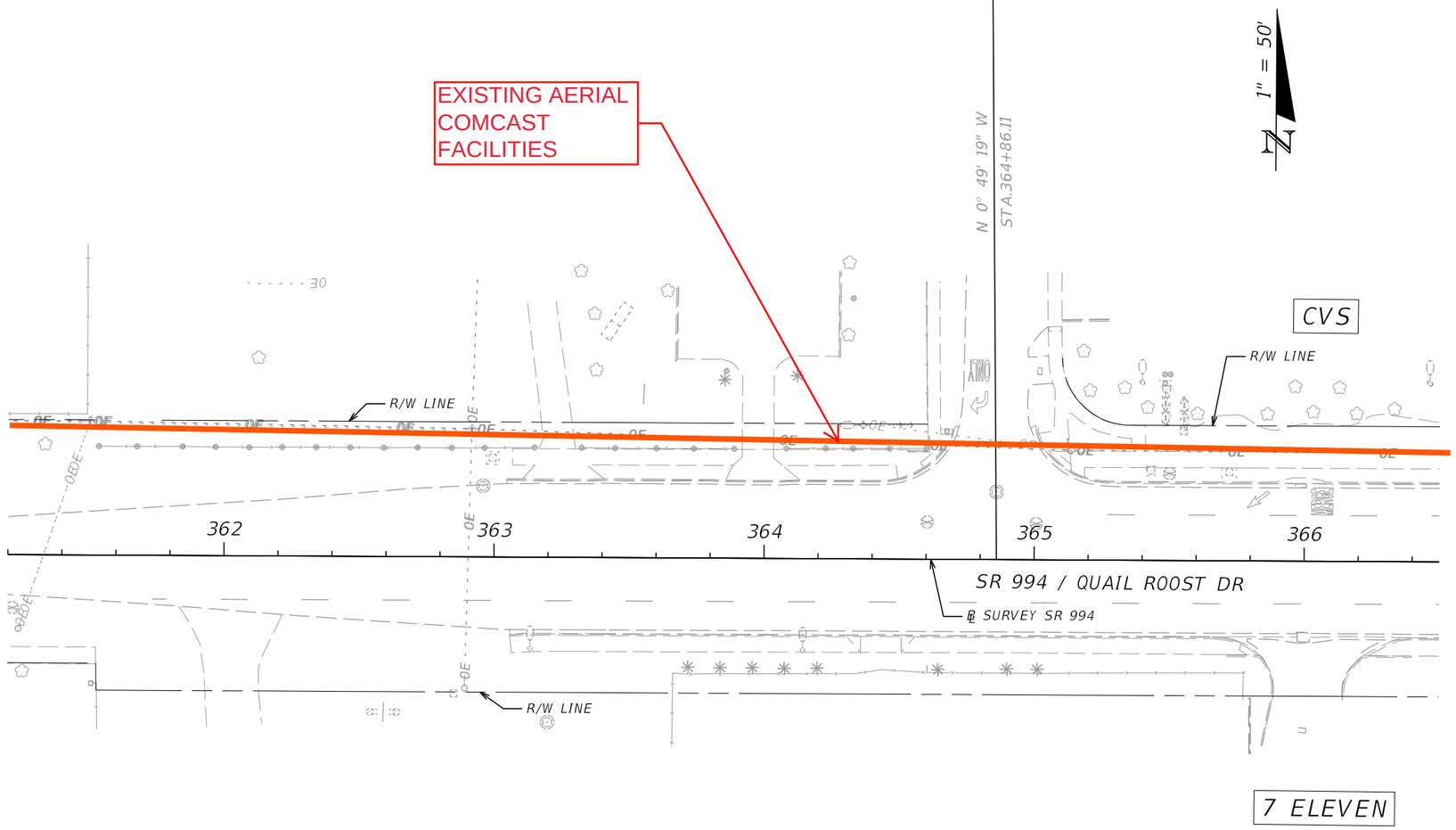

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 9

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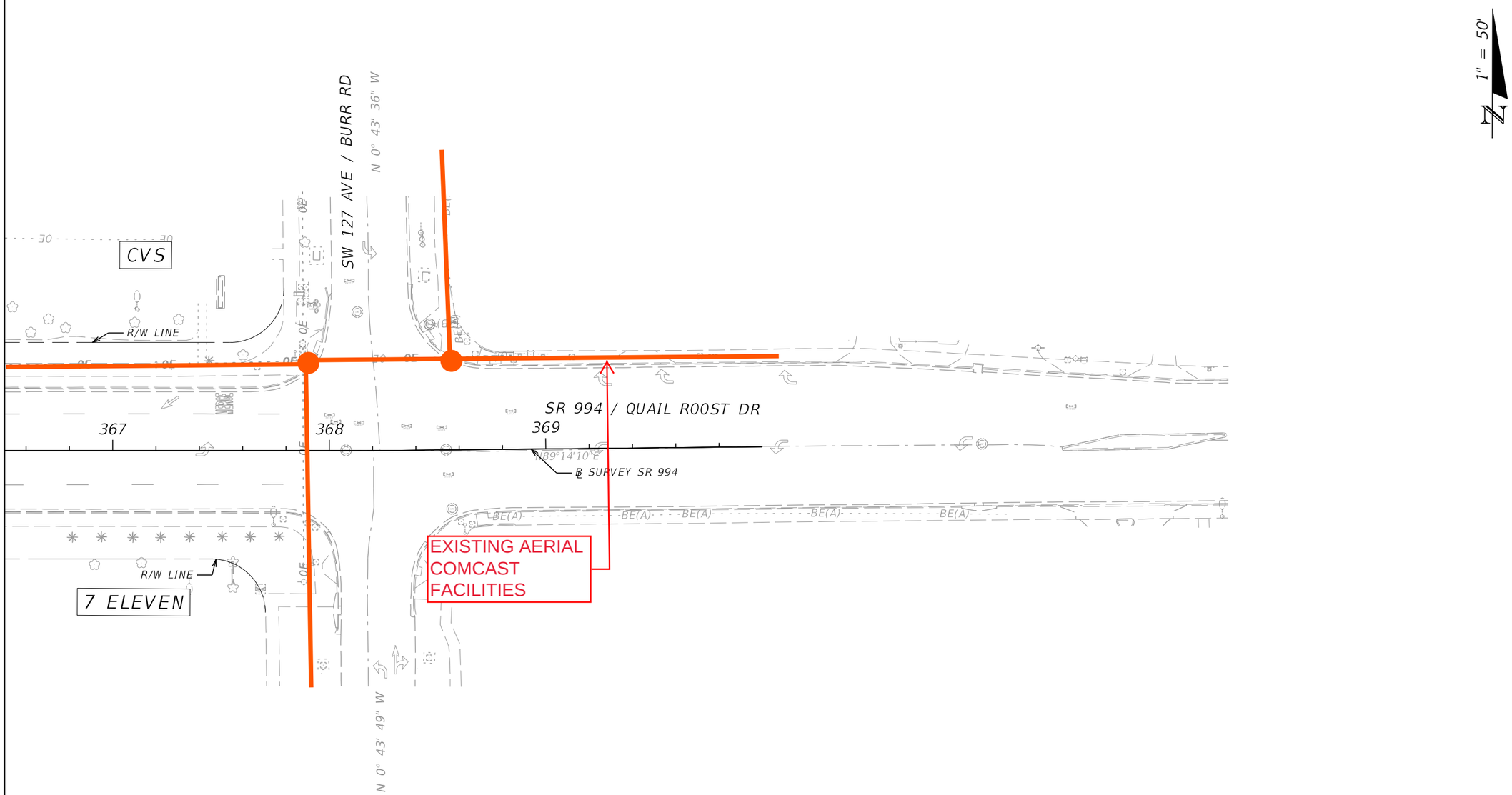

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
10

12/7/2021 9:28:48 PM vprancke\vicius
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Crown Castle

Lydia Santiago

From: Haskett, Danny <Danny.Haskett@crowncastle.com>
Sent: Monday, February 7, 2022 2:22 PM
To: Lydia Santiago
Cc: Mann, William
Subject: FW: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Attachments: SR 994 Quail Roost Dr. PDE UAO Intial Contact Letter.pdf; 445804-1-52-01-SR-994 from SW 137th Ave to SW 127th Ave-Miami-Marked 30% Plans.pdf

Lydia,

Crown Castle Fiber LLC has underground and aerial fiber optic facilities within or near the limits project 445804-1-52-01 in Miami-Dade County. Attached are the marked 30% plans. Kindly review and provide input if you feel necessary. I apologize for not getting this one to you earlier.

Please bear in mind that Fibernet Direct, Crown Castle and Sunesys are now part of the "Crown Castle" organization. With this response, Crown Castle Fiber LLC has satisfied your request for the location of our facilities. Should you need anything more, please feel free to contact me.

Regards, Danny

DANNY HASKETT
Operations Manager
T: 786-246-7827 | **M:** 786-246-7827

CROWN CASTLE FIBER
9250 W Flagler Street, Miami, FL 33174
Fiber.CrownCastle.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Monday, February 7, 2022 12:26 PM
To: Haskett, Danny <Danny.Haskett@crowncastle.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon Danny,

Please let me know when the Crown Castle mark up for 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue will be ready.
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

From: Haskett, Danny <Danny.Haskett@crowncastle.com>
Sent: Monday, January 31, 2022 9:10 AM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Thank you for your patience Lydia.

DANNY HASKETT
Operations Manager
T: 786-246-7827 | **M:** 786-246-7827

CROWN CASTLE FIBER
9250 W Flagler Street, Miami, FL 33174
Fiber.CrownCastle.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Monday, January 31, 2022 9:01 AM
To: Haskett, Danny <Danny.Haskett@crowncastle.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Danny,

I agree, it is so nice to hunker down with flannel pj's and on the menu either hot chocolate or hearty stews.
Loving it 😊

Absolutely my friend – I know the kind of pressure you are under. I will standby as you get it sorted out.

Thanks again!

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

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1562 Park Lane South
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Jupiter, FL 33458
www.mgvera.com

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---

From: Haskett, Danny <Danny.Haskett@crowncastle.com>
Sent: Monday, January 31, 2022 8:58 AM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Lydia,

I am as snug as a bug in a rug. Enjoying this cooler weather. Hope you are too.

I apologize for not getting to your project last week. I have had so many "emergency-type" projects that it has derailed my work on other projects. That seems to have very frequently. I will get to your project in the next couple of days.

Regards, Danny

DANNY HASKETT
Operations Manager
T: 786-246-7827 | **M:** 786-246-7827

CROWN CASTLE FIBER
9250 W Flagler Street, Miami, FL 33174
Fiber.CrownCastle.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Monday, January 31, 2022 8:26 AM
To: Haskett, Danny <Danny.Haskett@crowncastle.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Danny,

Hope you are keeping warm 😊
Wanted to follow up with you regarding the attached.

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Haskett, Danny <Danny.Haskett@crowncastle.com>
Sent: Friday, January 14, 2022 2:15 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Thank you. Enjoy your weekend!

DANNY HASKETT
Operations Manager
T: 786-246-7827 | **M:** 786-246-7827

CROWN CASTLE FIBER
9250 W Flagler Street, Miami, FL 33174
Fiber.CrownCastle.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Friday, January 14, 2022 1:56 PM
To: Haskett, Danny <Danny.Haskett@crowncastle.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Danny,

It certainly was great to speak with you!
I completely understand, end of next week will work.

Stay safe and have a great weekend.

Thanks again!

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Haskett, Danny <Danny.Haskett@crowncastle.com>
Sent: Friday, January 14, 2022 1:49 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: FW: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Importance: High

Lydia,

It was great speaking with you again! Per our conversation, I am very backlogged and would like to request a little more time to work on this project. I can't promise but will do my best to get this to you by end of next week.

Regards, Danny

DANNY HASKETT
Operations Manager
T: 786-246-7827 | **M:** 786-246-7827

CROWN CASTLE FIBER
9250 W Flagler Street, Miami, FL 33174
Fiber.CrownCastle.com

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Friday, January 14, 2022 9:36 AM
To: Haskett, Danny <Danny.Haskett@crowncastle.com>
Subject: FW: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Importance: High

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Danny,

Happy New Year! Hope you are and your family are doing well. 😊
It has been a while since we last communicated.

Was reaching out to see if you have had a chance to look at this request. Please let me know how much time you will need so I can alert the design team.

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Tuesday, January 4, 2022 2:08 PM
To: Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; URENA, HENRY <hu083j@att.com>; Jason.Matthews@verizon.com
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CORRECTION

Friendly reminder responses are due January 7, 2022.

I apologize for any confusion.
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Tuesday, January 4, 2022 12:11 PM
To: Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Juan.Haber@verizon.com;

Anthony.Kowaleski@verizon.com; URENA, HENRY <hu083j@att.com>; Jason.Matthews@verizon.com
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good morning all,

hope you are all doing well and had a great holiday season - Happy New Year!

This email serves as a friend reminder that your responses are due on January 7, 2023.

****** FRIENDLY REMINDER *******

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

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---

From: Lydia Santiago
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; leonard_maxwell-newbold@comcast.com; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
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CONTRACT PLANS COMPONENTS

ROADWAY PLANS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2 - 10	ROADWAY PLANS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

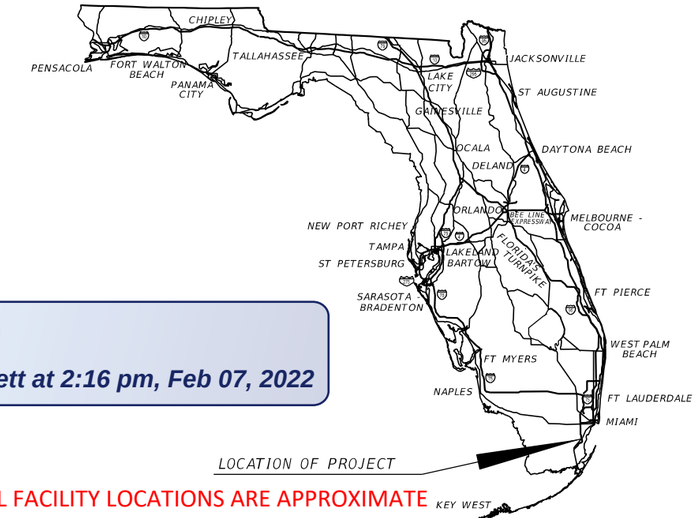
CONTRACT PLANS

FINANCIAL PROJECT ID 445804-1-22-01

MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994

REVIEWED
By Danny Haskett at 2:16 pm, Feb 07, 2022



LOCATION OF PROJECT

ALL FACILITY LOCATIONS ARE APPROXIMATE
PLEASE CONTACT SUNSHINE ONE CALL AT 1-800-432-4770
OR CROWN CASTLE FIBER NETWORK OPERATIONS CENTER
AT 1-866-553-4237 48 HOURS PRIOR TO DIGGING NEAR
CROWN CASTLE FIBER FACILITIES.

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED Existing utilities that are:
(a) To be removed or relocated horizontally, or
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GREEN Existing utilities: To remain in place with no adjustment.

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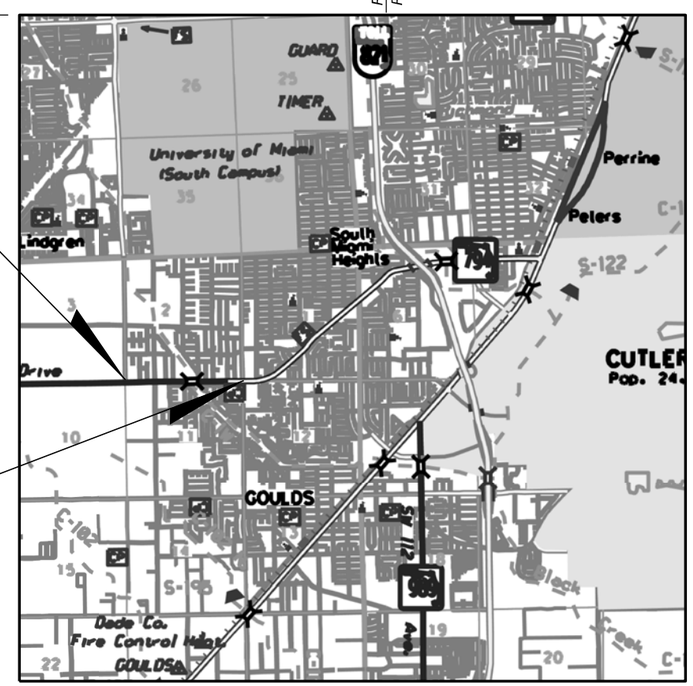
(b) New utilities to be installed.

T-56-S
T-57-S

R-39-E
R-40-E

BEGIN PROJECT
STA. 312+00
MP. 4.000

END PROJECT
STA. 370+00
MP. 5.162



R-39-E
R-40-E

N

ROADWAY PLANS
ENGINEER OF RECORD:

ALEJANDRO URIBE, P.E.
P.E. LICENSE NUMBER 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
CONTRACT NO.: C0000
VENDOR NO.: 00-000000

FDOT PROJECT MANAGER:

ELSA RIVEROL, P.E.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2022-23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: IR - -

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2022 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	22	1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

12/7/2021 9:22:23 PM vpranckevicius
C:\Worksets\FDOT\445804122O1\roadway\KEYSRD01.dgn

ALL FACILITY LOCATIONS ARE APPROXIMATE
PLEASE CONTACT SUNSHINE ONE CALL AT 1-800-432-4770
OR CROWN CASTLE FIBER NETWORK OPERATIONS CENTER
AT 1-866-553-4237 48 HOURS PRIOR TO DIGGING NEAR
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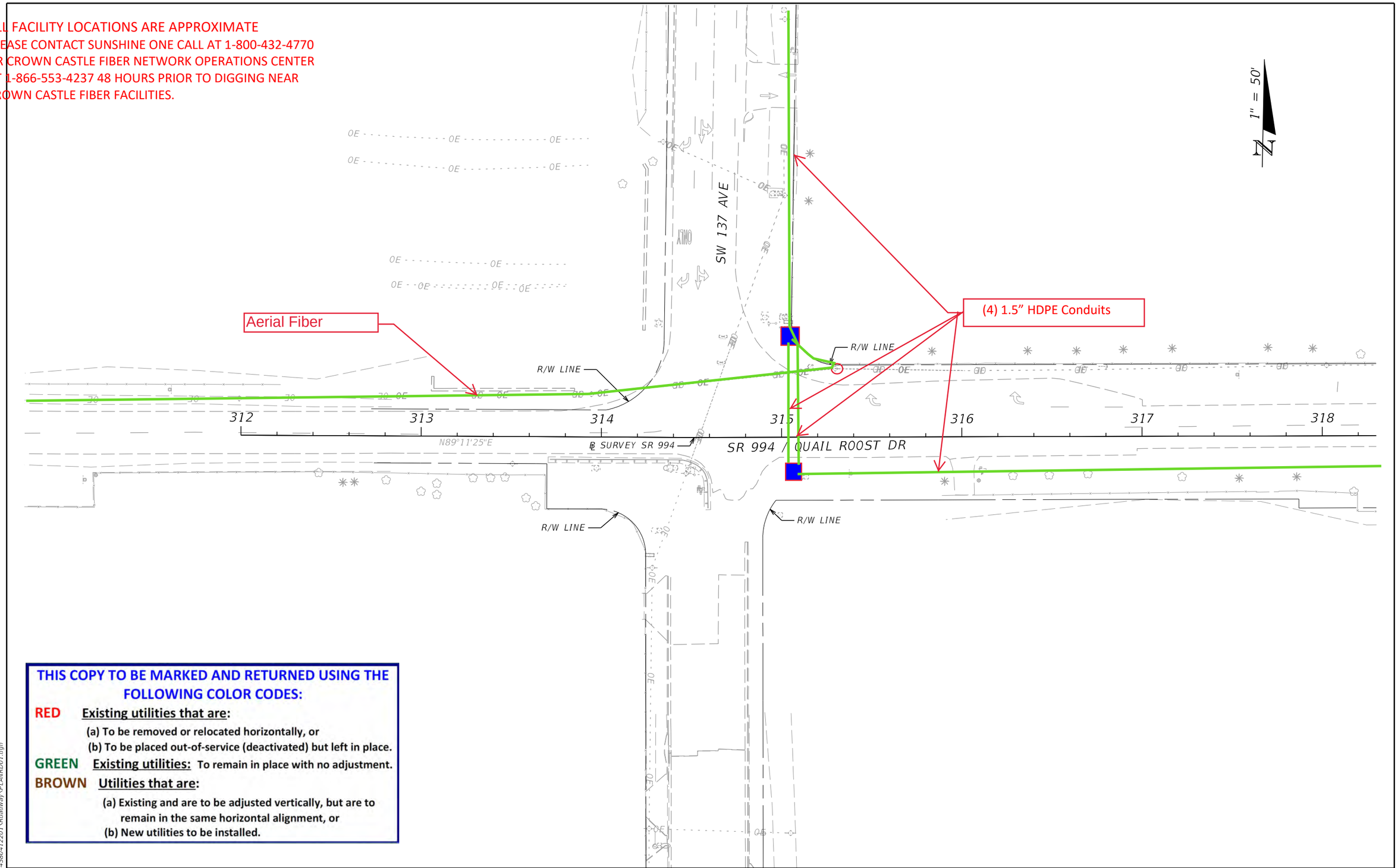

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12/7/2021 9:28:44 PM vprancekevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
2

ALL FACILITY LOCATIONS ARE APPROXIMATE
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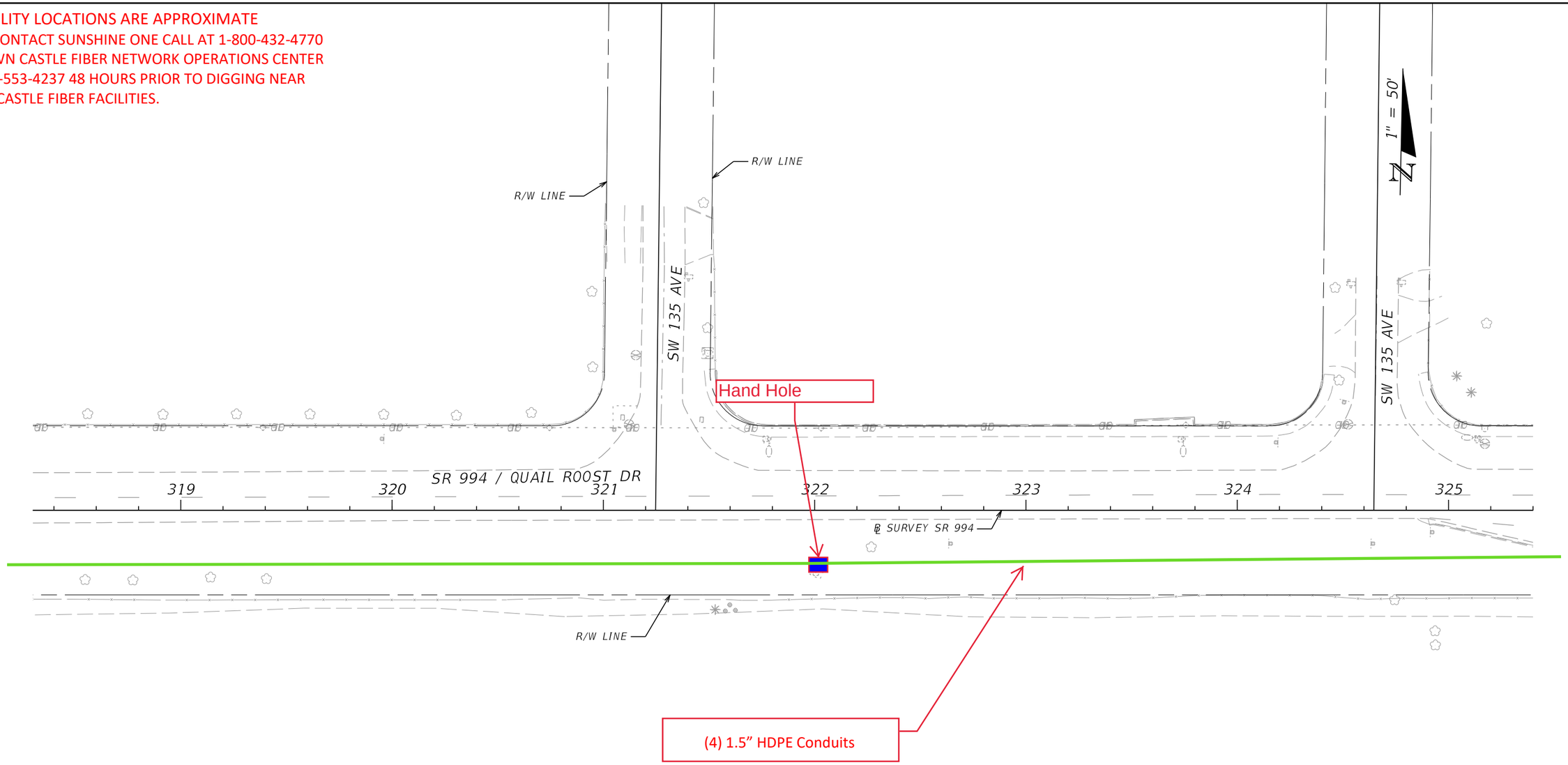
OR CROWN CASTLE FIBER NETWORK OPERATIONS CENTER
AT 1-866-553-4237 48 HOURS PRIOR TO DIGGING NEAR
CROWN CASTLE FIBER FACILITIES.



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(b) New utilities to be installed.

12/7/2021 9:28:45 PM vorancekevicius
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

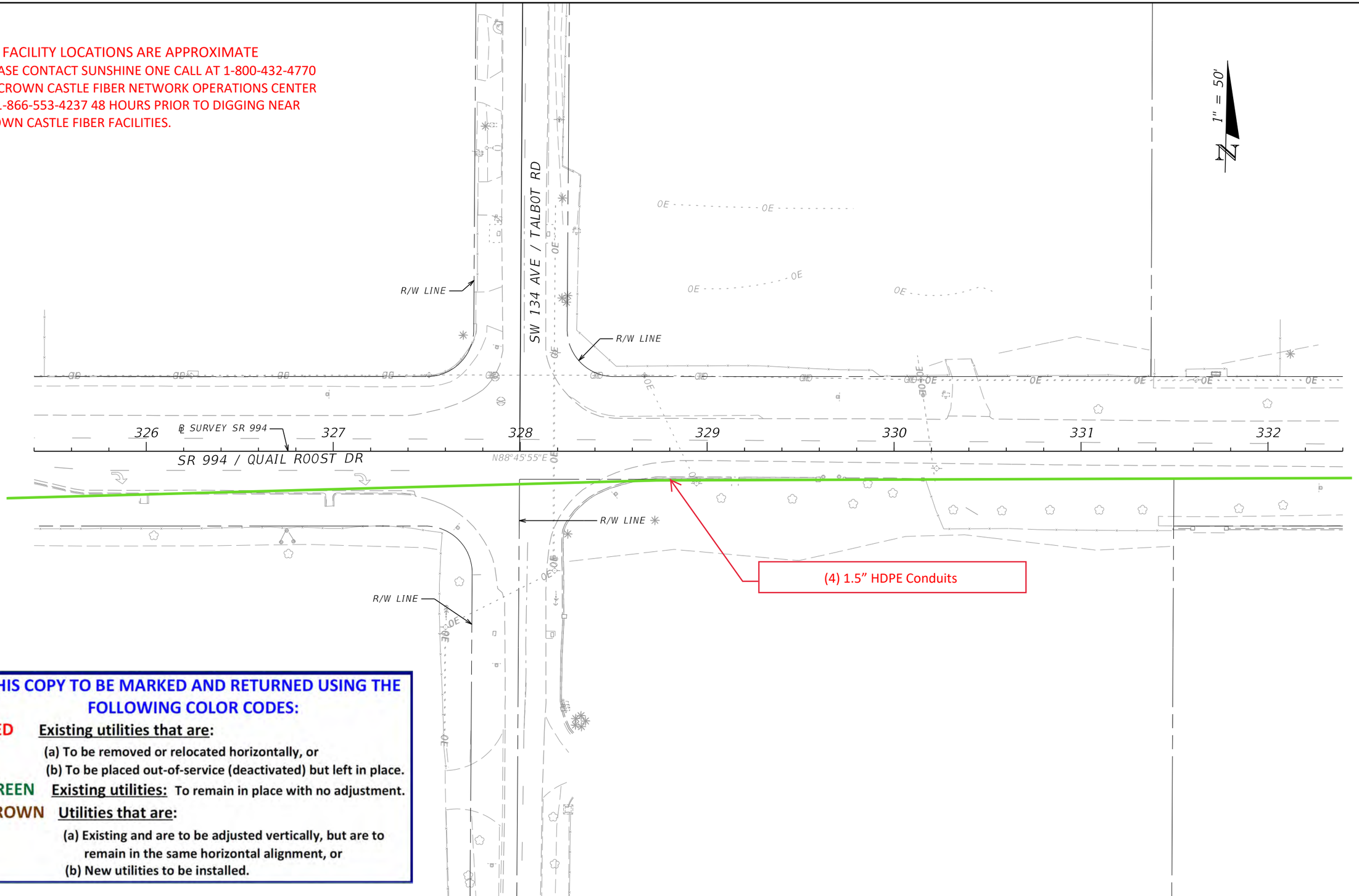
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
3

ALL FACILITY LOCATIONS ARE APPROXIMATE
PLEASE CONTACT SUNSHINE ONE CALL AT 1-800-432-4770
OR CROWN CASTLE FIBER NETWORK OPERATIONS CENTER
AT 1-866-553-4237 48 HOURS PRIOR TO DIGGING NEAR
CROWN CASTLE FIBER FACILITIES.



THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED **Existing utilities that are:**
(a) To be removed or relocated horizontally, or
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800 NW 62ND AVE
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 4

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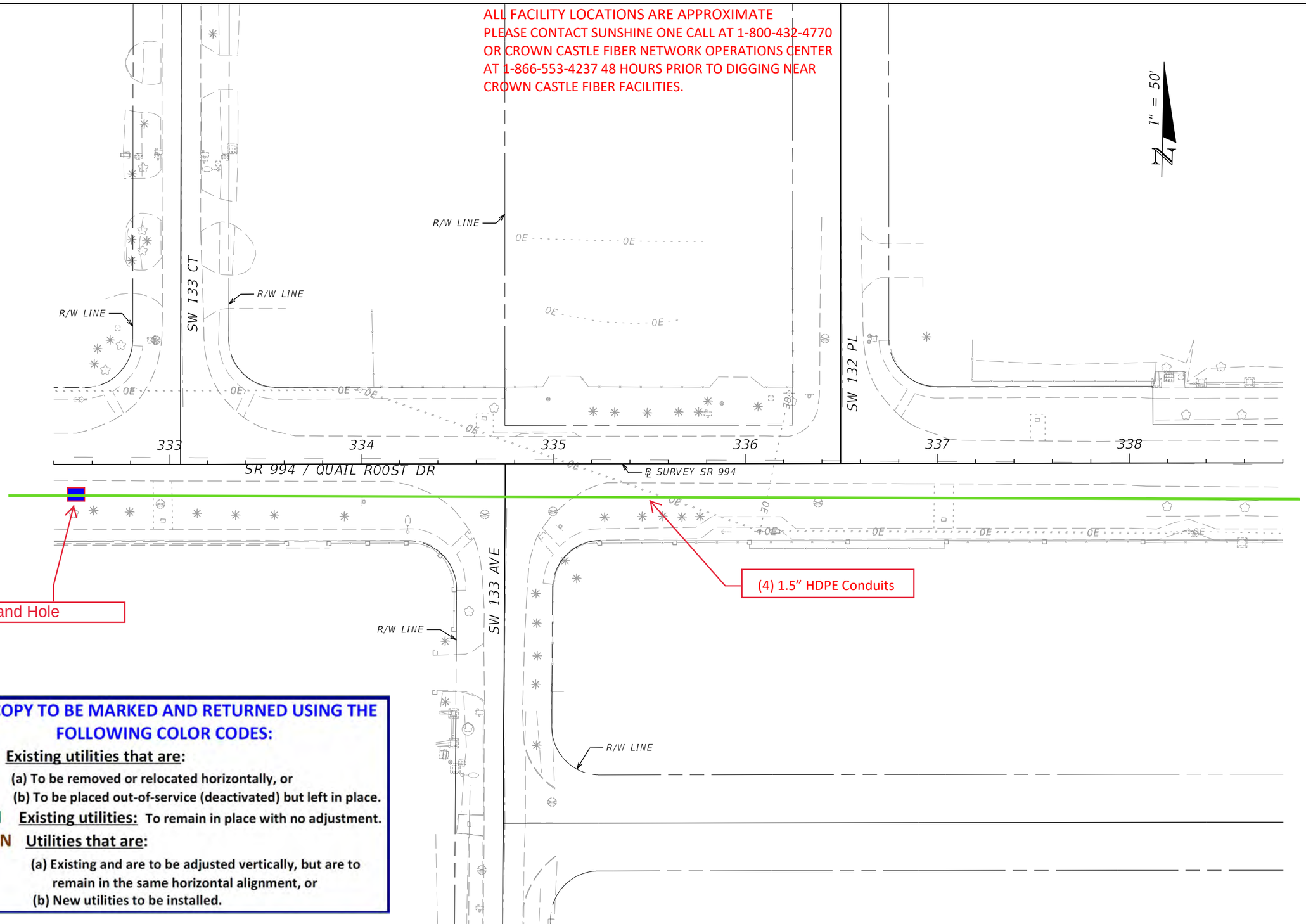

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
5

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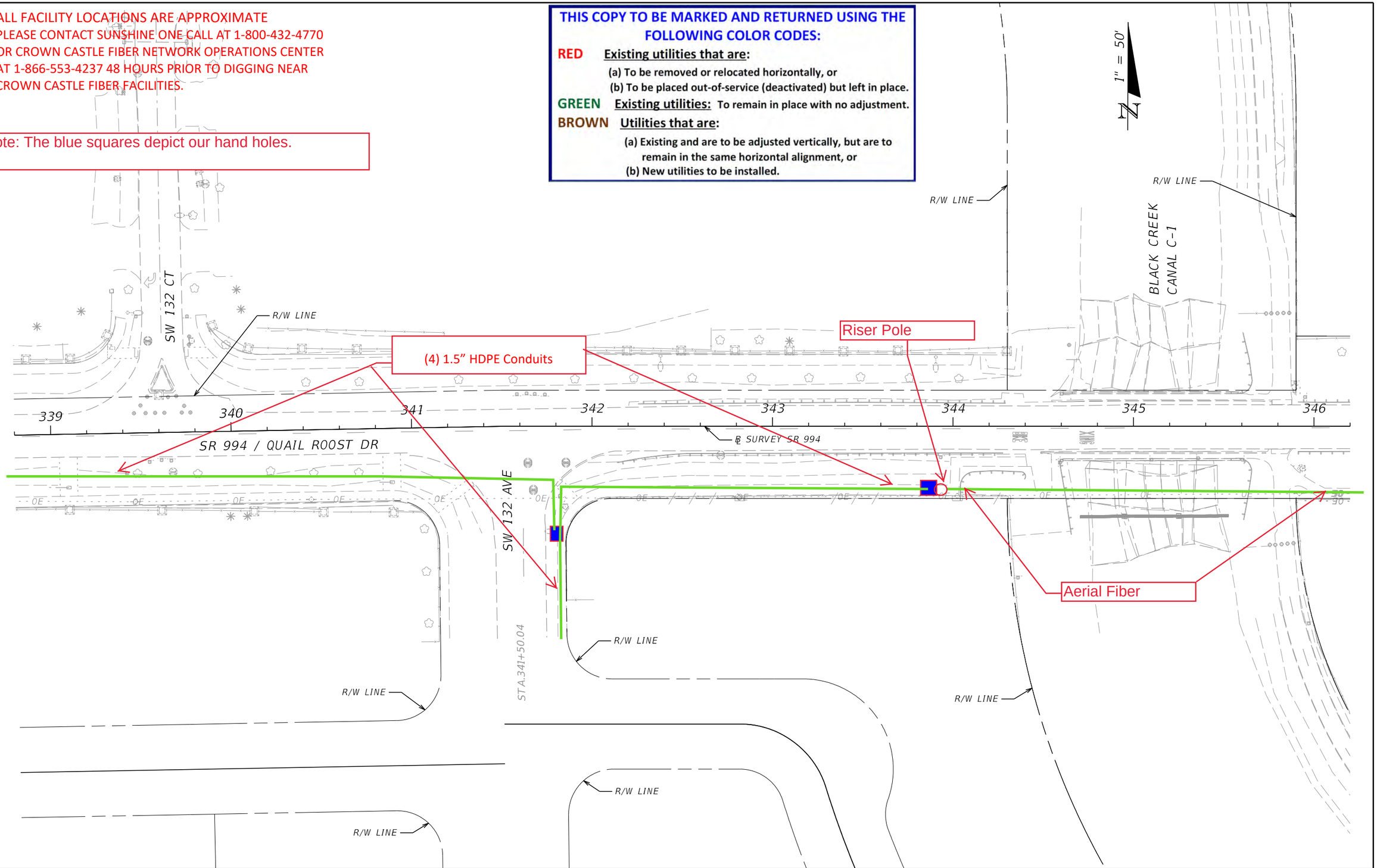

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 6

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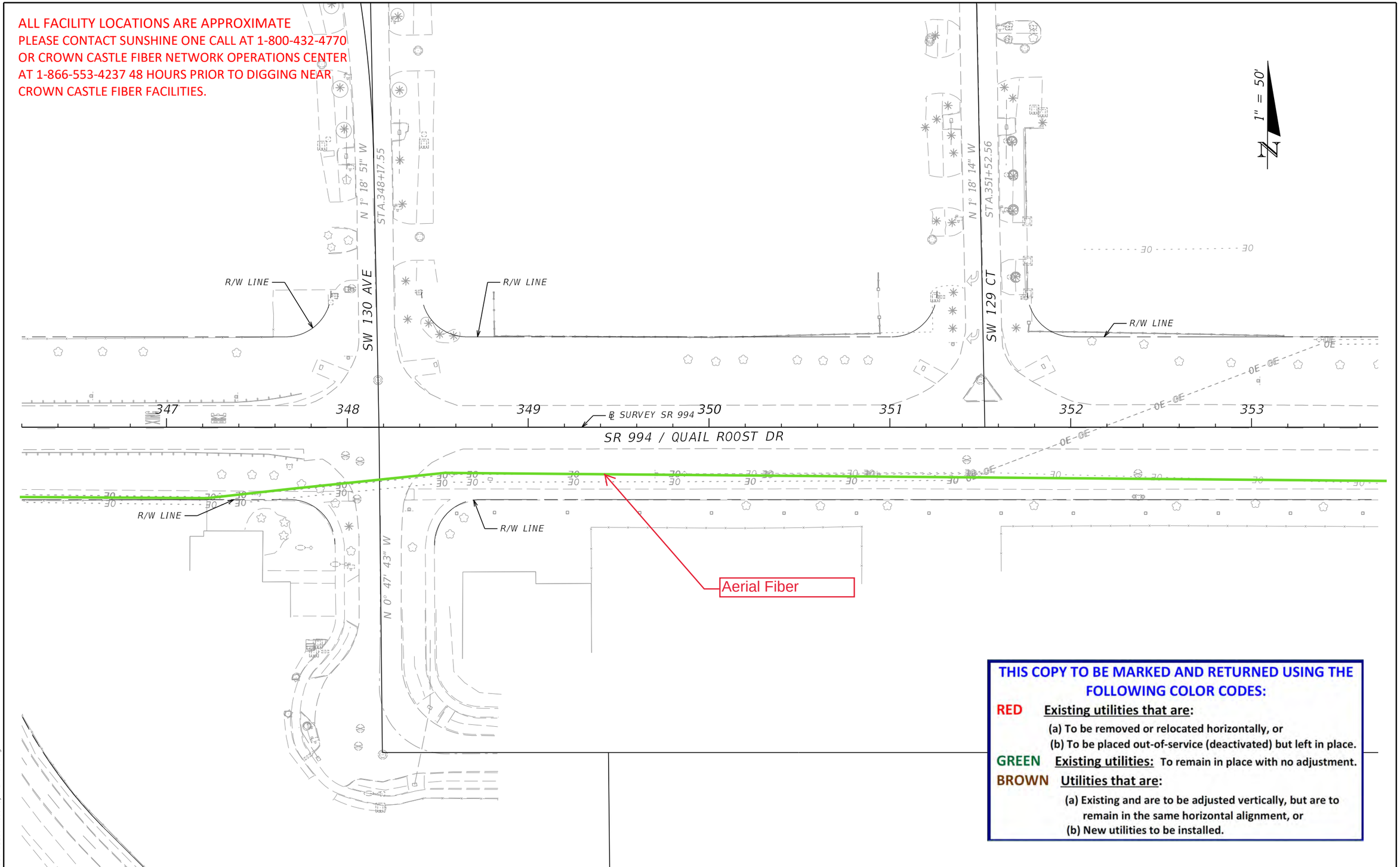

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
7

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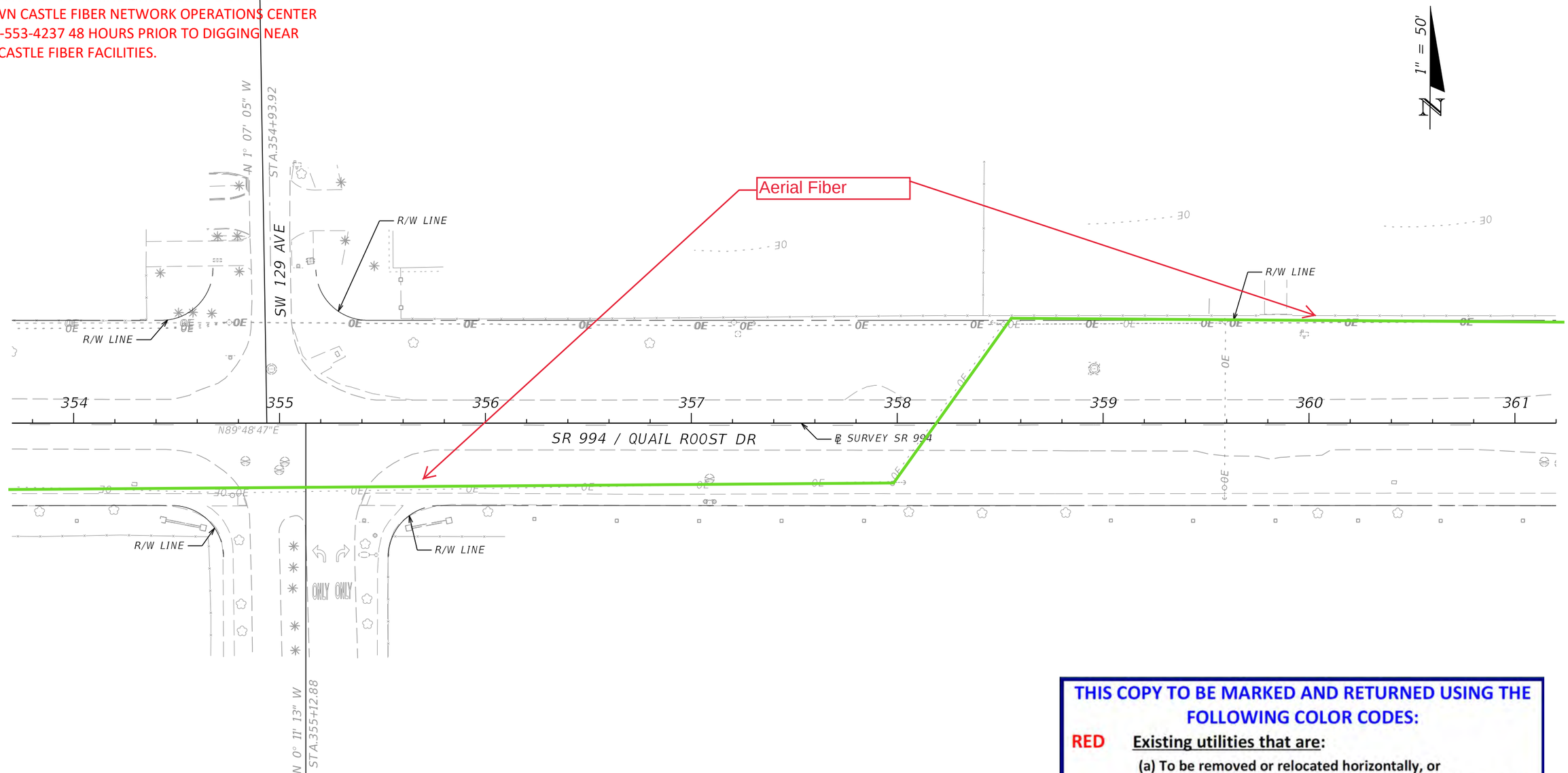

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 8

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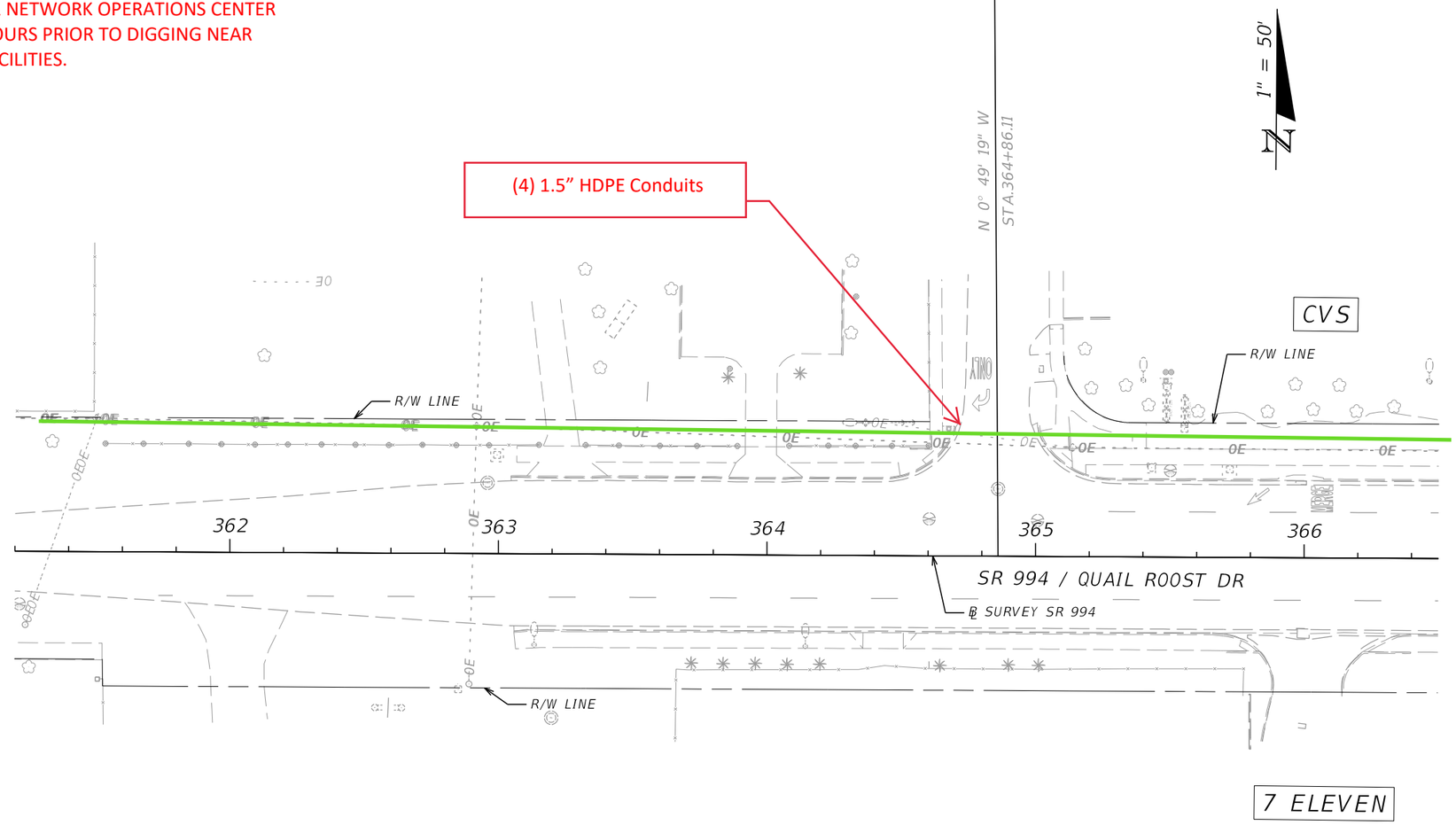

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 9

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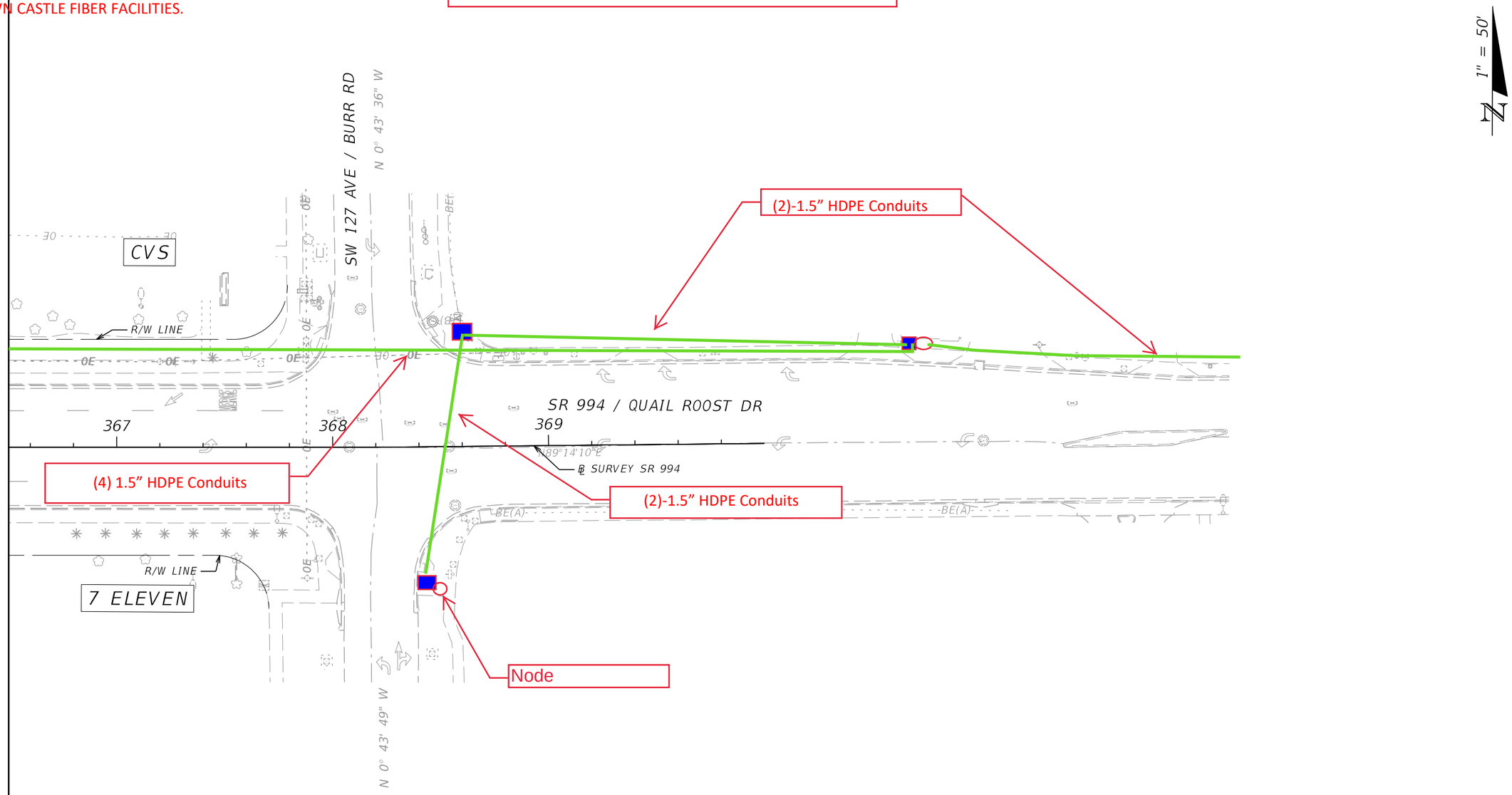

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
10

12/7/2021 9:28:48 PM vpranckevicius
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FPL Distribution

Lydia Santiago

From: Lydia Santiago
Sent: Friday, January 7, 2022 3:14 PM
To: Mcaskill, Emma
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Thank you, Emma.

Appreciate your help with this.
Will let you know when updated plans become available.

Have a great weekend!

Thank you,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Mcaskill, Emma <Emma.Mcaskill@fpl.com>
Sent: Friday, January 7, 2022 3:00 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Hi Lydia,

At this point in time, based on the initial plans, there does not seem to be a need for any relocation that would require UAO reimbursement. Once we get a more finalized set of roadway plans, the answer to your request may changed based on what is deemed to be in conflict.

Please let me know if you have any further questions or concerns.

Thank you,

Emma McAskill
Relocation Coordinator – Florida Power & Light – Power Delivery
Office: (305) 442-5129

Cell: (305) 298-2147
4200 W. Flagler St. (LFO) Miami, FL 33134

*Visit the new **FPL Project Portal** at FPL.com/construction to manage your FPL Residential and Commercial construction projects. Get information on construction services and project types, apply for your construction project, track project milestones, pay your construction fees online, manage your project team and more.*

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Friday, January 7, 2022 1:05 PM
To: Mcaskill, Emma <Emma.Mcaskill@fpl.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Hi Emma,

Thanks for confirming.
Compensable interest is broad term for UAO reimbursement request with supporting documentation (typically easement).

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
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Jupiter, FL 33458
www.mgvera.com

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---

From: Mcaskill, Emma <Emma.Mcaskill@fpl.com>
Sent: Friday, January 7, 2022 12:54 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Hi Lydia,

Yes, the 120V Street Light circuits are underground. Second, what do you mean by compensable interests? I have not heard that term before.

Thanks,

Emma McAskill
Relocation Coordinator – Florida Power & Light – Power Delivery

Office: (305) 442-5129
Cell: (305) 298-2147
4200 W. Flagler St. (LFO) Miami, FL 33134

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From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Friday, January 7, 2022 12:01 PM
To: Mcaskill, Emma <Emma.Mcaskill@fpl.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Hi Emma,

I do want to confirm:

- the 120v service line circuit(s) are underground?
- any compensable interests within the project limits?

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

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www.mgvera.com

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---

From: Mcaskill, Emma <Emma.Mcaskill@fpl.com>
Sent: Thursday, January 6, 2022 1:42 PM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Hi Lydia,

Please see attached FPL distribution markup and corresponding record drawings. Let me know if you have any further questions or concerns.

Thank you,

Emma McAskill

Relocation Coordinator – Florida Power & Light – Power Delivery
Office: (305) 442-5129
Cell: (305) 298-2147
4200 W. Flagler St. (LFO) Miami, FL 33134

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From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 4, 2022 2:08 PM
To: Danny.Haskett@crowncastle.com; Mcaskill, Emma <Emma.Mcaskill@fpl.com>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; URENA, HENRY <hu083j@att.com>; Jason.Matthews@verizon.com
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: RE: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

CORRECTION

Friendly reminder responses are due January 7, 2022.

I apologize for any confusion.
Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

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---

From: Lydia Santiago
Sent: Tuesday, January 4, 2022 12:11 PM
To: Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; URENA, HENRY <hu083j@att.com>; Jason.Matthews@verizon.com
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good morning all,

hope you are all doing well and had a great holiday season - Happy New Year!

This email serves as a friend reminder that your responses are due on January 7, 2023.

****** FRIENDLY REMINDER *******

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

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---

From: Lydia Santiago
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; leonard_maxwell-newbold@comcast.com; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704

M.G. VERA & ASSOCIATES

CONTRACT PLANS COMPONENTS

ROADWAY PLANS

A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2 - 10	ROADWAY PLANS

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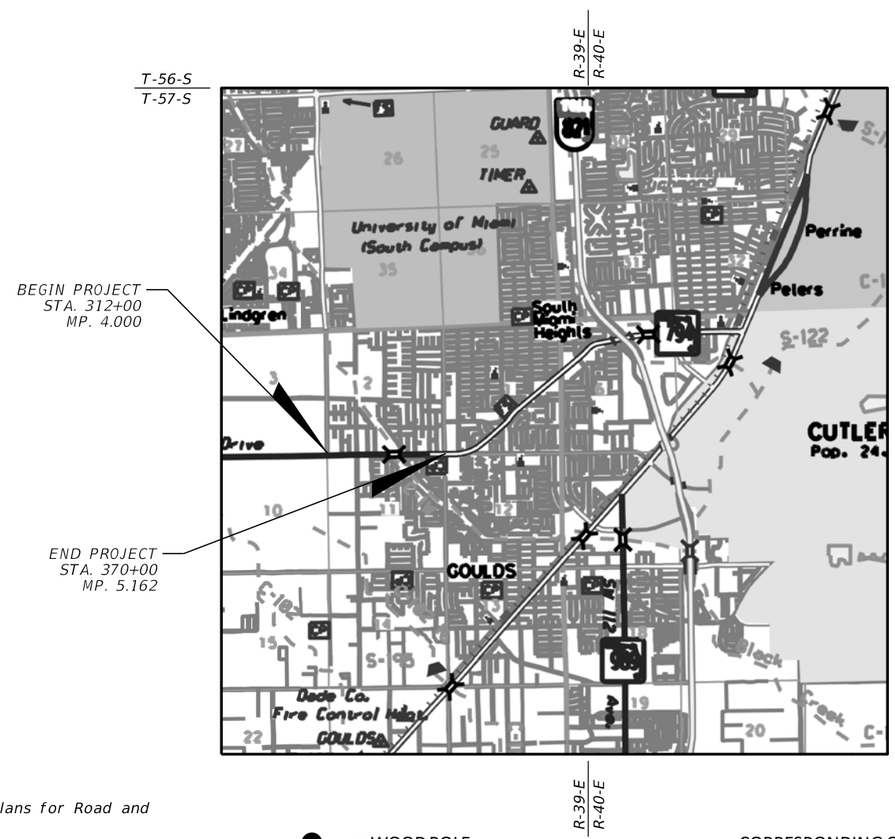
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

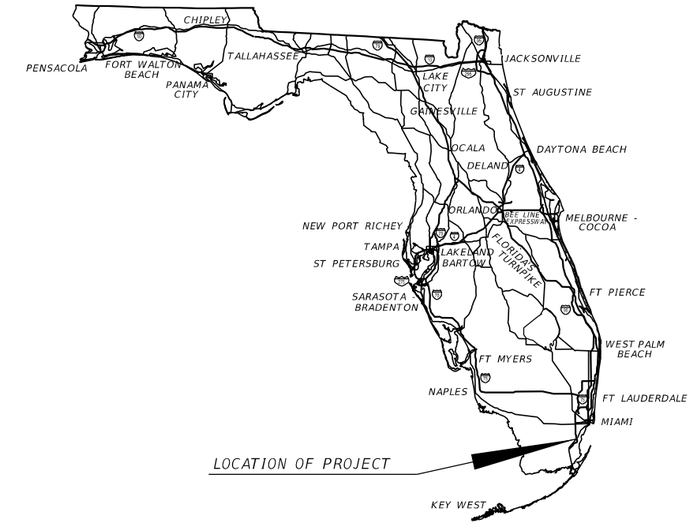
CONTRACT PLANS

FINANCIAL PROJECT ID 445804-1-22-01

MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994





N

= WOOD POLE
= CONCRETE POLE
= OVERHEAD CONDUCTOR
= UNDERGROUND CABLE
= OVERHEAD TRANSFORMER
= PADMOUNT TRANSFORMER
= SWITCH CABINENT

CORRESPONDING COLORS:

GREEN = NOT IN CONFLICT

RED = IN CONFLICT, NEED TO RELOCATE

BROWN = NEW PROPOSED LOCATION

BLUE = TRANSMISSION FACILITIES

YELLOW = STREET LIGHT FACILITIES

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2022-23 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: IR - -

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2022 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

ROADWAY PLANS ENGINEER OF RECORD:

ALEJANDRO URIBE, P.E.
P.E. LICENSE NUMBER 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
CONTRACT NO.: C0000
VENDOR NO.: 00-000000

FDOT PROJECT MANAGER:

ELSA RIVEROL, P.E.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	22	1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

12/7/2021 9:22:23 PM vpranckevicius
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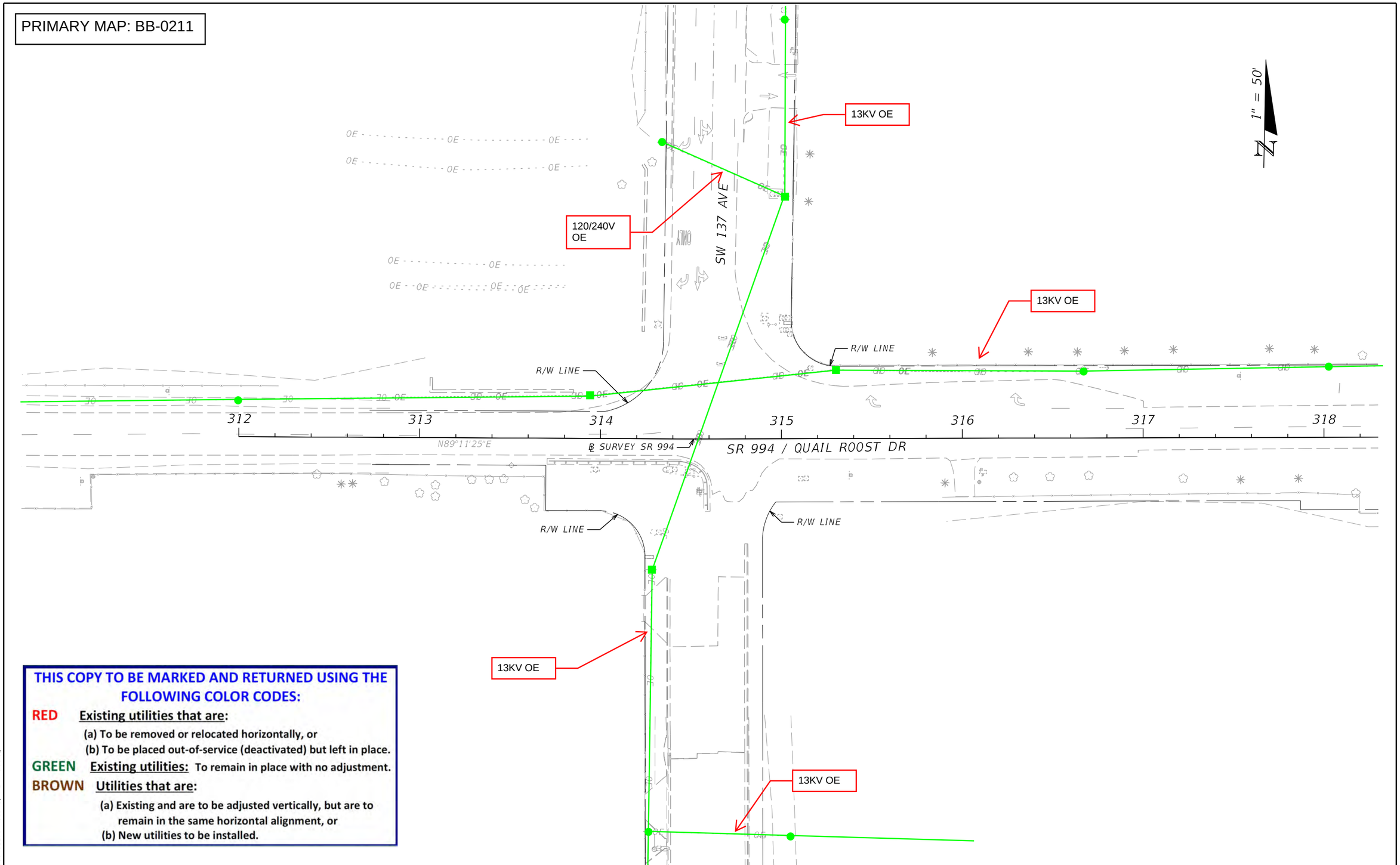
PRIMARY MAP: BB-0211



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(b) New utilities to be installed.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

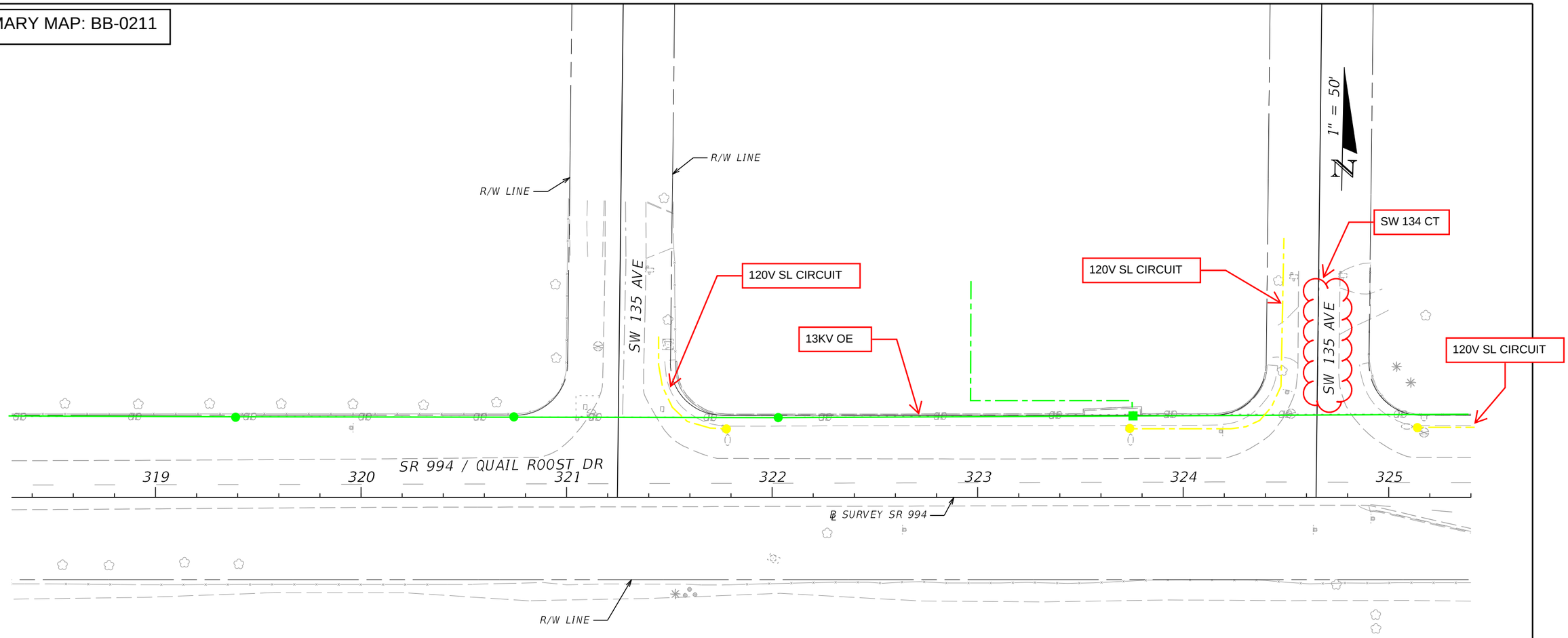
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 2

12/7/2021 9:28:44 PM vprancekevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

PRIMARY MAP: BB-0211



THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-2770
CAUTION: THIS DRAWING IS AN APPROXIMATION
DETERMINE EXACT LOCATION OF
THE CABLE/DUCT LINES/CONDUIT
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA

THIS COPY TO BE MARKED AND RETURNED USING THE FOLLOWING COLOR CODES:

RED **Existing utilities that are:**
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12/7/2021 9:28:45 PM vorancekevicius
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
P.E. NO: 75596
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800 NW 62ND AVE
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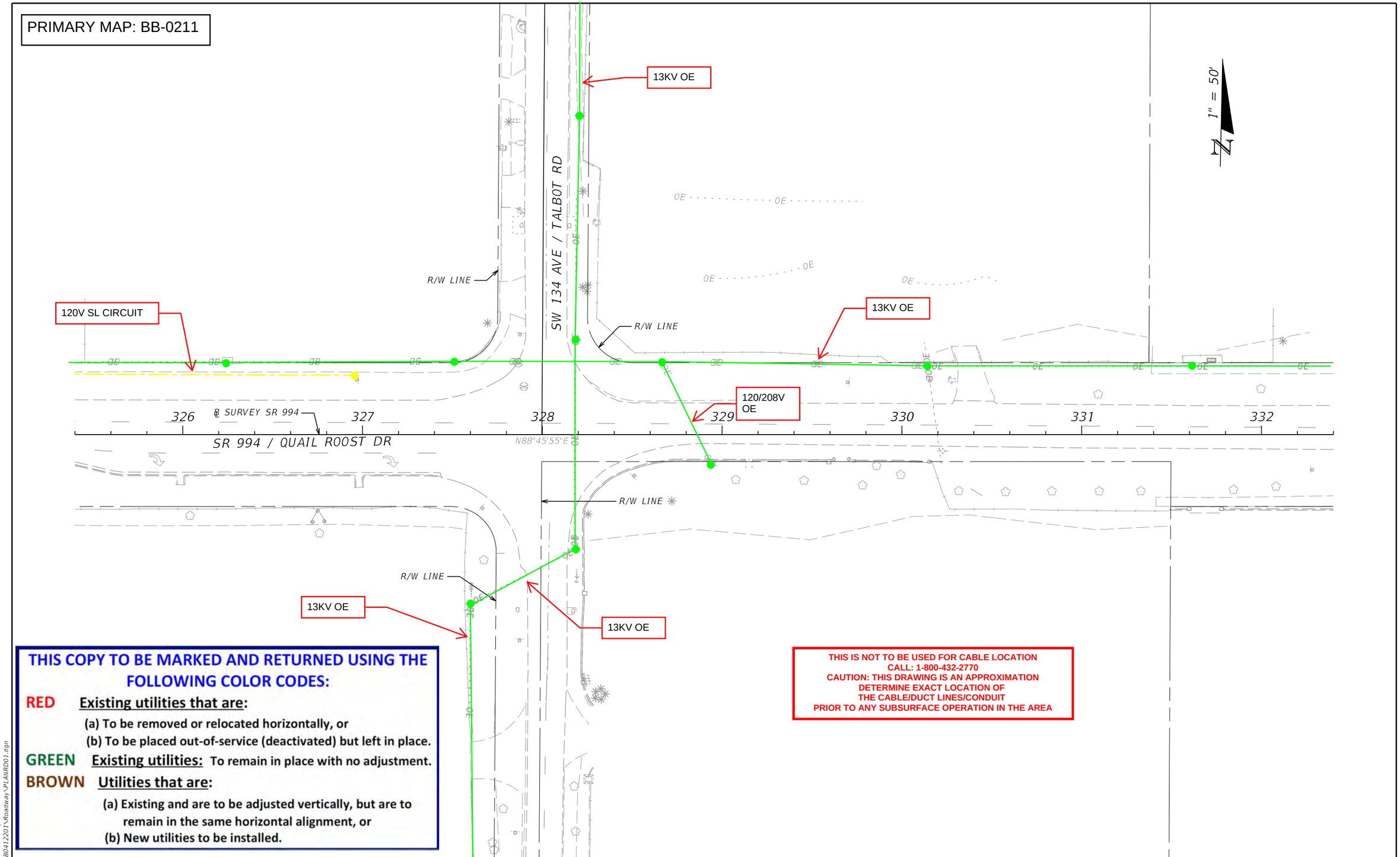
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
3

PRIMARY MAP: BB-0211



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12/7/2021 9:28:45 PM vprancekevicius
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 4

PRIMARY MAP: BB-0211

1" = 50'

R/W LINE

SW 133 CT

R/W LINE

R/W LINE

OE

OE

OE

OE

120/240V
OE

13KV BE. RECORD
DRAWING10242-1

SW 132 PL

333

334

335

336

337

338

SR 994 / QUAIL ROOST DR

℄ SURVEY SR 994

OE

OE

OE

OE

OE

13KV OE

SW 133 AVE

R/W LINE

R/W LINE

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12/7/2021 9:28:46 PM vpranckevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ALEJANDRO URIBE, P.E.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.

5

PRIMARY MAP: BB-0211

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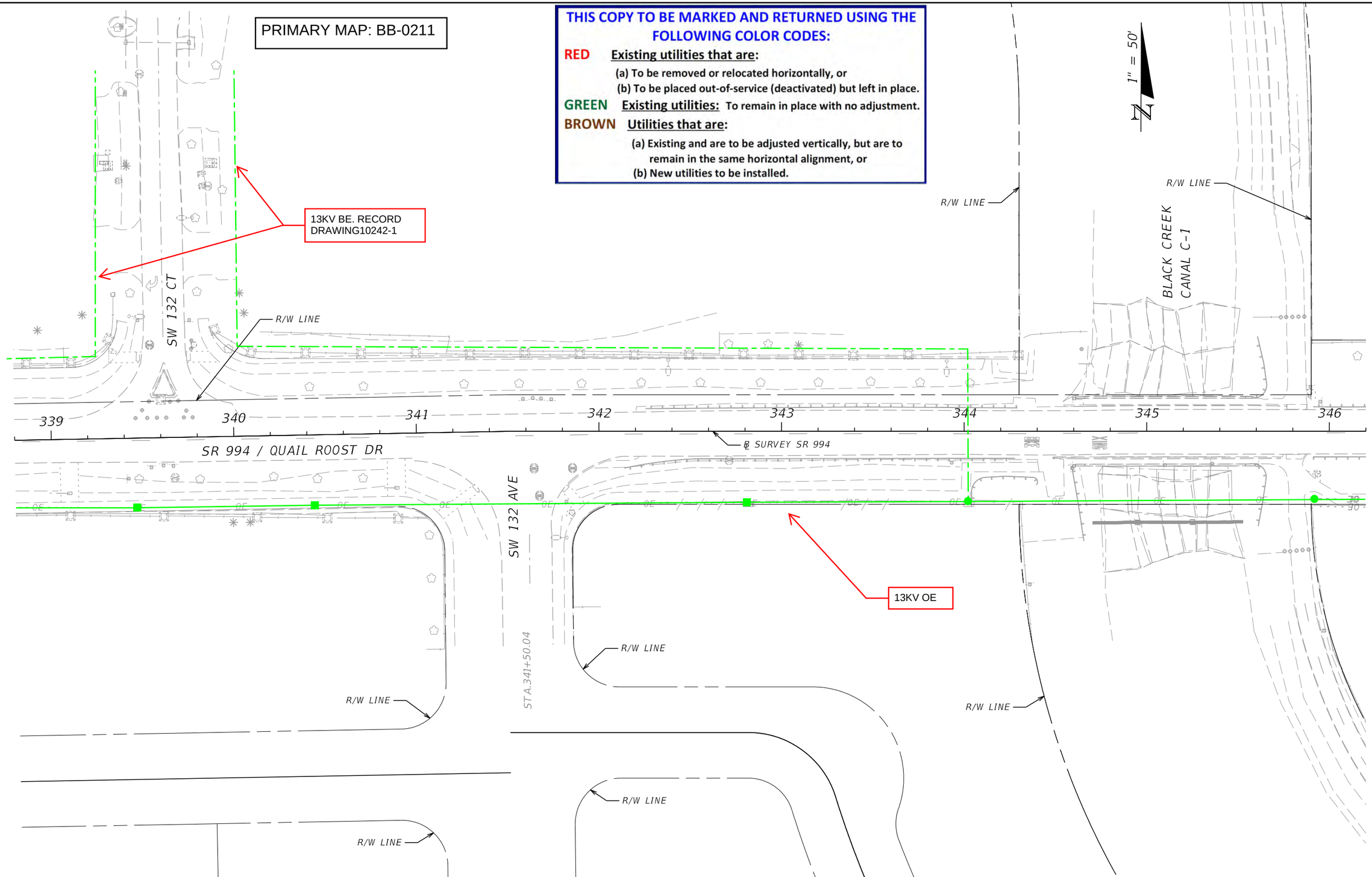

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

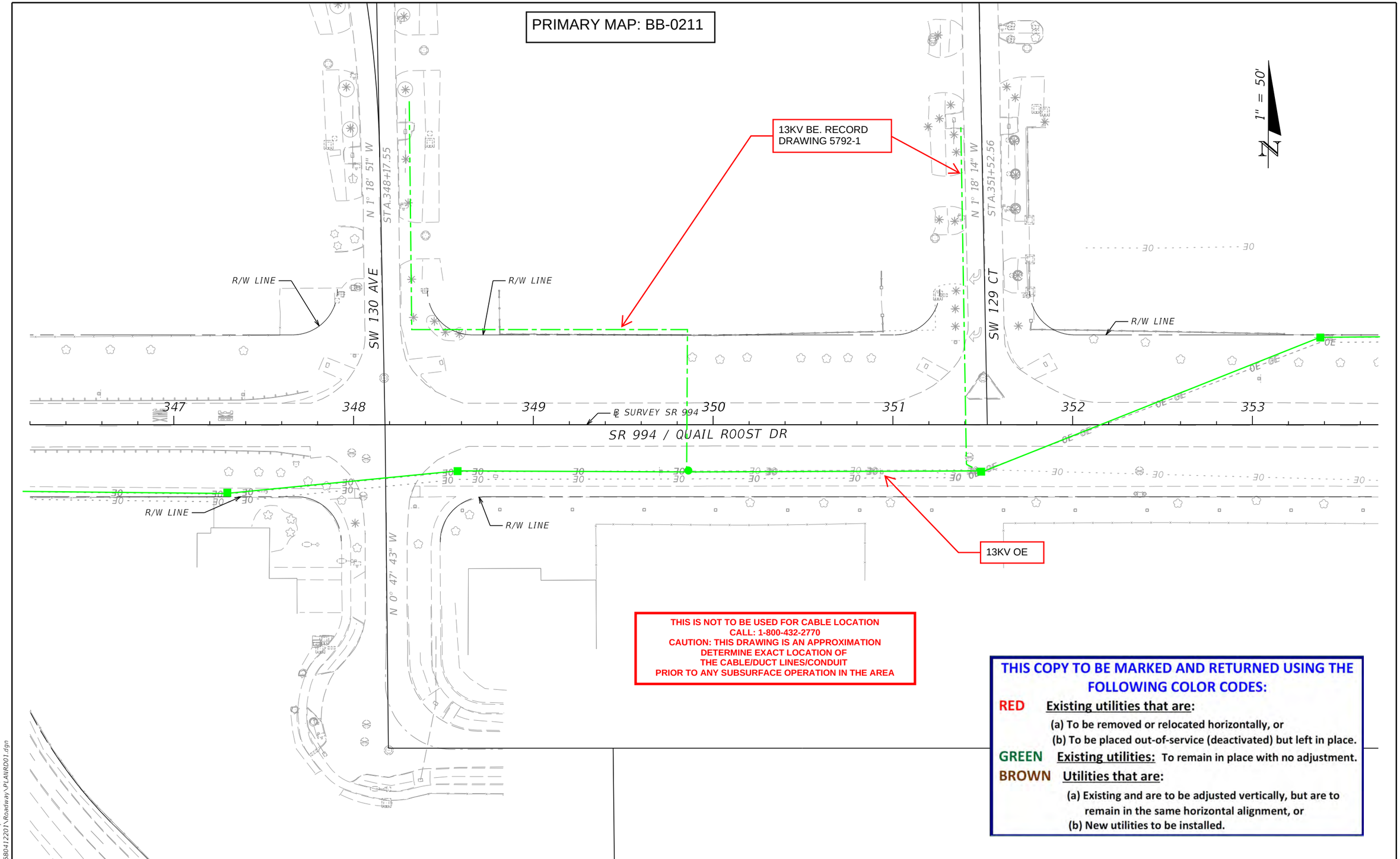
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 6

12/7/2021 9:28:46 PM vprancekevicius
C:\Worksets\FDOT\44580412201\Roadway\PLANRD01.dgn

PRIMARY MAP: BB-0211



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DETERMINE EXACT LOCATION OF
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REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
7

12/7/2021 9:28:47 PM vpranckevicius
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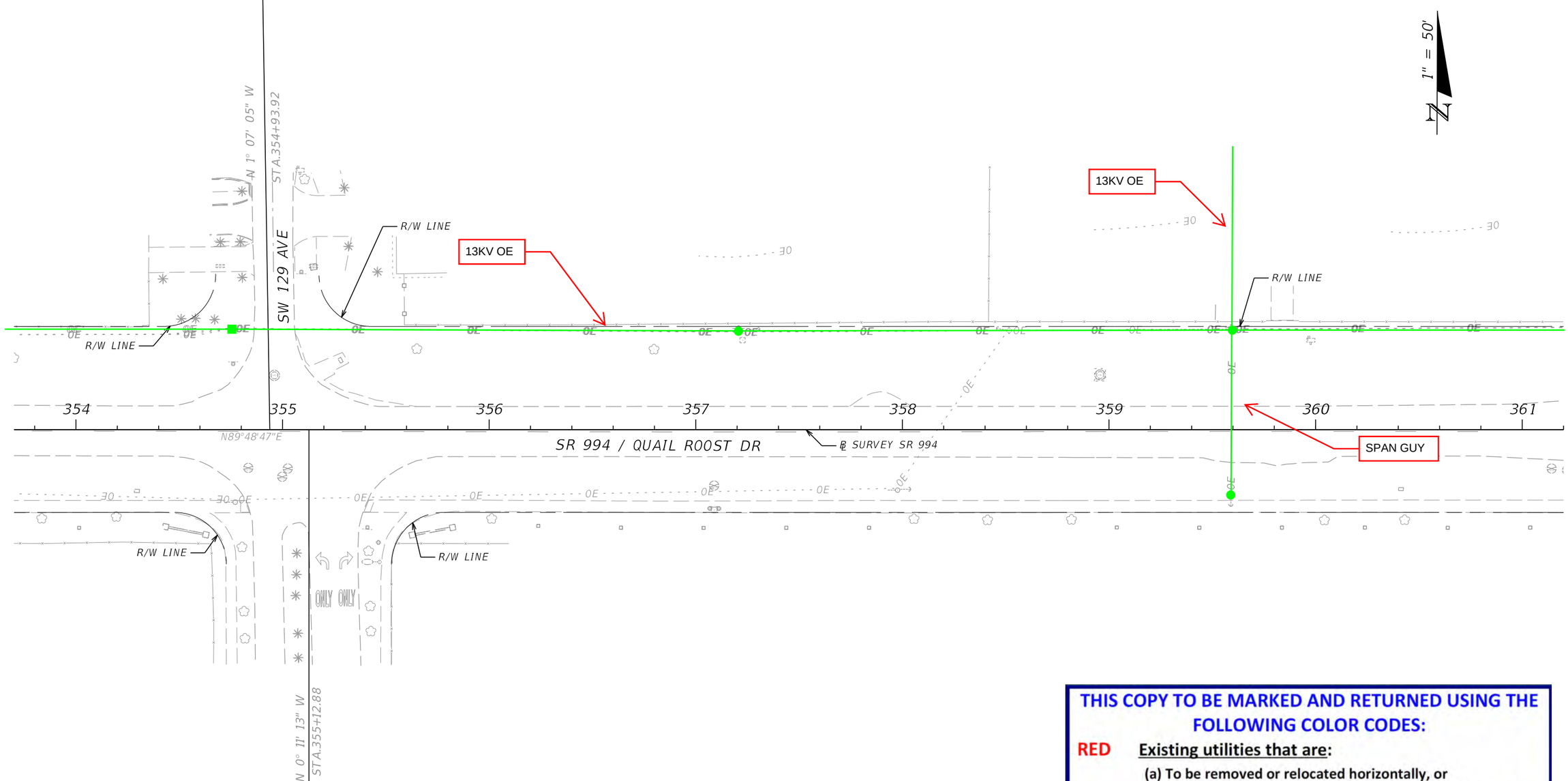
PRIMARY MAP: BB-0211



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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO. 8

12/7/2021 9:28:47 PM vprankevicius
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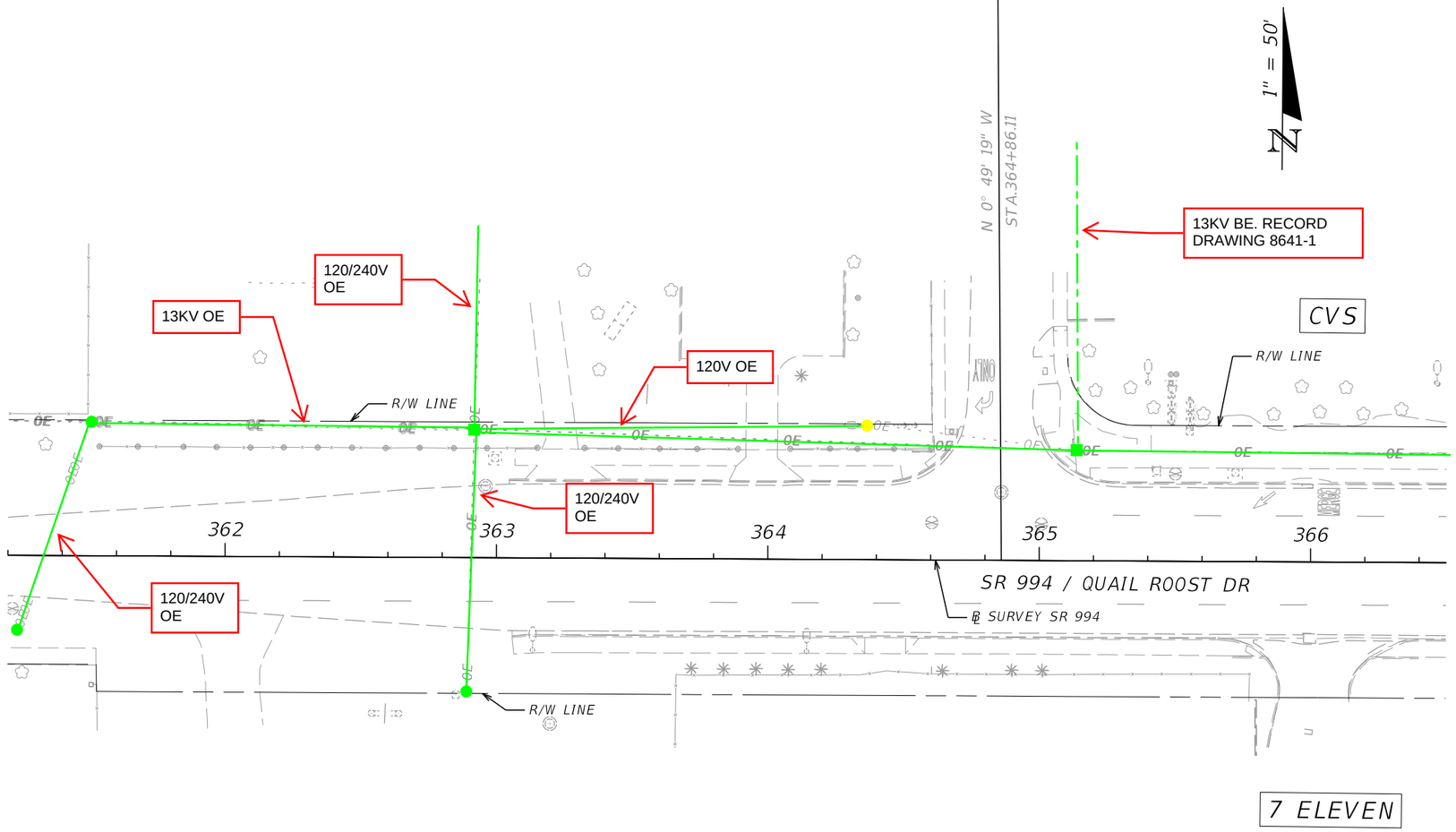
PRIMARY MAP: BB-0211



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ROADWAY PLANS

SHEET NO.
9

12/7/2021 9:28:48 PM vprancekevicius
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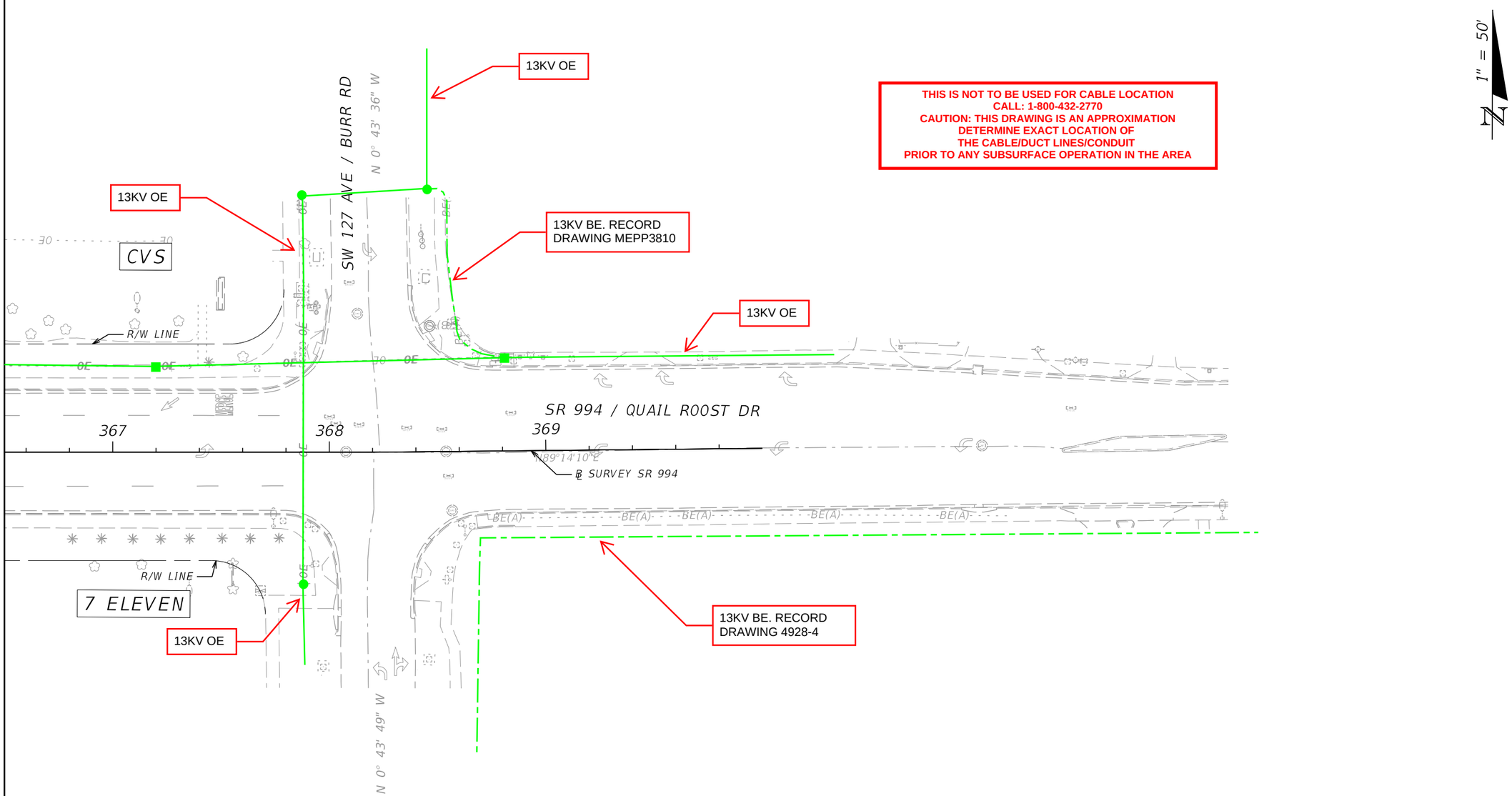
PRIMARY MAP: BB-0211



REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

ROADWAY PLANS

SHEET NO.
10

12/7/2021 9:28:48 PM vprancke\vicius
C:\Worksets\FDOT_44580412201\Roadway\PLANRD01.dgn

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DETERMINE EXACT LOCATION OF
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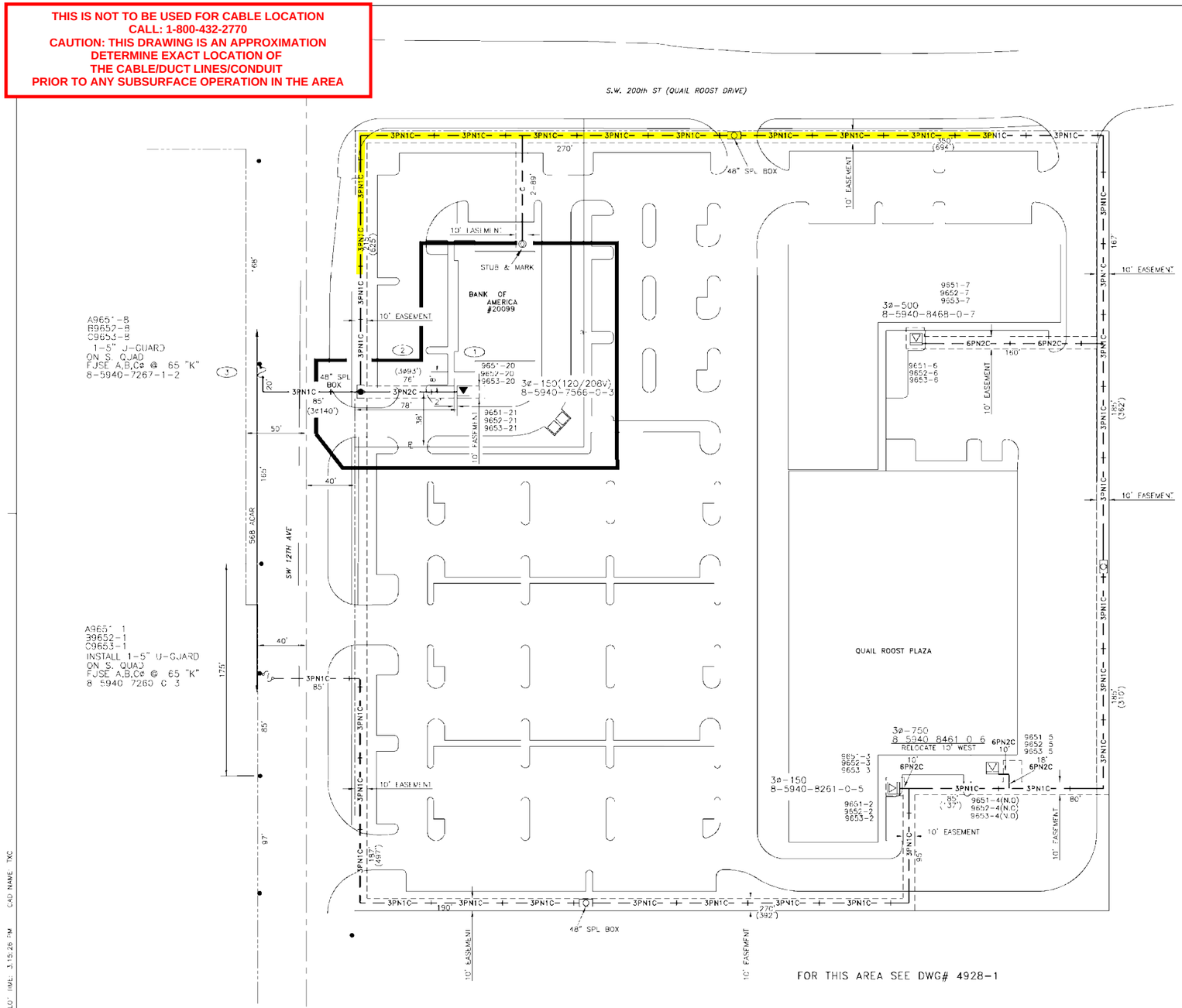
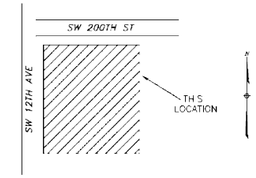
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL





LOCATION SKETCH
N.T.S.

ATTENTION
PLEASE PROVIDE STREET ADDRESSES FOR THIS AREA.

The location and existence of any facilities may not be relied upon by the supplier in responding to a bid or in complying with any contract. Supplier is responsible for evaluating site conditions both above and below ground including underground facility sections.

CONSTRUCTION NOTES – WR# 3255305

REQUIRED DRAWINGS
4928-4
4928-3
TRENCH NOTES
ROCK AREA
EASEMENT
MAINTAIN A MINIMUM OF 12" SEPARATION FROM ALL OTHER UTILITIES
CUSTOMER INSTALLED CONDUIT
CUSTOMER INSTALLED ALL CONDUIT
CABLE
3PN1C IS 3CC #1/0A 25KV-XLPE IN 1-5" PVC WITH 36" MIN COVER
OTHER NOTES
ALL SERVICES TO BE INSTALLED, OWNED AND MAINTAINED BY THE CUSTOMER
STANDARD NOTES
ALL CABLE AND/OR CONDUIT ENDS ARE TO BE MARKED WITH AN ELECTRONIC MARKER
(XXX') DENOTES CABLE PULL DISTANCE
UNDERGROUND OBSTRUCTIONS ARE TO BE LOCATED PRIOR TO DIGGING
INSTALL NEUTRAL BOND FOR COMMUNICATION COMPANIES AT ALL SINGLE PHASE TRANSFORMERS PER D.C.S., G-11.0.0
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

"AS BUILT" RECORD
WORK ORDERS WITH A DATE IN THE AS BUILT COLUMN ARE BUILT EFFECTIVE THAT DATE. FIELD ENGINEERED CHANGES HAVE BEEN MADE TO THE TRACING BUT PROPOSED SYMBOLS HAVE NOT BEEN CHANGED TO EXISTING AND NOTE AND LOC. NUMBERS HAVE NOT BEEN REMOVED.

REFERENCE DWG's

4928-3 (SCH)
4928-2
4928-1

TWP: 56 RNG: 39 SEC: 12 QTR: _____

ASBUILT	AUTH NO.	NO.	DATE	REVISION
11/27/08	3255305	2	09/22/08	PULL PRI CABLE & INSTALL 3ø 750KA (8-5940-7566-0-3) TX TO PROVIDE SVC @ 20099 SW 127TH AVE
	2889378	1	05/16/07	RELOCATE TX 10' WEST & INSTALL SPLICE BOX AT SHOPPES AT QUAIL ROOST
	1394933	0	01/25/05	INSTALL TX'S AND PULL PRIMARY CABLE TO SERVICE SHOPPES AT QUAIL ROOST

AS-BUILT COPY — Initials — Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature — Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature — Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature — Date

Easement? YES [X] NO [ ]
Tree Work? YES [ ] NO [X]
Map Posting? YES [X] NO [ ]
Posted by

Survey/Stake? YES [X] NO [ ]
Designer/Stake? YES [ ] NO [X]
Trench Feet
Work with SMC? YES [ ] NO [X]
CT/Special Mtr? YES [ ] NO [X]
Duct Bank Feet

PERMITS REQ'D	CITY	DR. DIST.	COUNTY AIR	STATE RD	FAA
	WMD	RR XING	COUNTY RD.	TRANSM.	

Telephone Request? YES [ ] NO [X] CATV Request? YES [ ] NO [X]

FPL

DESIGNED BY	J. DIAZ
DRAWN BY	J. PIERRE
DATE	09/22/08
MAP NO.	AW-0210

0 20 40 80 FEET

M/A: SD
SHOPPES AT QUAIL ROOST
V/O SW 127TH AVE & QUAIL ROOST DR
MIAM-DADE COUNTY, FLORIDA

DWG NO 4928-4
WR 3255305 IWR: 1126 -35-882

PLOT DATE: 6/27/2009 PLOT TIME: 3:15:26 PM CAD NAME: TXC

☐ INACCESSIBLE ☐ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐

THIS IS NOT TO BE USED FOR CABLE LOCATION
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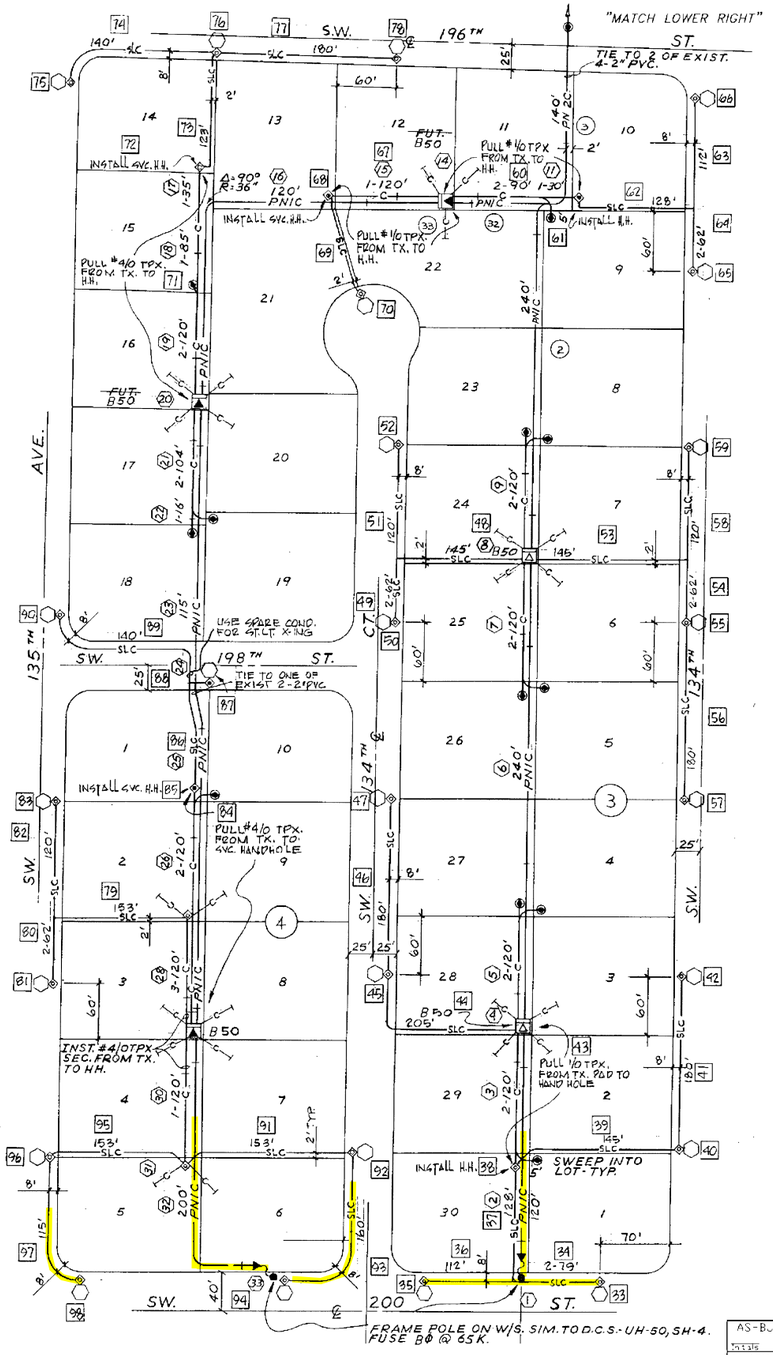
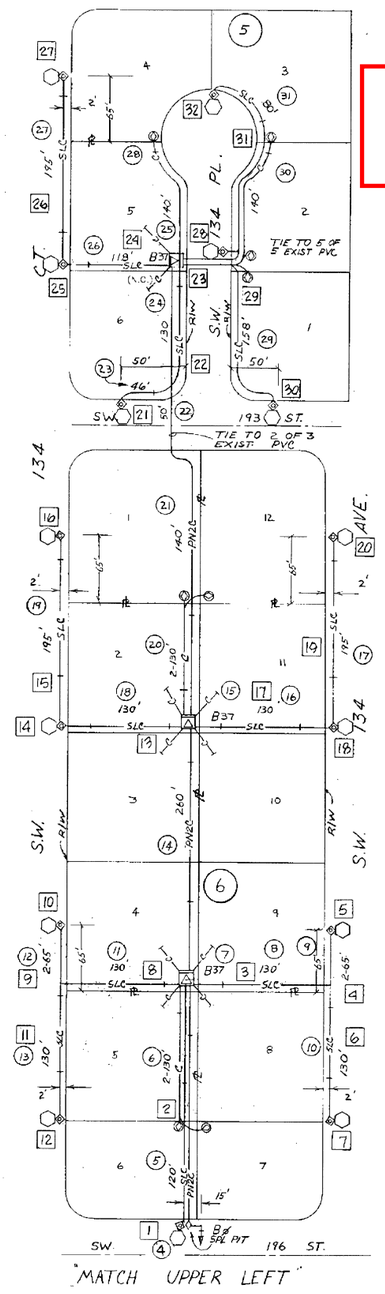
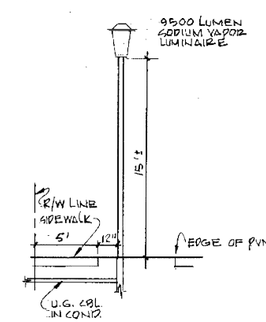
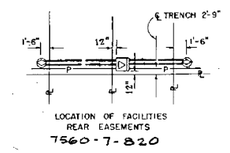


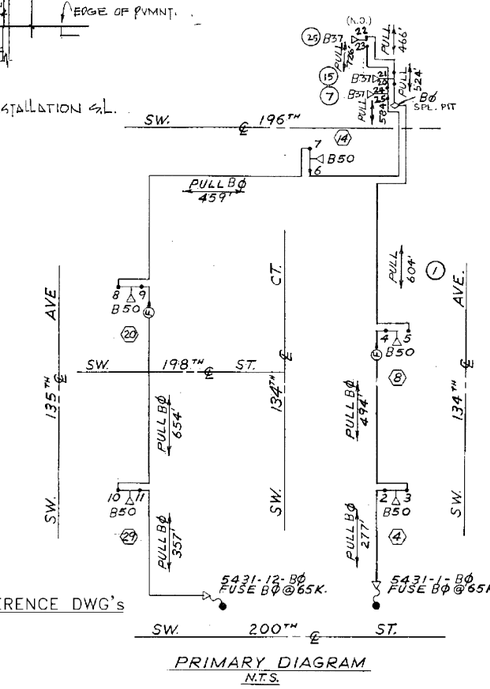






NOTES:

FOR STREET LIGHT DATA AND GENERAL CONSTRUCTION NOTES SEE 4D-E-5592 SHT. 1



REFERENCE DWG's

PRIMARY DIAGRAM
N.T.S.

LOC.	LLN/TLM.
1	8-5840 -9170-0-5
4	-9177-0-6
8	-9187-0-2
14	8894 0 1
20	-8390-0-4
29	-8377-0-2
33	-8570-0-2
25	8-5841- -8917-0-1
15	-9007-0-0
7	-8902-0-8

AS-BUILT COPY	AS-BUILT CREW PRINT
Initials / Cert. Date	Foreman's Signature / Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on RDS.	
Supervisor's Signature	Date
All required ground rods have been given & verified to within FPL Standards. Values are shown at all locations.	
Foreman's Signature	Date

Easement? YES[ ] NO[ ] | Survey/Stake? YES[ ] NO[ ] | Work with SME? YES[ ] NO[ ]
Tree Work? YES[ ] NO[ ] | Designer/Stake? YES[ ] NO[ ] | CT/Special Mat? YES[ ] NO[ ]
Map Posting? YES[ ] NO[ ] | Trench Feet | Duct Bank Feet
DBBS | Posted by | Telephone Requests[ ] NO[ ] | CATV Requests[ ] NO[ ]

AS-BUILT RECD	CITY	DR. DIST.	COUNTY AIR	STATE RD	FAA
	WMD	RR XING	COUNTY RD	TRANSM	

FPL

DESIGNED BY	–
DRAWN BY	F. SARRA
DATE	06/12/01
MAP NO.	220

0 30 60 120 FEET

TWNP RNGE SEC QTR

KRISTINA ESTATES 1ST ADDITION

MIAMI DADE, FLORIDA

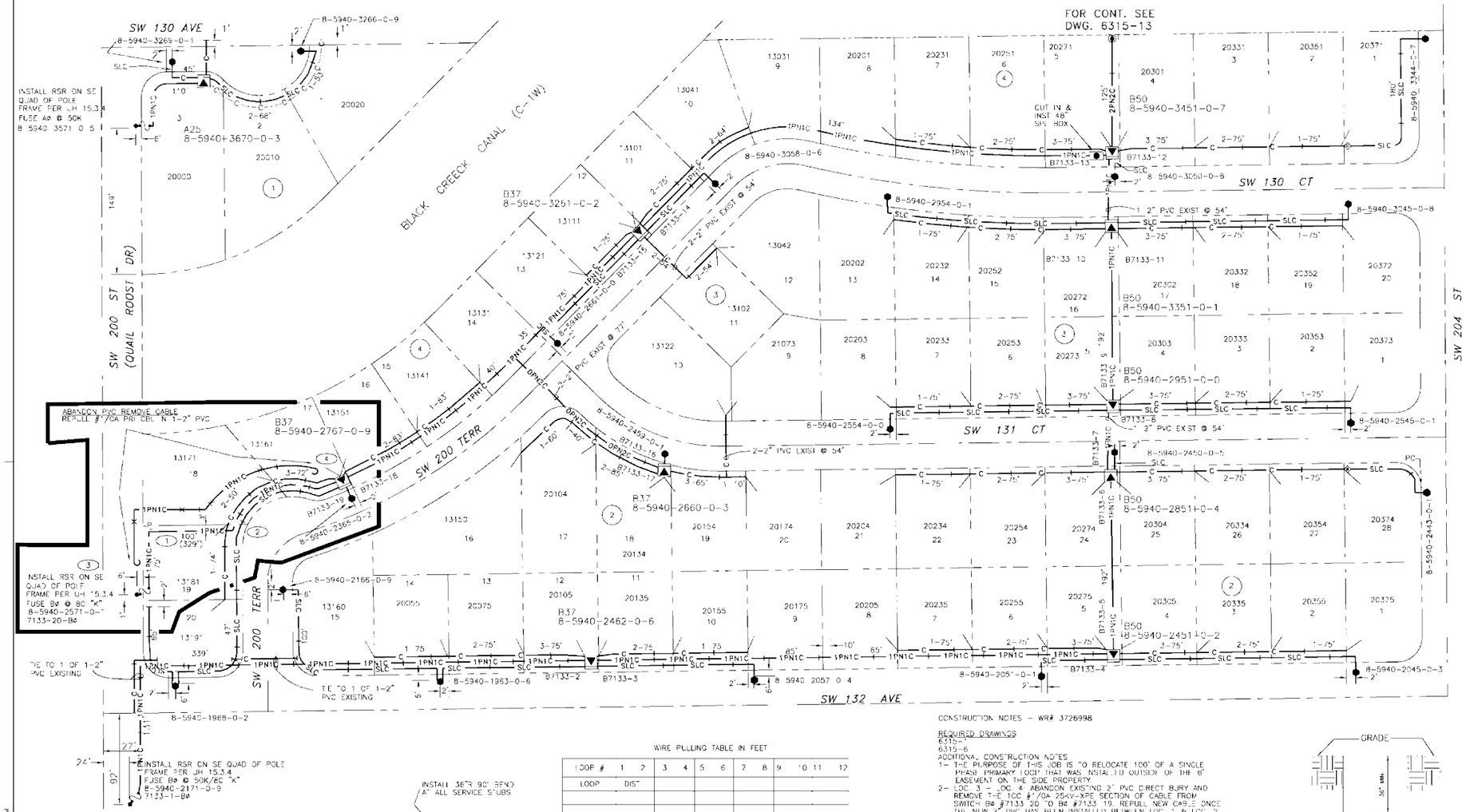
DWG NO. **5466**

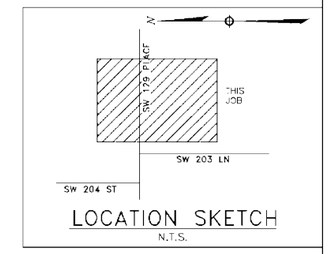
WORK ORDER 6284 ER 02 LOCN CODE 820

AS-BUILT AUTH. NO	NO.	DATE	REVISION
6284-02-820	4	06/12/01	AMS: UP-DATED DWG: CHANGE 2Ø TO 3Ø (THE ENTIRE DWG WAS 3Ø)
1-15-89 6437-07-820	0	4-20-88	AS-BUILT 8/24/89/ SC 2-16/89, LOC HEXAGON 1 TO 33

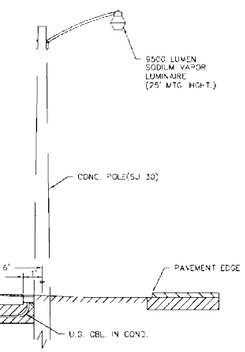
PLOT DATE: 6/15/01 PLOT TIME: 4:45:10 PM CAD NAME: 1-JOBY/X

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐





LOCATION SKETCH
N.T.S.



TYPICAL U.G. INST.

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REFERENCE DWG's

6315-2, 6315-3
6315-4, 6315-6(PRI. DIA)
6315-13

CONSTRUCTION NOTES - WR# 3726998

REQUIRED DRAWINGS
6315-1
6315-6

ADDITIONAL CONSTRUCTION NOTES
1- THE PURPOSE OF THIS JOB IS TO RELOCATE 100' OF A SINGLE PHASE PRIMARY LOOP THAT WAS INSTALLED OUTSIDE OF THE 6' EASEMENT ON THE SIDE PROPERTY.
2- LOC. 3 - LOC. 4: ABANDON EXISTING 2" PVC DIRECT BURY AND REMOVE THE 100 #7/0A 25KV-XPE SECTION OF CABLE FROM SWITCH B# #7133-20 TO B# #7133-19. REPULL NEW CABLE ONCE THE NEW 2" PVC HAS BEEN INSTALLED BETWEEN LOC. 1 & LOC. 2
3- LOC. 1: USING THE LOCATES MARKS, SOFT DIG AND LOCATE THE SINGLE PHASE PRIMARY RUNNING PARALLEL TO THE PROPERTY LINE AT THE POINT WHERE IT LEAVES THE ESMENT FROM LOCATION. INSTALL A 2" PVC WITH A MINIMUM DEPTH OF 36" AND RUNNING A DISTANCE OF 3' FROM THE PROPERTY LINE UNTIL IT REACHES THE FRONT OF THE PROPERTY (LOC. 2). PUNCH THE EXISTING PVC AND ATTACH NEW PVC TO THE PORTION GOING NORTH TOWARDS SW# B# 7133-22.
4- LOC.2: LOCATE THE EXISTING PRIMARY DUCT GOING SE AT LOC. 2 ATTACH NEW 2" P.D.B. TO EXISTING 2" P.D.B. DUCT FROM LOC. 1.
5- SWITCHING INSTRUCTIONS:
LOOP NORMAL OPEN IS SW#7133-31(NO). THIS IS LOCATED NEAR THE PROPERTY 20302 SW 129TH PLACE.
6- LOOP SWITCH NO ORDER REQUIRED
7- LOCATES REQUIRED

STANDARD NOTES
ALL CABLE AND/OR CONDUIT ENDS ARE TO BE MARKED WITH AN ELECTRONIC MARKER
(XXX) DENOTES CABLE PULL DISTANCE
UNDERGROUND OBSTRUCTIONS ARE TO BE LOCATED PRIOR TO DIGGING
INSTALL NEUTRAL BOND FOR COMMUNICATION COMPANIES AT ALL SINGLE PHASE TRANSFORMERS PER NESC, G-11.0.0

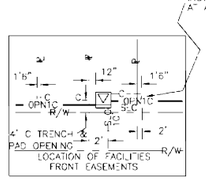
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

WIRE PULLING TABLE IN FEET

LOOP #	1	2	3	4	5	6	7	8	9	10	11	12
LOOP	DIST											

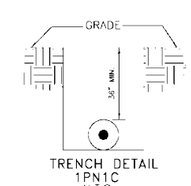
CABLE LENGTHS REQUIRED BETWEEN DEVICES (INCLUDES MAKE-UP CABLE)

Ground Rod Information		
Location	Feet of Ground Rod Installed	Resistence (Ohms)



LOOP LOADING			
LOOP NO. & PHASE	THIS RWO	AFTER RWO	PROPOSED LOADING
7133-B#			

COPY TO TROJBLE:
URD ONLY ☒
FDR ONLY ☐
FDR & URD ☐



TRENCH DETAIL
1PN1C
N.T.S.

TWP: 56 RNG: 39 SEC: 11 QTR: NE 1/4

AS-BUILT	AUTH. NO.	NO.	DATE	REVISION
	3726998	8	02/23/10	PULL PRIMARY CABLE TO SVC 13181 SW 200 TER
DR/16/07	1064759	7	05/13/05	(AS-BUILT)PROVIDE U.G FACILITIES TO SVC BLACK CREEK HOMES, LOTS 1-23 9-9500L ST L" ON 30' CONCRETE & PULL PR CBL
	5551-DB-882	6	05/30/01	CHANGED PER AMS, CHANGED PHASE FROM C# TO B# & C# TO A#
	5551-02-882	5	06/16/97	STREET LIGHT JOB
	7079-02-882	1	02/21/95	ORIGINAL

AS-BUILT COPY — Initials / Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature / Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature / Date
All required ground rods have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature / Date

Easement? YES ☐ NO ☒	Survey/Stake? YES ☒ NO ☐	Work with SMO? YES ☐ NO ☒	
Tree Work? YES ☐ NO ☒	Designer/Stake? YES ☐ NO ☒	CT/Special Mtr? YES ☐ NO ☒	
Map Posting? YES ☒ NO ☐	Trench Feet	Duct Bank Feet	
Posted by	Telephone Request? YES ☐ NO ☒	CATV Request? YES ☐ NO ☒	

Reason for Revision					
	CITY	DR. DIST.	COUNTY AIR	STATE RD	FAA
	WMD	RR XING	COUNTY RD X	TRANSM.	

FPL

DESIGNED BY	J. DIAZ
DRAWN BY	T. COLLINS
DATE	02/23/10
MAP NO.	AW-02'0

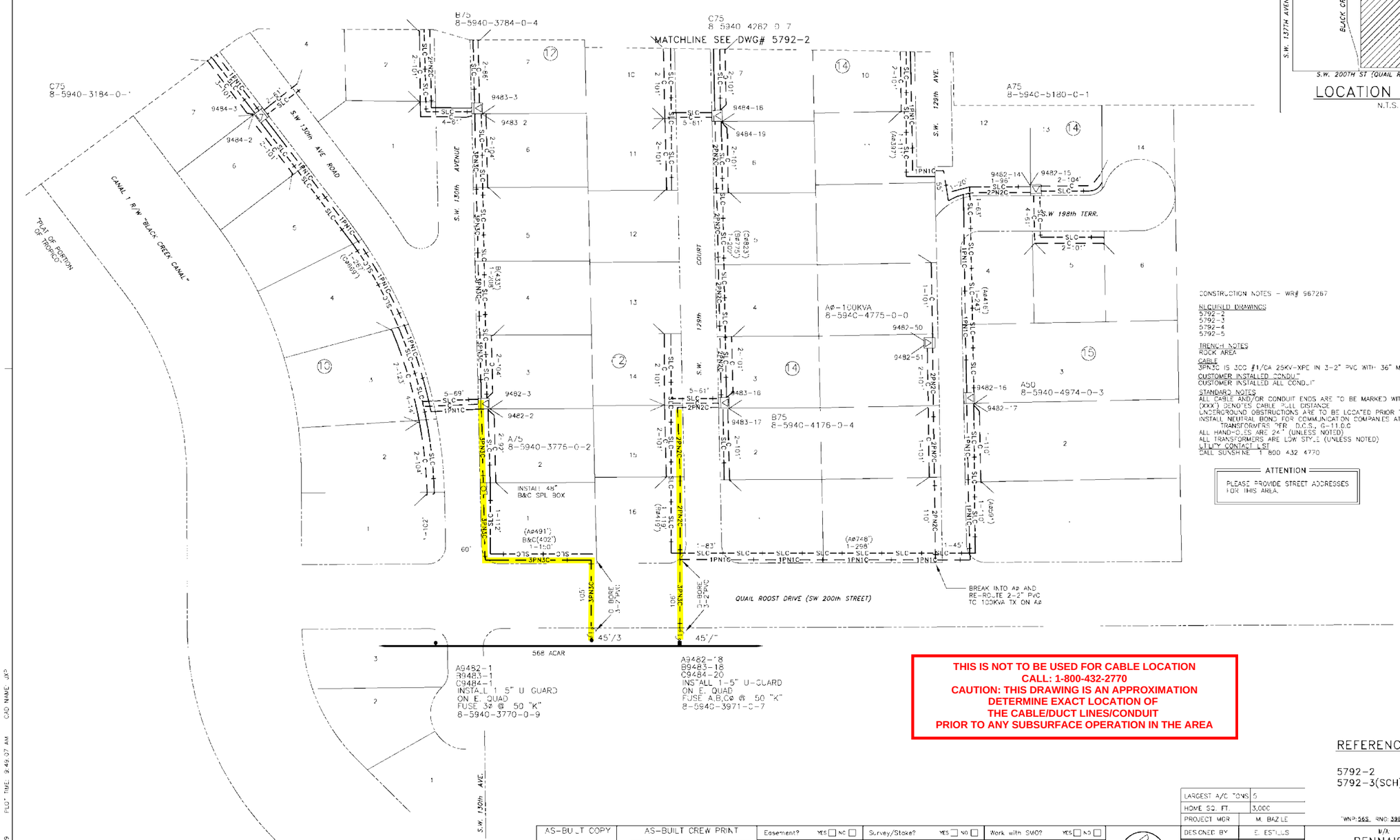
0 25 50 100 FEET

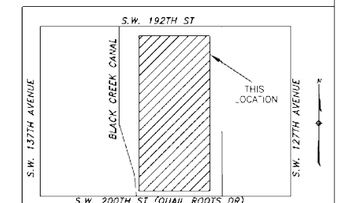
D/A: SD
MED SOUTH
SW 127 AVE & 208 ST
MIAMI-DADE CNTY., FL

DWG NO. 6315-1
WR: 3726998 IWR: 1557 -37 -882

PLOT DATE: 7/28/2010 PLOT TIME: 3:36:45 PM CAD NAME: DXM

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☒ N.J.L





LOCATION SKETCH
N.T.S.

CONSTRUCTION NOTES – WR# 967267

REQUIRED DRAWINGS
5792-2
5792-3
5792-4
5792-5

TRENCH NOTES
ROCK AREA

CABLE
3PN3C IS 3CC #1/CA 25KV-XPE IN 3-2" PVC WITH 36" MIN COVER

CUSTOMER INSTALLED CONDUIT
CUSTOMER INSTALLED ALL CONDUIT

STANDARD NOTES
ALL CABLE AND/OR CONDUIT ENDS ARE TO BE MARKED WITH AN ELECTRONIC MARKER
(XXX') DENOTES CABLE PULL DISTANCE
UNDERGROUND OBSTRUCTIONS ARE TO BE LOCATED PRIOR TO DIGGING
INSTALL NEUTRAL BOND FOR COMMUNICATION COMPANIES AT ALL SINGLE PHASE TRANSFORMERS PER D.C.S., G-11.0.0
ALL HANDHOLES ARE 24" (UNLESS NOTED)
ALL TRANSFORMERS ARE LOW STYLE (UNLESS NOTED)

UTILITY CONTACT LIST
CALL SUNSHINE 1 800 432 4770

ATTENTION
PLEASE PROVIDE STREET ADDRESSES FOR THIS AREA.

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-2770
CAUTION: THIS DRAWING IS AN APPROXIMATION
DETERMINE EXACT LOCATION OF
THE CABLE/DUCT LINES/CONDUIT
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA

REFERENCE DWG's

5792-2
5792-3(SCH)

LARGEST A/C TONS	5
HOME SQ. FT.	3,000
PROJECT MGR	M. BAZLE

TWNP: 56S RNG: 39E SEC: 02 QTR: SE

1483283	1	03/02/05	CU1-IN A2 100KVA PMTX TO SERVICE RENAISSANCE RANCHES
967267	0	07/13/04	INSTALL TXS AND 3-JULL PRIMARY CABLE TO SVC LOOP #'S:A9482-1 THRU A9482-18, B9483-1 THRU B9483-18 AND C9484-1 THRU C9484-18
ASBUILT	AUTH NO.	NO.	DATE REVISION

AS-BUILT COPY — AS-BUILT CREW PRINT
Initials — Cert. Date — Foreman's Signature — Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature — Date
All required ground rods have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature — Date

Easement? YES ☐ NO ☐
Tree Work? YES ☐ NO ☐
Mcp Posting? YES ☒ NO ☐
Posted by

Survey/Stake? YES ☐ NO ☐
Designer/Stake? YES ☐ NO ☐
Trench Feet:
Work with SMO? YES ☐ NO ☐
CT/Special Mtr? YES ☐ NO ☐
Duct Bank Feet

PERMIT REQ'D	CITY	DR. DIST.	COUNTY AIR	STATE RD	FAA
	WMD	RR XING	COUNTY RD.	TRANSM.	

Telephone Request? YES ☐ NO ☐ CATV Request? YES ☐ NO ☐

FPL

DESIGNED BY	E. ESTILLS
DRAWN BY	ERROL MILLER
DATE	07/13/04
MAP NO.	AW-0270

0 30 60 120 FEET

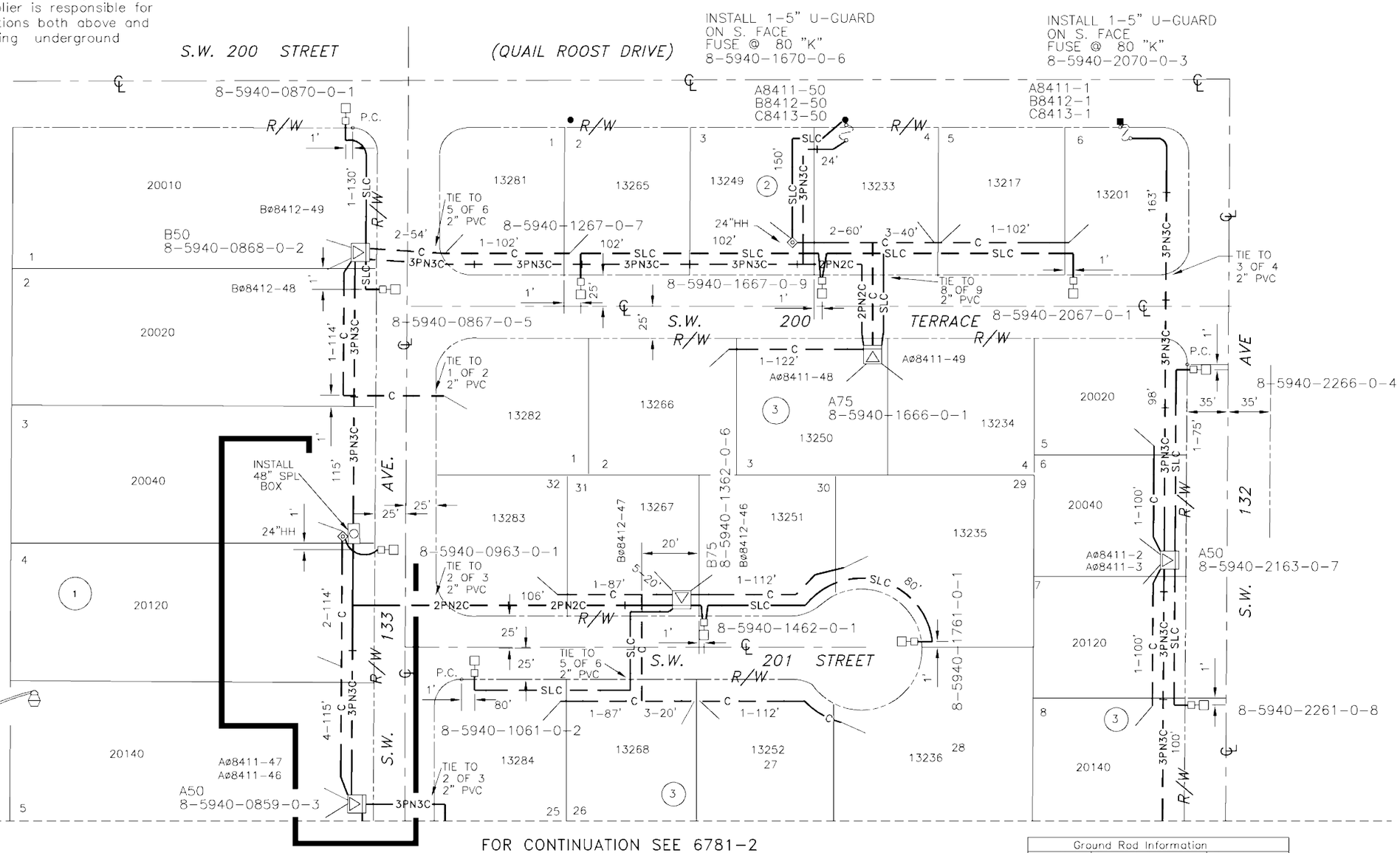
W/A: SD
RENNAISSANCE RANCHES
V/O SW 200TH ST & SW 130TH AVE
MIAMI/MIAMI DADE COUNTY, FLORIDA.

DWG NO. **5792-4**
WR: **967267** IWR **7445-44-882**

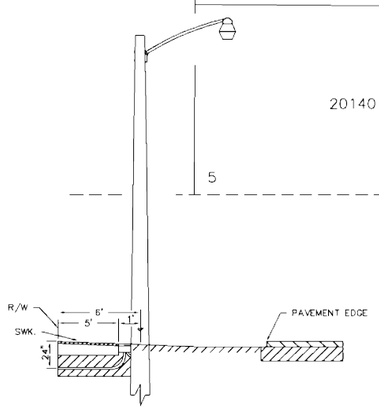
PLOT DATE: 6/9/2009 PLOT TIME: 8:49:07 AM CAD NAME: JKP

The location and existence of any facilities may not be relied upon by the supplier in responding to a bid or in complying with any contract. Supplier is responsible for evaluating site conditions both above and below ground including underground facility locations.

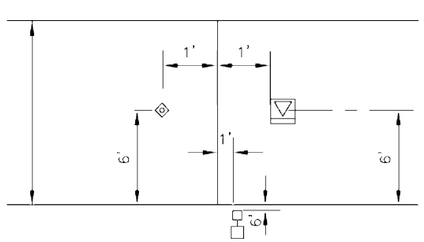
☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL



FOR CONTINUATION SEE 6781-2



TYPICAL U.G. INST.



CONSTRUCTION NOTES – WR# 4424710

REQUIRED DRAWINGS
6781-1
STANDARD NOTES
ALL CABLE AND/OR CONDUIT ENDS ARE TO BE MARKED WITH AN ELECTRONIC MARKER
(XXX') DENOTES CABLE PULL DISTANCE
UNDERGROUND OBSTRUCTIONS ARE TO BE LOCATED PRIOR TO DIGGING
INSTALL NEUTRAL BOND FOR COMMUNICATION COMPANIES AT ALL SINGLE PHASE TRANSFORMERS PER D.C.S., G-11.0.0
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

Ground Rod Information		
Location	Feet of Ground Rod Installed	Resistance (Ohms)

REFERENCE DWG's

6781-2
6781-3(PRI. DIA.)

TWNP: 56 RNG: 39 SEC: 11 QTR: _____

ASBUILT	AUTH. NO.	NO.	DATE	REVISION
	4424710	5	01/17/12	UPDATE PRINT FOR VALENCIA GROVE ESTATES
	8231-07-882	4	04/03/01	CLOSED LOOP
	8079-07-882	0	10/13/00	ORIGINAL DWG.

AS-BUILT COPY — Initials, Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature, Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature, Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature, Date

Easement? YES ☐ NO ☐
Tree Work? YES ☐ NO ☐
Map Posting? YES ☒ NO ☐
Posted by

Survey/Stake? YES ☐ NO ☐
Designer/Stake? YES ☐ NO ☐
Work with SMO? YES ☐ NO ☐
CT/Special Mtr? YES ☐ NO ☐
Trench Feet
Duct Bank Feet

PERMIT REC'D: CITY, DR. DIST., COUNTY AIR, STATE RD, FAA, WMD, RR XING, COUNTY RD., TRANSM.

Telephone Request? YES ☐ NO ☐
CATV Request? YES ☐ NO ☐

FPL

DESIGNED BY	J. DIAZ
DRAWN BY	B. BREEN
DATE	01/17/12
MAP NO.	BB-0211

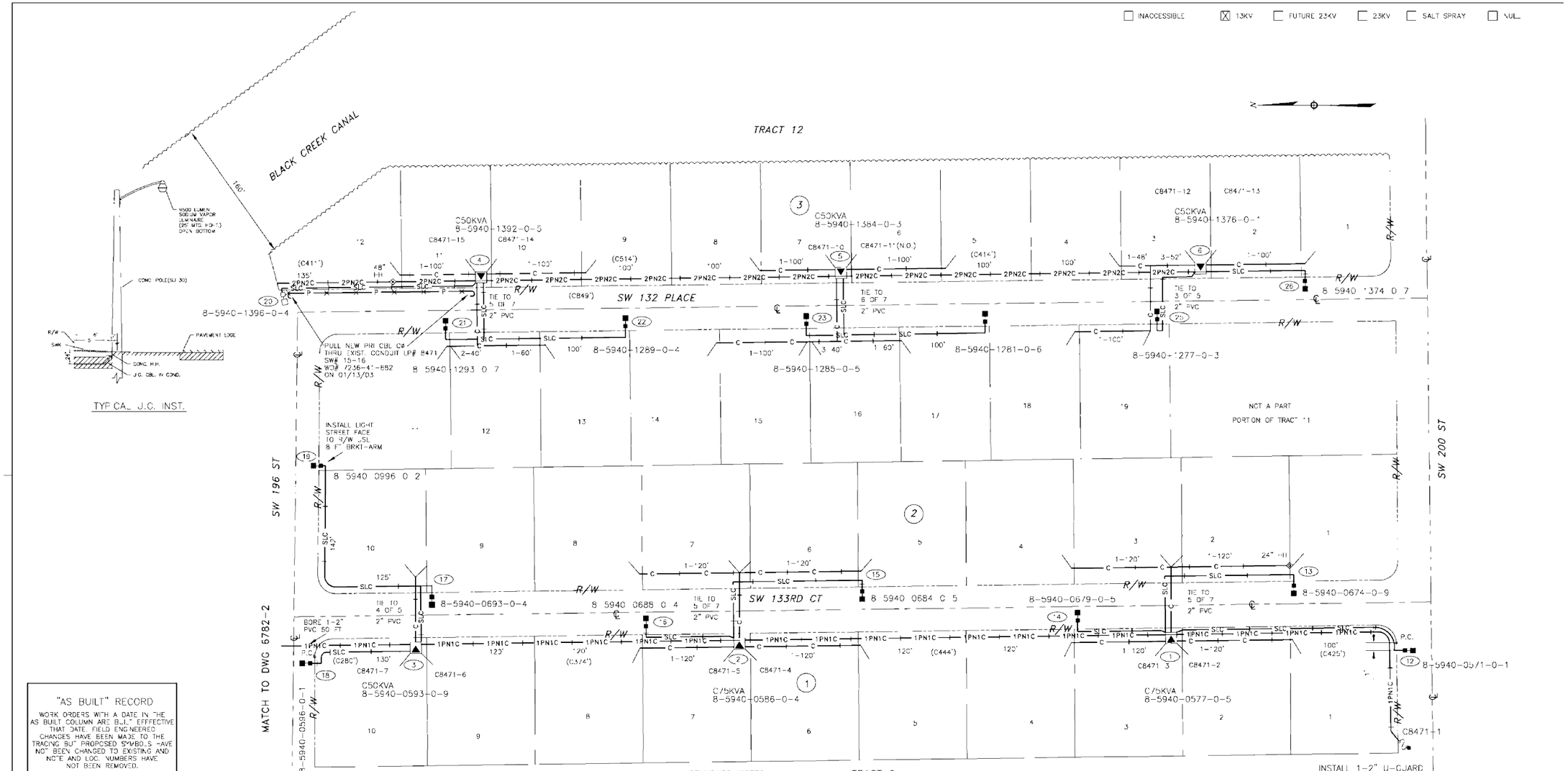
0 30 60 120 FEET

M/A: SD
VALENCIA GROVE ESTATES
V/O SW 133 AVE & 203 ST.
MIAMI-DADE CNTY, FLORIDA

DWG NO. 6781-1
WR: 4424710 IWR: D044-24-710

PLOT DATE: 1/19/2012 PLOT TIME: 12:39:45 PM CAD NAME: RER

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NUL



"AS BUILT" RECORD

WORK ORDERS WITH A DATE IN THE AS BUILT COLUMN ARE BUILT EFFECTIVE THAT DATE. FIELD ENGINEERED CHANGES HAVE BEEN MADE TO THE TRACING BUT PROPOSED SYMBOLS HAVE NOT BEEN CHANGED TO EXISTING AND NOTE AND LOC. NUMBERS HAVE NOT BEEN REMOVED.

COUNTY ROAD PERMIT REQUEST

POLES WITH ANCHORS: 0 (AT THE SAME LOCATION)
POLES: 22 ANCHORS: 0 (NOT INCLUDED ABOVE)
TRENCH FEET: 0
HANDHOLE # WITHOUT TRENCH: 0
UNCLE#:
SEC.: 02 TWP.: 55 RNG.: 39

CONSTRUCTION NOTES – WR# 91143

1) LUMINAIRES: 22-9500 LSV OPEN BOTTOM STREET LIGHTS MOUNTED ON 30' FOOT CONCRETE POLES AT LOC. 12-33. (H-7.0.1. & H-11.1.0 DCS).
2) PULL 2C #6AL 1000V RM/HD (DPX) CABLE FROM TRANSFORMER OR HANDHOLES TO NEW PULLBOXES THRU NEW CONDUIT.
3) INSTALL STREET LIGHT GRID (TLM) TAGS ON ALL STREET LIGHT POLES.
4) FUSE ST. LT. CIRCUITS @ 20 AMPS AT SOURCE (HH OR PULLBOX).
5) GSLO AS-BUILT REQUIRED.

7) ALL LOCATIONS ACCESSIBLE TO TRUCKS
8) REQUIRED DRAWINGS: SDF 6782-1, 2, AND 3(PRI.DIAGRAM)
9) CALL SUNSHINE PRIOR TO DIGGING: 800-432-4770. 48 HOURS PRIOR TO CONSTRUCTION. CALL FOR LOCATION OF OTHER UTILITIES.
10) 1 ACCESS PIT AT EACH LOCATION

STANDARD NOTES

ALL CABLE AND/OR CONDUIT ENDS ARE TO BE MARKED WITH AN ELECTRONIC MARKER

(XXX') DENOTES CABLE PULL DISTANCE

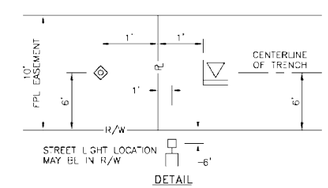
UNDERGROUND OBSTRUCTIONS ARE TO BE LOCATED PRIOR TO DIGGING

INSTALL NEUTRAL BOND FOR COMMUNICATION COMPANIES AT ALL SINGLE PHASE TRANSFORMERS PER E.D.C.S., G-11.0.0
ALL HANDHOLES ARE 24" (UNLESS NOTED)

ALL TRANSFORMERS ARE LOW STYLE (UNLESS NOTED)

EXTEND SERVICE PVC 10 INTO CUSTOMER PROPERTY

UTILITY CONTACT LIST
CALL SUNSHINE 1 800 432 4770



REFERENCE DWG's

6782-2 (CONST.)
6782-3 (PRI. DIA.)

TWNP: 56 RNG: 39 SEC: 02 QTR:

ASBUILT	AUTH. NO.	NO.	DATE	REVISION
	91143	5	01/21/04	UPDATE PER AS-BUILT
04/10/03	6448-40-882	4	06/14/02	ADD 22 ST. LTS.
02-07-02	8135-AR-882	3	03/25/02	CORRECTED SIZE OF TX FROM 75 TO 50KVA AS PER AS-BUILT.
	8135-07-882	2	03/09/01	CORRECT CONST. NOTES ON W.O. 8135-07-882
	8135-07-882	0	10/20/00	ORIGINAL DWG

AS-BUILT COPY — Initials / Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature / Date
Job CERTIFIED COMPLETE as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature / Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature / Date

Easement? YES ☐ NO ☒
Tree Work? YES ☐ NO ☒
Map Posting? YES ☒ NO ☐
Posted by

Survey/Stake? YES ☒ NO ☐
Designer/Stake? YES ☒ NO ☒
Work with SMO? YES ☐ NO ☒
CT/Special Mtr? YES ☐ NO ☒
Trench Feet
Duct Bank Feet

PERMIT REQUIRED	CITY	CR. DIST.	COUNTY AIR	STATE RD	FAA
	WWD	RR XING	COUNTY RD.	TRANSM.	

Telephone Request? YES ☐ NO ☒ CATV Request? YES ☐ NO ☒

FPL

DESIGNED BY LUIS GONZALEZ
DRAWN BY DALE JORDAN
DATE 01/21/04
MAP NO. L220
0 25 50 100 FEET

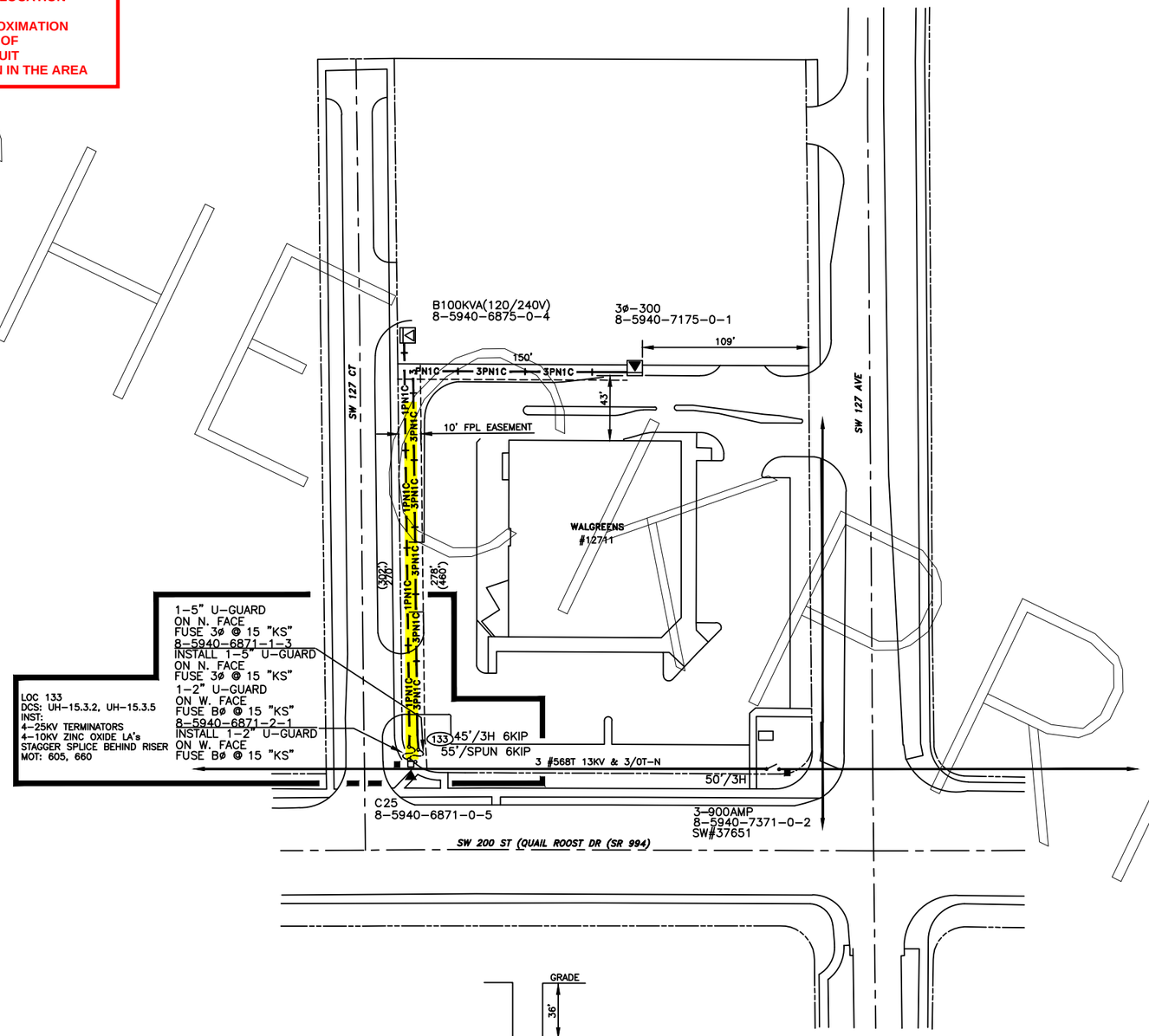
M/A SD
BLACK CREEK ESTATES
SW 134 AVE &
SW 192 ST
MIAMI DADE, FL

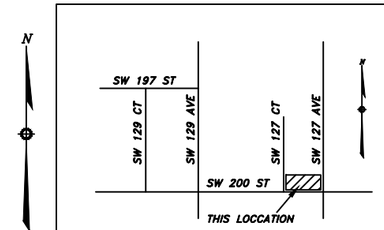
DWG NO. 6782-
WR: 91143 WR: 6448-40-882

PLOT DATE: 1/23/2004 PLOT TIME: 3:34:30 PM CAD NAME: DAJ000T

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-2770
CAUTION: THIS DRAWING IS AN APPROXIMATION
DETERMINE EXACT LOCATION OF
THE CABLE/DUCT LINES/CONDUIT
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA





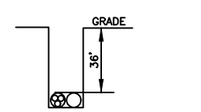
LOCATION SKETCH
N.T.S.

The location and existence of any facilities may not be relied upon by the supplier in responding to a bid or in complying with any contract. Supplier is responsible for evaluating site conditions both above and below ground including underground facility locations.

CONSTRUCTION NOTES – WR# 10767272
REQUIRED DRAWINGS
FOR NOTES AND REQUIRED DRAWINGS SEE DRAWING 7018-1
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

Ground Rod Information		
Location	Feet of Ground Rod Installed	Resistance (Ohms)

CHECK PRINT	DATE: 09/13/21	
JOB NO.: 10767272		NO: 1
CADTECH: F. RUDDER		
AT THE TRS/CSE OFFICE	PH:	
ROUTE TO	INITIAL	DATE
1		
2 R. SERPA		
NUM/SIZE OF FINAL PRINTS	B- D-	E-
SEND JOBPRINTS TO:		



2-5" PVC D.B. DUCT PROVIDED BY FPL
TO BE INSTALLED BY CUSTOMER
PULL 3-CC 1/0A-25KV IN 1 OF 2 DUCTS

TRENCH DETAIL
N.T.S.

REFERENCE DWG's

CHECK PRINT

ASBUILT	AUTH NO.	NO.	DATE	REVISION
	10767272	2	09/13/21	POLE HARDENING PROJECT
	7433019	1	04/08/19	
02/11/09	3323705	0	12/12/08	PULL PRIMARY CABLE & INSTALL 3 PHASE 300 KVA PMTX FOR SVC TO 12711 SW 200 ST

PLOT DATE: 9/14/2021 PLOT TIME: 8:46:10 AM CAD NAME: FXR

AS-BUILT COPY — Initials — Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature — Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature — Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature — Date

Easement? YES ☐ NO ☐
Tree Work? YES ☐ NO ☐
Map Posting? YES ☐ NO ☐
Posted by

Survey/Stake? YES ☐ NO ☐
Designer/Stake? YES ☐ NO ☐
Trench Feet
Work with SMO? YES ☐ NO ☐
CT/Special Mtr? YES ☐ NO ☐
Duct Bank Feet
PERMIT REQD: CITY | DR. DIST. | COUNTY AIR | STATE RD | FAA | WMD | RR XING | COUNTY RD. | TRANSM.
Telephone Request? YES ☐ NO ☐
CATV Request? YES ☐ NO ☐

FPL

DESIGNED BY	R. SERPA
DRAWN BY	F. RUDDER
DATE	09/13/21
MAP NO.	BB-0211

0 20 40 80 FEET

TWNP: 56 RNG: 39 SEC: 02 QTR:

M/A: SD
WALGREENS
12711 SW 200 ST
NARANJA/MIAMI-DADE COUNTY, FL

DWG NO. 8648-1
WR: 10767272 IWR: D107 -67 -272

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL

The location and existence of any facilities may not be relied upon by the supplier in responding to a bid or in complying with any contract. Supplier is responsible for evaluating site conditions both above and below ground including underground facility locations.

ATTENTION

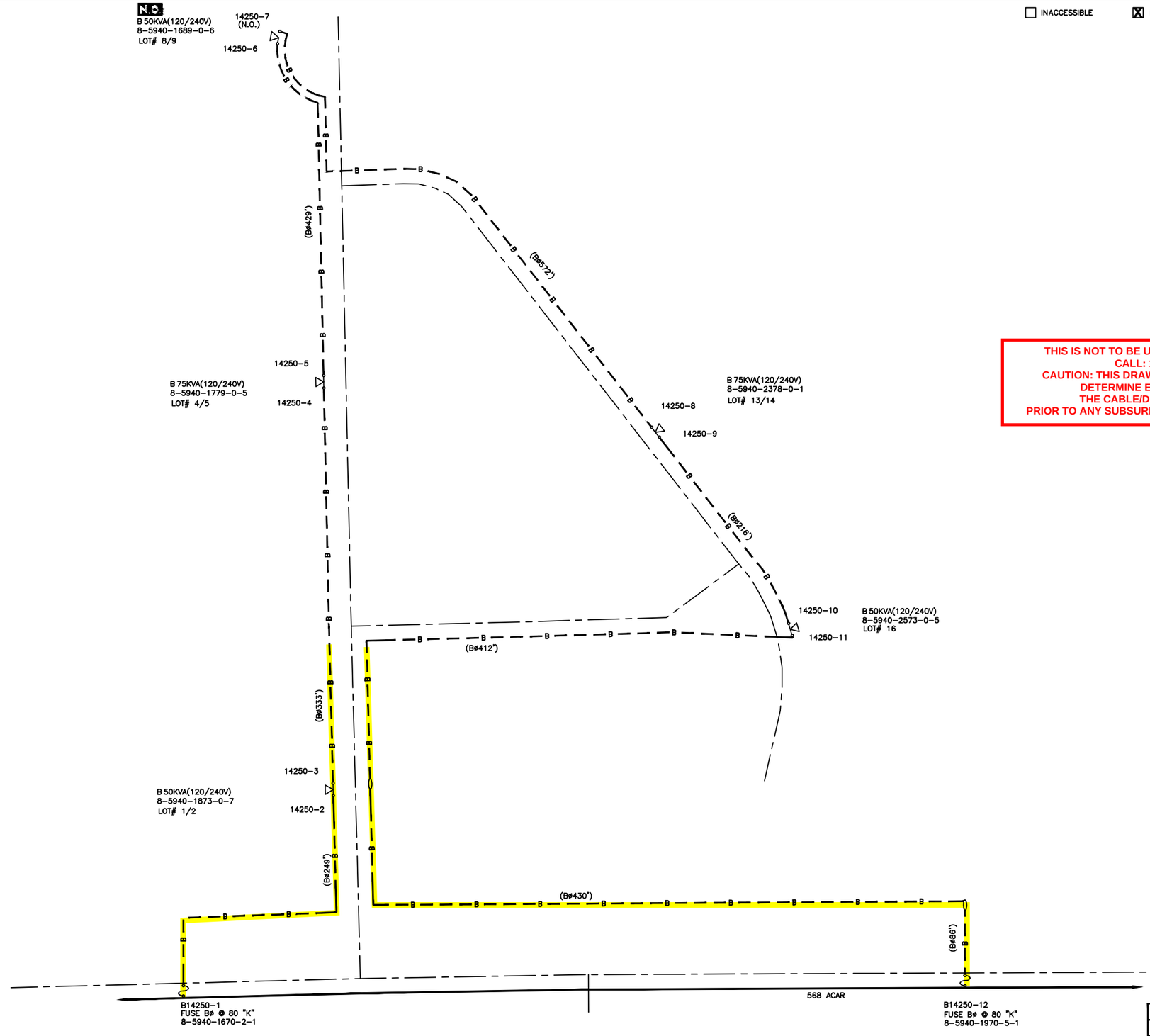
PLEASE PROVIDE STREET ADDRESSES FOR THIS AREA.

CONSTRUCTION NOTES – WR# 8379378

REQUIRED DRAWINGS
10242-1
8379378_18X24 UG.XML

UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

N



THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-2770
CAUTION: THIS DRAWING IS AN APPROXIMATION
DETERMINE EXACT LOCATION OF
THE CABLE/DUCT LINES/CONDUIT
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA

REFERENCE DWG's

8379378_18X24 UG.XML

ASBUILT	AUTH NO.	NO.	DATE	REVISION
	8379378	0	11/21/18	INST UG FACILITIES TO PROVIDE SVC TO 24 LOTS @ WILLOW TRACE

AS-BUILT COPY — Initials — Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature — Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature — Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature — Date

Easement? YES ☒ NO ☐
Tree Work? YES ☐ NO ☐
Map Posting? YES ☒ NO ☐
Posted by

Survey/Stake? YES ☐ NO ☐
Designer/Stake? YES ☐ NO ☐
Trench Feet
Work with SMO? YES ☐ NO ☐
CT/Special Mtr? YES ☐ NO ☐
Duct Bank Feet

PERMIT REQ'D: CITY, DR. DIST., COUNTY AIR, STATE RD, FAA; WMD, RR XING, COUNTY RD., TRANSM.

Telephone Request? YES ☐ NO ☐ CATV Request? YES ☐ NO ☐

FPL

LARGEST A/C TONS	5
HOME SQ. FT.	2986
PROJECT MGR	A. LOPEZ
DESIGNED BY	R. CAMPOS
DRAWN BY	B. BREEN
DATE	11/21/18
MAP NO.	BB-0211

0 N.T.S. FEET

TWNP: 56 RNG: 39 SEC: 02 QTR: _____

M/A: SD
WILLOW TRACE

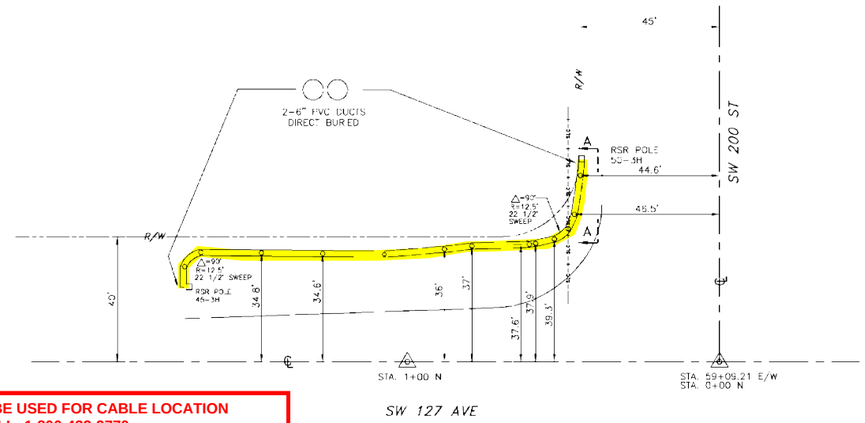
ST HWY 994 & SW 132 CT
MIAMI-DADE CNTY, FL

DWG NO. 10242-1
WR: 8379378 IWR: D083-79-378

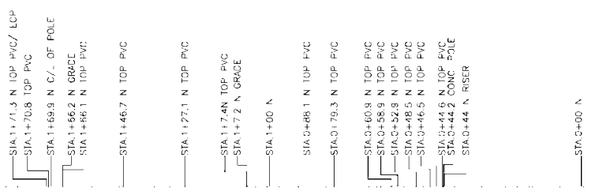
PLOT DATE: 11/29/2018 PLOT TIME: 11:54:50 AM CAD NAME: MXR

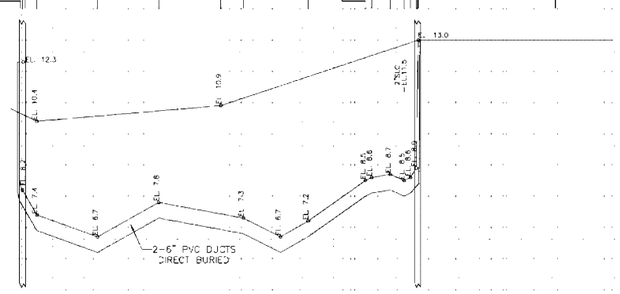
SURVEY AS-BUILT INFO:
DATE: 10/14/05
JOB#: 1345639
FB#: 56
PG#: 11-13

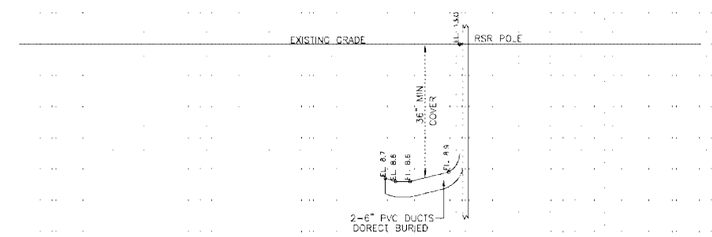
☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL



THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-2770
CAUTION: THIS DRAWING IS AN APPROXIMATION
DETERMINE EXACT LOCATION OF
THE CABLE/DUCT LINES/CONDUIT
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA







LOOKING NORTH
SECTION A-A

REFERENCE DWG's

10/14/05	1345639	1	01/27/06	AS-BUILT
	1345639	0	03/14/05	INSTALL 2-6" PVC DUCTS FOR FEEDER TIE
AS-BUILT	AUTH NO.	NO.	DATE	REVISION

AS-BUILT COPY — AS-BUILT CREW PRINT
Initials Cert. Date — Foreman's Signature — Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature — Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown of all locations.
Foreman's Signature — Date

Easement? YES ☐ NO ☒
Tree Work? YES ☐ NO ☒
Map Posting? YES ☒ NO ☐
Posted by

Survey/Stake? YES ☐ NO ☒
Designer/Stake? YES ☐ NO ☒
Work with SMC? YES ☐ NO ☒
CT/Special Mtr? YES ☐ NO ☒

Trench Feet				Duct Bank Feet	
CITY	DR. DIST.	COUNTY AIR		STATE RD	FAA
WMD	RR XING	COUNTY RD.		TRANSM.	

Telephone Request? YES ☐ NO ☒ CATV Request? YES ☐ NO ☒

FPL

DESIGNED BY	R. CUZA
DRAWN BY	R. TARAFA
DATE	01/27/06
MAP NO.	K220

HORIZ. 0 10 20 40 — VERT. 0 1.0 2.0 4.0

TWP: 56 RNG: 39 SEC: 02 QTR:
W/A: SD
MIAMI UNDERGROUND SYSTEM
V/O NE CORNET OF SW 127 AVE & 200 ST
MIAMI-DADE, FLORIDA

DWG NO. **MEPP3810**
WR: **1345639** IWR: **6830-46-882**

PLOT DATE: 5/31/2006 PLOT TIME: 2:40:45 PM CAD NAME: MXM

Call before you dig! 1-800-432-4770

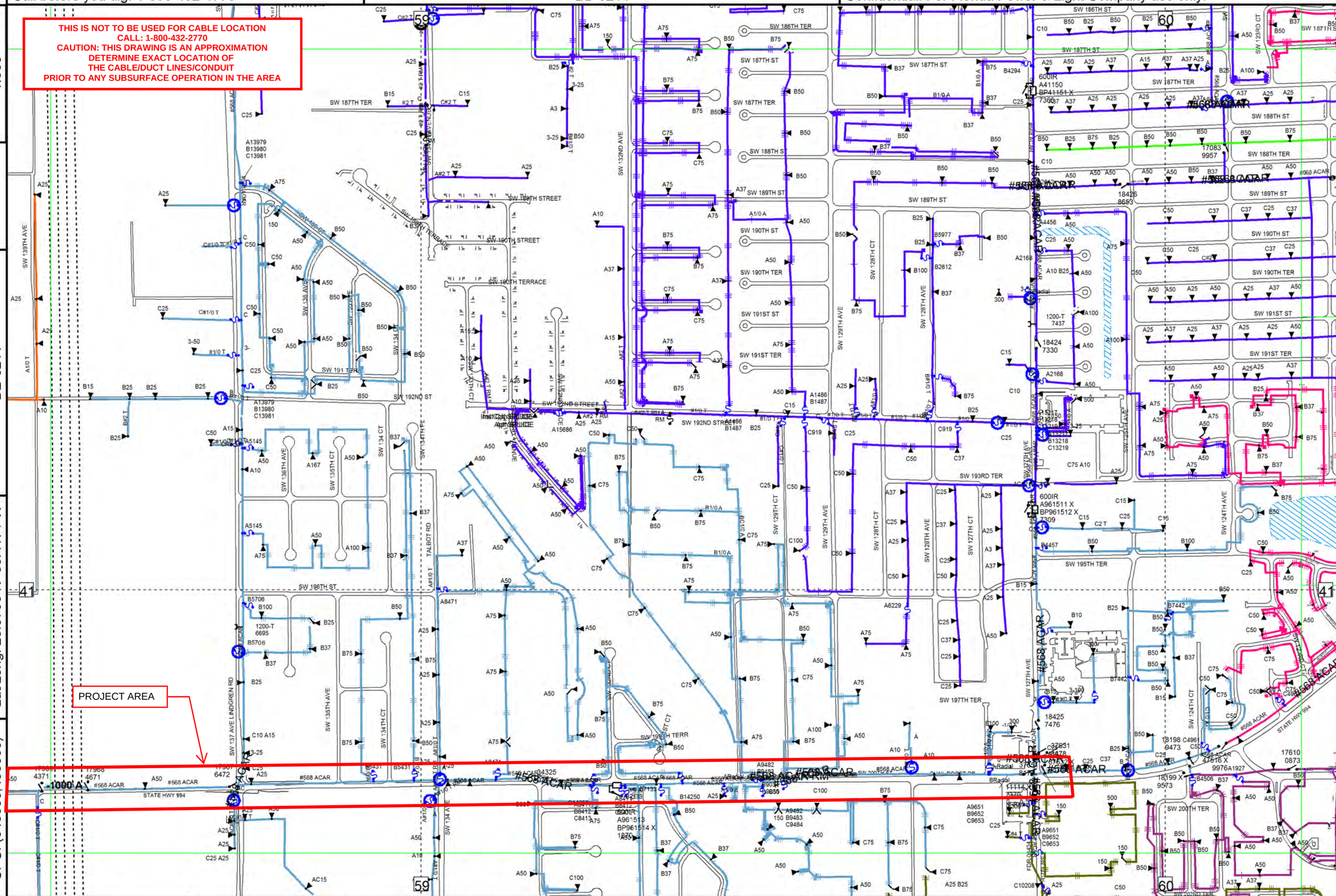
BB-0214

Confidential: For Florida Power & Light Company use only.

1:300

BE-0211

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-2770
CAUTION: THIS DRAWING IS AN APPROXIMATION
DETERMINE EXACT LOCATION OF
THE CABLE/DUCT LINES/CONDUIT
PRIOR TO ANY SUBSURFACE OPERATION IN THE AREA



Lat/Long: 25.5943 N 80.3915 W

SPC: (856700,458700)

AY-0212

Lat/Long: 25.5795 N 80.4171 W

SPC: (848300,453300)

Updated: 01/05/2022

County: Dade | Mgmt Area: South Dade | Svc Ctr: South Dade | BB-0208 | 0' 600' 1200' | Primary Map: BB-0211

MCI/Verizon

Lydia Santiago

From: Matthews, Jason <jason.matthews@verizon.com>
Sent: Tuesday, January 4, 2022 2:37 PM
To: Lydia Santiago
Cc: Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com
Subject: Re: [E] FRIENDLY REMINDER _ RESPONSES DUE _ Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Attachments: No Facilities Notification Letter 445804-1-22-01.docx

Happy New Year Lydia!

I have attached Verizon No Facilities Notification Letter for PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue.

Jason Matthews

Engr IV Spec-Ntwk Eng&Ops
Verizon Business Group

C 954-298-5606
16563 NW 15th Avenue,
Miami, FL 33169

On Tue, Jan 4, 2022 at 12:12 PM Lydia Santiago <lsantiago@mgvera.com> wrote:

> Good morning all,
>
> hope you are all doing well and had a great holiday season - Happy New Year!
>
> This email serves as a friend reminder that your responses are due on January 7, 2023.
>
> ****** FRIENDLY REMINDER *******
>
> Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577

c: 786-444-0768

o: 561-203-2704

f: 305.221.1295

M.G. VERA & ASSOCIATES

1562 Park Lane South
Suite 400

Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Wednesday, December 8, 2021 1:09 PM
To: cm8802@att.com; leonard_maxwell-newbold@comcast.com; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com; Anthony.Kowaleski@verizon.com; frank.dopico@miamidade.gov
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.

To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577

c: 786-444-0768

o: 561-203-2704

f: 305.221.1295

M.G. VERA & ASSOCIATES

1562 Park Lane South
Suite 400

Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

Financial Project Number: 445804-1-22-01
County: Miami-Dade
State Road: 994
Document: Initial Utility Contact
Federal Aid Project Number: N/A
Project Limits: Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description: PD&E Study

Good Afternoon Lydia,

I have received your (01/04/2022) email regarding the above referenced project. After viewing your Project Map/Plans and comparing it to the MCI/Verizon's proposed and existing "as-build's", it has been determined that MCI/Verizon does not have facilities within the scope of your request. Although there are MCI/Verizon facilities in the general area of the Project there are no facilities within the boundaries reflected on your map.

If the Project parameters change beyond those previously submitted to MCI/Verizon, please contact me to discuss the potential new impacts to the MCI/Verizon facilities.

If you have any questions, please contact me at (954) 298-5606.

Thanks,

Jason Matthews

Engr IV Spec-Ntwk Eng&Ops
Verizon Business Group

C 954-298-5606
16563 NW 15th Avenue,
Miami, FL 33169

Jason.matthews@verizon.com

Miami-Dade County
IT Department

Lydia Santiago

From: Dopico, Frank (ITD) <Frank.Dopico@miamidade.gov>
Sent: Monday, December 13, 2021 9:48 AM
To: Lydia Santiago
Subject: RE: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

Dear Lydia,

In regards to:

Financial Project Number: 445804-1-22-01
County: Miami-Dade
State Road: 994
Document: Initial Utility Contact
Federal Aid Project Number: N/A
Project Limits: Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

---

Please note:

Miami-Dade County ITD has no conflict with your project.

Thank you,

Frank L. Dopico
Miami-Dade County - IT Dept. (ITD)
5680 SW 87 Avenue, Suite 213
Miami, FL 33173
Phone: 305-275-7813
Email: Frank.Dopico@miamidade.gov

INFORMATION TECHNOLOGY
WE DO IT TOGETHER

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Wednesday, December 08, 2021 1:09 PM
To: cm8802@att.com; leonard_maxwell-newbold@comcast.com; Danny.Haskett@crowncastle.com; emma.mcaskill@fpl.com; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>; Juan.Haber@verizon.com;

Anthony.Kowaleski@verizon.com; Dopico, Frank (ITD) <Frank.Dopico@miamidade.gov>
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: Initial Contact _ PD&E Study 445804-1-22-01 SR 994/Quail Roost Drive from SW 137th Avenue to SW 127th Avenue

EMAIL RECEIVED FROM EXTERNAL SOURCE

Good afternoon,

ADJUSTMENT OF UTILITIES - FLORIDA STATUTES CHAPTER 337.403

Financial Project Number:	445804-1-22-01
County:	Miami-Dade
State Road:	994
Document:	Initial Utility Contact
Federal Aid Project Number:	N/A
Project Limits:	Quail Roost Drive from SW 137th Avenue to SW 127th Avenue
Project Job Description:	PD&E Study

This email serves to provide **Initial Contact Letter** and **Base Plans, dated 12-8-2021** for the **PD&E Study for SR-994/Quail Roost Drive from SW 137th Ave. to SW 127th Avenue**.
To meet our project milestones, we request you provide your response no later than **January 7, 2023**.

If you have any question and or concerns please contact me to discuss.

Sincerely,

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

Miami-Dade County Water & Sewer Dept. (MD-WASD)

Lydia Santiago

From: Diaz, Manuel (WASD) <Manuel.Diaz2@miamidade.gov>
Sent: Tuesday, January 4, 2022 12:44 PM
To: Lydia Santiago; Chong, Patrick A. (WASD)
Cc: Fernandez, Alina; Sandoval, Ana
Subject: RE: Project#445804-1-22-01.Quail Roost Dr/SW 200 St from SW 137 Ave to SW 127 Ave .MDWASD#2021-FDOT-027

Good afternoon Lydia
Hope you had a holiday season too.
It is a pleasure work with you again.
About your question: Will MD-WASD want to enter into UWHCA/JPA when this becomes a project?
WASD answer: Lydia WASD will take this decision normally base on 60 to 90% set of plan , that will show to us the project scope , in my point of view is to early to take this decision.
Regards,

Manuel Diaz Engineer 2,Planning and Modeling Section
Miami-Dade Water and Sewer Department
786-552-4424

Manuel.Diaz2@miamidade.gov

From: Lydia Santiago <lsantiago@mgvera.com>
Sent: Tuesday, January 4, 2022 12:02 PM
To: Diaz, Manuel (WASD) <Manuel.Diaz2@miamidade.gov>; Chong, Patrick A. (WASD) <Patrick.Chong@miamidade.gov>
Cc: Fernandez, Alina <afernandez@gfnet.com>; Sandoval, Ana <ansandoval@GFNET.com>
Subject: RE: Project#445804-1-22-01.Quail Roost Dr/SW 200 St from SW 137 Ave to SW 127 Ave .MDWASD#2021-FDOT-027

EMAIL RECEIVED FROM EXTERNAL SOURCE

Good morning Manuel and Patrick,

Hope you had a great holiday season, Happy New Year to you both!

Manuel, thanks for providing the water/sewer atlas records for this PD&E study.

Will MD-WASD want to enter into UWHCA/JPA when this becomes a project?

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

---

From: Lydia Santiago
Sent: Wednesday, December 15, 2021 12:26 PM
To: Diaz, Manuel (WASD) <Manuel.Diaz2@miamidade.gov>
Subject: RE: Project#445804-1-22-01.Quail Roost Dr/SW 200 St from SW 137 Ave to SW 127 Ave .MDWASD#2021-FDOT-027

Good afternoon Manuel,

Hope you are doing well!

I am in receipt of water and sewer as-bult and atlas for FPID 445804-1 Quail Roost Drive from SW 137th Avenue to SW 127th Avenue, PD&E Study.

As this is a PD&E study please advise if MD-WASD would be willing to enter into a Joint Participation Agreement (JPA) for the work within project limits.
Specifically, for the 16" DIP Water Main over Black Creek Canal.

Thank you.

Lydia Santiago
Sr. Utility Coordinator
c: 1-786-402-4577
c: 786-444-0768
o: 561-203-2704
f: 305.221.1295

M.G. VERA & ASSOCIATES
1562 Park Lane South
Suite 400
Jupiter, FL 33458
www.mgvera.com

Surveyors | Mappers | Subsurface Utilities | Utility Coordination

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From: Diaz, Manuel (WASD) <Manuel.Diaz2@miamidade.gov>
Sent: Wednesday, December 15, 2021 11:57 AM
To: Lydia Santiago <lsantiago@mgvera.com>
Subject: Project#445804-1-22-01.Quail Roost Dr/SW 200 St from SW 137 Ave to SW 127 Ave .MDWASD#2021-FDOT-027

Good morning Ms. Lydia
Hoping this email finds all of you safe and healthy
The Miami Dade WASD Utility pertinent to the project mentioned above was sent to you via E-Builder today (12/15/2021). Attach to this email as well.

- Please confirm with a regular Email a receipt of this information through E- Builder.

Thank you
Regards and stay safe,

Manuel Diaz Engineer 2,Planning and Modeling Section
Miami-Dade Water and Sewer Department
786-552-4424

Manuel.Diaz2@miamidade.gov

Lydia Santiago

From: Diaz, Manuel (WASD) <Manuel.Diaz2@miamidade.gov>
Sent: Wednesday, December 15, 2021 11:57 AM
To: Lydia Santiago
Subject: Project#445804-1-22-01.Quail Roost Dr/SW 200 St from SW 137 Ave to SW 127 Ave .MDWASD#2021-FDOT-027
Attachments: SEWER ASBUILT AND ATLAS.zip; WATER ASBUILT AND ATLAS.zip

Good morning Ms. Lydia
Hoping this email finds all of you safe and healthy
The Miami Dade WASD Utility pertinent to the project mentioned above was sent to you via E-Builder today (12/15/2021). Attach to this email as well.

- Please confirm with a regular Email a receipt of this information through E- Builder.

Thank you
Regards and stay safe,

Manuel Diaz Engineer 2,Planning and Modeling Section
Miami-Dade Water and Sewer Department
786-552-4424

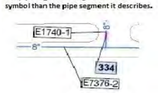
Manuel.Diaz2@miamidade.gov

MD-WASD
WATER

Water Service Area

Water Donations and Capital Projects

AsBuilts are displayed using unique colors and single label boxes per contiguous pipe segment. They are displayed underneath the pipe segment using a thicker line symbol than the pipe segment it describes.



Miami-Dade
Water and Sewer Department

Atlas - U27-B

S-11 T-56 R-39

A	B
C	D

Legend

- Access Manhole
- Air Release Valve
- Check Valve
- Manual Control Valve
- Flushing Valve
- Auto Control Valve
- Sludge Valve
- Service Valve
- Raw Water Valve
- Backflow Preventor
- Hydrant
- Monitoring Meter
- Production Well
- Pump Station
- Pig Station
- Service Point Connection
- Treatment Plant
- Water Tank
- Wholesale Meter
- Continuation Point
- Cross
- Plug
- Reducer
- Water USGS Monitoring Well
- Water DERM Monitoring Well
- Water Sampling
- Miscellaneous
- Private
- Water Donations
- PCTS Active
- PCTS Completed
- PCTS Future/On Hold
- Aerial Crossing
- Subaqueous Crossing
- Sludge
- Calcium Cabonate
- Distribution
- Fire Service
- Hydrant Lateral
- Raw Water
- Service
- Transmission
- Abandoned
- Miscellaneous
- Casing
- Culvert
- Private
- Blocks
- 1/4 Atlas Grid
- Service Area Boundary
- Municipality
- Bodies Of Water

Service Area

Miami Dade Water and Sewer

SCALE IN FEET

0 125 250

MIAMI-DADE COUNTY

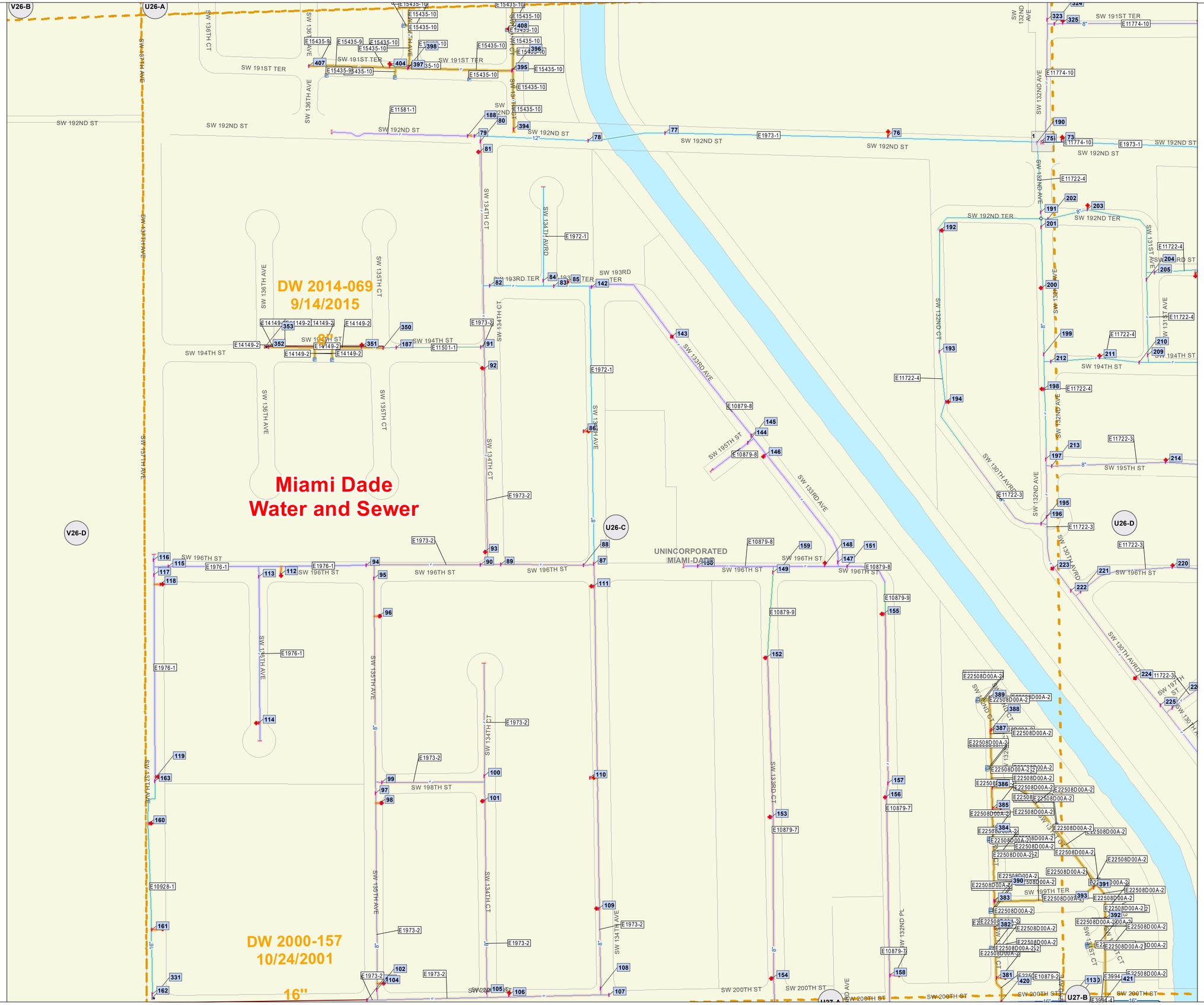
The materials contained herein are provided "AS IS" and may contain inaccuracies. User is warned to utilize the materials herein at User's own risk and to verify the material's accuracy independently and ASSUMES THE RISK OF ANY AND ALL LOSS

Plot Date

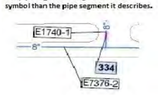
12 Oct 2020

Water Service Area

Water Donations and Capital Projects



Asbuilts are displayed using unique colors and single label boxes per contiguous pipe segment. They are displayed underneath the pipe segment using a thicker line symbol than the pipe segment it describes.



Miami-Dade
Water and Sewer Department

Atlas - U26-C

S-02 T-56 R-39

A	B
C	D

Legend

- Access Manhole
- Air Release Valve
- Check Valve
- Manual Control Valve
- Flushing Valve
- Auto Control Valve
- Sludge Valve
- Service Valve
- Raw Water Valve
- Backflow Preventor
- Hydrant
- Monitoring Meter
- Production Well
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- Subaqueous Crossing
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- Service Area Boundary
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Service Area

Miami Dade Water and Sewer

SCALE IN FEET

0 125 250

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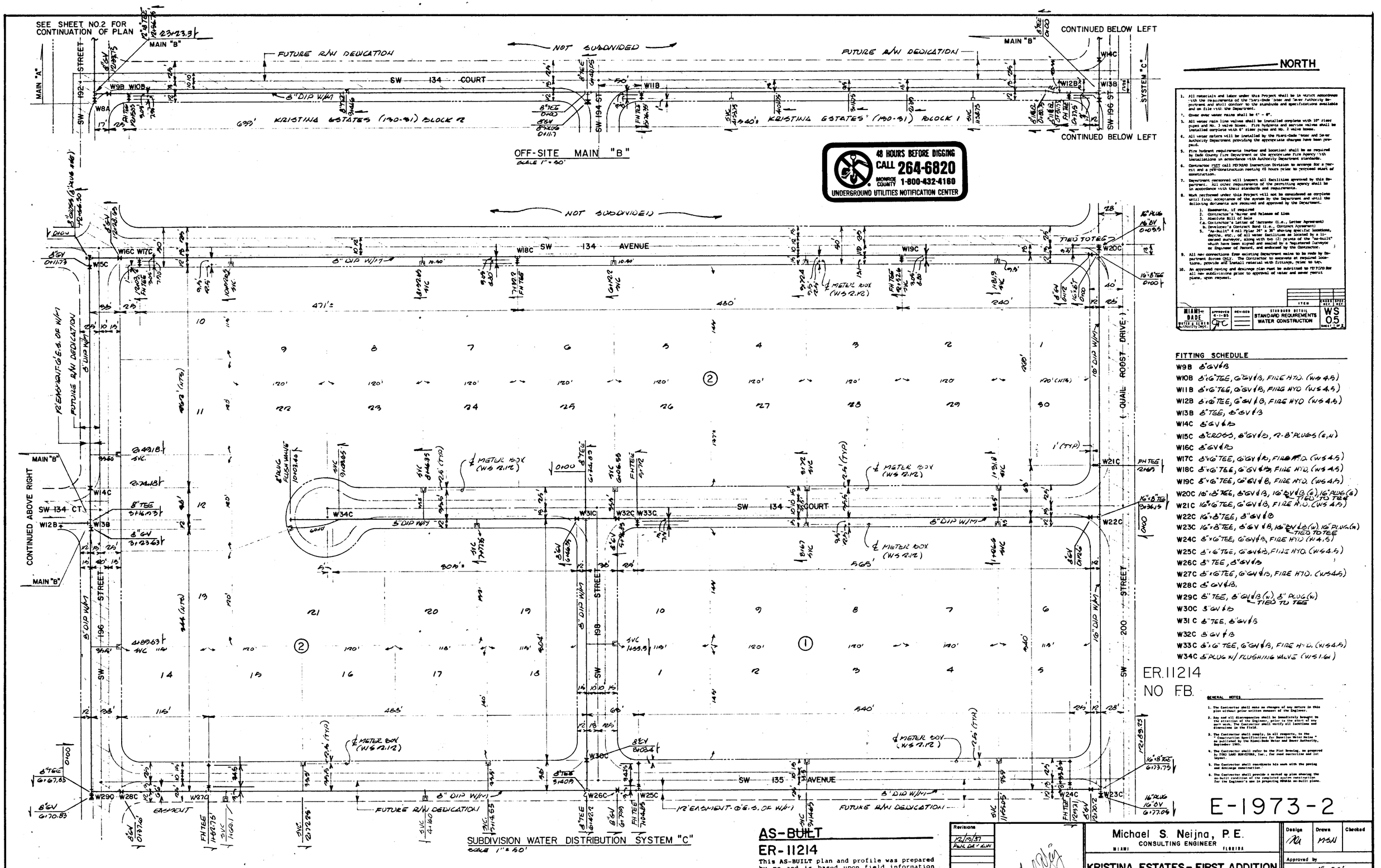
Plot Date
12 Oct 2020



1. All materials and labor under this Project shall be in strict accordance with the requirements of the Miami-Dade Water and Sewer Authority Department and shall conform to the standards and specifications available and on file with the Department.
2. Cover over water mains shall be 4' - 6".
3. All water main line valves shall be installed complete with 10" riser pipes and No. 3 valve boxes. Fire hydrants and service valves shall be installed complete with 6" riser pipes and No. 2 valve boxes.
4. All water meters will be installed by the Miami-Dade Water and Sewer Authority Department providing the appropriate charges have been prepaid.
5. Fire hydrant requirements (number and location) shall be as required by Dade County Fire Department or the appropriate Fire Agency with installations in accordance with Authority Department standards.
6. Contractor MUST call 757-5240 Inspection Division to arrange for a pre-visit and a pre-construction meeting 48 hours prior to proposed start of construction.
7. Department personnel will inspect all facilities approved by this Department. All other requirements of the permitting agency shall be in accordance with their standards and requirements.
8. Work performed under this Project will not be considered as complete until final acceptance of the system by the Department and until the following documents are received and approved by the Department.
   1. Easements, if required
   2. Contractor's Waiver and Release of Lien
   3. Absolute Bill of Sale
   4. a. Contractor's Letter of Warranty (i.e., Letter Agreement)
      b. Developer's Contract Bond (i.e., Contract Agreement)
   5. "As-Built" 4 mil Mylar 24" x 36" showing specific locations, depths, etc., of all water facilities as located by a licensed surveyor, along with two (2) prints of the "as-built" which have been signed and sealed by a Registered Surveyor or Engineer of Record, and endorsed by the Contractor.
9. All new connections from existing Department mains to be made by Department Forces ONLY. The Contractor to excavate at required locations, provide and install material with fittings, relay to lay.
10. An approved paving and drainage plan must be submitted to MDWASD for all new subdivisions prior to approval of water and sewer permit plans, upon request.

MIAMI-DADE WATER & SEWER Authority Dept.	APPROVED 4-1-85	REVISED	STANDARD DETAIL STANDARD REQUIREMENTS WATER CONSTRUCTION	ITEM	GROSS REF.	FINAL REF. WS 0.5 SHEET 1 OF 2

FITTING SCHEDULE

W9B 8"GV&B
W10B 8"x6"TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W11B 8"x6"TEE, 6"GV&B, FIRE HYD (WS 4.5)
W12B 8"x6"TEE, 6"GV&B, FIRE HYD (WS 4.5)
W13B 8"TEE, 8"GV&B
W14C 8"GV&B
W15C 8"CROSS, 8"GV&B, 2-8" PLUGS (6,N)
W16C 8"GV&B
W17C 8"x6"TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W18C 8"x6"TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W19C 8"x6"TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W20C 16"x8"TEE, 8"GV&B, 16"BV&B (E), 16" PLUG (E) TIED TO TEE
W21C 16"x6"TEE, 6"GV&B, FIRE H.D. (WS 4.5)
W22C 16"x8"TEE, 8"GV&B
W23C 16"x8"TEE, 8"GV&B, 16"BV&B (W), 16" PLUG (W) TIED TO TEE
W24C 8"x6"TEE, 6"GV&B, FIRE HYD (WS 4.5)
W25C 8"x6"TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W26C 8" TEE, 8"GV&B
W27C 8"x6"TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W28C 8"GV&B.
W29C 8" TEE, 8"GV&B (W), 8" PLUG (W) TIED TO TEE
W30C 8"GV&B
W31C 8" TEE, 8"GV&B
W32C 8"GV&B
W33C 8"x6" TEE, 6"GV&B, FIRE HYD. (WS 4.5)
W34C 8" PLUG W/ FLUSHING VALVE (WS 1.6)

ER.11214
NO F.B.

GENERAL NOTES

1. The Contractor shall make no changes of any nature in this plan without prior written consent of the Engineer.
2. Any and all discrepancies shall be immediately brought to the attention of the Engineer, prior to the start of any work. The Contractor shall verify all locations and dimensions in the field.
3. The Contractor shall comply, in all respects, to the "Contractor's Specifications For Dade Water Mains - As Outlined by the Miami-Dade Water and Sewer Authority, September 1984.
4. The Contractor shall refer to the Plat Drawing, as prepared by TORO LAND SURVEYORS, Inc., for road centerline and lot layout.
5. The Contractor shall coordinate his work with the paving and drainage construction.
6. The Contractor shall provide a marked up plan showing the as-built condition of the completed system construction for the Engineer's use in preparing MDWASA as-built plans.

E-1973-2

AS-BUILT

ER-11214

This AS-BUILT plan and profile was prepared by me and is based upon field information obtained by Victor L. Mendez, Registered Land Surveyor, and is true and correct to the best of my knowledge and belief.

Michael S. Neijna, P.E.
Florida P.E. # 14229

Revisions
12/9/87
PER DE'LUN

Michael S. Neijna, P.E.
CONSULTING ENGINEER
MIAMI FLORIDA

KRISTINA ESTATES - FIRST ADDITION

WATER DISTRIBUTION SYSTEM

PLAN: SYSTEM "C" - OFF SITE MAIN "B"

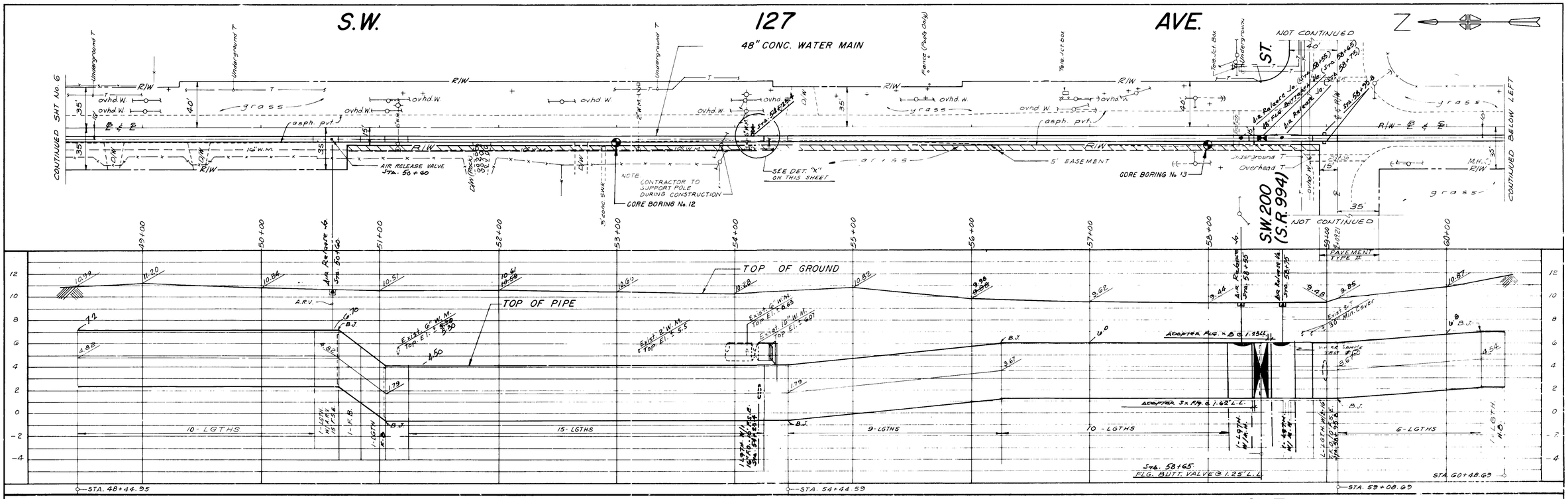
Design	Drawn	Checked
	MSN	

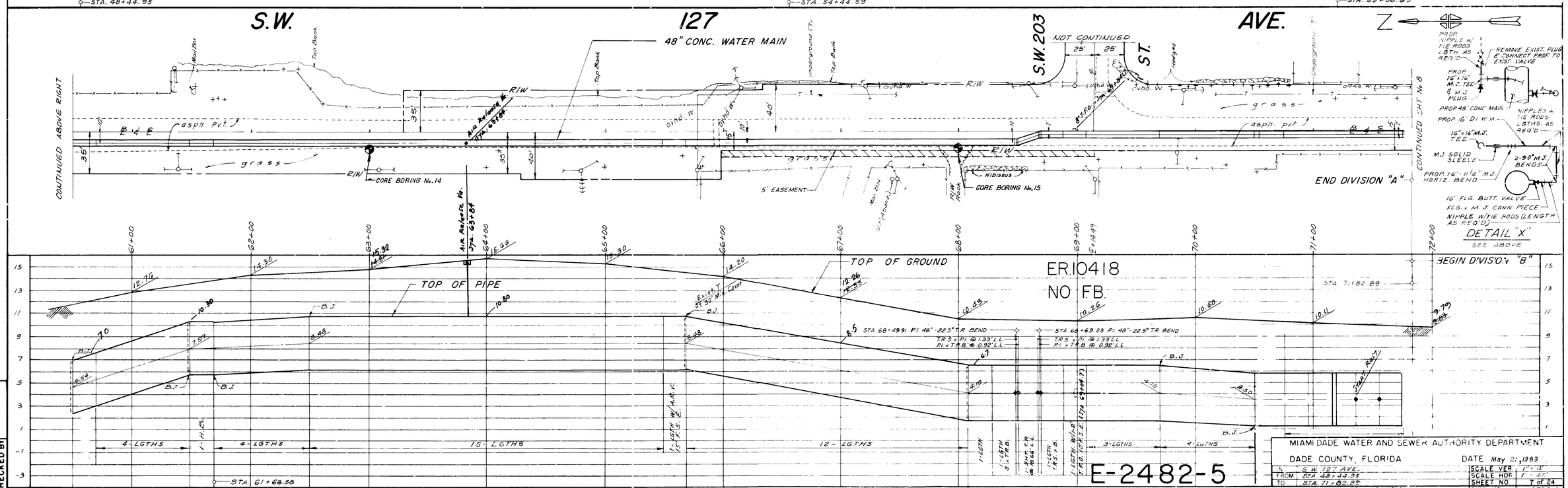
Approved by
Scale: 1" = 50'
Work Order
Date DECEMBER 1987
Sheet Number 1 of 5

T-SQUARE MIAMI B.P.

APPROVED: CHIEF ENGINEER

APPROVED: RESIDENT ENGINEER



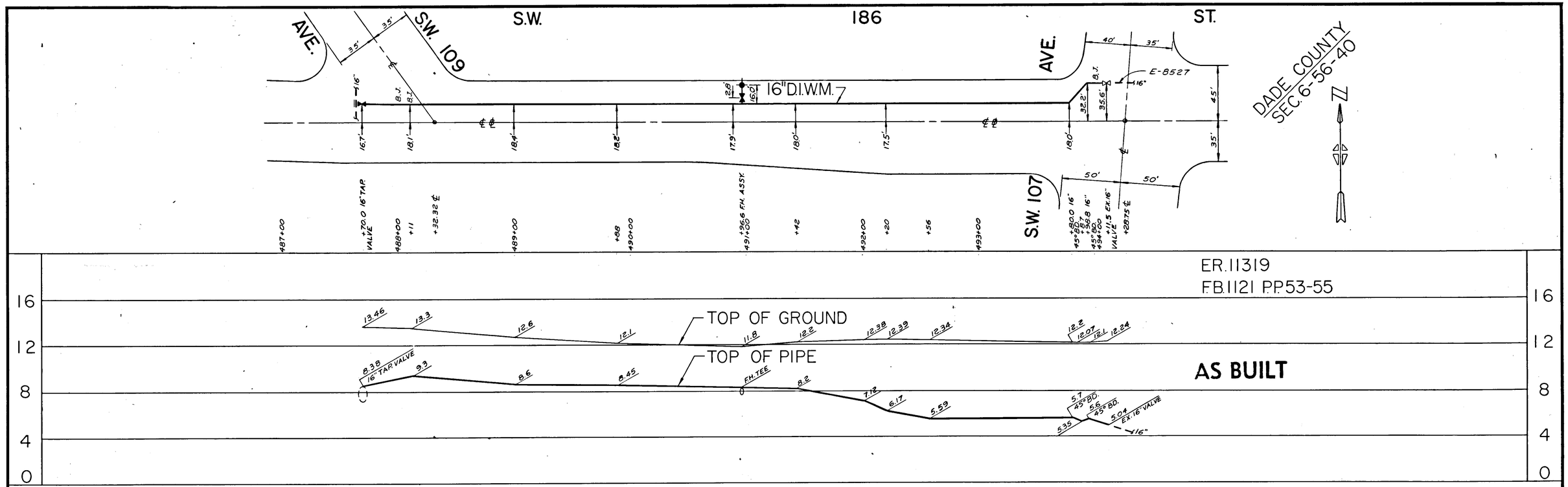


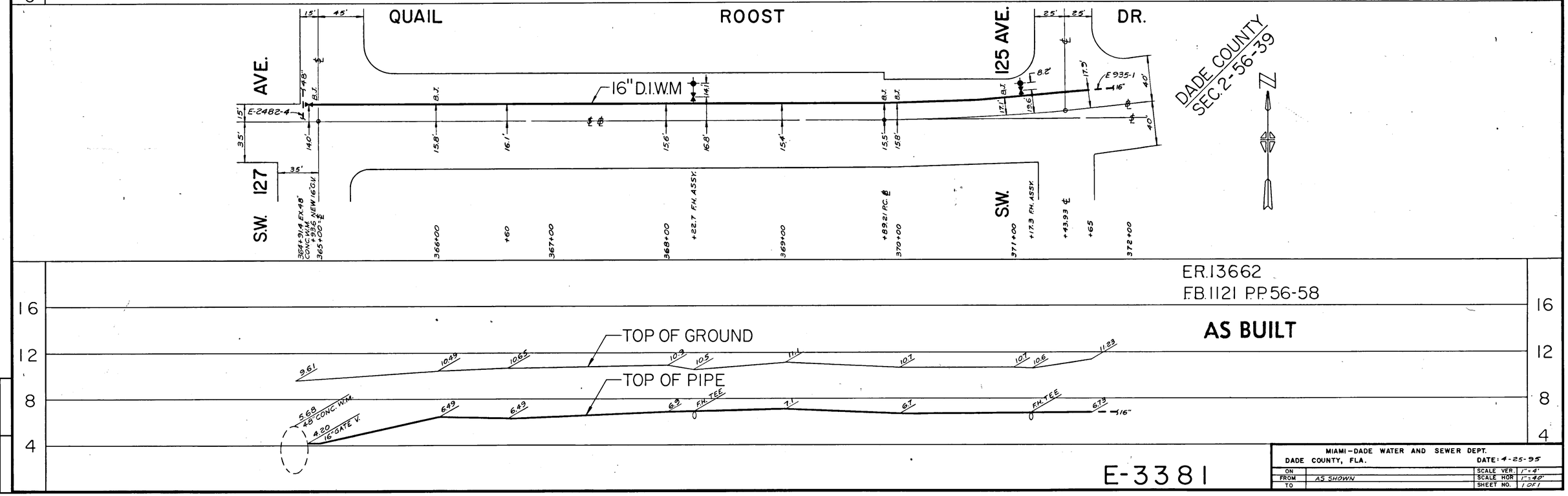
DESIGNED BY	
DRAWN BY	
CHECKED BY	

MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT

DADE COUNTY, FLORIDA — DATE May 21, 1983

N.	S.W. 127 AVE.	SCALE VER.	1" = 4'
FROM	STA. 48+44.95	SCALE HOR.	1" = 20'
TO	STA. 71+82.89	SHEET NO.	7 of 24
CONT. W-592 DIVISION "A"		DWG. NO.	W-9786-A





APPROVED: CHIEF ENGINEER

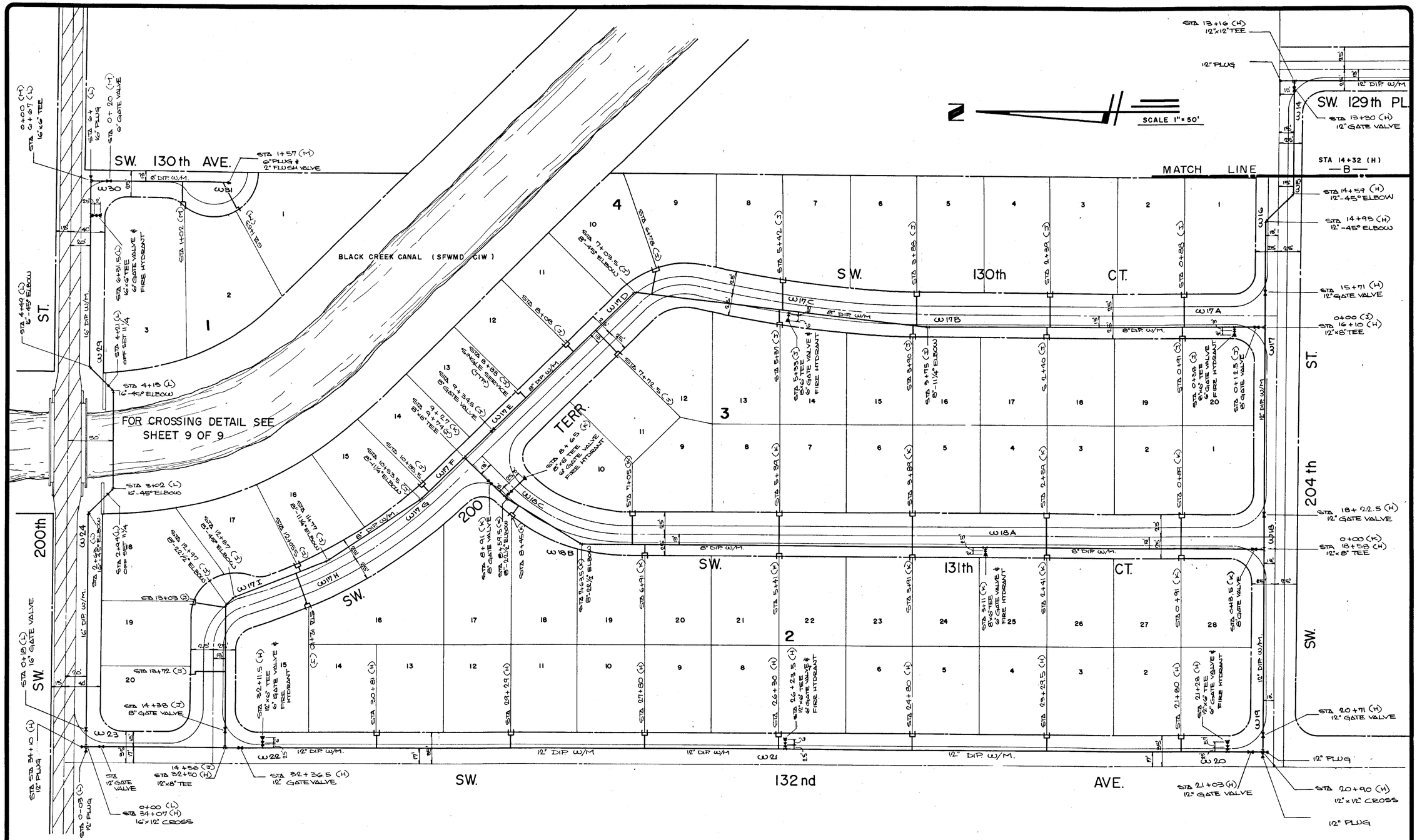
APPROVED: RESIDENT ENGINEER

DRAWN BY	J.G.
CHECKED BY	
CORRECT	

E-3381

MIAMI-DADE WATER AND SEWER DEPT.
DADE COUNTY, FLA.
DATE: 4-25-95

ON		SCALE VER.	1" = 4'
FROM	AS SHOWN	SCALE HOR.	1" = 40'
TO		SHEET NO.	1 OF 1



EDUARDO ENSENAT
Reg. Land Surveyor No. 4613
State of Florida.

REVISIONS	BY

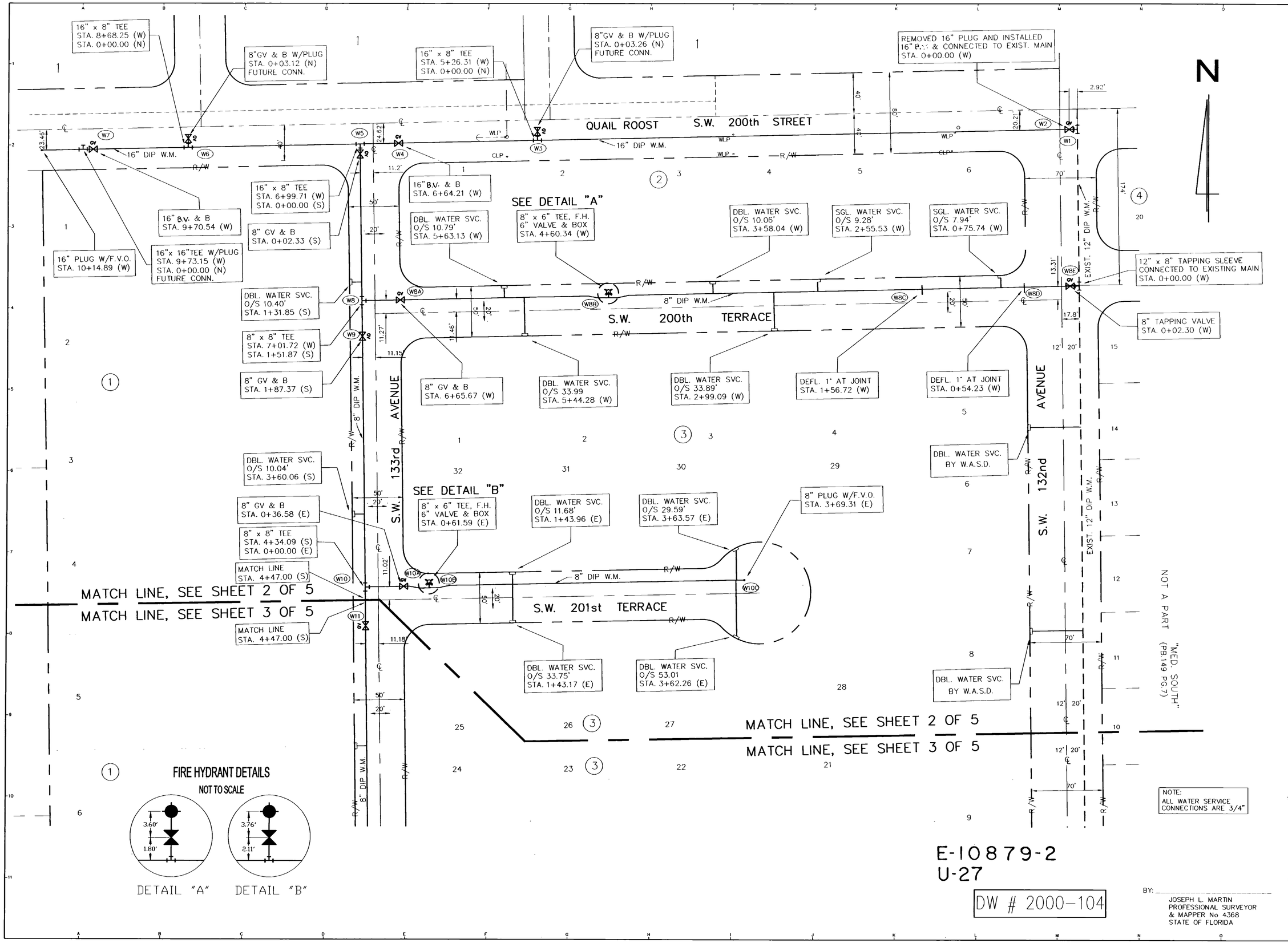
AS BUILT WATER DISTRIBUTION
MED SOUTH SUBDIVISION

ER. No. 14724

DRAWN	J.M.
CHECKED	E.E.
DATE	12/16/96
SCALE	AS SHOWN
JOB NO.	96-413
SHEET	4

OF 9 SHEETS

NATIONAL PRINTRAST NO. 186A - 24x36



BY: _____
JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No 4368
STATE OF FLORIDA

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS
14236 S.W. 136th STREET MIAMI, FLORIDA 33186
PHONE: (305) 232-2340 FAX: (305) 232-5386

No.	DATE:	REVISION	BY:
1	10-23-00	REVISED PER WASA	G.E.B.

VALENCIA GROVE ESTATES PHASE ONE

TYPE OF PROJECT: WATER AS-BUILT
SHEET NAME: PLAN SHEET
CLIENT: POINCIANA DEVELOPMENT COMPANY 2

SCALE:	1"=40'
DRAWN BY:	D.G.
CHECKED BY:	G.E.B.
DATE:	9-10-2000
PROJECT#:	2000-007

2
OF 5

FIRE HYDRANT DETAILS

NOT TO SCALE

DETAIL "A" DETAIL "B" DETAIL "C" DETAIL "E" DETAIL "F" DETAIL "G"

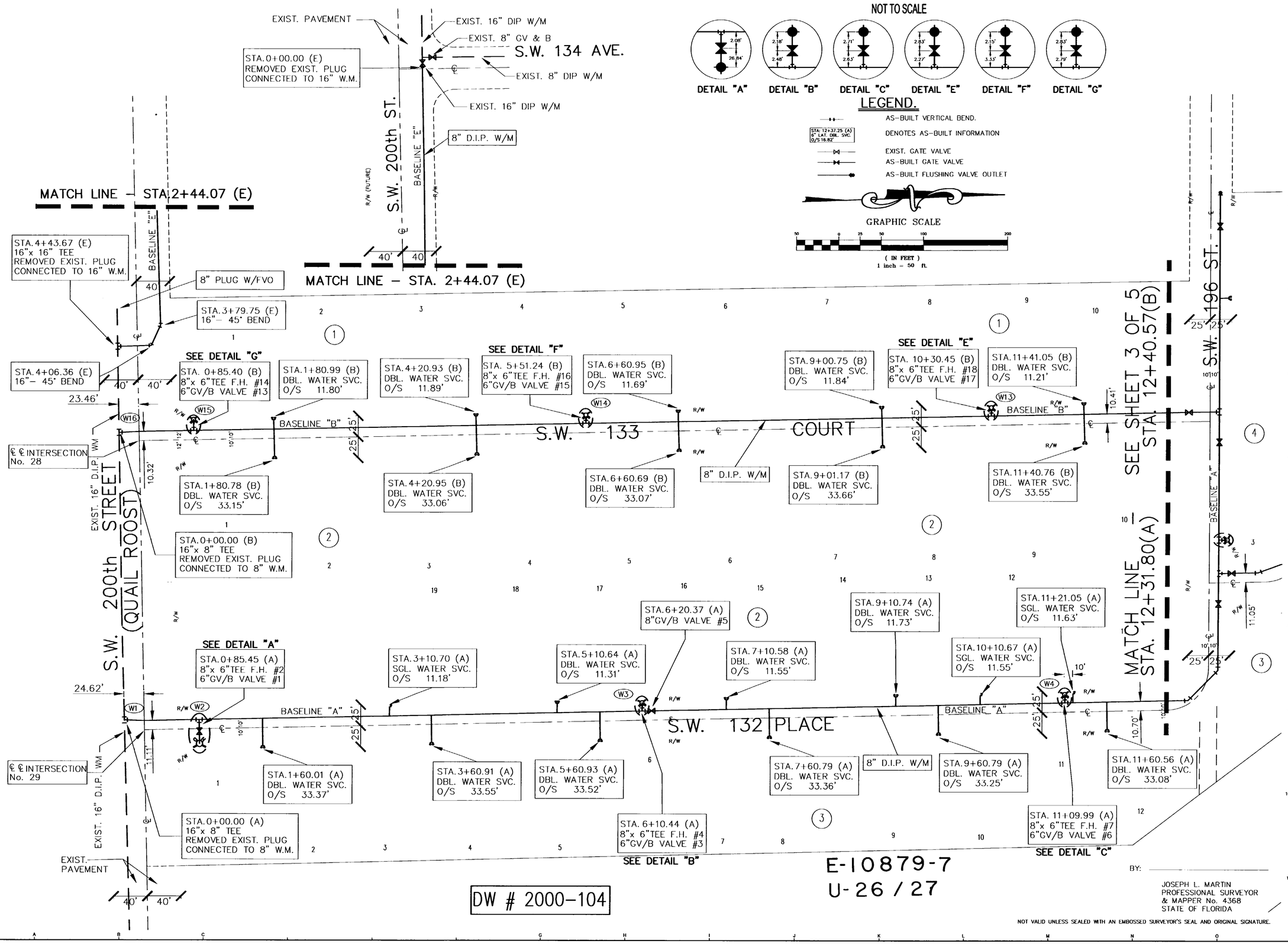
LEGEND.

- AS-BUILT VERTICAL BEND.
- STA: 12+37.25 (A) 6" LAT. DBL. SVC. O/S 16.62' — DENOTES AS-BUILT INFORMATION
- EXIST. GATE VALVE
- AS-BUILT GATE VALVE
- AS-BUILT FLUSHING VALVE OUTLET

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.



E-10879-7
U-26 / 27

DW # 2000-104

BY:

JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No. 4368
STATE OF FLORIDA

NOT VALID UNLESS SEALED WITH AN EMBOSSED SURVEYOR'S SEAL AND ORIGINAL SIGNATURE.

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS – PLANNERS
14236 S.W. 136th STREET MIAMI, FLORIDA 33186
PHONE: (305) 232-2340 FAX: (305) 232-5386

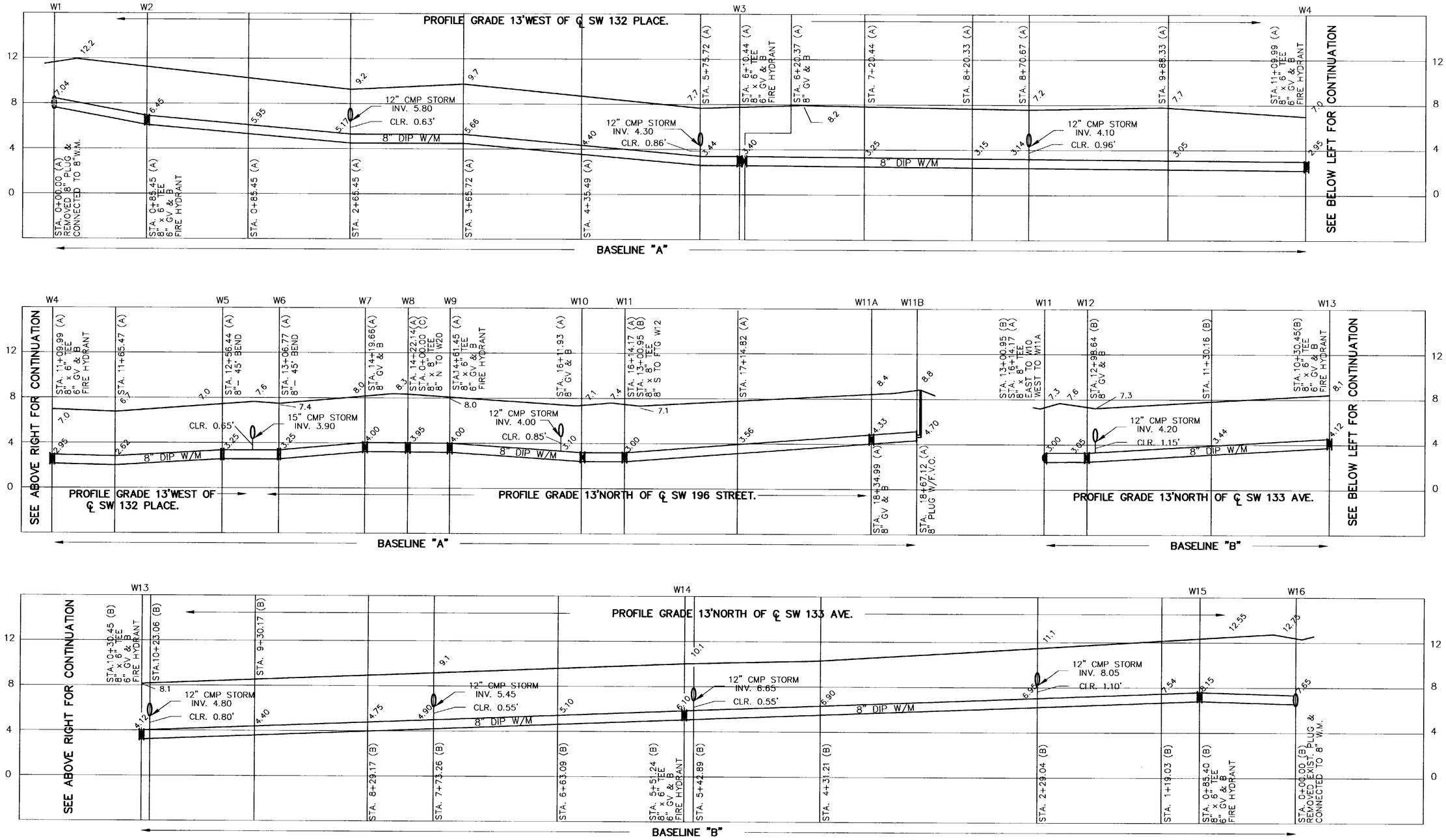
No.	DATE:	REVISION	BY:
1.	02/23/01	REVISED PER COMMENTS FROM REVIEW BY M.D.W.A.S.D.	C.A.D.

VALENCIA GROVE ESTATES PHSE TWO
(A.K.A. BLACK CREEK ESTATES)

TYPE OF PROJECT: WATER AS-BUILT
SHEET NAME: PLAN SHEET
CLIENT: POINCIANA DEVELOPMENT COMPANY, INC

SCALE: 1" = 50'
DRAWN BY: O.G.
CHECKED BY: G.E.B.
DATE: FEBRUARY, 2001
PROJECT#: 2000-008

2
OF 5



E-10879-9
U-26/27

DW # 2000-104

BY: _____
JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No 4368
STATE OF FLORIDA

NOT VALID UNLESS SEALED WITH AN EMBOSSED SURVEYOR'S SEAL AND ORIGINAL SIGNATURE.

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS – PLANNERS
14236 S.W. 136th STREET MIAMI, FLORIDA 33186
PHONE: (305) 232-2340 FAX: (305) 232-5386

No.	DATE:	REVISION	BY:
1.	02/23/01	REVISED PER COMMENTS FROM REVIEW BY M.D.W.A.S.D.	C.A.D.

VALENCIA GROVE ESTATES PHSE TWO
(A.K.A. BLACK CREEK ESTATES)

TYPE OF PROJECT: WATER AS-BUILT
SHEET NAME: PROFILE SHEET
CLENT: POINCIANA DEVELOPMENT COMPANY, INC.

SCALE: H:1"=40' V:1"=4'
DRAWN BY: O.G.
CHECKED BY: G.E.B.
DATE: FEBRUARY, 2001
PROJECT#: 2000-008

4
OF 5

16" x 8" TEE
STA. 8+68.25 (W)
STA. 0+00.00 (N)

8"GV & B W/PLUG
STA. 0+03.12 (N)
FUTURE CONN.

16" x 8" TEE
STA. 5+26.31 (W)
STA. 0+00.00 (N)

8"GV & B W/PLUG
STA. 0+03.26 (N)
FUTURE CONN.

REMOVED 16" PLUG AND INSTALLED
16" B.V. & CONNECTED TO EXIST. MAIN
STA. 0+00.00 (W)

N

QUAIL ROOST S.W. 200th STREET

16" DIP W.M.

16" x 8" TEE
STA. 6+99.71 (W)
STA. 0+00.00 (S)

16" B.V. & B
STA. 6+64.21 (W)

16" B.V. & B
STA. 9+70.54 (W)

8" GV & B
STA. 0+02.33 (S)

16" PLUG W/F.V.O.
STA. 10+14.89 (W)

16"x 16"TEE W/PLUG
STA. 9+73.15 (W)
STA. 0+00.00 (N)
FUTURE CONN.

SEE DETAIL "A"

8" x 6" TEE, F.H.
6" VALVE & BOX
STA. 4+60.34 (W)

DBL. WATER SVC.
O/S 10.79'
STA. 5+63.13 (W)

DBL. WATER SVC.
O/S 10.06'
STA. 3+58.04 (W)

SGL. WATER SVC.
O/S 9.28'
STA. 2+55.53 (W)

SGL. WATER SVC.
O/S 7.94'
STA. 0+75.74 (W)

EXIST. 12" DIP W.M.

12" x 8" TAPPING SLEEVE
CONNECTED TO EXISTING MAIN
STA. 0+00.00 (W)

8" TAPPING VALVE
STA. 0+02.30 (W)

DBL. WATER SVC.
O/S 10.40'
STA. 1+31.85 (S)

8" DIP W.M.

S.W. 200th TERRACE

8" x 8" TEE
STA. 7+01.72 (W)
STA. 1+51.87 (S)

8" GV & B
STA. 1+87.37 (S)

8" GV & B
STA. 6+65.67 (W)

DBL. WATER SVC.
O/S 33.99
STA. 5+44.28 (W)

DBL. WATER SVC.
O/S 33.89'
STA. 2+99.09 (W)

DEFL. 1° AT JOINT
STA. 1+56.72 (W)

DEFL. 1° AT JOINT
STA. 0+54.23 (W)

S.W. 133rd AVENUE

S.W. 132nd AVENUE

DBL. WATER SVC.
O/S 10.04'
STA. 3+60.06 (S)

8" GV & B
STA. 0+36.58 (E)

8" x 8" TEE
STA. 4+34.09 (S)
STA. 0+00.00 (E)

SEE DETAIL "B"

8" x 6" TEE, F.H.
6" VALVE & BOX
STA. 0+61.59 (E)

DBL. WATER SVC.
O/S 11.68'
STA. 1+43.96 (E)

DBL. WATER SVC.
O/S 29.59'
STA. 3+63.57 (E)

8" PLUG W/F.V.O.
STA. 3+69.31 (E)

DBL. WATER SVC.
BY W.A.S.D.

MATCH LINE
STA. 4+47.00 (S)

MATCH LINE, SEE SHEET 2 OF 5
MATCH LINE, SEE SHEET 3 OF 5

S.W. 201st TERRACE

DBL. WATER SVC.
O/S 33.75'
STA. 1+43.17 (E)

DBL. WATER SVC.
O/S 53.01
STA. 3+62.26 (E)

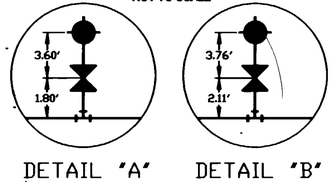
DBL. WATER SVC.
BY W.A.S.D.

NOT A PART "MED. SOUTH" (PB.149 PG.7)

MATCH LINE, SEE SHEET 2 OF 5
MATCH LINE, SEE SHEET 3 OF 5

NOTE:
ALL WATER SERVICE CONNECTIONS ARE 3/4"

FIRE HYDRANT DETAILS
NOT TO SCALE



DETAIL "A" DETAIL "B"

E-10897-2
U-27

DW # 2000-104

BY: _____
JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No 4368
STATE OF FLORIDA

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS
14236 S.W. 136th STREET MIAMI, FLORIDA 33186
PHONE: (305) 232-2340 FAX: (305) 232-5386

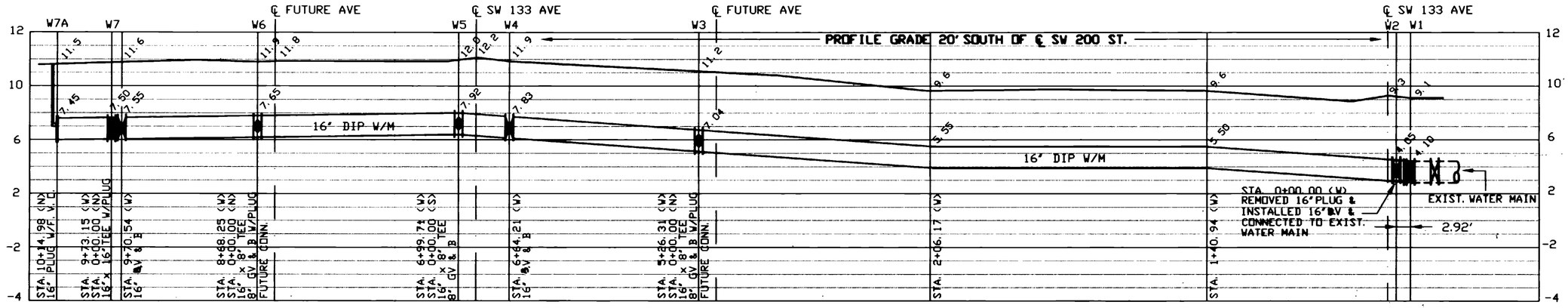
No.	DATE:	REVISION	BY:
1	10-23-00	REVISED PER VASA	G.E.B.

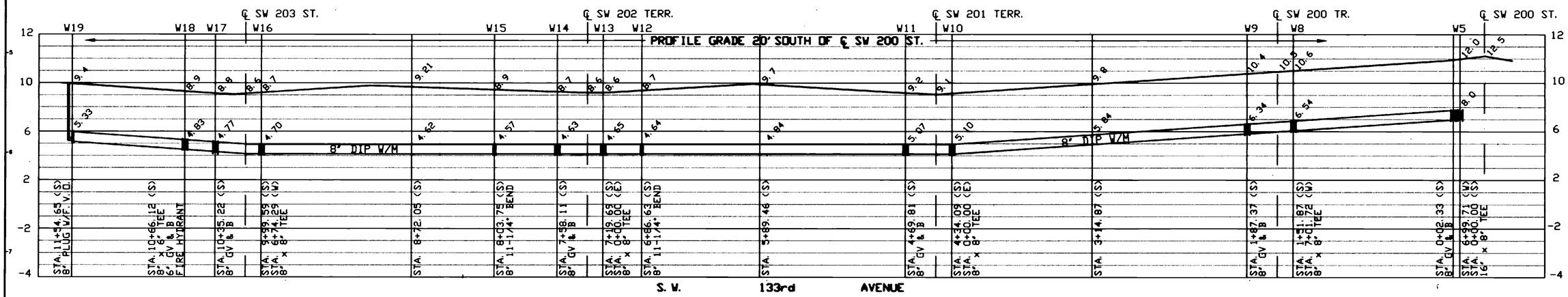
VALENCIA GROVE ESTATES
PHASE ONE

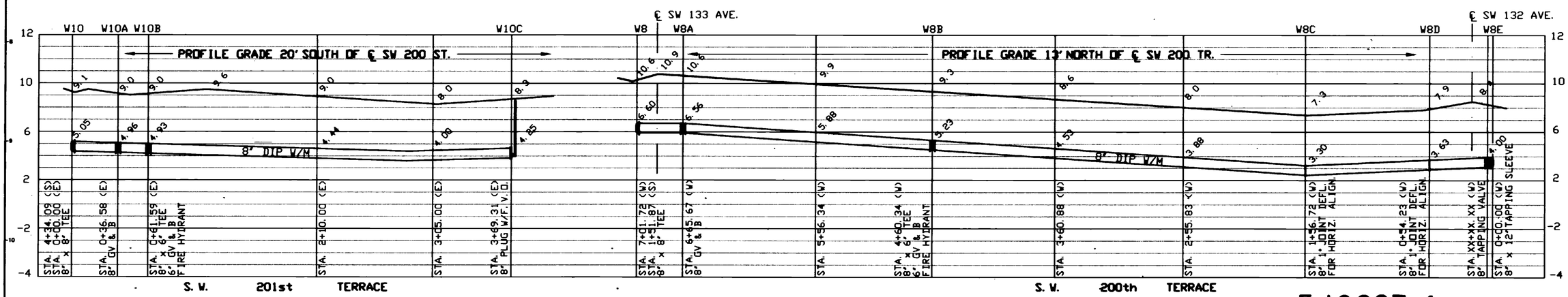
TYPE OF PROJECT: WATER AS-BUILT
SHEET NAME: PLAN SHEET
CLIENT: POINCIANA DEVELOPMENT COMPANY 2

SCALE: 1"=40'
DRAWN BY: D.G.
CHECKED BY: G.E.B.
DATE: 9-10-2000
PROJECT#: 2000-007

2
OF 5







E-10897-4
U-27

DW # 2000-104

BY: _____
JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No 4368
STATE OF FLORIDA

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS
14236 S.W. 136th STREET MIAMI, FLORIDA 33186
PHONE: (305) 232-2340 FAX: (305) 232-5366

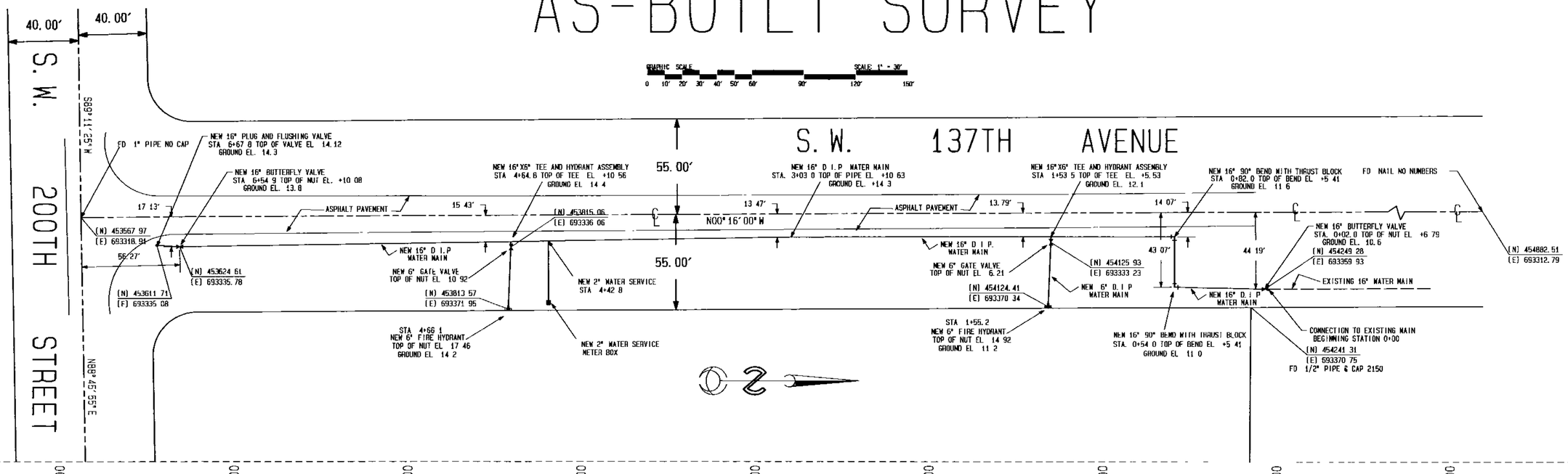
No.	DATE:	REVISION	BY:
1	10-23-00	REVISED PER VASA	G.E.B.

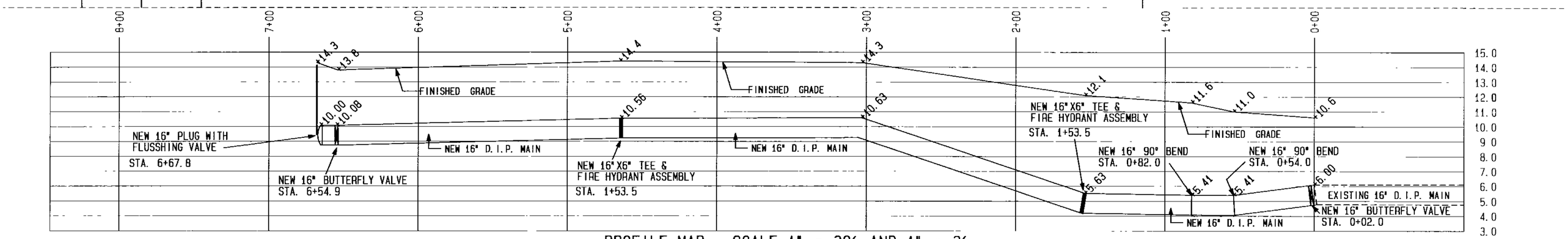
VALENCIA GROVE ESTATES PHASE ONE

TYPE OF PROJECT: WATER AS-BUILT
SHEET NAME: PROFILE SHEET
CLIENT: POINCIANA DEVELOPMENT COMPANY 2

SCALE: H = 1"=40' V = 1"=4'
DRAWN BY: D.G.
CHECKED BY: G.E.B.
DATE: 9-10-2000
PROJECT #: 2000-007

AS-BUILT SURVEY





PROFILE MAP SCALE 1" = 30' AND 1" = 3'

THE FLORIDA STATE PLANE COORDINATES (CURRENT ADJUSTMENT FOR FLORIDA EAST ZONE) FOR THIS AS-BUILT PROJECT ARE AS FOLLOWS:

TWO HORIZONTAL CONTROL POINTS

- THE SOUTHWEST CORNER OF SECTION AS REFLECTED ON THIS SKETCH, FOUND 1" PIPE WITH NO NUMBERS
  (Y) NORTHING 453,567.97 (X) EASTING 693,318.91
- THE NORTHWEST CORNER OF THE FACILITY AS REFLECTED ON THIS SKETCH, FOUND 1/2" PIPE WITH CAP #2150
  (Y) NORTHING 454,241.31 (X) EASTING 693,370.75

WATER VALVE BOXES INSTALLED

- 16" BUTTERFLY VALVE STATION 6+54.9
  (Y) NORTHING 453,624.61 (X) EASTING 693,335.78
- 16" BUTTERFLY VALVE STATION 0+02.0
  (Y) NORTHING 454,249.28 (X) EASTING 693,359.93
- 6" FIRE HYDRANT STATION 4+66.1
  (Y) NORTHING 453,813.56 (X) EASTING 693,371.94
- 6" FIRE HYDRANT STATION 1+55.2
  (Y) NORTHING 454,124.41 (X) EASTING 693,370.34

LEGAL DESCRIPTION

A PORTION OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 2,

TOWNSHIP 56 SOUTH, RANGE 39 EAST, MIAMI-DADE COUNTY, FLORIDA

SURVEYOR'S NOTES:

1- Lands shown hereon were not abstracted for easements and/or rights-of-way of record, except as shown hereon, if any
2- No attempt was made by this firm to locate underground utilities, footings of buildings, walls or fences, except as shown hereon, if any.
3- The North arrow and Bearings shown hereon are based on FLORIDA STATE PLANE COORDINATE FLORIDA EAST ZONE, of N 00°16'00"W along the west line of Section 2, Township 56 South, Range 39 East and along the centerline of S.W. 137th Avenue and all other bearings are relative thereto
4- Elevations shown hereon are based on National Geodetic Vertical Datum (1929 Mean Sea Level)
5- Benchmark Used Miami-Dade County Benchmark #CF-22. Elevation = +13.65'

E-10928-1

U-26

SURVEYOR'S CERTIFICATION.

I HEREBY CERTIFY THAT in the professional opinion of the undersigned Professional Land Surveyor in the State of Florida, the following AS-BUILT Survey meets the requirements of the Minimum Technical Standards as set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61G17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes. Further, this certificate is based on observations of field measurements performed on June 26TH 2001 and other information available to the undersigned at the time the services were rendered

Copies of this AS-BUILT Survey are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper. Said embossed copies are for the specific use of those entities that the AS-BUILT Survey has been certified to

J.H. Manucy, Inc
L.B. 6632

BY _____ Dated this ___ day of _____ 20__
ALAN J. HAAKER, REG. LAND SURVEYOR NO 5548, STATE OF FLORIDA.

LOCATION MAP SCALE 1" = 300'
SECTION 2, TOWNSHIP 56 S, RANGE 39 E

DW 2000-157

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN THE PROPERTY OF MANUCY & ASSOCIATES, WHETHER THE PROJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT. THEY ARE NOT TO BE USED BY OWNER ON OTHER PROJECTS EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO MANUCY & ASSOCIATES.

REVISIONS	BY

LB# 6632
J. H. MANUCY, INC.
Land Surveyors / Civil, Structural & Environmental Engineers
4694 Palm Avenue • Suite 203
Hialeah, Florida 33012

SIGNED BY:

PROJECT NAME

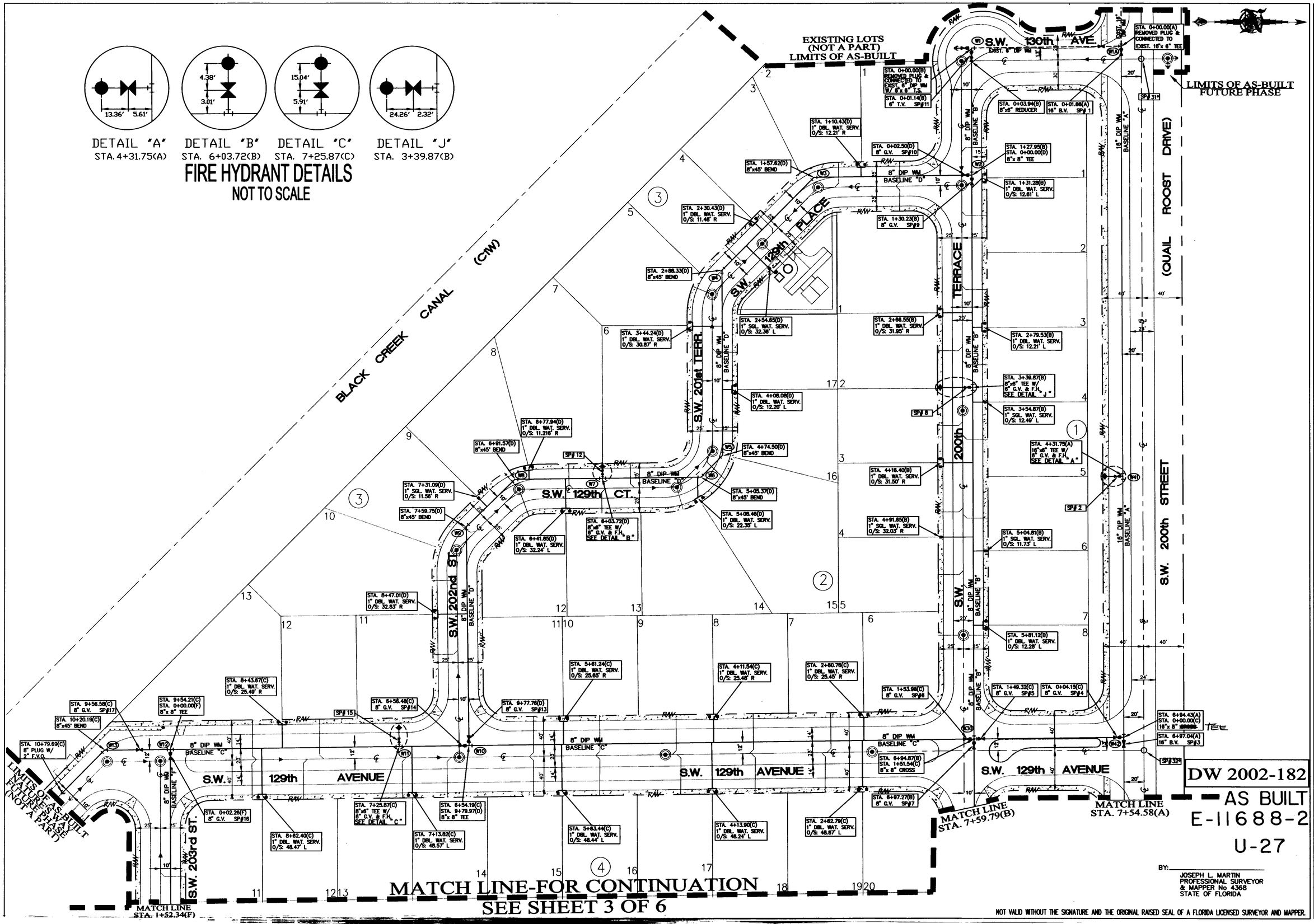
CALVARY PENTECO STAL CHURCH

SURVEY DATE	6-25-2001
DRAWN:	AJH
CHECKED:	AJH
SCALE	1" = 30'
FIELD BOOK	A519-66

SHEET 1

DETAIL "A" STA. 4+31.75(A) | DETAIL "B" STA. 6+03.72(B) | DETAIL "C" STA. 7+25.87(C) | DETAIL "J" STA. 3+39.87(B)

FIRE HYDRANT DETAILS
NOT TO SCALE



DW 2002-182

AS BUILT
E-11688-2
U-27

BY: _____
JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No 4368
STATE OF FLORIDA

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS – PLANNERS
14236 S.W. 136th STREET
PHONE: (305) 232-2340
MIAMI, FLORIDA 33186
FAX: (305) 232-5386

RECORD OF REVISION			
No.	DATE	DESCRIPTION	BY / APP.

NATURE'S WAY - PHASE 1
(a.k.a. COUNTRYSIDE)

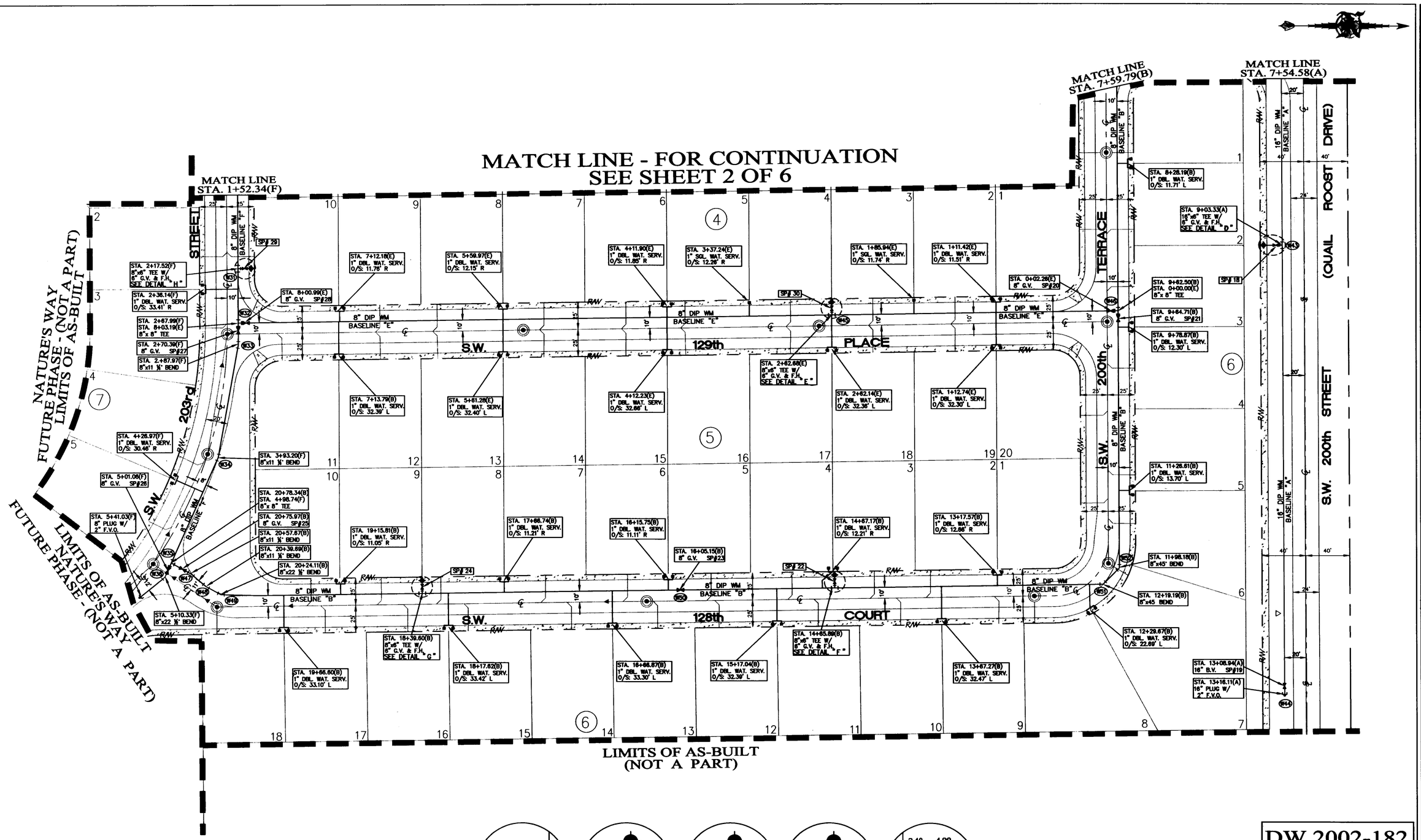
TYPE OF PROJECT: WATER DISTRIBUTION SYSTEM
AS-BUILT PLAN

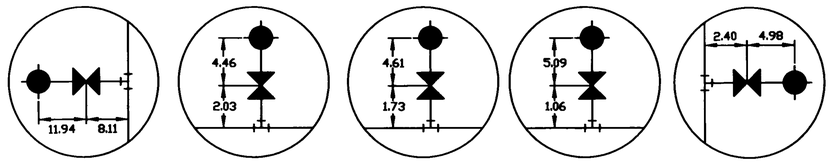
CLIENT: ERIC REARDON / ALAN GREENWALD

PROJ. LOC.: SECTION 11, T56S, R39E MIAMI-DADE COUNTY, FL

CLIENT ADDRESS:

SCALE:	1"=40'
DESIGNED BY:	SUPERIOR
DRAWN BY:	LAD
CHECKED BY:	GB
SET #:	
DATE:	1/23/2004
PROJECT No:	2002-109
SHEET:	2 OF 7





DETAIL "D" STA. 9+03.33(A) | DETAIL "E" STA. 2+62.68(E) | DETAIL "F" STA. 14+65.89(B) | DETAIL "G" STA. 18+39.60(B) | DETAIL "H" STA. 2+17.52(F)

FIRE HYDRANT DETAILS
NOT TO SCALE

DW 2002-182

AS BUILT

E-11688-3

U-27

BY: _____
JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER No 4368
STATE OF FLORIDA

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS – PLANNERS
14236 S.W. 136th STREET MIAMI, FLORIDA 33186
PHONE: (305) 232-2340 FAX: (305) 232-5366

No.	DATE	RECORD OF REVISION DESCRIPTION	BY	APP.

NATURE'S WAY - PHASE 1
(a.k.a. COUNTRYSIDE)

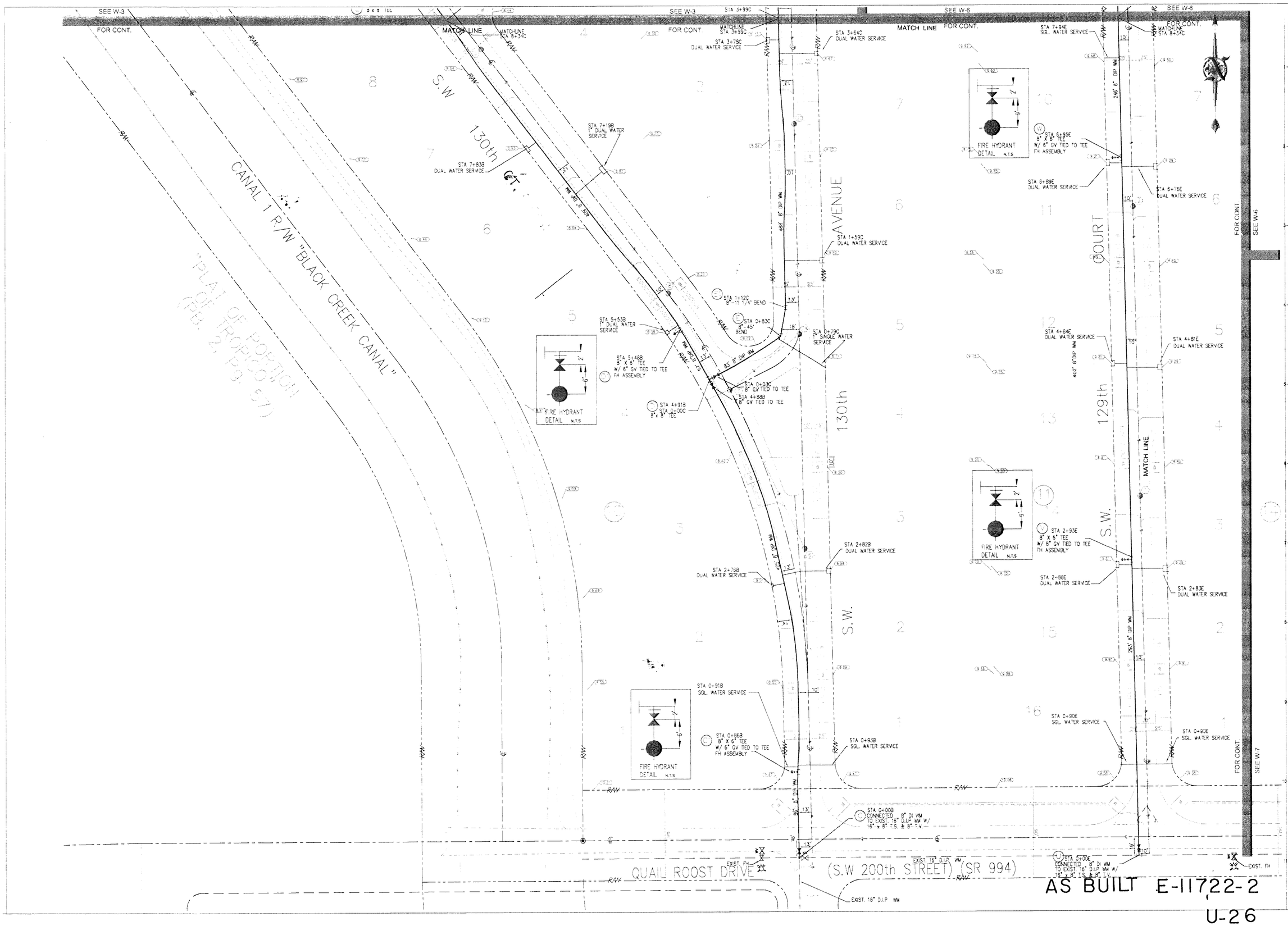
TYPE OF PROJECT: WATER DISTRIBUTION SYSTEM
AS-BUILT PLAN

CLIENT: ERIC REARDON / ALAN GREENWALD

PROJ. LOC.: SECTION 11, T56S, R38E MIAMI-DADE COUNTY, FL

CLIENT ADDRESS:

SCALE:	1"=40'
DESIGNED BY:	SUPERIOR
DRAWN BY:	LAD
CHECKED BY:	GB
SET #:	
DATE:	1/23/2004
PROJECT No:	2002-109
SHEET:	3 OF 7



AS BUILT E-11722-2

U-26

RENAISSANCE RANCHES
SW 200th STREET + SW 129th AVENUE
MIAMI, FL.

WATER PLAN + PROFILE
ASBUILT DRAWINGS
DW# 2004-016

SCALE 1"=40'

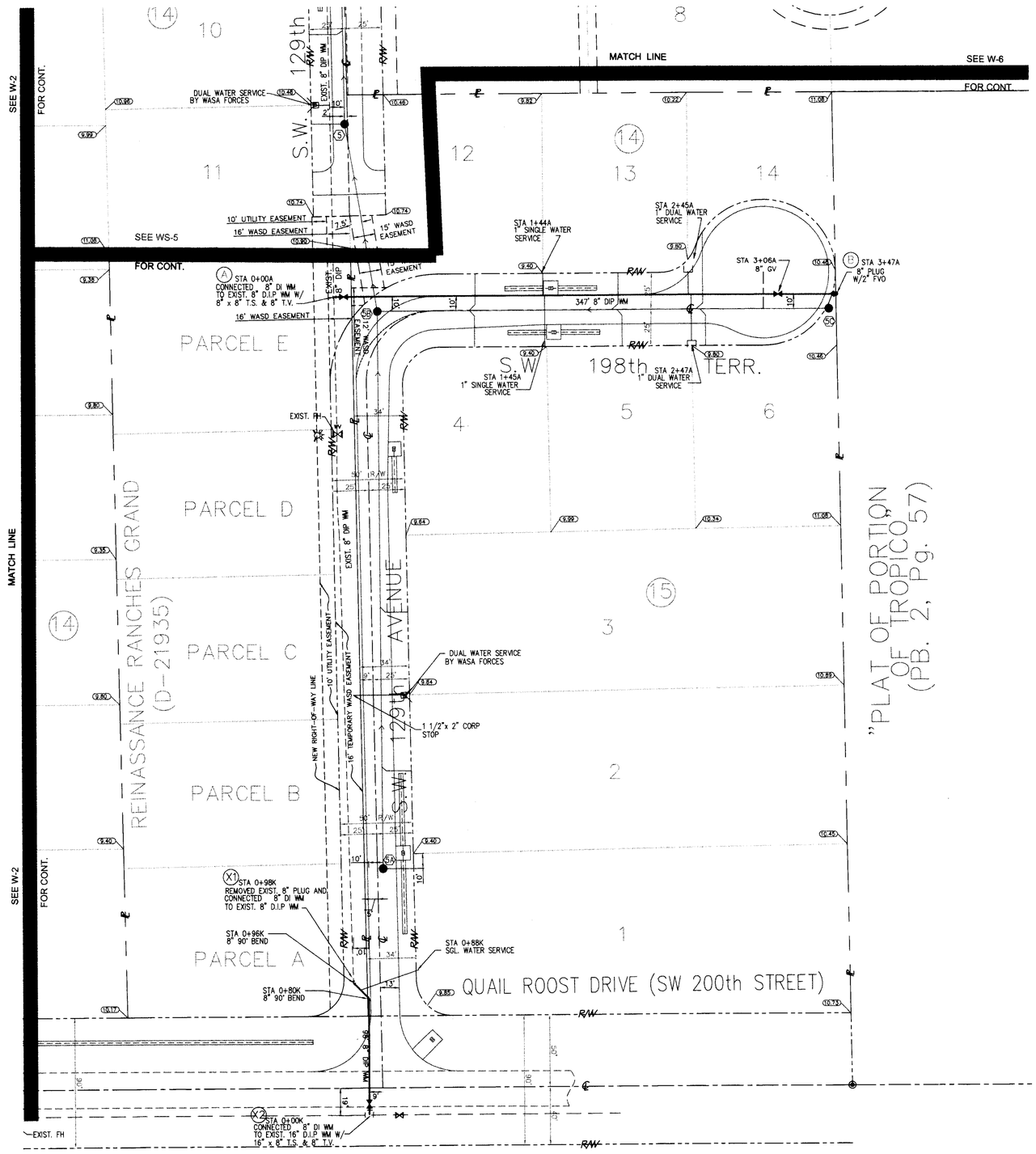
Drawn by EB

I hereby certify that the attached "Asbuilt Survey" of the above described property is true and correct to the best of my knowledge and belief as recently surveyed by a licensed surveyor and meets the intent of the minimum technical standards set forth by the Florida Board of Professional Land Surveyors pursuant to Section 472-027 Florida Statutes.

SEAL

Sheet

W-2



AS BUILT
E-11722-7
U-26

RENAISSANCE RANCHES
SW 200th STREET + SW 129th AVENUE
MIAMI, FL.

WATER PLAN + PROFILE
ASBUILT DRAWINGS
DW# 2004-016

SCALE 1"=40'

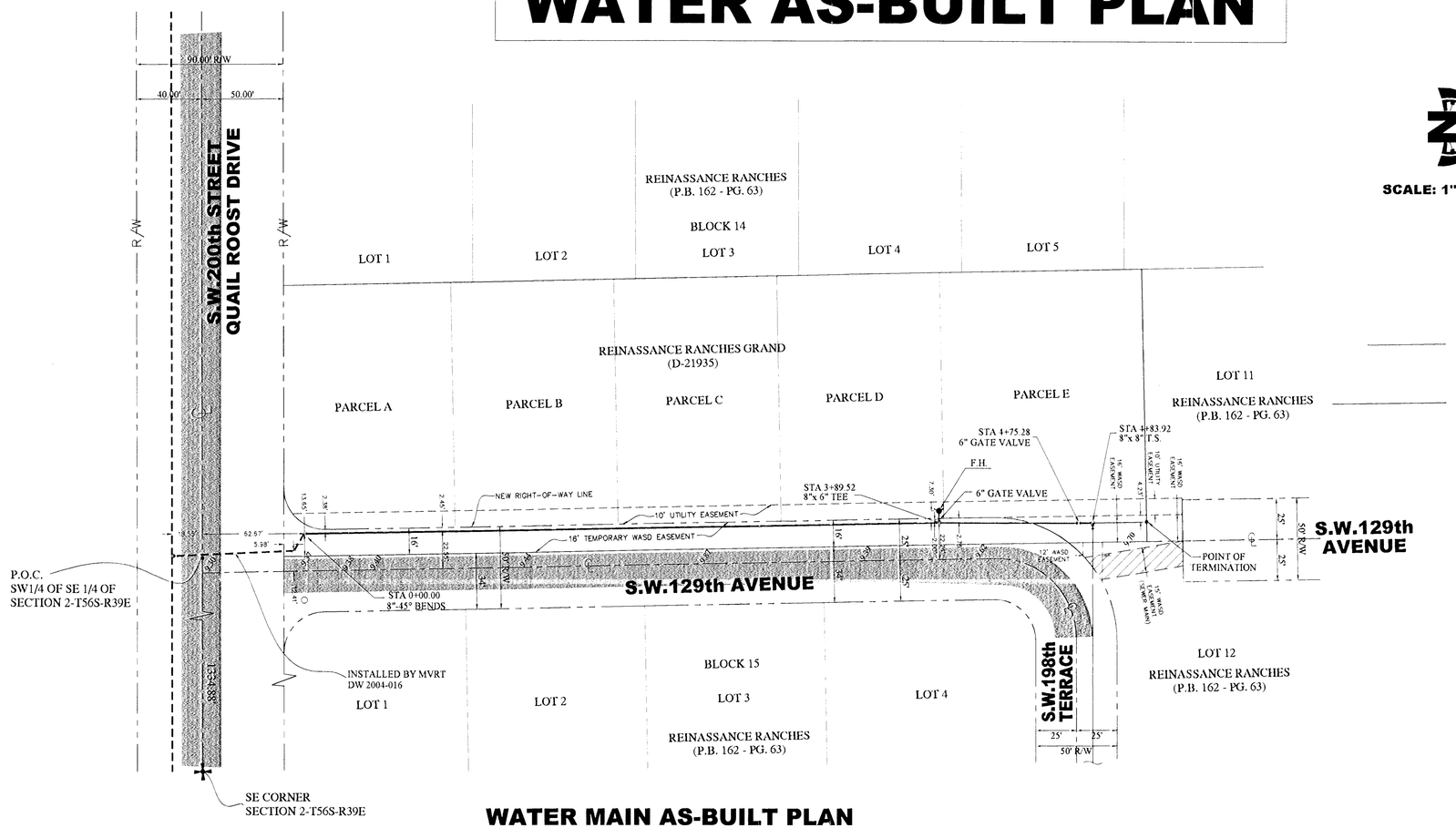
Drawn by: EB

I hereby certify that the attached "Asbuilt Survey" of the above described property is true and correct to the best of my knowledge and belief as recently surveyed by a licensed surveyor and meets the intent of the minimum technical standards set forth by the Florida Board of Professional Land Surveyors pursuant to Section 472-027 Florida Statutes.

SEAL

Sheet
W-7

WATER AS-BUILT PLAN



SCALE: 1" = 40' (HOR.)

WATER MAIN AS-BUILT PLAN

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

LEGEND

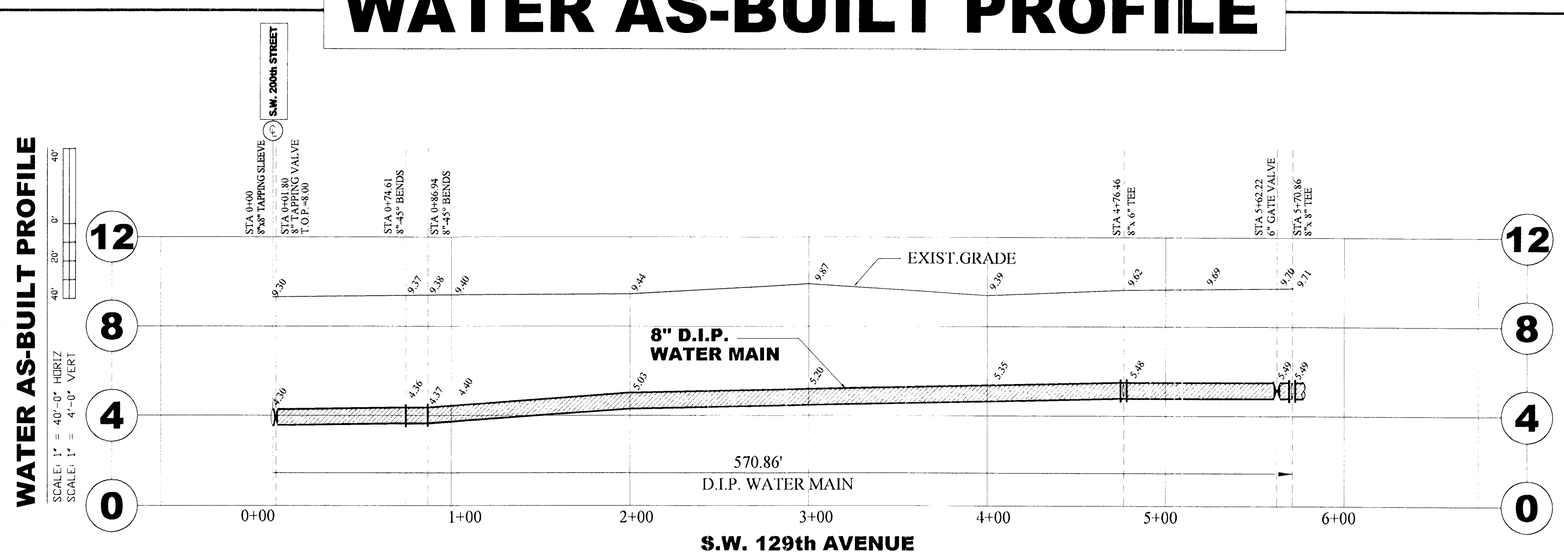
AS-BUILT

- WATER MAIN —12" WM—
- GATE VALVE
- METER INSTALLATION
- FIRE HYDRANT

EXISTING

- WATER MAIN —12" WM—
- GATE VALVE

WATER AS-BUILT PROFILE



E-11746-1 U-26

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS WATER AS-BUILT PLAN WAS PREPARED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF CHAPTER 61G17-6 FLORIDA ADMINISTRATIVE CODE.

WE FURTHER CERTIFY THAT THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF CHAPTER 61G17-6 FLORIDA ADMINISTRATIVE CODE.

EDUARDO M. SUAREZ
PROFESSIONAL SURVEYOR AND MAPPER No. 5313
STATE OF FLORIDA DATE 05-21-07

P(3)SM L.L.C. - L.B. No. 7335
PROFESSIONAL SURVEYORS AND MAPPERS STATE OF FLORIDA
3900 N.W. 79th AVENUE, SUITE # 235 MIAMI, FL. 33166 PHONE:(305) 463-0912 FAX:(305) 463-0913

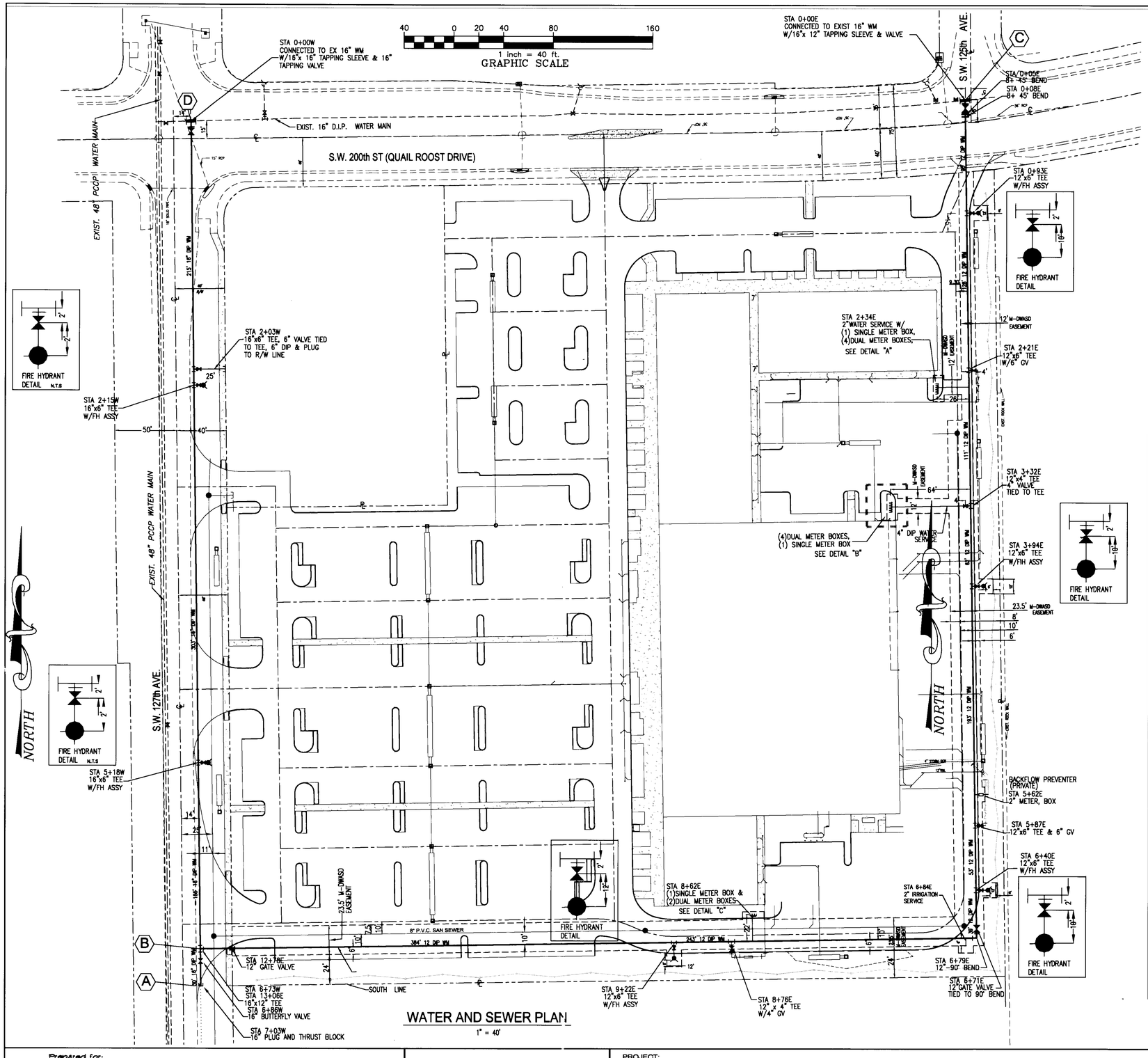
RENAISSANCE RANCHES
A.K.A. ROSE GARDEN
19990 S.W. 177th Avenue Miami-Dade County
FLORIDA.

Designed	N.R.E.
Drawn	N.R.E. / DHERR
Checked	
Proj No.	05-02-97
Scale	1" = 40'

S2-T56-R39

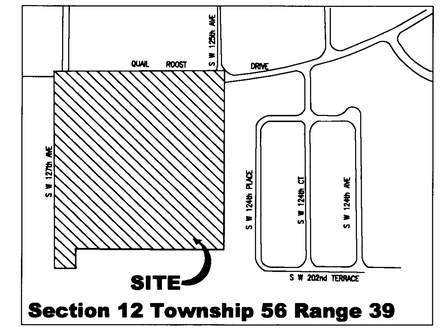
Drawing
W-1

PATH FILE S:\POLARIS\RENANSSANCE RANCHES\AS-BUILT\05-02-97



WATER AND SEWER PLAN

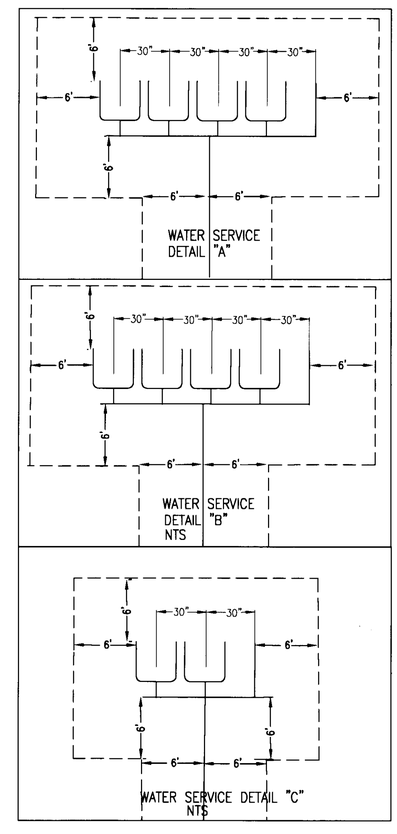
1" = 40'



Section 12 Township 56 Range 39

Location Map

Scale: 1"=3000'



ASBUILT WATER SHOPPES @ QUAIL ROOST

SURVEYOR'S NOTES:

1. THE FLORIDA STATE PLANE COORDINATES (current adjustment for Florida East Zone) FOR THIS ASBUILT ARE AS FOLLOWS

TWO HORIZONTAL CONTROL POINTS
COORDINATES VALUE IN FEET

-INTERSECTION OF CENTERLINES OF S.W. 200th STREET (QUAIL ROOST DRIVE) & S.W. 125th AVENUE — NORTHING (Y) = 453801.3341, EASTING (X) = 855579.7722

-INTERSECTION OF CENTERLINES OF S.W. 200th STREET (QUAIL ROOST DRIVE) & S.W. 127th AVENUE — NORTHING (Y) = 453796.7399, EASTING (X) = 854835.7129

ALL FIRE HYDRANTS INSTALLED

FIRE HYDRANT No 1	NORTHING = 453737.3745, EASTING (X)= 855575.2517
FIRE HYDRANT No 2	NORTHING (Y)= 453435.0280, EASTING (X)= 855580.1010
FIRE HYDRANT No 3	NORTHING (Y)= 453188.2116, EASTING (X)= 855583.3237
FIRE HYDRANT No 4	NORTHING (Y)= 453143.2690, EASTING (X)= 855378.7150
FIRE HYDRANT No 5	NORTHING (Y)= 453596.3280, EASTING (X)= 854945.9240
FIRE HYDRANT No 6	NORTHING (Y)= 453289.5020, EASTING (X)= 854947.3300

ALL VALVE BOXES INSTALLED

VALVE BOX No 1	NORTHING = 453625.3210, EASTING = 855562.5710
VALVE BOX No 2	NORTHING = 453152.0490, EASTING = 855574.3340
VALVE BOX No 3	NORTHING = 453136.9400, EASTING = 854950.3100
VALVE BOX No 4	NORTHING = 453136.2600, EASTING = 854948.5710
VALVE BOX No 5	NORTHING = 453606.6630, EASTING = 854940.5490

DW-2003-214
NO FB
N-22

E-11786-1

Prepared for:

M V R T, Inc.
38 NW 5th Street
Homestead, FL. 33030

WATER PLAN & PROFILE
ASBUILT DRAWINGS
DW# 2003-214

PROJECT:

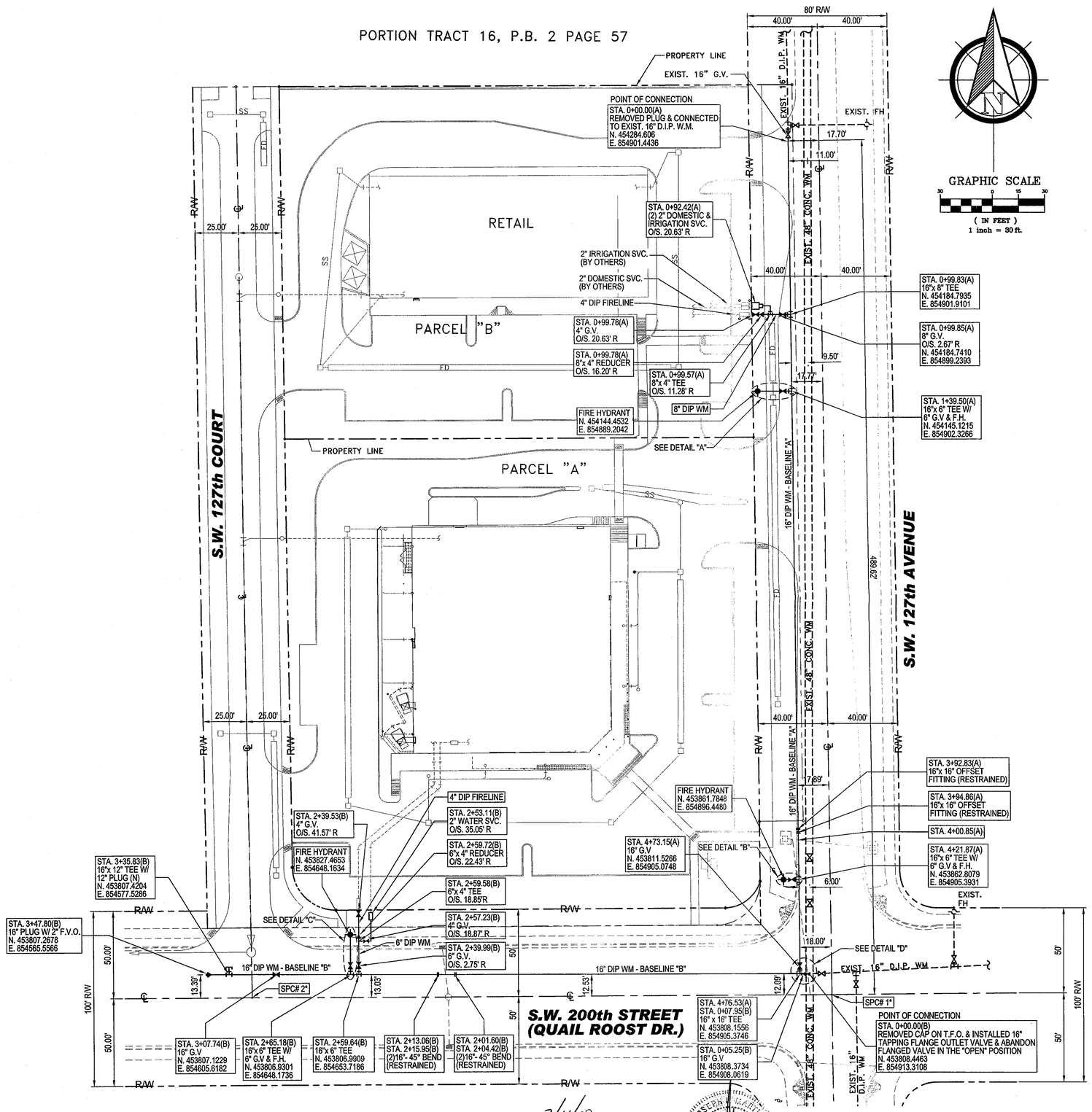
SHOPPES at QUAIL ROOST
SW 127th AVENUE & QUAIL ROOST DRIVE
MIAMI, FL

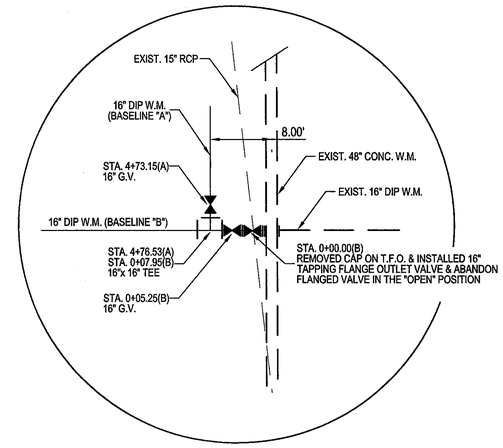
I hereby certify that the asbuilt survey of theabove property is true and correct to the best of knowledge and belief as recently surveyed by a licensed surveyor and meets the intent of the minimum technical standards set forth by the Florida Board of Professional Land Surveyors pursuant to Section 472-027 Florida Statutes.

Aristides R. Lopez-Calleja, PA #2097 Dated:

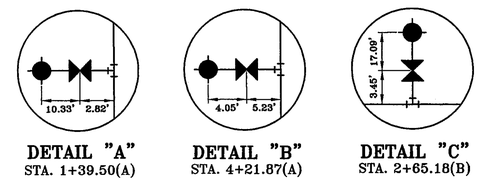
Seal

W-1





DETAIL "D"
N.T.S.



DETAIL "A" STA. 1+39.50(A)

DETAIL "B" STA. 4+21.87(A)

DETAIL "C" STA. 2+65.18(B)

FIRE HYDRANT DETAILS
N.T.S.

Date: 3/11/09 By:

JOSEPH L. MARINI
PROFESSIONAL SURVEYOR
& MAPPER #5168
STATE OF FLORIDA

DW 2008-048

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

E-13167-2 U-26

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS
14241 S.W. 142 COURT MIAMI, FLORIDA 33186
PH: 305.232.2240 FX: 305.232.5366

DATE	REVISION COMMENTS	BY	APP
3/3/09	REVISED PER WASD COMMENTS	OG	GB

QUAIL ROOST WEST RETAIL CENTER
MIAMI-DADE COUNTY, FLORIDA

PROJ. TYPE: WATER AS-BUILT PLAN
PROJ. LOC.: SW 127th AVENUE & 200th STREET (QUAIL ROOST DR.)
SECTION: SECTION. 2 TWP. 56S, RGE. 39E.
CLIENT & ADDRESS: Walgreens
FACILITIES PLANNING, DESIGN, & ENGINEERING
108 WILMOT ROAD DEERFIELD, IL 60015

SCALE:	1" = 30'
SURVEYOR:	J.L.M.
DRAWN BY:	O.G.
CHECKED BY:	G.B.
AS-BUILT:	WATER
DATE:	2/9/09
PROJECT No:	2008-058
SHEET No:	2 of 3

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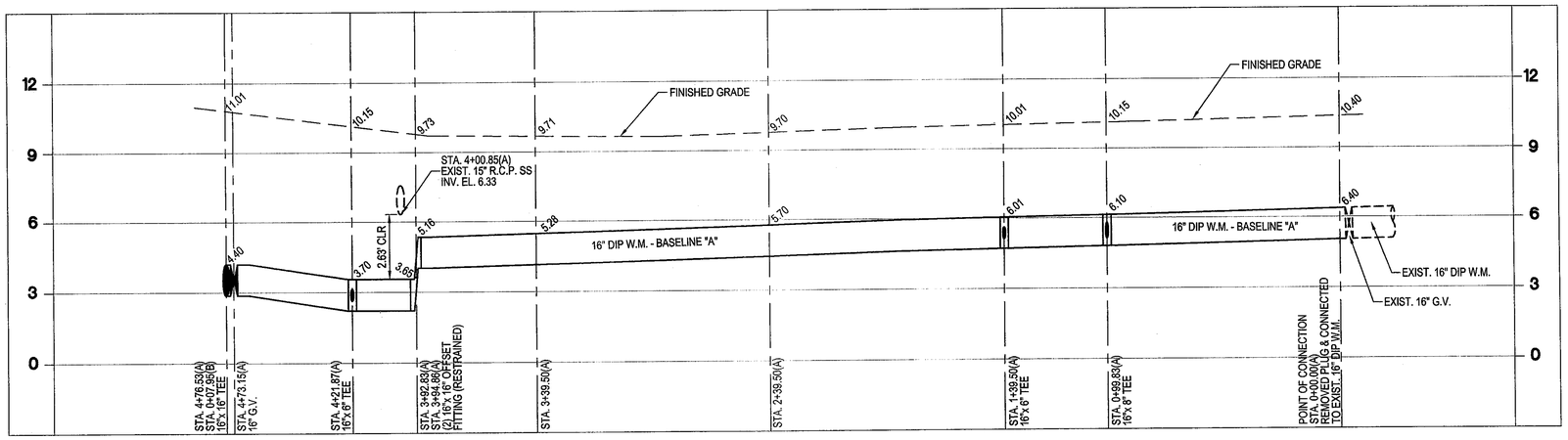
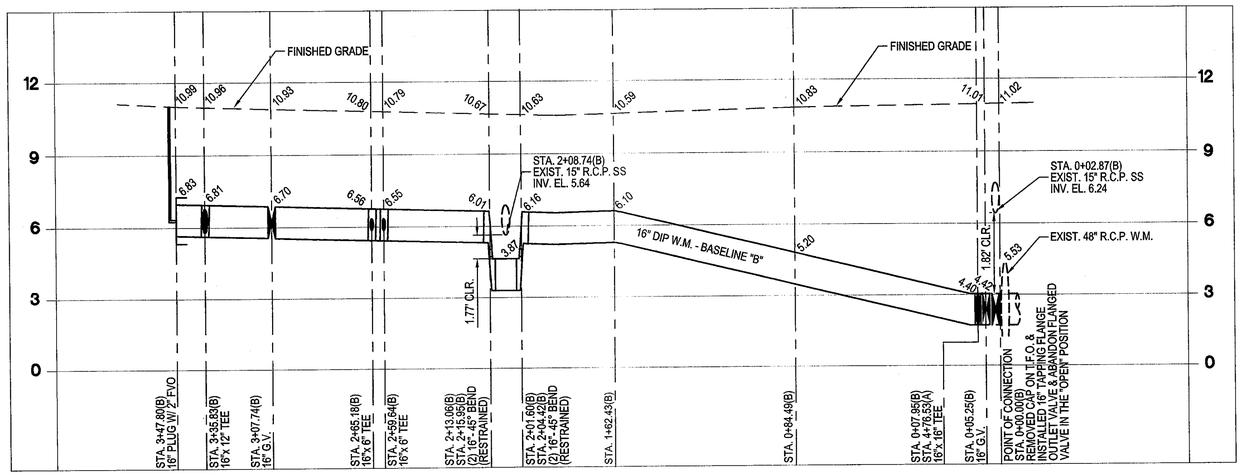


WATER PROFILE "A" (S.W. 127th AVENUE)

SCALE : HORIZ. 1" = 30'
VERT. 1" = 3'



WATER PROFILE "B" (S.W. 200th STREET)

SCALE : HORIZ. 1" = 30'
VERT. 1" = 3'

Date: 3/11/09 By:

JOSEPH L. MARTIN
STATE OF FLORIDA
PROFESSIONAL SURVEYOR
& MAPPER LS# 4368
STATE OF FLORIDA

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

DW 2008-048

E-13167-3 U-26

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS
1424 S.W. 143 COURT MIAMI, FLORIDA 33186
PH: 305.232.2340 FX: 305.232.3386

DATE	REVISION COMMENTS	BY	APP
3/3/09	REVISED PER WASD COMMENTS	OG	GB

QUAIL ROOST WEST RETAIL CENTER

MIAMI-DADE COUNTY, FLORIDA

PROJ. TYPE: WATER AS-BUILT PROFILES
PROJ. LOC.: SW 127th AVENUE & 200th STREET (QUAIL ROOST DR.)
SECTION: SECTION: 2 TWP. 56S, RGE. 39E
CLIENT & ADDRESS: Walgreens FACILITIES PLANNING, DESIGN, & ENGINEERING 108 WILMOT ROAD DEERFIELD, IL 60015

SCALE:	AS SHOWN
SURVEYOR:	J.L.M.
DRAWN BY:	O.G.
CHECKED BY:	G.B.
AS-BUILT:	WATER
DATE:	2/9/09
PROJECT No:	2008-058
SHEET No:	3 of 3

G:\Land Projects 2008\Walgreens Quail Roost\dwg\AS-BUILT\WATER\A8.dwg, 3/11/2009 11:32:05 AM, 1:1

MD-WASD
SEWER

Sewer Service Area

Sewer Donations and Capital Projects

NOTE: ALL GRAVITY SEWERS ARE 8" UNLESS OTHERWISE DESIGNATED AND ALL SEWER LATERALS ARE 6" UNLESS OTHERWISE DESIGNATED

Miami-Dade
Water and Sewer Department

Atlas - **U26-C**

S-02 T-56 R-39

A	B
C	D

Legend

- Air Release Valve
- Manhole
- Overflow/Bypass
- Trap/Drop
- Auto Control Valve
- Clean Out
- Access Manhole
- Manual Control Valve
- Check Valve
- Pump Station
- Emergency Overflow Point
- Emergency Pump Discharge
- Outfall Point Discharge
- Wet Well
- Flow Meter
- Holding Structure
- Continuation point
- Cross
- Plug
- Reducer
- Injection Well
- Lamp Hole
- Private Station
- Treatment Plant
- Miscellaneous
- Private
- Donation Line
- PCTS Active
- PCTS Completed
- PCTS Future/On Hold
- Aerial Crossing
- Subaqueous Crossing
- Casing
- Force Main
- Interceptor
- Inverted Syphon
- Gravity Main
- Sewer Lateral
- Emergency Overflow
- Outfall
- Sludge
- Private
- Abandoned
- MIscellaneous
- Blocks
- 1/4 Atlas Grid
- Service Area Boundary
- Municipality
- Bodies Of Water

Service Area

Miami-Dade Water and Sewer

SCALE IN FEET

0 125 250

As-Builts are displayed using unique colors and single label boxes per contiguous pipe segment. They are displayed underneath the pipe segment using a thicker line symbol than the pipe segment it describes.

The materials contained herein are provided "AS IS" and may contain inaccuracies. User is warned to utilize the materials herein at User's own risk and to verify the material's accuracy independently and ASSUMES THE RISK OF ANY AND ALL LOSS

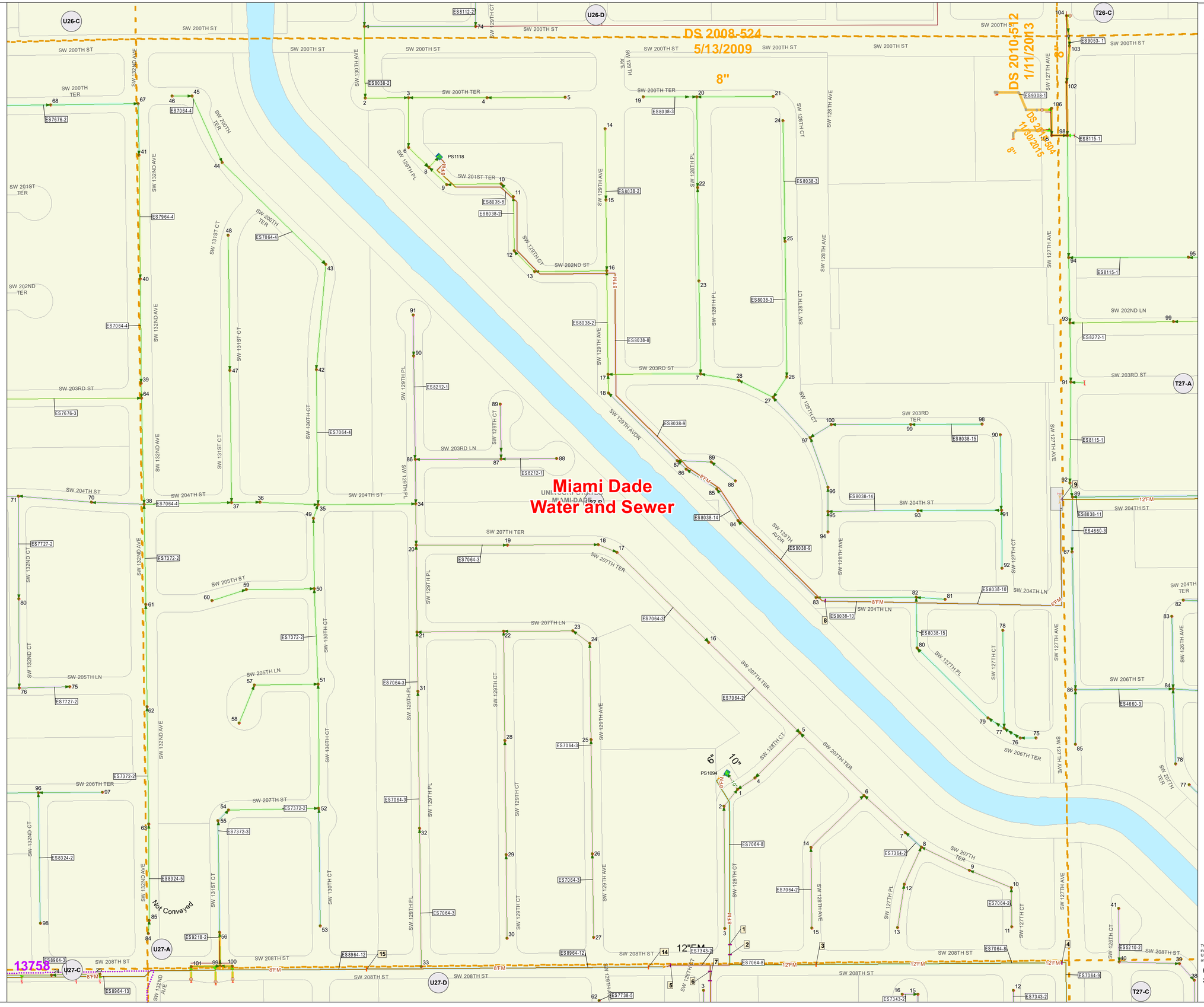
Plot Date

24 Jan 2018

Sewer Service Area

Sewer Donations and Capital Projects

NOTE: ALL GRAVITY SEWERS ARE 8" UNLESS OTHERWISE DESIGNATED AND ALL SEWER LATERALS ARE 6" UNLESS OTHERWISE DESIGNATED



As-Builts are displayed using unique colors and single label boxes per contiguous pipe segment. They are displayed underneath the pipe segment using a thicker line symbol than the pipe segment it describes.

Miami-Dade
Water and Sewer Department

Atlas - **U27-B**

S-11 T-56 R-39

A	B
C	D

Legend

- Air Release Valve
- Manhole
- Overflow/Bypass
- Trap/Drop
- Auto Control Valve
- Clean Out
- Access Manhole
- Manual Control Valve
- Check Valve
- Pump Station
- Emergency Overflow Point
- Emergency Pump Discharge
- Outfall Point Discharge
- Wet Well
- Flow Meter
- Holding Structure
- Continuation point
- Cross
- Plug
- Reducer
- Injection Well
- Lamp Hole
- Private Station
- Treatment Plant
- Miscellaneous
- Private
- Donation Line
- PCTS Active
- PCTS Completed
- PCTS Future/On Hold
- Aerial Crossing
- Subaqueous Crossing
- Casing
- Force Main
- Interceptor
- Inverted Syphon
- Gravity Main
- Sewer Lateral
- Emergency Overflow
- Outfall
- Sludge
- Private
- Abandoned
- Miscellaneous
- Blocks
- 1/4 Atlas Grid
- Service Area Boundary
- Municipality
- Bodies Of Water

Service Area

Miami-Dade Water and Sewer

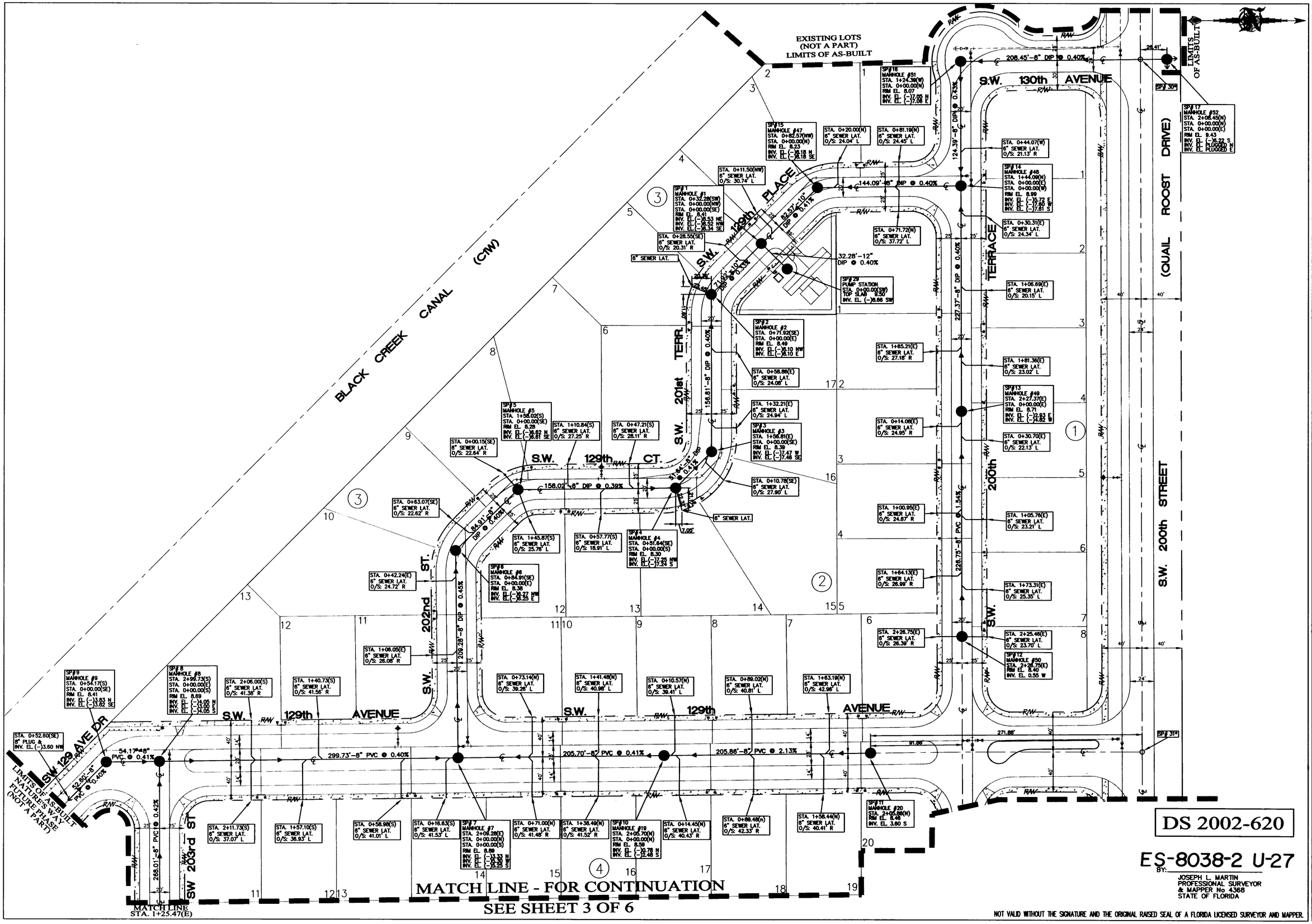
SCALE IN FEET

0 125 250

The materials contained herein are provided "AS IS" and may contain inaccuracies. User is warned to utilize the materials herein at User's own risk and to verify the material's accuracy independently and ASSUMES THE RISK OF ANY AND ALL LOSS

Plot Date

24 Jan 2018



COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS

14236 S.W. 136th STREET
PHONE: (305) 232-2340

MIAMI, FLORIDA 33186
FAX: (305) 232-5386

RECORD OF REVISION

No.	DATE	DESCRIPTION	BY	APP.

NATURE'S WAY - PHASE 1
(a.k.a. COUNTRYSIDE)

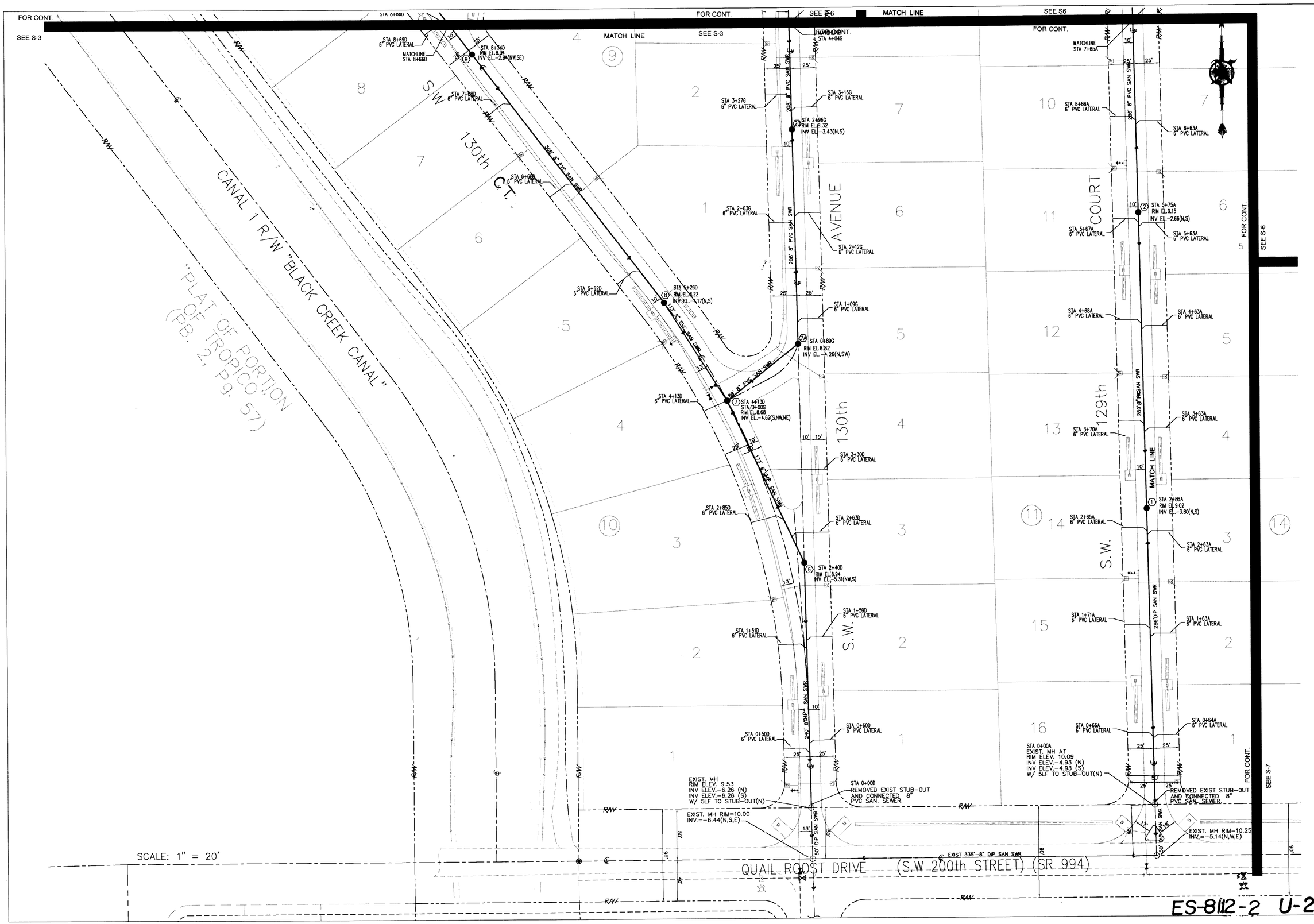
TYPE OF PROJECT: SEWAGE COLLECTION SYSTEM
AS-BUILT PLAN

CLIENT: ERIC REARDON / ALAN GREENWALD

CLIENT ADDRESS:

PROJ. LOC.: SECTION 11, T56S, R39E
MIAMI-DADE COUNTY, FL

SCALE:	1"=40'
DESIGNED BY:	SUPERIOR
DRAWN BY:	LAD
CHECKED BY:	GB
SET #:	
DATE:	1/23/2004
PROJECT No:	2002-109
SHEET:	2 OF 6



RENAISSANCE RANCHES
SW 200th STREET + SW 129th AVENUE
MIAMI, FL.

SEWER PLAN + PROFILE
ASBUILT DS# 2004-509

SCALE 1"=40'

Drawn by: EB

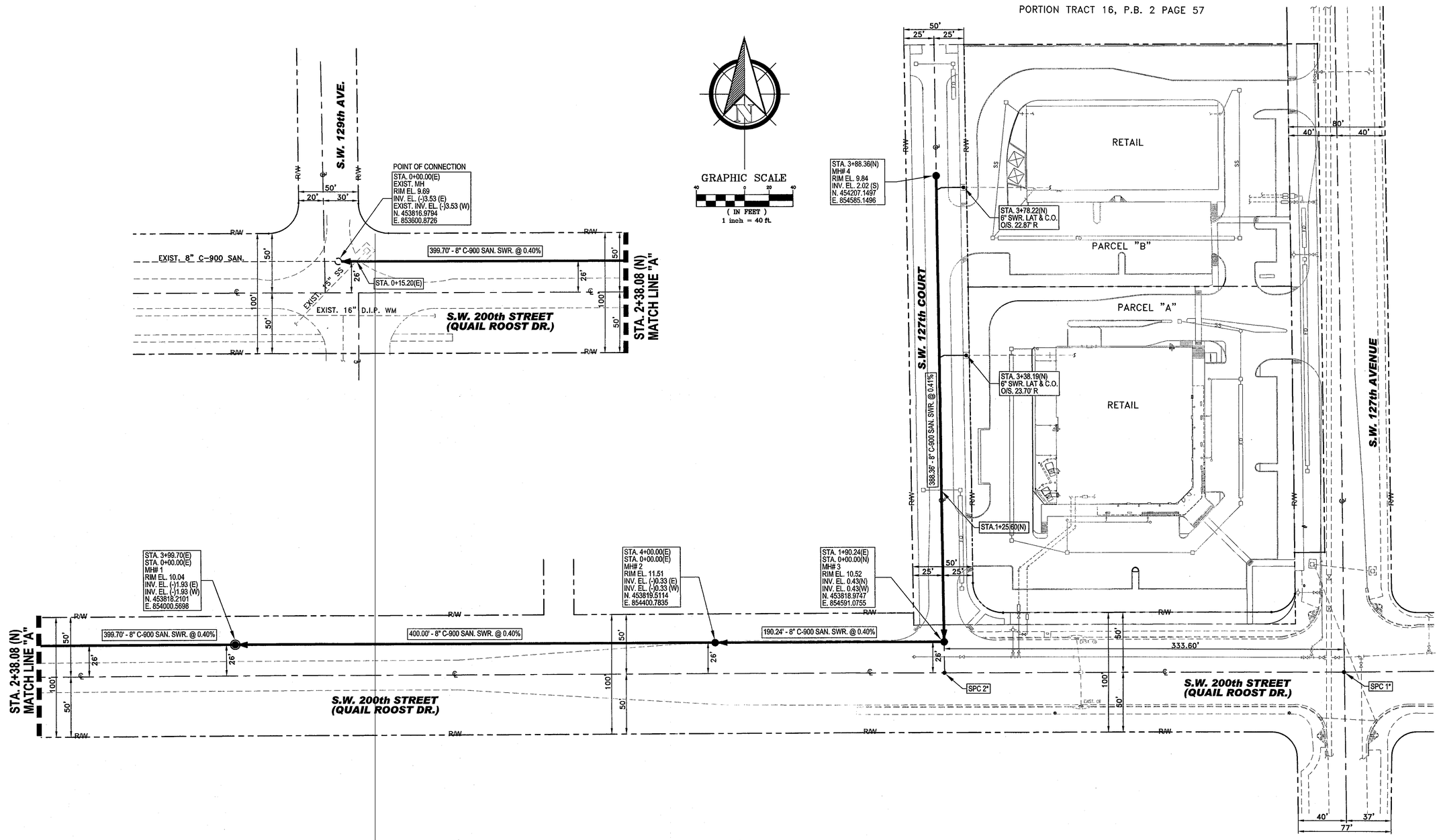
I hereby certify that the attached "Asbuilt Survey" of the above described property is true and correct to the best of my knowledge and belief as recently surveyed by a licensed surveyor and meets the intent of the minimum technical standards set forth by the Florida Board of Professional Land Surveyors pursuant to Section 472-027 Florida Statutes.

SEAL

Sheet

S-2

ES-8112-2 U-26



Date: 3/11/09 By:

JOSEPH L. MARTIN
PROFESSIONAL SURVEYOR
& MAPPER LS#4368
STATE OF FLORIDA

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

DS 2008-524

ES-8805-2 U-26

COUNTY-WIDE LAND SURVEYORS, INC.
LAND SURVEYORS - PLANNERS
14241 S.W. 143 COURT MIAMI, FLORIDA 33186
PH: 305.232.2340 FX: 305.232.5386

QUAIL ROOST WEST RETAIL CENTER

MIAMI-DADE COUNTY, FLORIDA

DATE	REVISION COMMENTS	BY	APP
3/3/09	REVISED PER WASD COMMENTS	OG	GB

PROJ. TYPE: SEWER AS-BUILT PLAN

PROJ. LOC.: SW 127th AVENUE & 200th STREET (QUAIL ROOST DR.)

SECTION: SECTION: 2 TWP: 56S RGE: 39E

CLIENT & ADDRESS: Walgreens FACILITIES PLANNING, DESIGN, & ENGINEERING 108 WILMOT ROAD DEERFIELD, IL 60015

SCALE:	AS SHOWN
SURVEYOR:	J.L.M.
DRAWN BY:	O.G.
CHECKED BY:	G.B.
AS-BUILT:	SEWER
DATE:	2/9/09
PROJECT No:	2008-058
SHEET No:	2 of 3

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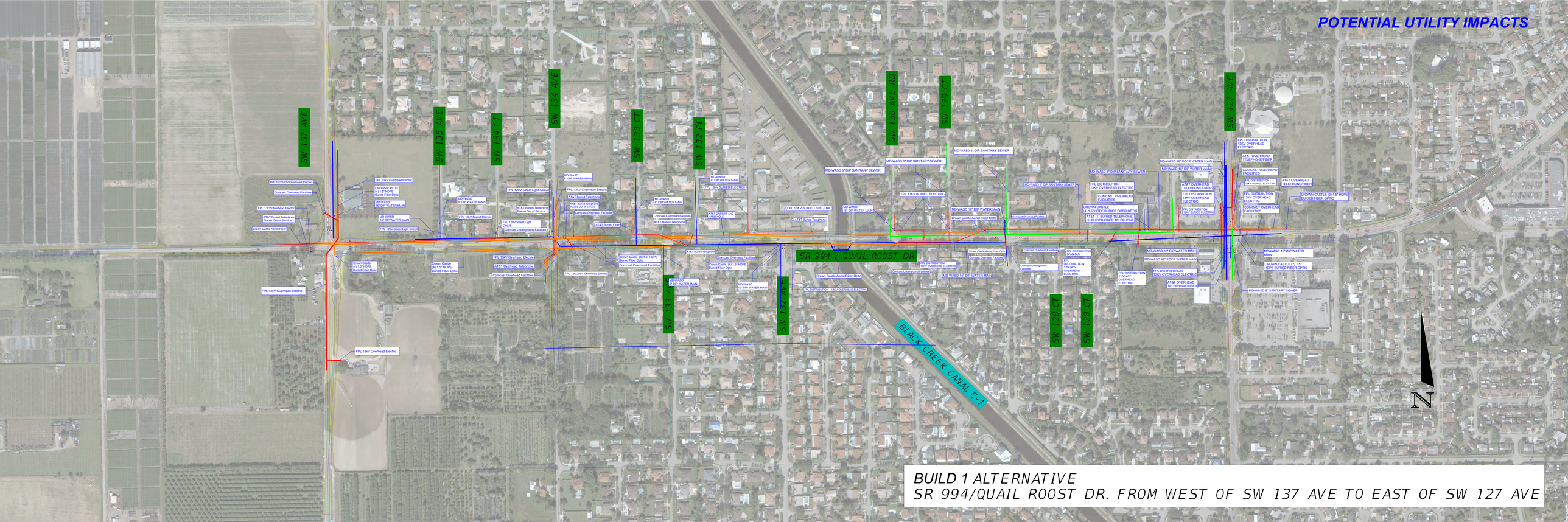
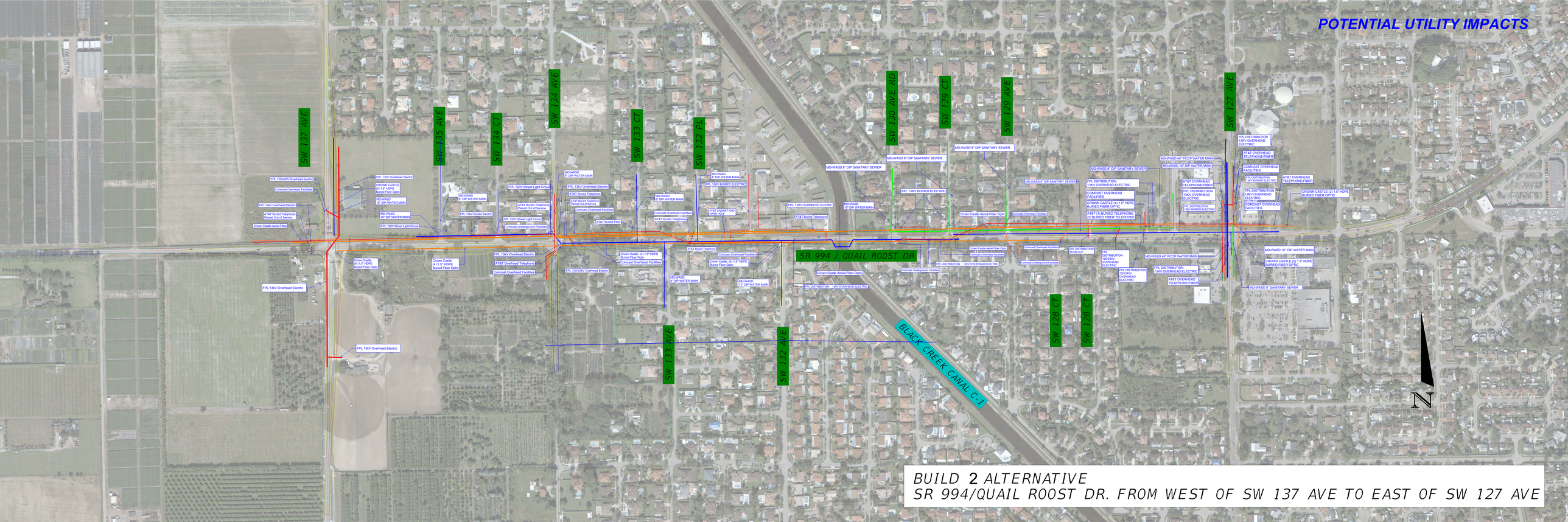
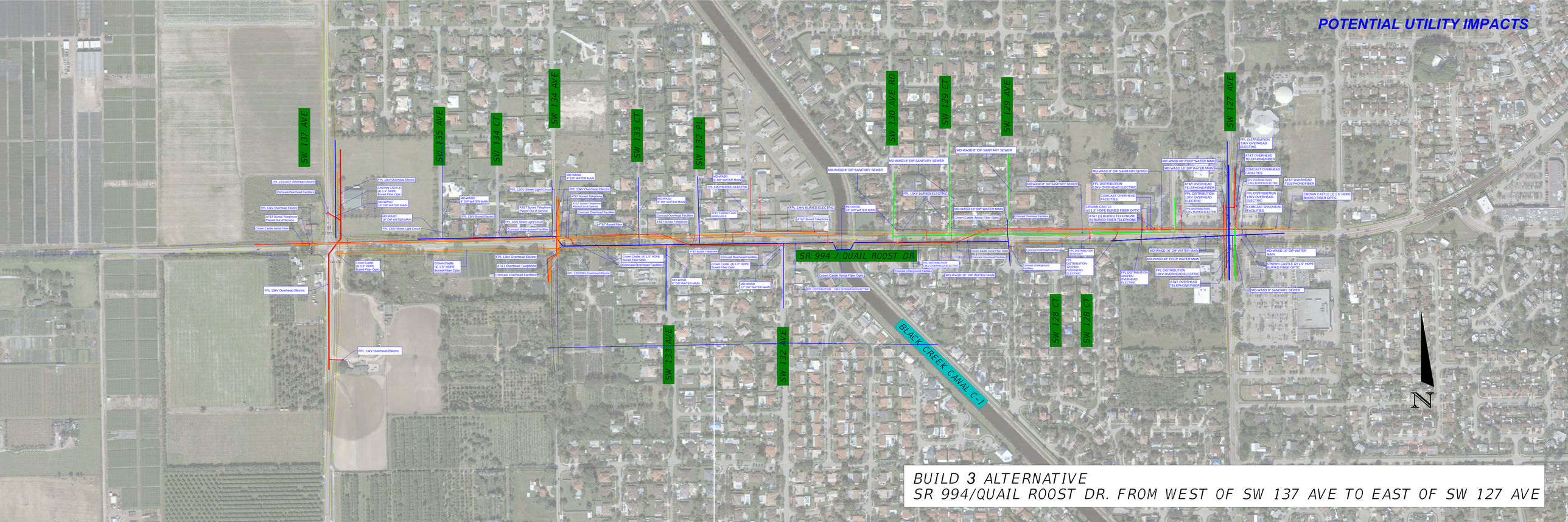
Appendix B – Potential Utility Impacts



BUILD 1 ALTERNATIVE
SR 994/QUAIL ROOST DR. FROM WEST OF SW 137 AVE TO EAST OF SW 127 AVE



BUILD **2** ALTERNATIVE
SR 994/QUAIL ROOST DR. FROM WEST OF SW 137 AVE TO EAST OF SW 127 AVE



BUILD **3** ALTERNATIVE
SR 994/QUAIL ROOST DR. FROM WEST OF SW 137 AVE TO EAST OF SW 127 AVE

Appendix I – Bridge Analysis Report

BRIDGE ANALYSIS REPORT

Florida Department of Transportation

District 6

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From West of SW 137th Avenue to East of SW 127th Avenue

Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

June 18, 2024

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

BRIDGE ANALYSIS REPORT

SR 994 / SW 200th St / Quail Roost Drive
Project Development & Environment Study
From West of SW 137th Avenue to East of SW 127th Avenue
Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

June 18, 2024

FINAL BRIDGE ANALYSIS REPORT

SR 994 (SW 200th Street/Quail Roost Drive) from SW 137th Avenue to SW 127th Avenue

FPID NO. 445804-1-22-01
MIAMI-DADE COUNTY

Prepared For:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT 6

Prepared by:

H.W. Lochner, Inc.
4300 West Cypress Street, Suite 500
Tampa, Florida 33607
813.357.3750

June 2024

DOUGLAS M. HERSHEY
LICENSE
No 63325
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

DOUGLAS M HERSHEY Date: 2024.06.18 14:59:26-04'00'

This item has been digitally signed and sealed by Douglas M. Hershey, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies. The official record of the above referenced section(s) is the electronic file digitally signed and sealed under Rule 61G15-23.004(3)(d)1, F.A.C.

EXECUTIVE SUMMARY

This Bridge Analysis Report documents the evaluation process and recommendations for construction of a new bridge carrying SR 994 over Black Creek Canal. The recommended bridge is a three-span structure having an overall length of 100’-0”. The bridge superstructure will consist of prestressed concrete 12” Florida Slab Beams with a 6” cast-in-place concrete topping. The overall bridge width is 101’-8” and includes two 11-foot travel lanes in each direction, one 11-foot westbound left turn lane, a raised median, 1’-4” shoulders and 18’-2” wide raised sidewalks. 32” vertical shape traffic railings with bullet rail are used adjacent to the sidewalks. Square prestressed concrete piling will be used for all foundations and the substructure will consist of pile bents. The bridge will be phase constructed on the existing alignment.

The estimated construction cost is $3,669,056. This includes the new bridge and approach slabs, existing bridge demolition and a 10% contingency for miscellaneous items.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i
TABLE OF CONTENTS ii
LIST OF FIGURES iii
LIST OF TABLES iii
LIST OF APPENDICES iii
1.0 INTRODUCTION 1
1.1 Location 1
1.2 Project Description 1
2.0 EXISTING CONDITIONS 2
2.1 Existing Roadway Conditions 2
2.1.1 Functional Classification 2
2.1.2 Roadway Typical Section 2
2.1.3 Right-of-Way 2
2.1.4 Existing Navigation 2
2.2 Existing Bridge 2
2.3 Utilities 3
3.0 STRUCTURES DESIGN 4
3.1 Geotechnical Report and Environmental Classification 4
3.2 Hydraulic Analysis and Scour 4
3.3 Structures Design Criteria 4
3.3.1 Design Method 4
3.3.2 Specifications 4
3.3.3 Concrete Materials 4
3.3.4 Steel Materials 5
3.3.5 Design Loads 5
3.3.6 Vertical Clearance 6
3.3.7 Horizontal Clearance 6
4.0 BRIDGE ALTERNATIVES 8
4.1 Typical Section 8
4.2 Construction Phasing 8
4.3 Span Arrangement 8
4.4 Foundation Alternatives 8
4.5 Superstructure Alternatives 9
4.5.1 Cast-in-Place Concrete 9
4.5.2 Prestressed Concrete 9
4.6 Substructure Alternatives 9
4.7 Retaining Walls 9
5.0 CONSTRUCTION COST ESTIMATE 10
6.0 RECOMMENDATION 11

LIST OF FIGURES

Figure 1 – Project Location Map 1
Figure 2 – Existing Bridge Elevation Looking North 2
Figure 3 – Existing Bridge Aerial 3

LIST OF TABLES

Table 1 – Florida Slab Beam Maximum Span Length Recommendations 9
Table 2 – Estimated Construction Costs 10

LIST OF APPENDICES

APPENDIX A – Exhibits
APPENDIX B – Preliminary Bridge Geotechnical Report
APPENDIX C – Bridge Inspection Report
APPENDIX D – Existing Bridge Plans
APPENDIX E – Relevant Project Correspondence

1.0 INTRODUCTION

1.1 Location

The SR 994 (SW 200th Street) Bridge over the Black Creek Canal is in Miami-Dade County, Florida approximately 0.6 miles east of SR 825 (SW 137th Avenue) and 0.45 miles west of Burr Road (SW 127th Avenue). A project location map is shown in Figure 1.

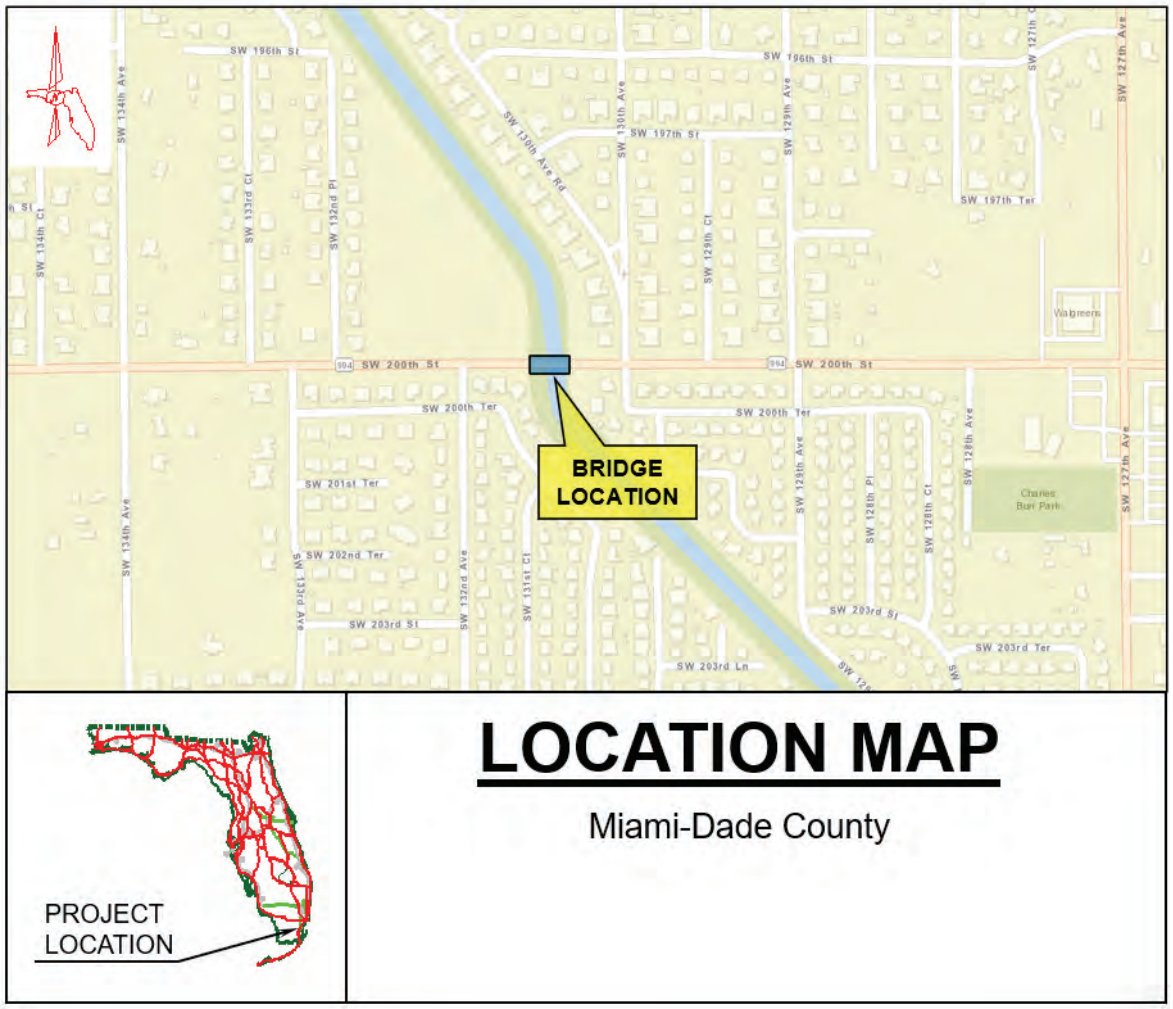


Figure 1 – Project Location Map

1.2 Project Description

A Project Development and Environment (PD&E) Study is being conducted to evaluate the widening of SR 994/SW 200th Street/Quail Roost Drive from west of SW 137th Avenue to east of SW 127th Avenue. The proposed four-lane section will connect to the existing four-lane section of SR 994 beginning just west of SW 127th Avenue. The total project length is approximately 1.2 miles. Included in the PD&E Study is the replacement of the SR 994 bridge over the Black Creek Canal.

2.0 EXISTING CONDITIONS

2.1 Existing Roadway Conditions

2.1.1 Functional Classification

SR 994 is classified as an urban minor arterial for most of the project limits including the location of the existing bridge.

2.1.2 Roadway Typical Section

SR 994 is a two-lane roadway (one lane in each direction) from west of SW 137th Avenue to west of SW 127th Avenue. From west of SW 127th Avenue to SR 821, SR 994 is a four-lane roadway. The existing SR 994 typical section consists of two undivided 11.5-foot travel lanes with unpaved shoulders and open drainage. Curb and gutter exist at the SR 994/SW 134th Avenue intersection and east of SW 127th Avenue. Sidewalks are non-continuous and generally located at residential subdivisions and there are no existing designated bike lanes on SR 994.

2.1.3 Right-of-Way

The right-of-way along the corridor varies from 30 feet to 92 feet.

2.1.4 Existing Navigation

The Black Creek Canal is not considered navigable; therefore, no provisions need to be made for boat traffic.

2.2 Existing Bridge

SR 994 over Black Creek Canal (Bridge No. 870633) is a functionally obsolete 3-span structure constructed in 1962. It is 38’-0” wide and has three equal span lengths of 29’-4” resulting in a total bridge length of 88’-0”. The existing superstructure consists of eight 15-inch thick, 4-foot wide prestressed concrete sonovoid slab units with a 1-inch-thick asphalt overlay. Transverse post-tensioning tendons are used at the 1/3 point along each span to connect the individual slab units. 12” square prestressed concrete piles are used at each end bent and 14” square prestressed concrete piles are used at the two intermediate bents.

Figure 2 – Existing Bridge Elevation Looking North

Figure 3 – Existing Bridge Aerial

2.3 Utilities

Based upon a Sunshine 811 design ticket obtained on December 15, 2020, there are eight Utility Agency Owners (UAOs) along the project limits. These utilities include electric, water, sewer and communications. In the immediate vicinity of the existing bridge the following utilities have been identified:

- Water line crossing over the Black Creek Canal located south of the existing bridge
- Joint use poles containing overhead electric and communication lines located south of the existing bridge

The water line crossing is shown in Figures 2 and 3 and the overhead electric and communication lines are shown in Figure 3. The water line crossing and the joint use poles are expected to relocate further to the south due to conflicts with the proposed bridge and no utilities are expected to be placed on the proposed bridge.

Additional utility related information can be found in the “Utility Assessment Package” located in Appendix H of the Preliminary Engineering Report (PER).

3.0 STRUCTURES DESIGN

3.1 Geotechnical Report and Environmental Classification

Geotechnical information has been provided by GEOSOL, Inc. The Preliminary Bridge Geotechnical Report can be found in Appendix B.

The corrosivity test results of the water sample indicate the environmental classification for the bridge is slightly aggressive for the superstructure and moderately aggressive for the substructure. The following items are noted:

- pH = 8.0
- Resistivity = 1,067 Ohm-cm
- Chlorides = 56 ppm
- Sulfates = 9 ppm

3.2 Hydraulic Analysis and Scour

A hydraulic analysis including a scour determination will be performed during Final design. As documented in Appendix E, the South Florida Water Management District will require articulating concrete block (ACB) within the existing canal 1:1 slope for 25 feet beyond the proposed bridge coping.

3.3 Structures Design Criteria

3.3.1 Design Method

The Load and Resistance Factor Design (LRFD) methodology and English Units will be used for the structures design for this project.

3.3.2 Specifications

The structure shall be designed in accordance with:

- FDOT Structures Manual, January 2024 edition (includes the Structures Design Guidelines referred to herein as SDG and the Structures Detailing Manual referred to herein as SDM).
- AASHTO LRFD Bridge Design Specifications, 9th Edition (referred to herein as LRFD)
- FDOT Standard Specifications for Road and Bridge Construction, FY 2024-25 edition.
- 2024 FDOT Design Manual (referred to herein as FDM).
- FDOT FY 2024-25 Standard Plans.
- 2023 FDOT Load Rating Manual.

3.3.3 Concrete Materials

For all classes of concrete, the calculation for Modulus of Elasticity, E_c, (in accordance with LRFD 5.4.2.4) uses a 0.145 kcf unit weight (un-reinforced concrete), and the 1.0 aggregate source correction factor, K_1, for the assumed use of Florida limerock coarse aggregate, in accordance with SDG 1.4.1. Normal weight concrete is assumed for the design. The following concrete classifications and strengths as specified in SDG Section 1.4.3 will be used for the project.

Concrete Element	Concrete Class	28-day Strength	Modulus of Elasticity
Superstructure			
- Approach Slabs	II (Bridge Deck)	4,500 psi	4,145 ksi
- Bridge Deck	II (Bridge Deck)	4,500 psi	4,145 ksi
- Traffic Barriers/Raised Sidewalk	II	3,400 psi	3,778 ksi
- Prestressed Concrete Beams	VI	8,500 psi	5,112 ksi
Substructure			
- CIP Substructure	IV	5,500 psi	4,428 ksi
- Prestressed Concrete Piling	V	6,500 psi	4,679 ksi

The concrete cover for each component is in accordance with SDG Table 1.4.2-1.

3.3.4 Steel Materials

The steel materials to be used in the project are:

Reinforcing Steel (SDG 1.4.1B)

- ASTM A615, Grade 60 deformed carbon-steel bar
- ASTM A1064, Grade 75 deformed welded wire reinforcement (WWR)

Prestressing Strands (SDG 4.3.1)

- ASTM A416, Grade 270, low-relaxation strands

3.3.5 Design Loads

The following loads are used in the project design:

Dead Loads (SDG 2.2 and LRFD 3.5.1)

- Compacted Soil — 115 lb/ft³
- Reinforced Concrete (Structural) — 150 lb/ft³
- Traffic Railing Barrier (32” Vertical Shape) — 385 lb/ft (Index 521-423)
- Future Wearing Surface — 15 lb/ft² (SDG Table 2.2-1 – Short Bridges)
- Bullet Railing — 10 lb/ft (Index 521-820, 515-021 & 515-022)
- Utilities — 0 lb/ft (No utilities attached to bridge)

Live Loads (LRFD 3.6)

- Design vehicular live load shall be the HL-93 designation (LRFD 3.6.1.2.1)
- Design pedestrian load shall be 75 psf (LRFD 3.6.1.6).
- The multiple presence of live loads that occupy the lanes of a bridge shall be considered and the corresponding multiple presence factor shall be applied in accordance with LRFD Table 3.6.1.1.2-1.
- Dynamic load allowance shall be applied in accordance with LRFD 3.6.2.
- Bridge shall be load rated for the FL120 permit loading.

Wind Loads (SDG 2.4 and LRFD 3.8)

- Design wind speed on completed structure shall be 170 mph (Miami-Dade County).

Seismic Effects (SDG 2.3 and LRFD 3.10)

- The project structure is exempt from seismic requirements in accordance with SDG 2.3.
  - Elastomeric bearings will be used.
- Substructures shall satisfy minimum support length criteria in accordance with LRFD 4.7.4.4.

Thermal Loads (SDG 2.7.1)

- Movement of bridge structures shall be calculated assuming the following uniform temperature range:

Superstructure Material	Temperature Range (Degrees Fahrenheit)			
	Mean	High	Low	Range
Concrete Only	70	105	35	70

3.3.6 Vertical Clearance

There are several criteria that are contemplated as part of the vertical clearance requirements over the Black Creek Canal. These include the following:

- South Florida Water Management District
  - 2 feet above the design water surface elevation of EL. 5.0 (NGVD).
  - 4.5 feet above the optimum water control elevation of EL. 4.3 (NGVD).
- FDM
  - Section 260.8.1
    - "The minimum vertical clearance between the design flood stage and the low member of a bridge is 2 feet. This clearance is necessary to allow the majority of debris to pass without causing damage to the structure."
  - Section 222.2.1.2
    - "Provide a minimum 7-foot vertical clearance over the entire walking surface."
  - Figure 266.2.1 Note 2
    - "…provided an 8-foot minimum headroom is maintained."
  - Section 224.8
    - "Provide a 10-foot vertical clearance from the lowest edge of an overhead obstruction to any portion of the path under the obstruction. An 8-foot clearance is allowed for overhead signs and for other overhead obstructions under constrained conditions."

In June 2024, the trail underpass alternative was eliminated from consideration; therefore, only the South Florida Water Management District and FDM 260.8.1 criteria remain as applicable criterion. The proposed roadway profile will be set to satisfy the applicable requirements.

3.3.7 Horizontal Clearance

There are several criteria that are considered related to horizontal clearance. These include the following:

- South Florida Water Management District
  - The center span must be centered on the centerline of the canal.
  - The center span must have a minimum clear opening of 25 feet as measured from the faces of the pile bents.

    - Approach spans must have a minimum spacing of 20 feet as measured on centers.
- FDM
    - Section 224.7
        - "For Urban Side Paths, the following criteria reflect the lower design speed. Provide a minimum 2-foot buffer area adjacent to both sides of the path, including placement of signs. Signs, plantings or other items must be located outside of the 2-foot buffer. Maintain a graded area with a maximum 1:6 slope adjacent to both sides of the path within the 2-foot minimum buffer area."
    - Section 262.1
        - "For retaining walls greater than 5 feet in height, provide a 10-foot maintenance area (1:10 or flatter) in front of the wall face with suitable access for maintenance vehicles." Per the Standard Plans Instructions for Index 548-020, the flat area at the base of the retaining wall can be reduced to a minimum of 4-foot where the 10-foot cannot be provided.

In June 2024, the trail underpass alternative was eliminated from consideration; therefore, the FDM 224.7 criteria is no longer applicable.

By eliminating the trail underpass from consideration, the roadway profile can be lowered. This results in an exposed gravity wall height measured from the proposed groundline to the top of the gravity wall of less than 5 feet; therefore, the FDM 262.1 criteria is not applicable.

The spans lengths for the proposed bridge will be set to ensure compliance with the remaining applicable requirements.

4.0 BRIDGE ALTERNATIVES

4.1 Typical Section

As shown in Exhibit C located in Appendix A, the bridge typical section consists of two 11-foot eastbound travel lanes, two 11-foot westbound travel lanes, one 11-foot westbound left turn lane and a variable width raised median. There are 1'-4" shoulders between the thru travel lanes and the adjacent raised sidewalk and median as required by FDM Figure 260.1.3. The raised sidewalk on each side has a width of 18'-2" to match the approaching roadway section. 32" vertical shape traffic railings with bullet rail are used adjacent to the sidewalk. The overall bridge width is 101'-8".

4.2 Construction Phasing

Construction phasing of the proposed bridge will be required. Details related to the phasing will be determined during final design; however, the current plan is to utilize a simple two-phased approach. In Phase 1 existing vehicular and pedestrian traffic is maintained in its current configuration while construction of the northern and southern portions of the proposed bridge are built. Phase 2 moves westbound traffic onto the northern portion built during Phase 1 and eastbound traffic onto the southern portion built during Phase 1 while the existing bridge is removed, and the middle portion of the proposed bridge is constructed.

4.3 Span Arrangement

Selecting an appropriate span arrangement is a key design issue for a new bridge. The location of the begin bridge, end bridge, centerline of the existing canal and location of the existing pile bents drive many of the decisions related to span arrangement while ensuring the items noted in Section 3.3.7 are satisfied.

The existing bridge is centered on the Black Creek Canal with three equal spans of 29'-4". To avoid conflicts with existing pile foundations, the proposed span arrangement will be set to ensure the proposed pile bents are offset longitudinally from the existing pile bents. Span 2 will be centered on the Black Creek Canal with a span length of 40'-6". Exhibits A and B in Appendix A show the proposed span arrangement.

4.4 Foundation Alternatives

Several foundation alternatives, including shallow foundations, drilled shafts, steel piles (pipe & H-sections), precast prestressed concrete piles and auger cast-in-place piles are considered viable foundation options. The preliminary geotechnical report located in Appendix C discusses each of these alternatives.

Precast prestressed concrete (PPC) piles are a widely used and proven foundation system in Florida. PPC piles are readily available and generally have a lower cost per ton of capacity than other pile types. The minimum PPC pile size for the bridge foundations is 18 inches as required by FDOT SDG Table 3.5.1-1; however, 24-inch piles may be required based upon structural requirements that will be determined during final design. Due to the proximity of the proposed bridge to the existing bridge, existing utilities and nearby residences, predrilled pile holes in accordance with Specification Section 455 will be used to prevent refusal conditions and pile damage and to mitigate vibration to the aforementioned existing facilities. Vibration and settlement monitoring shall be carried out in accordance with Specification Section 108. **PPC piles are the recommended foundation type for this bridge.**

4.5 Superstructure Alternatives

To keep the proposed profile as low as possible, only shallow superstructure options are considered viable. As noted in Section 4.3 and shown in Exhibits A and B, the longest span length is 40'-6".

4.5.1 Cast-in-Place Concrete

The minimum slab thickness for a 3-span continuous cast-in-place flat slab having a maximum span length of 40'-6" is approximately 21 inches. SDG Section 9.2.3 indicates the cost for cast-in-place reinforced concrete flat slabs, excluding premiums associated with phased construction, is from $140/SF to $320/SF. This superstructure type requires shoring to support the weight of the wet concrete.

4.5.2 Prestressed Concrete

Florida Slab Beams (FSB's) are a viable prestressed concrete option. Table 1 provides guidance from the Instructions for Standard Plans (Index 450-450) related to maximum recommended span lengths.

Table of Recommended Maximum Span Lengths (CL Bearing to CL Bearing) [Short Bridges]		
Beam Type	Beam Width	
	4'-0"	5'-0"
12" FSB	40'-11"	43'-11"
15" FSB	52'-11"	56'-3"

Table 1 – Florida Slab Beam Maximum Span Length Recommendations

Based upon the maximum span length, 12" FSB's with a 6" cast-in-place topping can provide the necessary structural capacity with a superstructure depth of 18 inches. No temporary shoring is needed to erect these beams. SDG Section 9.2.3 indicates the cost for pretensioned slab beams with a cast-in-place topping, excluding premiums associated with phased construction, is from $180/SF to $300/SF. **FSB's are the recommended superstructure type for the proposed bridge.**

4.6 Substructure Alternatives

The most common type of substructure used for short span bridges crossing small waterways is pile bents. The existing bridge utilizes pile bents. **Pile bents are the recommended substructure type for the proposed bridge.**

4.7 Retaining Walls

Permanent and temporary retaining walls are required for the project.

Permanent walls include gravity walls along the roadway approaches to minimize the proposed right-of-way required.

Anticipated temporary walls include temporary MSE walls where the proposed ground is higher than the existing ground and temporary sheet pile walls for end bent cap excavation and construction adjacent to the existing bridge.

5.0 CONSTRUCTION COST ESTIMATE

A detailed cost estimate is not required per the scope of services. To determine a preliminary construction cost estimate, information from SDG Section 9 was used. SDG Section 9.2.3 indicates the estimated bridge cost for new construction of a pretensioned slab beam with a cast-in-place concrete topping is between $180/SF and $300/SF. This total does not consider cost premiums associated with phased construction or construction over water. These premiums are 20% and 3%, respectively. Assuming a mid-range cost plus a 23% premium gives a bridge cost estimate of approximately $295/SF. Table 2 summarizes the estimated costs for the main structures related elements.

Element	Units	Cost/Unit	Total Cost
New Bridge	10,167 SF	$295/SF	$2,999,265
Approach Slab Concrete	226 CY	$400/CY	$90,400
Approach Slab Reinforcing	45,200 LB	$1.05/LB	$45,200
Existing Bridge Demo	3,344 SF	$60/SF	$200,640
Miscellaneous Items	10%	---	$333,551

Table 2 – Estimated Construction Costs

The total cost for the items listed in Table 2 is $3,669,056.

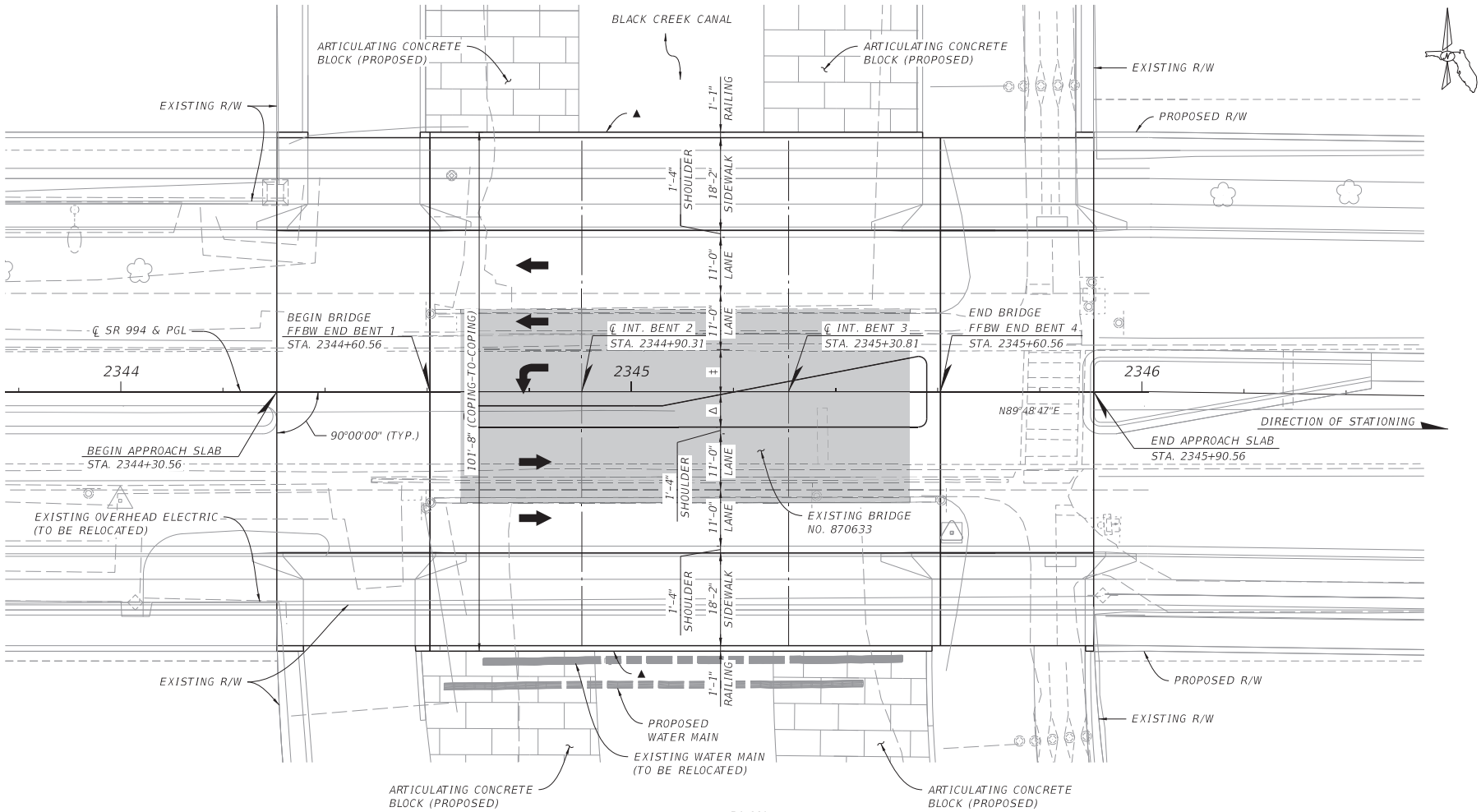
6.0 RECOMMENDATION

Based on the criteria and methodology outlined in this Bridge Analysis Report, the recommended structure type for the proposed SR 994 over Black Creek Canal Bridge replacement is:

- The bridge has a total length of 100’-0” and consists of three spans (29’-9”, 40’-6” & 29’-9”) as shown in Exhibits A and B located in Appendix A.
- The bridge has a total width of 101’-8” and will be constructed in two phases.
- The superstructure consists of prestressed concrete 12” Florida Slab Beams with a 6” thick cast-in-place concrete topping as shown in Exhibit C located in Appendix A.
- The substructure consists of pile bents founded on precast prestressed concrete piles. The size of the piles will be determined during final design.
- The estimated construction cost is $3,669,056.

APPENDIX A

Exhibits



PLAN

LEGEND

Δ VARIES (4'-2" TO 13'-10"), RAISED MEDIAN

‡ VARIES (1'-4" TO 11'-0"), LEFT TURN LANE

▲ TRAFFIC RAILING (32" VERTICAL SHAPE) (INDEX 521-423) WITH POST "C1" AND BULLET RAIL (INDEX 515-021)

REMOVAL OF EXISTING BRIDGE

EXHIBIT A

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DOUGLAS M. HERSHEY, P.E.
P.E. LICENSE NUMBER 63325
H.W. LOCHNER, INC.
4300 WEST CYPRESS STREET, SUITE 500
TAMPA, FL 33607

DRAWN BY: LCY
CHECKED BY: JGH
DESIGNED BY: LCY
CHECKED BY: JGH

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: PLAN

PROJECT NAME: SR 994/SW 200TH STREET/QUAIL ROOST DRIVE FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. B1-1

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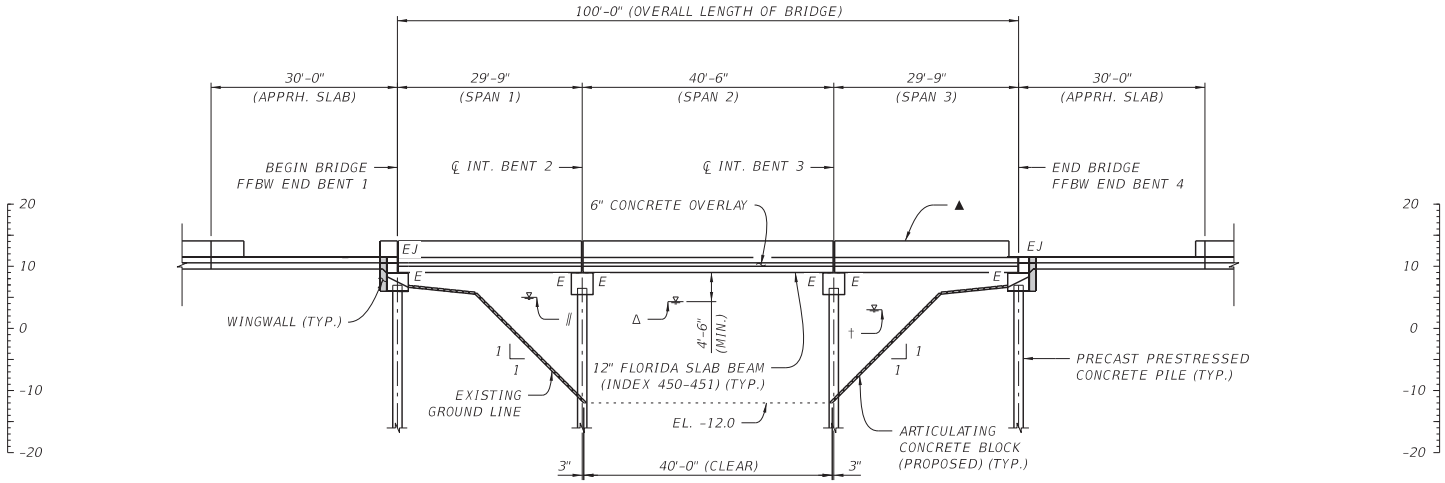

ELEVATION

(BULLET RAIL AND POST NOT SHOWN FOR CLARITY)

LEGEND:

// EL. 5.0 (DESIGN HIGH WATER ELEVATION)

Δ EL. 4.3 (OPTIMUM WATER CONTROL ELEVATION)

† EL. 3.0 (AVERAGE DRY SEASON WATER LEVEL)

▲ TRAFFIC RAILING (32" VERTICAL SHAPE) (INDEX 521-423) WITH POST "C1" AND BULLET RAIL (INDEX 515-021)

EXHIBIT B

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DOUGLAS M. HERSHEY, P.E.
P.E. LICENSE NUMBER 63325
H.W. LOCHNER, INC.
4300 WEST CYPRESS STREET, SUITE 500
TAMPA, FL 33607

DRAWN BY: LCY
CHECKED BY: JGH
DESIGNED BY: LCY
CHECKED BY: JGH

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: ELEVATION

REF. DWG. NO.

PROJECT NAME: SR 944/SW 200TH STREET QUAIL ROOST DRIVE FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

SHEET NO. B1-2

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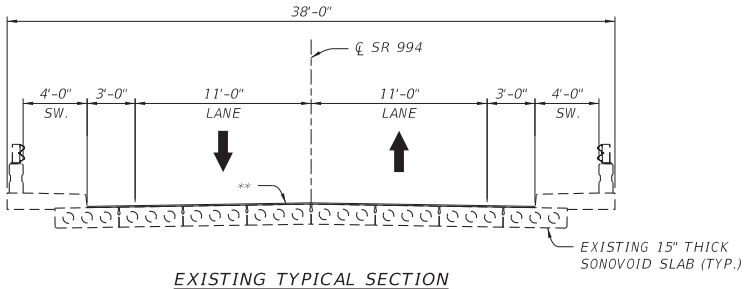
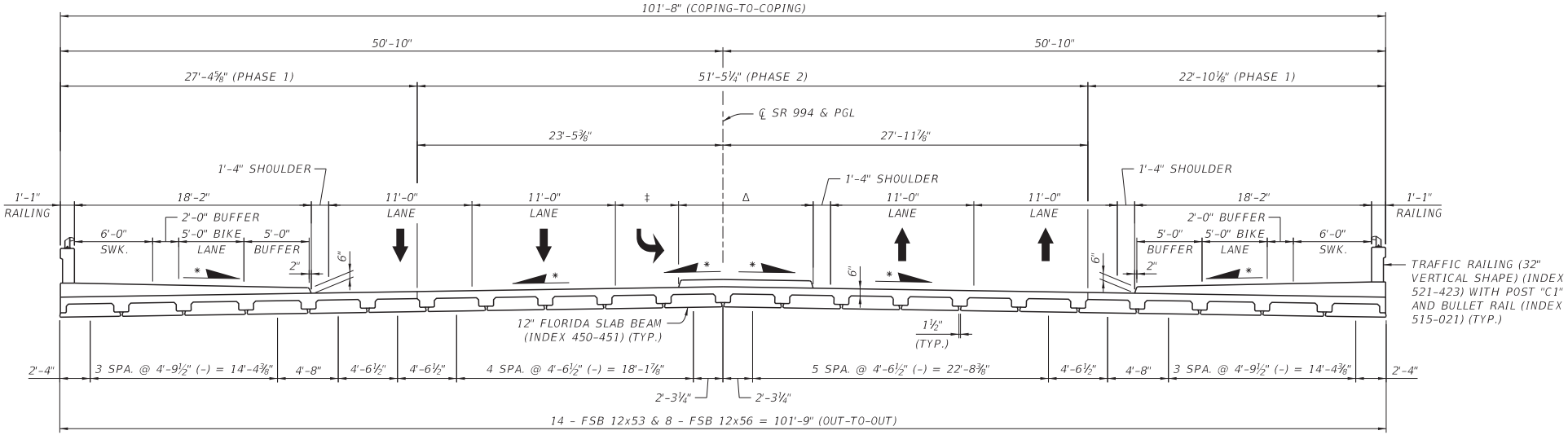


EXISTING TYPICAL SECTION

** = 1" ASPHALT OVERLAY



PROPOSED TYPICAL SECTION

Δ = VARIES (4'-2" TO 13'-10"), RAISED MEDIAN
‡ = VARIES (1'-4" TO 11'-0"), LEFT TURN LANE
* = 2% SLOPE

EXHIBIT C

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DOUGLAS M. HERSHEY, P.E.
P.E. LICENSE NUMBER 63325
H.W. LOCHNER, INC.
4300 WEST CYPRESS STREET, SUITE 500
TAMPA, FL 33607

DRAWN BY: DMH
CHECKED BY: QF
DESIGNED BY: DMH
CHECKED BY: QF

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TYPICAL SECTIONS

REF. DWG. NO.

PROJECT NAME: SR 994/SW 200TH STREET/QUAIL ROOST DRIVE FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

SHEET NO. B1-3

DHERSHEY 6/4/2024 11:58:17 AM I:\TPA\PRJ\000018796\3_Design\struct\B1TypicalSection02_March2024.dgn

APPENDIX B

Preliminary Bridge Geotechnical Report

PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE MIAMI-DADE COUNTY, FLORIDA
FPID No. 445804-1-22-01

PRELIMINARY GEOTECHNICAL REPORT FOR BRIDGE WIDENING/REPLACEMENT

SR 997 BRIDGE OVER BLACK CREEK CANAL (BRIDGE NO. 870633)

PREPARED FOR: GANNETT FLEMING, INC.

PREPARED BY: GEOSOL, INC.

SEPTEMBER 17, 2021

September 17, 2021

Gannett Fleming, Inc.
800 NW 62nd Avenue, Suite 490
Miami, Florida 33126

Attention: Ms. Alina Fernandez, P.E. - Vice President

Re: **Preliminary Geotechnical Report for Bridges Widening/Replacement**
SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Project Development and Environment (PD&E) Study
SR 994/ SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue
To East of SW 127th Avenue
Miami-Dade County, Florida
FPID No. 445804-1-22-01
GEOSOL Project No. 221126

Dear Ms. Fernandez:

GEOSOL, Inc. (GEOSOL) is pleased to submit the enclosed preliminary geotechnical report for the proposed widening/replacement of the SR 997 bridge over Black Creek Canal (Bridged No. 870633) associated with the above-referenced project. As we understand it, this geotechnical report will be used as documentation for the Project Development and Environmental (PD&E) studies for this project. These services were provided in accordance with the FDOT's *Soils and Foundation Handbook* and our scope of services negotiated with FDOT on May 5, 2021. Authorization for our services was provided by means of a Subconsultant Agreement between Gannett Fleming, Inc. and GEOSOL dated June 17, 2021.

The results of the preliminary field exploration and laboratory testing programs, together with our preliminary geotechnical engineering evaluations and recommendations for the proposed bridge widening/replacement that is part of the project are presented in the accompanying report. For the final design phase of this project, it is recommended that a final design-level geotechnical exploration program be performed in accordance with the latest version of the FDOT's *Soils and Foundations Handbook*.

GEOSOL appreciates the opportunity to submit this geotechnical report and looks forward to a successful team effort on this and future projects. If you have any questions, please do not hesitate to call our office.

Sincerely,
GEOSOL, INC. 9/17/21

Oracio Riccobono, P.E.
Chief Geotechnical Engineer
Florida License No. 49324

Adnan Ismail, P.E.
Senior Geotechnical Engineer
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For
Juan C. Gonzalez, P.E.
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cc: Addressee (1)
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TABLE OF CONTENTS

ITEM **PAGE**

1.0 INTRODUCTION 1
1.1 Project Information 1
1.2 Purpose 1
2.0 SCOPE OF STUDY 2
2.1 Geotechnical Scope 2
2.2 Report Format 2
3.0 SITE DESCRIPTION 3
4.0 FIELD EXPLORATION 3
4.1 General 3
4.2 Field Test Locations 3
4.3 Standard Penetration Test (SPT) 4
4.4 Water Level Measurements 4
4.5 Traffic Control and Signs 4
4.6 Rock Coring 4
5.0 LABORATORY TESTING 5
5.1 General 5
5.2 Grain-Size Analysis 5
5.3 Moisture Content 5
5.4 Environmental Classification 6
6.0 GENERALIZED SUBSURFACE CONDITIONS 6
6.1 Regional Geology 6
6.2 Miami-Dade County Soil Survey 7
7.0 SITE SUBSURFACE CONDITIONS 7
7.1 General 7
7.2 Groundwater Conditions 7
8.0 GEOTECHNICAL DESIGN PARAMETERS FOR FOUNDATION DESIGN 8
8.1 General 8
9.0 PRELIMINARY BRIDGE FOUNDATION EVALUATION 11
9.1 General 11
9.2 Foundation Alternatives for Bridge Structures 11
9.2.1 Shallow Foundations 11
9.2.2 Drilled Shafts 12
9.2.3 Steel Piles 15
9.2.4 Precast Prestressed Concrete Driven Piles 15
9.2.5 Auger Cast-in-Place (ACIP) Piles 18
9.2.6 Scour 21
10.0 EXCAVATION RECOMMENDATIONS 21

GEOSOL, Inc.

TABLE OF CONTENTS (CONTINUED)

ITEM **PAGE**

11.0 FHWA REPORT CHECKLIST 22

12.0 RECOMMENDATIONS FOR FURTHER GEOTECHNICAL STUDIES 22

13.0 REPORT LIMITATIONS 22

APPENDICES

Appendix "A"
Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: US Geologic Survey Map
Table 1: Summary of Field Test Locations
Sheet 4: Boring Location Plan
Sheet 5: Report of Core Borings

Appendix "B"
Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Grain Size Analysis Test Curves
Natural Moisture Content Test Results
Percent Passing the No. 200 Sieve Test Results
Organic Content Test Results
Environmental Classification Test Results
SFWMD Readings at the S-148 Spillway on Canal C-1 at FEC Railroad
Dade County Design Standard WC-2.2: Average October Ground Water Level

Appendix "C"
Driven Piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Drilled Shafts: "FB-Deep" Axial Compression Shaft Capacity
Graphs & Output Printouts
ACIP piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Derivation of Geotechnical Design Parameters
FB-MultiPier Geotechnical Parameters

Appendix "D"
FHWA Geotechnical Report Checklist

1.0 INTRODUCTION

1.1 Project Information

The Florida Department of Transportation (FDOT) District 6 is conducting a Project Development and Environmental (PD&E) study for the improvement of SR 994/ SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue (MP 4.000 to MP 5.162) in Miami-Dade County, Florida. We understand that the objective of the PD&E study is to evaluate the widening of SR 994/ SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue and document information necessary for FDOT to reach a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility. The total length of the project is about 1.162 miles (about 6,135 feet). Sheet 1 of Appendix "A" presents a Site Vicinity Map.

Based on our review of the preliminary plans and the project information provided to us, we understand that the proposed improvements that are part of the project include either the widening or replacement of the existing SR 993 bridge over Black Creek Canal (Canal C-1W) from two (2) lanes to four (4) lanes roadway section. The existing bridge is located approximately 300 feet east of SW 132nd Avenue, and has a typical section that includes two (2) undivided travel lanes approximately 11 feet wide and 6-ft concrete sidewalks adjacent to each travel lane. The bridge is a three-span structure approximately 95 feet long and 38 feet wide.

This report was specifically prepared to obtain preliminary geotechnical information for the above-referenced bridge widening or replacement. This report presents our preliminary field exploration and laboratory testing programs as well as our preliminary geotechnical engineering evaluations and recommendations for the proposed bridge wall structures. A separate preliminary report was prepared for the proposed roadway improvements that are being considered for this project.

For this preliminary report, we considered supporting the proposed bridge widening or replacement on deep foundation systems, including drilled shafts, driven piles, and Auger Cast-in-Place (ACIP) piles. It is to be noted, though, that if ACIP piles are used, it will require approval from FDOT Central Office. We also considered a shallow foundation system (spread footings). As we understand it, the final foundation systems will be selected after the final design level geotechnical investigation and analyses is performed.

1.2 Purpose

The purpose of this preliminary study was to evaluate the underground conditions (i.e. subsoil, rock and groundwater conditions) in light of the planned bridges widening or replacement described above. The results of the field and laboratory testing programs together with our preliminary geotechnical engineering recommendations for the proposed bridge foundations are included in this report.

2.0 SCOPE OF STUDY

2.1 Geotechnical Scope

In preparation of this preliminary geotechnical report, we have performed the following services:

1. Discussed with GF the scope of the field exploration program.
2. Performed site reconnaissance and marked the location of the test borings in the field.
3. Filed for a roadway closure permit with the FDOT Traffic Operations Section.
4. Obtained underground utility clearance notifications at each test boring location.
5. Provided Maintenance of Traffic during the performance of the field testing in accordance with the Index Plan 102-600 series of the FDOT Roadway and Traffic Design Standards.
6. Performed a total of two (2) Standard Penetration Test (SPT) borings to depths of 80 feet below existing grades for the proposed bridge widening/replacement.
7. Patched the surface of the test boring locations and restored the sites to their original condition.
8. Inspected retained soil/rock samples for visual classification and performed laboratory and corrosion tests on selected representative samples.
9. Reviewed the field and laboratory data and evaluated the data for various foundation systems.
10. Prepared a preliminary geotechnical engineering report summarizing the results of the preliminary field and laboratory testing programs as well as the preliminary foundation evaluations.

2.2 Report Format

This preliminary geotechnical report begins with a discussion of the field and laboratory testing programs followed by a general discussion regarding the subsurface conditions, preliminary geotechnical engineering evaluations and recommendations, construction considerations, and report limitations. The site vicinity, USDA soils survey, and USGS maps, the boring location plan sheets, and Report of Core Boring sheets are presented in Appendix “A”. The laboratory test results are presented in Appendix “B”. The results of the preliminary bridge foundation evaluations are presented in Appendix “C”. The FHWA Report Checklist is presented in Appendix “D”.

3.0 SITE DESCRIPTION

The site of the study is generally located along SR 994/SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of 127th Avenue in Miami-Dade County, Florida. Within the project limits SR 994 is classified as a rural minor arterial to the center of SW 137th Avenue, and as an urban minor arterial east of NW 137th Avenue. The existing typical roadway section generally consists of a two (2) lane (one in each direction) roadway with paved outside shoulders and turning lanes. Residential areas are generally present within the project limits.

4.0 FIELD EXPLORATION

4.1 General

A field exploration program was conducted consisting of Standard Penetration Test (SPT) borings performed at the site of the proposed bridge widening/replacement. A total of two (2) SPT borings (BR-1 and BR-2) were performed for this phase of the project on land to depths of 80 feet below existing grades. Additionally, one (1) sample (D50) was collected from the canal bottom for D50 analyses for use in scour evaluations.

The field exploration program was performed between August 20 and 24. The Boring Location Plan sheet is presented on Sheet 4 in Appendix “A”. The Report of Core Boring sheet is shown on Sheet 5 in Appendix "A". This sheet presents the boring location information, subsurface conditions and groundwater levels encountered at the time of drilling. In addition, these profiles present the results of the laboratory testing on selected representative soil samples.

4.2 Field Test Locations

The test locations were marked in the field by representatives of GEOSOL utilizing the Google Earth KMZ file provided to us by GF that show the proposed improvement limits, standard taping procedures and existing landmarks. The tests were performed as close as possible to the proposed improvements considering constraints such as existing utilities and equipment accessibility. The latitude and longitude coordinates were obtained using a hand-held Global Positioning System (GPS) device (Garmin eTrex 20X) at the test boring location. The GPS data were converted to northing and easting coordinates using the U.S. Army Corps of Engineers software “Corpscon”. The ground surface elevations from each test boring location were not provided to us at this point. The test boring location information is presented in Table 1 of Appendix “A” and the Boring Location Plans in Sheet 4 of Appendix “A”.

4.3 Standard Penetration Test (SPT)

The SPT borings performed were drilled utilizing truck-mounted drill rigs (Foremost-Mobile model B-53) equipped with recently calibrated automatic hammers. The SPT boring procedure was conducted in general conformance with ASTM D-1586. After seating the sampler six (6) inches, the number of successive blows required to drive the sampler twelve (12) inches into the soil constitutes the test result commonly referred to as the "N"-value. The “N”-value has been empirically correlated with various soil properties and is considered to be indicative of the relative density of cohesionless soils and the consistency of cohesive soils. The N-value information for each SPT boring is presented in the Report of Core Boring sheet. The recovered split spoon samples from the SPT borings were visually classified in the field with representative portions of the samples placed in jars and transported to our office for review by a Geotechnical Engineer and verification of the field classification.

4.4 Water Level Measurements

Water level depths were obtained during the test boring operations. They are noted on the Report of Core Boring Sheets presented in Appendix “A”. In relatively pervious soils such as sandy soils and porous rocks the indicated depths are usually groundwater levels. Seasonal variations, tidal conditions, temperature, land-use, and recent rainfall conditions may influence the depths of the groundwater.

4.5 Traffic Control and Signs

Barricades, cones, sign devices, and off-duty police officers were continuously used as necessary and in general compliance with Roadway and Traffic Design Standards Index Drawings.

4.6 Rock Coring

For the PD&E study, rock coring was not performed at the bridge site. If drilled shafts, ACIP piles, or spread footings are ultimately selected for bridge support, rock coring and strength testing will be required in accordance with the latest version of the FDOT *Soils and Foundations Handbook*.

5.0 LABORATORY TESTING

5.1 General

Representative soil and rock samples collected from the SPT borings were visually reviewed in the laboratory by a geotechnical engineer to confirm the field classifications. The soil samples were then classified using the Unified Soil Classification System (USCS) in general accordance with the American Society of Testing and Materials (ASTM) test designation D-2488, titled "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)" and ASTM D-2487 titled "Standard Test Method for Classification of Soils for Engineering Purposes". The soil classification was based on visual observations with the aids of laboratory testing results, which consist of grain-size analysis, percent passing the No. 200 sieve, and natural moisture content. In addition, environmental classification testing was performed on water samples obtained from the SPT borings. The tests were performed on selected samples believed to be representative of the materials encountered. A summary of the laboratory test results is provided in Tables 2 and 3 in Appendix "B" of this report.

5.2 Grain-Size Analysis

The grain-size analyses were conducted in general accordance with the FDOT Test Designation FM1-T88 (ASTM Test Designation D-422, titled "Particle-Size Analysis of Soils"). The grain-size analysis test measures the percentage passing the No. 200 Sieve. In this manner, the grain-size distribution of a soil is measured. The percentage by weight passing the No. 200 sieve is the amount of silt and clay sized particles. A summary of these test results are presented on Table 2 in Appendix "B". The grain-size analysis curves are presented in Appendix "B" of this report.

5.3 Moisture Content

Laboratory moisture content test consists of the determination of the percentage of moisture contents in selected samples in general accordance with FDOT Test Designation FM1-T265 {ASTM Test Designation D-2216, titled "Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures"}. Briefly, the moisture content is determined by weighing a sample of the selected material and then drying it in a warm oven. Care is taken to use a gentle heat so as not to destroy any organics. The sample is removed from the oven and reweighed. The difference of the two weights is the amount of moisture removed from the sample. The weight of the moisture divided by the weight of the dry soil sample is the percentage by weight of moisture in the sample. The moisture content test results are presented in Table No. 2 attached in Appendix "B".

5.4 Environmental Classification

As part of the laboratory testing program, environmental corrosion tests on water samples recovered from the SPT borings in the vicinity of the proposed bridges. Environmental corrosion tests include parameters such as pH, resistivity, sulfates content and chlorides content. The environmental corrosion tests were conducted in general accordance with the FDOT Test Designations FM5-550, 5-551, 5-552, and 5-553. Based on the FDOT's "Structures Design Guidelines", Section 1.3, the environment in the bridge areas has been classified as slightly aggressive for the superstructures and moderately aggressive for the substructures and indicated in the Report of Core Boring Sheet in Appendix "A". The test results obtained are presented on Table 3 in Appendix "B".

6.0 GENERALIZED SUBSURFACE CONDITIONS

6.1 Regional Geology

The Miami area of southern Florida is underlain by an alternating sequence of cemented and uncemented Pleistocene sedimentary deposits (Pleistocene Epoch, deposited 10,000 to 2 million years before the present). A near surface poorly cemented, oolitic Miami Limestone is underlain by a wide variety of loose to dense quartz sands and coarse to fine-grained limestones (Fort Thompson Formation). However, in many portions of Miami-Dade, surface sand deposits of the Pamlico Formation and man-made fill materials are encountered. The Pamlico Formation is composed of unfossiliferous, unconsolidated quartz fine sand. The man-made fill deposit generally consists of granular fill material. The thickness of these deposits is in the order of three (3) to five (5) feet. Generally, the Pamlico formation overlies the Miami Limestone Formation. In the west part of the county, portions of the Everglades interfingers with the Pamlico Formation sands. The Everglades soils consist of peat, organic silt and calcareous silt marl. Generally, the Everglades soils have a thickness in the order of three (3) to seven (7) feet and overlie the Miami Limestone Formation.

The limestones found in the Miami area are much softer than the hard rock formations found elsewhere in the U.S. Although the limestone in Miami can be very porous and have a sponge-like open interconnected network of vugs and small voids, large cavities prone to sinkhole activity are not generally found in the Miami area because the rock formations of South Florida are relatively young, as compared to those encountered in other parts of Florida.

6.2 Miami-Dade County Soil Survey

The *Soil Survey of Miami-Dade County Area, Florida*, published by the United States Department of Agriculture (USDA), was reviewed for general near-surface soil information within the general project vicinity. This information indicates that there are three (3) primary mapping units for this project. The map soil units encountered are as follow:

- Perine marl, drained (6)
- Biscayne marl, drained (16)
- Water (99)

A reproduction of the USDA map for the project area is illustrated on Sheet 2 in Appendix "A".

7.0 SITE SUBSURFACE CONDITIONS

7.1 General

The groundwater table was measured at each boring location during the performance of the test borings and confirmed immediately following completion of drilling operations. Test borings were performed during the wet season. The groundwater table depths within the roadway borings were measured after a short stabilization period. The groundwater depths ranged from approximately 6.2 to 6.9 feet, with an average of about 6.6 feet, below existing grades. This information is shown on the Report of Core Boring sheet presented in Appendix "A" of this report. Fluctuation in the observed groundwater levels should be expected due to rainfall variation, construction activity and other factors. We recommend that The Designer consider the possibility of such fluctuation.

7.2 Groundwater Conditions

The estimated seasonal high water table each year is the level in the August-September period at the end of the rainy season during a year of average (normal) rainfall. The water table elevations associated with a flood would be much higher than the seasonal high water table elevations. The normal high water levels would more approximate the seasonal high water table elevations. The seasonal high water table is affected by a number of factors. The drainage characteristic of the soils, the land surface elevation, relief points such as lakes, canals, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high water table elevation.

The borings performed by GEOSOL were generally done during the wet season and the SHGWT is expected to be slightly above the levels measured at the borings performed for this study. Based on our interpretation of the site conditions using the results of our test boring data, we estimate that the normal seasonal high water table is about 6 to 12 inches above the water levels measured in the boring locations.

Based on our interpretation of the site conditions using the results of our test boring data, Miami-Dade County historical groundwater maps, and United States Geological Survey (USGS) historical groundwater data, we estimate that the normal seasonal high water table should range from about +4 to +5 feet (NGVD, 1929). The range in SHGWT is presented due to the fact that limited groundwater data was collected during the PD&E study. The recommendation for SHGWT should be refined and revisited during final design phase.

8.0 GEOTECHNICAL DESIGN PARAMETERS FOR FOUNDATION DESIGN

8.1 General

The geotechnical design parameters for this study were obtained on the basis of empirical relationships between the SPT "N"-values and the shear strength of the soil/rock strata. The subsequent sections provide derivation of geotechnical design parameters for use in preliminary foundation design for the proposed bridge widening. The derivation of the geotechnical design parameters are presented in Appendix "C". It is to be noted that the SPT borings performed by GEOSOL were done with the use of an automatic hammer and The SPT "N"-values obtained from each boring were corrected for hammer efficiency – in order to use the empirical relationships that were derived based on the safety hammer N-values - in accordance with the recommended relationship presented in the FDOT *Soils and Foundations Handbook* (N_{safety} = 1.24*$N_{automatic}$). Hence, any references to SPT "N"-values in the following paragraphs only have been corrected to safety hammer N-values (N_{safety}) for use in foundation design.

The ground surface at the boring locations was covered by either a topsoil layer or an asphalt pavement layer. The following stratification was encountered either below the topsoil layer or below the asphalt pavement at the borings performed by GEOSOL:

❖ **Granular Fill:**

The soils from this layer generally consist of fine to medium-grained sand. The materials from this stratum may classify as SP, SP-SM, or SM in accordance with the USCS. The relative density of this layer is medium dense with N_{safety}-values ranging between 21 and 26, with a statistical average N_{safety}-value of about 24 bpf. Based on established empirical relationship between the N-value and the internal friction angle (ϕ) as well as statistical evaluation of the data, we recommend an internal friction angle (ϕ) and total unit weight (γ_t) of 34 degrees and 115 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.26, 5.15 and 0.44, respectively.

❖ **Sandy Silt:**

This layer was generally encountered below the granular fill layer at depths ranging from 2 and 9.5, with thickness ranging from 5.5 to 6 feet, with an average thickness of about 5.8 feet. The materials from this Stratum consist of sandy silt and classify as ML in accordance with the USCS. The consistency of this layer is stiff with N-values ranging from 9 to 11 blows per foot, with a statistical average N-value of 10 bpf. Based on established empirical relationship between the N-value and the internal friction angle (ϕ) as well as statistical evaluation of the data, we recommend an internal friction angle (ϕ) and total unit weight (γ_t) of 23 degrees and 90 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.44, 2.28 and 0.61, respectively.

❖ **Natural Upper Limestone Formation:**

The upper rock formation at the site is soft, occasionally moderately hard. This material was generally intermittingly with the upper sand layer. This formation is very porous. Based on results of the SPT borings, the N_{safety}-values obtained from the SPT borings ranged from 10 to 17 blows per foot (bpf), with a statistical average N_{safety}-value of about 14 bpf. Based on the variable strength properties of the limestone formation, and in accordance with FDOT's *Soils and Foundation Handbook*, we recommend that the limestone be modeled as gravel with an internal friction angle (ϕ) and total unit weight (γ_t) of 35 degrees and 120 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.25, 5.63 and 0.43, respectively.

❖ **Natural Sand:**

The sand stratum was encountered below the sandy silt and intermittingly with the upper limestone formation. The soils from this layer generally consist of fine to medium-grained sand. The materials from this stratum may classify as SP in accordance with the USCS. The relative density of this layer is medium dense with N_{safety}-values ranging between 10 and 11, with a statistical average N_{safety}-value of about 10 bpf. Based on established empirical relationship between the N-value and the internal friction angle (ϕ) as well as statistical evaluation of the data, we recommend an internal friction angle (ϕ) and total unit weight (γ_t) of 31 degrees and 110 pounds per cubic foot (pcf), respectively. The active, passive, and at-rest earth pressure of coefficients (i.e. K_a, K_p, and K_o) for this layer are 0.29, 4.28 and 0.48, respectively.

❖ **Natural Lower Limestone Formation:**

The natural lower limestone formation was generally encountered below the sand layer. The natural lower limestone formation is the bearing stratum for deep foundations in Miami-Dade County. The strength of the limestone formation encountered throughout the project alignment was variable. Since rock cores have not been obtained, the shear strength properties of this rock formation were obtained from established empirical correlations. Based on results of the SPT borings, the N_{safety}-values obtained from the SPT borings ranged from 29 bpf and over 50 blows per 2 inches of penetration (split-spoon sampler refusal conditions), with a statistical average N_{safety}-value of about 38 bpf. Based on the variable strength properties of the limestone formation, we recommend that the limestone be modeled as rock with a design unit skin friction (f_{su}) value of 3.5 tons per square foot (tsf) and a Cohesion (c) value of 7.0 tsf. We recommend a total unit weight (γ_t) of 120 pcf. The shear strength value was derived based on empirical correlations presented in the FDOT's *Soils and Foundations Handbook*.

Table "A" below presents a summary of preliminary geotechnical soil/rock parameters for use in preliminary foundation analyses and design. For specific subsurface stratification, refer to the Report of Core Boring sheet presented in Appendix "A".

TABLE "A"- SUMMARY OF PRELIMINARY GEOTECHNICAL DESIGN PARAMETERS

GENERAL MATERIAL DESCRIPTION	UNIT WEIGHT, γ (PCF)		FRICTION ANGLE, ϕ (Degrees)	DESIGN UNIT SKIN FRICTION, f_{su} (TSF)	COHESION (C) (TSF)	EARTH PRESSURE COEFFICIENTS		
	TOTAL	EFFECTIVE				ACTIVE (Ka)	PASSIVE (Kp)	AT-REST (Ko)
Granular Fill (SP/SP-SM/SM)	115	53	34	-	-	0.26	5.15	0.44
Sandy Silt (ML)	90	28	23	-	-	0.44	2.28	0.61
Natural Upper Limestone	120	58	35	-	-	0.25	5.63	0.43
Natural Sand (SP)	110	48	31	-	-	0.29	4.28	0.48
Natural Lower Limestone	120	58	-	3.5	7.0	-	-	-

Included in Appendix "C" are preliminary FB-Multipier Parameters for use in laterally loaded driven pile/drilled shaft/ACIP pile analyses.

9.0 PRELIMINARY BRIDGE FOUNDATION EVALUATION

9.1 General

We understand that the existing bridges are either being considered for widening or replacement. The existing bridges are supported by square precast prestressed concrete driven pile foundations. The project is in PD&E phase and final design loading information is not yet available. We understand that the bridge design methodology will be Load and Resistance Factor Design.

The PD&E study phase of the project consists of preparing a preliminary geotechnical report to aid FDOT in reaching a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility. Deep foundations (driven piles, drilled shafts, and ACIP piles), as well as shallow foundations were considered for support of the proposed bridge improvements. Each of the foundation alternatives is discussed individually in the following sections.

9.2 Foundation Alternatives for Bridge Structures

Foundation alternatives for the project considered the results of our field study and performance of foundation systems near the project site. Based on our experience with similar projects, we considered the following foundation alternatives:

- Shallow Foundations
- Straight Sided Drilled Shafts
- Steel Piles, Including Pipe and H-Sections
- Precast Prestressed Concrete Piles
- Auger Cast-in-Place (ACIP) Piles

The following sections discuss our preliminary foundation recommendations for each alternative:

9.2.1 Shallow Foundations

For the most part, the soil borings performed for the proposed bridge widening or replacement disclosed loose sandy soils and unsuitable sandy silt (ML) in the upper part of the subsurface profile. The use of shallow foundations will require extensive excavations for the removal of the unsuitable sandy silt (ML) that were encountered at the bridge boring locations at depths ranging from 2 and 9.5, with thickness ranging from 5.5 to 6 feet, with an average thickness of about 5.8 feet.

Additionally, due to the groundwater levels measured during the field exploration program, dewatering will likely be required to cast the spread footings in the dry, which can add a significant cost to the project and excessive settlement to the existing utilities.

Also, given the relatively large magnitude of the applied loads, large footings would be required and relatively large settlements would result, making the use of shallow foundations uneconomical and unfeasible.

Further, spread footings will be subjected to the effects of scour due to the fact that the bridges cross over the Black Creek Canal. Also, Substantial dewatering and possible cofferdam with tremie seal will be required to cast the footings in the dry, which can add a significant cost to the project.

Furthermore, the difficulties associated with spread footing construction, presence of underground utilities, and potential MOT impacts due to relatively large footing sizes make them an unpractical and not cost effective, in our opinion, foundation alternative.

However, when a final-design level geotechnical investigation is performed, a re-evaluation may be performed to determine feasibility of using a shallow foundation system for bridge support.

9.2.2 Drilled Shafts

- *General*

Drilled shafts are a feasible foundation alternative for the support of the proposed bridge widening or replacement. Drilled shafts have the advantage of being able to develop high axial and lateral capacities in a single unit and their use reduces construction vibration concerns (using special vibration free-oscillatory type equipment for case installation) and noise in the vicinity of existing structures. However, the quality control of drilled shaft installation requires more engineering judgment and precaution compared to the driven piles to ensure that the specifications are complied. Also, drilled shafts require additional testing (i.e. cross-hole-sonic logging, static or dynamic load testing, shaft inspection device, etc.) that typically make them more expensive than driven piles. The minimum drilled shaft diameters allowed by the FDOT *Structures Design Guidelines* for redundant and non-redundant foundations are 42 and 48 inches, respectively.

We are providing evaluations and recommendations for the PD&E study phase of the project. It should be noted that for this preliminary report, rock coring and testing have not been performed in order to derive the design shear strength parameters for drilled shaft foundation design in accordance with the FDOT's *Soils and Foundations Handbook*. Therefore, for this report we have evaluated drilled shaft capacities using established empirical relationships between the SPT N-value and the shear strength of the rock strata as presented in the FDOT's *Soils and Foundations Handbook*. If drilled shafts are ultimately selected for support of any of the bridge improvements, rock coring and testing will be required to confirm the preliminary shear strength parameters and to provide final recommendations regarding drilled shaft foundations.

Drilled shafts were evaluated using the manual entitled *Drilled Shafts: Construction Procedures and LRFD Design Methods,* published by the Federal Highway Administration (FHWA), and the FDOT *Soils and Foundations Handbook*. The drilled shaft capacities were evaluated by using the preliminary soil/rock shear strength properties previously summarized in Table "A" of this report.

❖ *Axial Capacity*

For this preliminary phase, we have prepared curves of axial capacity versus depth for drilled shaft diameters of 42, 48, 54, 60, and 72 inches. The curves were prepared using the software for axially loaded drilled shafts, "FB-Deep" v3.0.0, which was developed based on the procedures outlined in based upon Federal Highway Administration report "Drilled Shafts: Construction Procedure and Design Methods". As previously stated the SPT "N"-values from the borings performed of this study were obtained using an automatic hammer. Per FDOT Soils and Foundation Handbook a correction factor of Nsafety = 1.24*Nautomatic was used for the program FB-Deep software input. The FB-Deep runs for borings performed by GEOSOL are presented in Appendix "C".

The nominal resistances that the drilled shafts may develop were multiplied by resistance factors of 0.5 and 0.6 for non-redundant and redundant drilled shaft foundations, respectively. These resistance factors were selected because our preliminary shaft capacities based on side friction resistance only. Appendix "C" presents our preliminary drilled shaft capacity evaluations.

Since it is early in the design phase, the drilled shaft foundation configuration (i.e. # of shafts) has not been determined. If at all possible, we recommend that non-redundant drilled shaft foundations not be used, as significantly more stringent FDOT design and construction requirements apply (i.e. shaft inspection device at each shaft, cross-hole sonic logging at each shaft, SPT boring and rock coring at each shaft location, etc.). The performance of a load testing program may be required to allow for an opportunity to evaluate end bearing capacity of the drilled shafts and possibly shortening the shaft lengths. The axial capacities presented in Appendix "C" are based on side friction resistance only, since the full mobilization of end bearing capacity would require large tip movement and on the order of 5 to 10 percent of the shaft diameter.

If drilled shafts are to be selected for foundation support, requirements for a load testing program, including the recommended type, will be specified during the final design phase. If load testing is performed for the drilled shafts of this project, then the resistance factor (ϕ) could be increased. For example, for Statnamic load testing, ϕ can be increased from 0.60 to 0.70.

- *Lateral Deflections*

At this point the design loading information is not available. During the final design phase if drilled shafts are selected for bridge support, lateral deflections will need to be checked and minimum tip elevations will need to be established once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *Drilled Shaft Settlement*

Settlements of drilled shaft supported bridge foundations are typically small and tolerable for a typical shaft group. At this point the design loading information is not available. During the final design phase if drilled shafts are selected for bridge support, settlements will need to be checked at the Service limit state once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *Drilled Shaft Construction*

The installation of the drilled shafts should be carried out in accordance with Section 455 of the FDOT *Standard Specifications for Road and Bridge Construction*.

- *Load Testing*

Load test types include static load tests, dynamic load tests, Osterberg load tests and Statnamic load tests. Factors to be considered when evaluating the benefits and costs of providing loaded tested shafts include: subsurface conditions, design loads, testing equipment, mobilization and vibration concerns. Generally, the more variable the subsurface conditions at the site the less cost effective are static load tests. If drilled shafts are selected, we recommend that the load test be of either Statnamic or Oesterberg types. Generally, Statnamic load tests are less expensive and quicker to perform than Oesterberg type load tests. However, given the explosive nature of the Statnamic load test and the nearby residential and commercial structures, we do not recommend the use of a Statnamic load test. The Osterberg load test appears to be the most feasible type of load testing program.

If drilled shaft foundations are selected for bridge support, we recommend that as a minimum one (1) compression load test is planned. The location of the load tests should be selected considering the subsurface conditions and design loading. We recommend that load testing be performed in the vicinity of a test boring at the intended location of the drilled shaft where significant shortening of the shafts could be realized. Potential bent location for load testing will be selected during final design if drilled shafts are selected. The test shafts should be instrumented in order to gain information regarding the unit skin friction characteristics of each subsurface stratum as well as end bearing load behavior. The recommended load testing location and load testing recommendations will be provided in the final geotechnical report.

9.2.3 Steel Piles

Steel pile types include pipe piles and H-sections. Previous experience has shown that steel H-piles sections and pipe piles are generally more expensive per linear foot than prestressed concrete piles. Steel piles are well suited to conditions with high variability in anticipated penetration depths where frequent splicing is expected. Typical sizes of pipe piles range from 13 to 16 inches in diameter. The steel piles do not develop as much compression and tension capacities for similar penetration depths as square driven prestressed concrete piles and rough cost data indicates that the steel pipe piles are more expensive than similar sizes of square prestressed concrete piles. Steel H-sections are inappropriate for this project because of inferior capacities compared to pipe piles at similar costs. As a result, we did not consider this alternative any further.

9.2.4 Precast Prestressed Concrete Driven Piles

Square precast prestressed concrete driven piles are also considered an appropriate foundation type. They are a widely used and proven foundation system in South Florida. Precast prestressed concrete piles are readily available and generally have a lower cost per ton of capacity than other driven pile types. The minimum size for prestressed concrete piles should be 18-inch square, as referenced in the FDOT *Structures Design Guideline*s. However, 24 or 30-inch square precast concrete piles may also be utilized based on the requirements of the structural design.

❖ *Compression Capacity*

We have prepared curves of axial capacity versus tip elevation for 18-, 24-, and 30-inch square driven piles based on the borings performed for this project. These curves were prepared using software for axially loaded driven piles, "FB-Deep" v3.0.0, which was developed based on the procedures outlined in FDOT Research Bulletin 121. As previously stated the SPT "N"-values from the borings performed of this study were obtained using an automatic hammer. Since the program FB-Deep software uses SPT "N"-values obtained with a safety hammer, the SPT "N"-values obtained from the borings performed on land with the use of an automatic hammer were converted to safety hammer "N"-values using the FDOT *Soils and Foundation Handbook* correction of $N_{safety} = 1.24*N_{automatic}$. The FB-Deep runs for borings performed by GEOSOL are presented in Appendix "C".

From the FB-Deep computer outputs, the Davisson Capacity values shall be used to predict the Nominal Bearing Resistance (NBR). The nominal bearing resistance may be estimated as follows:

$$R_n = \frac{\text{Factored Design Load} + \text{Downdrag} + \text{Net Scour}}{\Phi}$$

where,

Φ = Resistance Factor = 0.75 compression design with 100% dynamic testing or
Resistance Factor = 0.65 compression design with at least 5% dynamic testing

Once design loads, scour information and pile cut-off elevation information is available during the final design phase, recommendations for test pile lengths and required nominal bearing resistance can be provided by the Geotechnical Engineer of Record.

❖ *Lateral Deflections*

At this point, the final design loading information is not yet available. During the final design phase if driven piles are selected for bridge support, lateral deflections will need to be checked and minimum tip elevations will need to be established once the design loads are available and once a final design-level geotechnical field investigation has been performed.

❖ *Pile Settlements*

Settlements of driven pile supported bridge foundations are typically small and tolerable for a typical pile group. At this point the design loading information is not available. During the final design phase if driven piles are selected for bridge support, settlements will need to be checked at the Service limit state once the design loads are available and once a final design-level geotechnical field investigation has been performed.

❖ *Pile Installation*

The installation on the driven piles for the proposed bridges widening should be carried out in accordance with Section 455 of the FDOT *Standard Specifications for Road and Bridge Construction*.

❖ *Preforming*

Given the presence of dense fill materials, and due to the close proximity of the proposed bridge widening/replacement to existing structures and/or utilities, preforming will likely be required in order to prevent refusal conditions and pile damage, and to protect the existing structures and/or utilities during pile driving operations. The need for preforming shall be evaluated during the final design phase once design loading information is available and once a final design-level geotechnical investigation has been performed. All preforming shall be carried out in accordance with Sections 455 of the FDOT *"Standard Specifications for Road and Bridge Construction"*. Additionally, all preformed pile holes shall be backfilled in accordance with Section 455 of the FDOT *"Standard Specifications for Road and Bridge Construction"*.

❖ *Protection of Existing Structures*

All structures and substructure located in the vicinity of pile driving operations should be protected as well as monitored and surveyed for possible vibration damage and settlement in accordance with Sections 108 and 455-1.1 of the FDOT *Standard Specifications for Road and Bridge Construction*. Pre-forming may be required to reduce vibration impacts to existing structures and substructures and will be specified at a later time. Additionally, 100% dynamic testing during pile driving may be considered to reduce vibration impacts to existing structures and substructures. During final design, based on the selected foundation type, specific structures and substructures to be monitored will be identified.

- *Summary of Foundation Design*

  As previously stated, the final design loading information has not been provided to us at this time. Once the design loading information is available and once a final design-level geotechnical field investigation has been performed, the preliminary foundation analyses will need to be revisited in order to provide final recommendations regarding the required nominal bearing resistance, minimum tip elevations and test pile lengths. The pile lengths required for production will be determined at the time of test pile installation and monitoring using dynamic load testing.

- *Pile Data Table*

  As previously stated, the final design loading information has not been provided to us at this time. Once the design loading information is available and once a final design-level geotechnical field investigation has been performed, a pile data table for the proposed driven piles will need to be prepared. The pile lengths required for production will be determined at the time of test pile installation and monitoring using dynamic load testing.

9.2.5 Auger Cast-in-Place (ACIP) Piles

Auger Cast-in-Place (ACIP) Piles were also considered for support of the proposed bridge widening or replacement. Typically, ACIP piles are installed by rotating a continuous flight hollow-stem auger into the ground to the required pile depth with sufficient crowd (downward thrust) to prevent mining of the soil. While the auger is drilled into the ground, the flights of the auger are filled with soil, providing lateral support and maintaining the stability of the hole. Grout is injected through the hollow center of the auger shaft under continuous positive pressure as the auger is being withdrawn. Simultaneous pumping of the grout or concrete and withdrawing of the auger provides continuous support of the hole. A reinforcing steel cage, as specified, is inserted into the column of fluid grout immediately following the completion of grout placement and withdrawal of the auger.

It is to be noted that for the interior piers that are located in the Black Creek Canal, substantial dewatering and possible cofferdam with tremie seal will be required to cast the pile cap, which can add a significant cost to the project, and may make the use of ACIP pile foundation systems for support of the proposed bridge improvement not feasible.

ACIP pile installation reduces construction vibration concerns and noise in the vicinity of existing structures and/or utilities when compared to driven piles. Additionally, ACIP piles greatly alleviate the quality control issues and additional testing (i.e. cross-hole-sonic logging, shaft inspection device, etc.) associated with drilled shafts.

ACIP piles have been successfully used on numerous transportation infrastructure projects in Miami-Dade County including the Miami-Dade Transit elevated guideway bridges, Miami International Airport (MIA) parking garages, MIA transportation hub, MIA vehicular bridges, City of Miami Beach West Avenue vehicular bridge, and a 200-foot high air traffic control tower at the Miami-Opa-Locka Executive Airport. We are providing preliminary evaluations and recommendations for this phase of the project.

Per FDOT Structure Design Guidelines, the use of ACIP pile for support of bridges requires the approval of the State Structure Design Engineer.

❖ *Axial Capacity*

For this preliminary phase, we have prepared curves of axial capacity versus depth for ACIP pile diameter of 24 inches. The curves were prepared using the software for axially loaded drilled shafts, "FB-Deep" v3.0.0, which was developed based on the procedures outlined in based upon Federal Highway Administration report "Drilled Shafts: Construction Procedure and Design Methods". As previously stated the SPT "N"-values from the borings performed of this study were obtained using an automatic hammer. Per FDOT Soils and Foundation Handbook a correction factor of $N_{safety} = 1.24*N_{automatic}$ was used for the program FB-Deep software input. The FB-Deep runs for borings performed by GEOSOL are presented in Appendix "C".

It should be noted that for this preliminary report, rock coring and testing have not been performed in order to derive the design shear strength parameters for ACIP pile foundation design in accordance with the FDOT's *Soils and Foundations Handbook*. Therefore, for this report we have evaluated ACIP pile capacities using established empirical relationships between the SPT N-value and the shear strength of the rock strata as presented in the FDOT's *Soils and Foundations Handbook*. If ACIP piles are ultimately selected for support of any of the bridge improvements, rock coring and testing will be required to confirm the preliminary shear strength parameters and to provide final recommendations regarding ACIP pile foundations.

The factored compression and uplift capacities predictions of the ACIP piles were obtained by multiplying the ultimate capacities by a resistance factor (ϕ) for Load and Resistance Factor Design (LRFD). Resistance factors (ϕ) of 0.50 and 0.40 were selected for the factored compression and uplift capacities, respectively, for the ACIP piles in accordance with Section 3.5.20 of the FDOT Structures Design Guidelines (SDG).

The axial capacities presented in Appendix "C" are based on side friction resistance only, and ignore the contribution of soil layers as required by Section 3.5.20 of the FDOT SDG. Additionally, the axial capacities ignore the ACIP pile end bearing capacity, since the full mobilization of end bearing capacity would require large tip movement and on the order of 5 to 10 percent of the pile diameter.

If ACIP piles are to be selected for foundation support, requirements for a load testing program, including the recommended type, will be required during the final design phase.

- *Lateral Deflections*

At this point the design loading information is not available. During the final design phase if ACIP piles are selected for bridge support, lateral deflections will need to be checked and minimum tip elevations will need to be established once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *ACIP Pile Settlement*

Settlements of ACIP pile supported bridge foundations are typically small and tolerable for a typical pile group. At this point the design loading information is not available. During the final design phase if ACIP piles are selected for bridge support, settlements will need to be checked at the Service limit state once the design loads are available and one a final design-level geotechnical field investigation has been performed.

- *ACIP pile Construction*

The installation and testing of the ACIP Piles shall be carried out in accordance with the latest version of the FDOT Developmental Specifications for Auger Cast Piles Including Bridges (Dev455ACP for Projects Including Bridges).

- *Load Testing*

ACIP piles are typically load tested in accordance with ASTM D-1143 (Standard Test Methods for Deep Foundations Under Static Axial Compressive Load), ASTM D-3689 (Standard Test Methods for Deep Foundations Under Static Axial Tensile Load), and ASTM D 3966 (Standard Test Methods for Deep Foundations Under Lateral Load).

If ACIP pile foundations are selected for bridge support, we recommend that as a minimum of one (1) compression load test is planned. The location of the load test should be selected considering the subsurface conditions and design loading. We recommend that load testing be performed in the vicinity of a test boring at the intended location of the ACIP piles. Potential location for load testing and load testing recommendations shall be selected during final design if ACIP piles are selected.

9.2.6 Scour

We understand that scour is a concern for the proposed bridge crossing over the Black Creek Canal. At this point, the scour elevations are not yet available. Once the design loads are available, foundation analyses and recommendations will need to consider scour elevations. Table "B" below presents a summary D_{50} analysis performed on soils collected from the canal bottom for use in preliminary scour analysis.

TABLE "B" – SUMMARY OF D_{50} VALUES FOR SCOUR ANALYSIS

LOCATION	MATERIAL TYPE	USCS SYMBOL	SAMPLE No.	SAMPLE DEPTH BELOW MUDLINE (FEET)	D_{50} (mm)
Center Middle of Black Creek Canal Adjacent to Existing Bridge	Brown Silty Fine to Medium SAND with Some Limestone Fragments	SM	1	0-2	0.8

10.0 EXCAVATION RECOMMENDATIONS

If required temporary excavations of the existing subsurface materials may be accomplished as follows:

- **Granular Soils**: Temporary excavation maximum side slopes of 1V:2H in the granular subsurface materials are stable and have a minimum factor of safety of 1.3.

- **Sandy Silt**: Temporary excavation maximum side slopes of 1V:3H in the sandy silt are stable and have a minimum factor of safety of 1.3.

- **Limestone Formations**: Temporary excavation maximum side slopes of 1V:1H in the natural limestone formations are stable and also have a minimum factor of safety of 1.3.

If steeper side slopes are required, The Designer should evaluate the need for temporary ground support systems such as temporary sheet piles during excavation. The temporary ground support systems may be designed using the preliminary soil/rock parameters presented in Table "A" of this report.

11.0 FHWA REPORT CHECKLIST

As referenced in the Structures Design Guidelines, conformance to the FHWA Report "Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications" prepared by the Geotechnical and Materials Branch, FHWA, Washington, D.C. is required when preparing geotechnical reports. The FHWA checklist for this report is enclosed in Appendix "D".

12.0 RECOMMENDATIONS FOR FURTHER GEOTECHNICAL STUDIES

For this PD&E phase of the project, a limited number of test borings were performed to support the bridge foundation design. Once the preferred alternative and foundation system for the bridges is chosen, a final design-level geotechnical investigation program will be required for the bridge structure. The final design-level geotechnical investigation program should be performed in accordance with the latest version of the FDOT *Soils and Foundations Handbook*. If drilled shafts, ACIP piles, or spread footings are chosen as a foundation for support of the proposed bridges, rock coring and laboratory testing on rock core specimens will be required for final design of the foundations in accordance with the latest version of the FDOT *Soils and Foundations Handbook*.

13.0 REPORT LIMITATIONS

Our professional services have been performed, our preliminary findings obtained, and our preliminary recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on the data collected. No other warranties are expressed or implied.

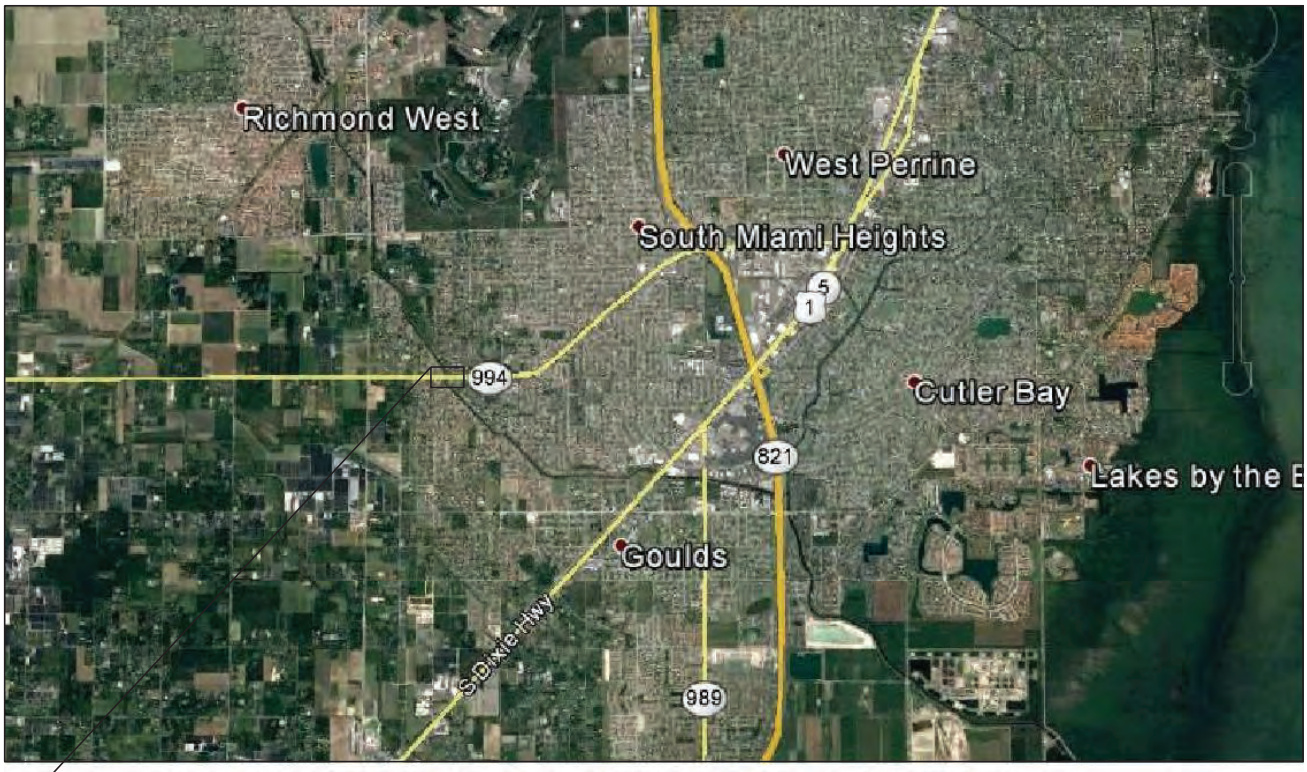
The preliminary scope of the investigation was intended to evaluate subsurface conditions within the influence of the expected bridge foundations for the PD&E phase of the project. The preliminary analyses and preliminary recommendations submitted in this report are based upon the preliminary data obtained from the test borings performed at the locations indicated. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the proposed bridge structure.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

APPENDIX "A"

Sheet 1: Site Vicinity Map
Sheet 2: USDA Soils Survey Map
Sheet 3: US Geologic Survey Map
Table 1: Summary of Field Test Locations
Sheet 4: Boring Location Plan
Sheet 5: Report of Core Borings

GEOSOL, Inc.



APPROXIMATE SITE LOCATION

SITE VICINITY MAP

COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: GOOGLE EARTH, 2021

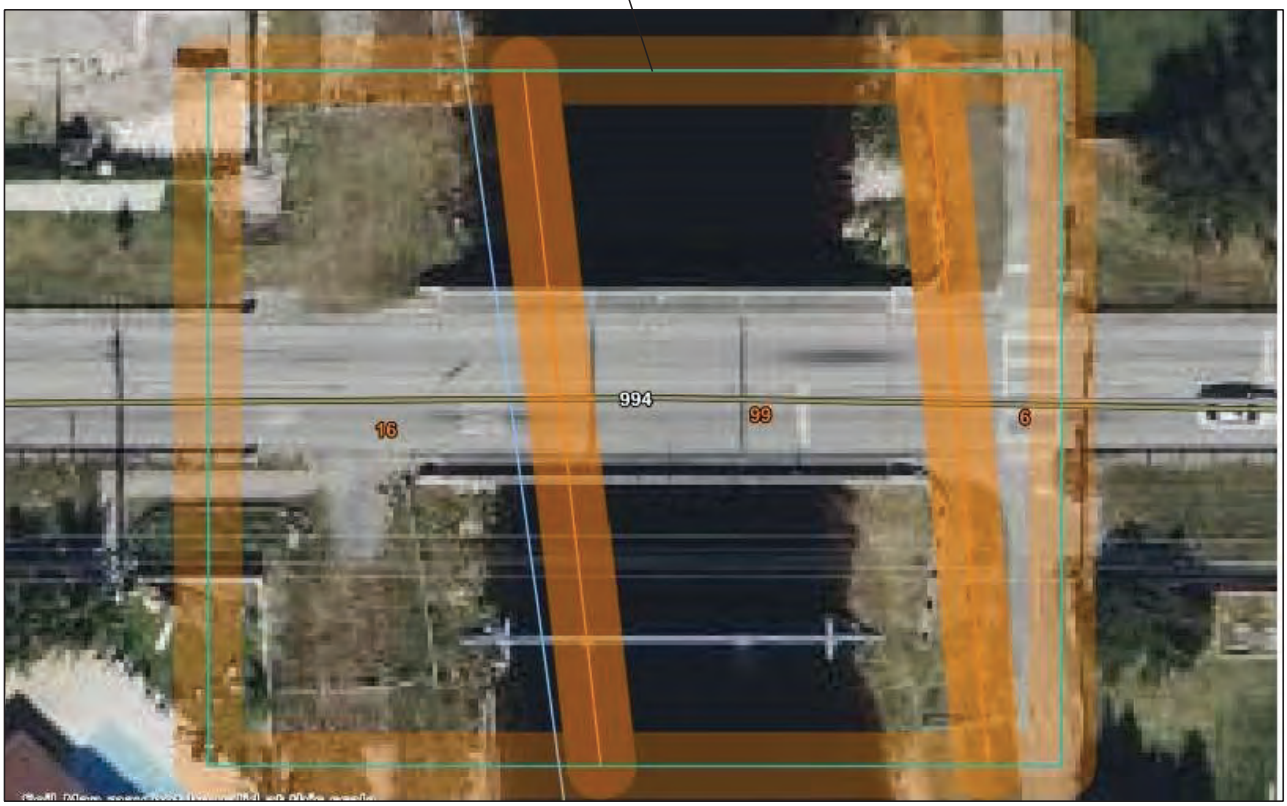
DATE: SEPTEMBER, 2021

SITE VICINITY MAP

SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 1

APPROXIMATE SITE LOCATION



USDA SOILS SURVEY MAP

MAP UNIT	SOIL NAME
6	Perine marl, drained
16	Biscayne marl, drained
99	Water

COUNTY: MIAMI-DADE COUNTY, FLORIDA

REFERENCE: NRCS WEB SOILS SURVEY, 2021

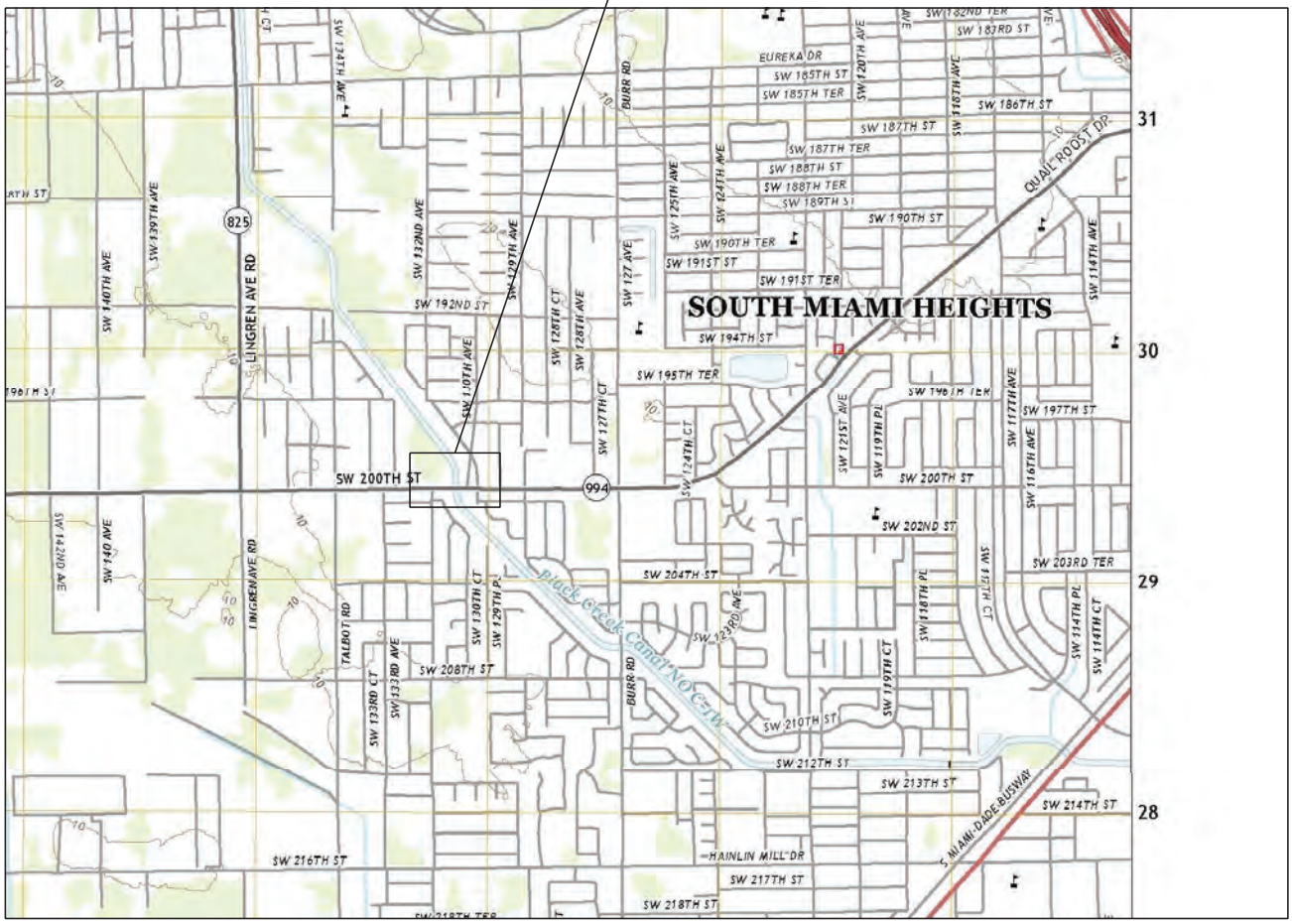
DATE: SEPTEMBER, 2021

USDA SOILS SURVEY MAP

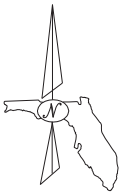
SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 2

APPROXIMATE SITE LOCATION



US GEOLOGIC SURVEY MAP



COUNTY: GOULDS, FLORIDA

REFERENCE: MIAMI, FL
U.S. GEOLOGIC SURVEY, 2018

DATE: SEPTEMBER, 2021

US GEOLOGIC SURVEY MAP

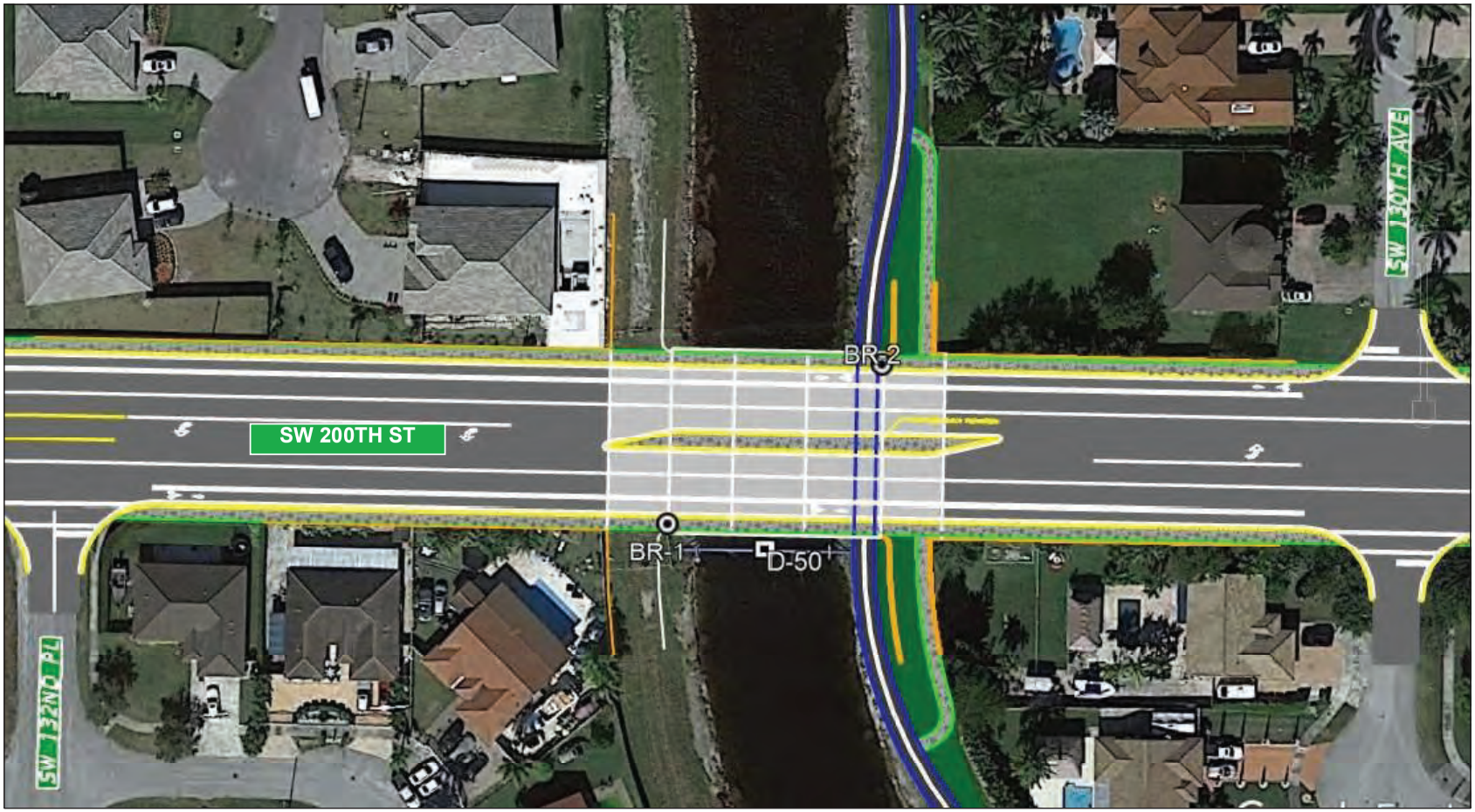
SR 994/SW 200th STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO
EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
FM No.: 445804-1-22-01

DRAWN	SCALE	PROJ. No.
JM	N.T.S.	221126
CHECKED	DATE	
OR	SEPT., 2021	SHEET 3

PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE
TO EAST OF SW 127TH AVENUE
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No. 221126

TABLE 1 - SUMMARY OF TEST BORING LOCATIONS

BORING / TEST No.	APPROXIMATE TEST LOCATION (FEET)				GROUND SURFACE ELEVATION (FEET)
	NORTHING	EASTING	LATITUDE	LONGITUDE	
BR-1	453753	852567	25.580739	-80.404145	N/A
BR-2	453832	852670	25.580956	-80.403833	N/A
D-50	453742	852615	25.580707	-80.404000	N/A



LEGEND

- BR-1: APPROXIMATE SPT BORING LOCATION
- D-50: APPROXIMATE PARTICLE SIZE DISTRIBUTION (D-50) TEST LOCATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: TEST LOCATION PLANS

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

REF. DWG. NO.

SHEET NO. 4

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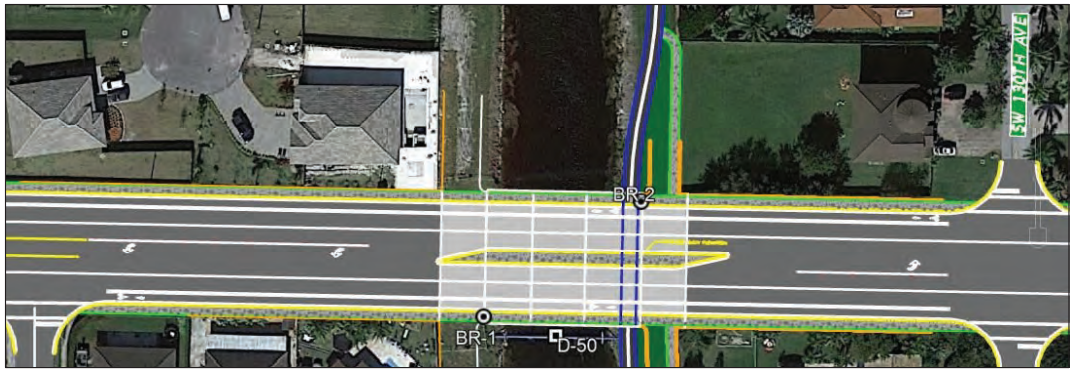
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



BORING LOCATION PLAN

0 4 20
Feet
VERTICAL SCALE
HORIZONTAL SCALE: N.T.S.

LEGEND

- TOPSOIL
- SAND (FILL; SP-SM)
- SANDY SAND (FILL; SM)
- SANDY SILT (ML)
- SAND (SP)
- LIMESTONE
- WATER TABLE AT TIME OF DRILLING
- SPT BORING LOCATION
- D50 SAMPLE LOCATION
- CASING USED
- N — NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12" PENETRATION (UNLESS OTHERWISE NOTED).
- NMC — NATURAL MOISTURE CONTENT (%)
- -200 — FINES PASSING THE #200 SIEVE (%)
- OC — ORGANIC CONTENT (%)
- → — PERIODIC TOTAL LOSS OF DRILLING FLUID CIRCULATION (100%)

NOTES:

SPT BORINGS PERFORMED PER ASTM D-1586 WITH A HAMMER WEIGHT OF 140 LBS FALLING 30 INCHES.

ENVIRONMENTAL CLASSIFICATION:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE
SUBSTRUCTURE: MODERATELY AGGRESSIVE

WATER:

pH: 8.0 SULFATE: 9
CHLORIDE: 56 RESISTIVITY: 1,067

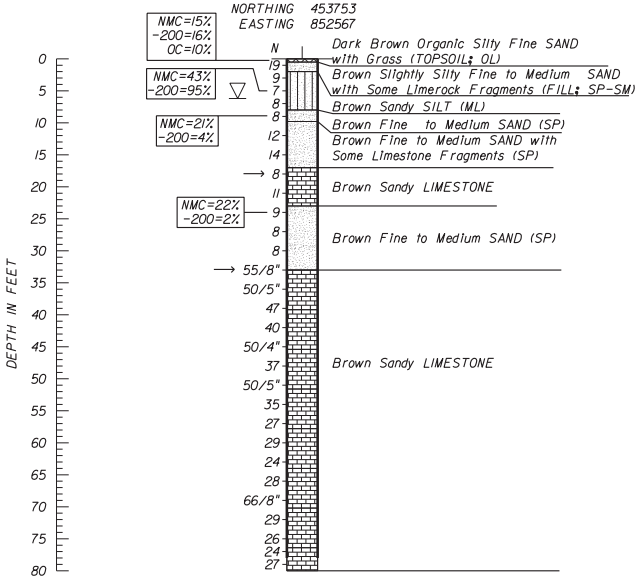
CONSTRUCTION NOTES:

1) THE STRATA ENCOUNTERED WITHIN THE PROJECT SITE CORRESPOND TO DENSE SOILS THAT OFFER HIGH RESISTANCE TO DRIVING AND EXCAVATION. SPECIAL EQUIPMENT AND BREAKING TOOLS ARE TYPICALLY REQUIRED TO EXCAVATE OR PENETRATE THESE LAYERS. THESE LAYERS ARE ALSO DIFFICULT TO DEWATER DUE TO THEIR HIGH POROSITY AND PERMEABILITY. FOR DRILLED SHAFTS/DRIVEN PILES/ACIP PILES RELATED WORK, THESE LAYERS TYPICALLY REQUIRE PREFORMING HOLES TO MINIMUM TIP ELEVATION TO PREVENT REFUSAL CONDITIONS, STRUCTURAL DAMAGE, OR TO MINIMIZE VIBRATION-INDUCED DAMAGE TO NEARBY STRUCTURES.
2) THE CONTRACTOR IS ADVISED THAT CAVING SATURATED SANDY SOILS MAY BE ENCOUNTERED DURING THE EXCAVATION FOR INSTALLATION OF THE DRILLED SHAFT/DRIVEN PILES/ACIP PILES FOUNDATIONS.
3) THE CONTRACTOR IS ADVISED THAT PERIODIC TOTAL LOSS OF CIRCULATION WAS EXPERIENCED DURING THE PERFORMANCE OF THE BORINGS WHICH MAY MAKE IT DIFFICULT TO MAINTAIN THE FLUID LEVEL IN THE EXCAVATION.

GRANULAR MATERIALS-RELATIVE DENSITY	AUTOMATIC SPT HAMMER (BLOWS PER FOOT)
VERY LOOSE	LESS THAN 3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS CONSISTANCY	**AUTOMATIC SPT HAMMER (BLOWS PER FOOT)**
VERY SOFT	LESS THAN 1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	GREATER THAN 24

BOR # BR-1

DATE 8/24/2021
DRILLER R.Morales
RIG B-53
HAMMER Auto
LATITUDE 25.580739
LONGITUDE -80.404145
NORTHING 453753
EASTING 852567

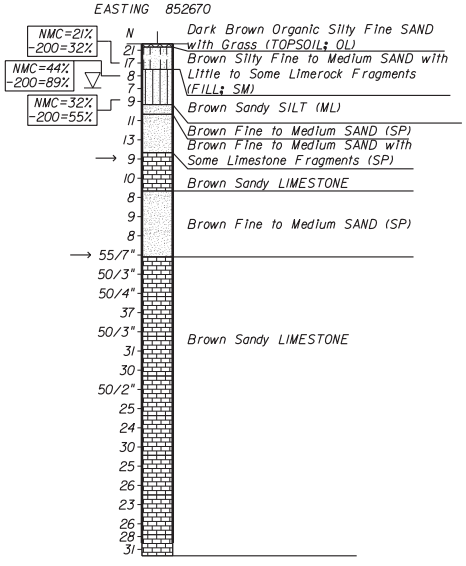


Boring Terminated at Depth of 80ft

Casing Length 78ft

BOR # BR-2

DATE 8/20/2021
DRILLER R.Morales
RIG B-53
HAMMER Auto
LATITUDE 25.580956
LONGITUDE -80.403833
NORTHING 453832
EASTING 852670



Boring Terminated at Depth of 80ft

Casing Length 78ft

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS

BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
GEOSOL, INC.
ORACIO RICCOBONO, P.E.
P.E. LICENSE NO. 49324
5795-A NW 151ST STREET
MIAMI LAKES, FL 33014
PHONE: (305) 828-4367

DRAWN BY: E.M. 09-21
CHECKED BY: A.I. 09-21
DESIGNED BY: O.R. 09-21
CHECKED BY: O.R. 09-21

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	445804-1-22-01

SHEET TITLE: REPORT OF CORE BORINGS

REF. DWG. NO.

PROJECT NAME: PROJECT DEVELOPMENT AND ENVIRONMENTAL (PD&E) STUDY
SR 994/ SW 200TH STREET/QUAIL ROOST DRIVE
FROM WEST OF SW 137TH AVENUE TO EAST OF SW 127TH AVENUE

SHEET NO. 5

Administrator 9/17/2021 4:42:44 PM Z:\2021\221126\BR\B#BORING01.dgn

APPENDIX "B"

Table 2 – Summary of Laboratory Test Results
Table 3 – Summary of Environmental Classification Test Results
Grain Size Analysis Test Curves
Natural Moisture Content Test Results
Percent Passing the No. 200 Sieve Test Results
Organic Content Test Results
Environmental Classification Test Results
SFWMD Readings at the S-148 Spillway on Canal C-1 at FEC Railroad
Dade County Design Standard WC-2.2: Average October Ground Water Level

TABLE 2 - SUMMARY OF LABORATORY TEST RESULTS
SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No.: 221126

BORING NUMBER	SAMPLE NUMBER	USCS SYMBOL	Sample Depth (FEET)	Sieve Analysis (Percent Passing)									Organic Content (%)	Natural Moisture Content (%)
				1"	3/4"	3/8"	#4	#10	#40	#60	#100	#200		
BR-1	1	OL	0.0 - 0.5	-	-	-	-	-	-	-	-	16	10	15
BR-1	3	ML	4.0 - 6.0	100	100	100	100	100	100	100	98	95	-	43
BR-1	5	SP	8.0 - 9.8	100	100	100	100	100	95	70	18	4	-	21
BR-1	10	SP	23.0 - 25.0	100	100	100	100	99	88	64	14	2	-	22
BR-2	2	SM	2.0 - 4.0	94	87	81	73	66	58	50	40	32	-	21
BR-2	3	ML	4.0 - 6.0	100	100	100	100	100	97	95	93	89	-	44
BR-2	5	ML	8.0 - 9.5	100	100	100	100	100	93	87	76	55	-	32
D-50	1	SM	22.0 - 24.0	85	83	73	62	56	46	40	32	28	-	58

TABLE 3 - SUMMARY OF ENVIRONMENTAL CLASSIFICATION TEST RESULTS
SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
MIAMI-DADE COUNTY, FLORIDA
GEOSOL Project No.: 221126

Sample Location	Sample Type	Depth (ft)	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	FDOT ENVIRONMENTAL CLASSIFICATION	
							Steel	Concrete
A-15	WATER	7.9	8.0	1,067	56	9	MA	MA

NOTES: (1) The following FDOT laboratory test methods were utilized.

4500H+ (pH)
EPA 120.1 (Equivalent to FM5-551: Resistivity)
EPA-300 (Equivalent to FM5-552: Chlorides)
EPA-300 (Equivalent to FM5-553: Sulfates)

(2) SA: SLIGHTLY AGGRESSIVE
(3) MA: MODERATELY AGGRESSIVE
(4) EA: EXTREMELY AGGRESSIVE

FDOT Criteria for Substructure Environmental Classification (FDOT *Structures Design Guidelines*)

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO_4	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	< 500		< 500	
	SO_4	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					
pH = acidity ($-\log_{10}H^+$; potential of Hydrogen), Cl = chloride content, SO_4 = Sulfate content.						

MOISTURE CONTENT TEST RESULTS (ASTM D-2216)

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 8/30/2021

Boring No.	BR-2	BR-2	BR-2	BR-1
Sample No.	2	3	5	5
Sample Depth (Feet)	2-4	4-6	8-9.5	8-9.8
Tare No.	4M	941	232	4K
Tare plus wet soil (grams)	385.6	338.3	330.8	364.1
Tare plus dry soil (grams)	319.3	237.8	252.9	301.4
Water Ww (grams)	66.3	100.5	77.9	62.7
Tare (grams)	7.7	7.3	7.7	7.6
Dry soil Ws (grams)	311.6	230.5	245.2	293.8
Water Content w (%)	21.3	43.6	31.8	21.3

Boring No.	BR-1	BR-1	BR-1	D-50
Sample No.	3	10	1	1
Sample Depth (Feet)	4-6	23-25	0-0.5	22-24
Tare No.	C-1	B-5	N-2	04
Tare plus wet soil (grams)	316.5	447.2	277.5	528.3
Tare plus dry soil (grams)	223.7	366.5	242.5	336.1
Water Ww (grams)	92.8	80.7	35.0	192.2
Tare (grams)	7.5	7.7	7.5	7.5
Dry soil Ws (grams)	216.2	358.8	235.0	328.6
Water Content w (%)	42.9	22.5	14.9	58.5

MATERIAL PASSING THE # 200 SIEVE TEST RESULTS (AASHTO T-11)

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVI
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 8/30/2021

Boring No.	BR-2	BR-2	BR-2	BR-1
Sample No.	2	3	5	5
Sample Depth (Feet)	2-4	4-6	8-9.5	8-9.8
Original Dry Weight of Soil (grams)	311.6	230.5	245.2	293.8
Weight of Soil After Washing (grams)	210.8	24.7	109.5	283.3
Weight of Soil Passing 200 Sieve (grams)	100.8	205.8	135.7	10.5
Percent of Soil Passing 200 Sieve (%)	32.3	89.3	55.3	3.6

Boring No.	BR-1	BR-1	BR-1	D-50
Sample No.	3	10	1	1
Sample Depth (Feet)	4-6	23-25	0-0.5	22-24
Original Dry Weight of Soil (grams)	216.2	358.8	150.0	328.6
Weight of Soil After Washing (grams)	11.8	350.4	126.5	237.2
Weight of Soil Passing 200 Sieve (grams)	204.4	8.4	23.5	91.4
Percent of Soil Passing 200 Sieve (%)	94.5	2.3	15.7	27.8

GRAIN SIZE DATA SHEET

DATE: 8/24/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH A
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-2
Sample No. 2
Depth (feet) 2-4

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL; SM)

Tare #	Dry Soil Wt.
4M	311.6

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	18.1	5.8	94.2	94.2	18.1
19	19mm 3/4"	39.3	12.6	87.4	87.4	21.2
9.5	9.5mm 3/8"	60.6	19.4	80.6	80.6	21.3
4.75	4.75mm #4	83.1	26.7	73.3	73.3	22.5
2.36	2 mm #10	104.5	33.5	66.5	66.5	21.4
0.6	425um #40	129.8	41.7	58.3	58.3	25.3
0.3	250um #60	154.6	49.6	50.4	50.4	24.8
0.15	150um #100	185.5	59.5	40.5	40.5	30.9
0.075	75um #200	210.8	67.7	32.3	32.3	25.3
PAN	-	311.6	100.0	0.0	0.0	100.8

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

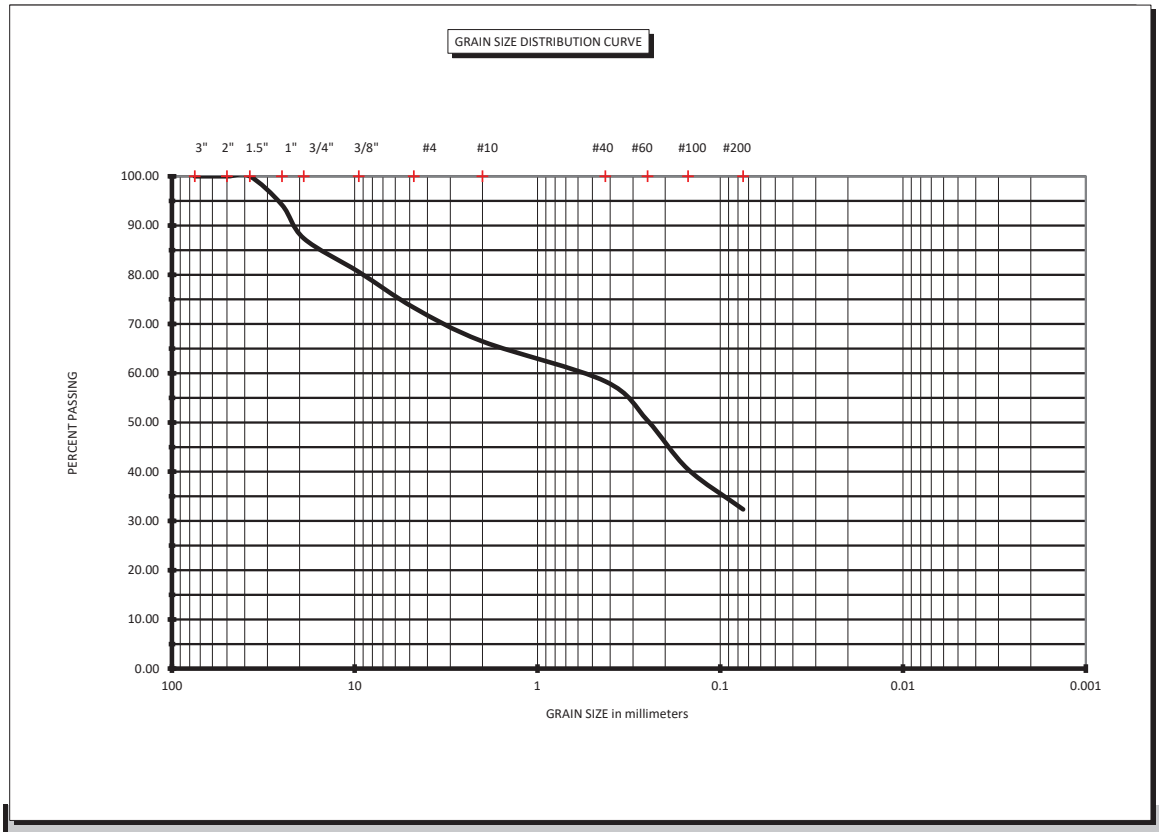
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: E. Masis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/24/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-2 **SAMPLE #** 2 **Depth (feet)** 2-4

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Little to Some Limerock Fragments (FILL; SM)

Natural Moisture Content: 21.3%

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-2
Sample No. 3
Depth (feet) 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Tare #	Dry Soil Wt.
941	230.5

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	7.0	3.0	97.0	97.0	7.0
0.3	250um #60	11.1	4.8	95.2	95.2	4.1
0.15	150um #100	16.0	6.9	93.1	93.1	4.9
0.075	75um #200	24.7	10.7	89.3	89.3	8.7
PAN	-	230.5	100.0	0.0	0.0	205.8

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

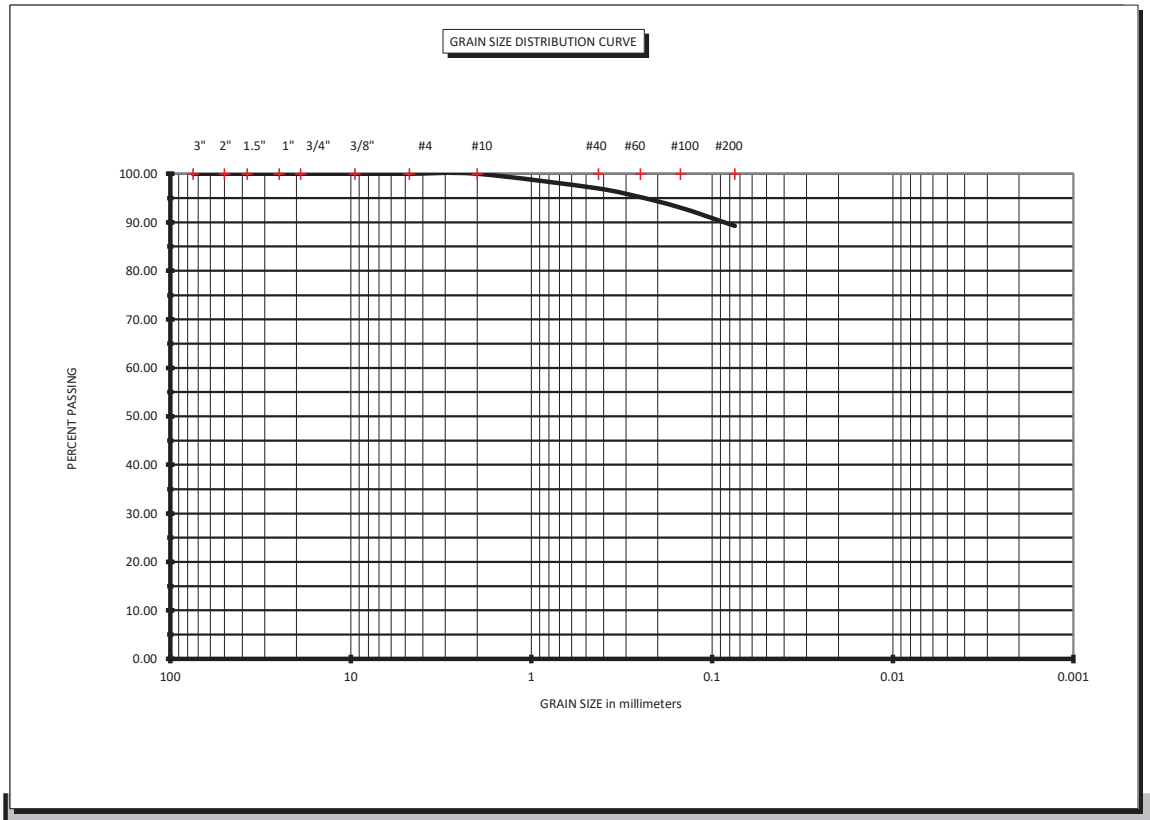
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: E. Masis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-2 **SAMPLE #** 3 **Depth (feet)** 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Natural Moisture Content: 43.6%

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-2
Sample No. 5
Depth (feet) 8-9.5

SOIL DESCRIPTION: Brown Sandy SILT with Roots (ML)

Tare #	Dry Soil Wt.
232	245.2

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	18.0	7.3	92.7	92.7	18.0
0.3	250um #60	32.8	13.4	86.6	86.6	14.8
0.15	150um #100	58.7	23.9	76.1	76.1	25.9
0.075	75um #200	109.5	44.7	55.3	55.3	50.8
PAN	-	245.2	100.0	0.0	0.0	135.7

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

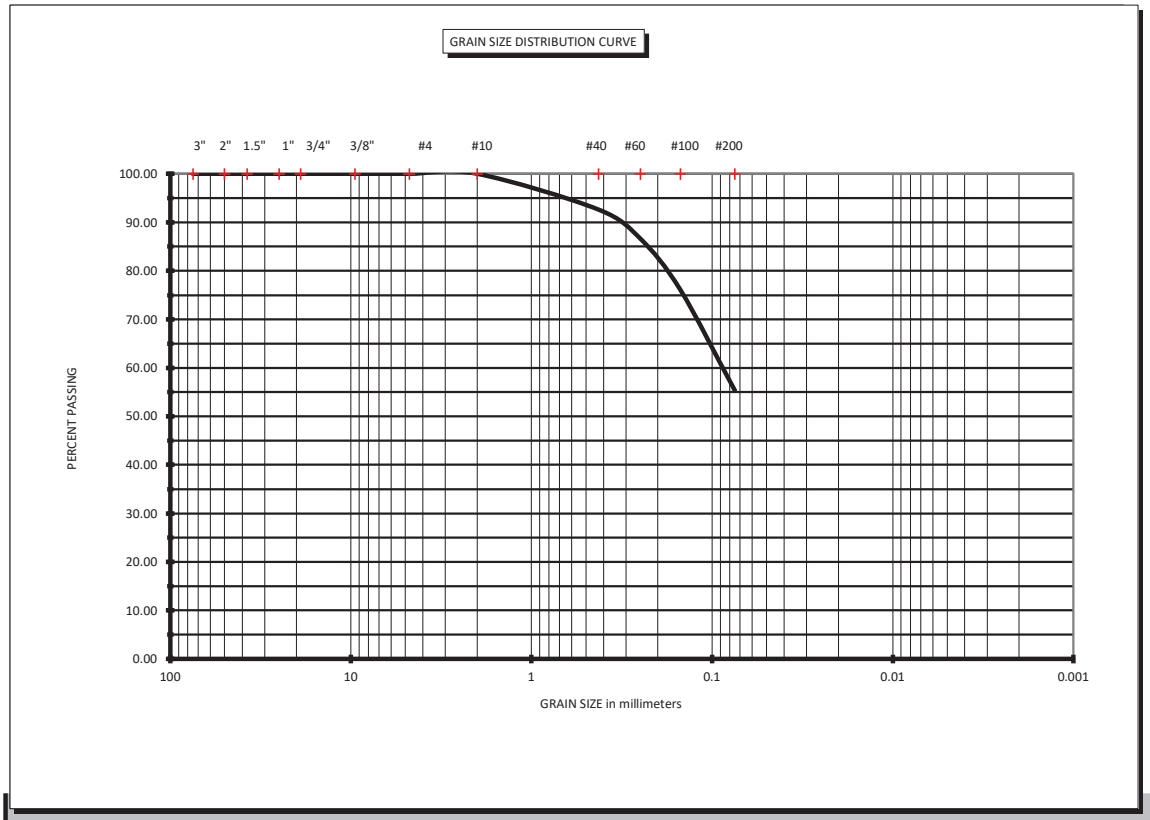
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: E. Masis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/26/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-2 **SAMPLE #** 5 **Depth (feet)** 8-9.5

SOIL DESCRIPTION: Brown Sandy SILT with Roots (ML)

Natural Moisture Content: 31.8%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-1
Sample No. 5
Depth (feet) 8-9.8

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Tare #	Dry Soil Wt.
4K	293.8

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	14.0	4.8	95.2	95.2	14.0
0.3	250um #60	87.7	29.9	70.1	70.1	73.7
0.15	150um #100	239.9	81.7	18.3	18.3	152.2
0.075	75um #200	283.3	96.4	3.6	3.6	43.4
PAN	-	293.8	100.0	0.0	0.0	10.5

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

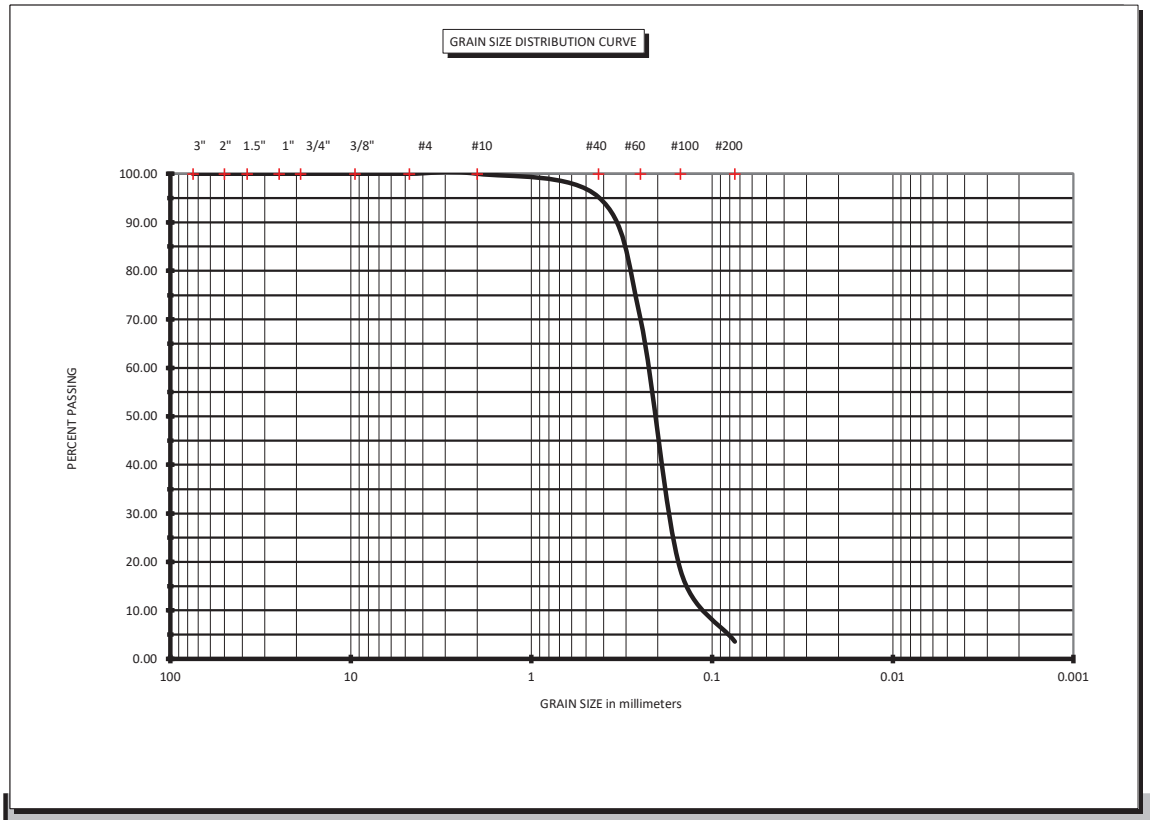
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-1 **SAMPLE #** 5 **Depth (feet)** 8-9.8

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Natural Moisture Content: 21.3%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-1
Sample No. 3
Depth (feet) 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Tare #	Dry Soil Wt.
C-1	216.2

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	0.0	0.0	100.0	100.0	0.0
0.6	425um #40	0.0	0.0	100.0	100.0	0.0
0.3	250um #60	0.8	0.4	99.6	99.6	0.8
0.15	150um #100	3.4	1.6	98.4	98.4	2.6
0.075	75um #200	11.8	5.5	94.5	94.5	8.4
PAN	-	216.2	100.0	0.0	0.0	204.4

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

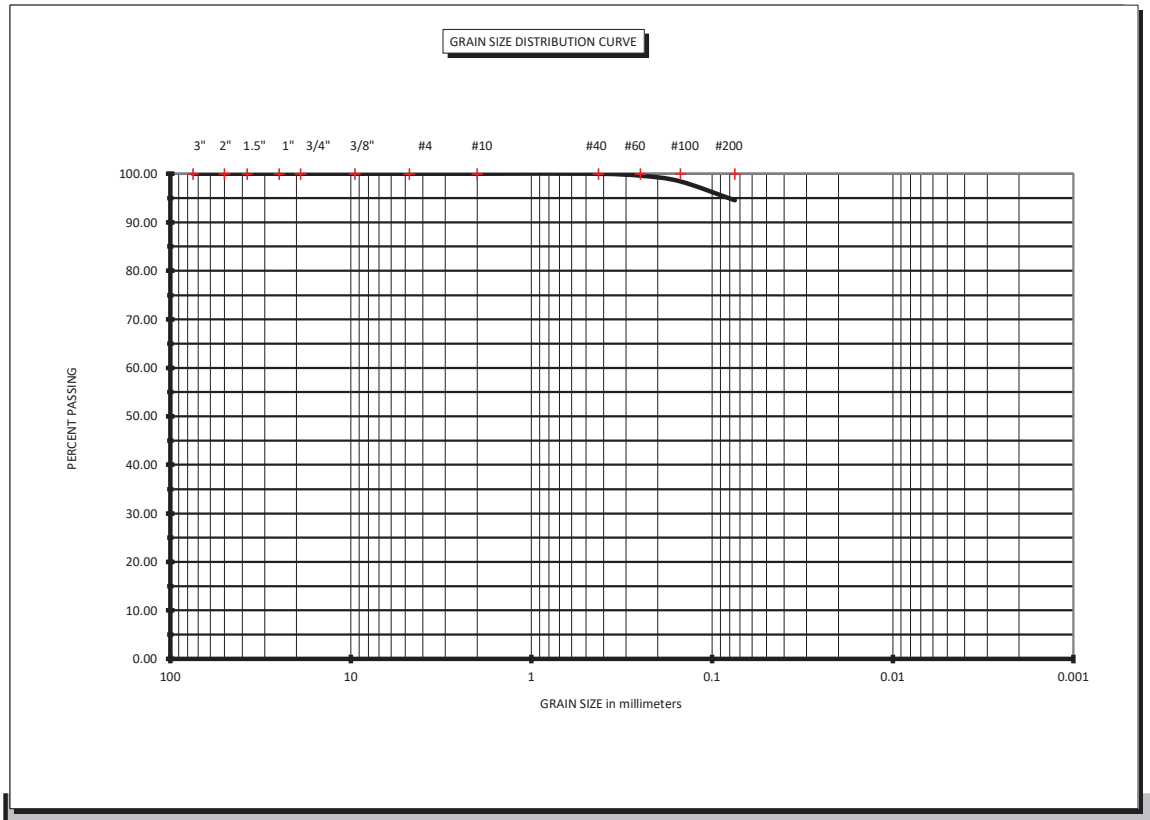
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-1 **SAMPLE #** 3 **Depth (feet)** 4-6

SOIL DESCRIPTION: Brown Sandy SILT (ML)

Natural Moisture Content: 42.9%

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. BR-1
Sample No. 10
Depth (feet) 23-25

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Tare #	Dry Soil Wt.
B-5	358.8

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	0.0	0.0	100.0	100.0	0.0
19	19mm 3/4"	0.0	0.0	100.0	100.0	0.0
9.5	9.5mm 3/8"	0.0	0.0	100.0	100.0	0.0
4.75	4.75mm #4	0.0	0.0	100.0	100.0	0.0
2.36	2 mm #10	1.9	0.5	99.5	99.5	1.9
0.6	425um #40	43.1	12.0	88.0	88.0	41.2
0.3	250um #60	128.3	35.8	64.2	64.2	85.2
0.15	150um #100	309.3	86.2	13.8	13.8	181.0
0.075	75um #200	350.4	97.7	2.3	2.3	41.1
PAN	-	358.8	100.0	0.0	0.0	8.4

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4
Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

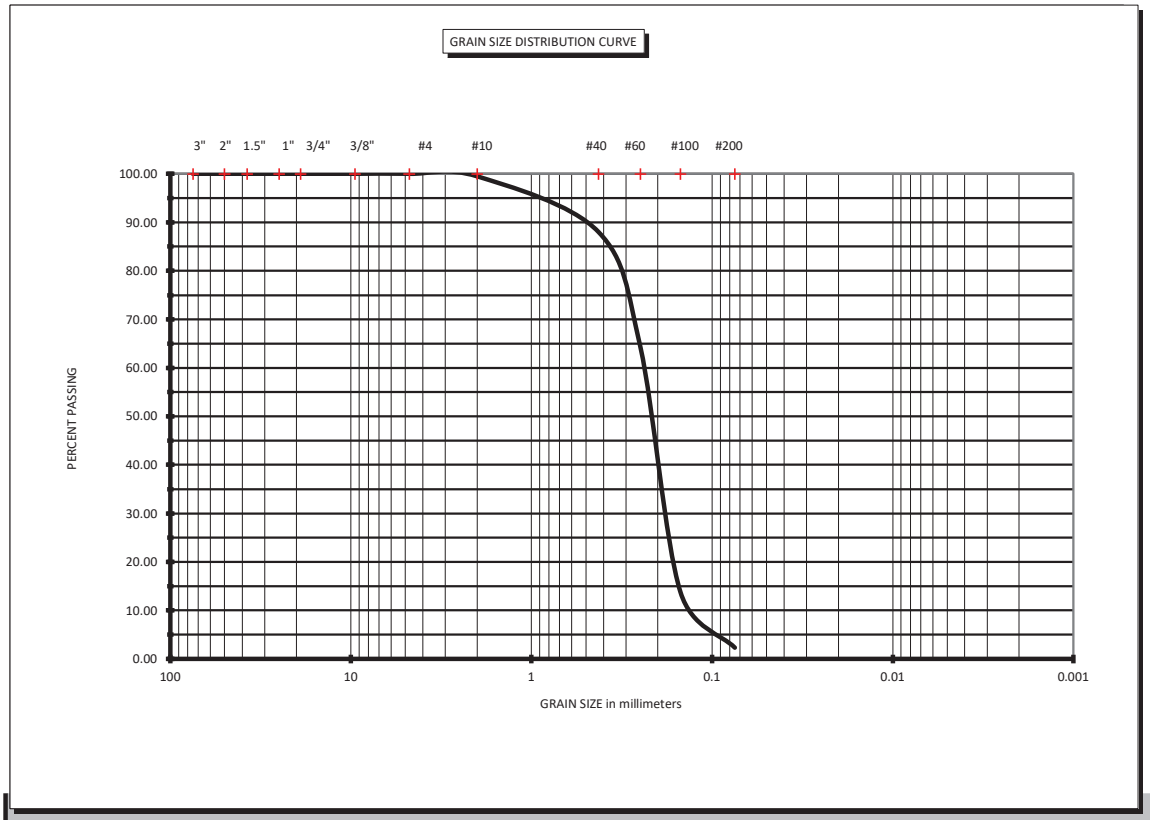
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/30/2021

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH AVE
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # BR-1 **SAMPLE #** 10 **Depth (feet)** 23-25

SOIL DESCRIPTION: Brown Fine to Medium SAND (SP)

Natural Moisture Content: 22.5%

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA

Boring No. D-50
Sample No. 1
Depth (feet) 22-24

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Some Limestone Fragments (SM)

Tare #	Dry Soil Wt.
04	328.6

Sieve Size	Sieve Sizes	Cumulative Wt. Retained	% RETAINED	% PASSING	% PASSING TOTAL SAMPLE	WEIGHT RETAINED (Grams)
75	75mm 3"	0.0	0.0	100	100	0.0
50	50mm 2"	0.0	0.0	100	100	0.0
37.5	37.5mm 1.5"	0.0	0.0	100.0	100.0	0.0
25	25mm 1"	50.0	15.2	84.8	84.8	50.0
19	19mm 3/4"	56.5	17.2	82.8	82.8	6.5
9.5	9.5mm 3/8"	87.8	26.7	73.3	73.3	31.3
4.75	4.75mm #4	123.9	37.7	62.3	62.3	36.1
2.36	2 mm #10	145.4	44.2	55.8	55.8	21.5
0.6	425um #40	176.0	53.6	46.4	46.4	30.6
0.3	250um #60	197.4	60.1	39.9	39.9	21.4
0.15	150um #100	222.3	67.7	32.3	32.3	24.9
0.075	75um #200	237.2	72.2	27.8	27.8	14.9
PAN	-	328.6	100.0	0.0	0.0	91.4

NOTES: Percent passing the #200 sieve was determined by the wash method.

ASTM D 2487 Classification of Soil for Engineering Purposes

Coarse Gravel	< 3" and > 3/4"
Fine Gravel	< 3/4" and > #4

Coarse Sand	< #4 and > #10
Medium Sand	< #10 and > #40
Fine Sand	< #40 and > #200

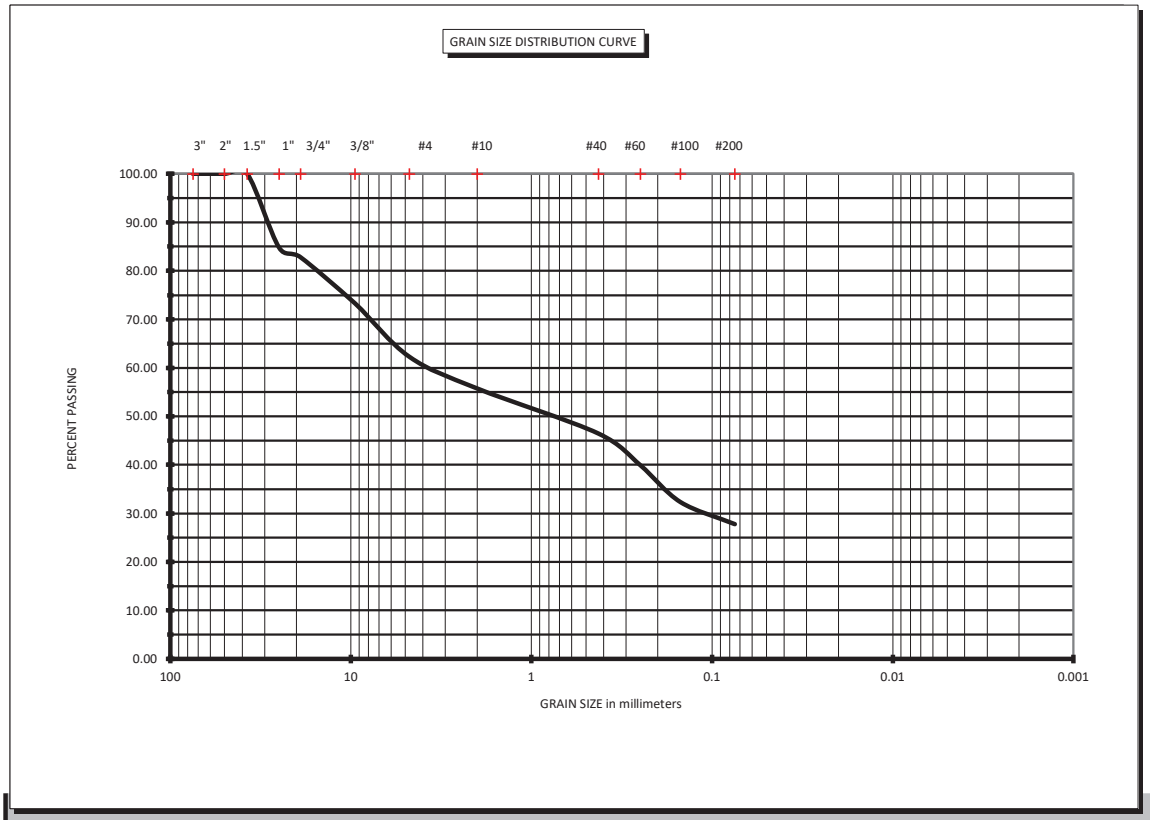
Cu = D60 / D10
Cc = (D30)^2 / (D10 x D60)
1000 um = 1 mm

tested by: J. Manolakis computed by: S. Zhang checked by: O. Riccobono

GRAIN SIZE DATA SHEET

DATE: 8/23/2021

PROJECT NAME: Proposed Quail Roost Drive PDE_GANNETT FLEMING
GEOSOL PROJECT No. 221126
GENERAL LOCATION: MIAMI-DADE COUNTY, FLORIDA



ASTM D 2487 Classification of Soil for Engineering Purposes			Coarse Sand	< #4 and > #10	Cu = D60 / D10
Coarse Gravel	< 3" and > 3/4"		Medium Sand	< #10 and > #40	Cc = (D30)^2 / (D10 x D60)
Fine Gravel	< 3/4" and > #4		Fine Sand	< #40 and > #200	

BORING # D-50 **SAMPLE #** 1 **Depth (feet)** 22-24

SOIL DESCRIPTION: Brown Silty Fine to Medium SAND with Some Limestone Fragments (SM)

Natural Moisture Content: 58.5%

ORGANIC CONTENT TEST RESULTS (ASTM D-2974)

PROJECT NAME: SR 994/ SW 200TH ST/QUAIL ROOST DR FROM W OF SW 137TH AVE TO E OF SW 127TH A
LOCATION: MIAMI-DADE COUNTY, FLORIDA
PROJECT No.: 221126
DATE: 8/30/2021

Boring No.	BR-1
Sample No.	1
Sample Depth (Feet)	0-0.5
Crucible No.	O8
Weight of Crucible and Oven-Dried Sample (grams)	77.0
Weight of Crucible and Sample after Ignition (grams)	72.5
Weight of Crucible (grams)	34.0
Weight of Oven-Dried Soil (grams)	43.0
Weight Loss due to Ignition (grams)	4.5
Percent Organics (%)	10.5

Pace Analytical Services, LLC
3610 Park Central Blvd N
Pompano Beach, FL 33064
(954)582-4300

ANALYTICAL RESULTS

Project: Proposed Quail Roost Drive PDE
Pace Project No.: 35659013

Sample: A-15 **Lab ID: 35659013001** Collected: 08/26/21 17:00 Received: 08/27/21 16:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B Pace Analytical Services - Ormond Beach								
pH at 25 Degrees C	**8.0**	Std. Units	0.10	0.10	1		09/08/21 16:26		Q
Resistivity	Analytical Method: EPA 120.1 Resistivity Pace Analytical Services - Ormond Beach								
Resistivity	**1067**	ohms-cm	0.50	0.50	1		09/02/21 15:38		N2
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Pace Analytical Services - Ormond Beach								
Chloride	**55.9**	mg/L	5.0	2.5	1		08/29/21 11:56	16887-00-6	
Sulfate	**9.2**	mg/L	5.0	2.5	1		08/29/21 11:56	14808-79-8	

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DBHYDRO | reports

DBKEY	STATION	TYPE	UNITS	FQ	STAT	STRATA	OPNUM	RCDR	AGENCY	START	END	CNTY	LAT	LONG	SEC	TWP	RNG	ALTERNATE ID
16188	S148_H	STG	ft NGVD29	DA	MEAN	0		TELE	WMD	1995	2021	DAD	253412	802259	12	56	39	S148-H

Period of Record Statistical Summary by Year Month For DBKEY 16188
For Period 19950331 to 20210915

DBKEY	Station	Data Type	Year	Month	Sample Size	Minimum	Mean	Maximum	Median	Std. Dev.
16188	S148_H	STG	1995	04	27	4.279	4.445	4.667	4.451	.11
16188	S148_H	STG	1995	05	31	3.824	4.374	4.725	4.502	.27
16188	S148_H	STG	1995	06	30	2.355	4.131	5.258	4.587	1.02
16188	S148_H	STG	1995	07	31	2.307	2.784	3.293	2.712	.33
16188	S148_H	STG	1995	08	31	1.915	2.392	2.847	2.421	.27
16188	S148_H	STG	1995	09	30	1.989	2.317	2.605	2.308	.16
16188	S148_H	STG	1995	10	31	2.257	2.641	3.359	2.599	.31
16188	S148_H	STG	1995	11	30	1.936	3.801	5.100	4.883	1.41
16188	S148_H	STG	1995	12	31	4.854	4.938	5.046	4.928	.05
16188	S148_H	STG	1996	01	31	4.071	4.744	5.014	4.824	.28
16188	S148_H	STG	1996	02	29	3.634	4.143	4.547	4.216	.34
16188	S148_H	STG	1996	03	31	3.254	3.473	3.621	3.505	.12
16188	S148_H	STG	1996	04	30	3.198	3.440	3.668	3.440	.15
16188	S148_H	STG	1996	05	31	3.337	3.800	4.956	3.649	.47
16188	S148_H	STG	1996	06	30	3.805	4.385	5.114	4.256	.40
16188	S148_H	STG	1996	07	31	4.162	4.815	5.139	4.859	.28
16188	S148_H	STG	1996	08	31	3.780	4.783	5.082	4.876	.28
16188	S148_H	STG	1996	09	30	3.814	4.671	5.149	4.667	.31
16188	S148_H	STG	1996	10	31	2.225	3.055	4.922	2.777	.90
16188	S148_H	STG	1996	11	30	2.337	3.972	4.810	4.602	1.00
16188	S148_H	STG	1996	12	31	3.608	3.820	4.639	3.757	.23
16188	S148_H	STG	1997	01	31	3.454	3.569	3.725	3.557	.07
16188	S148_H	STG	1997	02	28	3.374	3.542	3.803	3.480	.14
16188	S148_H	STG	1997	03	31	3.196	3.369	3.491	3.389	.07
16188	S148_H	STG	1997	04	30	3.297	3.572	4.668	3.424	.42
16188	S148_H	STG	1997	05	31	3.999	4.188	4.593	4.166	.15
16188	S148_H	STG	1997	06	30	1.670	3.088	4.642	2.676	.94
16188	S148_H	STG	1997	07	31	2.638	4.335	5.078	4.793	.82
16188	S148_H	STG	1997	08	31	3.732	4.735	5.147	4.858	.41
16188	S148_H	STG	1997	09	30	2.439	3.293	4.887	3.031	.77
16188	S148_H	STG	1997	10	31	2.298	4.365	4.955	4.778	.93
16188	S148_H	STG	1997	11	30	3.863	4.207	4.539	4.236	.23
16188	S148_H	STG	1997	12	31	2.541	4.178	4.760	4.508	.66
16188	S148_H	STG	1998	01	31	4.077	4.402	4.707	4.457	.21
16188	S148_H	STG	1998	02	28	3.159	3.405	4.140	3.333	.26
16188	S148_H	STG	1998	03	31	3.141	3.409	3.778	3.393	.15
16188	S148_H	STG	1998	04	30	3.119	3.471	3.669	3.515	.15
16188	S148_H	STG	1998	05	31	3.329	3.565	4.034	3.497	.17
16188	S148_H	STG	1998	06	30	3.531	3.775	4.175	3.761	.17
16188	S148_H	STG	1998	07	31	3.162	4.236	4.939	4.325	.42
16188	S148_H	STG	1998	08	31	3.317	4.443	5.130	4.420	.56
16188	S148_H	STG	1998	09	30	2.737	4.186	5.118	4.508	.94
16188	S148_H	STG	1998	10	31	2.712	4.495	5.149	5.032	.98
16188	S148_H	STG	1998	11	30	3.850	4.915	5.145	4.976	.28
16188	S148_H	STG	1998	12	31	4.931	5.079	5.133	5.094	.05
16188	S148_H	STG	1999	01	31	4.790	5.004	5.148	5.019	.11
16188	S148_H	STG	1999	02	28	4.725	4.955	5.123	4.989	.12
16188	S148_H	STG	1999	03	31	4.392	4.553	4.724	4.546	.09
16188	S148_H	STG	1999	04	30	3.977	4.214	4.459	4.168	.15
16188	S148_H	STG	1999	05	31	3.967	4.281	4.765	4.195	.26
16188	S148_H	STG	1999	06	30	4.158	4.694	5.061	4.737	.24
16188	S148_H	STG	1999	07	31	3.236	4.598	4.976	4.788	.51
16188	S148_H	STG	1999	08	31	2.910	4.499	5.002	4.560	.38
16188	S148_H	STG	1999	09	30	2.289	4.048	5.133	4.480	.88
16188	S148_H	STG	1999	10	31	2.117	2.983	4.941	2.383	1.01
16188	S148_H	STG	1999	11	30	1.977	3.519	5.059	3.730	1.42
16188	S148_H	STG	1999	12	31	4.945	5.025	5.078	5.033	.03
16188	S148_H	STG	2000	01	31	4.667	4.846	4.975	4.875	.10
16188	S148_H	STG	2000	02	29	4.774	4.969	5.128	4.970	.12
16188	S148_H	STG	2000	03	31	4.018	4.828	5.125	4.917	.30
16188	S148_H	STG	2000	04	30	3.701	4.520	5.207	4.992	.65
16188	S148_H	STG	2000	05	31	3.589	4.256	5.005	4.072	.58
16188	S148_H	STG	2000	06	30	3.616	4.555	5.028	4.805	.51
16188	S148_H	STG	2000	07	31	4.711	5.022	5.224	5.019	.14
16188	S148_H	STG	2000	08	31	2.410	4.419	5.106	4.864	.89
16188	S148_H	STG	2000	09	30	2.524	4.854	5.208	5.033	.59
16188	S148_H	STG	2000	10	31	2.343	4.097	5.204	4.681	1.10
16188	S148_H	STG	2000	11	30	3.855	4.552	5.169	4.611	.54
16188	S148_H	STG	2000	12	31	3.720	4.176	4.966	3.991	.43
16188	S148_H	STG	2001	01	31	3.366	3.843	4.951	3.771	.39
16188	S148_H	STG	2001	02	28	2.810	3.070	3.335	3.068	.17
16188	S148_H	STG	2001	03	31	2.731	2.848	3.086	2.851	.07
16188	S148_H	STG	2001	04	30	2.674	3.085	3.492	3.111	.29
16188	S148_H	STG	2001	05	31	2.689	3.218	3.596	3.264	.24
16188	S148_H	STG	2001	06	30	3.277	3.532	4.168	3.514	.21
16188	S148_H	STG	2001	07	31	3.927	4.499	5.078	4.605	.39
16188	S148_H	STG	2001	08	31	3.192	4.022	4.863	3.958	.35
16188	S148_H	STG	2001	09	30	2.214	4.073	5.106	4.027	.89
16188	S148_H	STG	2001	10	31	2.014	3.856	5.153	4.354	1.26
16188	S148_H	STG	2001	11	30	2.321	4.653	5.144	5.059	.94
16188	S148_H	STG	2001	12	31	4.819	4.988	5.167	5.015	.10
16188	S148_H	STG	2002	01	31	3.972	4.762	5.107	4.784	.22
16188	S148_H	STG	2002	02	28	3.737	4.292	4.870	4.478	.42
16188	S148_H	STG	2002	03	31	3.933	4.125	4.342	4.097	.10
16188	S148_H	STG	2002	04	30	3.162	3.579	3.935	3.585	.25
16188	S148_H	STG	2002	05	31	2.696	2.884	3.140	2.877	.13
16188	S148_H	STG	2002	06	30	3.181	3.687	4.303	3.592	.35
16188	S148_H	STG	2002	07	31	3.189	3.772	4.896	3.643	.55
16188	S148_H	STG	2002	08	31	3.200	3.340	3.509	3.329	.08
16188	S148_H	STG	2002	09	30	3.181	3.433	3.772	3.479	.15
16188	S148_H	STG	2002	10	31	3.323	4.119	5.166	3.589	.78
16188	S148_H	STG	2002	11	30	3.785	4.446	5.145	4.603	.35
16188	S148_H	STG	2002	12	31	4.398	4.643	4.966	4.644	.14
16188	S148_H	STG	2003	01	31	4.164	4.480	4.812	4.433	.19
16188	S148_H	STG	2003	02	28	3.945	4.356	4.801	4.288	.29
16188	S148_H	STG	2003	03	31	3.716	4.331	4.869	4.359	.39
16188	S148_H	STG	2003	04	30	3.865	4.489	4.877	4.601	.35
16188	S148_H	STG	2003	05	31	3.848	4.319	4.957	4.279	.29
16188	S148_H	STG	2003	06	30	2.417	4.200	4.850	4.258	.49
16188	S148_H	STG	2003	07	31	4.275	4.657	5.156	4.637	.27
16188	S148_H	STG	2003	08	31	3.303	4.465	5.021	4.568	.40
16188	S148_H	STG	2003	09	30	3.444	3.990	4.761	4.006	.23
16188	S148_H	STG	2003	10	31	3.386	4.289	4.718	4.280	.31
16188	S148_H	STG	2003	11	30	3.108	3.507	4.335	3.348	.37

16188	S148_H	STG	2003	12	31	3.068	4.652	5.060	4.805	.55
16188	S148_H	STG	2004	01	31	3.574	3.957	4.895	3.741	.42
16188	S148_H	STG	2004	02	29	3.546	3.845	4.960	3.702	.41
16188	S148_H	STG	2004	03	31	3.606	4.354	5.072	4.287	.55
16188	S148_H	STG	2004	04	30	3.281	3.502	3.769	3.487	.15
16188	S148_H	STG	2004	05	31	3.122	3.775	4.551	3.778	.43
16188	S148_H	STG	2004	06	30	2.949	3.082	3.307	3.051	.10
16188	S148_H	STG	2004	07	31	2.846	3.085	3.609	2.971	.23
16188	S148_H	STG	2004	08	31	3.135	3.418	4.348	3.393	.24
16188	S148_H	STG	2004	09	30	3.185	3.423	3.764	3.438	.16
16188	S148_H	STG	2004	10	31	3.160	3.622	5.059	3.324	.63
16188	S148_H	STG	2004	11	30	3.145	3.386	3.508	3.414	.09
16188	S148_H	STG	2004	12	31	3.058	3.470	3.782	3.412	.23
16188	S148_H	STG	2005	01	31	3.363	3.450	3.564	3.442	.06
16188	S148_H	STG	2005	02	28	3.174	3.340	3.477	3.343	.10
16188	S148_H	STG	2005	03	31	3.131	3.396	3.646	3.304	.20
16188	S148_H	STG	2005	04	30	3.368	3.535	3.643	3.533	.08
16188	S148_H	STG	2005	05	31	3.370	3.661	4.263	3.635	.18
16188	S148_H	STG	2005	06	30	3.145	3.909	5.164	3.852	.71
16188	S148_H	STG	2005	07	31	1.986	3.443	3.905	3.609	.50
16188	S148_H	STG	2005	08	31	1.929	3.441	4.908	3.564	.57
16188	S148_H	STG	2005	09	30	1.924	3.133	5.113	3.210	.88
16188	S148_H	STG	2005	10	31	1.844	3.381	4.878	3.347	.85
16188	S148_H	STG	2005	11	30	4.879	4.980	5.117	4.935	.09
16188	S148_H	STG	2005	12	31	4.653	5.009	5.183	5.029	.14
16188	S148_H	STG	2006	01	31	3.721	4.333	4.839	4.508	.40
16188	S148_H	STG	2006	02	28	3.664	4.131	4.482	4.230	.28
16188	S148_H	STG	2006	03	31	3.592	4.007	4.748	3.846	.40
16188	S148_H	STG	2006	04	30	3.115	3.340	3.576	3.347	.14
16188	S148_H	STG	2006	05	31	2.809	3.145	3.521	3.097	.21
16188	S148_H	STG	2006	06	30	3.395	3.517	3.618	3.511	.06
16188	S148_H	STG	2006	07	31	3.216	4.139	4.711	4.222	.41
16188	S148_H	STG	2006	08	31	2.300	4.296	5.072	4.749	.77
16188	S148_H	STG	2006	09	30	3.807	4.339	5.153	4.160	.52
16188	S148_H	STG	2006	10	31	3.813	4.099	4.932	3.960	.30
16188	S148_H	STG	2006	11	30	4.121	4.781	5.135	4.864	.23
16188	S148_H	STG	2006	12	31	3.714	4.284	4.910	4.194	.45
16188	S148_H	STG	2007	01	31	3.680	4.138	4.686	4.013	.39
16188	S148_H	STG	2007	02	28	3.480	3.624	3.722	3.646	.07
16188	S148_H	STG	2007	03	31	3.182	3.356	3.482	3.368	.10
16188	S148_H	STG	2007	04	30	3.066	3.638	4.125	3.702	.37
16188	S148_H	STG	2007	05	31	3.331	3.513	3.722	3.495	.10
16188	S148_H	STG	2007	06	30	3.139	3.741	4.861	3.691	.50
16188	S148_H	STG	2007	07	31	3.840	4.540	4.941	4.643	.28
16188	S148_H	STG	2007	08	31	4.122	4.730	5.087	4.823	.28
16188	S148_H	STG	2007	09	30	3.499	4.094	4.712	4.098	.19
16188	S148_H	STG	2007	10	31	3.248	4.381	5.154	4.900	.77
16188	S148_H	STG	2007	11	30	3.773	4.096	4.564	3.962	.27
16188	S148_H	STG	2007	12	31	3.432	3.631	3.892	3.608	.14
16188	S148_H	STG	2008	01	31	3.148	3.284	3.462	3.275	.08
16188	S148_H	STG	2008	02	29	2.959	3.171	3.312	3.202	.12
16188	S148_H	STG	2008	03	31	3.051	3.154	3.240	3.161	.06
16188	S148_H	STG	2008	04	30	3.196	3.713	4.102	3.750	.31
16188	S148_H	STG	2008	05	31	3.149	3.349	3.591	3.329	.13
16188	S148_H	STG	2008	06	30	3.057	3.286	3.699	3.222	.20
16188	S148_H	STG	2008	07	31	3.037	3.465	3.941	3.298	.36
16188	S148_H	STG	2008	08	31	2.659	3.218	3.627	3.212	.23
16188	S148_H	STG	2008	09	30	3.119	3.261	3.745	3.205	.15
16188	S148_H	STG	2008	10	31	3.161	3.272	3.503	3.253	.09
16188	S148_H	STG	2008	11	30	3.121	3.293	3.583	3.254	.13
16188	S148_H	STG	2008	12	31	3.637	4.070	4.327	4.148	.24
16188	S148_H	STG	2009	01	31	3.512	3.686	3.992	3.658	.14
16188	S148_H	STG	2009	02	28	3.207	3.355	3.500	3.339	.08
16188	S148_H	STG	2009	03	31	2.941	3.136	3.285	3.146	.11
16188	S148_H	STG	2009	04	30	2.723	2.970	3.243	2.952	.17
16188	S148_H	STG	2009	05	31	2.196	2.771	4.068	2.625	.52
16188	S148_H	STG	2009	06	30	3.091	3.794	4.503	3.564	.48
16188	S148_H	STG	2009	07	31	3.075	3.261	4.157	3.170	.27
16188	S148_H	STG	2009	08	31	3.459	4.224	4.647	4.122	.32
16188	S148_H	STG	2009	09	30	3.822	3.927	4.112	3.897	.09
16188	S148_H	STG	2009	10	31	3.832	4.468	4.823	4.704	.39
16188	S148_H	STG	2009	11	30	3.839	4.175	4.767	4.083	.28
16188	S148_H	STG	2009	12	31	4.074	4.316	4.678	4.299	.17
16188	S148_H	STG	2010	01	31	3.813	3.949	4.198	3.916	.11
16188	S148_H	STG	2010	02	28	3.990	4.283	4.548	4.270	.13
16188	S148_H	STG	2010	03	31	3.952	4.265	4.575	4.274	.18
16188	S148_H	STG	2010	04	30	4.266	4.403	4.627	4.387	.10
16188	S148_H	STG	2010	05	31	4.220	4.377	4.590	4.345	.11
16188	S148_H	STG	2010	06	30	3.742	4.236	4.736	4.238	.30
16188	S148_H	STG	2010	07	31	3.227	4.235	4.613	4.450	.38
16188	S148_H	STG	2010	08	31	3.976	4.204	4.435	4.189	.12
16188	S148_H	STG	2010	09	30	3.586	4.180	4.426	4.204	.18
16188	S148_H	STG	2010	10	31	3.169	4.183	4.775	4.120	.41
16188	S148_H	STG	2010	11	30	3.808	4.077	4.346	4.052	.16
16188	S148_H	STG	2010	12	31	3.523	3.646	3.819	3.638	.08
16188	S148_H	STG	2011	01	31	3.408	3.630	3.895	3.561	.16
16188	S148_H	STG	2011	02	28	3.153	3.490	3.798	3.506	.20
16188	S148_H	STG	2011	03	31	2.688	2.913	3.160	2.930	.15
16188	S148_H	STG	2011	04	30	2.355	2.638	2.859	2.630	.17
16188	S148_H	STG	2011	05	31	1.894	2.144	2.341	2.173	.13
16188	S148_H	STG	2011	06	30	1.604	1.778	2.185	1.732	.16
16188	S148_H	STG	2011	07	31	2.260	3.312	3.896	3.438	.54
16188	S148_H	STG	2011	08	31	3.772	4.278	4.689	4.365	.32
16188	S148_H	STG	2011	09	30	4.148	4.467	4.711	4.464	.18
16188	S148_H	STG	2011	10	31	4.062	4.280	4.660	4.278	.17
16188	S148_H	STG	2011	11	30	4.051	4.568	4.961	4.557	.28
16188	S148_H	STG	2011	12	31	4.414	4.654	4.768	4.707	.10
16188	S148_H	STG	2012	01	31	4.124	4.350	4.490	4.392	.11
16188	S148_H	STG	2012	02	29	3.911	4.288	4.642	4.292	.23
16188	S148_H	STG	2012	03	31	3.443	3.696	3.995	3.680	.14
16188	S148_H	STG	2012	04	30	3.214	3.399	3.867	3.372	.15
16188	S148_H	STG	2012	05	31	3.505	4.131	4.556	4.129	.27
16188	S148_H	STG	2012	06	30	3.569	3.678	3.851	3.668	.07
16188	S148_H	STG	2012	07	31	3.582	3.778	4.199	3.733	.16
16188	S148_H	STG	2012	08	31	3.159	3.914	4.427	4.037	.40
16188	S148_H	STG	2012	09	30	3.142	3.341	3.832	3.278	.19
16188	S148_H	STG	2012	10	31	3.056	3.281	3.496	3.245	.14
16188	S148_H	STG	2012	11	30	3.932	4.305	4.445	4.326	.13
16188	S148_H	STG	2012	12	31	3.614	4.086	4.679	4.078	.29
16188	S148_H	STG	2013	01	31	3.473	3.531	3.596	3.529	.03
16188	S148_H	STG	2013	02	28	3.346	3.471	3.571	3.481	.08
16188	S148_H	STG	2013	03	31	3.106	3.282	3.503	3.239	.11
16188	S148_H	STG	2013	04	30	3.078	3.436	3.628	3.460	.16
16188	S148_H	STG	2013	05	31	3.223	3.998	4.361	4.133	.30
16188	S148_H	STG	2013	06	30	3.047	3.186	3.393	3.181	.09
16188	S148_H	STG	2013	07	7	3.181	3.394	3.612	3.433	.18
16188	S148_H	STG	2013	08	30	3.058	3.191	3.334	3.203	.09
16188	S148_H	STG	2013	09	30	3.087	3.227	3.523	3.191	.10
16188	S148_H	STG	2013	10	31	3.180	3.925	4.789	3.911	.65
16188	S148_H	STG	2013	11	30	3.653	4.335	4.763	4.304	.23
16188	S148_H	STG	2013	12	31	3.231	4.350	4.798	4.374	.37
16188	S148_H	STG	2014	01	31	3.912	4.223	4.432	4.272	.14

16188	S148_H	STG	2014	02	28	3.933	4.134	4.389	4.115	.12
16188	S148_H	STG	2014	03	31	3.605	3.753	4.012	3.686	.13
16188	S148_H	STG	2014	04	30	3.246	3.472	3.683	3.469	.12
16188	S148_H	STG	2014	05	31	2.893	3.029	3.286	3.001	.11
16188	S148_H	STG	2014	06	30	2.914	3.721	4.407	3.833	.50
16188	S148_H	STG	2014	07	31	3.288	3.880	4.455	3.765	.35
16188	S148_H	STG	2014	08	31	3.633	4.171	4.445	4.171	.17
16188	S148_H	STG	2014	09	30	3.476	4.053	4.408	4.042	.18
16188	S148_H	STG	2014	10	31	3.730	3.929	4.332	3.829	.20
16188	S148_H	STG	2014	11	30	3.862	4.034	4.263	4.023	.10
16188	S148_H	STG	2014	12	31	3.642	3.750	3.856	3.740	.07
16188	S148_H	STG	2015	01	31	3.563	3.705	3.948	3.645	.13
16188	S148_H	STG	2015	02	28	3.371	3.479	3.717	3.454	.09
16188	S148_H	STG	2015	03	31	3.017	3.191	3.355	3.204	.10
16188	S148_H	STG	2015	04	30	2.681	2.817	3.135	2.786	.11
16188	S148_H	STG	2015	05	31	2.894	3.173	3.391	3.220	.18
16188	S148_H	STG	2015	06	30	2.851	3.128	3.331	3.132	.16
16188	S148_H	STG	2015	07	31	2.929	3.187	3.608	3.091	.23
16188	S148_H	STG	2015	08	31	3.670	3.963	4.127	3.963	.09
16188	S148_H	STG	2015	09	30	3.781	4.231	4.765	4.299	.34
16188	S148_H	STG	2015	10	31	3.747	4.299	4.770	4.384	.33
16188	S148_H	STG	2015	11	30	4.005	4.211	4.412	4.220	.13
16188	S148_H	STG	2015	12	31	3.090	3.460	4.440	3.307	.36
16188	S148_H	STG	2016	01	31	3.079	3.197	3.394	3.185	.07
16188	S148_H	STG	2016	02	29	2.567	2.892	3.336	2.790	.24
16188	S148_H	STG	2016	03	31	2.590	2.692	2.875	2.680	.07
16188	S148_H	STG	2016	04	30	2.573	2.778	3.297	2.746	.19
16188	S148_H	STG	2016	05	31	3.084	3.315	3.504	3.320	.11
16188	S148_H	STG	2016	06	30	3.055	3.201	3.647	3.163	.13
16188	S148_H	STG	2016	07	31	3.072	3.275	3.420	3.313	.11
16188	S148_H	STG	2016	08	31	3.016	3.547	4.200	3.362	.43
16188	S148_H	STG	2016	09	30	3.111	3.696	4.152	3.830	.33
16188	S148_H	STG	2016	10	31	3.077	3.244	3.427	3.241	.10
16188	S148_H	STG	2016	11	30	3.130	3.831	4.170	3.890	.30
16188	S148_H	STG	2016	12	31	3.665	3.804	3.928	3.786	.07
16188	S148_H	STG	2017	01	31	3.476	3.603	3.871	3.604	.09
16188	S148_H	STG	2017	02	28	3.149	3.306	3.471	3.301	.09
16188	S148_H	STG	2017	03	31	3.065	3.209	3.383	3.176	.10
16188	S148_H	STG	2017	04	30	2.944	3.241	3.680	3.186	.23
16188	S148_H	STG	2017	05	31	2.765	3.103	3.483	3.082	.25
16188	S148_H	STG	2017	06	30	2.753	3.176	3.434	3.191	.17
16188	S148_H	STG	2017	07	31	3.055	3.200	3.375	3.186	.09
16188	S148_H	STG	2017	08	31	3.067	3.179	3.376	3.165	.06
16188	S148_H	STG	2017	09	30	1.509	2.615	5.817	2.264	.88
16188	S148_H	STG	2017	10	30	2.037	2.584	2.985	2.710	.27
16188	S148_H	STG	2017	11	30	2.698	2.749	2.822	2.740	.03
16188	S148_H	STG	2017	12	31	2.681	2.770	2.920	2.768	.06
16188	S148_H	STG	2018	01	31	2.697	3.172	3.554	3.169	.29
16188	S148_H	STG	2018	02	28	3.501	3.805	4.012	3.859	.16
16188	S148_H	STG	2018	03	31	3.344	3.609	3.943	3.596	.17
16188	S148_H	STG	2018	04	30	3.094	3.201	3.328	3.191	.07
16188	S148_H	STG	2018	05	31	3.087	3.336	3.691	3.312	.15
16188	S148_H	STG	2018	06	30	3.126	3.237	3.458	3.209	.09
16188	S148_H	STG	2018	07	31	3.146	3.288	3.445	3.277	.09
16188	S148_H	STG	2018	08	31	2.389	3.105	3.539	3.143	.23
16188	S148_H	STG	2018	09	30	2.274	2.627	3.177	2.656	.26
16188	S148_H	STG	2018	10	31	2.880	3.638	3.859	3.681	.19
16188	S148_H	STG	2018	11	30	3.665	3.800	4.008	3.779	.09
16188	S148_H	STG	2018	12	31	3.539	3.635	3.718	3.641	.05
16188	S148_H	STG	2019	01	31	3.433	3.585	3.841	3.570	.11
16188	S148_H	STG	2019	02	28	3.665	3.770	3.868	3.765	.06
16188	S148_H	STG	2019	03	31	3.532	3.621	3.699	3.613	.05
16188	S148_H	STG	2019	04	30	3.539	3.713	3.858	3.735	.09
16188	S148_H	STG	2019	05	31	3.426	3.611	3.774	3.625	.09
16188	S148_H	STG	2019	06	30	3.111	3.635	4.189	3.665	.31
16188	S148_H	STG	2019	07	31	3.083	3.430	3.855	3.399	.25
16188	S148_H	STG	2019	08	31	3.056	3.253	3.652	3.210	.16
16188	S148_H	STG	2019	09	30	3.069	3.775	4.168	3.925	.36
16188	S148_H	STG	2019	10	31	3.665	4.034	4.290	4.039	.16
16188	S148_H	STG	2019	11	30	3.815	3.922	4.023	3.925	.06
16188	S148_H	STG	2019	12	31	3.721	3.927	4.344	3.835	.21
16188	S148_H	STG	2020	01	31	3.671	3.934	4.310	3.894	.18
16188	S148_H	STG	2020	02	29	3.886	4.015	4.179	3.996	.08
16188	S148_H	STG	2020	03	31	3.184	3.532	3.862	3.546	.20
16188	S148_H	STG	2020	04	30	2.686	2.898	3.169	2.901	.13
16188	S148_H	STG	2020	05	31	2.471	2.928	3.941	2.779	.40
16188	S148_H	STG	2020	06	30	3.084	3.310	3.896	3.241	.22
16188	S148_H	STG	2020	07	31	3.101	3.739	4.273	3.916	.40
16188	S148_H	STG	2020	08	31	3.054	3.452	3.835	3.520	.26
16188	S148_H	STG	2020	09	30	3.353	3.716	3.949	3.752	.16
16188	S148_H	STG	2020	10	31	3.210	3.633	4.305	3.492	.38
16188	S148_H	STG	2020	11	30	3.191	3.371	3.780	3.351	.12
16188	S148_H	STG	2020	12	31	2.712	2.965	3.654	2.765	.36
16188	S148_H	STG	2021	01	31	2.576	2.840	3.328	2.746	.23
16188	S148_H	STG	2021	02	28	3.137	3.366	3.524	3.400	.10
16188	S148_H	STG	2021	03	31	3.190	3.383	3.498	3.375	.07
16188	S148_H	STG	2021	04	30	3.094	3.226	3.421	3.212	.08
16188	S148_H	STG	2021	05	31	3.250	3.503	3.715	3.492	.13
16188	S148_H	STG	2021	06	30	3.403	3.873	4.405	3.797	.27
16188	S148_H	STG	2021	07	31	3.206	3.839	4.296	3.822	.22
16188	S148_H	STG	2021	08	31	3.658	3.976	4.164	3.972	.12
16188	S148_H	STG	2021	09	13	3.770	3.934	4.133	3.950	.13

Provisional data are excluded from this statistical report.

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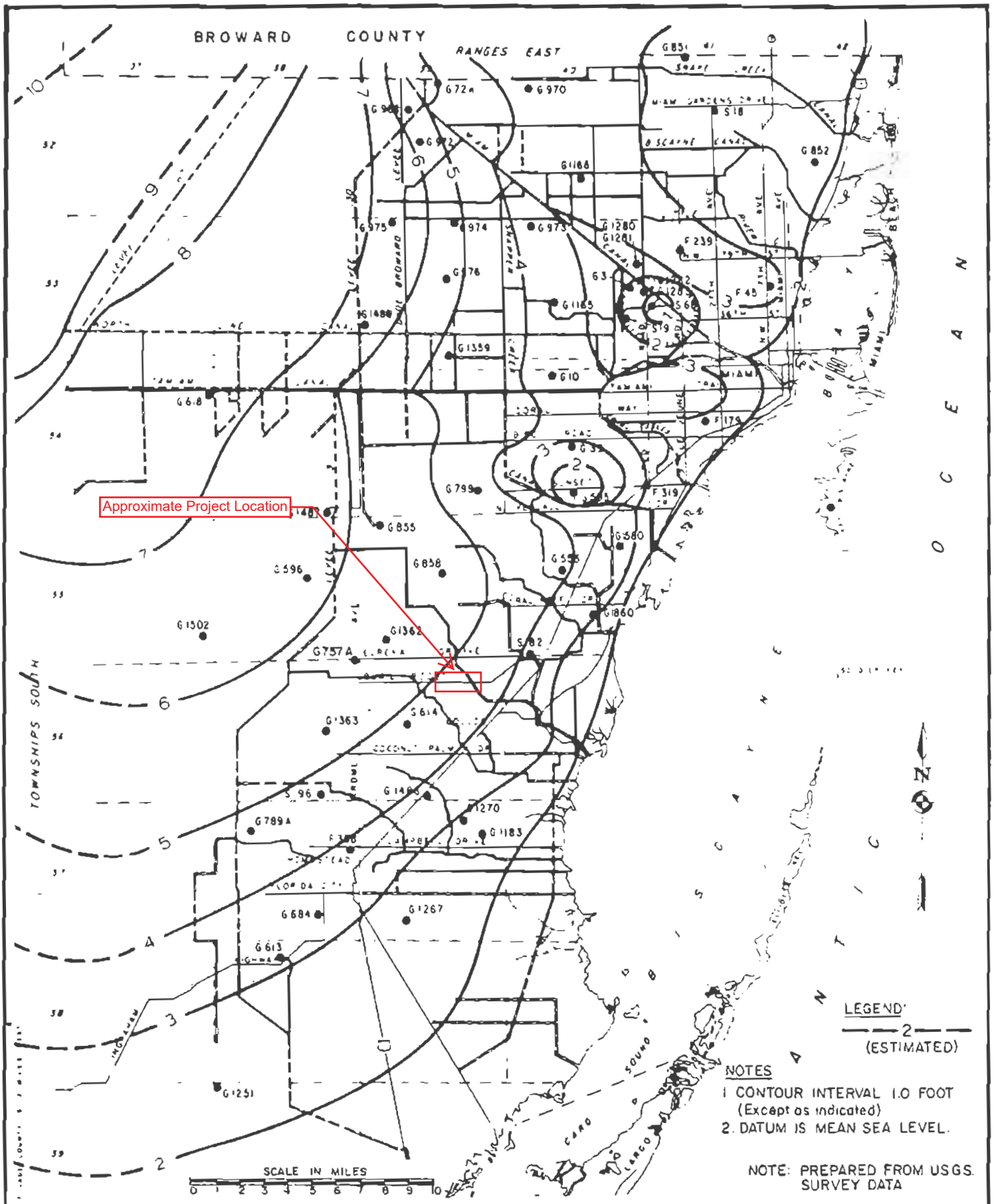


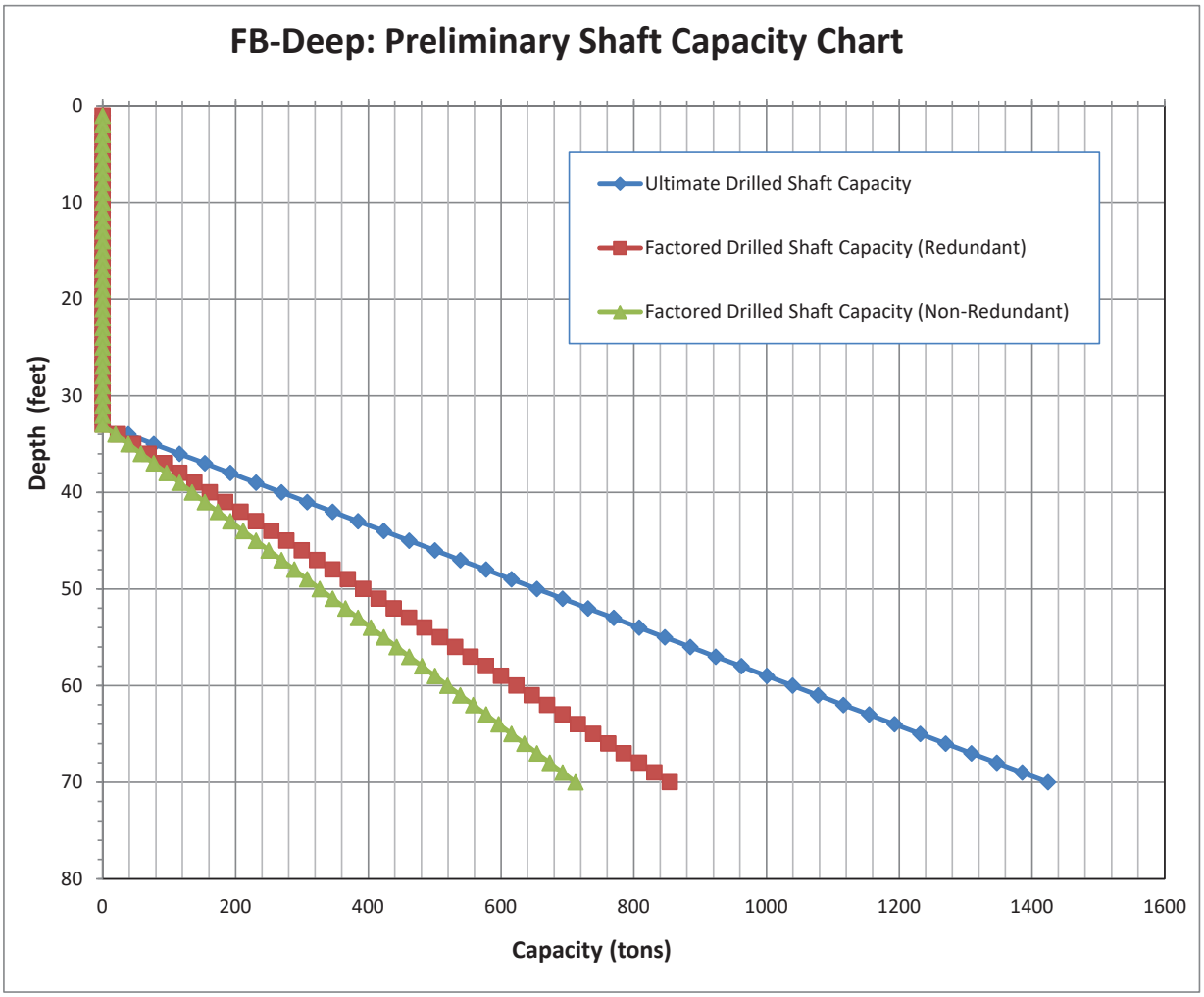
METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED 4/5 72	REVISED 2/19/75 4/14/77	DESIGN STANDARDS AVERAGE OCTOBER GROUND WATER LEVEL 1960–75	W.C. 2.2 SHEET 1 OF 1

APPENDIX "C"

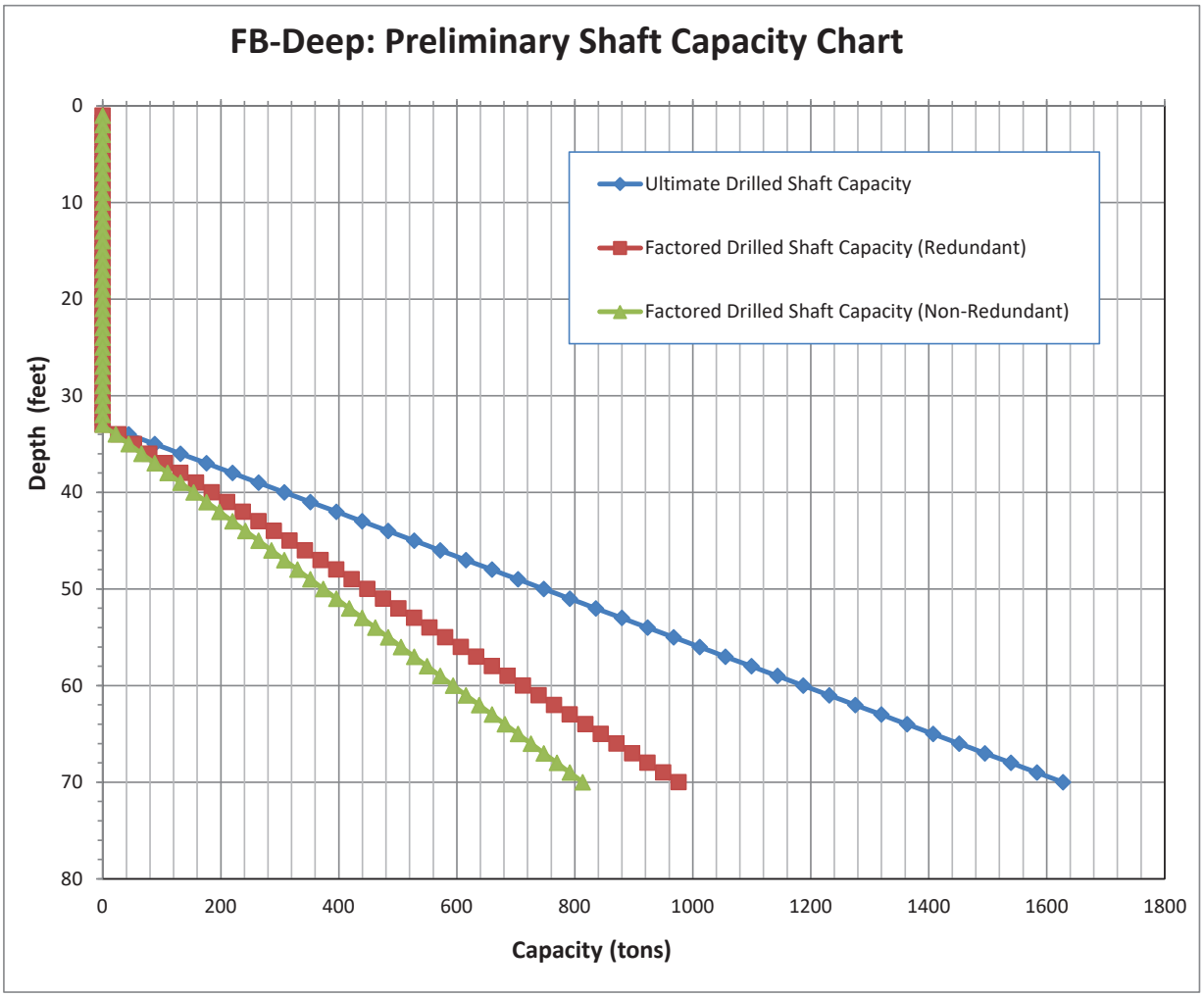
Driven Piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Drilled Shafts: "FB-Deep" Axial Compression Shaft Capacity
Graphs & Output Printouts
ACIP piles: "FB-Deep" Axial Compression Pile Capacity
Graphs & Output Printouts
Derivation of Geotechnical Design Parameters
FB-MultiPier Geotechnical Parameters

GEOSOL, Inc.

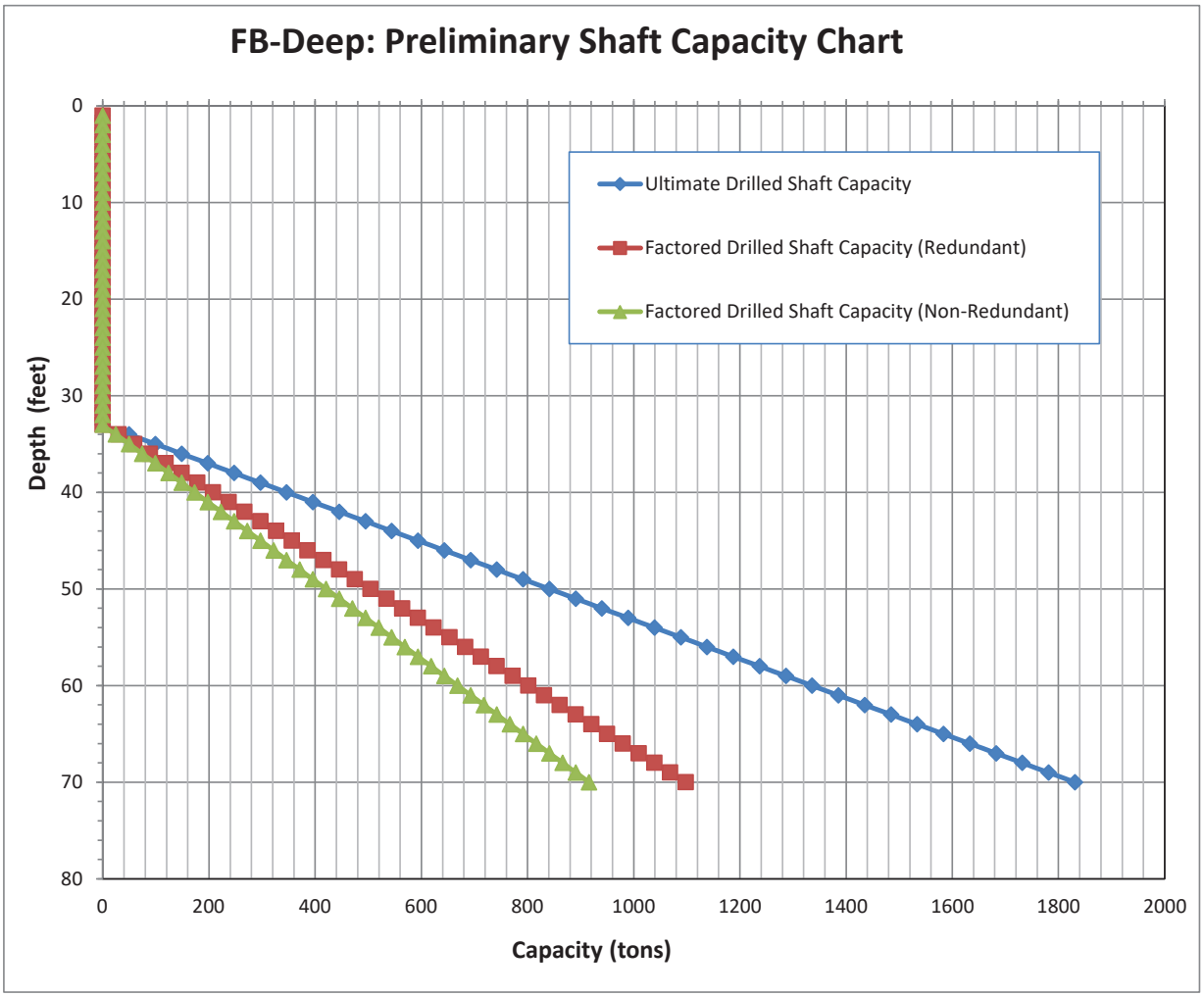
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 42-inch Diameter Drilled Shaft



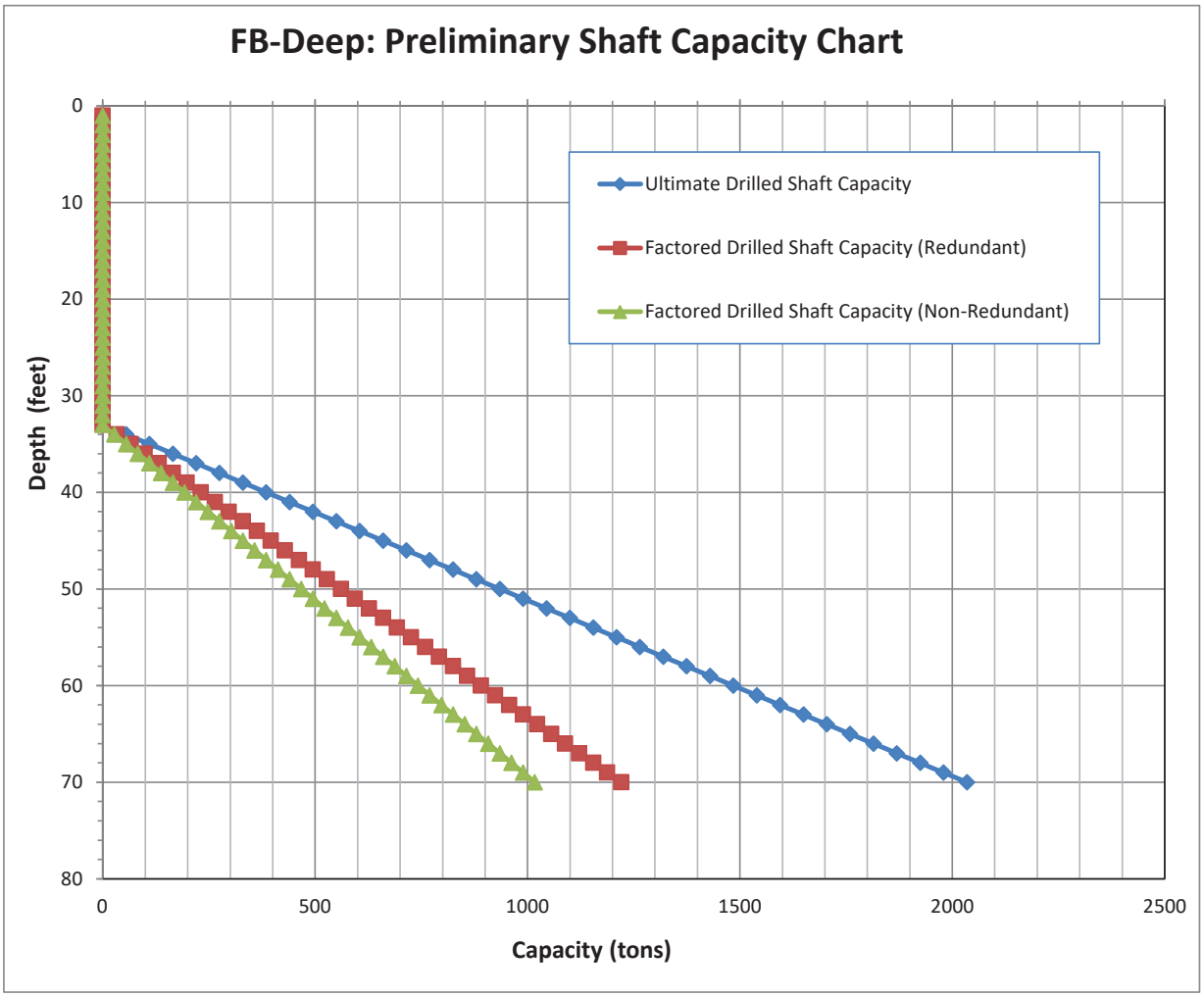
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 48-inch Diameter Drilled Shaft



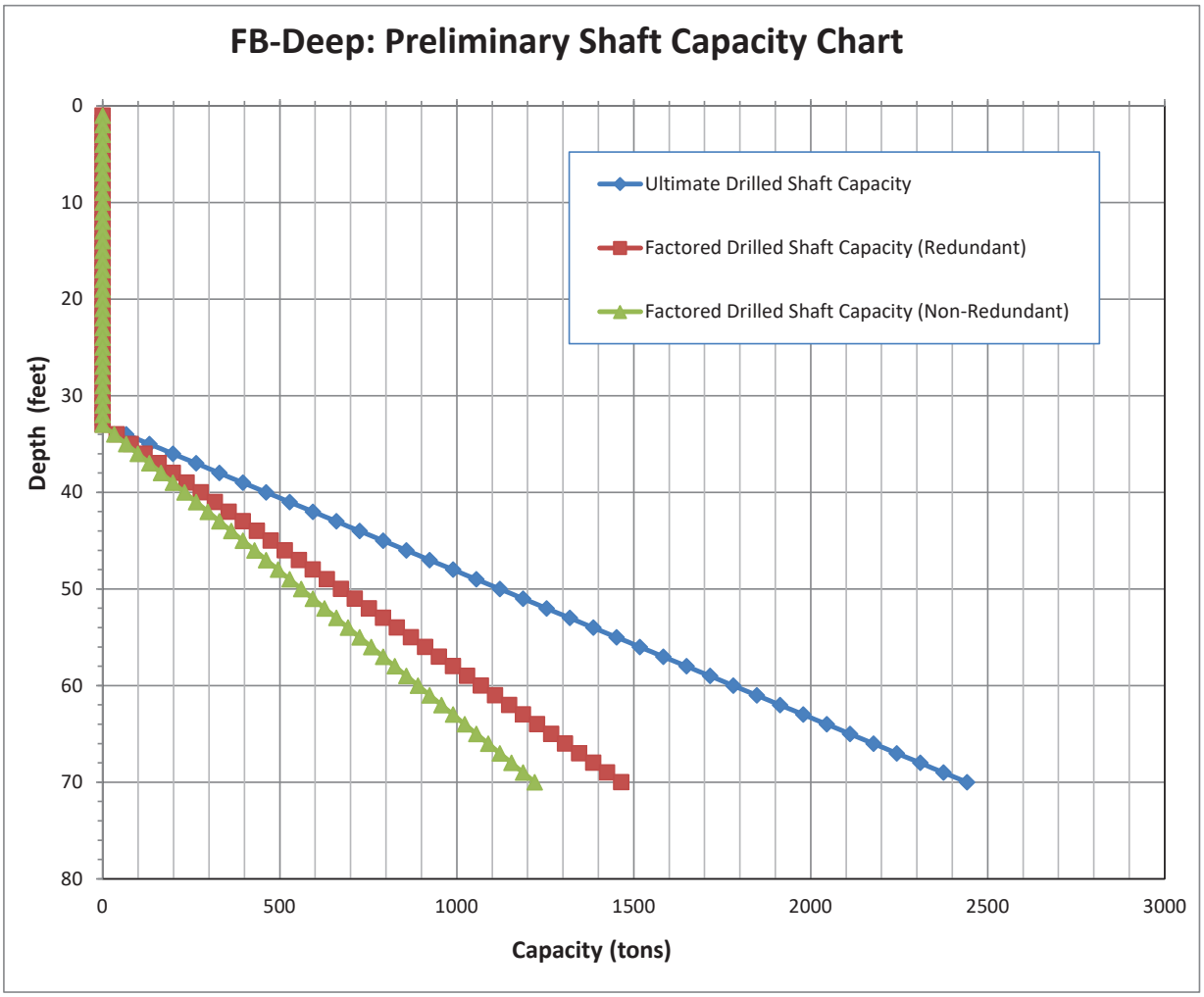
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 54-inch Diameter Drilled Shaft



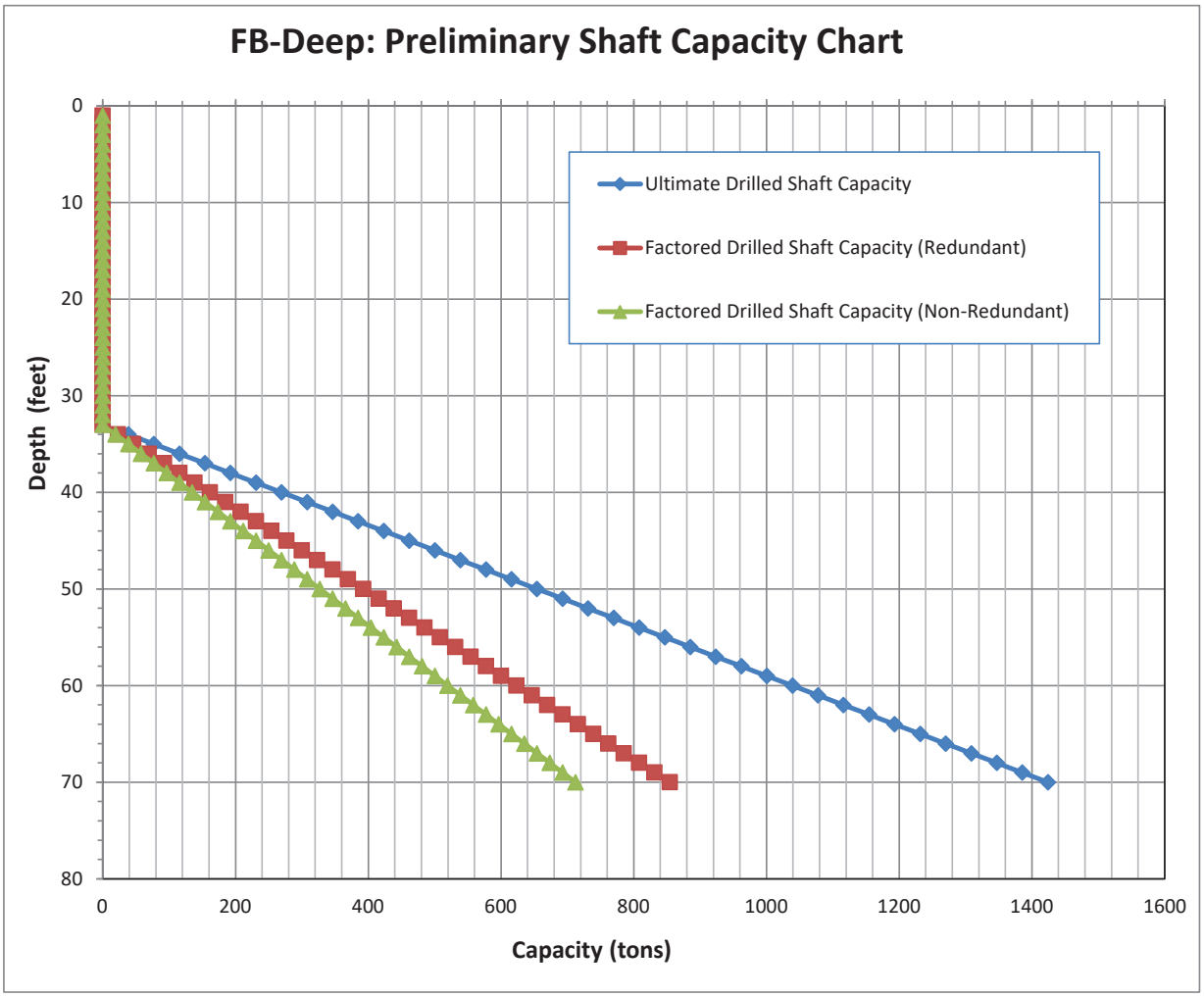
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 60-inch Diameter Drilled Shaft



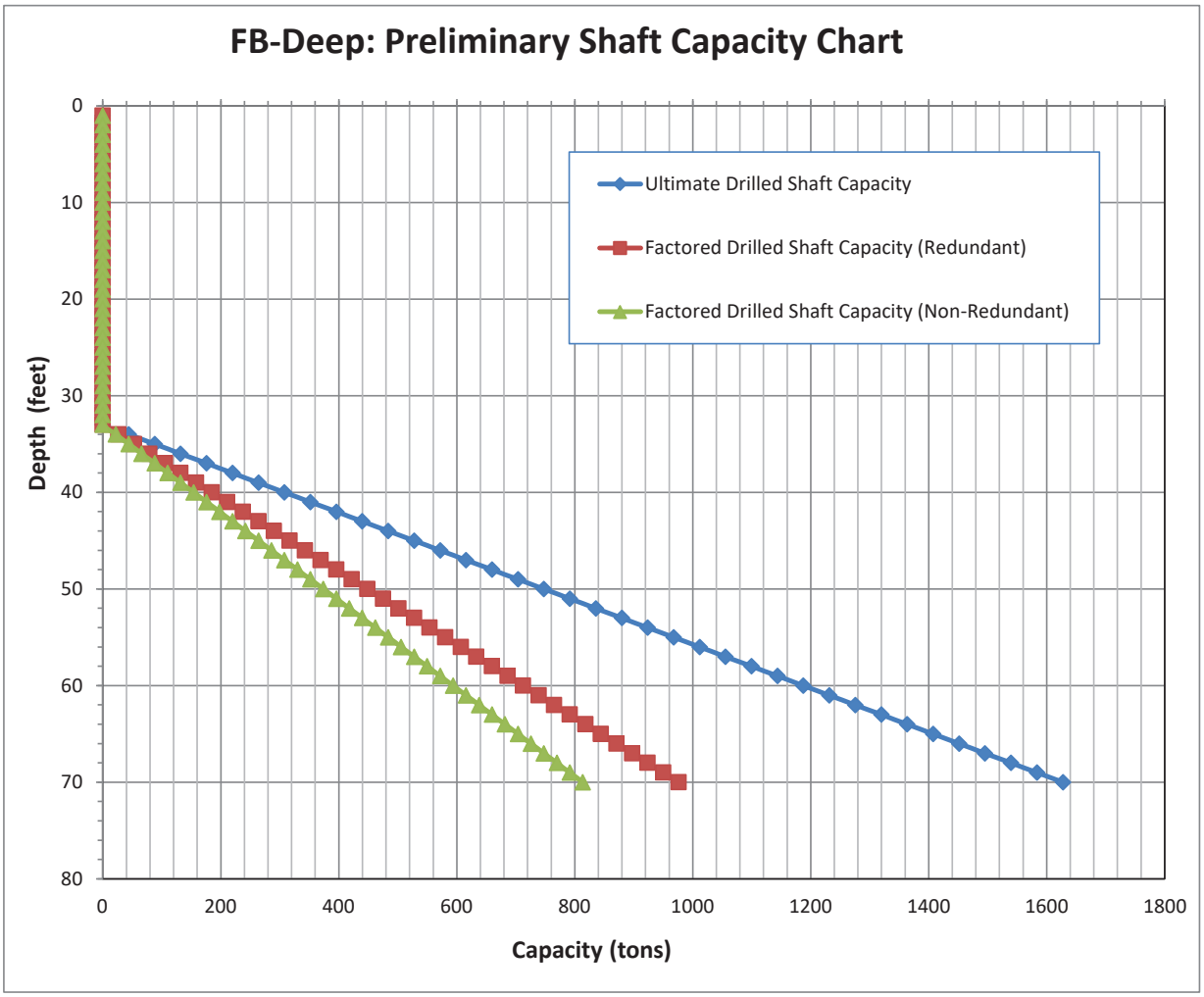
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 72-inch Diameter Drilled Shaft



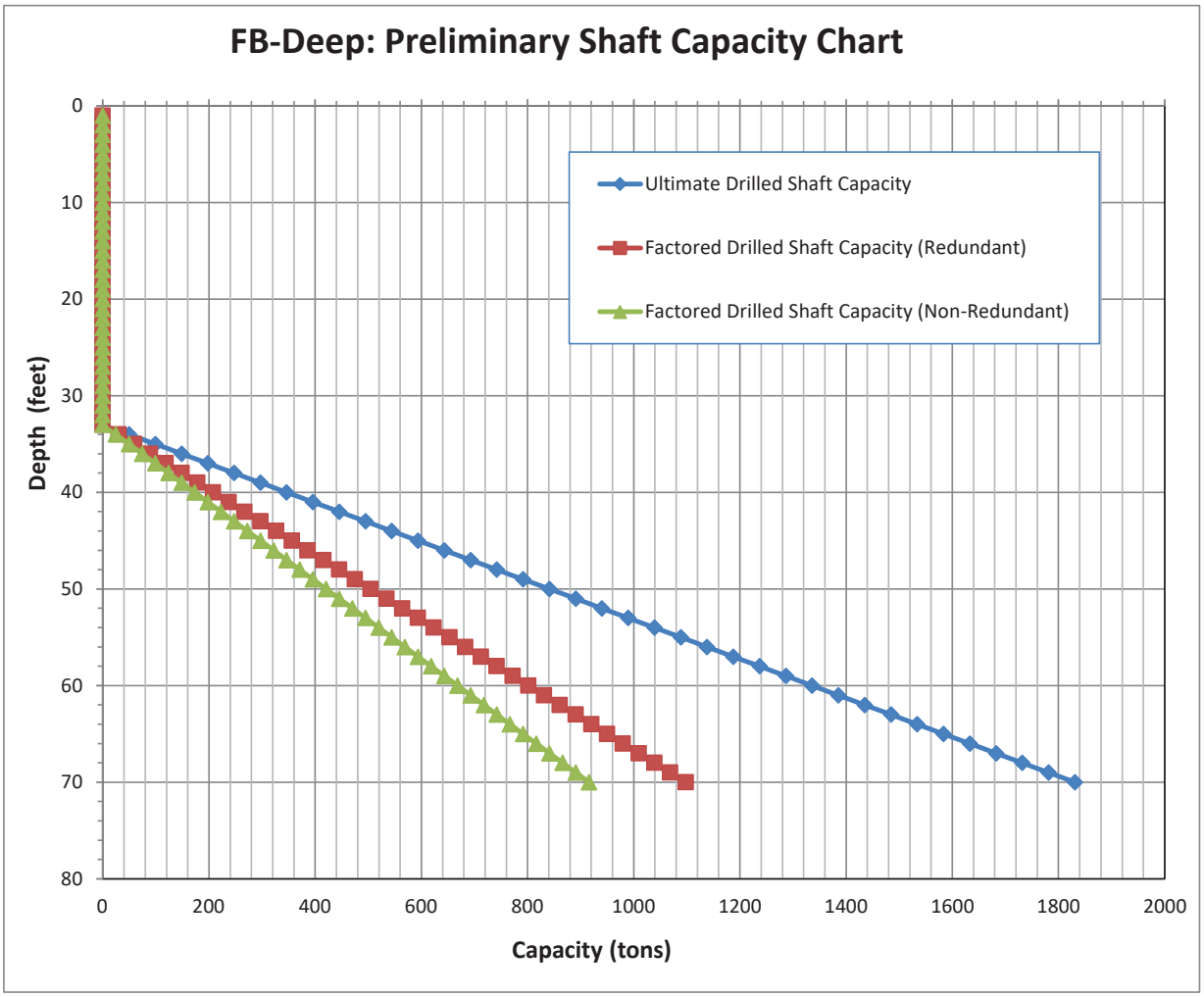
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 42-inch Diameter Drilled Shaft



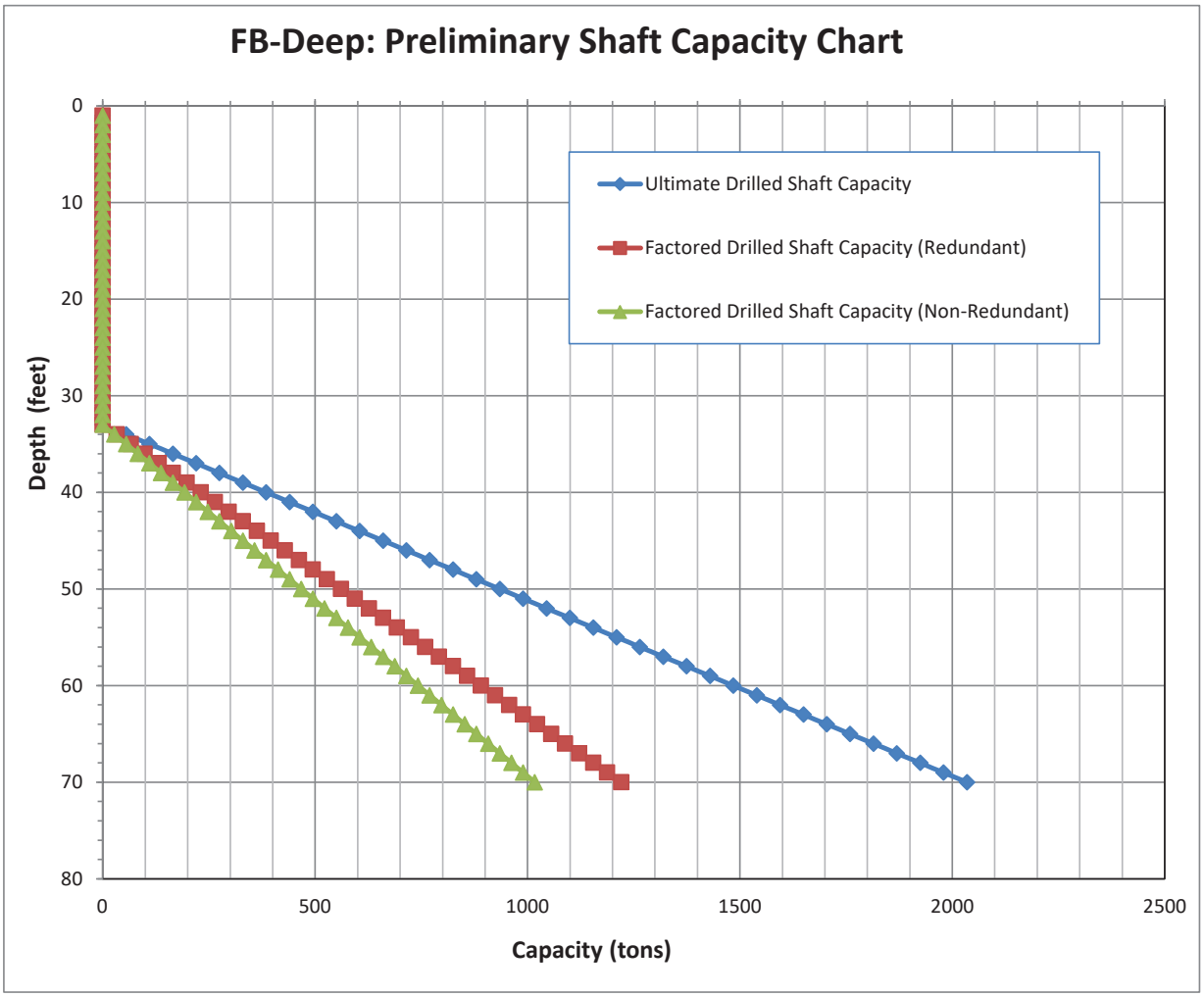
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 48-inch Diameter Drilled Shaft



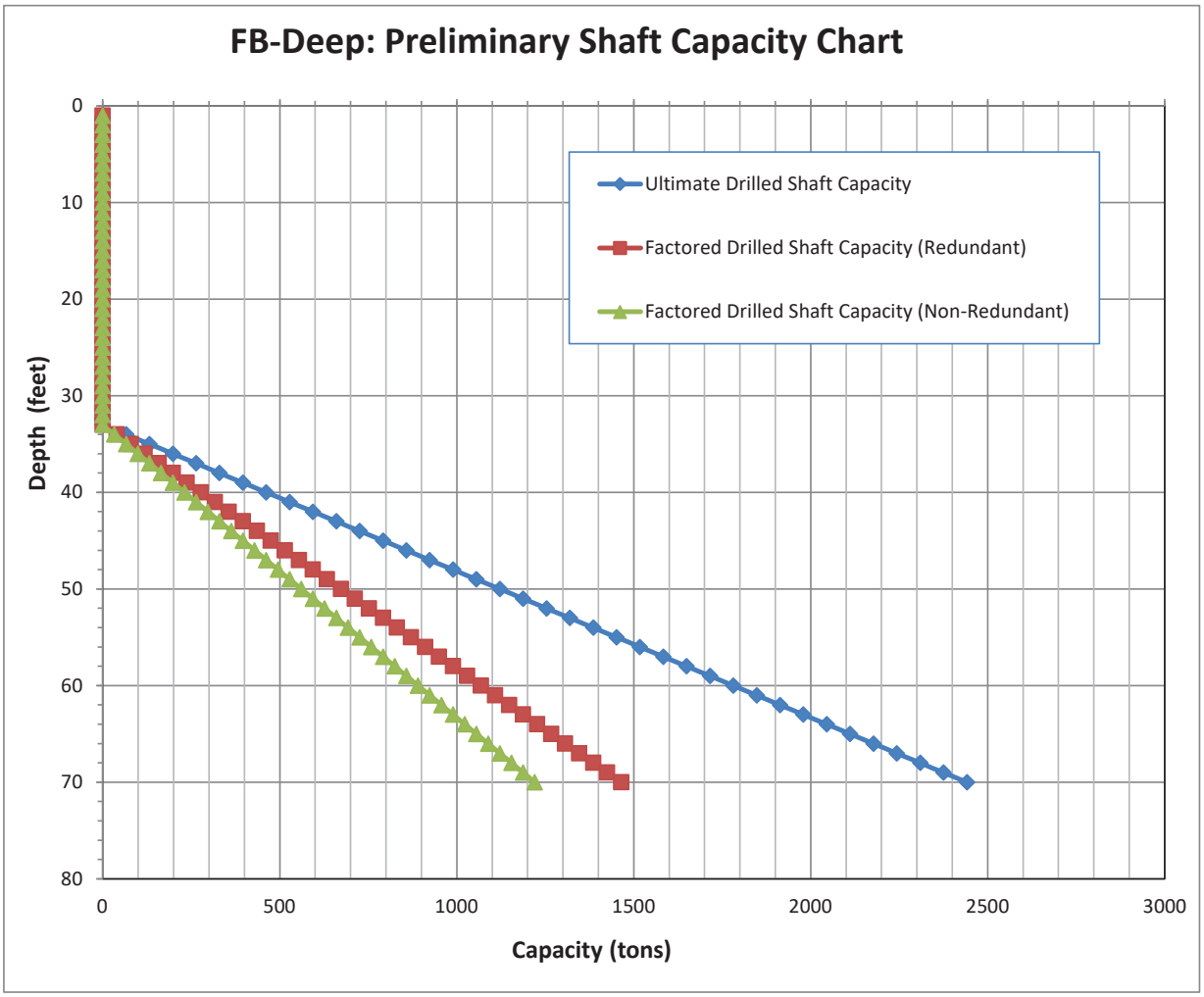
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 54-inch Diameter Drilled Shaft



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 60-inch Diameter Drilled Shaft



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 72-inch Diameter Drilled Shaft



Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:27:32

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	5.00	42.00	42.00	0.00
2	2.00	-2.00	5.00	42.00	42.00	0.00
3	3.00	-3.00	5.00	42.00	42.00	0.00
4	4.00	-4.00	5.00	42.00	42.00	0.00
5	5.00	-5.00	5.00	42.00	42.00	0.00
6	6.00	-6.00	5.00	42.00	42.00	0.00
7	7.00	-7.00	5.00	42.00	42.00	0.00
8	8.00	-8.00	5.00	42.00	42.00	0.00
9	9.00	-9.00	5.00	42.00	42.00	0.00
10	10.00	-10.00	5.00	42.00	42.00	0.00
11	11.00	-11.00	5.00	42.00	42.00	0.00
12	12.00	-12.00	5.00	42.00	42.00	0.00
13	13.00	-13.00	5.00	42.00	42.00	0.00
14	14.00	-14.00	5.00	42.00	42.00	0.00
15	15.00	-15.00	5.00	42.00	42.00	0.00

16	16.00	-16.00	5.00	42.00	42.00	0.00
17	17.00	-17.00	5.00	42.00	42.00	0.00
18	18.00	-18.00	5.00	42.00	42.00	0.00
19	19.00	-19.00	5.00	42.00	42.00	0.00
20	20.00	-20.00	5.00	42.00	42.00	0.00
21	21.00	-21.00	5.00	42.00	42.00	0.00
22	22.00	-22.00	5.00	42.00	42.00	0.00
23	23.00	-23.00	5.00	42.00	42.00	0.00
24	24.00	-24.00	5.00	42.00	42.00	0.00
25	25.00	-25.00	5.00	42.00	42.00	0.00
26	26.00	-26.00	5.00	42.00	42.00	0.00
27	27.00	-27.00	5.00	42.00	42.00	0.00
28	28.00	-28.00	5.00	42.00	42.00	0.00
29	29.00	-29.00	5.00	42.00	42.00	0.00
30	30.00	-30.00	5.00	42.00	42.00	0.00
31	31.00	-31.00	5.00	42.00	42.00	0.00
32	32.00	-32.00	5.00	42.00	42.00	0.00
33	33.00	-33.00	5.00	42.00	42.00	0.00
34	34.00	-34.00	5.00	42.00	42.00	0.00
35	35.00	-35.00	5.00	42.00	42.00	0.00
36	36.00	-36.00	5.00	42.00	42.00	0.00
37	37.00	-37.00	5.00	42.00	42.00	0.00
38	38.00	-38.00	5.00	42.00	42.00	0.00
39	39.00	-39.00	5.00	42.00	42.00	0.00
40	40.00	-40.00	5.00	42.00	42.00	0.00
41	41.00	-41.00	5.00	42.00	42.00	0.00
42	42.00	-42.00	5.00	42.00	42.00	0.00
43	43.00	-43.00	5.00	42.00	42.00	0.00
44	44.00	-44.00	5.00	42.00	42.00	0.00
45	45.00	-45.00	5.00	42.00	42.00	0.00
46	46.00	-46.00	5.00	42.00	42.00	0.00
47	47.00	-47.00	5.00	42.00	42.00	0.00
48	48.00	-48.00	5.00	42.00	42.00	0.00
49	49.00	-49.00	5.00	42.00	42.00	0.00
50	50.00	-50.00	5.00	42.00	42.00	0.00
51	51.00	-51.00	5.00	42.00	42.00	0.00
52	52.00	-52.00	5.00	42.00	42.00	0.00
53	53.00	-53.00	5.00	42.00	42.00	0.00
54	54.00	-54.00	5.00	42.00	42.00	0.00
55	55.00	-55.00	5.00	42.00	42.00	0.00
56	56.00	-56.00	5.00	42.00	42.00	0.00
57	57.00	-57.00	5.00	42.00	42.00	0.00
58	58.00	-58.00	5.00	42.00	42.00	0.00
59	59.00	-59.00	5.00	42.00	42.00	0.00
60	60.00	-60.00	5.00	42.00	42.00	0.00
61	61.00	-61.00	5.00	42.00	42.00	0.00
62	62.00	-62.00	5.00	42.00	42.00	0.00
63	63.00	-63.00	5.00	42.00	42.00	0.00
64	64.00	-64.00	5.00	42.00	42.00	0.00
65	65.00	-65.00	5.00	42.00	42.00	0.00
66	66.00	-66.00	5.00	42.00	42.00	0.00
67	67.00	-67.00	5.00	42.00	42.00	0.00
68	68.00	-68.00	5.00	42.00	42.00	0.00
69	69.00	-69.00	5.00	42.00	42.00	0.00
70	70.00	-70.00	5.00	42.00	42.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000
13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000

16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	0.000	0.000
34	42.00	34.00	38.485	0.000	38.485
35	42.00	35.00	76.969	0.000	76.969
36	42.00	36.00	115.454	0.000	115.454
37	42.00	37.00	153.938	0.000	153.938
38	42.00	38.00	192.423	0.000	192.423
39	42.00	39.00	230.907	0.000	230.907
40	42.00	40.00	269.392	0.000	269.392
41	42.00	41.00	307.876	0.000	307.876
42	42.00	42.00	346.361	0.000	346.361
43	42.00	43.00	384.845	0.000	384.845
44	42.00	44.00	423.330	0.000	423.330
45	42.00	45.00	461.814	0.000	461.814
46	42.00	46.00	500.299	0.000	500.299
47	42.00	47.00	538.783	0.000	538.783
48	42.00	48.00	577.268	0.000	577.268
49	42.00	49.00	615.752	0.000	615.752
50	42.00	50.00	654.237	0.000	654.237
51	42.00	51.00	692.721	0.000	692.721
52	42.00	52.00	731.206	0.000	731.206
53	42.00	53.00	769.690	0.000	769.690
54	42.00	54.00	808.175	0.000	808.175
55	42.00	55.00	846.659	0.000	846.659
56	42.00	56.00	885.144	0.000	885.144
57	42.00	57.00	923.628	0.000	923.628
58	42.00	58.00	962.113	0.000	962.113
59	42.00	59.00	1000.597	0.000	1000.597
60	42.00	60.00	1039.082	0.000	1039.082
61	42.00	61.00	1077.566	0.000	1077.566
62	42.00	62.00	1116.051	0.000	1116.051
63	42.00	63.00	1154.535	0.000	1154.535
64	42.00	64.00	1193.020	0.000	1193.020
65	42.00	65.00	1231.504	0.000	1231.504
66	42.00	66.00	1269.989	0.000	1269.989
67	42.00	67.00	1308.473	0.000	1308.473
68	42.00	68.00	1346.958	0.000	1346.958
69	42.00	69.00	1385.442	0.000	1385.442
70	42.00	70.00	1423.927	0.000	1423.927

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==========
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000

13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000
16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	2910.251	2910.251
34	42.00	34.00	38.292	3226.895	3265.187
35	42.00	35.00	76.203	2028.125	2104.328
36	42.00	36.00	113.740	1545.660	1659.401
37	42.00	37.00	150.909	1274.692	1425.601
38	42.00	38.00	187.716	1097.679	1285.395
39	42.00	39.00	224.166	971.458	1195.624
40	42.00	40.00	260.265	876.132	1136.398
41	42.00	41.00	296.758	865.404	1162.162
42	42.00	42.00	333.103	853.883	1186.986
43	42.00	43.00	369.306	841.969	1211.275
44	42.00	44.00	405.373	829.908	1235.280
45	42.00	45.00	441.306	817.852	1259.158
46	42.00	46.00	477.109	805.900	1283.009
47	42.00	47.00	512.786	794.110	1306.896
48	42.00	48.00	548.340	782.521	1330.861
49	42.00	49.00	583.774	771.153	1354.927
50	42.00	50.00	619.090	760.020	1379.110
51	42.00	51.00	654.290	749.126	1403.416
52	42.00	52.00	689.377	738.470	1427.847
53	42.00	53.00	724.352	728.051	1452.404
54	42.00	54.00	759.218	717.864	1477.082
55	42.00	55.00	793.977	707.902	1501.879
56	42.00	56.00	828.630	698.159	1526.789
57	42.00	57.00	863.179	688.627	1551.805
58	42.00	58.00	897.625	679.298	1576.923
59	42.00	59.00	931.970	670.166	1602.137
60	42.00	60.00	966.216	661.223	1627.439
61	42.00	61.00	1000.364	652.461	1652.825
62	42.00	62.00	1034.414	643.874	1678.288
63	42.00	63.00	1068.370	635.454	1703.824
64	42.00	64.00	1102.231	627.195	1729.425
65	42.00	65.00	1135.998	619.090	1755.088
66	42.00	66.00	1169.674	611.133	1780.808
67	42.00	67.00	1203.259	603.319	1806.579
68	42.00	68.00	1236.755	595.643	1832.397
69	42.00	69.00	1270.161	588.097	1858.259
70	42.00	70.00	1303.480	580.679	1884.159

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:27:43

General Information:
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Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
Boring date: 8/24/2021
Boring number: BR-1
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = -6.20(ft)

Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	
2	N/A	N/A	N/A	
3	N/A	N/A	N/A	
4	N/A	N/A	N/A	
5	N/A	N/A	N/A	
6	N/A	N/A	N/A	
7	N/A	N/A	N/A	
8	N/A	N/A	N/A	
9	N/A	N/A	N/A	
10	N/A	N/A	N/A	
11	N/A	N/A	N/A	
12	N/A	N/A	N/A	
13	N/A	N/A	N/A	
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
71	1.00	-1.00	5.00	48.00	48.00	0.00
72	2.00	-2.00	5.00	48.00	48.00	0.00
73	3.00	-3.00	5.00	48.00	48.00	0.00
74	4.00	-4.00	5.00	48.00	48.00	0.00
75	5.00	-5.00	5.00	48.00	48.00	0.00
76	6.00	-6.00	5.00	48.00	48.00	0.00
77	7.00	-7.00	5.00	48.00	48.00	0.00
78	8.00	-8.00	5.00	48.00	48.00	0.00
79	9.00	-9.00	5.00	48.00	48.00	0.00
80	10.00	-10.00	5.00	48.00	48.00	0.00
81	11.00	-11.00	5.00	48.00	48.00	0.00
82	12.00	-12.00	5.00	48.00	48.00	0.00
83	13.00	-13.00	5.00	48.00	48.00	0.00
84	14.00	-14.00	5.00	48.00	48.00	0.00
85	15.00	-15.00	5.00	48.00	48.00	0.00

86	16.00	-16.00	5.00	48.00	48.00	0.00
87	17.00	-17.00	5.00	48.00	48.00	0.00
88	18.00	-18.00	5.00	48.00	48.00	0.00
89	19.00	-19.00	5.00	48.00	48.00	0.00
90	20.00	-20.00	5.00	48.00	48.00	0.00
91	21.00	-21.00	5.00	48.00	48.00	0.00
92	22.00	-22.00	5.00	48.00	48.00	0.00
93	23.00	-23.00	5.00	48.00	48.00	0.00
94	24.00	-24.00	5.00	48.00	48.00	0.00
95	25.00	-25.00	5.00	48.00	48.00	0.00
96	26.00	-26.00	5.00	48.00	48.00	0.00
97	27.00	-27.00	5.00	48.00	48.00	0.00
98	28.00	-28.00	5.00	48.00	48.00	0.00
99	29.00	-29.00	5.00	48.00	48.00	0.00
100	30.00	-30.00	5.00	48.00	48.00	0.00
101	31.00	-31.00	5.00	48.00	48.00	0.00
102	32.00	-32.00	5.00	48.00	48.00	0.00
103	33.00	-33.00	5.00	48.00	48.00	0.00
104	34.00	-34.00	5.00	48.00	48.00	0.00
105	35.00	-35.00	5.00	48.00	48.00	0.00
106	36.00	-36.00	5.00	48.00	48.00	0.00
107	37.00	-37.00	5.00	48.00	48.00	0.00
108	38.00	-38.00	5.00	48.00	48.00	0.00
109	39.00	-39.00	5.00	48.00	48.00	0.00
110	40.00	-40.00	5.00	48.00	48.00	0.00
111	41.00	-41.00	5.00	48.00	48.00	0.00
112	42.00	-42.00	5.00	48.00	48.00	0.00
113	43.00	-43.00	5.00	48.00	48.00	0.00
114	44.00	-44.00	5.00	48.00	48.00	0.00
115	45.00	-45.00	5.00	48.00	48.00	0.00
116	46.00	-46.00	5.00	48.00	48.00	0.00
117	47.00	-47.00	5.00	48.00	48.00	0.00
118	48.00	-48.00	5.00	48.00	48.00	0.00
119	49.00	-49.00	5.00	48.00	48.00	0.00
120	50.00	-50.00	5.00	48.00	48.00	0.00
121	51.00	-51.00	5.00	48.00	48.00	0.00
122	52.00	-52.00	5.00	48.00	48.00	0.00
123	53.00	-53.00	5.00	48.00	48.00	0.00
124	54.00	-54.00	5.00	48.00	48.00	0.00
125	55.00	-55.00	5.00	48.00	48.00	0.00
126	56.00	-56.00	5.00	48.00	48.00	0.00
127	57.00	-57.00	5.00	48.00	48.00	0.00
128	58.00	-58.00	5.00	48.00	48.00	0.00
129	59.00	-59.00	5.00	48.00	48.00	0.00
130	60.00	-60.00	5.00	48.00	48.00	0.00
131	61.00	-61.00	5.00	48.00	48.00	0.00
132	62.00	-62.00	5.00	48.00	48.00	0.00
133	63.00	-63.00	5.00	48.00	48.00	0.00
134	64.00	-64.00	5.00	48.00	48.00	0.00
135	65.00	-65.00	5.00	48.00	48.00	0.00
136	66.00	-66.00	5.00	48.00	48.00	0.00
137	67.00	-67.00	5.00	48.00	48.00	0.00
138	68.00	-68.00	5.00	48.00	48.00	0.00
139	69.00	-69.00	5.00	48.00	48.00	0.00
140	70.00	-70.00	5.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000
13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000

16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	0.000	0.000
34	48.00	34.00	43.982	0.000	43.982
35	48.00	35.00	87.965	0.000	87.965
36	48.00	36.00	131.947	0.000	131.947
37	48.00	37.00	175.929	0.000	175.929
38	48.00	38.00	219.911	0.000	219.911
39	48.00	39.00	263.894	0.000	263.894
40	48.00	40.00	307.876	0.000	307.876
41	48.00	41.00	351.858	0.000	351.858
42	48.00	42.00	395.841	0.000	395.841
43	48.00	43.00	439.823	0.000	439.823
44	48.00	44.00	483.805	0.000	483.805
45	48.00	45.00	527.788	0.000	527.788
46	48.00	46.00	571.770	0.000	571.770
47	48.00	47.00	615.752	0.000	615.752
48	48.00	48.00	659.734	0.000	659.734
49	48.00	49.00	703.717	0.000	703.717
50	48.00	50.00	747.699	0.000	747.699
51	48.00	51.00	791.681	0.000	791.681
52	48.00	52.00	835.664	0.000	835.664
53	48.00	53.00	879.646	0.000	879.646
54	48.00	54.00	923.628	0.000	923.628
55	48.00	55.00	967.611	0.000	967.611
56	48.00	56.00	1011.593	0.000	1011.593
57	48.00	57.00	1055.575	0.000	1055.575
58	48.00	58.00	1099.557	0.000	1099.557
59	48.00	59.00	1143.540	0.000	1143.540
60	48.00	60.00	1187.522	0.000	1187.522
61	48.00	61.00	1231.504	0.000	1231.504
62	48.00	62.00	1275.487	0.000	1275.487
63	48.00	63.00	1319.469	0.000	1319.469
64	48.00	64.00	1363.451	0.000	1363.451
65	48.00	65.00	1407.434	0.000	1407.434
66	48.00	66.00	1451.416	0.000	1451.416
67	48.00	67.00	1495.398	0.000	1495.398
68	48.00	68.00	1539.380	0.000	1539.380
69	48.00	69.00	1583.363	0.000	1583.363
70	48.00	70.00	1627.345	0.000	1627.345

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==========
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000

13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000
16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	3801.144	3801.144
34	48.00	34.00	43.790	4609.176	4652.966
35	48.00	35.00	87.198	2896.898	2984.096
36	48.00	36.00	130.231	2207.764	2337.994
37	48.00	37.00	172.893	1820.722	1993.615
38	48.00	38.00	215.190	1567.884	1783.074
39	48.00	39.00	257.128	1387.594	1644.722
40	48.00	40.00	298.711	1251.435	1550.146
41	48.00	41.00	339.946	1144.336	1484.282
42	48.00	42.00	381.665	1132.146	1513.811
43	48.00	43.00	423.237	1119.102	1542.339
44	48.00	44.00	464.667	1105.586	1570.253
45	48.00	45.00	505.958	1091.847	1597.805
46	48.00	46.00	547.115	1078.047	1625.162
47	48.00	47.00	588.141	1064.296	1652.437
48	48.00	48.00	629.039	1050.666	1679.705
49	48.00	49.00	669.812	1037.205	1707.017
50	48.00	50.00	710.463	1023.944	1734.407
51	48.00	51.00	750.994	1010.904	1761.898
52	48.00	52.00	791.407	998.096	1789.503
53	48.00	53.00	831.704	985.526	1817.230
54	48.00	54.00	871.889	973.195	1845.083
55	48.00	55.00	911.961	961.102	1873.063
56	48.00	56.00	951.924	949.245	1901.168
57	48.00	57.00	991.778	937.618	1929.397
58	48.00	58.00	1031.527	926.217	1957.744
59	48.00	59.00	1071.170	915.036	1986.206
60	48.00	60.00	1110.710	904.068	2014.777
61	48.00	61.00	1150.148	893.306	2043.454
62	48.00	62.00	1189.485	882.745	2072.229
63	48.00	63.00	1228.723	872.377	2101.099
64	48.00	64.00	1267.863	862.195	2130.058
65	48.00	65.00	1306.906	852.195	2159.100
66	48.00	66.00	1345.853	842.368	2188.221
67	48.00	67.00	1384.706	832.710	2217.416
68	48.00	68.00	1423.466	823.214	2246.680
69	48.00	69.00	1462.133	813.875	2276.009
70	48.00	70.00	1500.710	804.688	2305.397

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:28:07

General Information:
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  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
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  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	1.00	ROUGH	1.000
15	1.00	ROUGH	1.000
16	1.00	ROUGH	1.000
17	1.00	ROUGH	1.000
18	1.00	ROUGH	1.000
19	1.00	ROUGH	1.000
20	1.00	ROUGH	1.000
21	1.00	ROUGH	1.000
22	1.00	ROUGH	1.000
23	1.00	ROUGH	1.000
24	1.00	ROUGH	1.000
25	1.00	ROUGH	1.000
26	1.00	ROUGH	1.000
27	1.00	ROUGH	1.000
28	1.00	ROUGH	1.000
29	1.00	ROUGH	1.000
30	1.00	ROUGH	1.000

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
141	1.00	-1.00	5.00	54.00	54.00	0.00
142	2.00	-2.00	5.00	54.00	54.00	0.00
143	3.00	-3.00	5.00	54.00	54.00	0.00
144	4.00	-4.00	5.00	54.00	54.00	0.00
145	5.00	-5.00	5.00	54.00	54.00	0.00
146	6.00	-6.00	5.00	54.00	54.00	0.00
147	7.00	-7.00	5.00	54.00	54.00	0.00
148	8.00	-8.00	5.00	54.00	54.00	0.00
149	9.00	-9.00	5.00	54.00	54.00	0.00
150	10.00	-10.00	5.00	54.00	54.00	0.00
151	11.00	-11.00	5.00	54.00	54.00	0.00
152	12.00	-12.00	5.00	54.00	54.00	0.00
153	13.00	-13.00	5.00	54.00	54.00	0.00
154	14.00	-14.00	5.00	54.00	54.00	0.00
155	15.00	-15.00	5.00	54.00	54.00	0.00

156	16.00	-16.00	5.00	54.00	54.00	0.00
157	17.00	-17.00	5.00	54.00	54.00	0.00
158	18.00	-18.00	5.00	54.00	54.00	0.00
159	19.00	-19.00	5.00	54.00	54.00	0.00
160	20.00	-20.00	5.00	54.00	54.00	0.00
161	21.00	-21.00	5.00	54.00	54.00	0.00
162	22.00	-22.00	5.00	54.00	54.00	0.00
163	23.00	-23.00	5.00	54.00	54.00	0.00
164	24.00	-24.00	5.00	54.00	54.00	0.00
165	25.00	-25.00	5.00	54.00	54.00	0.00
166	26.00	-26.00	5.00	54.00	54.00	0.00
167	27.00	-27.00	5.00	54.00	54.00	0.00
168	28.00	-28.00	5.00	54.00	54.00	0.00
169	29.00	-29.00	5.00	54.00	54.00	0.00
170	30.00	-30.00	5.00	54.00	54.00	0.00
171	31.00	-31.00	5.00	54.00	54.00	0.00
172	32.00	-32.00	5.00	54.00	54.00	0.00
173	33.00	-33.00	5.00	54.00	54.00	0.00
174	34.00	-34.00	5.00	54.00	54.00	0.00
175	35.00	-35.00	5.00	54.00	54.00	0.00
176	36.00	-36.00	5.00	54.00	54.00	0.00
177	37.00	-37.00	5.00	54.00	54.00	0.00
178	38.00	-38.00	5.00	54.00	54.00	0.00
179	39.00	-39.00	5.00	54.00	54.00	0.00
180	40.00	-40.00	5.00	54.00	54.00	0.00
181	41.00	-41.00	5.00	54.00	54.00	0.00
182	42.00	-42.00	5.00	54.00	54.00	0.00
183	43.00	-43.00	5.00	54.00	54.00	0.00
184	44.00	-44.00	5.00	54.00	54.00	0.00
185	45.00	-45.00	5.00	54.00	54.00	0.00
186	46.00	-46.00	5.00	54.00	54.00	0.00
187	47.00	-47.00	5.00	54.00	54.00	0.00
188	48.00	-48.00	5.00	54.00	54.00	0.00
189	49.00	-49.00	5.00	54.00	54.00	0.00
190	50.00	-50.00	5.00	54.00	54.00	0.00
191	51.00	-51.00	5.00	54.00	54.00	0.00
192	52.00	-52.00	5.00	54.00	54.00	0.00
193	53.00	-53.00	5.00	54.00	54.00	0.00
194	54.00	-54.00	5.00	54.00	54.00	0.00
195	55.00	-55.00	5.00	54.00	54.00	0.00
196	56.00	-56.00	5.00	54.00	54.00	0.00
197	57.00	-57.00	5.00	54.00	54.00	0.00
198	58.00	-58.00	5.00	54.00	54.00	0.00
199	59.00	-59.00	5.00	54.00	54.00	0.00
200	60.00	-60.00	5.00	54.00	54.00	0.00
201	61.00	-61.00	5.00	54.00	54.00	0.00
202	62.00	-62.00	5.00	54.00	54.00	0.00
203	63.00	-63.00	5.00	54.00	54.00	0.00
204	64.00	-64.00	5.00	54.00	54.00	0.00
205	65.00	-65.00	5.00	54.00	54.00	0.00
206	66.00	-66.00	5.00	54.00	54.00	0.00
207	67.00	-67.00	5.00	54.00	54.00	0.00
208	68.00	-68.00	5.00	54.00	54.00	0.00
209	69.00	-69.00	5.00	54.00	54.00	0.00
210	70.00	-70.00	5.00	54.00	54.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000
13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000

16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	0.000	0.000
34	54.00	34.00	49.480	0.000	49.480
35	54.00	35.00	98.960	0.000	98.960
36	54.00	36.00	148.440	0.000	148.440
37	54.00	37.00	197.920	0.000	197.920
38	54.00	38.00	247.400	0.000	247.400
39	54.00	39.00	296.881	0.000	296.881
40	54.00	40.00	346.361	0.000	346.361
41	54.00	41.00	395.841	0.000	395.841
42	54.00	42.00	445.321	0.000	445.321
43	54.00	43.00	494.801	0.000	494.801
44	54.00	44.00	544.281	0.000	544.281
45	54.00	45.00	593.761	0.000	593.761
46	54.00	46.00	643.241	0.000	643.241
47	54.00	47.00	692.721	0.000	692.721
48	54.00	48.00	742.201	0.000	742.201
49	54.00	49.00	791.681	0.000	791.681
50	54.00	50.00	841.161	0.000	841.161
51	54.00	51.00	890.642	0.000	890.642
52	54.00	52.00	940.122	0.000	940.122
53	54.00	53.00	989.602	0.000	989.602
54	54.00	54.00	1039.082	0.000	1039.082
55	54.00	55.00	1088.562	0.000	1088.562
56	54.00	56.00	1138.042	0.000	1138.042
57	54.00	57.00	1187.522	0.000	1187.522
58	54.00	58.00	1237.002	0.000	1237.002
59	54.00	59.00	1286.482	0.000	1286.482
60	54.00	60.00	1335.962	0.000	1335.962
61	54.00	61.00	1385.442	0.000	1385.442
62	54.00	62.00	1434.922	0.000	1434.922
63	54.00	63.00	1484.403	0.000	1484.403
64	54.00	64.00	1533.883	0.000	1533.883
65	54.00	65.00	1583.363	0.000	1583.363
66	54.00	66.00	1632.843	0.000	1632.843
67	54.00	67.00	1682.323	0.000	1682.323
68	54.00	68.00	1731.803	0.000	1731.803
69	54.00	69.00	1781.283	0.000	1781.283
70	54.00	70.00	1830.763	0.000	1830.763

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000

13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000
16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	4810.823	4810.823
34	54.00	34.00	49.287	6312.487	6361.775
35	54.00	35.00	98.193	3967.441	4065.633
36	54.00	36.00	146.721	3023.638	3170.360
37	54.00	37.00	194.878	2493.566	2688.444
38	54.00	38.00	242.668	2147.292	2389.960
39	54.00	39.00	290.095	1900.377	2190.472
40	54.00	40.00	337.165	1713.900	2051.065
41	54.00	41.00	383.883	1567.223	1951.106
42	54.00	42.00	430.254	1448.300	1878.554
43	54.00	43.00	477.201	1434.651	1911.852
44	54.00	44.00	524.001	1420.097	1944.098
45	54.00	45.00	570.658	1405.004	1975.662
46	54.00	46.00	617.176	1389.617	2006.793
47	54.00	47.00	663.558	1374.107	2037.665
48	54.00	48.00	709.809	1358.590	2068.399
49	54.00	49.00	755.930	1343.150	2099.080
50	54.00	50.00	801.925	1327.845	2129.770
51	54.00	51.00	847.796	1312.712	2160.508
52	54.00	52.00	893.545	1297.781	2191.326
53	54.00	53.00	939.175	1283.068	2222.244
54	54.00	54.00	984.688	1268.586	2253.274
55	54.00	55.00	1030.086	1254.339	2284.425
56	54.00	56.00	1075.370	1240.332	2315.702
57	54.00	57.00	1120.542	1226.564	2347.107
58	54.00	58.00	1165.605	1213.034	2378.639
59	54.00	59.00	1210.559	1199.738	2410.297
60	54.00	60.00	1255.406	1186.673	2442.079
61	54.00	61.00	1300.147	1173.833	2473.980
62	54.00	62.00	1344.785	1161.213	2505.998
63	54.00	63.00	1389.320	1148.808	2538.128
64	54.00	64.00	1433.753	1136.612	2570.366
65	54.00	65.00	1478.087	1124.619	2602.706
66	54.00	66.00	1522.321	1112.823	2635.144
67	54.00	67.00	1566.458	1101.218	2667.676
68	54.00	68.00	1610.499	1089.798	2700.297
69	54.00	69.00	1654.444	1078.559	2733.002
70	54.00	70.00	1698.294	1067.493	2765.787

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:28:18

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
211	1.00	-1.00	5.00	60.00	60.00	0.00
212	2.00	-2.00	5.00	60.00	60.00	0.00
213	3.00	-3.00	5.00	60.00	60.00	0.00
214	4.00	-4.00	5.00	60.00	60.00	0.00
215	5.00	-5.00	5.00	60.00	60.00	0.00
216	6.00	-6.00	5.00	60.00	60.00	0.00
217	7.00	-7.00	5.00	60.00	60.00	0.00
218	8.00	-8.00	5.00	60.00	60.00	0.00
219	9.00	-9.00	5.00	60.00	60.00	0.00
220	10.00	-10.00	5.00	60.00	60.00	0.00
221	11.00	-11.00	5.00	60.00	60.00	0.00
222	12.00	-12.00	5.00	60.00	60.00	0.00
223	13.00	-13.00	5.00	60.00	60.00	0.00
224	14.00	-14.00	5.00	60.00	60.00	0.00
225	15.00	-15.00	5.00	60.00	60.00	0.00

226	16.00	-16.00	5.00	60.00	60.00	0.00
227	17.00	-17.00	5.00	60.00	60.00	0.00
228	18.00	-18.00	5.00	60.00	60.00	0.00
229	19.00	-19.00	5.00	60.00	60.00	0.00
230	20.00	-20.00	5.00	60.00	60.00	0.00
231	21.00	-21.00	5.00	60.00	60.00	0.00
232	22.00	-22.00	5.00	60.00	60.00	0.00
233	23.00	-23.00	5.00	60.00	60.00	0.00
234	24.00	-24.00	5.00	60.00	60.00	0.00
235	25.00	-25.00	5.00	60.00	60.00	0.00
236	26.00	-26.00	5.00	60.00	60.00	0.00
237	27.00	-27.00	5.00	60.00	60.00	0.00
238	28.00	-28.00	5.00	60.00	60.00	0.00
239	29.00	-29.00	5.00	60.00	60.00	0.00
240	30.00	-30.00	5.00	60.00	60.00	0.00
241	31.00	-31.00	5.00	60.00	60.00	0.00
242	32.00	-32.00	5.00	60.00	60.00	0.00
243	33.00	-33.00	5.00	60.00	60.00	0.00
244	34.00	-34.00	5.00	60.00	60.00	0.00
245	35.00	-35.00	5.00	60.00	60.00	0.00
246	36.00	-36.00	5.00	60.00	60.00	0.00
247	37.00	-37.00	5.00	60.00	60.00	0.00
248	38.00	-38.00	5.00	60.00	60.00	0.00
249	39.00	-39.00	5.00	60.00	60.00	0.00
250	40.00	-40.00	5.00	60.00	60.00	0.00
251	41.00	-41.00	5.00	60.00	60.00	0.00
252	42.00	-42.00	5.00	60.00	60.00	0.00
253	43.00	-43.00	5.00	60.00	60.00	0.00
254	44.00	-44.00	5.00	60.00	60.00	0.00
255	45.00	-45.00	5.00	60.00	60.00	0.00
256	46.00	-46.00	5.00	60.00	60.00	0.00
257	47.00	-47.00	5.00	60.00	60.00	0.00
258	48.00	-48.00	5.00	60.00	60.00	0.00
259	49.00	-49.00	5.00	60.00	60.00	0.00
260	50.00	-50.00	5.00	60.00	60.00	0.00
261	51.00	-51.00	5.00	60.00	60.00	0.00
262	52.00	-52.00	5.00	60.00	60.00	0.00
263	53.00	-53.00	5.00	60.00	60.00	0.00
264	54.00	-54.00	5.00	60.00	60.00	0.00
265	55.00	-55.00	5.00	60.00	60.00	0.00
266	56.00	-56.00	5.00	60.00	60.00	0.00
267	57.00	-57.00	5.00	60.00	60.00	0.00
268	58.00	-58.00	5.00	60.00	60.00	0.00
269	59.00	-59.00	5.00	60.00	60.00	0.00
270	60.00	-60.00	5.00	60.00	60.00	0.00
271	61.00	-61.00	5.00	60.00	60.00	0.00
272	62.00	-62.00	5.00	60.00	60.00	0.00
273	63.00	-63.00	5.00	60.00	60.00	0.00
274	64.00	-64.00	5.00	60.00	60.00	0.00
275	65.00	-65.00	5.00	60.00	60.00	0.00
276	66.00	-66.00	5.00	60.00	60.00	0.00
277	67.00	-67.00	5.00	60.00	60.00	0.00
278	68.00	-68.00	5.00	60.00	60.00	0.00
279	69.00	-69.00	5.00	60.00	60.00	0.00
280	70.00	-70.00	5.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000
13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000

16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	0.000	0.000
34	60.00	34.00	54.978	0.000	54.978
35	60.00	35.00	109.956	0.000	109.956
36	60.00	36.00	164.934	0.000	164.934
37	60.00	37.00	219.911	0.000	219.911
38	60.00	38.00	274.889	0.000	274.889
39	60.00	39.00	329.867	0.000	329.867
40	60.00	40.00	384.845	0.000	384.845
41	60.00	41.00	439.823	0.000	439.823
42	60.00	42.00	494.801	0.000	494.801
43	60.00	43.00	549.779	0.000	549.779
44	60.00	44.00	604.757	0.000	604.757
45	60.00	45.00	659.734	0.000	659.734
46	60.00	46.00	714.712	0.000	714.712
47	60.00	47.00	769.690	0.000	769.690
48	60.00	48.00	824.668	0.000	824.668
49	60.00	49.00	879.646	0.000	879.646
50	60.00	50.00	934.624	0.000	934.624
51	60.00	51.00	989.602	0.000	989.602
52	60.00	52.00	1044.580	0.000	1044.580
53	60.00	53.00	1099.557	0.000	1099.557
54	60.00	54.00	1154.535	0.000	1154.535
55	60.00	55.00	1209.513	0.000	1209.513
56	60.00	56.00	1264.491	0.000	1264.491
57	60.00	57.00	1319.469	0.000	1319.469
58	60.00	58.00	1374.447	0.000	1374.447
59	60.00	59.00	1429.425	0.000	1429.425
60	60.00	60.00	1484.403	0.000	1484.403
61	60.00	61.00	1539.380	0.000	1539.380
62	60.00	62.00	1594.358	0.000	1594.358
63	60.00	63.00	1649.336	0.000	1649.336
64	60.00	64.00	1704.314	0.000	1704.314
65	60.00	65.00	1759.292	0.000	1759.292
66	60.00	66.00	1814.270	0.000	1814.270
67	60.00	67.00	1869.248	0.000	1869.248
68	60.00	68.00	1924.226	0.000	1924.226
69	60.00	69.00	1979.203	0.000	1979.203
70	60.00	70.00	2034.181	0.000	2034.181

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000

13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000
16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	5939.288	5939.288
34	60.00	34.00	54.785	8363.210	8417.996
35	60.00	35.00	109.188	5256.334	5365.521
36	60.00	36.00	163.213	4005.921	4169.133
37	60.00	37.00	216.865	3303.645	3520.510
38	60.00	38.00	270.148	2844.878	3115.026
39	60.00	39.00	323.067	2517.748	2840.814
40	60.00	40.00	375.625	2270.690	2646.315
41	60.00	41.00	427.829	2076.363	2504.192
42	60.00	42.00	479.683	1918.806	2398.489
43	60.00	43.00	531.190	1788.025	2319.215
44	60.00	44.00	583.366	1772.918	2356.284
45	60.00	45.00	635.394	1756.865	2392.260
46	60.00	46.00	687.279	1740.213	2427.492
47	60.00	47.00	739.025	1723.204	2462.229
48	60.00	48.00	790.635	1706.011	2496.646
49	60.00	49.00	842.112	1688.760	2530.872
50	60.00	50.00	893.459	1671.540	2564.998
51	60.00	51.00	944.678	1654.416	2599.094
52	60.00	52.00	995.771	1637.436	2633.207
53	60.00	53.00	1046.742	1620.633	2667.375
54	60.00	54.00	1097.593	1604.030	2701.623
55	60.00	55.00	1148.324	1587.645	2735.970
56	60.00	56.00	1198.939	1571.489	2770.428
57	60.00	57.00	1249.439	1555.567	2805.006
58	60.00	58.00	1299.825	1539.884	2839.709
59	60.00	59.00	1350.100	1524.440	2874.540
60	60.00	60.00	1400.265	1509.235	2909.500
61	60.00	61.00	1450.321	1494.267	2944.589
62	60.00	62.00	1500.271	1479.533	2979.803
63	60.00	63.00	1550.114	1465.028	3015.142
64	60.00	64.00	1599.853	1450.750	3050.603
65	60.00	65.00	1649.489	1436.691	3086.180
66	60.00	66.00	1699.023	1422.849	3121.872
67	60.00	67.00	1748.457	1409.217	3157.674
68	60.00	68.00	1797.790	1395.791	3193.581
69	60.00	69.00	1847.026	1382.564	3229.591
70	60.00	70.00	1896.164	1369.533	3265.697

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:28:30

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-1 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	1.00	ROUGH	1.000
15	1.00	ROUGH	1.000
16	1.00	ROUGH	1.000
17	1.00	ROUGH	1.000
18	1.00	ROUGH	1.000
19	1.00	ROUGH	1.000
20	1.00	ROUGH	1.000
21	1.00	ROUGH	1.000
22	1.00	ROUGH	1.000
23	1.00	ROUGH	1.000
24	1.00	ROUGH	1.000
25	1.00	ROUGH	1.000
26	1.00	ROUGH	1.000
27	1.00	ROUGH	1.000
28	1.00	ROUGH	1.000
29	1.00	ROUGH	1.000
30	1.00	ROUGH	1.000

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
281	1.00	-1.00	5.00	72.00	72.00	0.00
282	2.00	-2.00	5.00	72.00	72.00	0.00
283	3.00	-3.00	5.00	72.00	72.00	0.00
284	4.00	-4.00	5.00	72.00	72.00	0.00
285	5.00	-5.00	5.00	72.00	72.00	0.00
286	6.00	-6.00	5.00	72.00	72.00	0.00
287	7.00	-7.00	5.00	72.00	72.00	0.00
288	8.00	-8.00	5.00	72.00	72.00	0.00
289	9.00	-9.00	5.00	72.00	72.00	0.00
290	10.00	-10.00	5.00	72.00	72.00	0.00
291	11.00	-11.00	5.00	72.00	72.00	0.00
292	12.00	-12.00	5.00	72.00	72.00	0.00
293	13.00	-13.00	5.00	72.00	72.00	0.00
294	14.00	-14.00	5.00	72.00	72.00	0.00
295	15.00	-15.00	5.00	72.00	72.00	0.00

296	16.00	-16.00	5.00	72.00	72.00	0.00
297	17.00	-17.00	5.00	72.00	72.00	0.00
298	18.00	-18.00	5.00	72.00	72.00	0.00
299	19.00	-19.00	5.00	72.00	72.00	0.00
300	20.00	-20.00	5.00	72.00	72.00	0.00
301	21.00	-21.00	5.00	72.00	72.00	0.00
302	22.00	-22.00	5.00	72.00	72.00	0.00
303	23.00	-23.00	5.00	72.00	72.00	0.00
304	24.00	-24.00	5.00	72.00	72.00	0.00
305	25.00	-25.00	5.00	72.00	72.00	0.00
306	26.00	-26.00	5.00	72.00	72.00	0.00
307	27.00	-27.00	5.00	72.00	72.00	0.00
308	28.00	-28.00	5.00	72.00	72.00	0.00
309	29.00	-29.00	5.00	72.00	72.00	0.00
310	30.00	-30.00	5.00	72.00	72.00	0.00
311	31.00	-31.00	5.00	72.00	72.00	0.00
312	32.00	-32.00	5.00	72.00	72.00	0.00
313	33.00	-33.00	5.00	72.00	72.00	0.00
314	34.00	-34.00	5.00	72.00	72.00	0.00
315	35.00	-35.00	5.00	72.00	72.00	0.00
316	36.00	-36.00	5.00	72.00	72.00	0.00
317	37.00	-37.00	5.00	72.00	72.00	0.00
318	38.00	-38.00	5.00	72.00	72.00	0.00
319	39.00	-39.00	5.00	72.00	72.00	0.00
320	40.00	-40.00	5.00	72.00	72.00	0.00
321	41.00	-41.00	5.00	72.00	72.00	0.00
322	42.00	-42.00	5.00	72.00	72.00	0.00
323	43.00	-43.00	5.00	72.00	72.00	0.00
324	44.00	-44.00	5.00	72.00	72.00	0.00
325	45.00	-45.00	5.00	72.00	72.00	0.00
326	46.00	-46.00	5.00	72.00	72.00	0.00
327	47.00	-47.00	5.00	72.00	72.00	0.00
328	48.00	-48.00	5.00	72.00	72.00	0.00
329	49.00	-49.00	5.00	72.00	72.00	0.00
330	50.00	-50.00	5.00	72.00	72.00	0.00
331	51.00	-51.00	5.00	72.00	72.00	0.00
332	52.00	-52.00	5.00	72.00	72.00	0.00
333	53.00	-53.00	5.00	72.00	72.00	0.00
334	54.00	-54.00	5.00	72.00	72.00	0.00
335	55.00	-55.00	5.00	72.00	72.00	0.00
336	56.00	-56.00	5.00	72.00	72.00	0.00
337	57.00	-57.00	5.00	72.00	72.00	0.00
338	58.00	-58.00	5.00	72.00	72.00	0.00
339	59.00	-59.00	5.00	72.00	72.00	0.00
340	60.00	-60.00	5.00	72.00	72.00	0.00
341	61.00	-61.00	5.00	72.00	72.00	0.00
342	62.00	-62.00	5.00	72.00	72.00	0.00
343	63.00	-63.00	5.00	72.00	72.00	0.00
344	64.00	-64.00	5.00	72.00	72.00	0.00
345	65.00	-65.00	5.00	72.00	72.00	0.00
346	66.00	-66.00	5.00	72.00	72.00	0.00
347	67.00	-67.00	5.00	72.00	72.00	0.00
348	68.00	-68.00	5.00	72.00	72.00	0.00
349	69.00	-69.00	5.00	72.00	72.00	0.00
350	70.00	-70.00	5.00	72.00	72.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000
13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000

16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	0.000	0.000
34	72.00	34.00	65.973	0.000	65.973
35	72.00	35.00	131.947	0.000	131.947
36	72.00	36.00	197.920	0.000	197.920
37	72.00	37.00	263.894	0.000	263.894
38	72.00	38.00	329.867	0.000	329.867
39	72.00	39.00	395.841	0.000	395.841
40	72.00	40.00	461.814	0.000	461.814
41	72.00	41.00	527.788	0.000	527.788
42	72.00	42.00	593.761	0.000	593.761
43	72.00	43.00	659.734	0.000	659.734
44	72.00	44.00	725.708	0.000	725.708
45	72.00	45.00	791.681	0.000	791.681
46	72.00	46.00	857.655	0.000	857.655
47	72.00	47.00	923.628	0.000	923.628
48	72.00	48.00	989.602	0.000	989.602
49	72.00	49.00	1055.575	0.000	1055.575
50	72.00	50.00	1121.549	0.000	1121.549
51	72.00	51.00	1187.522	0.000	1187.522
52	72.00	52.00	1253.495	0.000	1253.495
53	72.00	53.00	1319.469	0.000	1319.469
54	72.00	54.00	1385.442	0.000	1385.442
55	72.00	55.00	1451.416	0.000	1451.416
56	72.00	56.00	1517.389	0.000	1517.389
57	72.00	57.00	1583.363	0.000	1583.363
58	72.00	58.00	1649.336	0.000	1649.336
59	72.00	59.00	1715.310	0.000	1715.310
60	72.00	60.00	1781.283	0.000	1781.283
61	72.00	61.00	1847.256	0.000	1847.256
62	72.00	62.00	1913.230	0.000	1913.230
63	72.00	63.00	1979.203	0.000	1979.203
64	72.00	64.00	2045.177	0.000	2045.177
65	72.00	65.00	2111.150	0.000	2111.150
66	72.00	66.00	2177.124	0.000	2177.124
67	72.00	67.00	2243.097	0.000	2243.097
68	72.00	68.00	2309.071	0.000	2309.071
69	72.00	69.00	2375.044	0.000	2375.044
70	72.00	70.00	2441.017	0.000	2441.017

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==========
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000

13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000
16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	8552.574	8552.574
34	72.00	34.00	65.781	13607.770	13673.550
35	72.00	35.00	131.178	8552.574	8683.752
36	72.00	36.00	196.197	6518.029	6714.225
37	72.00	37.00	260.840	5375.357	5636.197
38	72.00	38.00	325.112	4628.898	4954.010
39	72.00	39.00	389.017	4096.624	4485.641
40	72.00	40.00	452.557	3694.637	4147.195
41	72.00	41.00	515.739	3378.448	3894.187
42	72.00	42.00	578.565	3122.087	3700.652
43	72.00	43.00	641.041	2909.293	3550.334
44	72.00	44.00	703.168	2729.320	3432.488
45	72.00	45.00	764.952	2574.756	3339.708
46	72.00	46.00	827.587	2556.738	3384.325
47	72.00	47.00	890.075	2537.708	3427.783
48	72.00	48.00	952.420	2517.979	3470.399
49	72.00	49.00	1014.625	2497.785	3512.409
50	72.00	50.00	1076.692	2477.300	3553.992
51	72.00	51.00	1138.626	2456.656	3595.282
52	72.00	52.00	1200.428	2435.954	3636.383
53	72.00	53.00	1262.101	2415.271	3677.373
54	72.00	54.00	1323.647	2394.666	3718.313
55	72.00	55.00	1385.068	2374.183	3759.251
56	72.00	56.00	1446.367	2353.856	3800.222
57	72.00	57.00	1507.544	2333.711	3841.255
58	72.00	58.00	1568.602	2313.767	3882.369
59	72.00	59.00	1629.543	2294.038	3923.582
60	72.00	60.00	1690.369	2274.535	3964.903
61	72.00	61.00	1751.080	2255.263	4006.343
62	72.00	62.00	1811.678	2236.229	4047.907
63	72.00	63.00	1872.166	2217.433	4089.598
64	72.00	64.00	1932.543	2198.876	4131.419
65	72.00	65.00	1992.812	2180.559	4173.371
66	72.00	66.00	2052.974	2162.479	4215.454
67	72.00	67.00	2113.030	2144.635	4257.665
68	72.00	68.00	2172.982	2127.023	4300.005
69	72.00	69.00	2232.830	2109.641	4342.471
70	72.00	70.00	2292.576	2092.484	4385.060

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:29:32

General Information:
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  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	5.00	42.00	42.00	0.00
2	2.00	-2.00	5.00	42.00	42.00	0.00
3	3.00	-3.00	5.00	42.00	42.00	0.00
4	4.00	-4.00	5.00	42.00	42.00	0.00
5	5.00	-5.00	5.00	42.00	42.00	0.00
6	6.00	-6.00	5.00	42.00	42.00	0.00
7	7.00	-7.00	5.00	42.00	42.00	0.00
8	8.00	-8.00	5.00	42.00	42.00	0.00
9	9.00	-9.00	5.00	42.00	42.00	0.00
10	10.00	-10.00	5.00	42.00	42.00	0.00
11	11.00	-11.00	5.00	42.00	42.00	0.00
12	12.00	-12.00	5.00	42.00	42.00	0.00
13	13.00	-13.00	5.00	42.00	42.00	0.00
14	14.00	-14.00	5.00	42.00	42.00	0.00
15	15.00	-15.00	5.00	42.00	42.00	0.00

16	16.00	-16.00	5.00	42.00	42.00	0.00
17	17.00	-17.00	5.00	42.00	42.00	0.00
18	18.00	-18.00	5.00	42.00	42.00	0.00
19	19.00	-19.00	5.00	42.00	42.00	0.00
20	20.00	-20.00	5.00	42.00	42.00	0.00
21	21.00	-21.00	5.00	42.00	42.00	0.00
22	22.00	-22.00	5.00	42.00	42.00	0.00
23	23.00	-23.00	5.00	42.00	42.00	0.00
24	24.00	-24.00	5.00	42.00	42.00	0.00
25	25.00	-25.00	5.00	42.00	42.00	0.00
26	26.00	-26.00	5.00	42.00	42.00	0.00
27	27.00	-27.00	5.00	42.00	42.00	0.00
28	28.00	-28.00	5.00	42.00	42.00	0.00
29	29.00	-29.00	5.00	42.00	42.00	0.00
30	30.00	-30.00	5.00	42.00	42.00	0.00
31	31.00	-31.00	5.00	42.00	42.00	0.00
32	32.00	-32.00	5.00	42.00	42.00	0.00
33	33.00	-33.00	5.00	42.00	42.00	0.00
34	34.00	-34.00	5.00	42.00	42.00	0.00
35	35.00	-35.00	5.00	42.00	42.00	0.00
36	36.00	-36.00	5.00	42.00	42.00	0.00
37	37.00	-37.00	5.00	42.00	42.00	0.00
38	38.00	-38.00	5.00	42.00	42.00	0.00
39	39.00	-39.00	5.00	42.00	42.00	0.00
40	40.00	-40.00	5.00	42.00	42.00	0.00
41	41.00	-41.00	5.00	42.00	42.00	0.00
42	42.00	-42.00	5.00	42.00	42.00	0.00
43	43.00	-43.00	5.00	42.00	42.00	0.00
44	44.00	-44.00	5.00	42.00	42.00	0.00
45	45.00	-45.00	5.00	42.00	42.00	0.00
46	46.00	-46.00	5.00	42.00	42.00	0.00
47	47.00	-47.00	5.00	42.00	42.00	0.00
48	48.00	-48.00	5.00	42.00	42.00	0.00
49	49.00	-49.00	5.00	42.00	42.00	0.00
50	50.00	-50.00	5.00	42.00	42.00	0.00
51	51.00	-51.00	5.00	42.00	42.00	0.00
52	52.00	-52.00	5.00	42.00	42.00	0.00
53	53.00	-53.00	5.00	42.00	42.00	0.00
54	54.00	-54.00	5.00	42.00	42.00	0.00
55	55.00	-55.00	5.00	42.00	42.00	0.00
56	56.00	-56.00	5.00	42.00	42.00	0.00
57	57.00	-57.00	5.00	42.00	42.00	0.00
58	58.00	-58.00	5.00	42.00	42.00	0.00
59	59.00	-59.00	5.00	42.00	42.00	0.00
60	60.00	-60.00	5.00	42.00	42.00	0.00
61	61.00	-61.00	5.00	42.00	42.00	0.00
62	62.00	-62.00	5.00	42.00	42.00	0.00
63	63.00	-63.00	5.00	42.00	42.00	0.00
64	64.00	-64.00	5.00	42.00	42.00	0.00
65	65.00	-65.00	5.00	42.00	42.00	0.00
66	66.00	-66.00	5.00	42.00	42.00	0.00
67	67.00	-67.00	5.00	42.00	42.00	0.00
68	68.00	-68.00	5.00	42.00	42.00	0.00
69	69.00	-69.00	5.00	42.00	42.00	0.00
70	70.00	-70.00	5.00	42.00	42.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000
13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000

16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	0.000	0.000
34	42.00	34.00	38.485	0.000	38.485
35	42.00	35.00	76.969	0.000	76.969
36	42.00	36.00	115.454	0.000	115.454
37	42.00	37.00	153.938	0.000	153.938
38	42.00	38.00	192.423	0.000	192.423
39	42.00	39.00	230.907	0.000	230.907
40	42.00	40.00	269.392	0.000	269.392
41	42.00	41.00	307.876	0.000	307.876
42	42.00	42.00	346.361	0.000	346.361
43	42.00	43.00	384.845	0.000	384.845
44	42.00	44.00	423.330	0.000	423.330
45	42.00	45.00	461.814	0.000	461.814
46	42.00	46.00	500.299	0.000	500.299
47	42.00	47.00	538.783	0.000	538.783
48	42.00	48.00	577.268	0.000	577.268
49	42.00	49.00	615.752	0.000	615.752
50	42.00	50.00	654.237	0.000	654.237
51	42.00	51.00	692.721	0.000	692.721
52	42.00	52.00	731.206	0.000	731.206
53	42.00	53.00	769.690	0.000	769.690
54	42.00	54.00	808.175	0.000	808.175
55	42.00	55.00	846.659	0.000	846.659
56	42.00	56.00	885.144	0.000	885.144
57	42.00	57.00	923.628	0.000	923.628
58	42.00	58.00	962.113	0.000	962.113
59	42.00	59.00	1000.597	0.000	1000.597
60	42.00	60.00	1039.082	0.000	1039.082
61	42.00	61.00	1077.566	0.000	1077.566
62	42.00	62.00	1116.051	0.000	1116.051
63	42.00	63.00	1154.535	0.000	1154.535
64	42.00	64.00	1193.020	0.000	1193.020
65	42.00	65.00	1231.504	0.000	1231.504
66	42.00	66.00	1269.989	0.000	1269.989
67	42.00	67.00	1308.473	0.000	1308.473
68	42.00	68.00	1346.958	0.000	1346.958
69	42.00	69.00	1385.442	0.000	1385.442
70	42.00	70.00	1423.927	0.000	1423.927

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
==========
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	42.00	1.00	0.000	0.000	0.000
2	42.00	2.00	0.000	0.000	0.000
3	42.00	3.00	0.000	0.000	0.000
4	42.00	4.00	0.000	0.000	0.000
5	42.00	5.00	0.000	0.000	0.000
6	42.00	6.00	0.000	0.000	0.000
7	42.00	7.00	0.000	0.000	0.000
8	42.00	8.00	0.000	0.000	0.000
9	42.00	9.00	0.000	0.000	0.000
10	42.00	10.00	0.000	0.000	0.000
11	42.00	11.00	0.000	0.000	0.000
12	42.00	12.00	0.000	0.000	0.000

13	42.00	13.00	0.000	0.000	0.000
14	42.00	14.00	0.000	0.000	0.000
15	42.00	15.00	0.000	0.000	0.000
16	42.00	16.00	0.000	0.000	0.000
17	42.00	17.00	0.000	0.000	0.000
18	42.00	18.00	0.000	0.000	0.000
19	42.00	19.00	0.000	0.000	0.000
20	42.00	20.00	0.000	0.000	0.000
21	42.00	21.00	0.000	0.000	0.000
22	42.00	22.00	0.000	0.000	0.000
23	42.00	23.00	0.000	0.000	0.000
24	42.00	24.00	0.000	0.000	0.000
25	42.00	25.00	0.000	0.000	0.000
26	42.00	26.00	0.000	0.000	0.000
27	42.00	27.00	0.000	0.000	0.000
28	42.00	28.00	0.000	0.000	0.000
29	42.00	29.00	0.000	0.000	0.000
30	42.00	30.00	0.000	0.000	0.000
31	42.00	31.00	0.000	0.000	0.000
32	42.00	32.00	0.000	0.000	0.000
33	42.00	33.00	0.000	2910.251	2910.251
34	42.00	34.00	38.292	3226.895	3265.187
35	42.00	35.00	76.203	2028.125	2104.328
36	42.00	36.00	113.740	1545.660	1659.401
37	42.00	37.00	150.909	1274.692	1425.601
38	42.00	38.00	187.716	1097.679	1285.395
39	42.00	39.00	224.166	971.458	1195.624
40	42.00	40.00	260.265	876.132	1136.398
41	42.00	41.00	296.758	865.404	1162.162
42	42.00	42.00	333.103	853.883	1186.986
43	42.00	43.00	369.306	841.969	1211.275
44	42.00	44.00	405.373	829.908	1235.280
45	42.00	45.00	441.306	817.852	1259.158
46	42.00	46.00	477.109	805.900	1283.009
47	42.00	47.00	512.786	794.110	1306.896
48	42.00	48.00	548.340	782.521	1330.861
49	42.00	49.00	583.774	771.153	1354.927
50	42.00	50.00	619.090	760.020	1379.110
51	42.00	51.00	654.290	749.126	1403.416
52	42.00	52.00	689.377	738.470	1427.847
53	42.00	53.00	724.352	728.051	1452.404
54	42.00	54.00	759.218	717.864	1477.082
55	42.00	55.00	793.977	707.902	1501.879
56	42.00	56.00	828.630	698.159	1526.789
57	42.00	57.00	863.179	688.627	1551.805
58	42.00	58.00	897.625	679.298	1576.923
59	42.00	59.00	931.970	670.166	1602.137
60	42.00	60.00	966.216	661.223	1627.439
61	42.00	61.00	1000.364	652.461	1652.825
62	42.00	62.00	1034.414	643.874	1678.288
63	42.00	63.00	1068.370	635.454	1703.824
64	42.00	64.00	1102.231	627.195	1729.425
65	42.00	65.00	1135.998	619.090	1755.088
66	42.00	66.00	1169.674	611.133	1780.808
67	42.00	67.00	1203.259	603.319	1806.579
68	42.00	68.00	1236.755	595.643	1832.397
69	42.00	69.00	1270.161	588.097	1858.259
70	42.00	70.00	1303.480	580.679	1884.159

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:29:45

General Information:
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  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	
2	N/A	N/A	N/A	
3	N/A	N/A	N/A	
4	N/A	N/A	N/A	
5	N/A	N/A	N/A	
6	N/A	N/A	N/A	
7	N/A	N/A	N/A	
8	N/A	N/A	N/A	
9	N/A	N/A	N/A	
10	N/A	N/A	N/A	
11	N/A	N/A	N/A	
12	N/A	N/A	N/A	
13	N/A	N/A	N/A	
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
71	1.00	-1.00	5.00	48.00	48.00	0.00
72	2.00	-2.00	5.00	48.00	48.00	0.00
73	3.00	-3.00	5.00	48.00	48.00	0.00
74	4.00	-4.00	5.00	48.00	48.00	0.00
75	5.00	-5.00	5.00	48.00	48.00	0.00
76	6.00	-6.00	5.00	48.00	48.00	0.00
77	7.00	-7.00	5.00	48.00	48.00	0.00
78	8.00	-8.00	5.00	48.00	48.00	0.00
79	9.00	-9.00	5.00	48.00	48.00	0.00
80	10.00	-10.00	5.00	48.00	48.00	0.00
81	11.00	-11.00	5.00	48.00	48.00	0.00
82	12.00	-12.00	5.00	48.00	48.00	0.00
83	13.00	-13.00	5.00	48.00	48.00	0.00
84	14.00	-14.00	5.00	48.00	48.00	0.00
85	15.00	-15.00	5.00	48.00	48.00	0.00

86	16.00	-16.00	5.00	48.00	48.00	0.00
87	17.00	-17.00	5.00	48.00	48.00	0.00
88	18.00	-18.00	5.00	48.00	48.00	0.00
89	19.00	-19.00	5.00	48.00	48.00	0.00
90	20.00	-20.00	5.00	48.00	48.00	0.00
91	21.00	-21.00	5.00	48.00	48.00	0.00
92	22.00	-22.00	5.00	48.00	48.00	0.00
93	23.00	-23.00	5.00	48.00	48.00	0.00
94	24.00	-24.00	5.00	48.00	48.00	0.00
95	25.00	-25.00	5.00	48.00	48.00	0.00
96	26.00	-26.00	5.00	48.00	48.00	0.00
97	27.00	-27.00	5.00	48.00	48.00	0.00
98	28.00	-28.00	5.00	48.00	48.00	0.00
99	29.00	-29.00	5.00	48.00	48.00	0.00
100	30.00	-30.00	5.00	48.00	48.00	0.00
101	31.00	-31.00	5.00	48.00	48.00	0.00
102	32.00	-32.00	5.00	48.00	48.00	0.00
103	33.00	-33.00	5.00	48.00	48.00	0.00
104	34.00	-34.00	5.00	48.00	48.00	0.00
105	35.00	-35.00	5.00	48.00	48.00	0.00
106	36.00	-36.00	5.00	48.00	48.00	0.00
107	37.00	-37.00	5.00	48.00	48.00	0.00
108	38.00	-38.00	5.00	48.00	48.00	0.00
109	39.00	-39.00	5.00	48.00	48.00	0.00
110	40.00	-40.00	5.00	48.00	48.00	0.00
111	41.00	-41.00	5.00	48.00	48.00	0.00
112	42.00	-42.00	5.00	48.00	48.00	0.00
113	43.00	-43.00	5.00	48.00	48.00	0.00
114	44.00	-44.00	5.00	48.00	48.00	0.00
115	45.00	-45.00	5.00	48.00	48.00	0.00
116	46.00	-46.00	5.00	48.00	48.00	0.00
117	47.00	-47.00	5.00	48.00	48.00	0.00
118	48.00	-48.00	5.00	48.00	48.00	0.00
119	49.00	-49.00	5.00	48.00	48.00	0.00
120	50.00	-50.00	5.00	48.00	48.00	0.00
121	51.00	-51.00	5.00	48.00	48.00	0.00
122	52.00	-52.00	5.00	48.00	48.00	0.00
123	53.00	-53.00	5.00	48.00	48.00	0.00
124	54.00	-54.00	5.00	48.00	48.00	0.00
125	55.00	-55.00	5.00	48.00	48.00	0.00
126	56.00	-56.00	5.00	48.00	48.00	0.00
127	57.00	-57.00	5.00	48.00	48.00	0.00
128	58.00	-58.00	5.00	48.00	48.00	0.00
129	59.00	-59.00	5.00	48.00	48.00	0.00
130	60.00	-60.00	5.00	48.00	48.00	0.00
131	61.00	-61.00	5.00	48.00	48.00	0.00
132	62.00	-62.00	5.00	48.00	48.00	0.00
133	63.00	-63.00	5.00	48.00	48.00	0.00
134	64.00	-64.00	5.00	48.00	48.00	0.00
135	65.00	-65.00	5.00	48.00	48.00	0.00
136	66.00	-66.00	5.00	48.00	48.00	0.00
137	67.00	-67.00	5.00	48.00	48.00	0.00
138	68.00	-68.00	5.00	48.00	48.00	0.00
139	69.00	-69.00	5.00	48.00	48.00	0.00
140	70.00	-70.00	5.00	48.00	48.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000
13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000

16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	0.000	0.000
34	48.00	34.00	43.982	0.000	43.982
35	48.00	35.00	87.965	0.000	87.965
36	48.00	36.00	131.947	0.000	131.947
37	48.00	37.00	175.929	0.000	175.929
38	48.00	38.00	219.911	0.000	219.911
39	48.00	39.00	263.894	0.000	263.894
40	48.00	40.00	307.876	0.000	307.876
41	48.00	41.00	351.858	0.000	351.858
42	48.00	42.00	395.841	0.000	395.841
43	48.00	43.00	439.823	0.000	439.823
44	48.00	44.00	483.805	0.000	483.805
45	48.00	45.00	527.788	0.000	527.788
46	48.00	46.00	571.770	0.000	571.770
47	48.00	47.00	615.752	0.000	615.752
48	48.00	48.00	659.734	0.000	659.734
49	48.00	49.00	703.717	0.000	703.717
50	48.00	50.00	747.699	0.000	747.699
51	48.00	51.00	791.681	0.000	791.681
52	48.00	52.00	835.664	0.000	835.664
53	48.00	53.00	879.646	0.000	879.646
54	48.00	54.00	923.628	0.000	923.628
55	48.00	55.00	967.611	0.000	967.611
56	48.00	56.00	1011.593	0.000	1011.593
57	48.00	57.00	1055.575	0.000	1055.575
58	48.00	58.00	1099.557	0.000	1099.557
59	48.00	59.00	1143.540	0.000	1143.540
60	48.00	60.00	1187.522	0.000	1187.522
61	48.00	61.00	1231.504	0.000	1231.504
62	48.00	62.00	1275.487	0.000	1275.487
63	48.00	63.00	1319.469	0.000	1319.469
64	48.00	64.00	1363.451	0.000	1363.451
65	48.00	65.00	1407.434	0.000	1407.434
66	48.00	66.00	1451.416	0.000	1451.416
67	48.00	67.00	1495.398	0.000	1495.398
68	48.00	68.00	1539.380	0.000	1539.380
69	48.00	69.00	1583.363	0.000	1583.363
70	48.00	70.00	1627.345	0.000	1627.345

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	48.00	1.00	0.000	0.000	0.000
2	48.00	2.00	0.000	0.000	0.000
3	48.00	3.00	0.000	0.000	0.000
4	48.00	4.00	0.000	0.000	0.000
5	48.00	5.00	0.000	0.000	0.000
6	48.00	6.00	0.000	0.000	0.000
7	48.00	7.00	0.000	0.000	0.000
8	48.00	8.00	0.000	0.000	0.000
9	48.00	9.00	0.000	0.000	0.000
10	48.00	10.00	0.000	0.000	0.000
11	48.00	11.00	0.000	0.000	0.000
12	48.00	12.00	0.000	0.000	0.000

13	48.00	13.00	0.000	0.000	0.000
14	48.00	14.00	0.000	0.000	0.000
15	48.00	15.00	0.000	0.000	0.000
16	48.00	16.00	0.000	0.000	0.000
17	48.00	17.00	0.000	0.000	0.000
18	48.00	18.00	0.000	0.000	0.000
19	48.00	19.00	0.000	0.000	0.000
20	48.00	20.00	0.000	0.000	0.000
21	48.00	21.00	0.000	0.000	0.000
22	48.00	22.00	0.000	0.000	0.000
23	48.00	23.00	0.000	0.000	0.000
24	48.00	24.00	0.000	0.000	0.000
25	48.00	25.00	0.000	0.000	0.000
26	48.00	26.00	0.000	0.000	0.000
27	48.00	27.00	0.000	0.000	0.000
28	48.00	28.00	0.000	0.000	0.000
29	48.00	29.00	0.000	0.000	0.000
30	48.00	30.00	0.000	0.000	0.000
31	48.00	31.00	0.000	0.000	0.000
32	48.00	32.00	0.000	0.000	0.000
33	48.00	33.00	0.000	3801.144	3801.144
34	48.00	34.00	43.790	4609.176	4652.966
35	48.00	35.00	87.198	2896.898	2984.096
36	48.00	36.00	130.231	2207.764	2337.994
37	48.00	37.00	172.893	1820.722	1993.615
38	48.00	38.00	215.190	1567.884	1783.074
39	48.00	39.00	257.128	1387.594	1644.722
40	48.00	40.00	298.711	1251.435	1550.146
41	48.00	41.00	339.946	1144.336	1484.282
42	48.00	42.00	381.665	1132.146	1513.811
43	48.00	43.00	423.237	1119.102	1542.339
44	48.00	44.00	464.667	1105.586	1570.253
45	48.00	45.00	505.958	1091.847	1597.805
46	48.00	46.00	547.115	1078.047	1625.162
47	48.00	47.00	588.141	1064.296	1652.437
48	48.00	48.00	629.039	1050.666	1679.705
49	48.00	49.00	669.812	1037.205	1707.017
50	48.00	50.00	710.463	1023.944	1734.407
51	48.00	51.00	750.994	1010.904	1761.898
52	48.00	52.00	791.407	998.096	1789.503
53	48.00	53.00	831.704	985.526	1817.230
54	48.00	54.00	871.889	973.195	1845.083
55	48.00	55.00	911.961	961.102	1873.063
56	48.00	56.00	951.924	949.245	1901.168
57	48.00	57.00	991.778	937.618	1929.397
58	48.00	58.00	1031.527	926.217	1957.744
59	48.00	59.00	1071.170	915.036	1986.206
60	48.00	60.00	1110.710	904.068	2014.777
61	48.00	61.00	1150.148	893.306	2043.454
62	48.00	62.00	1189.485	882.745	2072.229
63	48.00	63.00	1228.723	872.377	2101.099
64	48.00	64.00	1267.863	862.195	2130.058
65	48.00	65.00	1306.906	852.195	2159.100
66	48.00	66.00	1345.853	842.368	2188.221
67	48.00	67.00	1384.706	832.710	2217.416
68	48.00	68.00	1423.466	823.214	2246.680
69	48.00	69.00	1462.133	813.875	2276.009
70	48.00	70.00	1500.710	804.688	2305.397

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:29:57

General Information:
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  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	1.00	ROUGH	1.000
15	1.00	ROUGH	1.000
16	1.00	ROUGH	1.000
17	1.00	ROUGH	1.000
18	1.00	ROUGH	1.000
19	1.00	ROUGH	1.000
20	1.00	ROUGH	1.000
21	1.00	ROUGH	1.000
22	1.00	ROUGH	1.000
23	1.00	ROUGH	1.000
24	1.00	ROUGH	1.000
25	1.00	ROUGH	1.000
26	1.00	ROUGH	1.000
27	1.00	ROUGH	1.000
28	1.00	ROUGH	1.000
29	1.00	ROUGH	1.000
30	1.00	ROUGH	1.000

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
141	1.00	-1.00	5.00	54.00	54.00	0.00
142	2.00	-2.00	5.00	54.00	54.00	0.00
143	3.00	-3.00	5.00	54.00	54.00	0.00
144	4.00	-4.00	5.00	54.00	54.00	0.00
145	5.00	-5.00	5.00	54.00	54.00	0.00
146	6.00	-6.00	5.00	54.00	54.00	0.00
147	7.00	-7.00	5.00	54.00	54.00	0.00
148	8.00	-8.00	5.00	54.00	54.00	0.00
149	9.00	-9.00	5.00	54.00	54.00	0.00
150	10.00	-10.00	5.00	54.00	54.00	0.00
151	11.00	-11.00	5.00	54.00	54.00	0.00
152	12.00	-12.00	5.00	54.00	54.00	0.00
153	13.00	-13.00	5.00	54.00	54.00	0.00
154	14.00	-14.00	5.00	54.00	54.00	0.00
155	15.00	-15.00	5.00	54.00	54.00	0.00

156	16.00	-16.00	5.00	54.00	54.00	0.00
157	17.00	-17.00	5.00	54.00	54.00	0.00
158	18.00	-18.00	5.00	54.00	54.00	0.00
159	19.00	-19.00	5.00	54.00	54.00	0.00
160	20.00	-20.00	5.00	54.00	54.00	0.00
161	21.00	-21.00	5.00	54.00	54.00	0.00
162	22.00	-22.00	5.00	54.00	54.00	0.00
163	23.00	-23.00	5.00	54.00	54.00	0.00
164	24.00	-24.00	5.00	54.00	54.00	0.00
165	25.00	-25.00	5.00	54.00	54.00	0.00
166	26.00	-26.00	5.00	54.00	54.00	0.00
167	27.00	-27.00	5.00	54.00	54.00	0.00
168	28.00	-28.00	5.00	54.00	54.00	0.00
169	29.00	-29.00	5.00	54.00	54.00	0.00
170	30.00	-30.00	5.00	54.00	54.00	0.00
171	31.00	-31.00	5.00	54.00	54.00	0.00
172	32.00	-32.00	5.00	54.00	54.00	0.00
173	33.00	-33.00	5.00	54.00	54.00	0.00
174	34.00	-34.00	5.00	54.00	54.00	0.00
175	35.00	-35.00	5.00	54.00	54.00	0.00
176	36.00	-36.00	5.00	54.00	54.00	0.00
177	37.00	-37.00	5.00	54.00	54.00	0.00
178	38.00	-38.00	5.00	54.00	54.00	0.00
179	39.00	-39.00	5.00	54.00	54.00	0.00
180	40.00	-40.00	5.00	54.00	54.00	0.00
181	41.00	-41.00	5.00	54.00	54.00	0.00
182	42.00	-42.00	5.00	54.00	54.00	0.00
183	43.00	-43.00	5.00	54.00	54.00	0.00
184	44.00	-44.00	5.00	54.00	54.00	0.00
185	45.00	-45.00	5.00	54.00	54.00	0.00
186	46.00	-46.00	5.00	54.00	54.00	0.00
187	47.00	-47.00	5.00	54.00	54.00	0.00
188	48.00	-48.00	5.00	54.00	54.00	0.00
189	49.00	-49.00	5.00	54.00	54.00	0.00
190	50.00	-50.00	5.00	54.00	54.00	0.00
191	51.00	-51.00	5.00	54.00	54.00	0.00
192	52.00	-52.00	5.00	54.00	54.00	0.00
193	53.00	-53.00	5.00	54.00	54.00	0.00
194	54.00	-54.00	5.00	54.00	54.00	0.00
195	55.00	-55.00	5.00	54.00	54.00	0.00
196	56.00	-56.00	5.00	54.00	54.00	0.00
197	57.00	-57.00	5.00	54.00	54.00	0.00
198	58.00	-58.00	5.00	54.00	54.00	0.00
199	59.00	-59.00	5.00	54.00	54.00	0.00
200	60.00	-60.00	5.00	54.00	54.00	0.00
201	61.00	-61.00	5.00	54.00	54.00	0.00
202	62.00	-62.00	5.00	54.00	54.00	0.00
203	63.00	-63.00	5.00	54.00	54.00	0.00
204	64.00	-64.00	5.00	54.00	54.00	0.00
205	65.00	-65.00	5.00	54.00	54.00	0.00
206	66.00	-66.00	5.00	54.00	54.00	0.00
207	67.00	-67.00	5.00	54.00	54.00	0.00
208	68.00	-68.00	5.00	54.00	54.00	0.00
209	69.00	-69.00	5.00	54.00	54.00	0.00
210	70.00	-70.00	5.00	54.00	54.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000
13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000

16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	0.000	0.000
34	54.00	34.00	49.480	0.000	49.480
35	54.00	35.00	98.960	0.000	98.960
36	54.00	36.00	148.440	0.000	148.440
37	54.00	37.00	197.920	0.000	197.920
38	54.00	38.00	247.400	0.000	247.400
39	54.00	39.00	296.881	0.000	296.881
40	54.00	40.00	346.361	0.000	346.361
41	54.00	41.00	395.841	0.000	395.841
42	54.00	42.00	445.321	0.000	445.321
43	54.00	43.00	494.801	0.000	494.801
44	54.00	44.00	544.281	0.000	544.281
45	54.00	45.00	593.761	0.000	593.761
46	54.00	46.00	643.241	0.000	643.241
47	54.00	47.00	692.721	0.000	692.721
48	54.00	48.00	742.201	0.000	742.201
49	54.00	49.00	791.681	0.000	791.681
50	54.00	50.00	841.161	0.000	841.161
51	54.00	51.00	890.642	0.000	890.642
52	54.00	52.00	940.122	0.000	940.122
53	54.00	53.00	989.602	0.000	989.602
54	54.00	54.00	1039.082	0.000	1039.082
55	54.00	55.00	1088.562	0.000	1088.562
56	54.00	56.00	1138.042	0.000	1138.042
57	54.00	57.00	1187.522	0.000	1187.522
58	54.00	58.00	1237.002	0.000	1237.002
59	54.00	59.00	1286.482	0.000	1286.482
60	54.00	60.00	1335.962	0.000	1335.962
61	54.00	61.00	1385.442	0.000	1385.442
62	54.00	62.00	1434.922	0.000	1434.922
63	54.00	63.00	1484.403	0.000	1484.403
64	54.00	64.00	1533.883	0.000	1533.883
65	54.00	65.00	1583.363	0.000	1583.363
66	54.00	66.00	1632.843	0.000	1632.843
67	54.00	67.00	1682.323	0.000	1682.323
68	54.00	68.00	1731.803	0.000	1731.803
69	54.00	69.00	1781.283	0.000	1781.283
70	54.00	70.00	1830.763	0.000	1830.763

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	54.00	1.00	0.000	0.000	0.000
2	54.00	2.00	0.000	0.000	0.000
3	54.00	3.00	0.000	0.000	0.000
4	54.00	4.00	0.000	0.000	0.000
5	54.00	5.00	0.000	0.000	0.000
6	54.00	6.00	0.000	0.000	0.000
7	54.00	7.00	0.000	0.000	0.000
8	54.00	8.00	0.000	0.000	0.000
9	54.00	9.00	0.000	0.000	0.000
10	54.00	10.00	0.000	0.000	0.000
11	54.00	11.00	0.000	0.000	0.000
12	54.00	12.00	0.000	0.000	0.000

13	54.00	13.00	0.000	0.000	0.000
14	54.00	14.00	0.000	0.000	0.000
15	54.00	15.00	0.000	0.000	0.000
16	54.00	16.00	0.000	0.000	0.000
17	54.00	17.00	0.000	0.000	0.000
18	54.00	18.00	0.000	0.000	0.000
19	54.00	19.00	0.000	0.000	0.000
20	54.00	20.00	0.000	0.000	0.000
21	54.00	21.00	0.000	0.000	0.000
22	54.00	22.00	0.000	0.000	0.000
23	54.00	23.00	0.000	0.000	0.000
24	54.00	24.00	0.000	0.000	0.000
25	54.00	25.00	0.000	0.000	0.000
26	54.00	26.00	0.000	0.000	0.000
27	54.00	27.00	0.000	0.000	0.000
28	54.00	28.00	0.000	0.000	0.000
29	54.00	29.00	0.000	0.000	0.000
30	54.00	30.00	0.000	0.000	0.000
31	54.00	31.00	0.000	0.000	0.000
32	54.00	32.00	0.000	0.000	0.000
33	54.00	33.00	0.000	4810.823	4810.823
34	54.00	34.00	49.287	6312.487	6361.775
35	54.00	35.00	98.193	3967.441	4065.633
36	54.00	36.00	146.721	3023.638	3170.360
37	54.00	37.00	194.878	2493.566	2688.444
38	54.00	38.00	242.668	2147.292	2389.960
39	54.00	39.00	290.095	1900.377	2190.472
40	54.00	40.00	337.165	1713.900	2051.065
41	54.00	41.00	383.883	1567.223	1951.106
42	54.00	42.00	430.254	1448.300	1878.554
43	54.00	43.00	477.201	1434.651	1911.852
44	54.00	44.00	524.001	1420.097	1944.098
45	54.00	45.00	570.658	1405.004	1975.662
46	54.00	46.00	617.176	1389.617	2006.793
47	54.00	47.00	663.558	1374.107	2037.665
48	54.00	48.00	709.809	1358.590	2068.399
49	54.00	49.00	755.930	1343.150	2099.080
50	54.00	50.00	801.925	1327.845	2129.770
51	54.00	51.00	847.796	1312.712	2160.508
52	54.00	52.00	893.545	1297.781	2191.326
53	54.00	53.00	939.175	1283.068	2222.244
54	54.00	54.00	984.688	1268.586	2253.274
55	54.00	55.00	1030.086	1254.339	2284.425
56	54.00	56.00	1075.370	1240.332	2315.702
57	54.00	57.00	1120.542	1226.564	2347.107
58	54.00	58.00	1165.605	1213.034	2378.639
59	54.00	59.00	1210.559	1199.738	2410.297
60	54.00	60.00	1255.406	1186.673	2442.079
61	54.00	61.00	1300.147	1173.833	2473.980
62	54.00	62.00	1344.785	1161.213	2505.998
63	54.00	63.00	1389.320	1148.808	2538.128
64	54.00	64.00	1433.753	1136.612	2570.366
65	54.00	65.00	1478.087	1124.619	2602.706
66	54.00	66.00	1522.321	1112.823	2635.144
67	54.00	67.00	1566.458	1101.218	2667.676
68	54.00	68.00	1610.499	1089.798	2700.297
69	54.00	69.00	1654.444	1078.559	2733.002
70	54.00	70.00	1698.294	1067.493	2765.787

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:30:09

General Information:
==========
  Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
211	1.00	-1.00	5.00	60.00	60.00	0.00
212	2.00	-2.00	5.00	60.00	60.00	0.00
213	3.00	-3.00	5.00	60.00	60.00	0.00
214	4.00	-4.00	5.00	60.00	60.00	0.00
215	5.00	-5.00	5.00	60.00	60.00	0.00
216	6.00	-6.00	5.00	60.00	60.00	0.00
217	7.00	-7.00	5.00	60.00	60.00	0.00
218	8.00	-8.00	5.00	60.00	60.00	0.00
219	9.00	-9.00	5.00	60.00	60.00	0.00
220	10.00	-10.00	5.00	60.00	60.00	0.00
221	11.00	-11.00	5.00	60.00	60.00	0.00
222	12.00	-12.00	5.00	60.00	60.00	0.00
223	13.00	-13.00	5.00	60.00	60.00	0.00
224	14.00	-14.00	5.00	60.00	60.00	0.00
225	15.00	-15.00	5.00	60.00	60.00	0.00

226	16.00	-16.00	5.00	60.00	60.00	0.00
227	17.00	-17.00	5.00	60.00	60.00	0.00
228	18.00	-18.00	5.00	60.00	60.00	0.00
229	19.00	-19.00	5.00	60.00	60.00	0.00
230	20.00	-20.00	5.00	60.00	60.00	0.00
231	21.00	-21.00	5.00	60.00	60.00	0.00
232	22.00	-22.00	5.00	60.00	60.00	0.00
233	23.00	-23.00	5.00	60.00	60.00	0.00
234	24.00	-24.00	5.00	60.00	60.00	0.00
235	25.00	-25.00	5.00	60.00	60.00	0.00
236	26.00	-26.00	5.00	60.00	60.00	0.00
237	27.00	-27.00	5.00	60.00	60.00	0.00
238	28.00	-28.00	5.00	60.00	60.00	0.00
239	29.00	-29.00	5.00	60.00	60.00	0.00
240	30.00	-30.00	5.00	60.00	60.00	0.00
241	31.00	-31.00	5.00	60.00	60.00	0.00
242	32.00	-32.00	5.00	60.00	60.00	0.00
243	33.00	-33.00	5.00	60.00	60.00	0.00
244	34.00	-34.00	5.00	60.00	60.00	0.00
245	35.00	-35.00	5.00	60.00	60.00	0.00
246	36.00	-36.00	5.00	60.00	60.00	0.00
247	37.00	-37.00	5.00	60.00	60.00	0.00
248	38.00	-38.00	5.00	60.00	60.00	0.00
249	39.00	-39.00	5.00	60.00	60.00	0.00
250	40.00	-40.00	5.00	60.00	60.00	0.00
251	41.00	-41.00	5.00	60.00	60.00	0.00
252	42.00	-42.00	5.00	60.00	60.00	0.00
253	43.00	-43.00	5.00	60.00	60.00	0.00
254	44.00	-44.00	5.00	60.00	60.00	0.00
255	45.00	-45.00	5.00	60.00	60.00	0.00
256	46.00	-46.00	5.00	60.00	60.00	0.00
257	47.00	-47.00	5.00	60.00	60.00	0.00
258	48.00	-48.00	5.00	60.00	60.00	0.00
259	49.00	-49.00	5.00	60.00	60.00	0.00
260	50.00	-50.00	5.00	60.00	60.00	0.00
261	51.00	-51.00	5.00	60.00	60.00	0.00
262	52.00	-52.00	5.00	60.00	60.00	0.00
263	53.00	-53.00	5.00	60.00	60.00	0.00
264	54.00	-54.00	5.00	60.00	60.00	0.00
265	55.00	-55.00	5.00	60.00	60.00	0.00
266	56.00	-56.00	5.00	60.00	60.00	0.00
267	57.00	-57.00	5.00	60.00	60.00	0.00
268	58.00	-58.00	5.00	60.00	60.00	0.00
269	59.00	-59.00	5.00	60.00	60.00	0.00
270	60.00	-60.00	5.00	60.00	60.00	0.00
271	61.00	-61.00	5.00	60.00	60.00	0.00
272	62.00	-62.00	5.00	60.00	60.00	0.00
273	63.00	-63.00	5.00	60.00	60.00	0.00
274	64.00	-64.00	5.00	60.00	60.00	0.00
275	65.00	-65.00	5.00	60.00	60.00	0.00
276	66.00	-66.00	5.00	60.00	60.00	0.00
277	67.00	-67.00	5.00	60.00	60.00	0.00
278	68.00	-68.00	5.00	60.00	60.00	0.00
279	69.00	-69.00	5.00	60.00	60.00	0.00
280	70.00	-70.00	5.00	60.00	60.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000
13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000

16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	0.000	0.000
34	60.00	34.00	54.978	0.000	54.978
35	60.00	35.00	109.956	0.000	109.956
36	60.00	36.00	164.934	0.000	164.934
37	60.00	37.00	219.911	0.000	219.911
38	60.00	38.00	274.889	0.000	274.889
39	60.00	39.00	329.867	0.000	329.867
40	60.00	40.00	384.845	0.000	384.845
41	60.00	41.00	439.823	0.000	439.823
42	60.00	42.00	494.801	0.000	494.801
43	60.00	43.00	549.779	0.000	549.779
44	60.00	44.00	604.757	0.000	604.757
45	60.00	45.00	659.734	0.000	659.734
46	60.00	46.00	714.712	0.000	714.712
47	60.00	47.00	769.690	0.000	769.690
48	60.00	48.00	824.668	0.000	824.668
49	60.00	49.00	879.646	0.000	879.646
50	60.00	50.00	934.624	0.000	934.624
51	60.00	51.00	989.602	0.000	989.602
52	60.00	52.00	1044.580	0.000	1044.580
53	60.00	53.00	1099.557	0.000	1099.557
54	60.00	54.00	1154.535	0.000	1154.535
55	60.00	55.00	1209.513	0.000	1209.513
56	60.00	56.00	1264.491	0.000	1264.491
57	60.00	57.00	1319.469	0.000	1319.469
58	60.00	58.00	1374.447	0.000	1374.447
59	60.00	59.00	1429.425	0.000	1429.425
60	60.00	60.00	1484.403	0.000	1484.403
61	60.00	61.00	1539.380	0.000	1539.380
62	60.00	62.00	1594.358	0.000	1594.358
63	60.00	63.00	1649.336	0.000	1649.336
64	60.00	64.00	1704.314	0.000	1704.314
65	60.00	65.00	1759.292	0.000	1759.292
66	60.00	66.00	1814.270	0.000	1814.270
67	60.00	67.00	1869.248	0.000	1869.248
68	60.00	68.00	1924.226	0.000	1924.226
69	60.00	69.00	1979.203	0.000	1979.203
70	60.00	70.00	2034.181	0.000	2034.181

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	60.00	1.00	0.000	0.000	0.000
2	60.00	2.00	0.000	0.000	0.000
3	60.00	3.00	0.000	0.000	0.000
4	60.00	4.00	0.000	0.000	0.000
5	60.00	5.00	0.000	0.000	0.000
6	60.00	6.00	0.000	0.000	0.000
7	60.00	7.00	0.000	0.000	0.000
8	60.00	8.00	0.000	0.000	0.000
9	60.00	9.00	0.000	0.000	0.000
10	60.00	10.00	0.000	0.000	0.000
11	60.00	11.00	0.000	0.000	0.000
12	60.00	12.00	0.000	0.000	0.000

13	60.00	13.00	0.000	0.000	0.000
14	60.00	14.00	0.000	0.000	0.000
15	60.00	15.00	0.000	0.000	0.000
16	60.00	16.00	0.000	0.000	0.000
17	60.00	17.00	0.000	0.000	0.000
18	60.00	18.00	0.000	0.000	0.000
19	60.00	19.00	0.000	0.000	0.000
20	60.00	20.00	0.000	0.000	0.000
21	60.00	21.00	0.000	0.000	0.000
22	60.00	22.00	0.000	0.000	0.000
23	60.00	23.00	0.000	0.000	0.000
24	60.00	24.00	0.000	0.000	0.000
25	60.00	25.00	0.000	0.000	0.000
26	60.00	26.00	0.000	0.000	0.000
27	60.00	27.00	0.000	0.000	0.000
28	60.00	28.00	0.000	0.000	0.000
29	60.00	29.00	0.000	0.000	0.000
30	60.00	30.00	0.000	0.000	0.000
31	60.00	31.00	0.000	0.000	0.000
32	60.00	32.00	0.000	0.000	0.000
33	60.00	33.00	0.000	5939.288	5939.288
34	60.00	34.00	54.785	8363.210	8417.996
35	60.00	35.00	109.188	5256.334	5365.521
36	60.00	36.00	163.213	4005.921	4169.133
37	60.00	37.00	216.865	3303.645	3520.510
38	60.00	38.00	270.148	2844.878	3115.026
39	60.00	39.00	323.067	2517.748	2840.814
40	60.00	40.00	375.625	2270.690	2646.315
41	60.00	41.00	427.829	2076.363	2504.192
42	60.00	42.00	479.683	1918.806	2398.489
43	60.00	43.00	531.190	1788.025	2319.215
44	60.00	44.00	583.366	1772.918	2356.284
45	60.00	45.00	635.394	1756.865	2392.260
46	60.00	46.00	687.279	1740.213	2427.492
47	60.00	47.00	739.025	1723.204	2462.229
48	60.00	48.00	790.635	1706.011	2496.646
49	60.00	49.00	842.112	1688.760	2530.872
50	60.00	50.00	893.459	1671.540	2564.998
51	60.00	51.00	944.678	1654.416	2599.094
52	60.00	52.00	995.771	1637.436	2633.207
53	60.00	53.00	1046.742	1620.633	2667.375
54	60.00	54.00	1097.593	1604.030	2701.623
55	60.00	55.00	1148.324	1587.645	2735.970
56	60.00	56.00	1198.939	1571.489	2770.428
57	60.00	57.00	1249.439	1555.567	2805.006
58	60.00	58.00	1299.825	1539.884	2839.709
59	60.00	59.00	1350.100	1524.440	2874.540
60	60.00	60.00	1400.265	1509.235	2909.500
61	60.00	61.00	1450.321	1494.267	2944.589
62	60.00	62.00	1500.271	1479.533	2979.803
63	60.00	63.00	1550.114	1465.028	3015.142
64	60.00	64.00	1599.853	1450.750	3050.603
65	60.00	65.00	1649.489	1436.691	3086.180
66	60.00	66.00	1699.023	1422.849	3121.872
67	60.00	67.00	1748.457	1409.217	3157.674
68	60.00	68.00	1797.790	1395.791	3193.581
69	60.00	69.00	1847.026	1382.564	3229.591
70	60.00	70.00	1896.164	1369.533	3265.697

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:30:20

General Information:
==========
Input file: ..... Drive PDE_GANNETT FLEMING\FB-Deep\Drilled Shafts\BR-2 - DS.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
Boring date: 8/20/2021
Boring number: BR-2
Station number: Offset:

Ground Elevation: 0.00(ft)
Water table Elevation = -6.20(ft)

Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A
5	N/A	N/A	N/A
6	N/A	N/A	N/A
7	N/A	N/A	N/A
8	N/A	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A
11	N/A	N/A	N/A
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	1.00	ROUGH	1.000
15	1.00	ROUGH	1.000
16	1.00	ROUGH	1.000
17	1.00	ROUGH	1.000
18	1.00	ROUGH	1.000
19	1.00	ROUGH	1.000
20	1.00	ROUGH	1.000
21	1.00	ROUGH	1.000
22	1.00	ROUGH	1.000
23	1.00	ROUGH	1.000
24	1.00	ROUGH	1.000
25	1.00	ROUGH	1.000
26	1.00	ROUGH	1.000
27	1.00	ROUGH	1.000
28	1.00	ROUGH	1.000
29	1.00	ROUGH	1.000
30	1.00	ROUGH	1.000

Drilled Shaft Data:
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Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
281	1.00	-1.00	5.00	72.00	72.00	0.00
282	2.00	-2.00	5.00	72.00	72.00	0.00
283	3.00	-3.00	5.00	72.00	72.00	0.00
284	4.00	-4.00	5.00	72.00	72.00	0.00
285	5.00	-5.00	5.00	72.00	72.00	0.00
286	6.00	-6.00	5.00	72.00	72.00	0.00
287	7.00	-7.00	5.00	72.00	72.00	0.00
288	8.00	-8.00	5.00	72.00	72.00	0.00
289	9.00	-9.00	5.00	72.00	72.00	0.00
290	10.00	-10.00	5.00	72.00	72.00	0.00
291	11.00	-11.00	5.00	72.00	72.00	0.00
292	12.00	-12.00	5.00	72.00	72.00	0.00
293	13.00	-13.00	5.00	72.00	72.00	0.00
294	14.00	-14.00	5.00	72.00	72.00	0.00
295	15.00	-15.00	5.00	72.00	72.00	0.00

296	16.00	-16.00	5.00	72.00	72.00	0.00
297	17.00	-17.00	5.00	72.00	72.00	0.00
298	18.00	-18.00	5.00	72.00	72.00	0.00
299	19.00	-19.00	5.00	72.00	72.00	0.00
300	20.00	-20.00	5.00	72.00	72.00	0.00
301	21.00	-21.00	5.00	72.00	72.00	0.00
302	22.00	-22.00	5.00	72.00	72.00	0.00
303	23.00	-23.00	5.00	72.00	72.00	0.00
304	24.00	-24.00	5.00	72.00	72.00	0.00
305	25.00	-25.00	5.00	72.00	72.00	0.00
306	26.00	-26.00	5.00	72.00	72.00	0.00
307	27.00	-27.00	5.00	72.00	72.00	0.00
308	28.00	-28.00	5.00	72.00	72.00	0.00
309	29.00	-29.00	5.00	72.00	72.00	0.00
310	30.00	-30.00	5.00	72.00	72.00	0.00
311	31.00	-31.00	5.00	72.00	72.00	0.00
312	32.00	-32.00	5.00	72.00	72.00	0.00
313	33.00	-33.00	5.00	72.00	72.00	0.00
314	34.00	-34.00	5.00	72.00	72.00	0.00
315	35.00	-35.00	5.00	72.00	72.00	0.00
316	36.00	-36.00	5.00	72.00	72.00	0.00
317	37.00	-37.00	5.00	72.00	72.00	0.00
318	38.00	-38.00	5.00	72.00	72.00	0.00
319	39.00	-39.00	5.00	72.00	72.00	0.00
320	40.00	-40.00	5.00	72.00	72.00	0.00
321	41.00	-41.00	5.00	72.00	72.00	0.00
322	42.00	-42.00	5.00	72.00	72.00	0.00
323	43.00	-43.00	5.00	72.00	72.00	0.00
324	44.00	-44.00	5.00	72.00	72.00	0.00
325	45.00	-45.00	5.00	72.00	72.00	0.00
326	46.00	-46.00	5.00	72.00	72.00	0.00
327	47.00	-47.00	5.00	72.00	72.00	0.00
328	48.00	-48.00	5.00	72.00	72.00	0.00
329	49.00	-49.00	5.00	72.00	72.00	0.00
330	50.00	-50.00	5.00	72.00	72.00	0.00
331	51.00	-51.00	5.00	72.00	72.00	0.00
332	52.00	-52.00	5.00	72.00	72.00	0.00
333	53.00	-53.00	5.00	72.00	72.00	0.00
334	54.00	-54.00	5.00	72.00	72.00	0.00
335	55.00	-55.00	5.00	72.00	72.00	0.00
336	56.00	-56.00	5.00	72.00	72.00	0.00
337	57.00	-57.00	5.00	72.00	72.00	0.00
338	58.00	-58.00	5.00	72.00	72.00	0.00
339	59.00	-59.00	5.00	72.00	72.00	0.00
340	60.00	-60.00	5.00	72.00	72.00	0.00
341	61.00	-61.00	5.00	72.00	72.00	0.00
342	62.00	-62.00	5.00	72.00	72.00	0.00
343	63.00	-63.00	5.00	72.00	72.00	0.00
344	64.00	-64.00	5.00	72.00	72.00	0.00
345	65.00	-65.00	5.00	72.00	72.00	0.00
346	66.00	-66.00	5.00	72.00	72.00	0.00
347	67.00	-67.00	5.00	72.00	72.00	0.00
348	68.00	-68.00	5.00	72.00	72.00	0.00
349	69.00	-69.00	5.00	72.00	72.00	0.00
350	70.00	-70.00	5.00	72.00	72.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000
13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000

16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	0.000	0.000
34	72.00	34.00	65.973	0.000	65.973
35	72.00	35.00	131.947	0.000	131.947
36	72.00	36.00	197.920	0.000	197.920
37	72.00	37.00	263.894	0.000	263.894
38	72.00	38.00	329.867	0.000	329.867
39	72.00	39.00	395.841	0.000	395.841
40	72.00	40.00	461.814	0.000	461.814
41	72.00	41.00	527.788	0.000	527.788
42	72.00	42.00	593.761	0.000	593.761
43	72.00	43.00	659.734	0.000	659.734
44	72.00	44.00	725.708	0.000	725.708
45	72.00	45.00	791.681	0.000	791.681
46	72.00	46.00	857.655	0.000	857.655
47	72.00	47.00	923.628	0.000	923.628
48	72.00	48.00	989.602	0.000	989.602
49	72.00	49.00	1055.575	0.000	1055.575
50	72.00	50.00	1121.549	0.000	1121.549
51	72.00	51.00	1187.522	0.000	1187.522
52	72.00	52.00	1253.495	0.000	1253.495
53	72.00	53.00	1319.469	0.000	1319.469
54	72.00	54.00	1385.442	0.000	1385.442
55	72.00	55.00	1451.416	0.000	1451.416
56	72.00	56.00	1517.389	0.000	1517.389
57	72.00	57.00	1583.363	0.000	1583.363
58	72.00	58.00	1649.336	0.000	1649.336
59	72.00	59.00	1715.310	0.000	1715.310
60	72.00	60.00	1781.283	0.000	1781.283
61	72.00	61.00	1847.256	0.000	1847.256
62	72.00	62.00	1913.230	0.000	1913.230
63	72.00	63.00	1979.203	0.000	1979.203
64	72.00	64.00	2045.177	0.000	2045.177
65	72.00	65.00	2111.150	0.000	2111.150
66	72.00	66.00	2177.124	0.000	2177.124
67	72.00	67.00	2243.097	0.000	2243.097
68	72.00	68.00	2309.071	0.000	2309.071
69	72.00	69.00	2375.044	0.000	2375.044
70	72.00	70.00	2441.017	0.000	2441.017

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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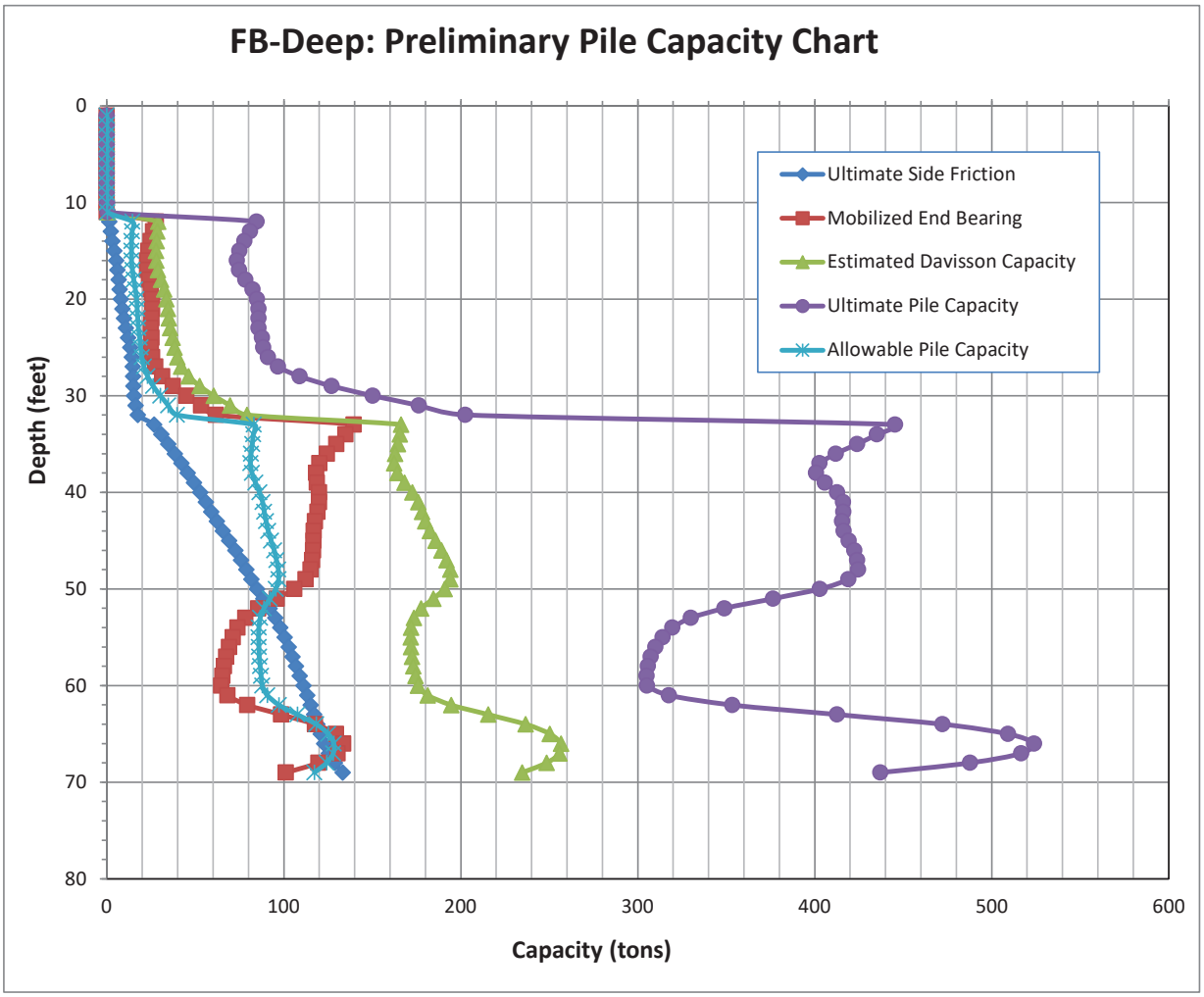
***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

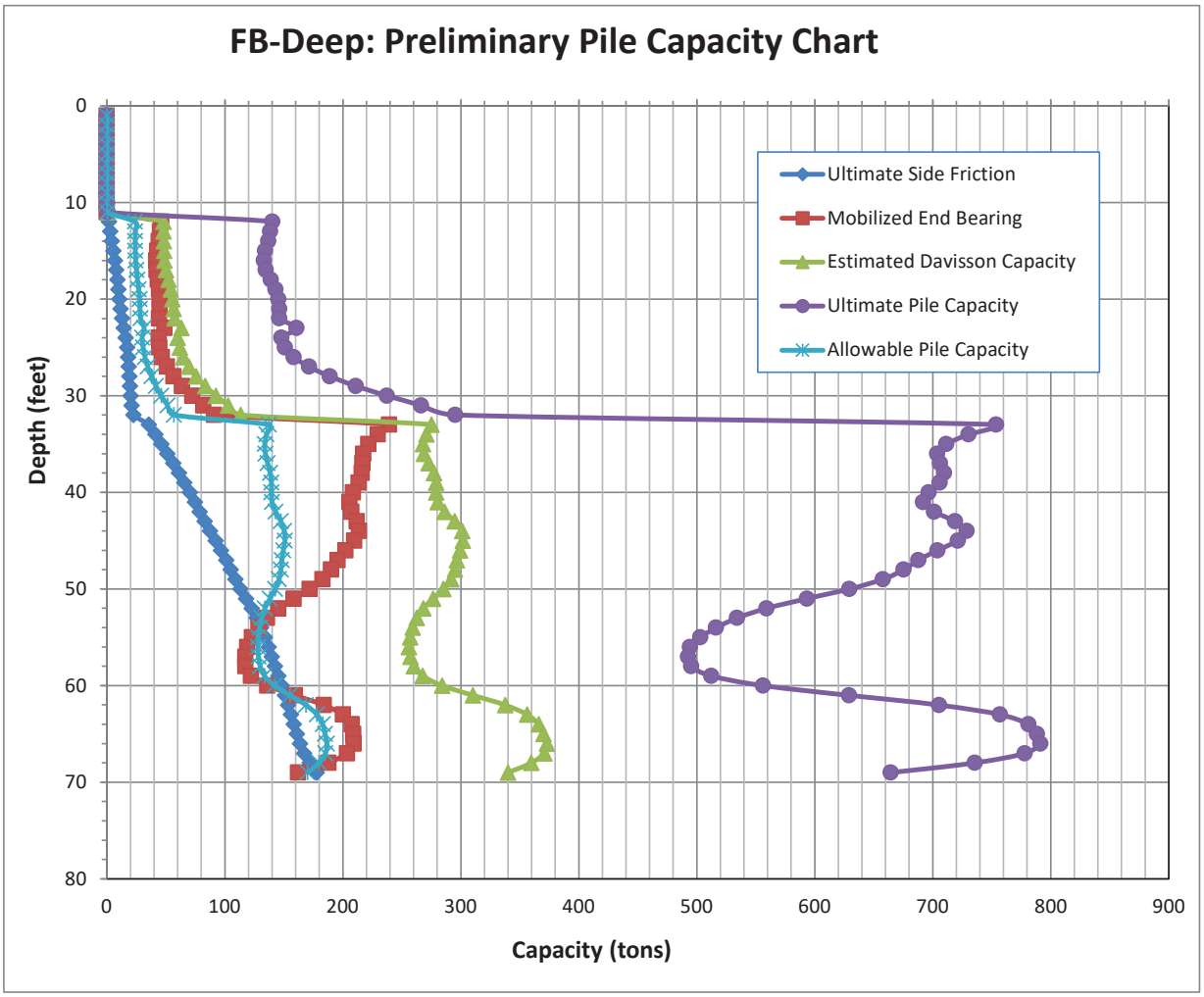
ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	72.00	1.00	0.000	0.000	0.000
2	72.00	2.00	0.000	0.000	0.000
3	72.00	3.00	0.000	0.000	0.000
4	72.00	4.00	0.000	0.000	0.000
5	72.00	5.00	0.000	0.000	0.000
6	72.00	6.00	0.000	0.000	0.000
7	72.00	7.00	0.000	0.000	0.000
8	72.00	8.00	0.000	0.000	0.000
9	72.00	9.00	0.000	0.000	0.000
10	72.00	10.00	0.000	0.000	0.000
11	72.00	11.00	0.000	0.000	0.000
12	72.00	12.00	0.000	0.000	0.000

13	72.00	13.00	0.000	0.000	0.000
14	72.00	14.00	0.000	0.000	0.000
15	72.00	15.00	0.000	0.000	0.000
16	72.00	16.00	0.000	0.000	0.000
17	72.00	17.00	0.000	0.000	0.000
18	72.00	18.00	0.000	0.000	0.000
19	72.00	19.00	0.000	0.000	0.000
20	72.00	20.00	0.000	0.000	0.000
21	72.00	21.00	0.000	0.000	0.000
22	72.00	22.00	0.000	0.000	0.000
23	72.00	23.00	0.000	0.000	0.000
24	72.00	24.00	0.000	0.000	0.000
25	72.00	25.00	0.000	0.000	0.000
26	72.00	26.00	0.000	0.000	0.000
27	72.00	27.00	0.000	0.000	0.000
28	72.00	28.00	0.000	0.000	0.000
29	72.00	29.00	0.000	0.000	0.000
30	72.00	30.00	0.000	0.000	0.000
31	72.00	31.00	0.000	0.000	0.000
32	72.00	32.00	0.000	0.000	0.000
33	72.00	33.00	0.000	8552.574	8552.574
34	72.00	34.00	65.781	13607.770	13673.550
35	72.00	35.00	131.178	8552.574	8683.752
36	72.00	36.00	196.197	6518.029	6714.225
37	72.00	37.00	260.840	5375.357	5636.197
38	72.00	38.00	325.112	4628.898	4954.010
39	72.00	39.00	389.017	4096.624	4485.641
40	72.00	40.00	452.557	3694.637	4147.195
41	72.00	41.00	515.739	3378.448	3894.187
42	72.00	42.00	578.565	3122.087	3700.652
43	72.00	43.00	641.041	2909.293	3550.334
44	72.00	44.00	703.168	2729.320	3432.488
45	72.00	45.00	764.952	2574.756	3339.708
46	72.00	46.00	827.587	2556.738	3384.325
47	72.00	47.00	890.075	2537.708	3427.783
48	72.00	48.00	952.420	2517.979	3470.399
49	72.00	49.00	1014.625	2497.785	3512.409
50	72.00	50.00	1076.692	2477.300	3553.992
51	72.00	51.00	1138.626	2456.656	3595.282
52	72.00	52.00	1200.428	2435.954	3636.383
53	72.00	53.00	1262.101	2415.271	3677.373
54	72.00	54.00	1323.647	2394.666	3718.313
55	72.00	55.00	1385.068	2374.183	3759.251
56	72.00	56.00	1446.367	2353.856	3800.222
57	72.00	57.00	1507.544	2333.711	3841.255
58	72.00	58.00	1568.602	2313.767	3882.369
59	72.00	59.00	1629.543	2294.038	3923.582
60	72.00	60.00	1690.369	2274.535	3964.903
61	72.00	61.00	1751.080	2255.263	4006.343
62	72.00	62.00	1811.678	2236.229	4047.907
63	72.00	63.00	1872.166	2217.433	4089.598
64	72.00	64.00	1932.543	2198.876	4131.419
65	72.00	65.00	1992.812	2180.559	4173.371
66	72.00	66.00	2052.974	2162.479	4215.454
67	72.00	67.00	2113.030	2144.635	4257.665
68	72.00	68.00	2172.982	2127.023	4300.005
69	72.00	69.00	2232.830	2109.641	4342.471
70	72.00	70.00	2292.576	2092.484	4385.060

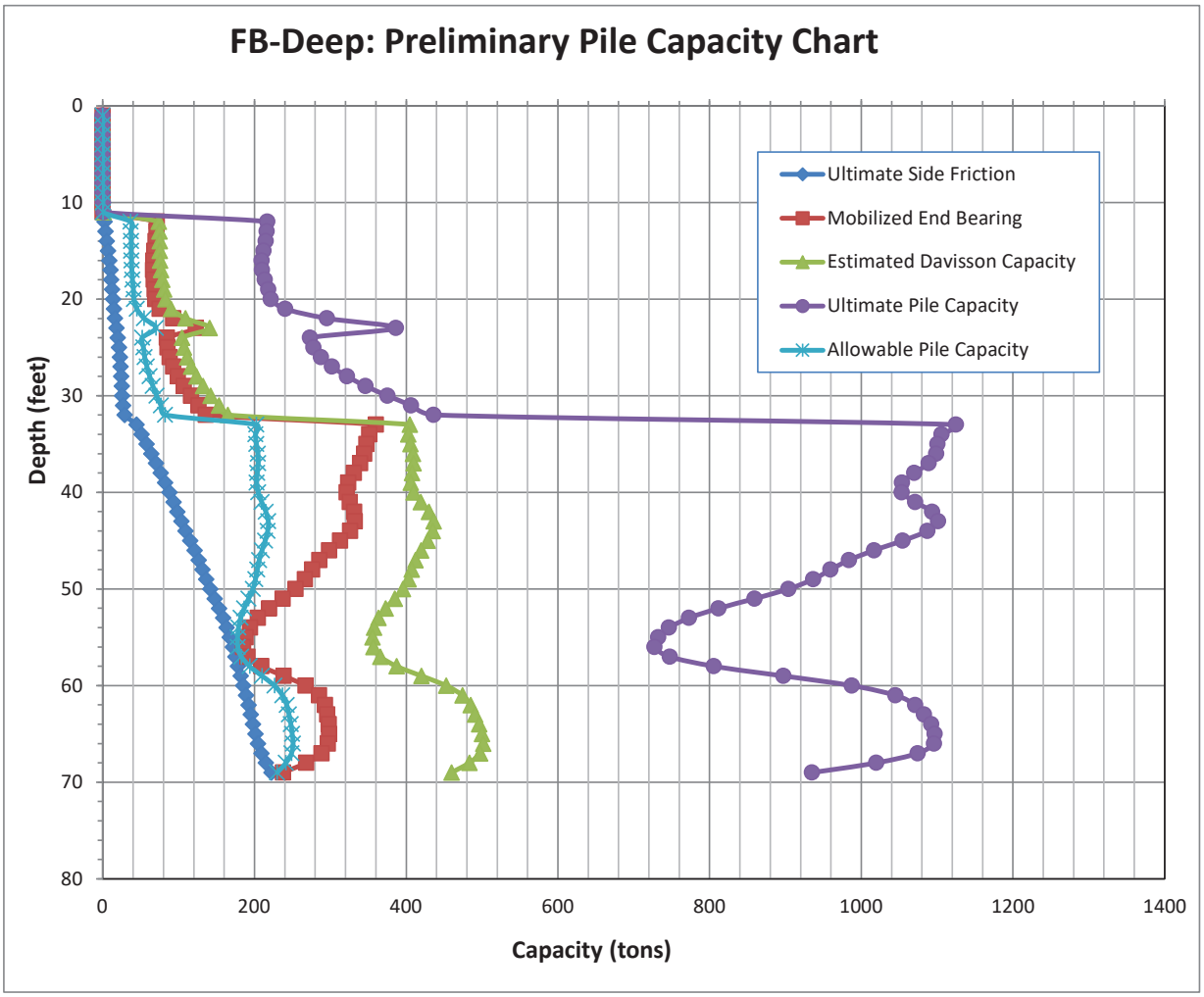
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 18-inch Concrete Driven Piles - End Bents



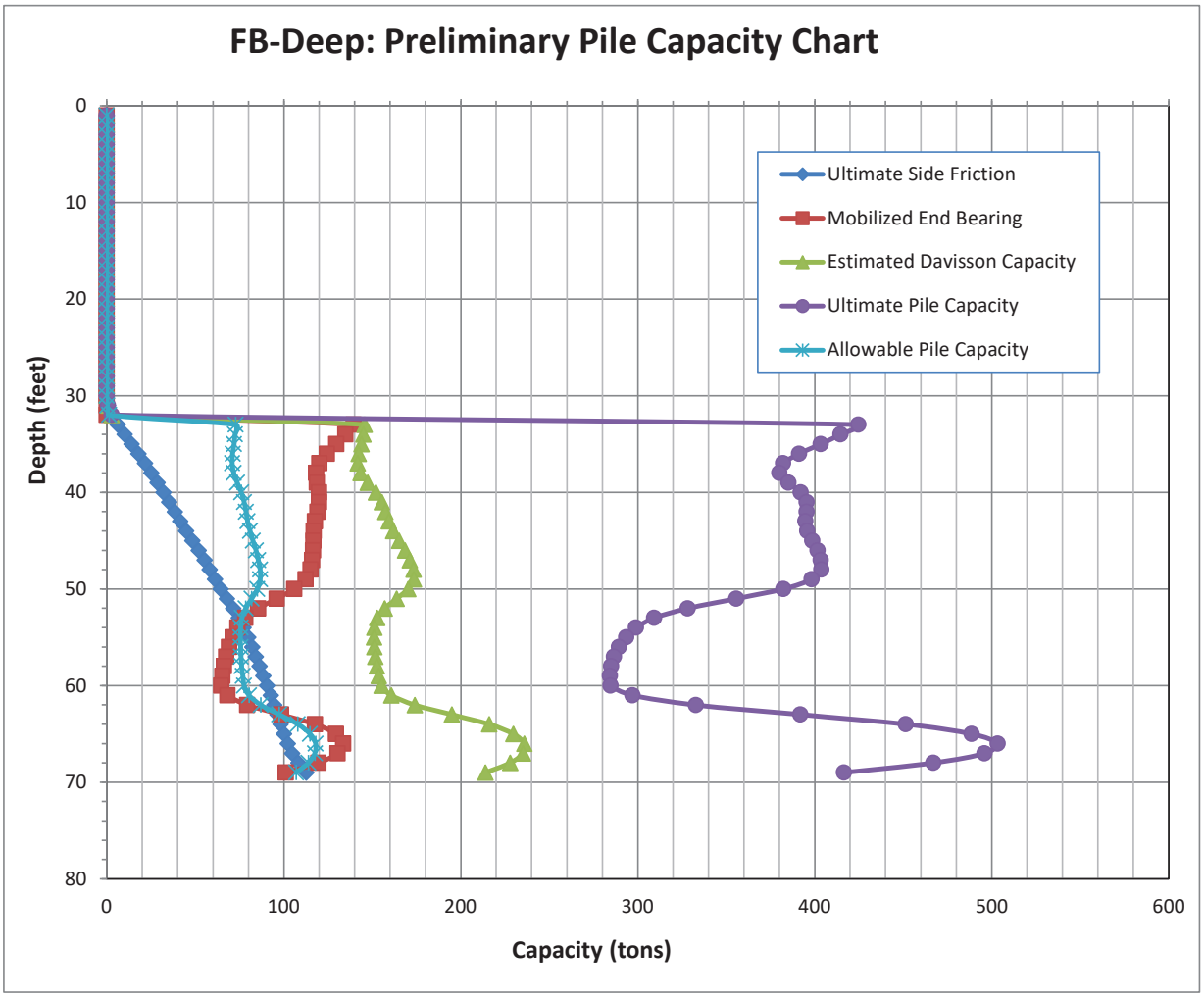
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Concrete Driven Piles - End Bents



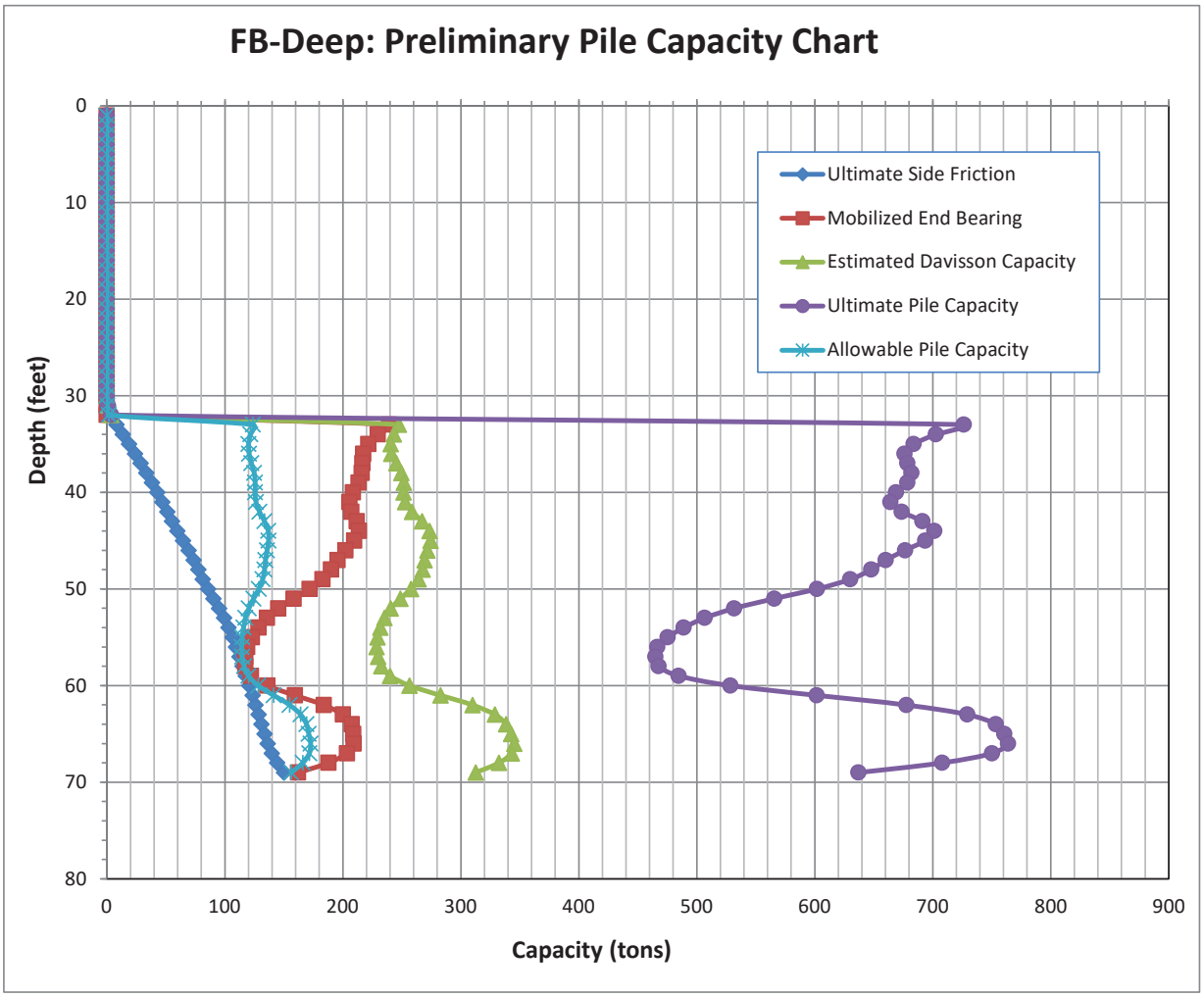
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 30-inch Concrete Driven Piles - End Bents



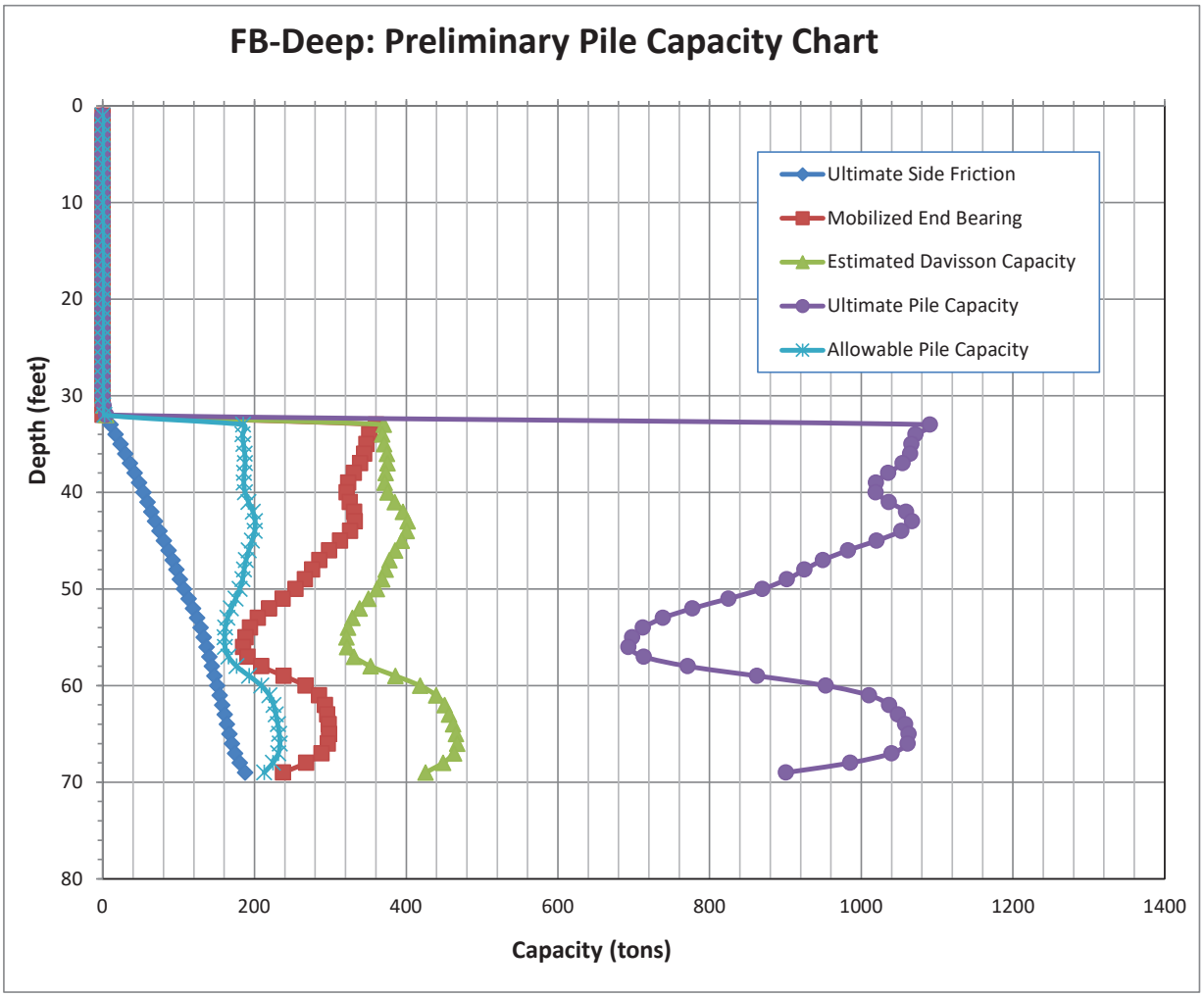
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 18-inch Concrete Driven Piles - Interior Piers



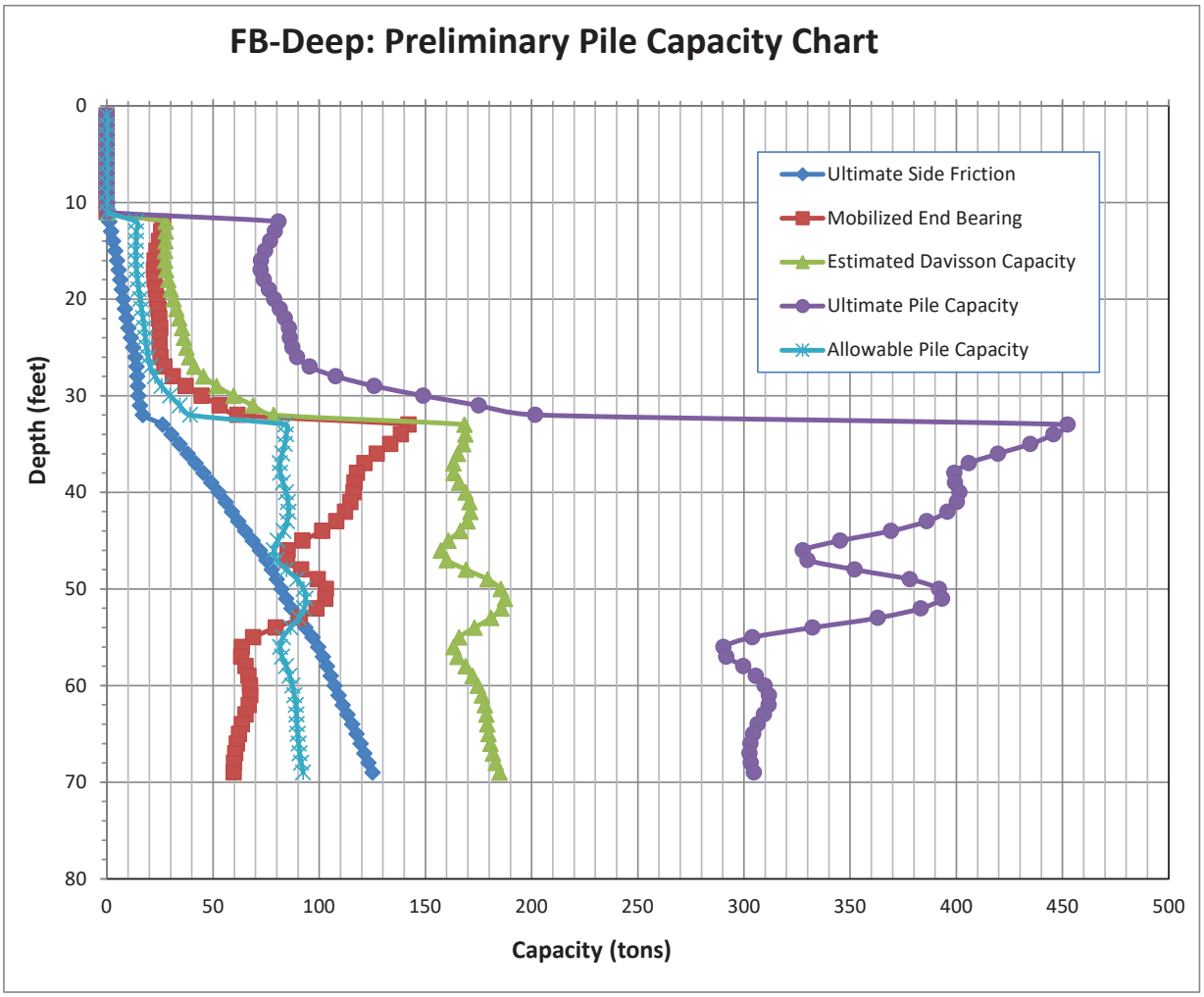
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Concrete Driven Piles - Interior Piers



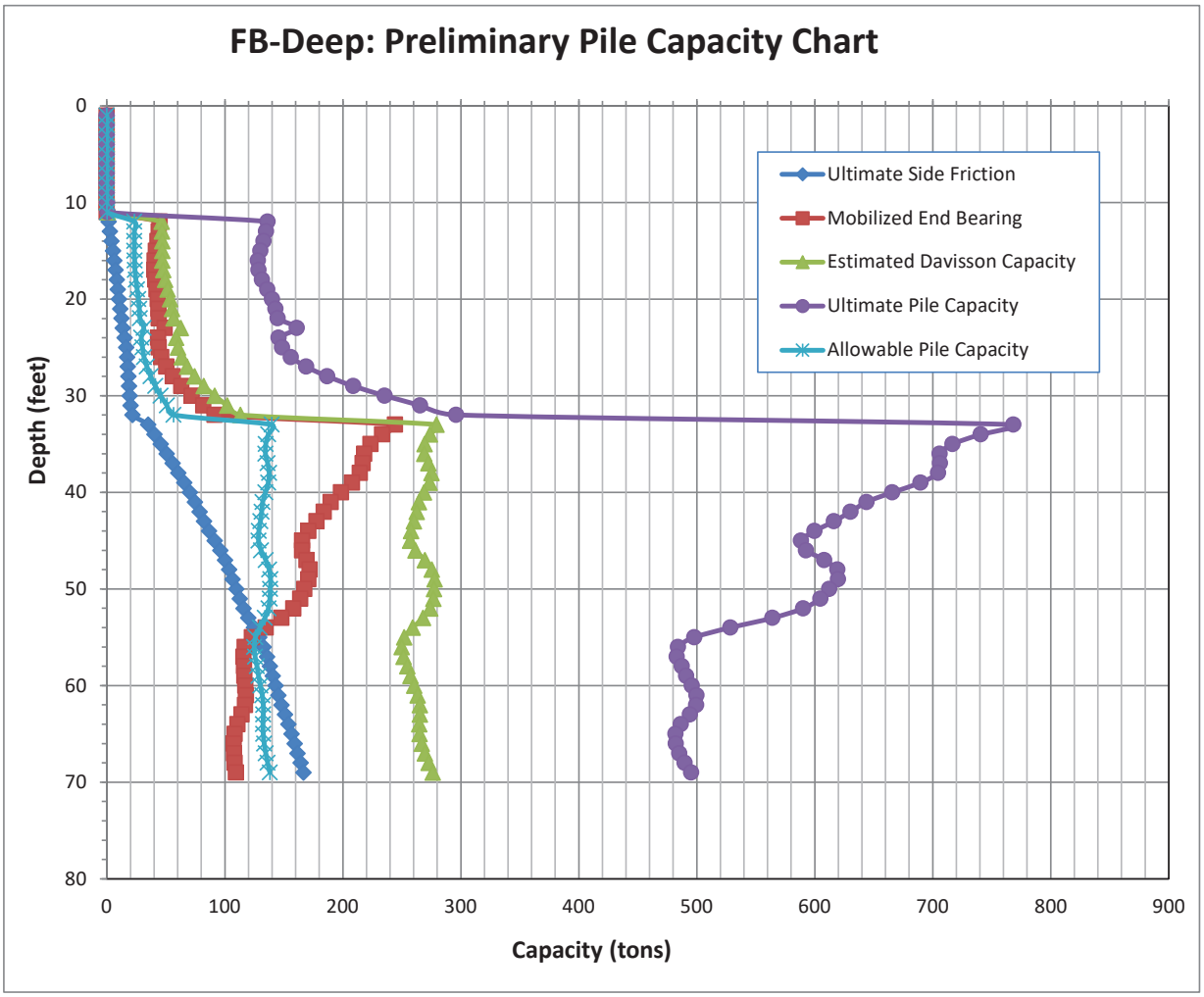
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 30-inch Concrete Driven Piles - Interior Piers



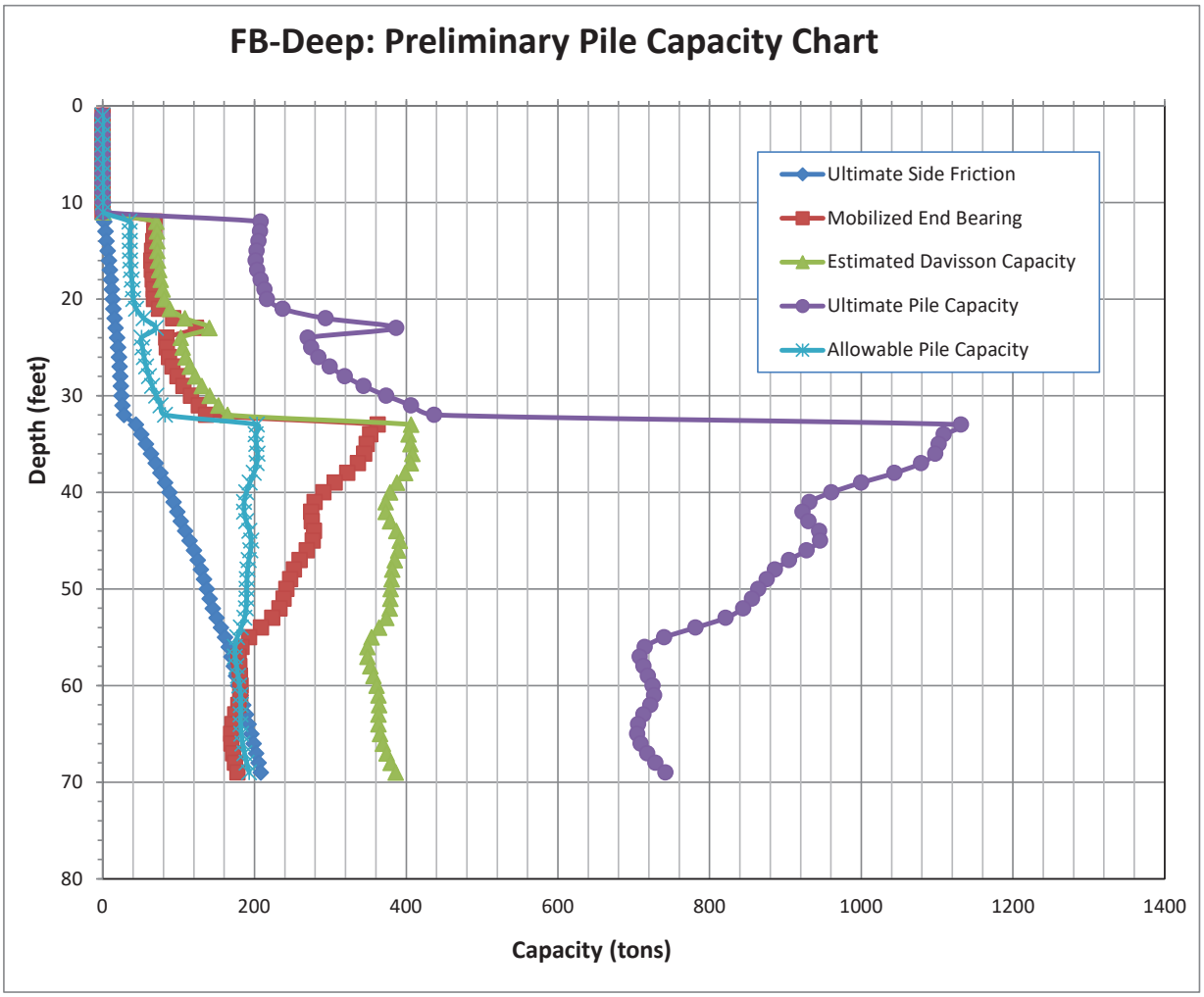
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 18-inch Concrete Driven Piles - End Bents



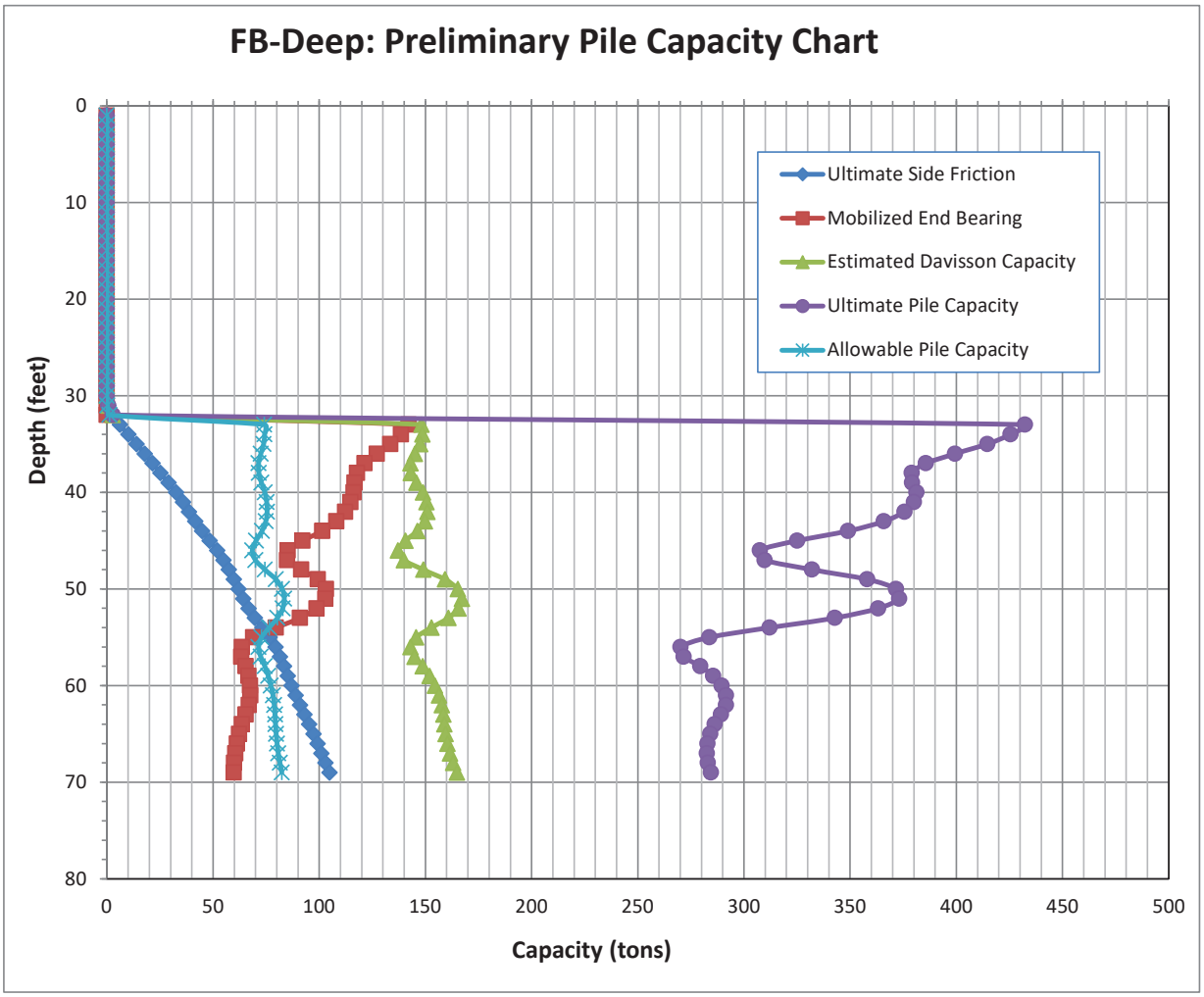
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Concrete Driven Piles - End Bents



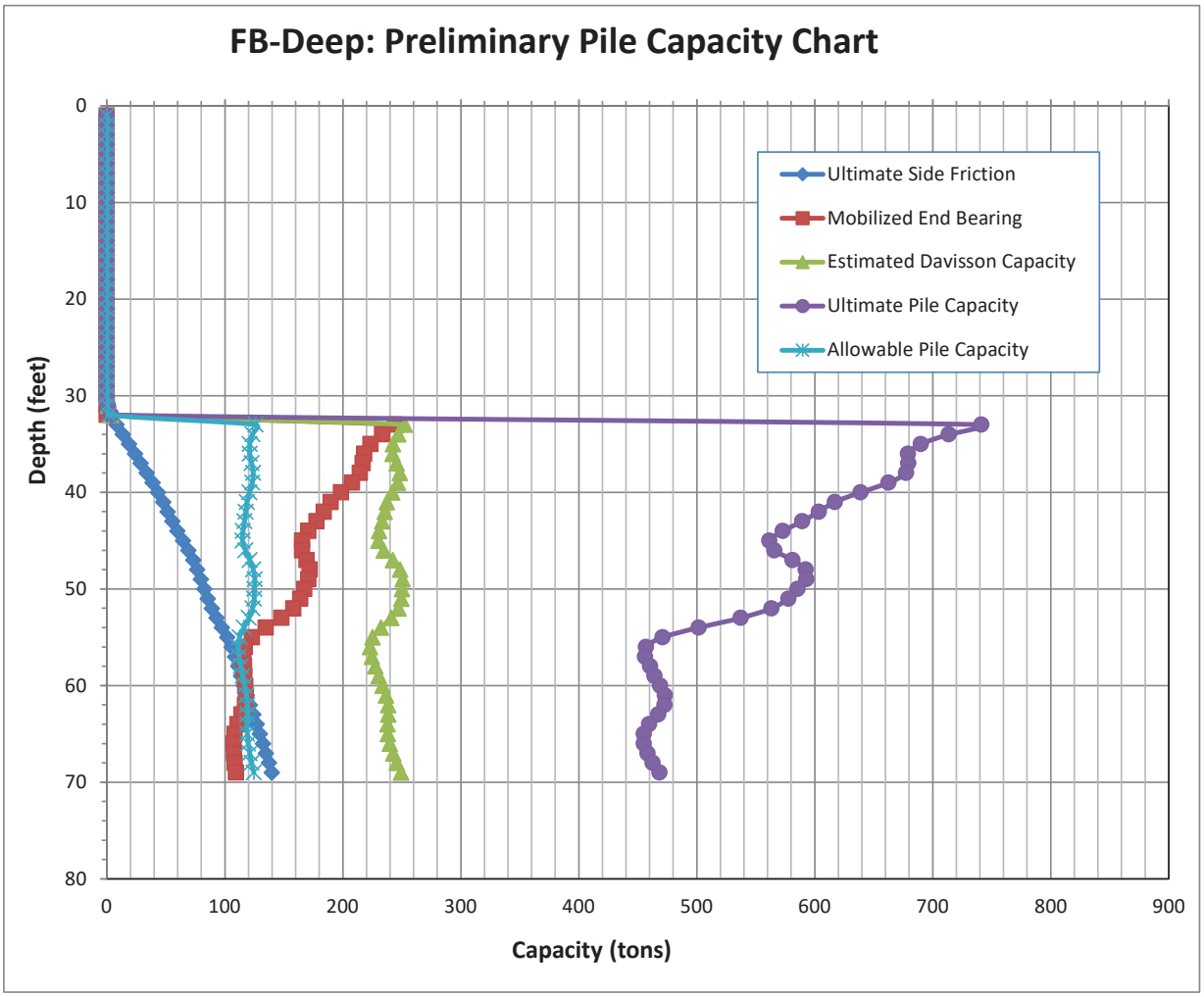
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 30-inch Concrete Driven Piles - End Bents



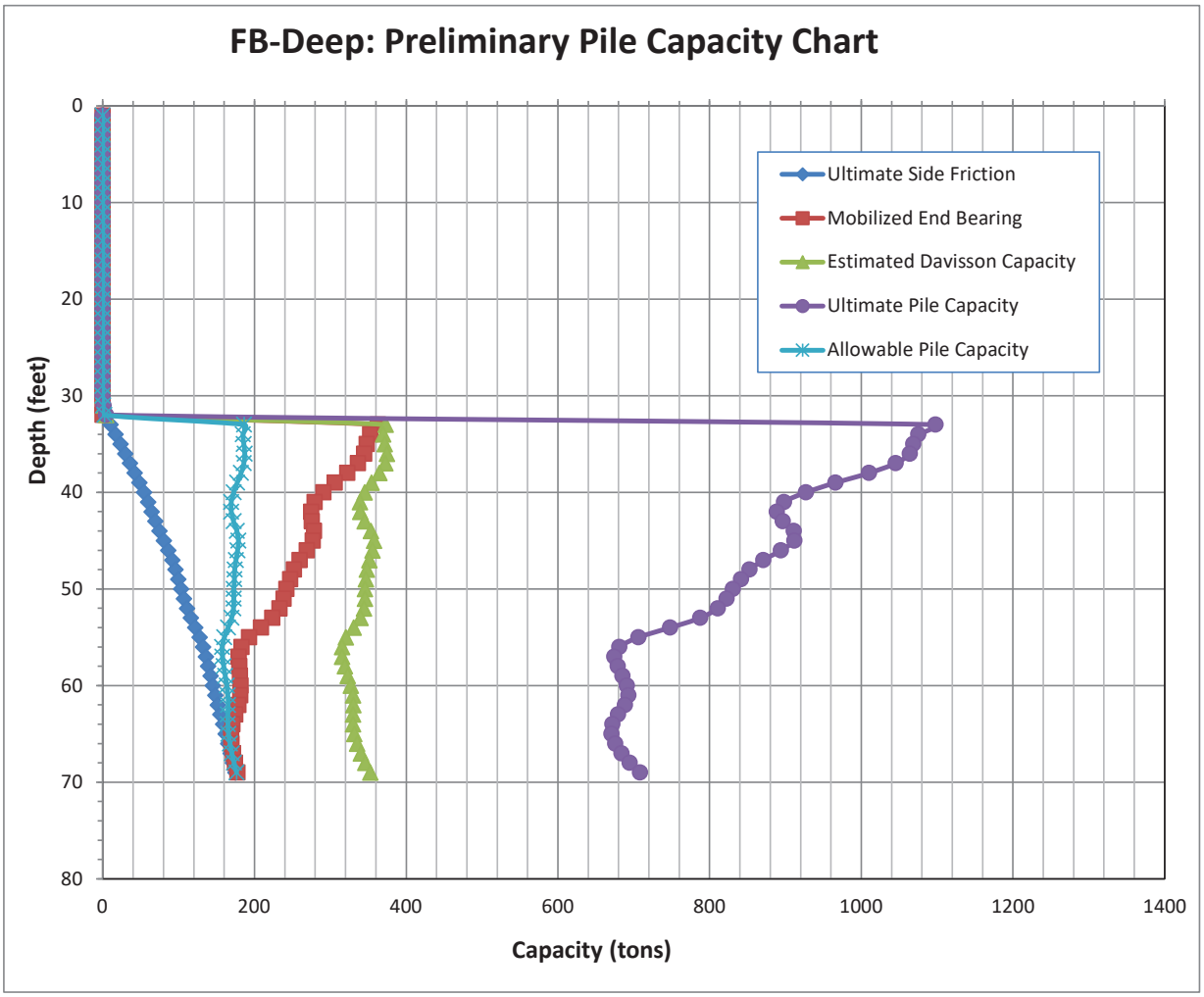
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 18-inch Concrete Driven Piles - Interior Piers



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Concrete Driven Piles - Interior Piers



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 30-inch Concrete Driven Piles - Interior Piers



Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:29:57

General Information:
==========
  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	4- Lime Stone/Very shelly sand
8	15.00	14.00	4- Lime Stone/Very shelly sand
9	18.00	8.00	4- Lime Stone/Very shelly sand
10	21.00	11.00	4- Lime Stone/Very shelly sand
11	24.00	9.00	3- Clean sand
12	27.00	8.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	9.17	5-Void
2	-12.00	-24.00	12.00	11.25	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========

Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:
==========

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.15	0.00	0.15	0.07	0.15
11.00	18.0	0.60	0.00	0.60	0.30	0.60
12.00	18.0	1.34	27.79	29.13	14.57	84.71
13.00	18.0	2.26	26.26	28.52	14.26	81.04
14.00	18.0	3.22	24.85	28.08	14.04	77.78
15.00	18.0	4.24	23.57	27.81	13.91	74.95
16.00	18.0	5.21	22.79	28.00	14.00	73.58
17.00	18.0	6.03	22.90	28.93	14.46	74.72
18.00	18.0	6.70	23.89	30.59	15.29	78.37
19.00	18.0	7.33	25.05	32.38	16.19	82.47
20.00	18.0	8.04	25.64	33.68	16.84	84.96
21.00	18.0	8.82	25.67	34.49	17.24	85.83
22.00	18.0	9.71	25.38	35.09	17.55	85.85
23.00	18.0	10.76	25.01	35.76	17.88	85.78
24.00	18.0	11.95	25.25	37.20	18.60	87.70
25.00	18.0	13.20	25.05	38.25	19.13	88.35
26.00	18.0	14.19	25.63	39.82	19.91	91.09
27.00	18.0	14.68	27.37	42.05	21.02	96.78
28.00	18.0	14.88	31.35	46.22	23.11	108.91
29.00	18.0	15.13	37.32	52.45	26.22	127.10
30.00	18.0	15.48	44.93	60.41	30.21	150.26
31.00	18.0	16.22	53.39	69.61	34.80	176.39
32.00	18.0	17.58	61.66	79.25	39.62	202.57
33.00	18.0	26.78	139.52	166.30	83.15	445.34
34.00	18.0	30.81	134.78	165.59	82.80	435.15
35.00	18.0	34.72	129.76	164.48	82.24	423.99
36.00	18.0	38.50	124.45	162.95	81.48	411.85
37.00	18.0	42.18	120.19	162.38	81.19	402.76
38.00	18.0	45.79	118.31	164.11	82.05	400.73
39.00	18.0	49.33	118.81	168.14	84.07	405.76
40.00	18.0	52.74	119.96	172.70	86.35	412.61
41.00	18.0	55.97	120.03	176.01	88.00	416.07
42.00	18.0	59.04	119.03	178.07	89.03	416.12
43.00	18.0	62.14	117.75	179.88	89.94	415.37
44.00	18.0	65.48	116.98	182.46	91.23	416.41
45.00	18.0	69.08	116.72	185.80	92.90	419.24
46.00	18.0	72.64	116.55	189.19	94.60	422.29
47.00	18.0	75.88	116.05	191.93	95.96	424.03
48.00	18.0	78.79	115.21	194.00	97.00	424.43
49.00	18.0	81.70	112.41	194.11	97.05	418.92
50.00	18.0	84.94	105.99	190.93	95.46	402.91
51.00	18.0	88.50	95.97	184.46	92.23	376.40
52.00	18.0	92.03	85.62	177.66	88.83	348.91
53.00	18.0	95.19	78.26	173.45	86.73	329.97
54.00	18.0	97.98	73.87	171.85	85.93	319.59
55.00	18.0	100.49	71.22	171.71	85.85	314.14
56.00	18.0	102.80	69.08	171.88	85.94	310.04
57.00	18.0	104.90	67.46	172.36	86.18	307.27
58.00	18.0	106.94	66.24	173.17	86.59	305.65
59.00	18.0	109.02	65.32	174.34	87.17	304.97
60.00	18.0	111.15	64.70	175.85	87.93	305.25
61.00	18.0	113.25	68.14	181.39	90.69	317.67
62.00	18.0	115.22	79.41	194.63	97.31	353.44
63.00	18.0	117.07	98.49	215.56	107.78	412.55
64.00	18.0	118.90	117.74	236.64	118.32	472.12
65.00	18.0	120.84	129.47	250.31	125.16	509.26
66.00	18.0	122.87	133.70	256.57	128.28	523.96
67.00	18.0	125.43	130.41	255.83	127.92	516.64
68.00	18.0	128.92	119.59	248.52	124.26	487.71
69.00	18.0	133.36	101.26	234.63	117.31	437.15

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:30:12

General Information:
==========
Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - End Bents.in
Project number: 221126
Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
Engineer: Adnan Ismail, P.E.
Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
Boring date: 8/24/2021, Boring Number: BR-1
Station number: Offset:

Ground Elevation: 0.000(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	4- Lime Stone/Very shelly sand
8	15.00	14.00	4- Lime Stone/Very shelly sand
9	18.00	8.00	4- Lime Stone/Very shelly sand
10	21.00	11.00	4- Lime Stone/Very shelly sand
11	24.00	9.00	3- Clean sand
12	27.00	8.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	9.17	5-Void
2	-12.00	-24.00	12.00	11.25	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.20	0.00	0.20	0.10	0.20
11.00	24.0	0.79	0.00	0.79	0.40	0.79
12.00	24.0	1.79	46.19	47.97	23.99	140.35
13.00	24.0	3.01	45.20	48.21	24.11	138.62
14.00	24.0	4.30	44.18	48.47	24.24	136.83
15.00	24.0	5.65	42.89	48.55	24.27	134.33
16.00	24.0	6.94	42.07	49.02	24.51	133.17
17.00	24.0	8.04	42.27	50.31	25.15	134.85
18.00	24.0	8.93	43.32	52.25	26.12	138.89
19.00	24.0	9.77	44.42	54.19	27.09	143.03
20.00	24.0	10.71	44.88	55.59	27.80	145.35
21.00	24.0	11.76	44.81	56.56	28.28	146.18
22.00	24.0	12.95	44.42	57.37	28.68	146.21
23.00	24.0	14.34	48.79	63.13	31.56	160.71
24.00	24.0	15.94	44.05	59.98	29.99	148.08
25.00	24.0	17.31	44.57	61.89	30.94	151.04
26.00	24.0	18.11	46.75	64.86	32.43	158.36
27.00	24.0	18.61	50.91	69.52	34.76	171.34
28.00	24.0	19.09	56.67	75.76	37.88	189.09
29.00	24.0	19.59	63.87	83.46	41.73	211.19
30.00	24.0	20.14	72.46	92.60	46.30	237.52
31.00	24.0	21.06	81.79	102.85	51.43	266.43
32.00	24.0	22.70	90.89	113.59	56.79	295.36
33.00	24.0	35.71	239.38	275.09	137.54	753.84
34.00	24.0	41.09	229.71	270.80	135.40	730.23
35.00	24.0	46.29	221.72	268.01	134.01	711.46
36.00	24.0	51.34	217.44	268.78	134.39	703.66
37.00	24.0	56.25	216.61	272.85	136.43	706.07
38.00	24.0	61.06	216.18	277.24	138.62	709.59
39.00	24.0	65.77	213.39	279.16	139.58	705.95
40.00	24.0	70.32	208.71	279.03	139.52	696.46
41.00	24.0	74.63	205.71	280.34	140.17	691.75
42.00	24.0	78.72	207.48	286.19	143.10	701.14
43.00	24.0	82.85	211.97	294.82	147.41	718.77
44.00	24.0	87.31	213.83	301.14	150.57	728.80
45.00	24.0	92.11	209.71	301.82	150.91	721.25
46.00	24.0	96.85	202.39	299.24	149.62	704.02
47.00	24.0	101.17	195.54	296.71	148.35	687.79
48.00	24.0	105.05	190.09	295.14	147.57	675.32
49.00	24.0	108.94	182.93	291.87	145.94	657.74
50.00	24.0	113.25	172.03	285.28	142.64	629.34
51.00	24.0	118.00	158.43	276.43	138.22	593.30
52.00	24.0	122.71	145.47	268.19	134.09	559.14
53.00	24.0	126.93	135.76	262.69	131.35	534.22
54.00	24.0	130.65	128.58	259.23	129.61	516.39
55.00	24.0	133.99	123.00	256.99	128.49	502.99
56.00	24.0	137.06	119.02	256.09	128.04	494.13
57.00	24.0	139.87	117.57	257.44	128.72	492.58
58.00	24.0	142.58	117.57	260.16	130.08	495.30
59.00	24.0	145.36	122.27	267.63	133.82	512.18
60.00	24.0	148.20	135.97	284.17	142.09	556.10
61.00	24.0	151.00	159.37	310.37	155.18	629.11
62.00	24.0	153.63	183.90	337.53	168.76	705.33
63.00	24.0	156.09	200.26	356.35	178.17	756.86
64.00	24.0	158.54	207.52	366.06	183.03	781.10
65.00	24.0	161.12	209.06	370.18	185.09	788.29
66.00	24.0	163.83	209.16	372.99	186.50	791.31
67.00	24.0	167.23	203.53	370.77	185.38	777.84
68.00	24.0	171.90	187.89	359.78	179.89	735.56
69.00	24.0	177.82	162.23	340.04	170.02	664.50

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:31:01

General Information:
==========
  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	4- Lime Stone/Very shelly sand
8	15.00	14.00	4- Lime Stone/Very shelly sand
9	18.00	8.00	4- Lime Stone/Very shelly sand
10	21.00	11.00	4- Lime Stone/Very shelly sand
11	24.00	9.00	3- Clean sand
12	27.00	8.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	9.17	5-Void
2	-12.00	-24.00	12.00	11.25	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.25	0.00	0.25	0.12	0.25
11.00	30.0	0.99	0.00	0.99	0.50	0.99
12.00	30.0	2.23	71.53	73.76	36.88	216.83
13.00	30.0	3.76	70.84	74.60	37.30	216.28
14.00	30.0	5.37	69.83	75.20	37.60	214.85
15.00	30.0	7.07	68.29	75.36	37.68	211.94
16.00	30.0	8.68	66.92	75.60	37.80	209.45
17.00	30.0	10.04	66.62	76.66	38.33	209.90
18.00	30.0	11.16	67.51	78.67	39.34	213.70
19.00	30.0	12.21	68.75	80.96	40.48	218.46
20.00	30.0	13.39	69.32	82.72	41.36	221.37
21.00	30.0	14.69	75.32	90.01	45.01	240.65
22.00	30.0	16.18	93.08	109.26	54.63	295.42
23.00	30.0	17.93	122.86	140.79	70.39	386.51
24.00	30.0	19.92	84.48	104.40	52.20	273.35
25.00	30.0	21.58	85.45	107.03	53.52	277.92
26.00	30.0	22.69	88.30	110.99	55.49	287.59
27.00	30.0	23.52	92.93	116.45	58.23	302.31
28.00	30.0	24.25	99.23	123.48	61.74	321.95
29.00	30.0	24.94	107.16	132.10	66.05	346.41
30.00	30.0	25.65	116.55	142.19	71.10	375.29
31.00	30.0	26.82	126.52	153.35	76.67	406.39
32.00	30.0	28.93	135.79	164.72	82.36	436.30
33.00	30.0	44.64	360.11	404.75	202.38	1124.98
34.00	30.0	51.36	351.53	402.88	201.44	1105.94
35.00	30.0	57.87	347.59	405.45	202.73	1100.63
36.00	30.0	64.17	344.84	409.01	204.50	1098.68
37.00	30.0	70.31	339.48	409.79	204.90	1088.76
38.00	30.0	76.32	331.19	407.51	203.75	1069.88
39.00	30.0	82.21	323.82	406.04	203.02	1053.68
40.00	30.0	87.90	321.86	409.75	204.88	1053.46
41.00	30.0	93.29	325.86	419.15	209.57	1070.87
42.00	30.0	98.39	331.67	430.07	215.03	1093.41
43.00	30.0	103.56	332.58	436.14	218.07	1101.30
44.00	30.0	109.14	326.02	435.16	217.58	1087.20
45.00	30.0	115.13	313.15	428.28	214.14	1054.58
46.00	30.0	121.07	298.58	419.64	209.82	1016.79
47.00	30.0	126.46	285.75	412.21	206.10	983.71
48.00	30.0	131.32	276.00	407.31	203.66	959.31
49.00	30.0	136.17	266.77	402.94	201.47	936.47
50.00	30.0	141.57	254.17	395.74	197.87	904.08
51.00	30.0	147.50	237.31	384.81	192.41	859.44
52.00	30.0	153.39	219.46	372.85	186.42	811.76
53.00	30.0	158.66	204.76	363.42	181.71	772.94
54.00	30.0	163.31	194.37	357.68	178.84	746.42
55.00	30.0	167.48	188.29	355.77	177.88	732.34
56.00	30.0	171.33	185.35	356.68	178.34	727.38
57.00	30.0	174.84	190.94	365.78	182.89	747.66
58.00	30.0	178.23	209.09	387.32	193.66	805.51
59.00	30.0	181.70	238.49	420.19	210.09	897.16
60.00	30.0	185.26	267.49	452.75	226.37	987.72
61.00	30.0	188.75	285.38	474.12	237.06	1044.88
62.00	30.0	192.03	293.04	485.08	242.54	1071.17
63.00	30.0	195.11	295.86	490.97	245.48	1082.68
64.00	30.0	198.17	298.02	496.20	248.10	1092.24
65.00	30.0	201.40	298.40	499.79	249.90	1096.59
66.00	30.0	204.79	296.99	501.77	250.89	1095.74
67.00	30.0	209.04	288.43	497.47	248.74	1074.33
68.00	30.0	214.87	268.30	483.17	241.59	1019.78
69.00	30.0	222.27	237.56	459.83	229.92	934.96

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:31:56

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	5- Cavity layer
8	15.00	14.00	5- Cavity layer
9	18.00	8.00	5- Cavity layer
10	21.00	11.00	5- Cavity layer
11	24.00	9.00	5- Cavity layer
12	27.00	8.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	9.70	5-Void
2	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.00	0.00	0.00	0.00	0.00
20.00	18.0	0.00	0.00	0.00	0.00	0.00
21.00	18.0	0.00	0.00	0.00	0.00	0.00
22.00	18.0	0.00	0.00	0.00	0.00	0.00
23.00	18.0	0.00	0.00	0.00	0.00	0.00
24.00	18.0	0.00	0.00	0.00	0.00	0.00
25.00	18.0	0.00	0.00	0.00	0.00	0.00
26.00	18.0	0.00	0.00	0.00	0.00	0.00
27.00	18.0	0.00	0.00	0.00	0.00	0.00
28.00	18.0	0.00	0.00	0.00	0.00	0.00
29.00	18.0	0.00	0.00	0.00	0.00	0.00
30.00	18.0	0.00	0.00	0.00	0.00	0.00
31.00	18.0	0.68	0.00	0.68	0.34	0.68
32.00	18.0	2.73	0.00	2.73	1.36	2.73
33.00	18.0	6.14	139.52	145.66	72.83	424.70
34.00	18.0	10.17	134.78	144.95	72.47	414.50
35.00	18.0	14.07	129.76	143.83	71.91	403.34
36.00	18.0	17.86	124.45	142.31	71.15	391.21
37.00	18.0	21.54	120.19	141.73	70.87	382.12
38.00	18.0	25.15	118.31	143.46	71.73	380.09
39.00	18.0	28.68	118.81	147.49	73.75	385.11
40.00	18.0	32.09	119.96	152.05	76.02	391.97
41.00	18.0	35.33	120.03	155.36	77.68	395.42
42.00	18.0	38.39	119.03	157.42	78.71	395.48
43.00	18.0	41.49	117.75	159.24	79.62	394.73
44.00	18.0	44.84	116.98	161.81	80.91	395.77
45.00	18.0	48.43	116.72	165.15	82.58	398.59
46.00	18.0	51.99	116.55	168.55	84.27	401.65
47.00	18.0	55.23	116.05	171.28	85.64	403.38
48.00	18.0	58.14	115.21	173.36	86.68	403.78
49.00	18.0	61.06	112.41	173.46	86.73	398.28
50.00	18.0	64.29	105.99	170.28	85.14	382.26
51.00	18.0	67.85	95.97	163.82	81.91	355.75
52.00	18.0	71.39	85.62	157.01	78.51	328.26
53.00	18.0	74.55	78.26	152.81	76.40	309.32
54.00	18.0	77.34	73.87	151.21	75.60	298.94
55.00	18.0	79.84	71.22	151.06	75.53	293.50
56.00	18.0	82.15	69.08	151.23	75.62	289.39
57.00	18.0	84.26	67.46	151.71	75.86	286.63
58.00	18.0	86.29	66.24	152.53	76.26	285.00
59.00	18.0	88.37	65.32	153.69	76.85	284.33
60.00	18.0	90.51	64.70	155.21	77.60	284.60
61.00	18.0	92.60	68.14	160.74	80.37	297.02
62.00	18.0	94.57	79.41	173.98	86.99	332.79
63.00	18.0	96.42	98.49	194.92	97.46	391.90
64.00	18.0	98.26	117.74	216.00	108.00	451.47
65.00	18.0	100.19	129.47	229.66	114.83	488.61
66.00	18.0	102.23	133.70	235.92	117.96	503.32
67.00	18.0	104.78	130.41	235.19	117.59	496.00
68.00	18.0	108.28	119.59	227.87	113.94	467.06
69.00	18.0	112.72	101.26	213.98	106.99	416.51

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:32:06

General Information:
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  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	5- Cavity layer
8	15.00	14.00	5- Cavity layer
9	18.00	8.00	5- Cavity layer
10	21.00	11.00	5- Cavity layer
11	24.00	9.00	5- Cavity layer
12	27.00	8.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	9.70	5-Void
2	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.00	0.00	0.00	0.00	0.00
20.00	24.0	0.00	0.00	0.00	0.00	0.00
21.00	24.0	0.00	0.00	0.00	0.00	0.00
22.00	24.0	0.00	0.00	0.00	0.00	0.00
23.00	24.0	0.00	0.00	0.00	0.00	0.00
24.00	24.0	0.00	0.00	0.00	0.00	0.00
25.00	24.0	0.00	0.00	0.00	0.00	0.00
26.00	24.0	0.00	0.00	0.00	0.00	0.00
27.00	24.0	0.00	0.00	0.00	0.00	0.00
28.00	24.0	0.00	0.00	0.00	0.00	0.00
29.00	24.0	0.00	0.00	0.00	0.00	0.00
30.00	24.0	0.00	0.00	0.00	0.00	0.00
31.00	24.0	0.91	0.00	0.91	0.45	0.91
32.00	24.0	3.64	0.00	3.64	1.82	3.64
33.00	24.0	8.18	239.38	247.56	123.78	726.32
34.00	24.0	13.56	229.71	243.27	121.64	702.70
35.00	24.0	18.77	221.72	240.49	120.24	683.93
36.00	24.0	23.81	217.44	241.25	120.63	676.13
37.00	24.0	28.72	216.61	245.33	122.66	678.54
38.00	24.0	33.53	216.18	249.71	124.85	682.06
39.00	24.0	38.24	213.39	251.64	125.82	678.42
40.00	24.0	42.79	208.71	251.50	125.75	668.93
41.00	24.0	47.10	205.71	252.81	126.41	664.22
42.00	24.0	51.19	207.48	258.66	129.33	673.61
43.00	24.0	55.32	211.97	267.30	133.65	691.24
44.00	24.0	59.78	213.83	273.61	136.81	701.27
45.00	24.0	64.58	209.71	274.29	137.15	693.72
46.00	24.0	69.32	202.39	271.71	135.86	676.49
47.00	24.0	73.64	195.54	269.18	134.59	660.26
48.00	24.0	77.52	190.09	267.61	133.81	647.79
49.00	24.0	81.41	182.93	264.34	132.17	630.21
50.00	24.0	85.73	172.03	257.75	128.88	601.81
51.00	24.0	90.47	158.43	248.90	124.45	565.77
52.00	24.0	95.18	145.47	240.66	120.33	531.61
53.00	24.0	99.40	135.76	235.16	117.58	506.69
54.00	24.0	103.12	128.58	231.70	115.85	488.86
55.00	24.0	106.46	123.00	229.46	114.73	475.46
56.00	24.0	109.53	119.02	228.56	114.28	466.61
57.00	24.0	112.34	117.57	229.91	114.96	465.05
58.00	24.0	115.06	117.57	232.63	116.31	467.77
59.00	24.0	117.83	122.27	240.11	120.05	484.65
60.00	24.0	120.68	135.97	256.64	128.32	528.57
61.00	24.0	123.47	159.37	282.84	141.42	601.58
62.00	24.0	126.10	183.90	310.00	155.00	677.80
63.00	24.0	128.56	200.26	328.82	164.41	729.33
64.00	24.0	131.01	207.52	338.53	169.26	753.57
65.00	24.0	133.59	209.06	342.65	171.32	760.76
66.00	24.0	136.30	209.16	345.46	172.73	763.78
67.00	24.0	139.71	203.53	343.24	171.62	750.31
68.00	24.0	144.37	187.89	332.26	166.13	708.03
69.00	24.0	150.29	162.23	312.52	156.26	636.97

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:32:17

General Information:
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  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-1 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/24/2021, Boring Number: BR-1
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	19.00	5- Cavity layer
3	3.00	9.00	5- Cavity layer
4	5.00	7.00	5- Cavity layer
5	7.00	8.00	5- Cavity layer
6	9.00	8.00	5- Cavity layer
7	12.00	12.00	5- Cavity layer
8	15.00	14.00	5- Cavity layer
9	18.00	8.00	5- Cavity layer
10	21.00	11.00	5- Cavity layer
11	24.00	9.00	5- Cavity layer
12	27.00	8.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	47.00	4- Lime Stone/Very shelly sand
17	42.00	40.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	37.00	4- Lime Stone/Very shelly sand
20	51.00	50.00	4- Lime Stone/Very shelly sand
21	54.00	35.00	4- Lime Stone/Very shelly sand
22	57.00	27.00	4- Lime Stone/Very shelly sand
23	60.00	29.00	4- Lime Stone/Very shelly sand
24	63.00	24.00	4- Lime Stone/Very shelly sand
25	66.00	28.00	4- Lime Stone/Very shelly sand
26	69.00	66.00	4- Lime Stone/Very shelly sand
27	72.00	29.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	24.00	4- Lime Stone/Very shelly sand
30	79.00	27.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	9.70	5-Void
2	-33.00	-79.00	46.00	39.15	4-Limestone, Very Shelly Sand

Driven Pile Data:
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  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.00	0.00	0.00	0.00	0.00
11.00	30.0	0.00	0.00	0.00	0.00	0.00
12.00	30.0	0.00	0.00	0.00	0.00	0.00
13.00	30.0	0.00	0.00	0.00	0.00	0.00
14.00	30.0	0.00	0.00	0.00	0.00	0.00
15.00	30.0	0.00	0.00	0.00	0.00	0.00
16.00	30.0	0.00	0.00	0.00	0.00	0.00
17.00	30.0	0.00	0.00	0.00	0.00	0.00
18.00	30.0	0.00	0.00	0.00	0.00	0.00
19.00	30.0	0.00	0.00	0.00	0.00	0.00
20.00	30.0	0.00	0.00	0.00	0.00	0.00
21.00	30.0	0.00	0.00	0.00	0.00	0.00
22.00	30.0	0.00	0.00	0.00	0.00	0.00
23.00	30.0	0.00	0.00	0.00	0.00	0.00
24.00	30.0	0.00	0.00	0.00	0.00	0.00
25.00	30.0	0.00	0.00	0.00	0.00	0.00
26.00	30.0	0.00	0.00	0.00	0.00	0.00
27.00	30.0	0.00	0.00	0.00	0.00	0.00
28.00	30.0	0.00	0.00	0.00	0.00	0.00
29.00	30.0	0.00	0.00	0.00	0.00	0.00
30.00	30.0	0.00	0.00	0.00	0.00	0.00
31.00	30.0	1.14	0.00	1.14	0.57	1.14
32.00	30.0	4.55	0.00	4.55	2.27	4.55
33.00	30.0	10.23	360.11	370.34	185.17	1090.57
34.00	30.0	16.95	351.53	368.47	184.24	1071.53
35.00	30.0	23.46	347.59	371.04	185.52	1066.22
36.00	30.0	29.76	344.84	374.60	187.30	1064.27
37.00	30.0	35.90	339.48	375.38	187.69	1054.35
38.00	30.0	41.91	331.19	373.10	186.55	1035.47
39.00	30.0	47.80	323.82	371.63	185.81	1019.27
40.00	30.0	53.49	321.86	375.34	187.67	1019.05
41.00	30.0	58.88	325.86	384.74	192.37	1036.46
42.00	30.0	63.98	331.67	395.66	197.83	1059.00
43.00	30.0	69.15	332.58	401.73	200.86	1066.89
44.00	30.0	74.73	326.02	400.75	200.38	1052.79
45.00	30.0	80.72	313.15	393.87	196.94	1020.17
46.00	30.0	86.66	298.58	385.23	192.62	982.38
47.00	30.0	92.05	285.75	377.80	188.90	949.30
48.00	30.0	96.91	276.00	372.90	186.45	924.90
49.00	30.0	101.76	266.77	368.53	184.26	902.06
50.00	30.0	107.16	254.17	361.33	180.66	869.67
51.00	30.0	113.09	237.31	350.40	175.20	825.03
52.00	30.0	118.98	219.46	338.44	169.22	777.35
53.00	30.0	124.25	204.76	329.01	164.50	738.53
54.00	30.0	128.90	194.37	323.27	161.63	712.01
55.00	30.0	133.07	188.29	321.36	160.68	697.93
56.00	30.0	136.92	185.35	322.27	161.13	692.97
57.00	30.0	140.43	190.94	331.37	165.68	713.25
58.00	30.0	143.82	209.09	352.91	176.46	771.10
59.00	30.0	147.29	238.49	385.78	192.89	862.75
60.00	30.0	150.85	267.49	418.34	209.17	953.31
61.00	30.0	154.34	285.38	439.71	219.86	1010.47
62.00	30.0	157.62	293.04	450.67	225.33	1036.76
63.00	30.0	160.70	295.86	456.56	228.28	1048.27
64.00	30.0	163.76	298.02	461.79	230.89	1057.83
65.00	30.0	166.99	298.40	465.38	232.69	1062.18
66.00	30.0	170.38	296.99	467.36	233.68	1061.33
67.00	30.0	174.63	288.43	463.06	231.53	1039.92
68.00	30.0	180.46	268.30	448.76	224.38	985.37
69.00	30.0	187.86	237.56	425.42	212.71	900.55

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:33:09

General Information:
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  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	4- Lime Stone/Very shelly sand
8	15.00	13.00	4- Lime Stone/Very shelly sand
9	18.00	9.00	4- Lime Stone/Very shelly sand
10	21.00	10.00	4- Lime Stone/Very shelly sand
11	24.00	8.00	3- Clean sand
12	27.00	9.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	11.08	5-Void
2	-12.00	-24.00	12.00	10.75	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.14	0.00	0.14	0.07	0.14
11.00	18.0	0.55	0.00	0.55	0.27	0.55
12.00	18.0	1.23	26.54	27.77	13.89	80.86
13.00	18.0	2.07	25.68	27.75	13.87	79.11
14.00	18.0	2.96	24.68	27.64	13.82	76.99
15.00	18.0	3.91	23.53	27.44	13.72	74.51
16.00	18.0	4.82	22.62	27.44	13.72	72.67
17.00	18.0	5.64	22.28	27.93	13.96	72.50
18.00	18.0	6.36	22.54	28.90	14.45	73.98
19.00	18.0	7.04	23.10	30.14	15.07	76.35
20.00	18.0	7.75	23.70	31.45	15.72	78.84
21.00	18.0	8.48	24.33	32.81	16.40	81.46
22.00	18.0	9.29	24.87	34.16	17.08	83.89
23.00	18.0	10.23	25.19	35.42	17.71	85.79
24.00	18.0	11.29	25.00	36.29	18.15	86.29
25.00	18.0	12.45	25.00	37.45	18.72	87.45
26.00	18.0	13.42	25.43	38.85	19.43	89.71
27.00	18.0	13.99	27.19	41.18	20.59	95.56
28.00	18.0	14.27	31.17	45.44	22.72	107.79
29.00	18.0	14.55	37.14	51.69	25.85	125.98
30.00	18.0	14.92	44.72	59.64	29.82	149.07
31.00	18.0	15.65	53.16	68.81	34.40	175.14
32.00	18.0	17.01	61.58	78.59	39.29	201.75
33.00	18.0	26.34	142.05	168.39	84.19	452.48
34.00	18.0	30.37	138.46	168.82	84.41	445.74
35.00	18.0	34.27	133.51	167.78	83.89	434.79
36.00	18.0	38.06	127.20	165.25	82.63	419.65
37.00	18.0	41.78	121.38	163.15	81.58	405.91
38.00	18.0	45.50	117.88	163.38	81.69	399.15
39.00	18.0	49.22	116.72	165.93	82.97	399.37
40.00	18.0	52.77	116.23	169.00	84.50	401.45
41.00	18.0	56.01	114.75	170.76	85.38	400.25
42.00	18.0	58.92	112.28	171.21	85.60	395.77
43.00	18.0	61.84	108.08	169.92	84.96	386.08
44.00	18.0	65.08	101.39	166.47	83.23	369.25
45.00	18.0	68.63	92.22	160.85	80.42	345.28
46.00	18.0	72.12	85.19	157.31	78.65	327.68
47.00	18.0	75.13	84.95	160.08	80.04	329.98
48.00	18.0	77.67	91.50	169.17	84.59	352.17
49.00	18.0	79.97	99.40	179.37	89.68	378.16
50.00	18.0	82.24	103.21	185.44	92.72	391.86
51.00	18.0	84.48	102.93	187.41	93.70	393.27
52.00	18.0	86.96	98.79	185.75	92.88	383.34
53.00	18.0	89.94	91.03	180.97	90.48	363.03
54.00	18.0	93.41	79.65	173.05	86.53	332.35
55.00	18.0	96.82	69.03	165.85	82.93	303.92
56.00	18.0	99.61	63.60	163.21	81.60	290.40
57.00	18.0	101.78	63.34	165.11	82.56	291.78
58.00	18.0	103.63	65.35	168.97	84.49	299.67
59.00	18.0	105.45	66.74	172.19	86.09	305.66
60.00	18.0	107.25	67.50	174.75	87.37	309.75
61.00	18.0	109.11	67.57	176.67	88.34	311.80
62.00	18.0	111.12	66.86	177.97	88.99	311.69
63.00	18.0	113.27	65.38	178.65	89.33	309.41
64.00	18.0	115.44	63.67	179.11	89.56	306.46
65.00	18.0	117.49	62.29	179.78	89.89	304.35
66.00	18.0	119.41	61.22	180.64	90.32	303.09
67.00	18.0	121.28	60.47	181.76	90.88	302.71
68.00	18.0	123.18	60.02	183.21	91.60	303.25
69.00	18.0	125.10	59.87	184.98	92.49	304.72

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:33:23

General Information:
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  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
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Analysis Type: SPT

Soil Information:
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  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	4- Lime Stone/Very shelly sand
8	15.00	13.00	4- Lime Stone/Very shelly sand
9	18.00	9.00	4- Lime Stone/Very shelly sand
10	21.00	10.00	4- Lime Stone/Very shelly sand
11	24.00	8.00	3- Clean sand
12	27.00	9.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	11.08	5-Void
2	-12.00	-24.00	12.00	10.75	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:
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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.18	0.00	0.18	0.09	0.18
11.00	24.0	0.73	0.00	0.73	0.36	0.73
12.00	24.0	1.64	44.87	46.51	23.25	136.24
13.00	24.0	2.76	44.07	46.83	23.41	134.96
14.00	24.0	3.95	43.03	46.98	23.49	133.03
15.00	24.0	5.21	41.69	46.90	23.45	130.29
16.00	24.0	6.43	40.60	47.03	23.52	128.24
17.00	24.0	7.52	40.37	47.89	23.95	128.64
18.00	24.0	8.48	41.07	49.55	24.78	131.70
19.00	24.0	9.39	42.26	51.66	25.83	136.19
20.00	24.0	10.33	43.28	53.61	26.81	140.17
21.00	24.0	11.31	43.90	55.21	27.60	143.01
22.00	24.0	12.39	44.18	56.56	28.28	144.91
23.00	24.0	13.64	49.14	62.78	31.39	161.06
24.00	24.0	15.06	43.55	58.60	29.30	145.70
25.00	24.0	16.33	44.08	60.41	30.20	148.57
26.00	24.0	17.13	46.27	63.40	31.70	155.94
27.00	24.0	17.72	50.42	68.14	34.07	168.99
28.00	24.0	18.27	56.17	74.44	37.22	186.78
29.00	24.0	18.81	63.38	82.19	41.10	208.95
30.00	24.0	19.36	72.08	91.44	45.72	235.60
31.00	24.0	20.26	81.73	102.00	51.00	265.46
32.00	24.0	21.87	91.41	113.28	56.64	296.10
33.00	24.0	35.12	244.38	279.49	139.75	768.25
34.00	24.0	40.49	233.38	273.87	136.93	740.62
35.00	24.0	45.70	223.67	269.37	134.69	716.72
36.00	24.0	50.74	218.37	269.11	134.55	705.85
37.00	24.0	55.70	216.82	272.52	136.26	706.15
38.00	24.0	60.66	214.61	275.27	137.63	704.48
39.00	24.0	65.62	207.98	273.60	136.80	689.55
40.00	24.0	70.37	198.48	268.85	134.42	665.81
41.00	24.0	74.68	189.77	264.46	132.23	644.00
42.00	24.0	78.57	183.96	262.53	131.26	630.45
43.00	24.0	82.45	177.93	260.39	130.19	616.25
44.00	24.0	86.77	171.01	257.78	128.89	599.80
45.00	24.0	91.51	165.62	257.13	128.56	588.36
46.00	24.0	96.16	165.51	261.67	130.83	592.69
47.00	24.0	100.18	169.31	269.48	134.74	608.10
48.00	24.0	103.56	171.86	275.42	137.71	619.14
49.00	24.0	106.62	171.06	277.69	138.84	619.81
50.00	24.0	109.65	167.54	277.19	138.60	612.28
51.00	24.0	112.64	164.04	276.68	138.34	604.76
52.00	24.0	115.95	158.12	274.07	137.03	590.31
53.00	24.0	119.92	148.09	268.00	134.00	564.18
54.00	24.0	124.55	134.66	259.20	129.60	528.52
55.00	24.0	129.09	122.98	252.07	126.04	498.03
56.00	24.0	132.81	117.06	249.88	124.94	484.01
57.00	24.0	135.71	115.78	251.49	125.74	483.05
58.00	24.0	138.17	116.40	254.57	127.28	487.36
59.00	24.0	140.60	116.80	257.40	128.70	491.00
60.00	24.0	143.00	117.61	260.61	130.30	495.82
61.00	24.0	145.48	118.10	263.58	131.79	499.78
62.00	24.0	148.16	117.16	265.32	132.66	499.64
63.00	24.0	151.03	114.38	265.42	132.71	494.18
64.00	24.0	153.93	110.90	264.83	132.41	486.63
65.00	24.0	156.65	108.45	265.11	132.55	482.01
66.00	24.0	159.22	107.64	266.86	133.43	482.14
67.00	24.0	161.71	107.85	269.56	134.78	485.25
68.00	24.0	164.24	108.46	272.70	136.35	489.62
69.00	24.0	166.80	109.49	276.29	138.14	495.26

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:33:35

General Information:
==========
  Input file: .....e PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	4- Lime Stone/Very shelly sand
8	15.00	13.00	4- Lime Stone/Very shelly sand
9	18.00	9.00	4- Lime Stone/Very shelly sand
10	21.00	10.00	4- Lime Stone/Very shelly sand
11	24.00	8.00	3- Clean sand
12	27.00	9.00	3- Clean sand
13	30.00	8.00	3- Clean sand
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-12.00	12.00	11.08	5-Void
2	-12.00	-24.00	12.00	10.75	4-Limestone, Very Shelly Sand
3	-24.00	-33.00	9.00	8.33	3-Clean Sand
4	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:
==========

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.23	0.00	0.23	0.11	0.23
11.00	30.0	0.91	0.00	0.91	0.45	0.91
12.00	30.0	2.05	68.74	70.79	35.39	208.28
13.00	30.0	3.45	67.98	71.43	35.71	207.38
14.00	30.0	4.94	66.84	71.78	35.89	205.47
15.00	30.0	6.51	65.44	71.95	35.97	202.83
16.00	30.0	8.04	64.53	72.57	36.29	201.63
17.00	30.0	9.40	64.79	74.20	37.10	203.78
18.00	30.0	10.60	65.95	76.55	38.27	208.44
19.00	30.0	11.74	67.16	78.90	39.45	213.22
20.00	30.0	12.92	67.88	80.79	40.40	216.55
21.00	30.0	14.14	74.32	88.46	44.23	237.09
22.00	30.0	15.48	92.77	108.25	54.13	293.80
23.00	30.0	17.05	123.30	140.35	70.17	386.95
24.00	30.0	18.82	83.85	102.67	51.34	270.37
25.00	30.0	20.36	84.83	105.18	52.59	274.84
26.00	30.0	21.47	87.69	109.16	54.58	284.54
27.00	30.0	22.42	92.30	114.72	57.36	299.32
28.00	30.0	23.25	98.59	121.84	60.92	319.03
29.00	30.0	23.98	106.63	130.61	65.31	343.88
30.00	30.0	24.67	116.36	141.03	70.51	373.75
31.00	30.0	25.81	126.84	152.65	76.32	406.33
32.00	30.0	27.89	136.41	164.30	82.15	437.11
33.00	30.0	43.90	362.55	406.45	203.22	1131.56
34.00	30.0	50.61	352.69	403.30	201.65	1108.67
35.00	30.0	57.12	348.32	405.44	202.72	1102.07
36.00	30.0	63.43	344.75	408.17	204.09	1097.66
37.00	30.0	69.63	336.46	406.08	203.04	1079.00
38.00	30.0	75.83	322.65	398.47	199.24	1043.77
39.00	30.0	82.03	305.94	387.97	193.98	999.85
40.00	30.0	87.96	290.91	378.87	189.43	960.69
41.00	30.0	93.35	279.50	372.85	186.42	931.85
42.00	30.0	98.21	274.73	372.94	186.47	922.39
43.00	30.0	103.06	275.75	378.81	189.41	930.30
44.00	30.0	108.46	278.67	387.13	193.57	944.48
45.00	30.0	114.39	277.07	391.46	195.73	945.61
46.00	30.0	120.20	269.22	389.41	194.71	927.84
47.00	30.0	125.22	259.80	385.02	192.51	904.62
48.00	30.0	129.46	252.24	381.70	190.85	886.18
49.00	30.0	133.28	247.33	380.61	190.30	875.27
50.00	30.0	137.06	242.43	379.49	189.75	864.35
51.00	30.0	140.80	238.44	379.24	189.62	856.12
52.00	30.0	144.94	233.23	378.17	189.08	844.63
53.00	30.0	149.90	223.78	373.67	186.84	821.22
54.00	30.0	155.68	208.66	364.34	182.17	781.65
55.00	30.0	161.37	192.89	354.26	177.13	740.04
56.00	30.0	166.02	182.92	348.93	174.47	714.76
57.00	30.0	169.63	179.50	349.13	174.57	708.14
58.00	30.0	172.71	180.01	352.72	176.36	712.74
59.00	30.0	175.75	181.02	356.77	178.38	718.81
60.00	30.0	178.75	182.03	360.78	180.39	724.84
61.00	30.0	181.85	181.64	363.49	181.75	726.78
62.00	30.0	185.19	178.96	364.15	182.08	722.08
63.00	30.0	188.79	174.73	363.52	181.76	712.99
64.00	30.0	192.41	171.14	363.54	181.77	705.81
65.00	30.0	195.82	169.58	365.40	182.70	704.56
66.00	30.0	199.02	170.08	369.10	184.55	709.27
67.00	30.0	202.14	171.87	374.02	187.01	717.76
68.00	30.0	205.30	174.39	379.69	189.85	728.47
69.00	30.0	208.51	177.83	386.34	193.17	742.00

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:34:07

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	5- Cavity layer
8	15.00	13.00	5- Cavity layer
9	18.00	9.00	5- Cavity layer
10	21.00	10.00	5- Cavity layer
11	24.00	8.00	5- Cavity layer
12	27.00	9.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	10.21	5-Void
2	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	1.00	-1.00
18.00	2.00	-2.00
18.00	3.00	-3.00
18.00	4.00	-4.00
18.00	5.00	-5.00
18.00	6.00	-6.00
18.00	7.00	-7.00
18.00	8.00	-8.00
18.00	9.00	-9.00
18.00	10.00	-10.00
18.00	11.00	-11.00
18.00	12.00	-12.00
18.00	13.00	-13.00
18.00	14.00	-14.00
18.00	15.00	-15.00
18.00	16.00	-16.00
18.00	17.00	-17.00
18.00	18.00	-18.00
18.00	19.00	-19.00
18.00	20.00	-20.00
18.00	21.00	-21.00
18.00	22.00	-22.00
18.00	23.00	-23.00
18.00	24.00	-24.00
18.00	25.00	-25.00
18.00	26.00	-26.00
18.00	27.00	-27.00
18.00	28.00	-28.00
18.00	29.00	-29.00
18.00	30.00	-30.00
18.00	31.00	-31.00
18.00	32.00	-32.00
18.00	33.00	-33.00
18.00	34.00	-34.00
18.00	35.00	-35.00
18.00	36.00	-36.00
18.00	37.00	-37.00
18.00	38.00	-38.00
18.00	39.00	-39.00
18.00	40.00	-40.00
18.00	41.00	-41.00
18.00	42.00	-42.00
18.00	43.00	-43.00
18.00	44.00	-44.00
18.00	45.00	-45.00
18.00	46.00	-46.00
18.00	47.00	-47.00
18.00	48.00	-48.00
18.00	49.00	-49.00
18.00	50.00	-50.00
18.00	51.00	-51.00
18.00	52.00	-52.00
18.00	53.00	-53.00
18.00	54.00	-54.00
18.00	55.00	-55.00
18.00	56.00	-56.00
18.00	57.00	-57.00
18.00	58.00	-58.00
18.00	59.00	-59.00
18.00	60.00	-60.00
18.00	61.00	-61.00
18.00	62.00	-62.00
18.00	63.00	-63.00
18.00	64.00	-64.00
18.00	65.00	-65.00
18.00	66.00	-66.00
18.00	67.00	-67.00
18.00	68.00	-68.00
18.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	18.0	0.00	0.00	0.00	0.00	0.00
2.00	18.0	0.00	0.00	0.00	0.00	0.00
3.00	18.0	0.00	0.00	0.00	0.00	0.00
4.00	18.0	0.00	0.00	0.00	0.00	0.00
5.00	18.0	0.00	0.00	0.00	0.00	0.00
6.00	18.0	0.00	0.00	0.00	0.00	0.00
7.00	18.0	0.00	0.00	0.00	0.00	0.00
8.00	18.0	0.00	0.00	0.00	0.00	0.00
9.00	18.0	0.00	0.00	0.00	0.00	0.00
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.00	0.00	0.00	0.00	0.00
20.00	18.0	0.00	0.00	0.00	0.00	0.00
21.00	18.0	0.00	0.00	0.00	0.00	0.00
22.00	18.0	0.00	0.00	0.00	0.00	0.00
23.00	18.0	0.00	0.00	0.00	0.00	0.00
24.00	18.0	0.00	0.00	0.00	0.00	0.00
25.00	18.0	0.00	0.00	0.00	0.00	0.00
26.00	18.0	0.00	0.00	0.00	0.00	0.00
27.00	18.0	0.00	0.00	0.00	0.00	0.00
28.00	18.0	0.00	0.00	0.00	0.00	0.00
29.00	18.0	0.00	0.00	0.00	0.00	0.00
30.00	18.0	0.00	0.00	0.00	0.00	0.00
31.00	18.0	0.68	0.00	0.68	0.34	0.68
32.00	18.0	2.73	0.00	2.73	1.36	2.73
33.00	18.0	6.14	142.05	148.19	74.09	432.28
34.00	18.0	10.17	138.46	148.62	74.31	425.54
35.00	18.0	14.07	133.51	147.58	73.79	414.59
36.00	18.0	17.86	127.20	145.05	72.53	399.45
37.00	18.0	21.58	121.38	142.95	71.48	385.71
38.00	18.0	25.30	117.88	143.18	71.59	378.95
39.00	18.0	29.02	116.72	145.74	72.87	379.17
40.00	18.0	32.57	116.23	148.80	74.40	381.25
41.00	18.0	35.81	114.75	150.56	75.28	380.05
42.00	18.0	38.73	112.28	151.01	75.50	375.57
43.00	18.0	41.64	108.08	149.72	74.86	365.88
44.00	18.0	44.88	101.39	146.27	73.13	349.05
45.00	18.0	48.43	92.22	140.65	70.32	325.08
46.00	18.0	51.92	85.19	137.11	68.55	307.48
47.00	18.0	54.93	84.95	139.88	69.94	309.78
48.00	18.0	57.47	91.50	148.97	74.49	331.97
49.00	18.0	59.77	99.40	159.17	79.58	357.96
50.00	18.0	62.04	103.21	165.24	82.62	371.66
51.00	18.0	64.28	102.93	167.21	83.60	373.07
52.00	18.0	66.76	98.79	165.55	82.78	363.14
53.00	18.0	69.74	91.03	160.77	80.38	342.83
54.00	18.0	73.21	79.65	152.86	76.43	312.15
55.00	18.0	76.62	69.03	145.65	72.83	283.72
56.00	18.0	79.41	63.60	143.01	71.50	270.20
57.00	18.0	81.58	63.34	144.91	72.46	271.59
58.00	18.0	83.43	65.35	148.77	74.39	279.47
59.00	18.0	85.25	66.74	151.99	75.99	285.46
60.00	18.0	87.05	67.50	154.55	77.27	289.55
61.00	18.0	88.91	67.57	156.47	78.24	291.60
62.00	18.0	90.92	66.86	157.77	78.89	291.49
63.00	18.0	93.07	65.38	158.45	79.23	289.21
64.00	18.0	95.24	63.67	158.92	79.46	286.26
65.00	18.0	97.29	62.29	159.58	79.79	284.15
66.00	18.0	99.21	61.22	160.44	80.22	282.89
67.00	18.0	101.08	60.47	161.56	80.78	282.51
68.00	18.0	102.98	60.02	163.01	81.50	283.05
69.00	18.0	104.90	59.87	164.78	82.39	284.52

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:34:18

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	5- Cavity layer
8	15.00	13.00	5- Cavity layer
9	18.00	9.00	5- Cavity layer
10	21.00	10.00	5- Cavity layer
11	24.00	8.00	5- Cavity layer
12	27.00	9.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	10.21	5-Void
2	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
24.00	1.00	-1.00
24.00	2.00	-2.00
24.00	3.00	-3.00
24.00	4.00	-4.00
24.00	5.00	-5.00
24.00	6.00	-6.00
24.00	7.00	-7.00
24.00	8.00	-8.00
24.00	9.00	-9.00
24.00	10.00	-10.00
24.00	11.00	-11.00
24.00	12.00	-12.00
24.00	13.00	-13.00
24.00	14.00	-14.00
24.00	15.00	-15.00
24.00	16.00	-16.00
24.00	17.00	-17.00
24.00	18.00	-18.00
24.00	19.00	-19.00
24.00	20.00	-20.00
24.00	21.00	-21.00
24.00	22.00	-22.00
24.00	23.00	-23.00
24.00	24.00	-24.00
24.00	25.00	-25.00
24.00	26.00	-26.00
24.00	27.00	-27.00
24.00	28.00	-28.00
24.00	29.00	-29.00
24.00	30.00	-30.00
24.00	31.00	-31.00
24.00	32.00	-32.00
24.00	33.00	-33.00
24.00	34.00	-34.00
24.00	35.00	-35.00
24.00	36.00	-36.00
24.00	37.00	-37.00
24.00	38.00	-38.00
24.00	39.00	-39.00
24.00	40.00	-40.00
24.00	41.00	-41.00
24.00	42.00	-42.00
24.00	43.00	-43.00
24.00	44.00	-44.00
24.00	45.00	-45.00
24.00	46.00	-46.00
24.00	47.00	-47.00
24.00	48.00	-48.00
24.00	49.00	-49.00
24.00	50.00	-50.00
24.00	51.00	-51.00
24.00	52.00	-52.00
24.00	53.00	-53.00
24.00	54.00	-54.00
24.00	55.00	-55.00
24.00	56.00	-56.00
24.00	57.00	-57.00
24.00	58.00	-58.00
24.00	59.00	-59.00
24.00	60.00	-60.00
24.00	61.00	-61.00
24.00	62.00	-62.00
24.00	63.00	-63.00
24.00	64.00	-64.00
24.00	65.00	-65.00
24.00	66.00	-66.00
24.00	67.00	-67.00
24.00	68.00	-68.00
24.00	69.00	-69.00

Driven Pile Capacity:

==========

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	24.0	0.00	0.00	0.00	0.00	0.00
2.00	24.0	0.00	0.00	0.00	0.00	0.00
3.00	24.0	0.00	0.00	0.00	0.00	0.00
4.00	24.0	0.00	0.00	0.00	0.00	0.00
5.00	24.0	0.00	0.00	0.00	0.00	0.00
6.00	24.0	0.00	0.00	0.00	0.00	0.00
7.00	24.0	0.00	0.00	0.00	0.00	0.00
8.00	24.0	0.00	0.00	0.00	0.00	0.00
9.00	24.0	0.00	0.00	0.00	0.00	0.00
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.00	0.00	0.00	0.00	0.00
20.00	24.0	0.00	0.00	0.00	0.00	0.00
21.00	24.0	0.00	0.00	0.00	0.00	0.00
22.00	24.0	0.00	0.00	0.00	0.00	0.00
23.00	24.0	0.00	0.00	0.00	0.00	0.00
24.00	24.0	0.00	0.00	0.00	0.00	0.00
25.00	24.0	0.00	0.00	0.00	0.00	0.00
26.00	24.0	0.00	0.00	0.00	0.00	0.00
27.00	24.0	0.00	0.00	0.00	0.00	0.00
28.00	24.0	0.00	0.00	0.00	0.00	0.00
29.00	24.0	0.00	0.00	0.00	0.00	0.00
30.00	24.0	0.00	0.00	0.00	0.00	0.00
31.00	24.0	0.91	0.00	0.91	0.45	0.91
32.00	24.0	3.64	0.00	3.64	1.82	3.64
33.00	24.0	8.18	244.38	252.56	126.28	741.32
34.00	24.0	13.56	233.38	246.94	123.47	713.69
35.00	24.0	18.77	223.67	242.44	121.22	689.79
36.00	24.0	23.81	218.37	242.18	121.09	678.91
37.00	24.0	28.77	216.82	245.58	122.79	679.22
38.00	24.0	33.73	214.61	248.33	124.17	677.55
39.00	24.0	38.69	207.98	246.66	123.33	662.62
40.00	24.0	43.43	198.48	241.91	120.96	638.88
41.00	24.0	47.75	189.77	237.52	118.76	617.07
42.00	24.0	51.63	183.96	235.59	117.80	603.51
43.00	24.0	55.52	177.93	233.45	116.73	589.32
44.00	24.0	59.83	171.01	230.85	115.42	572.87
45.00	24.0	64.58	165.62	230.20	115.10	561.43
46.00	24.0	69.23	165.51	234.74	117.37	565.76
47.00	24.0	73.24	169.31	242.55	121.28	581.17
48.00	24.0	76.63	171.86	248.49	124.25	592.21
49.00	24.0	79.69	171.06	250.75	125.38	592.88
50.00	24.0	82.72	167.54	250.26	125.13	585.35
51.00	24.0	85.71	164.04	249.75	124.87	577.82
52.00	24.0	89.02	158.12	247.14	123.57	563.38
53.00	24.0	92.98	148.09	241.07	120.54	537.25
54.00	24.0	97.61	134.66	232.27	116.14	501.59
55.00	24.0	102.16	122.98	225.14	112.57	471.10
56.00	24.0	105.88	117.06	222.94	111.47	457.07
57.00	24.0	108.77	115.78	224.55	112.28	456.12
58.00	24.0	111.24	116.40	227.63	113.82	460.43
59.00	24.0	113.67	116.80	230.47	115.23	464.07
60.00	24.0	116.06	117.61	233.67	116.84	468.89
61.00	24.0	118.54	118.10	236.65	118.32	472.85
62.00	24.0	121.22	117.16	238.38	119.19	472.71
63.00	24.0	124.10	114.38	238.48	119.24	467.25
64.00	24.0	126.99	110.90	237.89	118.95	459.70
65.00	24.0	129.72	108.45	238.17	119.09	455.08
66.00	24.0	132.28	107.64	239.92	119.96	455.20
67.00	24.0	134.78	107.85	242.63	121.31	458.32
68.00	24.0	137.31	108.46	245.77	122.88	462.68
69.00	24.0	139.87	109.49	249.36	124.68	468.33

NOTES
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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:34:27

General Information:
==========
  Input file: .....ve PDE_GANNETT FLEMING\FB-Deep\Driven Piles\BR-2 - Int Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: SPT

Soil Information:
==========
  Boring date: 8/20/2021, Boring Number: BR-2
  Station number: Offset:

  Ground Elevation: 0.000(ft)

  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	0.00	5- Cavity layer
2	1.00	21.00	5- Cavity layer
3	3.00	17.00	5- Cavity layer
4	5.00	8.00	5- Cavity layer
5	7.00	7.00	5- Cavity layer
6	9.00	9.00	5- Cavity layer
7	12.00	11.00	5- Cavity layer
8	15.00	13.00	5- Cavity layer
9	18.00	9.00	5- Cavity layer
10	21.00	10.00	5- Cavity layer
11	24.00	8.00	5- Cavity layer
12	27.00	9.00	5- Cavity layer
13	30.00	8.00	5- Cavity layer
14	33.00	55.00	4- Lime Stone/Very shelly sand
15	36.00	50.00	4- Lime Stone/Very shelly sand
16	39.00	50.00	4- Lime Stone/Very shelly sand
17	42.00	37.00	4- Lime Stone/Very shelly sand
18	45.00	50.00	4- Lime Stone/Very shelly sand
19	48.00	31.00	4- Lime Stone/Very shelly sand
20	51.00	30.00	4- Lime Stone/Very shelly sand
21	54.00	50.00	4- Lime Stone/Very shelly sand
22	57.00	25.00	4- Lime Stone/Very shelly sand
23	60.00	24.00	4- Lime Stone/Very shelly sand
24	63.00	30.00	4- Lime Stone/Very shelly sand
25	66.00	25.00	4- Lime Stone/Very shelly sand
26	69.00	26.00	4- Lime Stone/Very shelly sand
27	72.00	23.00	4- Lime Stone/Very shelly sand
28	75.00	26.00	4- Lime Stone/Very shelly sand
29	77.00	28.00	4- Lime Stone/Very shelly sand
30	79.00	31.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	0.00	-33.00	33.00	10.21	5-Void
2	-33.00	-79.00	46.00	35.35	4-Limestone, Very Shelly Sand

Driven Pile Data:
==========
  Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
30.00	1.00	-1.00
30.00	2.00	-2.00
30.00	3.00	-3.00
30.00	4.00	-4.00
30.00	5.00	-5.00
30.00	6.00	-6.00
30.00	7.00	-7.00
30.00	8.00	-8.00
30.00	9.00	-9.00
30.00	10.00	-10.00
30.00	11.00	-11.00
30.00	12.00	-12.00
30.00	13.00	-13.00
30.00	14.00	-14.00
30.00	15.00	-15.00
30.00	16.00	-16.00
30.00	17.00	-17.00
30.00	18.00	-18.00
30.00	19.00	-19.00
30.00	20.00	-20.00
30.00	21.00	-21.00
30.00	22.00	-22.00
30.00	23.00	-23.00
30.00	24.00	-24.00
30.00	25.00	-25.00
30.00	26.00	-26.00
30.00	27.00	-27.00
30.00	28.00	-28.00
30.00	29.00	-29.00
30.00	30.00	-30.00
30.00	31.00	-31.00
30.00	32.00	-32.00
30.00	33.00	-33.00
30.00	34.00	-34.00
30.00	35.00	-35.00
30.00	36.00	-36.00
30.00	37.00	-37.00
30.00	38.00	-38.00
30.00	39.00	-39.00
30.00	40.00	-40.00
30.00	41.00	-41.00
30.00	42.00	-42.00
30.00	43.00	-43.00
30.00	44.00	-44.00
30.00	45.00	-45.00
30.00	46.00	-46.00
30.00	47.00	-47.00
30.00	48.00	-48.00
30.00	49.00	-49.00
30.00	50.00	-50.00
30.00	51.00	-51.00
30.00	52.00	-52.00
30.00	53.00	-53.00
30.00	54.00	-54.00
30.00	55.00	-55.00
30.00	56.00	-56.00
30.00	57.00	-57.00
30.00	58.00	-58.00
30.00	59.00	-59.00
30.00	60.00	-60.00
30.00	61.00	-61.00
30.00	62.00	-62.00
30.00	63.00	-63.00
30.00	64.00	-64.00
30.00	65.00	-65.00
30.00	66.00	-66.00
30.00	67.00	-67.00
30.00	68.00	-68.00
30.00	69.00	-69.00

Driven Pile Capacity:

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Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
1.00	30.0	0.00	0.00	0.00	0.00	0.00
2.00	30.0	0.00	0.00	0.00	0.00	0.00
3.00	30.0	0.00	0.00	0.00	0.00	0.00
4.00	30.0	0.00	0.00	0.00	0.00	0.00
5.00	30.0	0.00	0.00	0.00	0.00	0.00
6.00	30.0	0.00	0.00	0.00	0.00	0.00
7.00	30.0	0.00	0.00	0.00	0.00	0.00
8.00	30.0	0.00	0.00	0.00	0.00	0.00
9.00	30.0	0.00	0.00	0.00	0.00	0.00
10.00	30.0	0.00	0.00	0.00	0.00	0.00
11.00	30.0	0.00	0.00	0.00	0.00	0.00
12.00	30.0	0.00	0.00	0.00	0.00	0.00
13.00	30.0	0.00	0.00	0.00	0.00	0.00
14.00	30.0	0.00	0.00	0.00	0.00	0.00
15.00	30.0	0.00	0.00	0.00	0.00	0.00
16.00	30.0	0.00	0.00	0.00	0.00	0.00
17.00	30.0	0.00	0.00	0.00	0.00	0.00
18.00	30.0	0.00	0.00	0.00	0.00	0.00
19.00	30.0	0.00	0.00	0.00	0.00	0.00
20.00	30.0	0.00	0.00	0.00	0.00	0.00
21.00	30.0	0.00	0.00	0.00	0.00	0.00
22.00	30.0	0.00	0.00	0.00	0.00	0.00
23.00	30.0	0.00	0.00	0.00	0.00	0.00
24.00	30.0	0.00	0.00	0.00	0.00	0.00
25.00	30.0	0.00	0.00	0.00	0.00	0.00
26.00	30.0	0.00	0.00	0.00	0.00	0.00
27.00	30.0	0.00	0.00	0.00	0.00	0.00
28.00	30.0	0.00	0.00	0.00	0.00	0.00
29.00	30.0	0.00	0.00	0.00	0.00	0.00
30.00	30.0	0.00	0.00	0.00	0.00	0.00
31.00	30.0	1.14	0.00	1.14	0.57	1.14
32.00	30.0	4.55	0.00	4.55	2.27	4.55
33.00	30.0	10.23	362.55	372.78	186.39	1097.89
34.00	30.0	16.95	352.69	369.63	184.82	1075.00
35.00	30.0	23.46	348.32	371.77	185.89	1068.41
36.00	30.0	29.76	344.75	374.51	187.25	1064.00
37.00	30.0	35.96	336.46	372.42	186.21	1045.34
38.00	30.0	42.16	322.65	364.81	182.40	1010.10
39.00	30.0	48.36	305.94	354.30	177.15	966.19
40.00	30.0	54.29	290.91	345.20	172.60	927.03
41.00	30.0	59.69	279.50	339.18	169.59	898.18
42.00	30.0	64.54	274.73	339.27	169.63	888.73
43.00	30.0	69.40	275.75	345.15	172.57	896.64
44.00	30.0	74.79	278.67	353.47	176.73	910.81
45.00	30.0	80.72	277.07	357.80	178.90	911.95
46.00	30.0	86.53	269.22	355.75	177.87	894.18
47.00	30.0	91.55	259.80	351.35	175.68	870.95
48.00	30.0	95.79	252.24	348.03	174.02	852.52
49.00	30.0	99.61	247.33	346.94	173.47	841.60
50.00	30.0	103.40	242.43	345.82	172.91	830.68
51.00	30.0	107.14	238.44	345.58	172.79	822.46
52.00	30.0	111.27	233.23	344.50	172.25	810.96
53.00	30.0	116.23	223.78	340.01	170.00	787.56
54.00	30.0	122.02	208.66	330.67	165.34	747.99
55.00	30.0	127.70	192.89	320.59	160.30	706.37
56.00	30.0	132.35	182.92	315.27	157.63	681.10
57.00	30.0	135.97	179.50	315.47	157.73	674.47
58.00	30.0	139.05	180.01	319.05	159.53	679.07
59.00	30.0	142.08	181.02	323.10	161.55	685.14
60.00	30.0	145.08	182.03	327.11	163.56	691.18
61.00	30.0	148.18	181.64	329.82	164.91	693.11
62.00	30.0	151.53	178.96	330.49	165.24	688.41
63.00	30.0	155.12	174.73	329.86	164.93	679.33
64.00	30.0	158.74	171.14	329.88	164.94	672.15
65.00	30.0	162.15	169.58	331.73	165.87	670.90
66.00	30.0	165.35	170.08	335.44	167.72	675.60
67.00	30.0	168.47	171.87	340.35	170.17	684.10
68.00	30.0	171.64	174.39	346.03	173.01	694.80
69.00	30.0	174.84	177.83	352.67	176.34	708.34

NOTES
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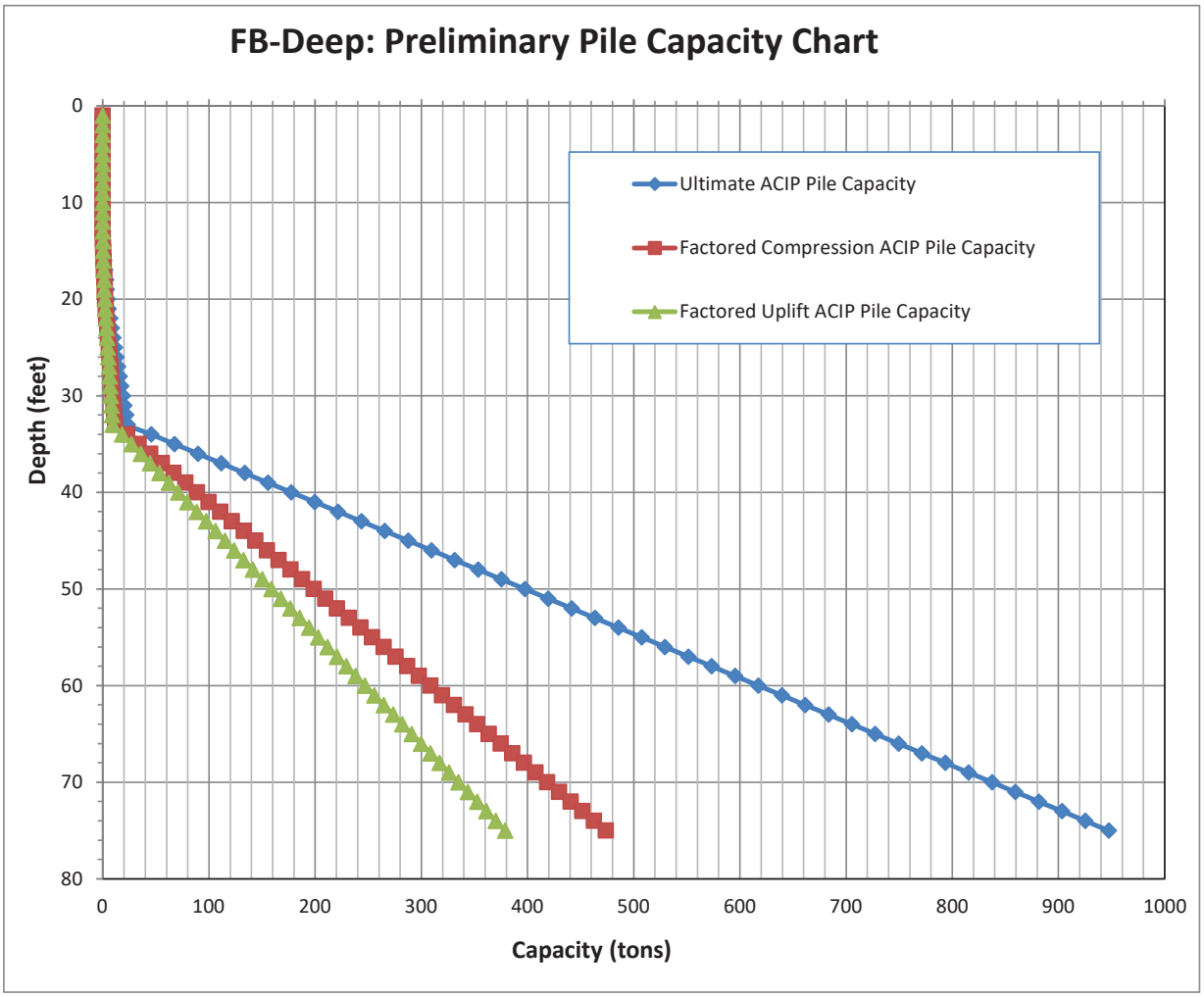
1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.

2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.

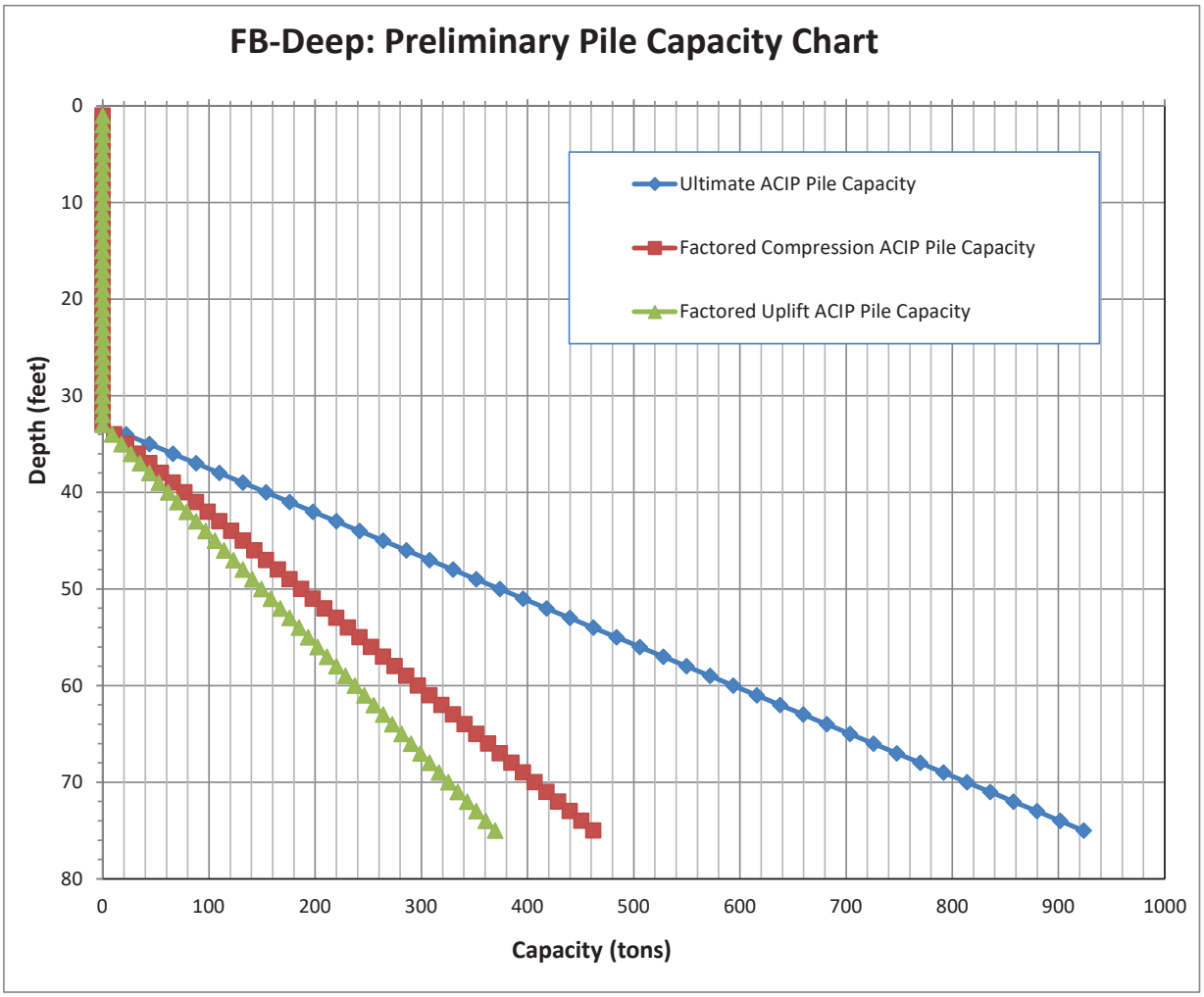
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.

4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
   EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

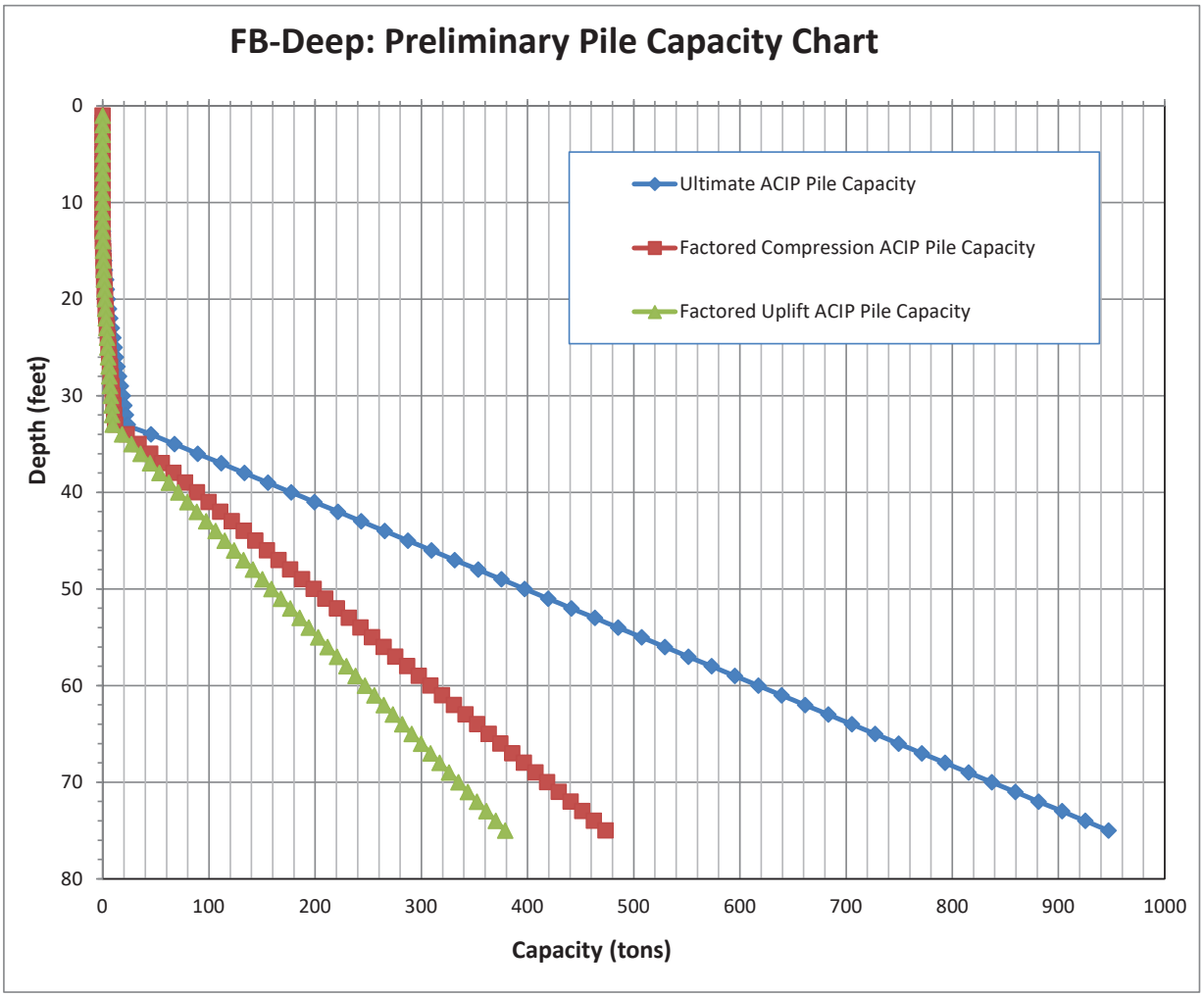
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Diameter ACIP Pile - End Bents



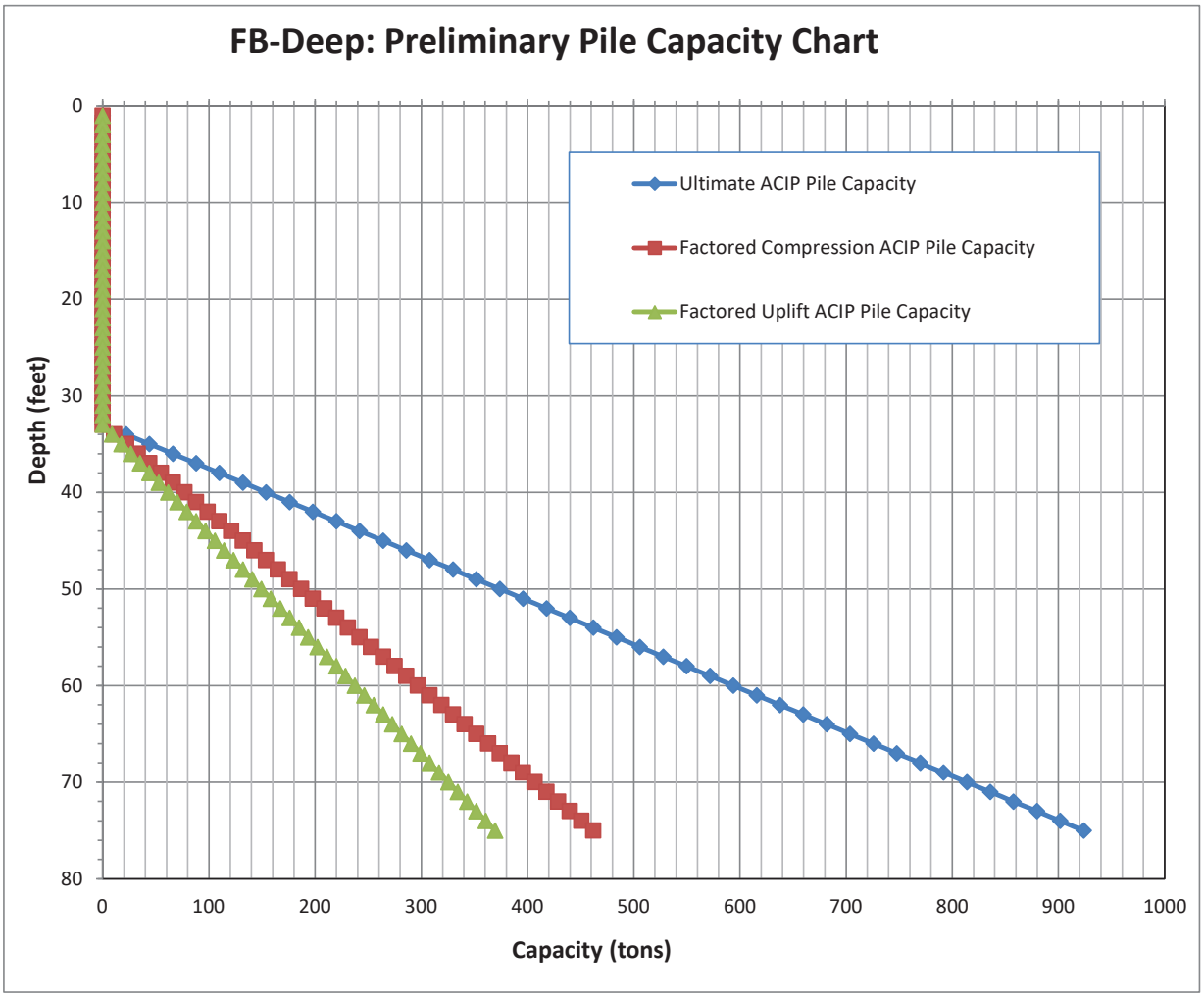
Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-1 - 24-inch Diameter ACIP Pile - Interior Piers



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Diameter ACIP Pile - End Bents



Project: SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
FPID No. 445804-1-22-01
Location: Miami-Dade County, Florida
Boring No.: BR-2 - 24-inch Diameter ACIP Pile - Interior Piers



Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:24:09

General Information:
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  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-1 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method
  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	12.00	120.00	3- Clean sand
8	15.00	-15.00	14.00	120.00	3- Clean sand
9	18.00	-18.00	8.00	120.00	3- Clean sand
10	21.00	-21.00	11.00	120.00	3- Clean sand
11	24.00	-24.00	9.00	110.00	3- Clean sand
12	27.00	-27.00	8.00	110.00	3- Clean sand
13	30.00	-30.00	8.00	110.00	3- Clean sand
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A

12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00

15	15.00	-15.00	0.00	24.00	24.00	0.00
16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000

10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.092	0.000	0.092
14	24.00	14.00	0.364	0.000	0.364
15	24.00	15.00	0.811	0.000	0.811
16	24.00	16.00	1.424	0.000	1.424
17	24.00	17.00	2.201	0.000	2.201
18	24.00	18.00	3.136	0.000	3.136
19	24.00	19.00	3.851	0.000	3.851
20	24.00	20.00	4.663	0.000	4.663
21	24.00	21.00	5.569	0.000	5.569
22	24.00	22.00	6.936	0.000	6.936
23	24.00	23.00	8.422	0.000	8.422
24	24.00	24.00	10.025	0.000	10.025
25	24.00	25.00	11.415	0.000	11.415
26	24.00	26.00	12.875	0.000	12.875
27	24.00	27.00	14.401	0.000	14.401
28	24.00	28.00	15.813	0.000	15.813
29	24.00	29.00	17.279	0.000	17.279
30	24.00	30.00	18.799	0.000	18.799
31	24.00	31.00	20.367	0.000	20.367
32	24.00	32.00	21.984	0.000	21.984
33	24.00	33.00	23.649	0.000	23.649
34	24.00	34.00	45.640	0.000	45.640
35	24.00	35.00	67.631	0.000	67.631
36	24.00	36.00	89.622	0.000	89.622
37	24.00	37.00	111.613	0.000	111.613
38	24.00	38.00	133.604	0.000	133.604
39	24.00	39.00	155.595	0.000	155.595
40	24.00	40.00	177.587	0.000	177.587
41	24.00	41.00	199.578	0.000	199.578
42	24.00	42.00	221.569	0.000	221.569
43	24.00	43.00	243.560	0.000	243.560
44	24.00	44.00	265.551	0.000	265.551
45	24.00	45.00	287.542	0.000	287.542
46	24.00	46.00	309.533	0.000	309.533
47	24.00	47.00	331.525	0.000	331.525
48	24.00	48.00	353.516	0.000	353.516
49	24.00	49.00	375.507	0.000	375.507
50	24.00	50.00	397.498	0.000	397.498
51	24.00	51.00	419.489	0.000	419.489
52	24.00	52.00	441.480	0.000	441.480
53	24.00	53.00	463.471	0.000	463.471
54	24.00	54.00	485.463	0.000	485.463
55	24.00	55.00	507.454	0.000	507.454
56	24.00	56.00	529.445	0.000	529.445
57	24.00	57.00	551.436	0.000	551.436
58	24.00	58.00	573.427	0.000	573.427
59	24.00	59.00	595.418	0.000	595.418
60	24.00	60.00	617.410	0.000	617.410
61	24.00	61.00	639.401	0.000	639.401
62	24.00	62.00	661.392	0.000	661.392
63	24.00	63.00	683.383	0.000	683.383
64	24.00	64.00	705.374	0.000	705.374
65	24.00	65.00	727.365	0.000	727.365
66	24.00	66.00	749.356	0.000	749.356
67	24.00	67.00	771.348	0.000	771.348
68	24.00	68.00	793.339	0.000	793.339
69	24.00	69.00	815.330	0.000	815.330
70	24.00	70.00	837.321	0.000	837.321
71	24.00	71.00	859.312	0.000	859.312
72	24.00	72.00	881.303	0.000	881.303
73	24.00	73.00	903.294	0.000	903.294
74	24.00	74.00	925.286	0.000	925.286
75	24.00	75.00	947.277	0.000	947.277

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000

2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	15.079	15.079
13	24.00	13.00	0.090	14.693	14.782
14	24.00	14.00	0.356	13.533	13.889
15	24.00	15.00	0.793	27.114	27.907
16	24.00	16.00	1.393	26.357	27.750
17	24.00	17.00	2.153	25.438	27.591
18	24.00	18.00	3.067	24.117	27.184
19	24.00	19.00	3.767	22.812	26.579
20	24.00	20.00	4.561	22.184	26.745
21	24.00	21.00	5.448	22.281	27.728
22	24.00	22.00	6.784	22.490	29.274
23	24.00	23.00	8.238	22.152	30.390
24	24.00	24.00	9.806	21.314	31.120
25	24.00	25.00	11.165	20.364	31.529
26	24.00	26.00	12.593	19.639	32.231
27	24.00	27.00	14.086	20.344	34.430
28	24.00	28.00	15.466	23.637	39.103
29	24.00	29.00	16.901	29.468	46.369
30	24.00	30.00	18.387	33.018	51.405
31	24.00	31.00	19.921	39.444	59.366
32	24.00	32.00	21.503	49.083	70.586
33	24.00	33.00	23.131	950.286	973.417
34	24.00	34.00	44.930	724.224	769.155
35	24.00	35.00	66.353	455.180	521.533
36	24.00	36.00	87.410	346.899	434.309
37	24.00	37.00	108.111	286.084	394.195
38	24.00	38.00	128.928	279.776	408.703
39	24.00	39.00	149.599	272.962	422.561
40	24.00	40.00	170.133	266.074	436.207
41	24.00	41.00	190.536	259.301	449.837
42	24.00	42.00	210.813	252.726	463.539
43	24.00	43.00	230.969	246.381	477.350
44	24.00	44.00	251.007	240.275	491.283
45	24.00	45.00	270.932	234.405	505.337
46	24.00	46.00	290.746	228.759	519.505
47	24.00	47.00	310.452	223.327	533.779
48	24.00	48.00	330.054	218.094	548.148
49	24.00	49.00	349.552	213.049	562.601
50	24.00	50.00	368.950	208.178	577.127
51	24.00	51.00	388.249	203.469	591.718
52	24.00	52.00	407.452	198.912	606.364
53	24.00	53.00	426.561	194.496	621.056
54	24.00	54.00	445.576	190.211	635.788
55	24.00	55.00	464.501	186.050	650.551
56	24.00	56.00	483.336	182.004	665.339
57	24.00	57.00	502.082	178.066	680.148
58	24.00	58.00	520.742	174.228	694.971
59	24.00	59.00	539.317	170.486	709.803
60	24.00	60.00	557.808	166.832	724.640
61	24.00	61.00	576.217	163.262	739.479
62	24.00	62.00	594.544	159.771	754.315
63	24.00	63.00	612.791	156.354	769.145
64	24.00	64.00	630.959	153.007	783.966
65	24.00	65.00	649.049	149.726	798.775
66	24.00	66.00	667.062	146.507	813.569
67	24.00	67.00	684.999	143.348	828.347
68	24.00	68.00	702.862	140.243	843.105
69	24.00	69.00	720.651	137.192	857.842
70	24.00	70.00	738.367	134.190	872.556
71	24.00	71.00	756.011	131.235	887.246
72	24.00	72.00	773.584	128.324	901.908
73	24.00	73.00	791.087	125.456	916.543
74	24.00	74.00	808.521	122.627	931.148
75	24.00	75.00	825.887	119.835	945.722

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:24:43

General Information:
==========
  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-1 - Int. Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/24/2021
  Boring number: BR-1
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00
15	15.00	-15.00	0.00	24.00	24.00	0.00

16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000

11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	0.000	0.000
34	24.00	34.00	21.991	0.000	21.991
35	24.00	35.00	43.982	0.000	43.982
36	24.00	36.00	65.973	0.000	65.973
37	24.00	37.00	87.965	0.000	87.965
38	24.00	38.00	109.956	0.000	109.956
39	24.00	39.00	131.947	0.000	131.947
40	24.00	40.00	153.938	0.000	153.938
41	24.00	41.00	175.929	0.000	175.929
42	24.00	42.00	197.920	0.000	197.920
43	24.00	43.00	219.911	0.000	219.911
44	24.00	44.00	241.903	0.000	241.903
45	24.00	45.00	263.894	0.000	263.894
46	24.00	46.00	285.885	0.000	285.885
47	24.00	47.00	307.876	0.000	307.876
48	24.00	48.00	329.867	0.000	329.867
49	24.00	49.00	351.858	0.000	351.858
50	24.00	50.00	373.850	0.000	373.850
51	24.00	51.00	395.841	0.000	395.841
52	24.00	52.00	417.832	0.000	417.832
53	24.00	53.00	439.823	0.000	439.823
54	24.00	54.00	461.814	0.000	461.814
55	24.00	55.00	483.805	0.000	483.805
56	24.00	56.00	505.796	0.000	505.796
57	24.00	57.00	527.788	0.000	527.788
58	24.00	58.00	549.779	0.000	549.779
59	24.00	59.00	571.770	0.000	571.770
60	24.00	60.00	593.761	0.000	593.761
61	24.00	61.00	615.752	0.000	615.752
62	24.00	62.00	637.743	0.000	637.743
63	24.00	63.00	659.734	0.000	659.734
64	24.00	64.00	681.726	0.000	681.726
65	24.00	65.00	703.717	0.000	703.717
66	24.00	66.00	725.708	0.000	725.708
67	24.00	67.00	747.699	0.000	747.699
68	24.00	68.00	769.690	0.000	769.690
69	24.00	69.00	791.681	0.000	791.681
70	24.00	70.00	813.672	0.000	813.672
71	24.00	71.00	835.664	0.000	835.664
72	24.00	72.00	857.655	0.000	857.655
73	24.00	73.00	879.646	0.000	879.646
74	24.00	74.00	901.637	0.000	901.637
75	24.00	75.00	923.628	0.000	923.628

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000

3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	950.286	950.286
34	24.00	34.00	21.799	724.224	746.024
35	24.00	35.00	43.222	455.180	498.402
36	24.00	36.00	64.279	346.899	411.178
37	24.00	37.00	84.980	286.084	371.064
38	24.00	38.00	105.797	279.776	385.572
39	24.00	39.00	126.468	272.962	399.430
40	24.00	40.00	147.002	266.074	413.076
41	24.00	41.00	167.405	259.301	426.706
42	24.00	42.00	187.682	252.726	440.408
43	24.00	43.00	207.838	246.381	454.219
44	24.00	44.00	227.876	240.275	468.152
45	24.00	45.00	247.801	234.405	482.206
46	24.00	46.00	267.615	228.759	496.374
47	24.00	47.00	287.322	223.327	510.648
48	24.00	48.00	306.923	218.094	525.017
49	24.00	49.00	326.421	213.049	539.470
50	24.00	50.00	345.819	208.178	553.997
51	24.00	51.00	365.118	203.469	568.587
52	24.00	52.00	384.321	198.912	583.233
53	24.00	53.00	403.430	194.496	597.925
54	24.00	54.00	422.445	190.211	612.657
55	24.00	55.00	441.370	186.050	627.420
56	24.00	56.00	460.205	182.004	642.209
57	24.00	57.00	478.951	178.066	657.017
58	24.00	58.00	497.612	174.228	671.840
59	24.00	59.00	516.187	170.486	686.672
60	24.00	60.00	534.678	166.832	701.509
61	24.00	61.00	553.086	163.262	716.348
62	24.00	62.00	571.413	159.771	731.184
63	24.00	63.00	589.660	156.354	746.014
64	24.00	64.00	607.828	153.007	760.835
65	24.00	65.00	625.918	149.726	775.644
66	24.00	66.00	643.931	146.507	790.438
67	24.00	67.00	661.868	143.348	805.216
68	24.00	68.00	679.731	140.243	819.974
69	24.00	69.00	697.520	137.192	834.711
70	24.00	70.00	715.236	134.190	849.425
71	24.00	71.00	732.880	131.235	864.115
72	24.00	72.00	750.453	128.324	878.777
73	24.00	73.00	767.956	125.456	893.412
74	24.00	74.00	785.390	122.627	908.017
75	24.00	75.00	802.756	119.835	922.591

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 13:39:17

General Information:
==========
  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-2 - End Bents.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method
  Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	11.00	120.00	3- Clean sand
8	15.00	-15.00	13.00	120.00	3- Clean sand
9	18.00	-18.00	9.00	120.00	3- Clean sand
10	21.00	-21.00	10.00	120.00	3- Clean sand
11	24.00	-24.00	8.00	110.00	3- Clean sand
12	27.00	-27.00	9.00	110.00	3- Clean sand
13	30.00	-30.00	8.00	110.00	3- Clean sand
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A

12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00

15	15.00	-15.00	0.00	24.00	24.00	0.00
16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000

10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.084	0.000	0.084
14	24.00	14.00	0.333	0.000	0.333
15	24.00	15.00	0.743	0.000	0.743
16	24.00	16.00	1.357	0.000	1.357
17	24.00	17.00	2.133	0.000	2.133
18	24.00	18.00	3.068	0.000	3.068
19	24.00	19.00	3.873	0.000	3.873
20	24.00	20.00	4.786	0.000	4.786
21	24.00	21.00	5.806	0.000	5.806
22	24.00	22.00	7.048	0.000	7.048
23	24.00	23.00	8.399	0.000	8.399
24	24.00	24.00	9.857	0.000	9.857
25	24.00	25.00	11.092	0.000	11.092
26	24.00	26.00	12.389	0.000	12.389
27	24.00	27.00	13.746	0.000	13.746
28	24.00	28.00	15.334	0.000	15.334
29	24.00	29.00	16.984	0.000	16.984
30	24.00	30.00	18.694	0.000	18.694
31	24.00	31.00	20.262	0.000	20.262
32	24.00	32.00	21.879	0.000	21.879
33	24.00	33.00	23.544	0.000	23.544
34	24.00	34.00	45.535	0.000	45.535
35	24.00	35.00	67.526	0.000	67.526
36	24.00	36.00	89.517	0.000	89.517
37	24.00	37.00	111.508	0.000	111.508
38	24.00	38.00	133.499	0.000	133.499
39	24.00	39.00	155.490	0.000	155.490
40	24.00	40.00	177.482	0.000	177.482
41	24.00	41.00	199.473	0.000	199.473
42	24.00	42.00	221.464	0.000	221.464
43	24.00	43.00	243.455	0.000	243.455
44	24.00	44.00	265.446	0.000	265.446
45	24.00	45.00	287.437	0.000	287.437
46	24.00	46.00	309.429	0.000	309.429
47	24.00	47.00	331.420	0.000	331.420
48	24.00	48.00	353.411	0.000	353.411
49	24.00	49.00	375.402	0.000	375.402
50	24.00	50.00	397.393	0.000	397.393
51	24.00	51.00	419.384	0.000	419.384
52	24.00	52.00	441.375	0.000	441.375
53	24.00	53.00	463.367	0.000	463.367
54	24.00	54.00	485.358	0.000	485.358
55	24.00	55.00	507.349	0.000	507.349
56	24.00	56.00	529.340	0.000	529.340
57	24.00	57.00	551.331	0.000	551.331
58	24.00	58.00	573.322	0.000	573.322
59	24.00	59.00	595.313	0.000	595.313
60	24.00	60.00	617.305	0.000	617.305
61	24.00	61.00	639.296	0.000	639.296
62	24.00	62.00	661.287	0.000	661.287
63	24.00	63.00	683.278	0.000	683.278
64	24.00	64.00	705.269	0.000	705.269
65	24.00	65.00	727.260	0.000	727.260
66	24.00	66.00	749.252	0.000	749.252
67	24.00	67.00	771.243	0.000	771.243
68	24.00	68.00	793.234	0.000	793.234
69	24.00	69.00	815.225	0.000	815.225
70	24.00	70.00	837.216	0.000	837.216
71	24.00	71.00	859.207	0.000	859.207
72	24.00	72.00	881.198	0.000	881.198
73	24.00	73.00	903.190	0.000	903.190
74	24.00	74.00	925.181	0.000	925.181
75	24.00	75.00	947.172	0.000	947.172

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000

2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	14.016	14.016
13	24.00	13.00	0.082	13.919	14.002
14	24.00	14.00	0.326	13.243	13.569
15	24.00	15.00	0.727	26.147	26.874
16	24.00	16.00	1.327	25.712	27.039
17	24.00	17.00	2.086	24.987	27.074
18	24.00	18.00	3.001	23.827	26.828
19	24.00	19.00	3.788	22.555	26.343
20	24.00	20.00	4.682	21.636	26.318
21	24.00	21.00	5.679	21.217	26.896
22	24.00	22.00	6.894	21.072	27.966
23	24.00	23.00	8.216	20.831	29.046
24	24.00	24.00	9.641	20.396	30.037
25	24.00	25.00	10.850	19.912	30.762
26	24.00	26.00	12.118	19.623	31.741
27	24.00	27.00	13.445	20.779	34.224
28	24.00	28.00	14.999	24.410	39.409
29	24.00	29.00	16.612	30.289	46.902
30	24.00	30.00	18.285	33.598	51.883
31	24.00	31.00	19.819	39.702	59.521
32	24.00	32.00	21.400	49.148	70.548
33	24.00	33.00	23.028	950.286	973.314
34	24.00	34.00	44.828	724.224	769.052
35	24.00	35.00	66.251	455.180	521.431
36	24.00	36.00	87.307	346.899	434.206
37	24.00	37.00	108.008	286.084	394.092
38	24.00	38.00	128.825	279.776	408.601
39	24.00	39.00	149.497	272.962	422.458
40	24.00	40.00	170.030	266.074	436.104
41	24.00	41.00	190.433	259.301	449.734
42	24.00	42.00	210.710	252.726	463.436
43	24.00	43.00	230.866	246.381	477.247
44	24.00	44.00	250.905	240.275	491.180
45	24.00	45.00	270.829	234.405	505.234
46	24.00	46.00	290.644	228.759	519.403
47	24.00	47.00	310.350	223.327	533.676
48	24.00	48.00	329.951	218.094	548.045
49	24.00	49.00	349.449	213.049	562.498
50	24.00	50.00	368.847	208.178	577.025
51	24.00	51.00	388.147	203.469	591.616
52	24.00	52.00	407.350	198.912	606.261
53	24.00	53.00	426.458	194.496	620.954
54	24.00	54.00	445.474	190.211	635.685
55	24.00	55.00	464.398	186.050	650.448
56	24.00	56.00	483.233	182.004	665.237
57	24.00	57.00	501.980	178.066	680.045
58	24.00	58.00	520.640	174.228	694.868
59	24.00	59.00	539.215	170.486	709.700
60	24.00	60.00	557.706	166.832	724.538
61	24.00	61.00	576.114	163.262	739.376
62	24.00	62.00	594.441	159.771	754.212
63	24.00	63.00	612.688	156.354	769.042
64	24.00	64.00	630.856	153.007	783.863
65	24.00	65.00	648.946	149.726	798.672
66	24.00	66.00	666.959	146.507	813.467
67	24.00	67.00	684.896	143.348	828.244
68	24.00	68.00	702.759	140.243	843.002
69	24.00	69.00	720.548	137.192	857.740
70	24.00	70.00	738.264	134.190	872.454
71	24.00	71.00	755.908	131.235	887.143
72	24.00	72.00	773.481	128.324	901.806
73	24.00	73.00	790.984	125.456	916.440
74	24.00	74.00	808.418	122.627	931.045
75	24.00	75.00	825.784	119.835	945.619

Florida Bridge Software Institute Date: September 17, 2021
Shaft and Pile Analysis (FB-Deep v.3.0.0) Time: 11:25:12

General Information:
==========
  Input file: .....ost Drive PDE_GANNETT FLEMING\FB-Deep\ACIP\BR-2 - Int. Pier.in
  Project number: 221126
  Job name: SR 997 Bridge Over Black Creek Canal (Bridge No. 870633)
  Engineer: Adnan Ismail, P.E.
  Units: English

Analysis Information:
==========
Analysis Type: Drilled Shaft Analysis

Soil Information:
==========
  Boring date: 8/20/2021
  Boring number: BR-2
  Station number: Offset:

  Ground Elevation: 0.00(ft)
  Water table Elevation = -6.20(ft)

  Rock side-friction is calculated using: McVay's method

ID	Depth (ft)	Elevation (ft)	SPT Blows (Blows/ft)	Unit Weight (pcf)	Soil Type
1	0.00	0.00	N/A	0.00	5- Cavity layer
2	1.00	-1.00	N/A	0.00	5- Cavity layer
3	3.00	-3.00	N/A	0.00	5- Cavity layer
4	5.00	-5.00	N/A	0.00	5- Cavity layer
5	7.00	-7.00	N/A	105.00	5- Cavity layer
6	9.00	-9.00	N/A	105.00	5- Cavity layer
7	12.00	-12.00	N/A	120.00	5- Cavity layer
8	15.00	-15.00	N/A	120.00	5- Cavity layer
9	18.00	-18.00	N/A	120.00	5- Cavity layer
10	21.00	-21.00	N/A	120.00	5- Cavity layer
11	24.00	-24.00	N/A	110.00	5- Cavity layer
12	27.00	-27.00	N/A	110.00	5- Cavity layer
13	30.00	-30.00	N/A	110.00	5- Cavity layer
14	33.00	-33.00	N/A	120.00	4- Lime Stone/Very shelly sand
15	36.00	-36.00	N/A	120.00	4- Lime Stone/Very shelly sand
16	39.00	-39.00	N/A	120.00	4- Lime Stone/Very shelly sand
17	42.00	-42.00	N/A	120.00	4- Lime Stone/Very shelly sand
18	45.00	-45.00	N/A	120.00	4- Lime Stone/Very shelly sand
19	48.00	-48.00	N/A	120.00	4- Lime Stone/Very shelly sand
20	51.00	-51.00	N/A	120.00	4- Lime Stone/Very shelly sand
21	54.00	-54.00	N/A	120.00	4- Lime Stone/Very shelly sand
22	57.00	-57.00	N/A	120.00	4- Lime Stone/Very shelly sand
23	60.00	-60.00	N/A	120.00	4- Lime Stone/Very shelly sand
24	63.00	-63.00	N/A	120.00	4- Lime Stone/Very shelly sand
25	66.00	-66.00	N/A	120.00	4- Lime Stone/Very shelly sand
26	69.00	-69.00	N/A	120.00	4- Lime Stone/Very shelly sand
27	72.00	-72.00	N/A	120.00	4- Lime Stone/Very shelly sand
28	75.00	-75.00	N/A	120.00	4- Lime Stone/Very shelly sand
29	77.00	-77.00	N/A	120.00	4- Lime Stone/Very shelly sand
30	79.00	-79.00	N/A	120.00	4- Lime Stone/Very shelly sand

ID	Cu-DIR (tsf)	qu (tsf)	qt (tsf)	Em (ksi)	qb (tsf)
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A

13	N/A	N/A	N/A	N/A	N/A
14	N/A	49.00	1.00	78.26	24.50
15	N/A	49.00	1.00	78.26	24.50
16	N/A	49.00	1.00	78.26	24.50
17	N/A	49.00	1.00	78.26	24.50
18	N/A	49.00	1.00	78.26	24.50
19	N/A	49.00	1.00	78.26	24.50
20	N/A	49.00	1.00	78.26	24.50
21	N/A	49.00	1.00	78.26	24.50
22	N/A	49.00	1.00	78.26	24.50
23	N/A	49.00	1.00	78.26	24.50
24	N/A	49.00	1.00	78.26	24.50
25	N/A	49.00	1.00	78.26	24.50
26	N/A	49.00	1.00	78.26	24.50
27	N/A	49.00	1.00	78.26	24.50
28	N/A	49.00	1.00	78.26	24.50
29	N/A	49.00	1.00	78.26	24.50
30	N/A	49.00	1.00	78.26	24.50

ID	RQD	F.M.	S.R.I.	Rock Recovery
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A
14	1.00	ROUGH	1.000	
15	1.00	ROUGH	1.000	
16	1.00	ROUGH	1.000	
17	1.00	ROUGH	1.000	
18	1.00	ROUGH	1.000	
19	1.00	ROUGH	1.000	
20	1.00	ROUGH	1.000	
21	1.00	ROUGH	1.000	
22	1.00	ROUGH	1.000	
23	1.00	ROUGH	1.000	
24	1.00	ROUGH	1.000	
25	1.00	ROUGH	1.000	
26	1.00	ROUGH	1.000	
27	1.00	ROUGH	1.000	
28	1.00	ROUGH	1.000	
29	1.00	ROUGH	1.000	
30	1.00	ROUGH	1.000	

Drilled Shaft Data:
==========
Unit weight of concrete = 150.00(pcf), Concrete Slump = 9.00(in)
Modulus of Elasticity of concrete = 4030.00(ksi)

Shaft Geometry:

ID	Length (ft)	Tip Elev. (ft)	Case Len. (ft)	Diameter (in)	Base Diam. (in)	Bell Len. (ft)
1	1.00	-1.00	0.00	24.00	24.00	0.00
2	2.00	-2.00	0.00	24.00	24.00	0.00
3	3.00	-3.00	0.00	24.00	24.00	0.00
4	4.00	-4.00	0.00	24.00	24.00	0.00
5	5.00	-5.00	0.00	24.00	24.00	0.00
6	6.00	-6.00	0.00	24.00	24.00	0.00
7	7.00	-7.00	0.00	24.00	24.00	0.00
8	8.00	-8.00	0.00	24.00	24.00	0.00
9	9.00	-9.00	0.00	24.00	24.00	0.00
10	10.00	-10.00	0.00	24.00	24.00	0.00
11	11.00	-11.00	0.00	24.00	24.00	0.00
12	12.00	-12.00	0.00	24.00	24.00	0.00
13	13.00	-13.00	0.00	24.00	24.00	0.00
14	14.00	-14.00	0.00	24.00	24.00	0.00
15	15.00	-15.00	0.00	24.00	24.00	0.00

16	16.00	-16.00	0.00	24.00	24.00	0.00
17	17.00	-17.00	0.00	24.00	24.00	0.00
18	18.00	-18.00	0.00	24.00	24.00	0.00
19	19.00	-19.00	0.00	24.00	24.00	0.00
20	20.00	-20.00	0.00	24.00	24.00	0.00
21	21.00	-21.00	0.00	24.00	24.00	0.00
22	22.00	-22.00	0.00	24.00	24.00	0.00
23	23.00	-23.00	0.00	24.00	24.00	0.00
24	24.00	-24.00	0.00	24.00	24.00	0.00
25	25.00	-25.00	0.00	24.00	24.00	0.00
26	26.00	-26.00	0.00	24.00	24.00	0.00
27	27.00	-27.00	0.00	24.00	24.00	0.00
28	28.00	-28.00	0.00	24.00	24.00	0.00
29	29.00	-29.00	0.00	24.00	24.00	0.00
30	30.00	-30.00	0.00	24.00	24.00	0.00
31	31.00	-31.00	0.00	24.00	24.00	0.00
32	32.00	-32.00	0.00	24.00	24.00	0.00
33	33.00	-33.00	0.00	24.00	24.00	0.00
34	34.00	-34.00	0.00	24.00	24.00	0.00
35	35.00	-35.00	0.00	24.00	24.00	0.00
36	36.00	-36.00	0.00	24.00	24.00	0.00
37	37.00	-37.00	0.00	24.00	24.00	0.00
38	38.00	-38.00	0.00	24.00	24.00	0.00
39	39.00	-39.00	0.00	24.00	24.00	0.00
40	40.00	-40.00	0.00	24.00	24.00	0.00
41	41.00	-41.00	0.00	24.00	24.00	0.00
42	42.00	-42.00	0.00	24.00	24.00	0.00
43	43.00	-43.00	0.00	24.00	24.00	0.00
44	44.00	-44.00	0.00	24.00	24.00	0.00
45	45.00	-45.00	0.00	24.00	24.00	0.00
46	46.00	-46.00	0.00	24.00	24.00	0.00
47	47.00	-47.00	0.00	24.00	24.00	0.00
48	48.00	-48.00	0.00	24.00	24.00	0.00
49	49.00	-49.00	0.00	24.00	24.00	0.00
50	50.00	-50.00	0.00	24.00	24.00	0.00
51	51.00	-51.00	0.00	24.00	24.00	0.00
52	52.00	-52.00	0.00	24.00	24.00	0.00
53	53.00	-53.00	0.00	24.00	24.00	0.00
54	54.00	-54.00	0.00	24.00	24.00	0.00
55	55.00	-55.00	0.00	24.00	24.00	0.00
56	56.00	-56.00	0.00	24.00	24.00	0.00
57	57.00	-57.00	0.00	24.00	24.00	0.00
58	58.00	-58.00	0.00	24.00	24.00	0.00
59	59.00	-59.00	0.00	24.00	24.00	0.00
60	60.00	-60.00	0.00	24.00	24.00	0.00
61	61.00	-61.00	0.00	24.00	24.00	0.00
62	62.00	-62.00	0.00	24.00	24.00	0.00
63	63.00	-63.00	0.00	24.00	24.00	0.00
64	64.00	-64.00	0.00	24.00	24.00	0.00
65	65.00	-65.00	0.00	24.00	24.00	0.00
66	66.00	-66.00	0.00	24.00	24.00	0.00
67	67.00	-67.00	0.00	24.00	24.00	0.00
68	68.00	-68.00	0.00	24.00	24.00	0.00
69	69.00	-69.00	0.00	24.00	24.00	0.00
70	70.00	-70.00	0.00	24.00	24.00	0.00
71	71.00	-71.00	0.00	24.00	24.00	0.00
72	72.00	-72.00	0.00	24.00	24.00	0.00
73	73.00	-73.00	0.00	24.00	24.00	0.00
74	74.00	-74.00	0.00	24.00	24.00	0.00
75	75.00	-75.00	0.00	24.00	24.00	0.00

Drilled Shaft Capacity (sorted by shaft diameter):
==========
Strength reduction factors: Skin-friction = 1.00, End-bearing = 0.00

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000
3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000

11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	0.000	0.000
34	24.00	34.00	21.991	0.000	21.991
35	24.00	35.00	43.982	0.000	43.982
36	24.00	36.00	65.973	0.000	65.973
37	24.00	37.00	87.965	0.000	87.965
38	24.00	38.00	109.956	0.000	109.956
39	24.00	39.00	131.947	0.000	131.947
40	24.00	40.00	153.938	0.000	153.938
41	24.00	41.00	175.929	0.000	175.929
42	24.00	42.00	197.920	0.000	197.920
43	24.00	43.00	219.911	0.000	219.911
44	24.00	44.00	241.903	0.000	241.903
45	24.00	45.00	263.894	0.000	263.894
46	24.00	46.00	285.885	0.000	285.885
47	24.00	47.00	307.876	0.000	307.876
48	24.00	48.00	329.867	0.000	329.867
49	24.00	49.00	351.858	0.000	351.858
50	24.00	50.00	373.850	0.000	373.850
51	24.00	51.00	395.841	0.000	395.841
52	24.00	52.00	417.832	0.000	417.832
53	24.00	53.00	439.823	0.000	439.823
54	24.00	54.00	461.814	0.000	461.814
55	24.00	55.00	483.805	0.000	483.805
56	24.00	56.00	505.796	0.000	505.796
57	24.00	57.00	527.788	0.000	527.788
58	24.00	58.00	549.779	0.000	549.779
59	24.00	59.00	571.770	0.000	571.770
60	24.00	60.00	593.761	0.000	593.761
61	24.00	61.00	615.752	0.000	615.752
62	24.00	62.00	637.743	0.000	637.743
63	24.00	63.00	659.734	0.000	659.734
64	24.00	64.00	681.726	0.000	681.726
65	24.00	65.00	703.717	0.000	703.717
66	24.00	66.00	725.708	0.000	725.708
67	24.00	67.00	747.699	0.000	747.699
68	24.00	68.00	769.690	0.000	769.690
69	24.00	69.00	791.681	0.000	791.681
70	24.00	70.00	813.672	0.000	813.672
71	24.00	71.00	835.664	0.000	835.664
72	24.00	72.00	857.655	0.000	857.655
73	24.00	73.00	879.646	0.000	879.646
74	24.00	74.00	901.637	0.000	901.637
75	24.00	75.00	923.628	0.000	923.628

Drilled Shaft Capacity at User-Defined Settlement (sorted by shaft diameter):
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***** Capacity is NOT modified by the strength reduction factors *****

User-Defined Settlement = 5.00%

ID	Diameter (in)	Length (ft)	Skin Fric. (tons)	End Bearing (tons)	Capacity (tons)
1	24.00	1.00	0.000	0.000	0.000
2	24.00	2.00	0.000	0.000	0.000

3	24.00	3.00	0.000	0.000	0.000
4	24.00	4.00	0.000	0.000	0.000
5	24.00	5.00	0.000	0.000	0.000
6	24.00	6.00	0.000	0.000	0.000
7	24.00	7.00	0.000	0.000	0.000
8	24.00	8.00	0.000	0.000	0.000
9	24.00	9.00	0.000	0.000	0.000
10	24.00	10.00	0.000	0.000	0.000
11	24.00	11.00	0.000	0.000	0.000
12	24.00	12.00	0.000	0.000	0.000
13	24.00	13.00	0.000	0.000	0.000
14	24.00	14.00	0.000	0.000	0.000
15	24.00	15.00	0.000	0.000	0.000
16	24.00	16.00	0.000	0.000	0.000
17	24.00	17.00	0.000	0.000	0.000
18	24.00	18.00	0.000	0.000	0.000
19	24.00	19.00	0.000	0.000	0.000
20	24.00	20.00	0.000	0.000	0.000
21	24.00	21.00	0.000	0.000	0.000
22	24.00	22.00	0.000	0.000	0.000
23	24.00	23.00	0.000	0.000	0.000
24	24.00	24.00	0.000	0.000	0.000
25	24.00	25.00	0.000	0.000	0.000
26	24.00	26.00	0.000	0.000	0.000
27	24.00	27.00	0.000	0.000	0.000
28	24.00	28.00	0.000	0.000	0.000
29	24.00	29.00	0.000	0.000	0.000
30	24.00	30.00	0.000	0.000	0.000
31	24.00	31.00	0.000	0.000	0.000
32	24.00	32.00	0.000	0.000	0.000
33	24.00	33.00	0.000	950.286	950.286
34	24.00	34.00	21.799	724.224	746.024
35	24.00	35.00	43.222	455.180	498.402
36	24.00	36.00	64.279	346.899	411.178
37	24.00	37.00	84.980	286.084	371.064
38	24.00	38.00	105.797	279.776	385.572
39	24.00	39.00	126.468	272.962	399.430
40	24.00	40.00	147.002	266.074	413.076
41	24.00	41.00	167.405	259.301	426.706
42	24.00	42.00	187.682	252.726	440.408
43	24.00	43.00	207.838	246.381	454.219
44	24.00	44.00	227.876	240.275	468.152
45	24.00	45.00	247.801	234.405	482.206
46	24.00	46.00	267.615	228.759	496.374
47	24.00	47.00	287.322	223.327	510.648
48	24.00	48.00	306.923	218.094	525.017
49	24.00	49.00	326.421	213.049	539.470
50	24.00	50.00	345.819	208.178	553.997
51	24.00	51.00	365.118	203.469	568.587
52	24.00	52.00	384.321	198.912	583.233
53	24.00	53.00	403.430	194.496	597.925
54	24.00	54.00	422.445	190.211	612.657
55	24.00	55.00	441.370	186.050	627.420
56	24.00	56.00	460.205	182.004	642.209
57	24.00	57.00	478.951	178.066	657.017
58	24.00	58.00	497.612	174.228	671.840
59	24.00	59.00	516.187	170.486	686.672
60	24.00	60.00	534.678	166.832	701.509
61	24.00	61.00	553.086	163.262	716.348
62	24.00	62.00	571.413	159.771	731.184
63	24.00	63.00	589.660	156.354	746.014
64	24.00	64.00	607.828	153.007	760.835
65	24.00	65.00	625.918	149.726	775.644
66	24.00	66.00	643.931	146.507	790.438
67	24.00	67.00	661.868	143.348	805.216
68	24.00	68.00	679.731	140.243	819.974
69	24.00	69.00	697.520	137.192	834.711
70	24.00	70.00	715.236	134.190	849.425
71	24.00	71.00	732.880	131.235	864.115
72	24.00	72.00	750.453	128.324	878.777
73	24.00	73.00	767.956	125.456	893.412
74	24.00	74.00	785.390	122.627	908.017
75	24.00	75.00	802.756	119.835	922.591

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to
East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATA	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 28+N/4	N VALUE SAFETY (BPF)	PHI (DEGREES) PHI = 28+N/4
BR-1	Granular Fill	19	24	34		
BR-2	Granular Fill	21	26	35	24	34
	Granular Fill	17	21	33		
MINIMUM		17.0	21	33	MINIMUM	24	34
MAXIMUM		21.0	26	35	MAXIMUM	24	34
AVERAGE		19.0	24	34	AVERAGE	24	34
STA. DEV.		1.6	2	1	STA. DEV.	0	0
AVE-STA. DEV.		17.4	22	33	AVE-STA. DEV.	24	34
AVE+STA. DEV.		20.6	26	34	AVE+STA. DEV.	24	34

FOR PRELIMINARY DESIGN USE PHI = 34 DEGREES FOR GRANULAR FILL.

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to
East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 20+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 20+N/4
BR-1	Sandy Silt	9	11	23		
	Sandy Silt	7	9	22		
	Sandy Silt	8	10	23	10	23
BR-2	Sandy Silt	8	10	23	10	23
	Sandy Silt	7	9	22		
	Sandy Silt	9	11	23		

MINIMUM	7.0	9	22	MINIMUM	10	23
MAXIMUM	9.0	11	23	MAXIMUM	10	23
AVERAGE	8.0	10	23	AVERAGE	10	23
STA. DEV.	0.8	1	0	STA. DEV.	0	0
AVE-STA. DEV.	7.2	9	22	AVE-STA. DEV.	10	23
AVE+STA. DEV.	8.8	11	23	AVE+STA. DEV.	10	23

FOR PRELIMINARY DESIGN LIMIT AND USE PHI = 23 DEGREES FOR SANDY SILT

SR 994/SW 200th Street/Quail Roost Drive
From West of SW 137th Avenue to
East of SW 127th Avenue
Miami-Dade County, Florida
GEOSOL Project No. 221126

SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4
BR-1	Granular Sand	8	10	31	10	31
	Granular Sand	9	11	31	10	31
	Granular Sand	8	10	31	10	31
	Granular Sand	8	10	31	10	31
BR-2	Granular Sand	8	10	31	10	31
	Granular Sand	9	11	31	11	31
	Granular Sand	8	10	31	11	31

MINIMUM	8.0	10	31	MINIMUM	10	31
MAXIMUM	9.0	11	31	MAXIMUM	11	31
AVERAGE	8.3	10	31	AVERAGE	10	31
STA. DEV.	0.5	0	0	STA. DEV.	0	0
AVE-STA. DEV.	7.8	10	30	AVE-STA. DEV.	10	30
AVE+STA. DEV.	8.7	11	31	AVE+STA. DEV.	11	31

FOR PRELIMINARY DESIGN USE PHI = 31 DEGREES FOR NATURAL SAND.

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GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 33+N/4	N VALUE SAFETY (BPF)	PHI(DEGREES) PHI = 28+N/4
BR-1	Upper Limestone	12	15	37		
	Upper Limestone	14	17	37	11	36
	Upper Limestone	8	10	36	12	36
	Upper Limestone	11	14	37	14	37
BR-2	Upper Limestone	11	14	37	14	37
	Upper Limestone	13	16	37	15	37
	Upper Limestone	9	11	36	16	37
	Upper Limestone	10	12	36		

MINIMUM	8.0	10	36	MINIMUM	11	36
MAXIMUM	14.0	17	37	MAXIMUM	16	37
AVERAGE	11.0	14	36	AVERAGE	14	36
STA. DEV.	1.9	2	1	STA. DEV.	2	0
AVE-STA. DEV.	9.1	11	36	AVE-STA. DEV.	12	36
AVE+STA. DEV.	12.9	16	37	AVE+STA. DEV.	15	37

FOR PRELIMINARY DESIGN USE PHI = 35 DEGREES FOR UPPER LIMESTONE.

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SUMMARY OF N-VALUES AND REDUCTION OF SHEAR STRENGTH VALUES

GRANULAR FILL
SANDY SILT
NATURAL SAND
UPPER LIMESTONE
LOWER LIMESTONE

STATISTICAL ANALYSES OF DATA

1. FOR SPT "N" VALUE DATA, CALCULATE MEAN AND STANDARD DEVIATION.

2. NORMALIZE DATA BY EXCLUDING ALL TEST RESULTS WHICH ARE LESS THAN (MEAN - STANDARD DEVIATION) AND WHICH ARE GREATER THAN (MEAN + STANDARD DEVIATION).

3. RECALCULATE THE MEAN OF THE DATA WHICH REMAINS.

STATISTICS OF VALUES

BORING No.	STRATUM	N VALUE AUTO. (BPF)	N VALUE SAFETY (BPF)	Fsu (TSF) = 0.1N	N VALUE SAFETY (BPF)	Fsu (TSF) = 0.1N
BR-1	Lower Limestone	55	68	6.8		
	Lower Limestone	50	62	6.2		
	Lower Limestone	47	58	5.8		
	Lower Limestone	40	50	5.0		
	Lower Limestone	50	62	6.2	31	3.1
	Lower Limestone	37	46	4.6	31	3.1
	Lower Limestone	50	62	6.2	32	3.2
	Lower Limestone	35	43	4.3	32	3.2
	Lower Limestone	27	33	3.3	32	3.2
	Lower Limestone	29	36	3.6	33	3.3
	Lower Limestone	24	30	3.0	33	3.3
	Lower Limestone	28	35	3.5	35	3.5
	Lower Limestone	66	82	8.2	35	3.5
	Lower Limestone	29	36	3.6	36	3.6
	Lower Limestone	26	32	3.2	36	3.6
	Lower Limestone	24	30	3.0	37	3.7
	Lower Limestone	27	33	3.3	37	3.7
BR-2	Lower Limestone	55	68	6.8	38	3.8
	Lower Limestone	50	62	6.2	38	3.8
	Lower Limestone	50	62	6.2	43	4.3
	Lower Limestone	37	46	4.6	46	4.6
	Lower Limestone	50	62	6.2	46	4.6
	Lower Limestone	31	38	3.8	50	5.0
	Lower Limestone	30	37	3.7	58	5.8
	Lower Limestone	50	62	6.2		
	Lower Limestone	25	31	3.1		
	Lower Limestone	24	30	3.0		
	Lower Limestone	30	37	3.7		
	Lower Limestone	25	31	3.1		
	Lower Limestone	26	32	3.2		
	Lower Limestone	23	29	2.9		
	Lower Limestone	26	32	3.2		
	Lower Limestone	28	35	3.5		
	Lower Limestone	31	38	3.8		

MINIMUM	23.0	29	3	MINIMUM	31	3
MAXIMUM	66.0	82	8	MAXIMUM	58	6
AVERAGE	36.3	45	5	AVERAGE	38	3.8
STA. DEV.	11.9	15	1	STA. DEV.	7	1
AVE-STA. DEV.	24.5	30	3	AVE-STA. DEV.	31	3
AVE+STA. DEV.	48.2	60	6	AVE+STA. DEV.	45	4

FOR PRELIMINARY DEEP FOUNDATION DESIGN LIMIT AND USE UNIT SKIN FRICTION (fsu) VALUE OF = 3.5 TSF, AND A COHESION VALUE OF 5.0 KSF.

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
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PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Drilled Shafts
Size (inch)	42, 48, 54, 60, 72

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Elevation (ft)	2.00	11.00	23.00	33.00	-63.90
	Average SPT N60-Value (Blows/ft)	24	10	14	10	38
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	34	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	120	110	120
	Subgrade Modulus (pci), k	62	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
AXIAL	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Total Unit Weight (pcf), γ_t	105	90	120	110	120
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Ultimate Unit Skin Friction (psf)	58	207	924	1047	7600
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	34	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Torsional Shear Stress (psf)	58	207	924	1047	7600
TIP	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	-	-	-	-	-
	Uncorrected SPT-N Value (blows/ft)	24	10	14	10	38
	Undrained Shear Strength (psf), C_u	-	-	-	-	5000
	Ultimate Unit End Bearing (ksi)	-	-	-	-	-
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - End Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	18.00
Base Area (ft^2)	2.25

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	80.00
	Average SPT N60-Value (Blows/ft)	8	10	14	10	27
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	30	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Subgrade Modulus (pci), k	14	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
AXIAL	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Ultimate Unit Skin Friction (psf)	304	380	532	380	540
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	30	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Torsional Shear Stress (psf)	304	380	532	380	540
TIP	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	115	144	202	144	437
	Uncorrected SPT-N Value (blows/ft)	8	10	14	10	27
	Undrained Shear Strength (psf), C_u	-	-	-	-	1800
	Ultimate Unit End Bearing (ksi)	0.4	0.4	0.6	0.4	1.4
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

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PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - End Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	24.00
Base Area (ft^2)	4

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	80.00
	Average SPT N60-Value (Blows/ft)	8	10	14	10	27
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	30	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Subgrade Modulus (pci), k	14	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
AXIAL	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Ultimate Unit Skin Friction (psf)	304	380	532	380	540
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	3600
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	30	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	1800
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Torsional Shear Stress (psf)	304	380	532	380	540
TIP	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	13.5
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	205	256	358	256	778
	Uncorrected SPT-N Value (blows/ft)	8	10	14	10	27
	Undrained Shear Strength (psf), C_u	-	-	-	-	1800
	Ultimate Unit End Bearing (ksi)	0.4	0.4	0.6	0.4	1.4
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

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Miami-Dade County, Florida
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PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - End Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	30.00
Base Area (ft^2)	6.25

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	80.00
	Average SPT N60-Value (Blows/ft)	8	10	14	10	38
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	30	23	35	31	-
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Subgrade Modulus (pci), k	14	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	105	90	115	110	120
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	19.0
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	2533
	Ultimate Unit Skin Friction (psf)	304	380	532	380	760
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	5067
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	105	120	120	120	120
	Internal Friction Angle, f	30	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	2533
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	19.0
	Torsional Shear Stress (psf)	304	380	532	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile	Driven Pile	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.0	1.2	1.5	1.2	19.0
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	320	400	560	400	1710
	Uncorrected SPT-N Value (blows/ft)	8	10	14	10	38
	Undrained Shear Strength (psf), C_u	-	-	-	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	0.4	0.6	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

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PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - Interior Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	18.00
Base Area (ft^2)	2.25

	Layer No.	1	2
	Soil Description	Sand	Limestone
	Soil Type	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	23.00	33.00
	Bottom Boundary Depth (ft)	33.00	80.00
	Average SPT N60-Value (Blows/ft)	10	38

LATERAL	**Soil Model**	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	31	-
	Total Unit Weight (pcf), γ_t	110	120
	Subgrade Modulus (pci), k	20	-
	Undrained Shear Strength (psf), Cu	-	-
	Major Principal Strain @ ε_{50}	-	-
	Major Principal Strain @ ε_{100}	-	-
	Average Undrained Shear Strength (psf)	-	-
	Unconfined Compressive Strength (psf)	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	110	120
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, ν	0.3	4
	Vertical Failure Shear Stress (psf)	-	-
	Undrained Shear Strength (psf), Cu	-	2533
	Ultimate Unit Skin Friction (psf)	380	760
	Mass Modulus (ksi)	-	-
	Modulus Ratio	-	-
	Surface (Rough/Smooth)		
	Unconfined Compressive Strength (psf)	-	5067
	Split Tensile Strength (psf)	-	-
	Concrete Unit Weight (pcf)	150	150
	Slump (in)	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	110	120
	Internal Friction Angle, f	31	-
	Undrained Shear Strength (psf), Cu	-	2533
	Shear Modulus (ksi), G	1.2	19.0
	Torsional Shear Stress (psf)	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, n	0.3	4.0
	Axial Bearing Failure, kips	144	616
	Uncorrected SPT-N Value (blows/ft)	10	38
	Undrained Shear Strength (psf), C_u	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - Interior Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	24.00
Base Area (ft^2)	4

	Layer No.	1	2
	Soil Description	Sand	Limestone
	Soil Type	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	23.00	33.00
	Bottom Boundary Depth (ft)	33.00	80.00
	Average SPT N60-Value (Blows/ft)	10	38

LATERAL	**Soil Model**	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	31	-
	Total Unit Weight (pcf), γ_t	110	120
	Subgrade Modulus (pci), k	20	-
	Undrained Shear Strength (psf), Cu	-	-
	Major Principal Strain @ ε_{50}	-	-
	Major Principal Strain @ ε_{100}	-	-
	Average Undrained Shear Strength (psf)	-	-
	Unconfined Compressive Strength (psf)	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	110	120
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, ν	0.3	4
	Vertical Failure Shear Stress (psf)	-	-
	Undrained Shear Strength (psf), Cu	-	2533
	Ultimate Unit Skin Friction (psf)	380	760
	Mass Modulus (ksi)	-	-
	Modulus Ratio	-	-
	Surface (Rough/Smooth)		
	Unconfined Compressive Strength (psf)	-	5067
	Split Tensile Strength (psf)	-	-
	Concrete Unit Weight (pcf)	150	150
	Slump (in)	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	110	120
	Internal Friction Angle, f	31	-
	Undrained Shear Strength (psf), Cu	-	2533
	Shear Modulus (ksi), G	1.2	19.0
	Torsional Shear Stress (psf)	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, n	0.3	4.0
	Axial Bearing Failure, kips	256	1094
	Uncorrected SPT-N Value (blows/ft)	10	38
	Undrained Shear Strength (psf), C_u	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge - Interior Bent
Ground Surface Elevation (ft)	N/A
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	Driven Pile
Size (inch)	30.00
Base Area (ft^2)	6.25

	Layer No.	1	2
	Soil Description	Sand	Limestone
	Soil Type	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	23.00	33.00
	Bottom Boundary Depth (ft)	33.00	80.00
	Average SPT N60-Value (Blows/ft)	10	38

LATERAL	**Soil Model**	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	31	-
	Total Unit Weight (pcf), γ_t	110	120
	Subgrade Modulus (pci), k	20	-
	Undrained Shear Strength (psf), Cu	-	-
	Major Principal Strain @ ε_{50}	-	-
	Major Principal Strain @ ε_{100}	-	-
	Average Undrained Shear Strength (psf)	-	-
	Unconfined Compressive Strength (psf)	-	5067
AXIAL	**Soil Model**	Driven Pile	Driven Pile
	Total Unit Weight (pcf), γ_t	110	120
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, ν	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-
	Undrained Shear Strength (psf), Cu	-	2533
	Ultimate Unit Skin Friction (psf)	380	760
	Mass Modulus (ksi)	-	-
	Modulus Ratio	-	-
	Surface (Rough/Smooth)		
	Unconfined Compressive Strength (psf)	-	5067
	Split Tensile Strength (psf)	-	-
	Concrete Unit Weight (pcf)	150	150
	Slump (in)	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	110	120
	Internal Friction Angle, f	31	-
	Undrained Shear Strength (psf), Cu	-	2533
	Shear Modulus (ksi), G	1.2	19.0
	Torsional Shear Stress (psf)	380	760
TIP	**Soil Model**	Driven Pile	Driven Pile
	Shear Modulus (ksi), G	1.2	19.0
	Poisson's ratio, n	0.3	0.2
	Axial Bearing Failure, kips	400	1710
	Uncorrected SPT-N Value (blows/ft)	10	38
	Undrained Shear Strength (psf), C_u	-	2533
	Ultimate Unit End Bearing (ksi)	0.4	1.9
	IGM Mass Modulus (ksi), E_m	-	-

SR 994/Quail Roost Drive From West of SW 137th Avenue to East of SW 127th Avenue
445804-1-22-01
Miami-Dade County, Florida
GEOSOL Project No. 221126

PRELIMINARY SOIL/ROCK PARAMETERS FOR FB-MULTIPIER INPUT

Reference Boring	BR-1 and BR-2
Foundation Location	SR 997 Bridge
Ground Water Depth(ft)	6.2 to 6.9

Foundation Type	ACIP
Size (inch)	24.00

	Layer No.	1	2	3	4	5
	Soil Description	Sand	Sand	Sand	Sand	Limestone
	Soil Type	COHESIONLESS	COHESIONLESS	COHESIONLESS	COHESIONLESS	ROCK
	Top Boundary Depth (ft)	0.00	2.00	11.00	23.00	33.00
	Bottom Boundary Depth (ft)	2.00	11.00	23.00	33.00	-63.90
	Average SPT N60-Value (Blows/ft)	24	10	14	10	38
LATERAL	**Soil Model**	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Sand (O'Neill)	Limestone (McVay)
	Internal Friction Angle, ϕ	34	23	35	31	-
	Total Unit Weight (pcf), γ_t	115	90	120	110	120
	Subgrade Modulus (pci), k	62	5	32	20	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	-
	Major Principal Strain @ ε_{50}	-	-	-	-	-
	Major Principal Strain @ ε_{100}	-	-	-	-	-
	Average Undrained Shear Strength (psf)	-	-	-	-	-
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
AXIAL	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Total Unit Weight (pcf), γ_t	115	90	120	110	120
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, ν	0.3	0.3	0.3	0.3	0.23
	Vertical Failure Shear Stress (psf)	-	-	-	-	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Ultimate Unit Skin Friction (psf)	72	207	924	1047	7600
	Mass Modulus (ksi)	-	-	-	-	-
	Modulus Ratio	-	-	-	-	-
	Surface (Rough/Smooth)					
	Unconfined Compressive Strength (psf)	-	-	-	-	10000
	Split Tensile Strength (psf)	-	-	-	-	-
	Concrete Unit Weight (pcf)	150	150	150	150	150
	Slump (in)	-	-	-	-	-
TORSIONAL	**Soil Model**	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic	Hyperbolic
	Total Unit Weight (pcf), gt	115	120	120	120	120
	Internal Friction Angle, f	34	23	35	31	-
	Undrained Shear Strength (psf), Cu	-	-	-	-	5000
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Torsional Shear Stress (psf)	72	207	924	1047	7600
TIP	**Soil Model**	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft	Drilled Shaft
	Shear Modulus (ksi), G	2.1	1.2	1.5	1.2	19.0
	Poisson's ratio, n	0.3	0.3	0.3	0.3	0.2
	Axial Bearing Failure, kips	-	-	-	-	-
	Uncorrected SPT-N Value (blows/ft)	24	10	14	10	38
	Undrained Shear Strength (psf), C_u	-	-	-	-	5000
	Ultimate Unit End Bearing (ksi)	-	-	-	-	-
	IGM Mass Modulus (ksi), E_m	-	-	-	-	-

APPENDIX "D"

FHWA Geotechnical Report Checklist

GEOSOL, Inc.

GEOTECHNICAL REPORT REVIEW CHECKLISTS

The following checklists cover the major information and recommendations which should be addressed in project geotechnical reports.

Section A covers site investigation information which will be common to all geotechnical reports for any type of geotechnical feature.

Sections B through I cover the basic information and recommendations which should be presented in geotechnical reports for specific geotechnical features: centerline cuts and embankments, embankments over soft ground, landslides, retaining walls, structure foundations and material sites.

Subject	Page
SECTION A, Site Investigation Information	2
SECTION B, Centerline Cuts and Embankments	4
SECTION C, Embankments Over Soft Ground	6
SECTION D, Landslide Corrections	8
SECTION E, Retaining Walls	10
SECTION F, Structure Foundations - Spread Footings	11
SECTION G, Structure Foundations - Piles	12
SECTION H, Structure Foundations - Drilled Shafts	15
SECTION I, Materials Sites	16

In most sections and subsections, the user has been provided supplemental page references to the Soils and Foundations Workshop Manual. These page numbers appear in parentheses ( ) immediately adjacent to the section or subsection topic. Generalist engineers are particularly encouraged to read these references. Additional reference information on these topics is available in the Geotechnical Notebook, a copy of which is kept in all Division Offices by either the Bridge Engineer or the engineer with the soils responsibility.

Certain checklist items are of vital importance to have been included in the geotechnical report. These checklist items have been marked with an asterisk (*). A negative response to any of these asterisked items is cause to contact the geotechnical engineer for clarification of this omission.

"GTR REVIEW CHECKLIST" (SITE INVESTIGATION)

A. Site Investigation Information

Since the most important step in the geotechnical design process is the conduct of an adequate site investigation, presentation of the subsurface information in the geotechnical report and on the plans deserves careful attention.

Geotechnical Report Text (Introduction) (Pages 322-325)	Yes	No	Unknown or N/A
1. Is the general location of the investigation described and/or vicinity map included?	X		
2. Is scope and purpose of the investigation summarized?	X		
3. Is concise description given of geologic setting and topography of area?	X		
4. Are the field explorations and laboratory tests on which the report is based listed?	X		
5. Is general description of subsurface soil, rock, and groundwater conditions given?	X		
*6. Is the following information included with the geotechnical report (typically included in report appendices):			
a. Test hole logs? (Pages 25-33)	X		
b. Field test data?	X		
c. Laboratory test data? (Pages 74-75)	X		
d. Photographs (if pertinent)?	X		
Plan and Subsurface Profile (Pages 24, 47-49, 335)			
*7. Is a plan and subsurface profile of the investigation site provided?	X		

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

A. Site Investigation Information (Cont.)	Yes	No	Unknown or N/A
8. Are the field explorations located on the plan view?	X		
*9. Does the conducted site investigation meet minimum criteria outlined in Table 2?	X		
10. Are the explorations plotted and correctly numbered on the profile at their true elevation and location?	X		
11. Does the subsurface profile contain a word description and/or graphic depiction of soil and rock types?	X		
12. Are groundwater levels and data measured shown on the subsurface profile?	X		
Subsurface Profile or Field Boring Log (Pages 16-17, 25-29)			
13. Are sample types and depths noted?	X		
*14. Are SPT blow counts, percent core recovery, and RQD values shown?	X		
15. If cone penetration tests were made, are plots of cone resistance and friction ratio shown with depth?			X
Laboratory Test Data (Pages 60, 74-75)			
*16. Were lab soil classification tests such as natural moisture content, gradation, Atterberg limits, performed on selected representative samples to verify field visual soil identifications?	X		
17. Are laboratory test results such as shear strength (Page 62), consolidation (Page 68), etc., included and/or summarized?			X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

"GTR REVIEW CHECKLIST" (CENTERLINE CUTS AND EMBANKMENTS)

B. Centerline Cuts and Embankments (Pages 6-9)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

Are station to station descriptions included for:	Yes	No	Unknown or N/A
1. Existing surface and subsurface drainage?	___	___	X
2. Evidence of springs and excessively wet areas?	___	___	X
3. Slides, slumps, and faults noted along the alignment?	___	___	X
Are station to station recommendations included for the following:			
General Soil Cut or Fill			
4. Specific surface/subsurface drainage recommendations.	___	___	X
5. Excavation limits of unsuitable materials?	___	___	X
*6. Erosion protection measures for backslopes, side slopes, and ditches, including riprap recommendations or special slope treatments?	___	___	X
Soil Cuts (Pages 101-102)			
*7. Recommended cut slope design?	___	___	X
8. Are clay cut slopes designed for minimum F.S. = 1.50?	___	___	X
9. Special usage of excavated soils?	___	___	X
10. Estimated shrink-swell factors for excavated materials?	___	___	X
11. If answer to 3 is yes, are recommendations	___	___	X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

B. Centerline Cuts and Embankments (Cont.)	Yes	No	Unknown or N/A
Fills (Pages 77-79)			
11. Recommended fill slope design?	___	___	X
12. Will fill slope design provide minimum F.S. = 1.25?	___	___	X
Rock Slopes			
*13. Are recommended slope designs and blasting specifications provided?	___	___	X
*14. Is the need for special rock slope stabilization measures, e.g., rockfall catch ditch, wire mesh slope protection, shotcrete, rock bolts, addressed?	___	___	X
15. Has the use of "template" designs been avoided (such as designing all rock slopes on 1/4 to 1 rather than designing based on orientation of major rock jointing)?	___	___	X
*16. Have effects of blast induced vibrations on adjacent structures been evaluated?	___	___	X

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (EMBANKMENTS OVER SOFT GROUND)

C. Embankments over Soft Ground

Where embankments must be built over soft ground (such as soft clays, organic silts, or peat), stability and settlement of the fill should be carefully evaluated. In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

Embankment Stability (Pages 77-79, 95-97)	Yes	No	Unknown or N/A
*1. Has the stability of the embankment been evaluated for minimum safety factors of 1.25 for side slope stability and 1.30 for end slope stability of bridge approach embankments?			
*2. Has the shear strength of the foundation soil been determined from lab testing and/or field vane shear or static cone penetrometer tests?			
*3. If the proposed embankment does not provide minimum factors of safety given above, are recommendations given for feasible treatment alternates which will increase factor of safety to minimum acceptable (such as change alignment, lower grade, use stabilizing counterberms, excavate and replace weak subsoil, fill stage construction, lightweight fill, geotextile fabric reinforcement, etc.)?			
*4. Are cost comparisons of treatment alternates given and a specific alternate recommended?			
Settlement of Subsoil (Pages 146-160)			
5. Have consolidation properties of fine grained soils been determined from laboratory consolidation tests?			
*6. Have settlement amount and settlement time been estimated?			
7. For bridge approach embankments, are recommendations made to get the settlement out before the bridge abutment is constructed (waiting period, surcharge, or wick drains)?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

C. Embankments Over Soft Ground (Cont.)	Yes	No	Unknown or N/A
8. If geotechnical instrumentation is proposed to monitor fill stability and settlement, are detailed recommendations provided on the number, type, and specific locations of the proposed instruments?			
9. Construction Considerations (Pages 183, 331-334)			
a. If excavation and replacement of unsuitable shallow surface deposits (peat, muck, topsoil) is recommended. Are vertical and lateral limits of recommended excavation provided?			
b. Where a surcharge treatment is recommended, are plan and cross-section of surcharge treatment provided in geotechnical report for benefit of the roadway designer?			
c. Are instructions or specifications providing concerning instrumentation, fill placement rates and estimated delay times for the contractor?			
d. Are recommendations provided for disposal of surcharge material after the settlement period is complete?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

GTR REVIEW CHECKLIST" (LANDSLIDE CORRECTIONS)

D. Landslide Corrections (Pages 77-80, 103-105)

In addition to the basic information listed in Section A, is the following information provided in the landslide study geotechnical report? (Refer to Table 4 for guidance on the necessary technical support data for correction of slope instabilities)

	Yes	No	Unknown or N/A
*1. Is a site plan and scaled cross-section provided showing ground surface conditions both before and after failure?			
*2. Is the past history of the slide area summarized - including movement history, summary of maintenance work and costs, and previous corrective measures taken (if any)?			
*3. Is a summary given of results of site investigation, field and lab testing, and stability analysis, including cause(s) of the slide?			
Plan			
4. Are detailed slide features - including locations of ground surface cracks, head scarp, and toe bulge - shown on the site plan?			
Cross Section			
*5. Are the cross sections used for stability analysis included with the soil profile, water table, soil unit weights, soil shear strengths, and failure plane shown as it exists?			
6. Is slide failure plane location determined from slope indicators?			
*7. For an active slide, was soil strength along the slide failure plane backfigured using a safety factor equal to 1.0 at the time of failure?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

D. Landslide Corrections (Cont.)	Yes	No	Unknown or N/A
Text			
*8. Is the following information presented for each proposed correction alternate: (typical correction methods include buttress, shear key, rebuild slope, surface drainage, subsurface drainage-interceptor, drain trenches or horizontal drains and retaining structures)?			
a. Cross-section of proposed alternate?			
b. Estimated safety factor?			
c. Estimated cost?			
d. Advantages and disadvantages?			
9. Is a recommended correction alternate(s) given which provide a minimum F.S. = 1.25?			
10. If horizontal drains are proposed as part of slide correction, has subsurface investigation located definite water bearing strata that can be tapped with horizontal drains?			
11. If a toe counterberm is proposed to stabilize an active slide, has field investigation confirmed that the toe of the existing slide does not extend beyond the toe of the proposed counterberm?			
12. Construction Considerations			
a. Where proposed correction will require excavation into the toe of an active slide (such as for buttress or shear key), has the "during construction backslope F.S." with open excavation been determined?			
b. If open excavation F.S. is near 1.0, has excavation stage construction been proposed?			
c. Has seasonal fluctuation of groundwater table been considered?			
d. Are special construction features, techniques and materials described and specified?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (RETAINING WALLS)

E. Retaining Walls (See Section 5 of "Geotechnical Engineering Notebook")

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

	Yes	No	Unknown or N/A
*1. Does the geotechnical report include recommended soil strength parameters and groundwater elevation for use in computing wall design lateral earth pressures and factor of safety for overturning, sliding, and external slope stability?			
2. Is it proposed to bid alternate wall designs?			
*3. Are acceptable reasons given for the choice and/or exclusion of certain wall types (gravity, reinforced soil, tieback, cantilever, etc.)?			
*4. Is an analysis of the wall stability included with minimum acceptable factors of safety against overturning (F.S. = 2.0), sliding (F.S. = 1.5), and external slope stability (F.S. = 1.5)?			
5. If wall will be placed on compressible foundation soils, is estimated total settlement, differential settlement, and time rate of settlement given?			
6. Will wall types selected for compressible foundation soils allow differential movement without distress?			
7. Are wall drainage details including materials and compaction provided?			
8. Construction Considerations:			
a. Are excavation requirements covered - safe slopes for open excavations, need for sheeting or shoring?			
b. Fluctuation of groundwater table?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (SPREAD FOOTINGS)

F. Structure Foundations - Spread Footings (Pages 191-205)

In addition to the basic information listed in Section A, is the following information provided in the project foundation report?

	Yes	No	Unknown or N/A
*1. Are spread footings recommended for foundation support? If not, are reasons for not using them discussed.			
*2. Is recommended bottom of footing elevation and reason for recommendation (e.g., based on frost depth, estimated scour depth, or depth to competent bearing material) given?			
*3. Is recommended allowable soil or rock bearing pressure given?			
*4. Is estimated footing settlement and time given?			
*5. Where spread footings are recommended to support abutments placed in the bridge end fills, are special gradation and compaction requirements provided for select end fill and backwall drainage material? (Pages 137-141)			
6. Construction Considerations:			
a. Have the materials been adequately described on which the footing is to be placed so the project inspector can verify that material is as expected?			
b. Have excavation requirements been included for safe slopes in open excavations, need for sheeting or shoring, etc.?			
c. Has fluctuations of the groundwater table been addressed?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT
"GTR REVIEW CHECKLIST" (PILE FOUNDATIONS)

G. Structure Foundations - Piles (Pages 224-311)

In addition to the basic information listed in Section A, if pile support is recommended or given as an alternate, conclusions/recommendations should be provided in the project geotechnical report for the following:

	Yes	No	Unknown or N/A
*1. Is the recommended pile type given (displacement, nondisplacement, pipe pile, concrete pile, H-pile, etc.) with valid reasons given for choice and/or exclusion? (Pages 224-226)			
2. Do you consider the recommended pile type(s) to be the most suitable and economical?			
*3. Are estimated pile lengths and estimated tip elevations given for the recommended allowable pile design loads?			
4. Do you consider the recommended design loads to be reasonable?			
5. Has pile group settlement been estimated (only of practical significance for friction pile groups ending in cohesive soil)? (Pages 245-247)			
6. If a specified or minimum pile tip elevation is recommended, is a clear reason given for the required tip elevation, such as underlying soft layers, scour, downdrag, piles uneconomically long, etc.?			
*7. Has design analysis (wave equation analysis) verified that the recommended pile section can be driven to the estimated or specified tip elevation without damage (especially applicable where dense gravel-cobble-boulder layers or other obstructions have to be penetrated?			
8. Where scour piles are required, have pile design and driving criteria been established based on mobilizing the full pile design capacity below the scour zone?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. Pile Foundations (Cont.)	Yes	No	Unknown or N/A
9. Where lateral load capacity of large diameter piles is an important design consideration, are p-y curves (load vs. deflection) or soil parameters given in the geotechnical report to allow the structural engineer to evaluate lateral load capacity of all piles?			
*10. For pile supported bridge abutments over soft ground:			
a. Has abutment pile downdrag load been estimated and solutions such as bitumen coating considered in design? Not generally required if surcharging of the fill is being performed. (Pages 248-251)			
b. Is bridge approach slab recommended to moderate differential settlement between bridge ends and fill?			
c. If the majority of subsoil settlement will not be removed prior to abutment construction (by surcharging), has estimate been made of the amount of abutment rotation that can occur due to lateral squeeze of soft subsoil? (Pages 114-115)			
d. Does the geotechnical report specifically alert the structural designer to the estimated horizontal abutment movement?			
11. If bridge project is large, has pile load test program been recommended? (Pages 229-302)			
12. For a major structure in high seismic risk area, has assessment been made of liquefaction potential of foundation soil during design earthquake (note: only loose saturated sands and silts are "susceptible" to liquefaction)?			

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for clarification and/or to discuss the project.

G. Pile Foundations (Cont.)

	Yes	No	Unknown or N/A
13. Construction Considerations: (Pages 279-311)			
Have the following important construction considerations been adequately addressed?			
a. Pile driving details such as: boulders, or obstructions which may be encountered during driving - need for preaugering, jetting, spudding, need for pile tip reinforcement, driving shoes, etc.?			
b. Excavation requirements - safe slope for open excavations, need for sheeting or shoring? Fluctuation of groundwater table?			
c. Have effects of pile driving operation on adjacent structures been evaluated such as protection against damage caused by footing excavations or pile driving vibrations?			
d. Is preconstruction condition survey to be made of adjacent structures to prevent unwarranted damage claims?			
e. On large pile driving projects have other methods of pile driving control been considered such as dynamic testing or wave equation analysis?			

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (DRILLED SHAFTS)

H. Structure Foundations - Drilled Shafts (Pages 252-260)

In addition to the basic information listed in Section A, if drilled shaft support is recommended or given as an alternate, are conclusions/recommendations provided in the project foundation report for the following:

	Yes	No	Unknown or N/A
*1. Are recommended shaft diameter(s) and length(s) for allowable design loads based on an analysis using soil parameters for side friction and end bearing?			
*2. Settlement estimated for recommended design load?			
*3. Where lateral load capacity of shaft is an important design consideration, are P-Y (load vs. deflection) curves or soils data provided in geotechnical report which will allow structural engineer to evaluate lateral load capacity of shaft?			
4. Is static load test (to plunging failure) recommended?			
5. Construction Considerations:			
a. Have construction methods been evaluated, i.e., can less expensive dry method or slurry method be used or will casing be required?			
b. If casing will be required, can casing be pulled as shaft is concreted (this can result in significant cost savings or very large diameter shafts)?			
c. If artesian water was encountered in explorations, have design provisions been included to handle it (such as by requiring casing and tremie seal)?			
d. Will boulders be encountered? (Note: If boulders will be encountered, then the use of shafts should be seriously questioned due to construction installation difficulties and resultant higher cost the boulders can cause.)			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

THIS SECTION IS NOT APPLICABLE TO THE PROJECT

"GTR REVIEW CHECKLIST" (MATERIAL SITES)

I. Material Sites

In addition to the basic information listed in Section A, is the following information provided in the project Material Site Report?:

	Yes	No	Unknown or N/A
1. Material site location, including description of existing or proposed access routes and bridge load limits (if any)?			
*2. Have soil samples representative of all materials encountered during the pit investigation been submitted and tested?			
*3. Are laboratory quality test results included in the report?			
4. For aggregate sources, do the laboratory quality test results (such as L.A. abrasion, sodium sulfate, degradation, absorption, reactive aggregate, etc.) indicate if specification materials can be obtained from the deposit using normal processing methods?			
5. If the lab quality test results indicate that specification material cannot be obtained from the pit materials as they exist naturally - has the source been rejected or are detailed recommendations provided for processing or controlling production so as to ensure a satisfactory product.			
*6. For soil borrow sources, have possible difficulties been noted - such as above optimum moisture content clay-silt soils, waste due to high PI, boulders, etc?			
*7. Where high moisture content clay-silt soils must be used, are recommendations provided on the need for aeration to allow the materials to dry out sufficiently to meet compaction requirements?			
8. Are estimated shrink-swell factors provided?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

I. Material Sites (Cont.)	Yes	No	Unknown or N/A
*9. Do the proven material site quantities satisfy the estimated project quantity needs?			
10. Where materials will be excavated from below the water table, has seasonal fluctuation of the water table been determined?			
11. Are special permit requirements covered?			
12. Have pit reclamation requirements been covered adequately?			
13. Has a material site sketch (plan and profile) been provided for inclusion in the plans, which contains:			
➢ Material site number?			
➢ North arrow and legal subdivision?			
➢ Test hole or test pit logs, location, number and date?			
➢ Water table elevation and date?			
➢ Depth of unsuitable overburden which will have to be stripped?			
➢ Suggested overburden disposal area?			
➢ Proposed mining area and previously mined areas?			
➢ Existing stockpile locations?			
➢ Existing or suggested access roads?			
➢ Bridge load limits?			
➢ Reclamation details?			
14. Are recommended special provisions provided?			

* A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

APPENDIX C

Bridge Inspection Report

Structure ID: 870633

Insp. Date: 4/21/2021

Insp. Type(s): Routine

FDOT

Dristric Six Structures Maintenance Office

QA/QC Inspection Report Sheet

Submittal Date:	4/26/2021
Days since Inspection:	5
Expected Date:	6/5/2021

NBI Ratings:	Deck	Super	Sub	Channel	WW
New:	7	6	8	7	7
Previous:	7	6	8	7	7

T/L CBI Name: Josue Sanchez

Date: 4/26/2021

Initials: JS

Senior CBI Name: Martha Trujillo

Date:

04/26/2021

INSP. RECOMMENDATION section is missing. There are elements with CS3 and CS4 deficiencies. Please review and correct. -Corrected

Daniel Burgos Initials are missing. Daniel is a diver that works for Marlin, he was sent to help us dive.

Add Insp. Recomm. for photo #7. Corrected

Initials: MT

Load Rating Verified: Giuseppe Noto

Load Rating Summary is correct.

Date: 06/01/2021

Initials: G.N.

Previous NBI Lead Inspector	Cover sheet	Validation	NBI Ratings updated (Y or N)	Element Quantities	Element Environment	Work Order Recommendations	Structure Notes	Inspection Notes	Photo Deficiencies	Inventory Pictures (PBS)	Comprehensive Inv. (CIDR)	Bridge Group: N/A	LRS Inventory Route (13)	Kilometer / Mile Point (11)	Future ADT Year (115)	Latitude (16) & Longitude (17)	Channel Profile	Next Inspection Date (Page)	Underwater (BRM)	Load Ratings Data Verified	Items (58,59,60,61 & 71) ≥ 5	Posting (Item 70) => 5	Schedule F	FC or Other Addendums	Sufficiency Rating (> 50)	Prior Sufficiency Rating	Sufficiency Rating Difference	Flag[1]
DM	✓	✓	N	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓	✓	✓	Y	✓	Y	✓	✓	✓	✓	N/A	75.2	75.3	-0.10	N/A

COMMENTS:

Report Generated by: David Madera

Final Approval by: Pablo Orozco

Supervisor Name: Pablo Orozco

Date: 6/3/2021

- No comments.

Initials: PO

Notes 1: for S. Ratings <= 50 or S. Rating difference >= 10.

Last Revision: 10/10/2019

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

BRIDGE RECORD

BRIDGE #: **870633**

BRIDGE LOCATION: **SR 994 (SW 200st) OVER BLACK CREEK CANAL C-1-W**

FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

BY:	FDOT	STRUCTURE NAME:	SW 200 ST OVER BLACK CK
OWNER:	1 State Highway Agency	YEAR BUILT:	1962
MAINTAINED BY:	1 State Highway Agency	SECTION NO.:	87 091 000
STRUCTURE TYPE:	5 Prestressed Concrete - 01 Slab	MP:	4.645
LOCATION:	SW 130 Ave / SW 200 St	ROUTE:	00994
SERV. TYPE ON:	5 Highway-pedestrian	FACILITY CARRIED:	SR-994 (SW 200 St)
SERV. TYPE UNDER:	5 Waterway	FEATURE INTERSECTED:	BLACK CREEK CANAL C-1-W

[X] FUNCTIONALLY OBSOLETE [ ] STRUCTURALLY DEFICIENT

TYPE OF INSPECTION: Regular NBI

DATE FIELD INSPECTION WAS PERFORMED: ABOVE WATER: 4/21/2021 UNDERWATER: 4/21/2021

SUFFICIENCY RATING: 75.2
HEALTH INDEX: 99.91

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

BY:	FDOT	STRUCTURE NAME:	SW 200 ST OVER BLACK CK
OWNER:	1 State Highway Agency	YEAR BUILT:	1962
MAINTAINED BY:	1 State Highway Agency	SECTION NO.:	87 091 000
STRUCTURE TYPE:	5 Prestressed Concrete - 01 Slab	MP:	4.645
LOCATION:	SW 130 Ave / SW 200 St	ROUTE:	00994
SERV. TYPE ON:	5 Highway-pedestrian	FACILITY CARRIED:	SR-994 (SW 200 St)
SERV. TYPE UNDER:	5 Waterway	FEATURE INTERSECTED:	BLACK CREEK CANAL C-1-W

- [ ] THIS BRIDGE CONTAINS FRACTURE CRITICAL COMPONENTS
- [ ] THIS BRIDGE IS SCOUR CRITICAL
- [ ] THIS REPORT IDENTIFIES DEFICIENCIES WHICH REQUIRE PROMPT CORRECTIVE ACTION
- [x] FUNCTIONALLY OBSOLETE
- [ ] STRUCTURALLY DEFICIENT

TYPE OF INSPECTION: Regular NBI

DATE FIELD INSPECTION WAS PERFORMED: ABOVE WATER: 4/21/2021 UNDERWATER: 4/21/2021

OVERALL NBI RATINGS:

DECK:	7 Good	CHANNEL:	7 Minor Damage
SUPERSTRUCTURE:	6 Satisfactory	CULVERT:	N N/A (NBI)
SUBSTRUCTURE:	8 Very Good	SUFF. RATING:	75.2
PERF. RATING:	Good	HEALTH INDEX:	99.91

FIELD PERSONNEL / TITLE / NUMBER:	INITIALS
Sanchez, Josue - Underwater Bridge Inspector (CBI#0494) (lead)	
Madera, David - Bridge Inspector (CBI#0390)	
Yebra, Xavier - Assist Underwater Bridge Insp Trainee	xy
Burgos Daniel - Assist Underwater Bridge Ins Trainee	

REVIEWING BRIDGE INSPECTION SUPERVISOR:

Trujillo, Martha - Bridge Inspector (CBI#00567) MT

CONFIRMING REGISTERED PROFESSIONAL ENGINEER:

Orozco, Pablo - Project Manager (P.E. 74653) FDOT
1000 NW 111 Avenue

Miami FL 33172

SIGNATURE:

DATE:

PABLO JOSE OROZCO
LICENSE
No 74653
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

The official record of this package has been electronically signed and sealed by Pablo J. Orozco, P.E. on the date adjacent to the seal as required by Rule 61G15-23.004, F.A.C.. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

All Elements

DECKS : Decks/Slabs

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8099 / 2	PS Conc Slab (Sonovoid)	3346.91	99.98	0.67	0.02	0	.	0	.	3347.58 (SF)
0	1080 / 2	Delamination/Spall/Patched Area	0.33	33.3	0.67	66.7	0	.	0	.	1 (SF)
0	510 / 2	Wearing Surfaces	2403	100	0	.	0	.	0	.	2403 sq.ft

Element Inspection Notes:

8099/2 NOTE:

There are no sign of movement between any of the sonovoid panels.

CS1:

There is vegetation growth between panels 7 and 8 at span 3. NEW (See Photo 1)

1080/2 UNDER SIDE:

CS2:

There is a delamination along panel 3-8 measuring (16 in. x 6 in.). SAME (See Photo 2)

510/2 Refer to Parent Element

DECKS : Joints

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	301 / 2	Pourable Joint Seal	104	92.86	8	7.14	0	.	0	.	112 ft
0	2350 / 2	Debris Impaction	0	.	8	100	0	.	0	.	8 ft

Element Inspection Notes:

301/2 Refer to defect element 2350.

2350/2 CS2:

There is dirt and debris accumulation along both shoulders. NEW (See Photo 3)

MISCELLANEOUS : Channel

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8290 / 2	Channel	1	100	0	.	0	.	0	.	1 (EA)

Element Inspection Notes:

8290/2 UNDERWATER INSPECTION 2017:

No deficiencies found.

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	321 / 2	Re Conc Approach Slab	2192	97.86	24	1.07	0	.	24	1.07	2240 sq.ft
0	4000 / 2	Settlement	0	.	0	.	0	.	24	100	24 sq.ft
0	510 / 2	Wearing Surfaces	2216	98.93	24	1.07	0	.	0	.	2240 sq.ft

Element Inspection Notes:

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

321/2 Refer to defect Element 4000.

4000/2 CS4:

Approach 1 right sidewalk is missing asphalt material measuring (8 ft. x 3 ft. x 2 in.), It's tripping hazardous. NEW (See Photo 4)

510/2 Refer to Parent Element

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8475 / 2	R/Conc Walls	19	95	0	.	1	5	0	.	20 ft
0	1080 / 2	Delamination/Spall/Patched Area	0	.	0	.	1	100	0	.	1 ft

Element Inspection Notes:

8475/2 Refer to defect Element 1080.

1080/2 CS3:

The SE wingwall has a spall 8 in. x 6 in. x 2 in. along the top outer edge. NEW (See Photo 5)

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	215 / 2	Re Conc Abutment	75.46	100	0	.	0	.	0	.	75.46 ft

Element Inspection Notes:

215/2 _No deficiencies found.

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	226 / 2	Pre Conc Pile	12	100	0	.	0	.	0	.	12 (EA)

Element Inspection Notes:

226/2 UNDERWATER INSPECTION 2017:

No deficiencies found.

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	234 / 2	Re Conc Pier Cap	68.9	100	0	.	0	.	0	.	68.9 ft

Element Inspection Notes:

234/2 CS1:

Both bent caps have vegetation growth at the ends. SAME (See Photo 6)

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8396 / 2	Other Abutment Slope Protection	495.14	100	0	.	0	.	0	.	495.14 (SF)

Element Inspection Notes:

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

8396/2 Note: This element refers to sand and cement bags.

UNDERWATER INSPECTION 2017:

No deficiencies found.

SUPERSTRUCTURE : Bearings

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	310 / 2	Elastomeric Bearing	6	100	0	.	0	.	0	.	6 each

Element Inspection Notes:

310/2 _No deficiencies noted.

SUPERSTRUCTURE : Superstructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	333 / 2	Other Bridge Railing	193	97.97	3	1.52	1	0.51	0	.	197 ft
0	1080 / 2	Delamination/Spall/Patched Area	0	.	3	75	1	25	0	.	4 ft

Element Inspection Notes:

333/2 CS1:

The left barrier wall has an impact scrape mark measuring (40 in. x 6 in.). SAME

1080/2 CS3:

There's a spall 12 in. x 7 in. x 2 in. with exposed corroded steel along out edge of the barrier wall on span 3, adjacent to abutment 4. NEW (See photo 7)

The right barrier wall on span 3, has a delamination 36 in. x 12 in., along the traffic side. NEW (See photo 8)

Total Number of Elements*: 11
*excluding defects/protective systems

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Inspector Recommendations

UNIT: 0 **DECKS**

ELEMENT/ENV: 8099 / 2 PS Conc Slab (Sonovoid) **ELEM CATEGORY: Decks/Slabs**

CONDITION STATE			PRIORITY
1 , 2	MMS Quantity: 4 sf	Element Estimated Quantity: 8 (SF)	3

WORK ORDER RECOMMENDATION:

Clean or Remove all dirt and debris accumulation along both shoulders. (See Photo 3)

1 , 2	MMS Quantity: 2 sf	Element Estimated Quantity: 1 (SF)	3

WORK ORDER RECOMMENDATION:

Remove vegetation growth between panels 7 and 8 at span 3. (See Photo 1)

UNIT: 0 **MISCELLANEOUS**

ELEMENT/ENV: 321 / 2 Re Conc Approach Slab **ELEM CATEGORY: Other Elements**

CONDITION STATE			PRIORITY
1 , 2 , 4	MMS Quantity: 8 sf	Element Estimated Quantity: 24 sq.ft	1

WORK ORDER RECOMMENDATION:

Repair missing asphalt material measuring 8 ft. x 3 ft. x 2 in., on Approach 1 right sidewalk. (See Photo 4)
It's a tripping hazardous.

ELEMENT/ENV: 8475 / 2 R/Conc Walls **ELEM CATEGORY: Other Elements**

CONDITION STATE			PRIORITY
1 , 3	MMS Quantity: 2 mh	Element Estimated Quantity: 1 ft	3

WORK ORDER RECOMMENDATION:

Repair spall 8 in. x 6 in. x 2 in. on SE wingwall, top outer edge.(See Photo 5)

UNIT: 0 **SUBSTRUCTURE**

ELEMENT/ENV: 234 / 2 Re Conc Pier Cap **ELEM CATEGORY: Substructure**

CONDITION STATE			PRIORITY
1	MMS Quantity: 2 mh	Element Estimated Quantity: 4 ft	3

WORK ORDER RECOMMENDATION:

Remove all vegetation growth along both bent caps ends. (See Photo 6)

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Inspector Recommendations

UNIT: 0 **SUPERSTRUCTURE**

ELEMENT/ENV: 333 / 2 Other Bridge Railing **ELEM CATEGORY: Superstructure**

CONDITION STATE			PRIORITY
1 , 2 , 3	MMS Quantity: 4 lf	Element Estimated Quantity: 4 ft	3

WORK ORDER RECOMMENDATION:

There's a spall 12 in. x 7 in. x 2 in. with exposed corroded steel along out edge of the barrier wall on span 3, adjacent to abutment 4. and it should be patched (See photo 7)

Repair delamination 36 in. x 12 in., the right barrier wall on span 3 traffic side. (See photo 8)

Structure Notes

PRIOR BRIDGE# = 874339 guardrails not used on this structure due to S.F.W.M. access road on both side.

The bridge was inventoried from West to East

Traffic Restrictions: Based on the current load rating analysis dated 7/06/2011, posting is not required. The structure is currently not posted.

Load rating data verified by Giuseppe Noto on 06 / 01 / 2021 G.N.

_ On September 3, 2015 at 8:50 AM the structure was hit by a vehicle accident traveling Westbound on SR 994 (Quail Roost),causing significant damaged to several elements of the structure.

Crash Report Number: FHPE150FF050328, The officer name: Corporal D.A. Luciano, ID.: 1935.

INSPECTION NOTES: **USWM** **4/21/2021**

Sufficiency Rating Calculation Accepted by knatial at 4/14/2017 11:29:23 AM

NCAR: NO CORRECTIVE ACTION RECOMMENDED. Sufficiency Rating Calculation Accepted by 40F3BD0C6D1D4290B567FBF8E2E5E1F9 at 4/16/2019 3:12:37 PM Sufficiency Rating Calculation Accepted by F06A3070954247988A078F7F6E193065 at 4/26/2021 10:46:03 AM

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Bridge Number - 4/21/2021

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Bridge Profile- 4/21/2021

North Elevation.

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BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 8099 / Photo 1

There is vegetation growth between panels 7 and 8 at span 3.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 8099 / Photo 2

There is a delamination along panel 3-8 measuring (16 in. x 6 in.).

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 301 / Photo 3

There is dirt and debris accumulation along both shoulders.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 321 / Photo 4

Approach 1 right sidewalk is missing asphalt material measuring (8 ft. x 3 ft. x 2 in.), It's a tripping hazardous.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 8475 / Photo 5

The SE wingwall has a spall 8 in. x 6 in. x 2 in. along the top outer edge.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 234 / Photo 6

Both bent caps have vegetation growth at the ends.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 333 / Photo 7

There's a spall 12 in. x 7 in. x 2 in. with exposed corroded steel along out edge of the barrier wall on span 3, adjacent to abutment 4.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Inspection

Structure ID: 870633

DISTRICT: D6 - Miami **INSPECTION DATE: 4/21/2021 USWM**

Element 333 / Photo 8

The right barrier wall on span 3, has a delamination 36 in. x 12 in., along the traffic side.

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
CIDR

REPORT ID: INSP005
Structure ID: 870633
DATE PRINTED: 4/26/2021

Description

Structure Unit Identification

Bridge/Unit Key: 870633 0
Structure Name: SW 200 ST OVER BLACK CK
Description: Slab Cast in Place Bridge
Type: M - Main

Roadway Identification

NBI Structure No (8): 870633
Position/Prefix (5): 1 - Route On Structure
Kind Hwy (Rte Prefix): 3 State Hwy
Design Level of Service: 1 Mainline
Route Number/Suffix: 00994 / 0 N/A (NBI)
Feature Intersect (6): BLACK CREEK CANAL C-1-W
Critical Facility: Not Defense-crit
Facility Carried (7): SR-994 (SW 200 St)
Mile Point (11): 4.645
Latitude (16): 025d34'51.0" Long (17): 080d24'14.4"

Roadway Traffic and Accidents

Lanes (28): 2 Medians: 0 Speed: 40 mph
ADT Class: 3 ADT Class 3
Recent ADT (29): 19200 Year (30): 2019
Future ADT (114): 33312 Year (115): 2041
Truck % ADT (109): 4
Detour Length (19): 1.5 mi
Detour Speed: 0 mph
Accident Count: 0 Rate: 0

Roadway Classification

Nat. Hwy Sys (104): 0 Not on NHS
National base Net (12): 0 - Not on Base Network
LRS Inventory Rte (13a): 87 091 000 Sub Rte (13b): 00
Functional Class (26): 06 Rural Minor Arterial
Federal Aid System: ON
Defense Hwy (100): 0 Not a STRAHNET hwy
Direction of Traffic (102): 2 2-way traffic
Emergency: [X]

Roadway Clearances

Vertical (10): 99.99 ft Appr. Road (32): 24.41 ft
Horiz. (47): 36.31 ft Roadway (51): 28.31 ft
Truck Network (110): 0 Not part of natl netwo
Toll Facility (20): 3 On free road
Fed. Lands Hwy (105): 0 N/A (NBI)
School Bus Route: [X]
Transit Route: [X]

NBI Project Data

Proposed Work (075A): Not Applicable (P)
Work To Be Done By (075B): Not Applicable (P)
Improvement Length (076): 0 ft

Improvement Cost (094): $ 0.00
Roadway Improvement Cost (095): $ 0.00
Total Cost (096): $ 0.00
Year of Estimate (097):

NBI Rating

Channel (61): 7 Minor Damage
Deck (58): 7 Good
Superstructure (59): 6 Satisfactory
Substructure (60): 8 Very Good

Culvert (62): N N/A (NBI)
Waterway (71): 7 Above Minimum
Unrepaired Spalls: -1 sq.ft.
Review Required: [X]

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
CIDR

REPORT ID: INSP005
Structure ID: 870633
DATE PRINTED: 4/26/2021

Structure Identification

Admin Area: Miami-Dade
District (2): D6 - Miami
County (3): (87)Miami-Dade
Place Code (4): Miami
Location (9): SW 130 Ave / SW 200 St
Border Br St/Reg (98): Not Applicable (P) Share: 0 %
Border Struct No (99):
FIPS State/Region (1): 12 Florida Region 4-Atlanta
NBIS Bridge Len (112): Y - Meets NBI Length

Parallel Structure (101): No || bridge exists
Temp. Structure (103): Not Applicable (P)
Maint. Resp. (21): 1 State Highway Agency
Owner (22): 1 State Highway Agency
Historic Signif. (37): 5 Not eligible for NRHP

Geometrics

Spans in Main Unit (45): 3
Approach Spans (46): 0
Length of Max Span (48): 29.33 ft
Structure Length (49): 87.99 ft
Total Length: 127.99 ft
Deck Area: 3347.58 sqft
Structure Flared (35): 0 No flare

Age and Service

Year Built (27): 1962
Year Reconstructed (106): 0
Type of Service On (42a): 5 Highway-pedestrian
Under (42b): 5 Waterway
Fracture Critical Details: Not Applicable

Structure Type and Material

Curb/Sidewalk (50): Left: 3.94 ft Right: 3.94 ft
Bridge Median (33): 0 No median
Main Span Material (43A): 5 Prestressed Concrete
Appr Span Material (44A): Not Applicable
Main Span Design (43B): 01 Slab
Appr Span Design (44B): Not Applicable

Deck Type and Material

Deck Width (52): 37.99 ft
Skew (34): 0 deg
Deck Type (107): 2 Concrete Precast Panel
Surface (108): 6 Bituminous
Membrane: 0 None
Deck Protection: None

Appraisal

Structure Appraisal

Open/Posted/Closed (41): A Open, no restriction
Deck Geometry (68): 2 Intolerable - Replace
Underclearances (69): N Not applicable (NBI)
Approach Alignment (72): 8-No Speed Red thru Curv
Bridge Railings (36a): 0 Substandard
Transitions (36b): 0 Substandard

Approach Guardrail (36c): 0 Substandard
Approach Guardrail Ends (36d): 0 Substandard
Scour Critical (113): U Unknown Foundation

Navigation Data

Navigation Control (38): Permit Not Required
Nav Vertical Clr (39): 0 ft
Nav Horizontal Clr (40): 0 ft
Min Vert Lift Clr (116): 0 ft
Pier Protection (111): Not Applicable (P)

NBI Condition Rating

Sufficiency Rating: 75.2
Health Index: 99.91
Structural Eval (67): 6 Equal Min Criteria
Deficiency: Functionally Obsolete

Minimum Vertical Clearance

Over Structure (53): 99.99 ft
Under (reference) (54a): N Feature not hwy or RR
Under (54b): 0 ft

Minimum Lateral Underclearance

Reference (55a): N Feature not hwy or RR
Right Side (55b): 0 ft
Left Side (56): 0 ft

Schedule

Current Inspection

Inspection Date: 04/21/2021
Inspector: MT638SJ - Josue Sanchez
Bridge Group: N/A
Alt. Bridge Group:
Primary Type: Regular NBI
Review Required: [X]

Next Inspection Date Scheduled

NBI: 04/21/2023
Element: 04/21/2023
Fracture Critical:
Underwater: 04/21/2023
Other/Special:
Inventory Photo Update Due: 04/15/2023

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM

REPORT ID: INSP005

Inspection/CIDR/Bridge Profile Report

Structure ID: 870633

CIDR

DATE PRINTED: 4/26/2021

Schedule Cont.

Inspection Types Performed NBI [X] Element [X] Fracture Critical [ ] Underwater [X] Other Special [ ]

Inspection Intervals	Required (92)	Frequency (92)	Last Date (93)
Fracture Critical	[ ]	mos	
Underwater	[X]	24 mos	04/21/2021
Other Special	[ ]	mos	
NBI		24 mos (91)	04/21/2021 (90)

Inspection Resources

Crew Hours:	10
Flagger Hours:	0
Helper Hours:	0
Snooper Hours:	0
Special Crew Hours:	4
Special Equip Hours:	0

Bridge Related

General Bridge Information

Parallel Bridge Seq:
Channel Depth: 17.2 ft
Radio Frequency: -1
Phone Number:
Exception Date:
Exception Type: Unknown
Accepted By Maint: 01/01/1962
Warranty Expiration: 00/00/0000
Performance Rating: Good

Bridge Rail 1: Conc parapet-alum-rail
Bridge Rail 2: Not applicable-No rail
Electrical Devices: No electric service
Culvert Type: Not applicable
Maintenance Yard: 690-South Dade
FIHS ON / OFF:
Previous Structure:
2nd Previous Structure:
Replacement Structure:

Permitted Utilities: Power [ ] Water [ ] Gas [ ] Fiber Optic [ ] Sewage [ ] Other [ ]

Bridge Load Rating Information

Inventory Type (065): 1 LF Load Factor
Operating Type (063): 1 LF Load Factor
Original Design Load (031): 5 MS 18 (HS 20)
Date: 07/06/2011
Initials: MPC
Load Rating Rev. Recom.: No
Load Rating Plans Status: Design or Construction

Inventory Rating (066): 50.4 tons
Operating Rating (064): 83.9 tons
FL120 Permit Rating: -1.0 tons
HS20/FL120 Max Span Rating: 83.9 tons
Dynamic Impact in Percent: 30 %
Governing Span Length: 27.9 ft
Minimum Span Length:
Distribution Method: AASHTO formula

Load Rating Notes:

LEGAL LOADS

SU2: 55.7 tons
SU3: 58.6 tons
SU4: 57.4 tons
C3: 82.4 tons
C4: 73.0 tons
C5: 79.8 tons
ST5: 89.7 tons
Posting (070): 5 At/Above Legal Loads
Open/Posted/Closed (041): A Open, no restriction

POSTING

Recom. SU Posting: 99 tons
Recom. C Posting: 99 tons
Recom. ST5 Posting: 99 tons
Actual SU Posting: 99 tons
Actual C Posting: 99 tons
Actual ST5 Posting: 99 tons
Actual Blanket Posting: 99 tons
Emergency Vehicle: 1 EV inapplicable

FLOOR BEAM (FB) FB Present: No

FB Span Length, Gov:
FB Spacing, Gov:
FB OPR Rating: 0.0 tons
FB SU4 OPR Rating:
FB FL120 Rating:

SEGMENTAL (SEG)

SEG Wing-Span: -1.0 ft
SEG Web-to-Web Span: -1.0 ft
SEG Transverse HL93 Operating: -1.00 RF

Bridge Scour and Storm Information

Pile Driving Record: No pile driving records
Foundation Type: Unknown
Mode of Flow: Unknown
Rating Scour Eval: Scour Susceptible - Low
Highest Scour Eval: Phase I completed
Scour Evaluation Method:

Scour Recommended I: Perform Phase II
Scour Recommended II: Unknown
Scour Recommended III: Unknown
Scour Elevation: -1 ft
Action Elevation: -1 ft
Storm Frequency: -1

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM

REPORT ID: INSP005

Inspection/CIDR/Bridge Profile Report

Structure ID: 870633

CIDR

DATE PRINTED: 4/26/2021

Elements

Inspection Date: 04/21/2021 **USWM**

DECKS : Decks/Slabs

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8099 / 2	PS Conc Slab (Sonovoid)	3346.91	99.98	0.67	0.02	0	.	0	.	3347.58 (SF)
0	1080 / 2	Delamination/Spall/Patched Area	0.33	33.3	0.67	66.7	0	.	0	.	1 (SF)
0	510 / 2	Wearing Surfaces	2403	100	0	.	0	.	0	.	2403 sq.ft

DECKS : Joints

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	301 / 2	Pourable Joint Seal	104	92.86	8	7.14	0	.	0	.	112 ft
0	2350 / 2	Debris Impaction	0	.	8	100	0	.	0	.	8 ft

MISCELLANEOUS : Channel

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8290 / 2	Channel	1	100	0	.	0	.	0	.	1 (EA)

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	321 / 2	Re Conc Approach Slab	2192	97.86	24	1.07	0	.	24	1.07	2240 sq.ft
0	4000 / 2	Settlement	0	.	0	.	0	.	24	100	24 sq.ft
0	510 / 2	Wearing Surfaces	2216	98.93	24	1.07	0	.	0	.	2240 sq.ft

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8475 / 2	R/Conc Walls	19	95	0	.	1	5	0	.	20 ft
0	1080 / 2	Delamination/Spall/Patched Area	0	.	0	.	1	100	0	.	1 ft

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	215 / 2	Re Conc Abutment	75.46	100	0	.	0	.	0	.	75.46 ft

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	226 / 2	Pre Conc Pile	12	100	0	.	0	.	0	.	12 (EA)

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	234 / 2	Re Conc Pier Cap	68.9	100	0	.	0	.	0	.	68.9 ft

SUBSTRUCTURE : Substructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	8396 / 2	Other Abutment Slope Protection	495.14	100	0	.	0	.	0	.	495.14 (SF)

SUPERSTRUCTURE : Bearings

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	310 / 2	Elastomeric Bearing	6	100	0	.	0	.	0	.	6 each

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FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM

REPORT ID: INSP005

Inspection/CIDR/Bridge Profile Report

Structure ID: 870633

CIDR

DATE PRINTED: 4/26/2021

SUPERSTRUCTURE : Superstructure

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
0	333 / 2	Other Bridge Railing	193	97.97	3	1.52	1	0.51	0	.	197 ft
0	1080 / 2	Delamination/Spall/Patched Area	0	.	3	75	1	25	0	.	4 ft

Total Number of Elements*: 11
*excluding defects/protective systems

Inspection Information

Inspection Date: 04/21/2021 **Type:** Regular NBI

Inspector: MT638SJ - Josue Sanchez

Inspection Notes: Sufficiency Rating Calculation Accepted by knatial at 4/14/2017 11:29:23 AM

NCAR: NO CORRECTIVE ACTION RECOMMENDED. Sufficiency Rating Calculation Accepted by 40F3BD0C6D1D4290B567FBF8E2E5E1F9 at 4/16/2019 3:12:37 PM Sufficiency Rating Calculation Accepted by F06A3070954247988A078F7F6E193065 at 4/26/2021 10:46:03 AM

Structure Notes

PRIOR BRIDGE# = 874339 guardrails not used on this structure due to S.F.W.M. access road on both side.

The bridge was inventoried from West to East

Traffic Restrictions: Based on the current load rating analysis dated 7/06/2011, posting is not required. The structure is currently not posted.

Load rating data verified by Giuseppe Noto on 06 / 01 / 2021 G.N..

_ On September 3, 2015 at 8:50 AM the structure was hit by a vehicle accident traveling Westbound on SR 994 (Quail Roost),causing significant damaged to several elements of the structure.

Crash Report Number: FHPE150FF050328, The officer name: Corporal D.A. Luciano, ID.: 1935.

Schedule Notes

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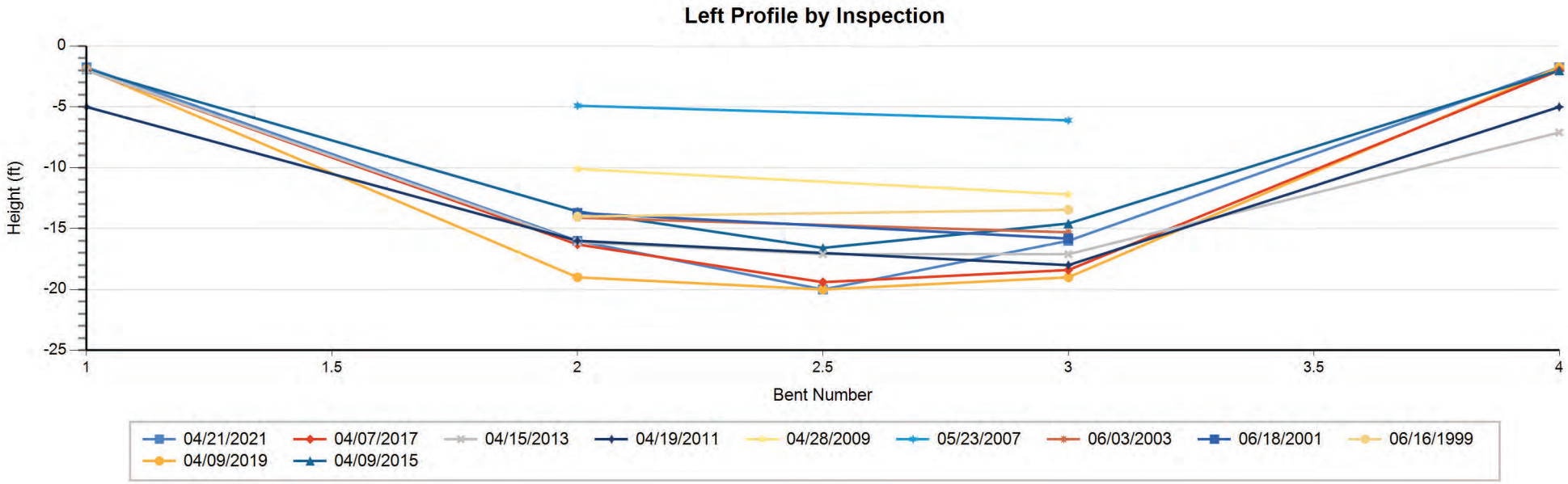
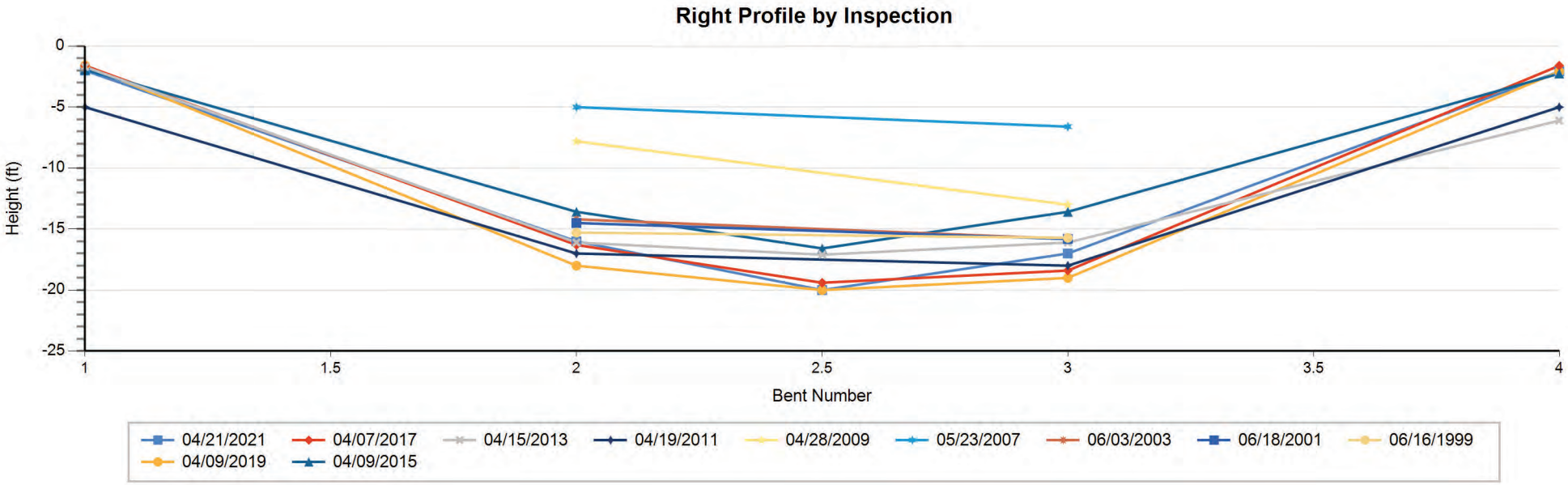
FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Bridge Profile

DATE PRINTED: 4/26/2021 4:21:03 PM





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Profile Data - Numerical Summary

Inspection Date and Key: 4/21/2021 USWM

(All Heights are in Feet)

Bent #	Left Height	Right Height
1	1.75	2.00
2	16.00	16.00
2.5	20.00	20.00
3	16.00	17.00
4	1.75	2.08

Air Temp: 81

Profile Notes:

Measurements were taken during inspection dive.

W/L = 5.0 ft

Channel = 15 ft

Bottom condition was mud and limestone.

Visibility underwater was +/- 5 ft.

Inspection Date and Key: 4/9/2019 TWVN

1	1.90	1.58
2	19.00	18.00
2.5	20.00	20.00
3	19.00	19.00
4	1.75	2.08

Air Temp: 82

Profile Notes:

Measurements were taken during inspection dive.

W/L = 5.0 ft

Channel = 15 ft

Bottom condition was mud and limestone.

Visibility underwater was +/- 5 ft.

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FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Bridge Profile

DATE PRINTED: 4/26/2021 4:21:03 PM

Profile Data - Numerical Summary

Inspection Date and Key: 4/7/2017 PECG

(All Heights are in Feet)

Bent #	Left Height	Right Height
1	2.00	1.60
2	16.30	16.30
2.5	19.40	19.40
3	18.40	18.40
4	2.00	1.60

Air Temp:
Profile Notes:

Measurements were taken during inspection dive.

W/L = 5.3 ft

Channel : Left = 14.1 ft Right = 14.1 ft

Bottom condition was mud and limestone.

Visibility underwater was +/- 15 ft.

Inspection Date and Key: 4/9/2015 EQEK

1	1.92	1.92
2	13.58	13.58
2.5	16.58	16.58
3	14.58	13.58
4	2.00	2.25

Air Temp: 81
Profile Notes:

Measurements were taken during inspection dive.

W/L = 5.6 ft

Channel : Left = 15.0 ft Right = 15.0 ft

Bottom condition was mud and limestone.

Visibility underwater was 10 ft.

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Profile Data - Numerical Summary

Inspection Date and Key: 4/15/2013 MFPZ

(All Heights are in Feet)

Bent #	Left Height	Right Height
1	2.00	1.70
2	16.10	16.10
2.5	17.10	17.10
3	17.10	16.10
4	7.10	6.10

Air Temp: 80

Profile Notes:

Measurements were taken during inspection dive.

W/L = 5.1ft

Channel : Left = 12.0ft Right = 12.0ft

Bottom condition was mud and limestone.

Visibility underwater was 5ft.

Inspection Date and Key: 4/19/2011 AOBZ

1	5.00	5.00
2	16.00	17.00
3	18.00	18.00
4	5.00	5.00

Air Temp: 84

Profile Notes:

Depths were taken during the inspection dive.

W/L numbers taken from the top of concrete railing = 7 ft

Channel = 14 ft

Bottom condition is mud and rock. Visibility was 3 ft.

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Profile Data - Numerical Summary

Inspection Date and Key: 4/28/2009 ALUG

(All Heights are in Feet)

Bent #	Left Height	Right Height
2	10.10	7.80
3	12.20	13.00

Air Temp: 83

Profile Notes:

Measurements were taken from top of metal guard rail.

W/L = 10.6ft

Channel : Left = 14.9ft Right = 14.8ft

Bottom condition was mud and limestone.

Visibility underwater was 3ft.

Inspection Date and Key: 5/23/2007 LSGL

Bent #	Left Height	Right Height
2	4.90	5.00
3	6.10	6.60

Air Temp: 85

Profile Notes:

MEASUREMENTS TAKEN FROM TOP OF RAILING.

Waterline : 9.2
Channel : 8ft
Visibility : 4ft
Bottom has natural debris.

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FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR/Bridge Profile Report
Bridge Profile

DATE PRINTED: 4/26/2021 4:21:03 PM

Profile Data - Numerical Summary

Inspection Date and Key: 6/3/2003 EYCV

(All Heights are in Feet)

Bent #	Left Height	Right Height
2	14.10	14.20
3	15.30	15.80

Air Temp: 85

Profile Notes:

Intermediate Bents 2 & 3 were Inspected from Mean High Waterline to Groundline. Waterline = 9' 2". Channel Depth = 17' 2". No new deficiencies were noted during this Inspection cycle. Previous deficiencies are as follows: Bent 3 Pile 4 NEC Spall 4" x 1" x 1/2" below W/L 10". B-2 P-3 SEC spall 10" x 4" x 1" BWL 3'. P-5 NWC spall 1' x 6" x 2" up from G/L
2'. P 1 NWC spall 1' x 6" x 2" BWL 2'. Due to injured back, Ana Gonzalez prepared U/W Inspection/Profile
report while Omar Porras assisted by David Madera performed the field inspection.

Inspection Date and Key: 6/18/2001 OFDM

Bent #	Left Height	Right Height
2	13.71	14.50
3	15.81	15.81

Air Temp: 88

Profile Notes:

Intermediate Bents 2 & 3 were Inspected from Mean High Waterline to Groundline. Waterline = 2.65m. Deficiencies as follows:Bent 3 Pile 4 NEC spall 10.16cm x 2.54cm x 1.52cm BWL 25.4cm. Bent 2 Pile 3 SEC spall 25.4cm x 10.16cm x 2.54cm BWL .91m. Pile 5 NWC spall .31m x 15.24cm x 5.08cm coming up from G.L. .61m. Pile 1 NWC spall .31m x 15.24cm x 5.08cm BWL .61m.

Inspection Date and Key: 6/16/1999 GBST

Bent #	Left Height	Right Height
2	14.01	15.29
3	13.45	15.72

Air Temp:

Profile Notes:

INTERMEDIATE BENT'S 2 & 3 WERE INSPECTED FROM MEAN HIGH WATERLINE TO GROUNDLINE.
NO DEFICIENCIES NOTED AT THIS TIME.

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APPENDIX D

Existing Bridge Plans

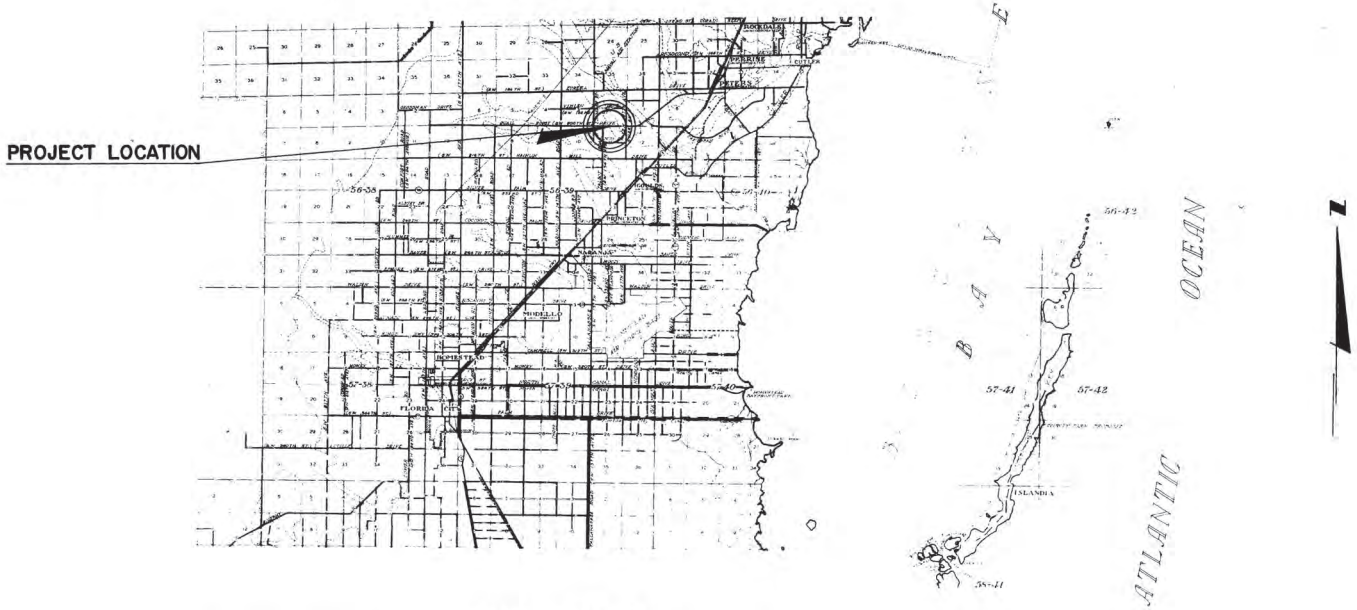
PLANS FOR PROPOSED

QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK

PROJECT NO. 8153

INDEX OF SHEETS

SHEET NO. 1. KEY MAP
2. SUMMARY OF QUANTITIES
3. PLAN AND PROFILE
4. ROADWAY CROSS SECTIONS
5. APPROACH SLAB
6. PLAN AND ELEVATION
7-9. CANAL CROSS SECTIONS
10. PILING PLAN AND DETAILS
11. INTERMEDIATE AND END BENT
12. SUPERSTRUCTURE
13. PRESTRESSED SLAB UNITS
14. HANDRAIL DETAILS

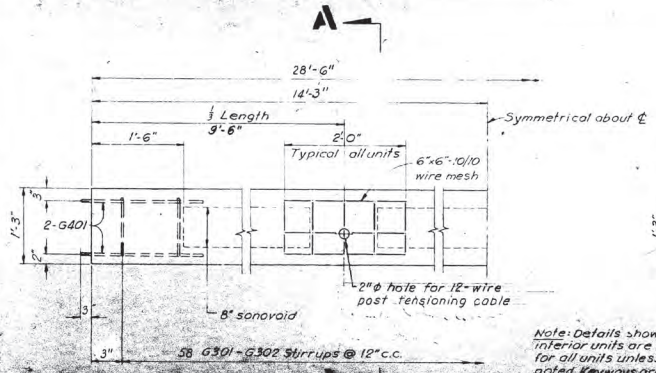


PREPARED BY
DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
IN COOPERATION WITH
CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL DISTRICT

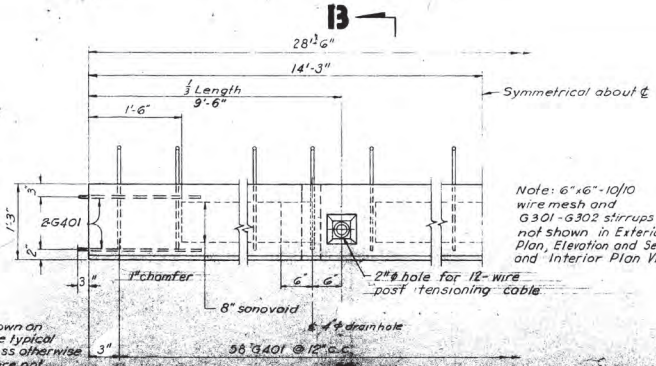
APPROVED _____ Director of Public Works
RECOMMENDED _____ Chief Engineer
SUBMITTED _____ Bridge Engineer

PROPOSED _____ CHECKED _____
DRAWN _____ DRAWN _____

DATE May 1962 SHEET ___ OF ___



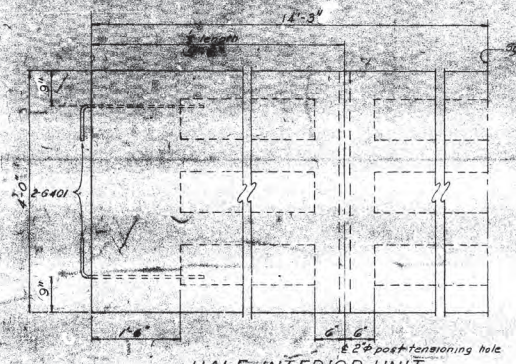
HALF INTERIOR UNIT
Scale: 1"=1'-0"



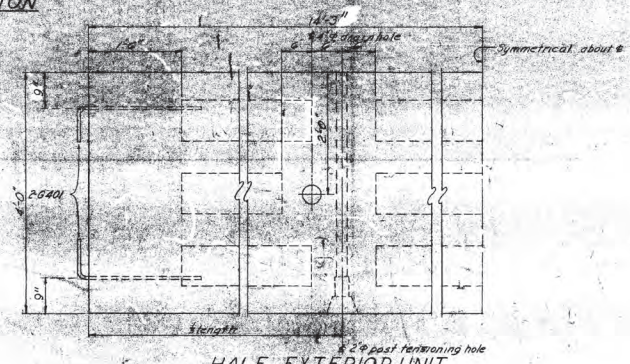
HALF EXTERIOR UNIT
Scale: 1"=1'-0"

Note: Details shown on interior units are typical for all units unless otherwise noted. Keyways are not shown in Plan and Elevation views.

ELEVATION

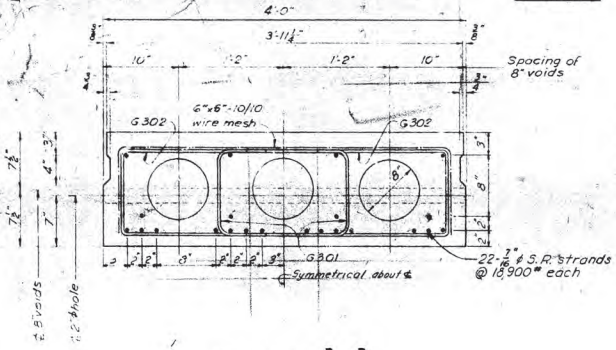


HALF INTERIOR UNIT
Scale: 1"=1'-0"

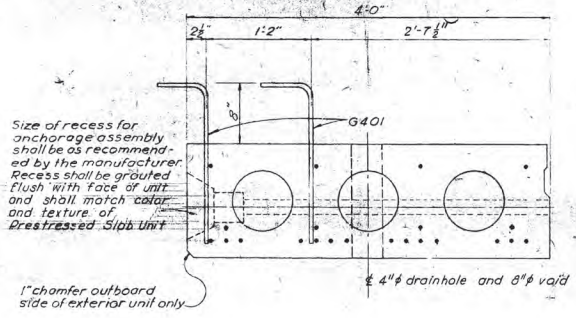


HALF EXTERIOR UNIT
Scale: 1"=1'-0"

PLAN

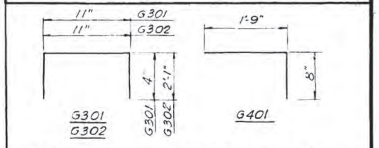


SECTION A A
Scale: 1½"=1'-0"



SECTION B B
Scale: 1½"=1'-0"

BENDING DIAGRAM



BILL OF REINFORCING STEEL FOR ONE PRESTRESSED SLAB UNIT

Mark	Length	NO REQUIRED	
		Interior	Exterior
G301	1'-5"	58	58
G302	4'-11"	58	58
G401	2'-4"	8	66

Notes: (Unless otherwise noted)

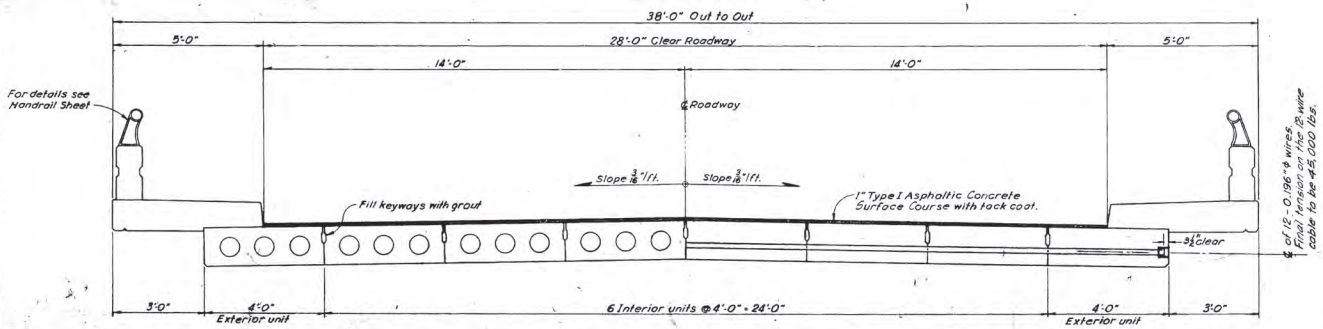
1. For General Notes, see Plan and Elevation Sheet.
2. Tops of prestressed units are to be rough floated. At approximately the time of initial set, the entire top of prestressed units shall be scrubbed transversely with a coarse wire brush to remove all laitance and to produce a rough surface.
3. Prestressed concrete shall be Class P, f'_c = 5000 psi.
4. In handling prestressed units, they must be maintained in an upright position at all times and must be picked up at ends to prevent damage. The contractor shall be responsible for damage due to improper handling.
5. At transfer of the tensioning load, the cylinder strength of concrete shall be 4000 psi and the concrete shall be at least 20 hrs old.
6. Concrete cover over reinforcing steel shall be 2" minimum.
7. The use of steel forms on concrete founded casting beds is preferred.
8. All reinforcement shall be new. Bars shall be deformed in accordance with ASTM A-305; and shall be either intermediate grade billet steel in accordance with ASTM A-15, or rail steel in accordance with ASTM A-16.
9. All strands shall extend 2½" beyond ends of slab units.
10. Exterior faces of exterior units shall be given a Class I Surface Finish in the casting yard within 72 hrs. after casting.
11. The Contractor shall provide cement grout under each slab unit, if required by the Engineer, to provide a uniform top surface and, or, a uniform bearing surface for the slab units.

DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

DESIGN T. Block	PRESTRESSED SLAB UNITS
DRAWN Crumbley	QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL
CHECK J. Brown	
PROPOSED	
SUBMITTED HIGHWAY ENGINEER	RECOMMENDED CHIEF ENGINEER
APPROVED DIRECTOR	

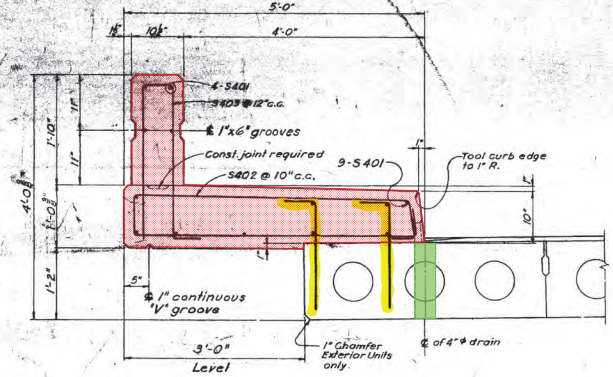
REVISION	DATE	DESCRIPTION	BY

DATE May 1962 FILE 8153 SHEET 13 OF 14

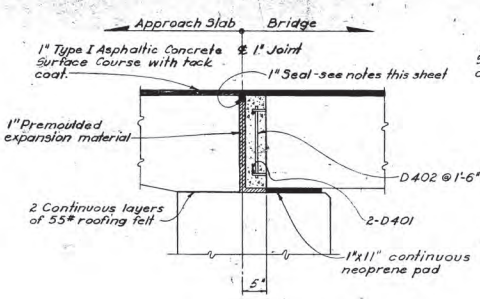


TYPICAL HALF SECTION
No Scale

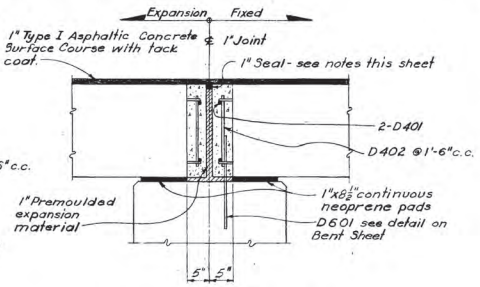
HALF SECTION THRU DIAPHRAGMS
No Scale



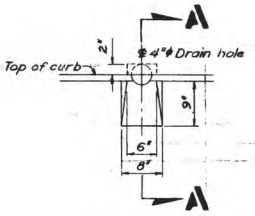
SECTION THRU SIDEWALK
No Scale



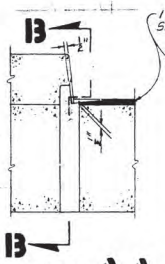
SECTION THRU JOINT AT END BENT
No Scale



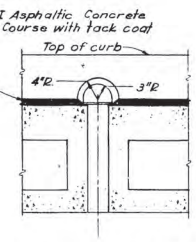
SECTION THRU JOINT AT INTERMEDIATE BENT
No Scale



PLAN



SECTION A A



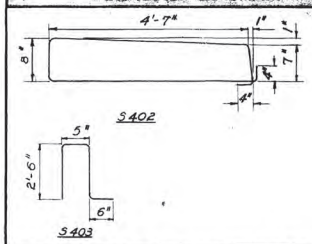
SECTION B B

DRAIN DETAIL
No Scale

CONSTRUCTION SCHEDULE

1. After pile caps have been properly cured, the prestressed slab units shall be set in place on an approved bearing pad.
2. The 12-wire lateral post-tensioning cable shall be initially tensioned to 25,000 lbs.
3. Keyways shall be grouted.
4. Final tension of 45,000# shall be applied to the 12-wire lateral post-tensioning cable 48 hours after grouting keyways. Grout post-tensioning wires and each recess.
5. Diaphragms at ends of precast slab units shall be poured.
6. Shear blocks on pile cap ends shall be poured.
7. Sidewalks and parapets shall be poured.
8. Type I Asphaltic Concrete Surface Course shall be applied with tack coat.

BENDING DIAGRAM



BILL OF REINFORCING STEEL
FOR ONE SPAN

Mark	No. Req'd	Length	Mark	No. Req'd	Length
S401	26	28'-11"			
S402	70	10'-7"			
S403	60	5'-7"			
D401	4	31'-8"			
D402	44	[illegible]			
D601	16	1'-6"			

ESTIMATED QUANTITIES
FOR ONE SPAN

No.	Item		
300-1	Class A Concrete		
910-1	Reinforcing Steel		
401-4	Prestressed Slab Units	S.F.	912.0

Notes: (Unless otherwise noted)

1. For General Notes see Plan and Elevation Sheet.
2. Minimum cover on all reinforcement shall be 2".
3. Lateral post-tensioning cables shall be grouted after final stressing.
4. All exposed edges shall be chamfered 1".
5. Cast-in-place concrete shall be Class A*. The air entraining agent shall be approved by the Engineer.
6. All joints that will be covered with an asphaltic concrete wearing surface shall be sealed with a sand mix asphalt. All other joints, including vertical joints, shall be sealed with rubber sealing compound, or approved equal.
7. Exposed faces of curb, sidewalk and parapet shall receive a Class I Surface Finish except top of sidewalk which shall have a broom finish.

REVISION	DATE	DESCRIPTION	BY

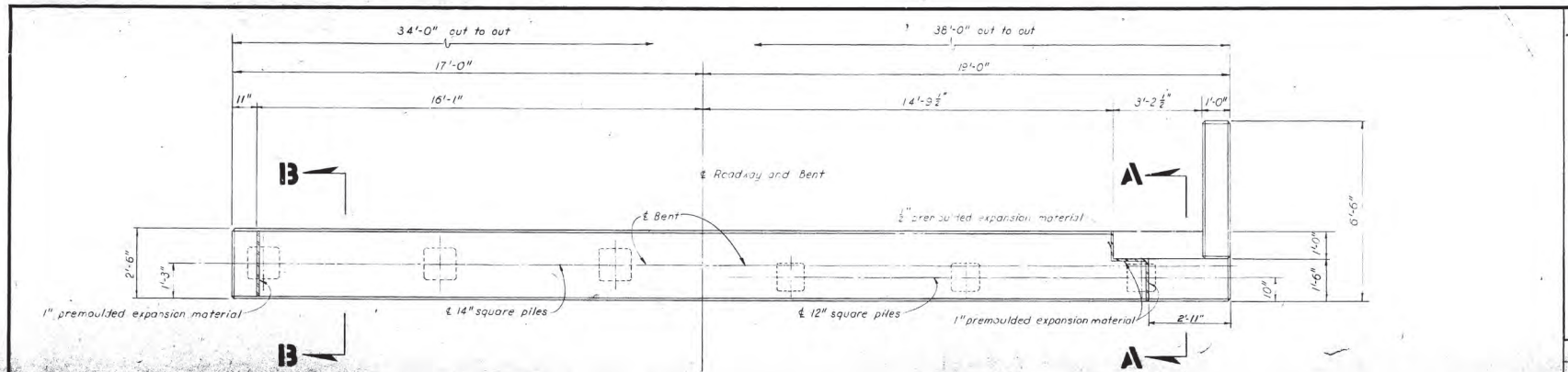
DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

DESIGN T. Black
DRAWN J. Sanzone
CHECK J. Brown
PROJECT ENGINEER [illegible]

SUPERSTRUCTURE
QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL

SUBMITTED — HIGHWAY ENGINEER
RECOMMENDED — CHIEF ENGINEER
APPROVED — DIRECTOR

DATE May 1962 FILE 8153 SHEET 12 OF 14



HALF PLAN INTERMEDIATE BENT

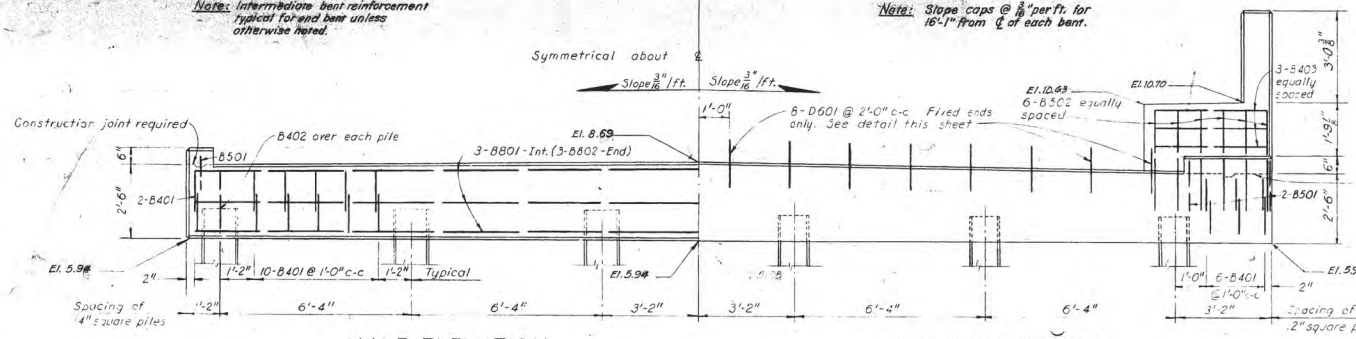
Scale: ½" = 1'-0"

Note: Intermediate bent reinforcement typical for end bent unless otherwise noted.

HALF PLAN END BENT

Scale: ½" = 1'-0"

Note: Slope caps @ 3/16" per ft. for 16'-1" from ℄ of each bent.

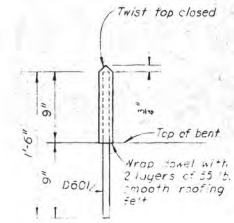


HALF ELEVATION INTERMEDIATE BENT

Scale: ½" = 1'-0"

HALF ELEVATION END BENT

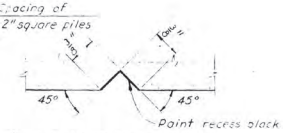
Scale: ½" = 1'-0"



DOWEL DETAIL

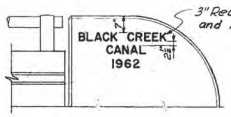
No Scale

Construction joint required



LETTER DETAIL

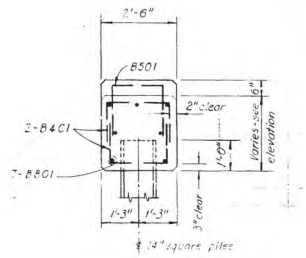
No Scale



Note: Numerals and letters shall be located on the traffic side of the N.E. and S.W. end walls.

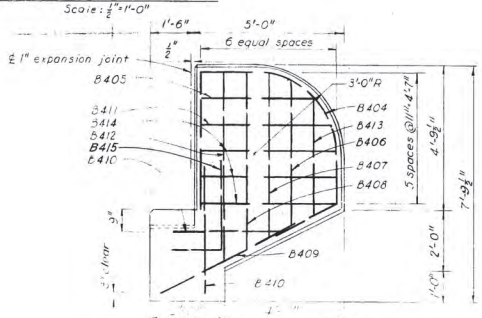
END WALL LETTER DETAIL

No Scale



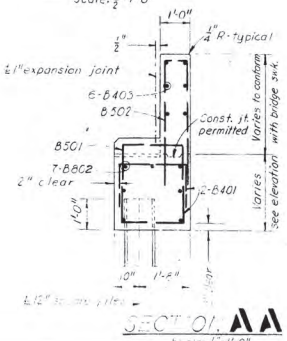
SECTION BB

Scale: ½" = 1'-0"



END WALL DETAIL

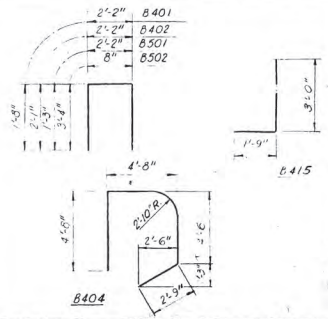
Scale: ½" = 1'-0"



SECTION AA

Scale: ½" = 1'-0"

BENDING DIAGRAM



BILL OF REINFORCING STEEL FOR ONE END BENT

Mark	No. Req'd	Length	Mark	No. Req'd	Length
B401	62	5'-3"	B411	4	4'-3"
B402	6	6'-1"	B412	4	6'-6"
B403	12	3'-10"	B413	4	3'-11"
B404	8	15'-1"	B414	12	4'-8"
B405	4	3'-9"	B415	4	4'-8"
B406	4	4'-11"	B501	4	4'-5"
B407	4	5'-5"	B502	12	7'-1"
B408	4	5'-11"			
B409	4	5'-0"	B802	7	37'-0"
B410	8	3'-9"			

FOR ONE INTERMEDIATE BENT

B401	54	5'-3"	B501	2	4'-5"
B402	6	6'-1"			
			B801	7	33'-8"

ESTIMATED QUANTITIES FOR ONE END BENT

No.	Item	Unit	Quantity
300-1	Class A* Concrete	C.Y.	11.70
310-1	Reinforcing Steel	Lb.	1300

FOR ONE INTERMEDIATE BENT

300-1	Class A* Concrete	C.Y.	8.10
310-1	Reinforcing Steel	Lb.	852

Notes: (Unless otherwise noted)

1. For General Notes, see Plan and Elevation Sheet.
2. Minimum cover on all reinforcing steel shall be 2".
3. All exposed edges and corners to be chamfered 1".
4. Slab soffit to be brought to final elevation by grinding with a carborundum stone.
5. Markers recording the elevation shall be placed at the approach end of the end bent at sidewalk level. One marker shall be placed at each end of the bridge as directed by the Engineer. Markers will be furnished by Dade County and shall be installed by the Contractor. Installation cost shall be included in the contract unit price for Class A* Concrete.
6. See Plan & Elevation Sheet for location of fixed and expansion ends.
7. Steel quantities for dowels shown on Superstructure sheet.
8. All exposed surfaces of the bents shall begiven a Class I surface finish.

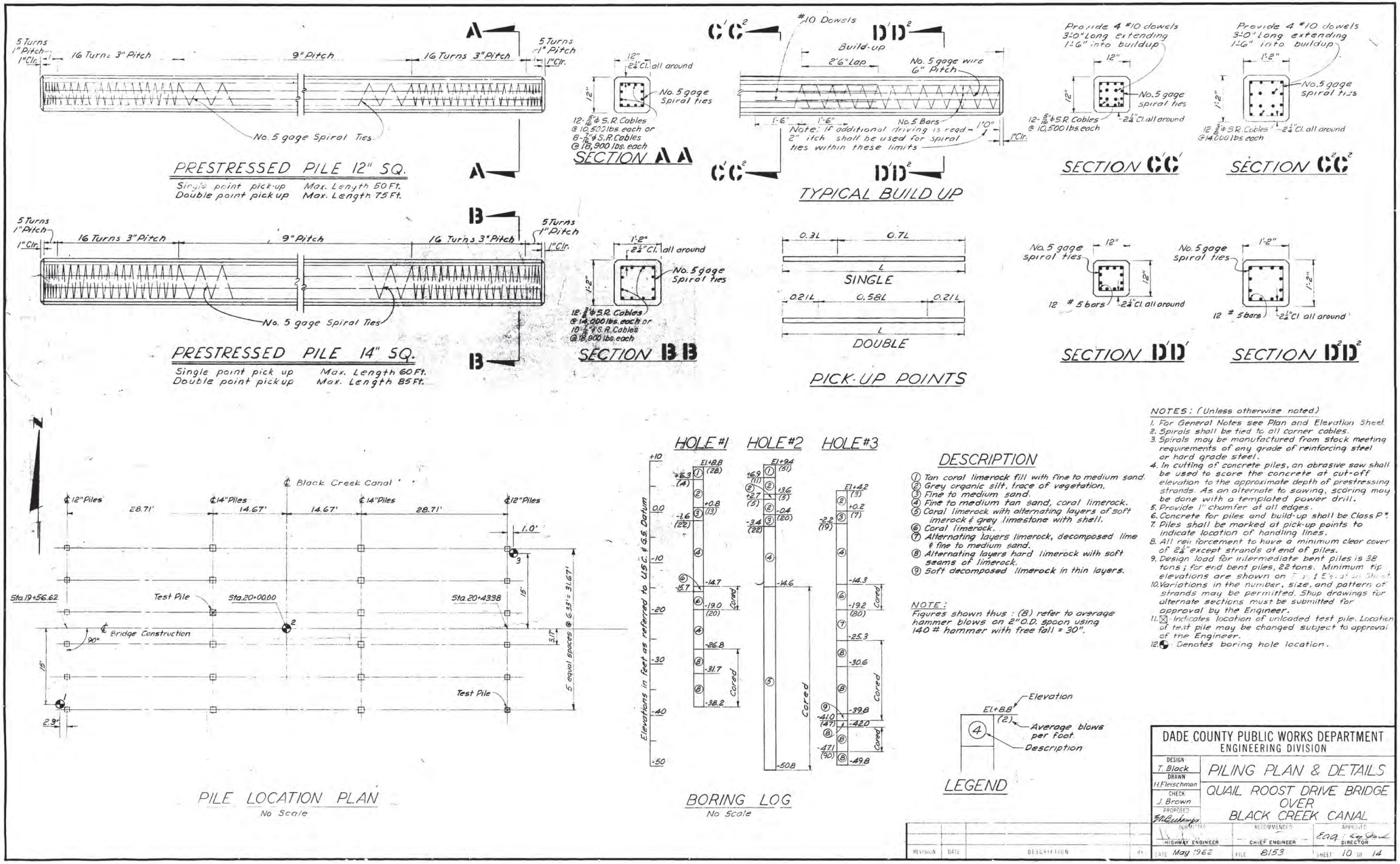
REVISIONS			DESCRIPTION	BY

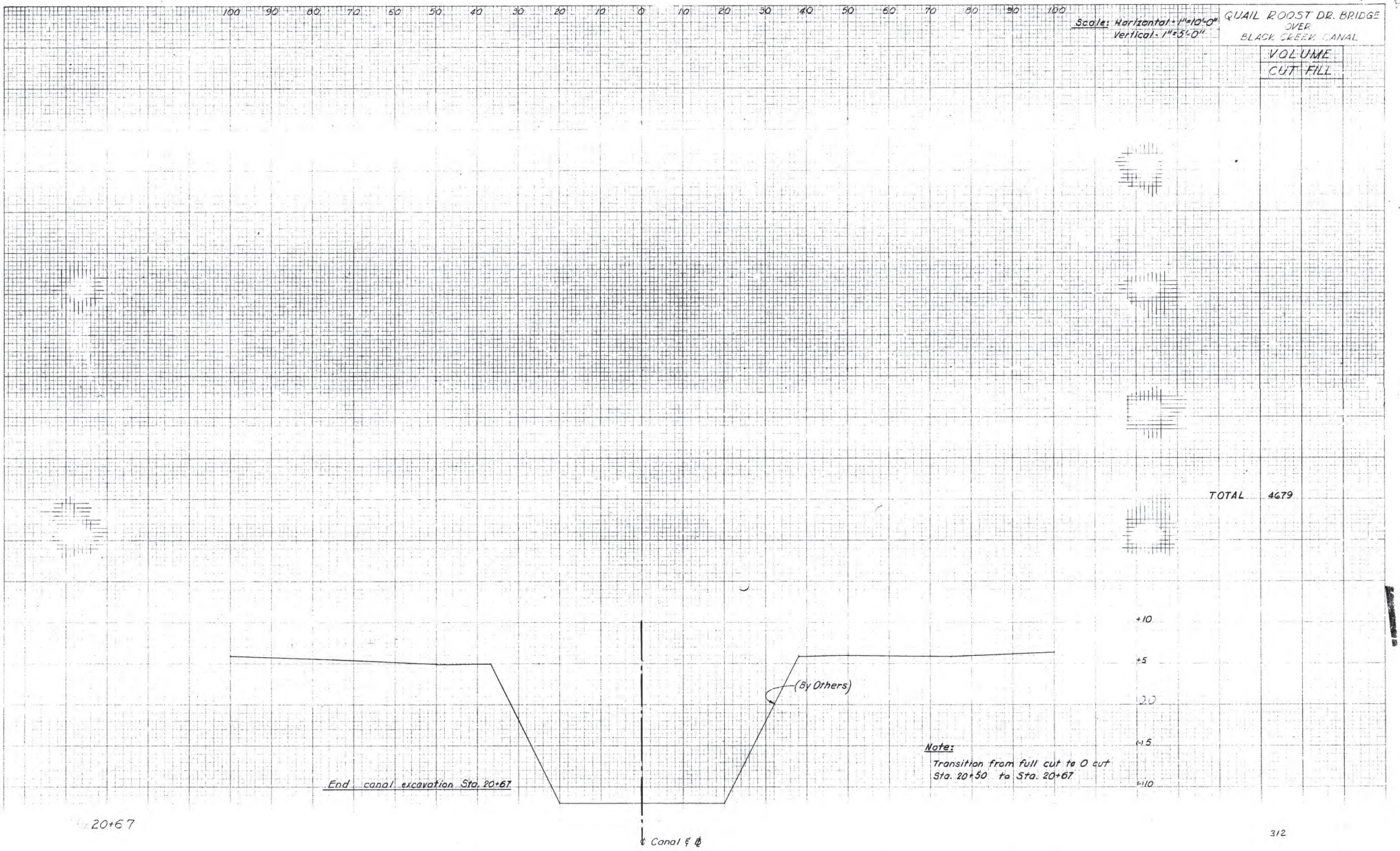
DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

DESIGN T. Black	INTERMEDIATE & END BENT
DRAWN Crumbley	QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL
CHECK J. Brown	
PROPOSED	

SUBMITTED	RECOMMENDED	APPROVED
HIGHWAY ENGINEER	CHIEF ENGINEER	DIRECTOR

DATE May 1962 | FILE B153 | SHEET 11 OF 14


5 Turns 1" Pitch 1" Clr.
16 Turns 3" Pitch
9" Pitch
16 Turns 3" Pitch
5 Turns 1" Pitch 1" Clr.
No. 5 gage Spiral Ties
PRESTRESSED PILE 12" SQ.
Single point pick-up Max. Length 50 Ft.
Double point pick up Max. Length 75 Ft.
12" 2½" Cl. all around
No. 5 gage Spiral ties
12-5/16" ϕ S.R. Cables @ 10,500 lbs. each or 8-7/16" ϕ S.R. Cables @ 18,900 lbs. each
SECTION AA
#10 Dowels
Build-up
2'6" Lap
No. 5 gage wire 6" Pitch
No. 5 Bars
Note: If additional driving is reqd - 2" pitch shall be used for spiral ties within these limits
TYPICAL BUILD UP
Provide 4 #10 dowels 3'0" Long extending 1'6" into buildup
12-5/16" ϕ S.R. Cables @ 10,500 lbs. each
SECTION CC'
Provide 4 #10 dowels 3'0" Long extending 1'6" into buildup
12-5/16" ϕ S.R. Cables @ 14,000 lbs. each
SECTION CC²
PRESTRESSED PILE 14" SQ.
Single point pick up Max. Length 60 Ft.
Double point pick up Max. Length 85 Ft.
1'2" 2½" Cl. all around
No. 5 gage Spiral ties
12-5/16" ϕ S.R. Cables @ 14,000 lbs. each or 10-7/16" ϕ S.R. Cables @ 18,900 lbs. each
SECTION BB
0.3L 0.7L
SINGLE
0.21L 0.58L 0.21L
DOUBLE
PICK-UP POINTS
No. 5 gage spiral ties
12 # 5 bars
2½" Cl all around
SECTION DD'
SECTION DD²
Black Creek Canal
12" Piles
14" Piles
28.71'
14.67'
1.0'
Sta 19+56.62
Test Pile
Sta 20+00.00
Sta 20+43.38
Bridge Construction
90°
5 equal spaces @ 6.33' = 31.67'
2.9'
PILE LOCATION PLAN
No Scale
HOLE #1
HOLE #2
HOLE #3
Elevations in feet as referred to U.S.C. & G.S. Datum
Cored
BORING LOG
No Scale
DESCRIPTION
① Tan coral limerock fill with fine to medium sand.
② Grey organic silt, trace of vegetation.
③ Fine to medium sand.
④ Fine to medium tan sand, coral limerock.
⑤ Coral limerock with alternating layers of soft limerock & grey limestone with shell.
⑥ Coral limerock.
⑦ Alternating layers limerock, decomposed lime & fine to medium sand.
⑧ Alternating layers hard limerock with soft seams of limerock.
⑨ Soft decomposed limerock in thin layers.
NOTE: Figures shown thus: (8) refer to average hammer blows on 2" O.D. spoon using 140 # hammer with free fall = 30".
Elevation
Average blows per foot.
Description
LEGEND
NOTES: (Unless otherwise noted)
1. For General Notes see Plan and Elevation Sheet.
2. Spirals shall be tied to all corner cables.
3. Spirals may be manufactured from stock meeting requirements of any grade of reinforcing steel or hard grade steel.
4. In cutting of concrete piles, an abrasive saw shall be used to score the concrete at cut-off elevation to the approximate depth of prestressing strands. As an alternate to sawing, scoring may be done with a templated power drill.
5. Provide 1" chamfer at all edges.
6. Concrete for piles and build-up shall be Class P*.
7. Piles shall be marked at pick-up points to indicate location of handling lines.
8. All reinforcement to have a minimum clear cover of 2½" except strands at end of piles.
9. Design load for intermediate bent piles is 38 tons; for end bent piles, 22 tons. Minimum tip elevations are shown on Table of Estimated Quantities Sheet.
10. Variations in the number, size, and pattern of strands may be permitted. Shop drawings for alternate sections must be submitted for approval by the Engineer.
11. ⊠ Indicates location of unloaded test pile. Location of test pile may be changed subject to approval of the Engineer.
12. ◔ Denotes boring hole location.
DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
DESIGN T. Black
DRAWN H. Fleischman
CHECK J. Brown
PROPOSED
PILING PLAN & DETAILS
QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL
SUBMITTED HIGHWAY ENGINEER
RECOMMENDED CHIEF ENGINEER
APPROVED DIRECTOR
REVISION DATE DESCRIPTION BY
DATE May 1962
FILE 8153
SHEET 10 OF 14



FINAL SURVEY
SURVEYED
PLOTTED
TRACED
CHECKED
NOTE BOOK
NO.

ORIGINAL SURVEY
NOTE BOOK
NO. 606

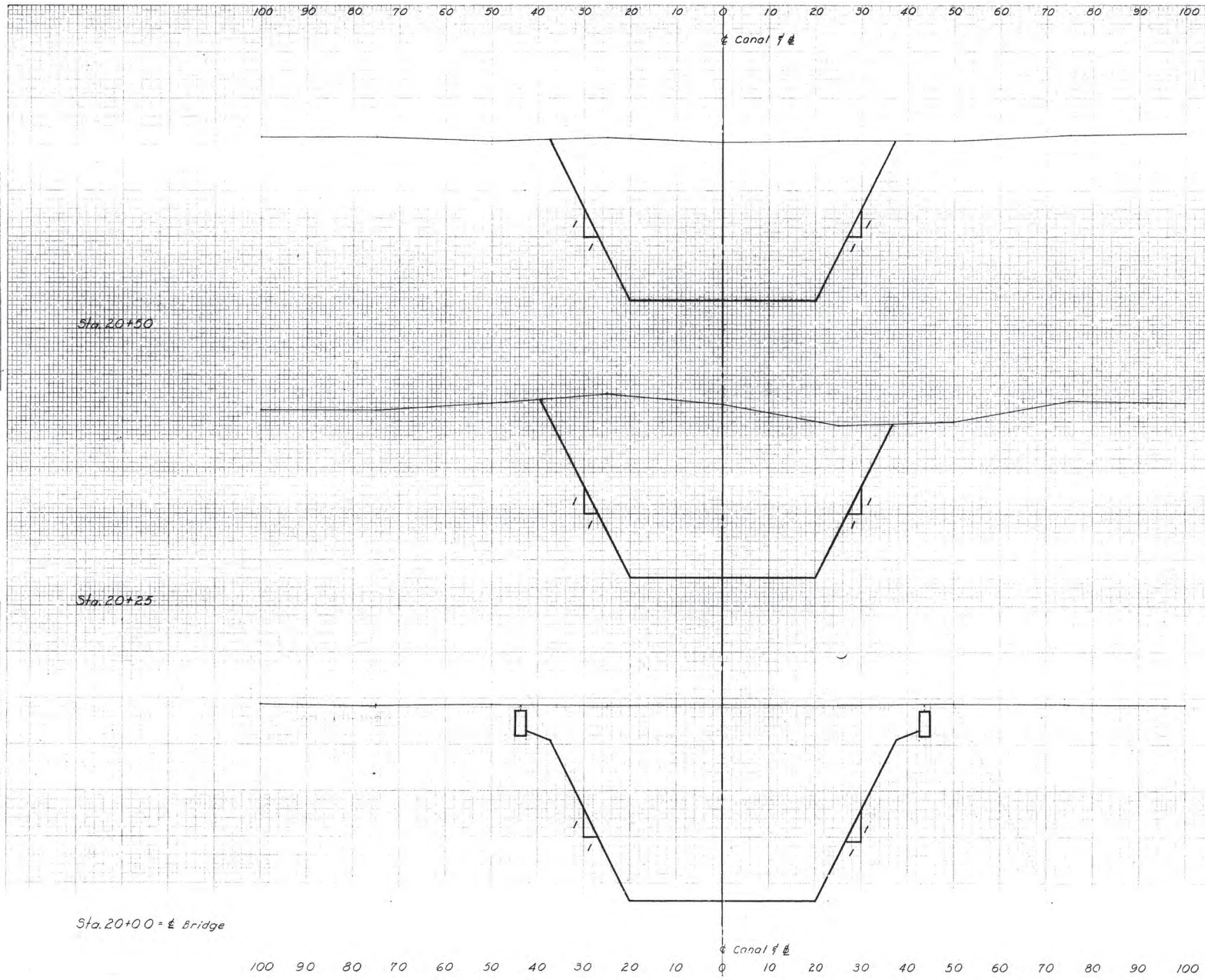
J. Sanborne
Crawford
Higgins

12-6-61
12-6-61

FILE 8153 Sheet 9 of 14

QUAIL ROOST DR. BRIDGE
OVER
BLACK CREEK CANAL

Scale: Horizontal - 1"=10'-0"
Vertical - 1"=5'-0"



VOLUME	
CUT	FILL
956	
1114	
1064	

FINAL SURVEY
SURVEYED
PLOTTED
PLOTTED
AREAS CHECKED
NOTE BOOK
NO.
BY
DATE

J. Sorzano
13 Nov 82
Computed by
Edgerton

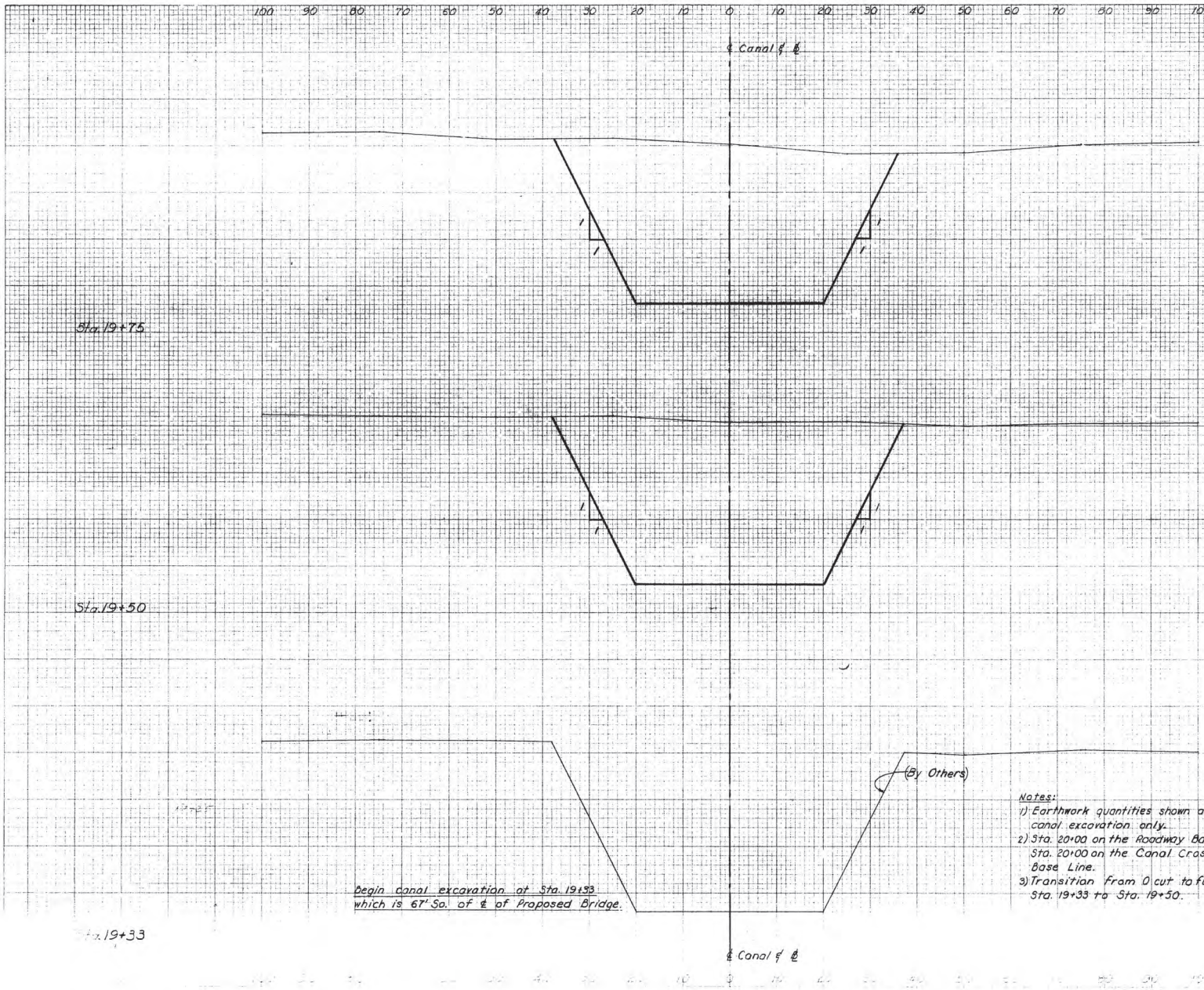
O.G. (FINAL) SURVEY
STATION
No. 609

FILE 8153

Sheet 8 of 14

QUAIL ROOST DR. BRIDGE
OVER
BLACK CREEK CANAL

Scale: Horizontal - 1" = 10'-0"
Vertical - 1" = 5'-0"



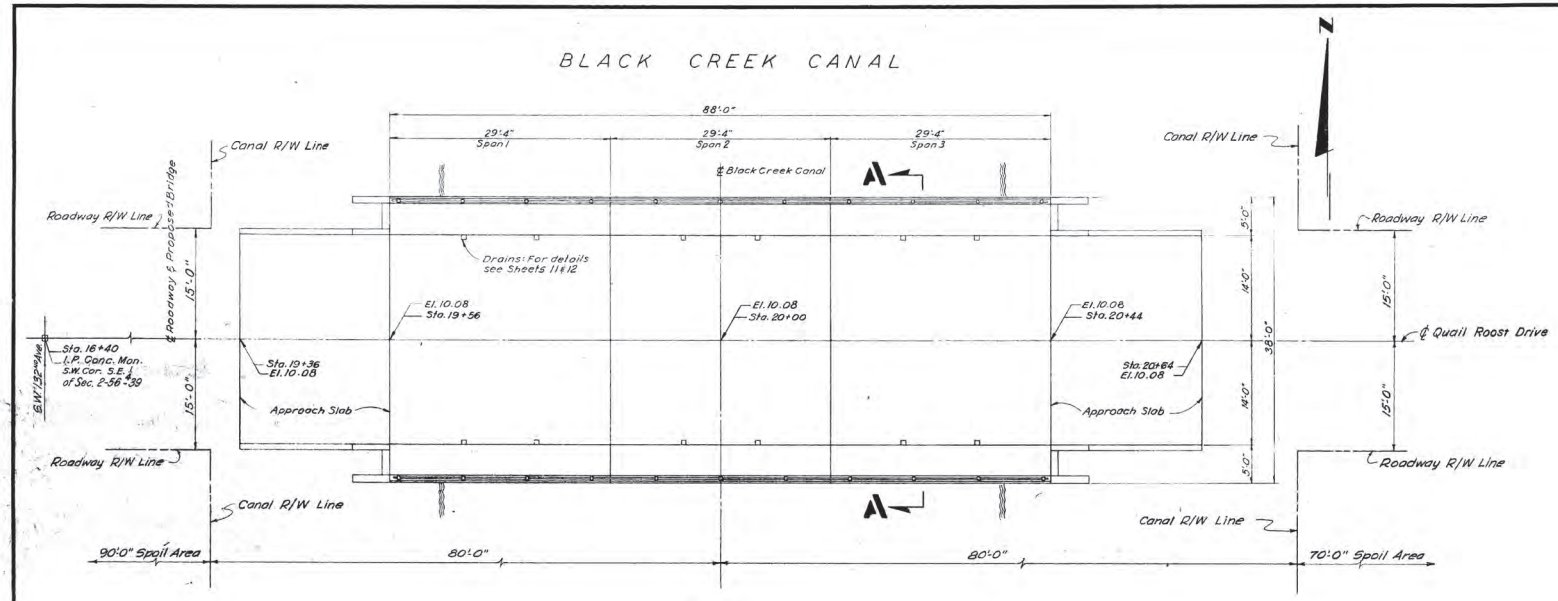
VOLUME	
CUT	FILL
	915
	318

Notes:
1) Earthwork quantities shown are for canal excavation only.
2) Sta. 20+00 on the Roadway Base Line = Sta. 20+00 on the Canal Cross Section Base Line.
3) Transition from 0 cut to full cut Sta. 19+33 to Sta. 19+50.

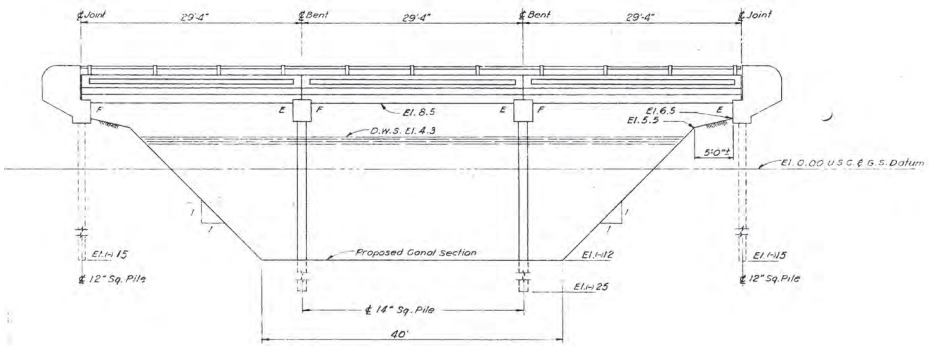
FINAL SURVEY
NOTE BOOK NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED

ORIGINAL SURVEY
NOTE BOOK NO. 909

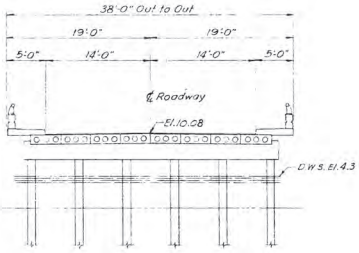
J. Sansone
Graphics
12-21-
18 Nov 88



PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"



SECTION AA
Scale: 1/8" = 1'-0"

ESTIMATED BRIDGE QUANTITES

No.	Item	Unit	Quantity
57-4	Regular Excavation (Canal Only)	L.S.	1
300-1	Class A* Concrete	C.Y.	86.1
310-1	Reinforcing Steel	L.b.s.	8400
401-4	Prestressed Slab Units	S.F.	2736
403-3A	Precast Concrete Piling Furnished (12")	L.F.	242
403-3B	Precast Concrete Piling Furnished (14")	L.F.	352
403-4A	Precast Concrete Piling Driven (12")	L.F.	242
403-4B	Precast Concrete Piling Driven (14")	L.F.	352
403-9A	Unloaded Test Piles (12")	L.F.	32
403-9B	Unloaded Test Piles (14")	L.F.	42
403-10	Test Loads	Ea.	2
403-14	Punching	Ea.	22
407-1	Aluminum Handrail	L.F.	176

GENERAL NOTES: (Unless otherwise noted)

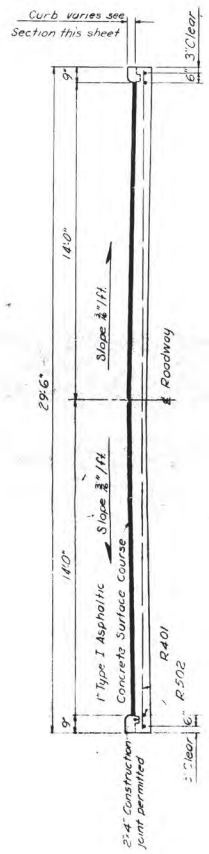
1. The design specifications used are as follows: A.A.S.H.O., 1957; B.P.R. Criteria, 1954; Joint Committee Report 323.
2. The bridge design loading is H20-S16-44.
3. All elevations are referred to U.S.C. & G.S. datum.
4. Elevations shown of piles are minimum tip elevations.
5. All quantities shown are estimated and subject to verification by the Contractor.
6. In all Bills of Reinforcement, the first number of the bar designation indicates the size of the bar, thus S601 bar is a No. 6 bar.
7. All reinforcing steel shall be new deformed bars in accordance with A.S.T.M. A 305 and shall be either intermediate grade Billet Steel in accordance with A.S.T.M. A-15, or Rail Steel in accordance with A.S.T.M. A-16.
8. Concrete used in prestressed members shall be Cl. "P". All other structural concrete shall be Class A, f'_c=3000psi.
9. In Bending Diagrams all dimensions are out to out.
10. All exposed surfaces of bents and all surfaces of superstructure as seen in elevation shall be given a Class I Surface Finish.
11. For survey data refer to Field Book # 606.
12. Reinforcing steel placement shall comply with "Recommended Practice for Placing Reinforcing Bars", C.R.S.I. Metal chairs shall not be used.

DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

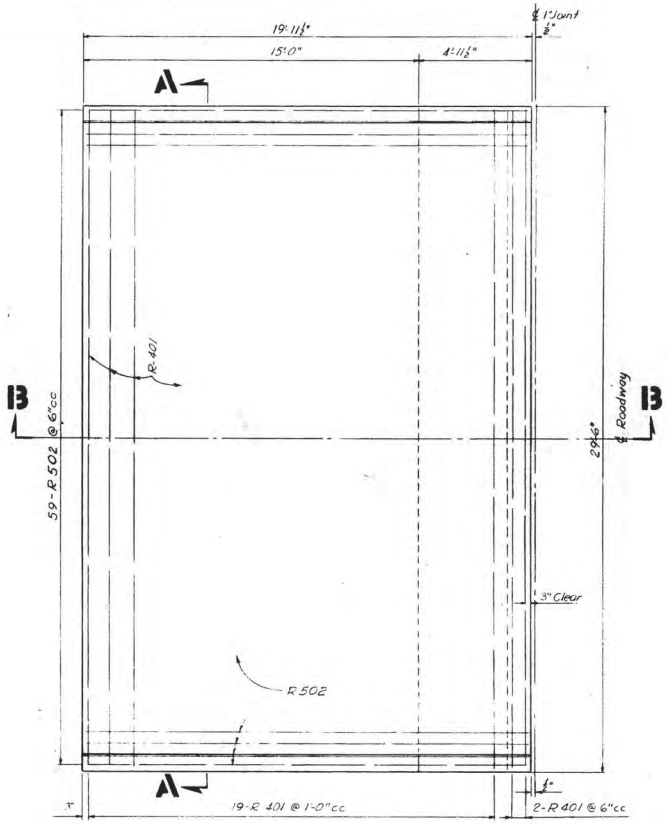
DESIGN Black	PLAN & ELEVATION
DRAWN Maculatis	QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL
CHECK J. Brown	
PROPOSED	

SUBMITTED	RECOMMENDED	APPROVED
HIGHWAY ENGINEER	CHIEF ENGINEER	DIRECTOR
DATE May 1962	FILE 8153	SHEET 6 OF 14

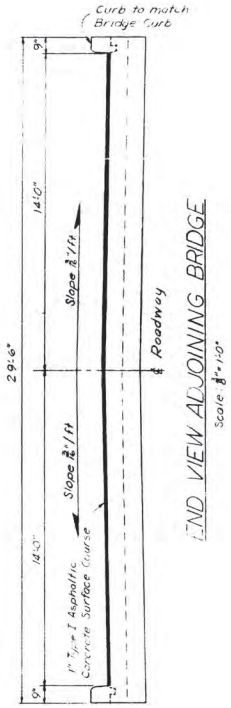
REVISION	DATE	DESCRIPTION	BY



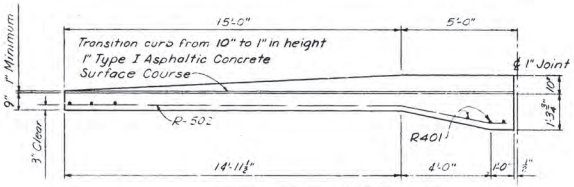
SECTION A A
Scale: 1/8" = 1'-0"



PLAN
Scale: 3/8" = 1'-0"

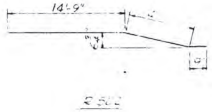


END VIEW ADJOINING BRIDGE
Scale: 1/8" = 1'-0"



SECTION B B
Scale: 1" = 1'-0"

BENDING DIAGRAM



BILL OF REINFORCING STEEL FOR ONE APPROACH SLAB

Mark	No. Req'd	Length	Mark	No. Req'd	Length
R401	21	29'-0"	R502	59	19'-6"

ESTIMATED QUANTITIES FOR ONE APPROACH SLAB

No.	Item	Unit	Quantity
300-1	Class A" Concrete	C.Y.	18.8
310-1	Reinforcing Steel	Lb.	1,607

NOTES: (Unless otherwise noted)

1. For General Notes see Plan and Elevation Sheet
2. Round all exposed edges of concrete to ¾" Radius.
3. Concrete shall be Class A".
4. Seal the Approach Slabs on 2 layers of 55 lb roofing felt at bents.
5. For joint details between Approach Slab and Bridge see Superstructure Sheet.
6. Minimum cover on all reinforcing steel shall be 2" of concrete except where earth is used as a form, 3" shall be required.
7. The quantities shown are for the Contractor's information only. Payment shall be made under Item No. 190-2.

REVISION	DATE	DESCRIPTION	BY

DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

DESIGN T. Black
DRAWN H. Fleischman
CHECK J. Brown
PROPOSED

APPROACH SLAB
QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL

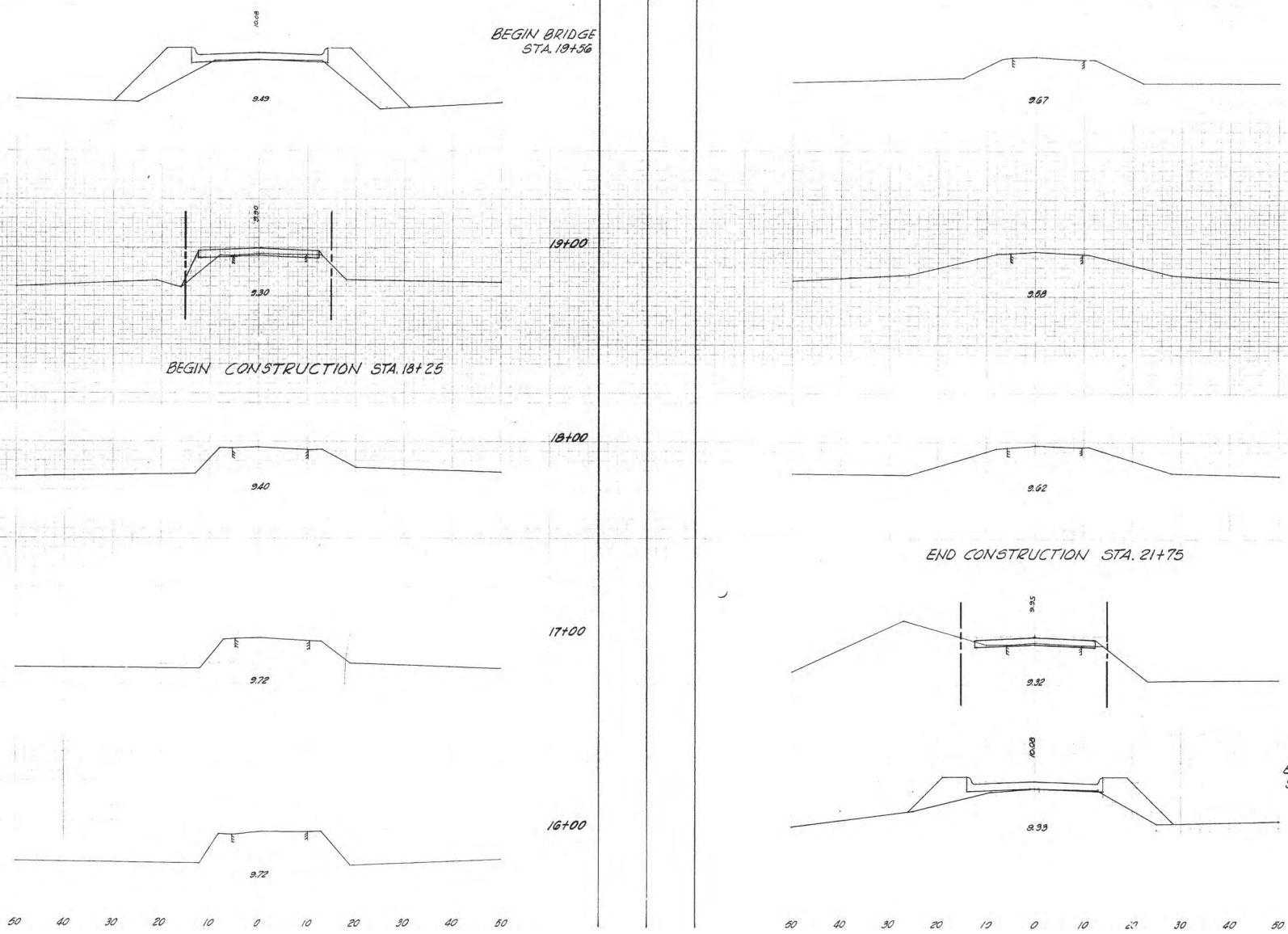
SUBMITTED: HIGHWAY ENGINEER
RECOMMENDED: CHIEF ENGINEER
APPROVED: DIRECTOR

DATE May 1962 | FILE 8153 | SHEET 5 of 14

SCALE: HORIZ. 1"=10'
VERTICAL 1"=5'

DADE COUNTY PUBLIC WORKS DEPT.
ENGINEERING DIVISION
QUAIL ROOST DRIVE BRIDGE
PROJECT NO. 8153 SHEET 2 OF 4

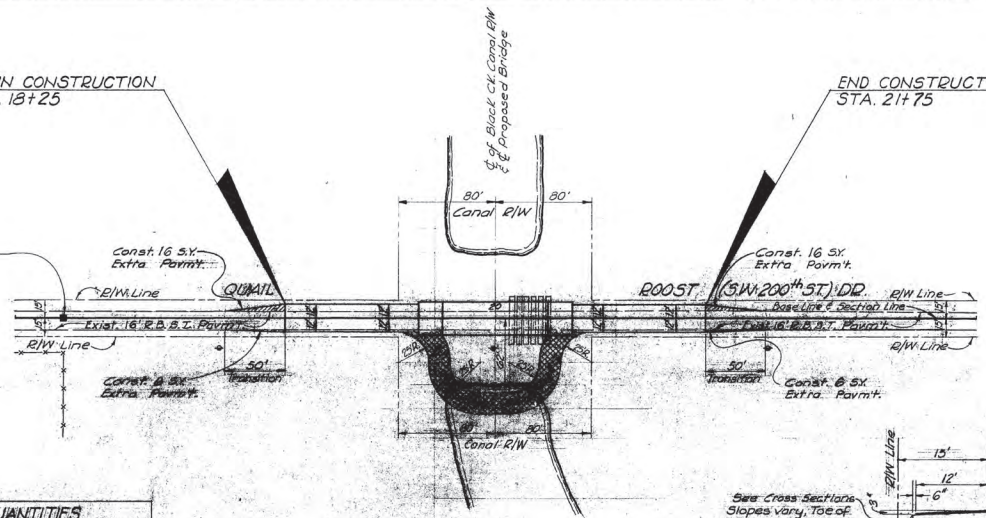
VOLUME	
CUT	FILL

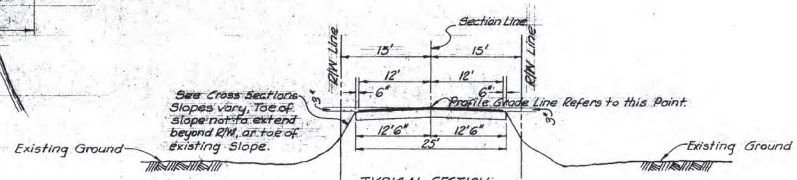


FINAL SURVEY
NOTE BOOK NO.
TURNED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED

Surveyor

DADE COUNTY PUBLIC WORKS DEPT.
ENGINEERING DIVISION
QUAIL ROOST DRIVE BRIDGE
PROJECT NO. 8153 SHEET 9 OF 14



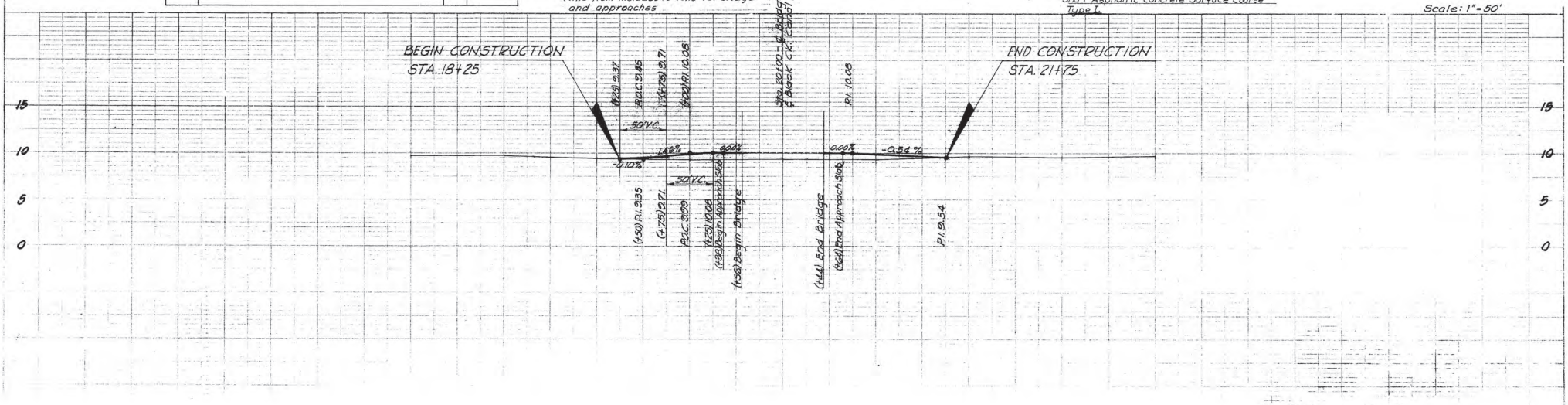


TYPICAL SECTION
Construct Limerock Base (8" Thick), Primed with Bituminous Surface Treatment Type I-C and 1" Asphaltic Concrete Surface Course Type I.

Scale: 1" = 50'

SUMMARY OF QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITY
58-3	Grading (Including Borrow)	L.S.	1
100-1	Limerock Base (8" Thick)	S.Y.	661
190-2	Concrete Approach Slabs	Ea.	2
210-2	Bituminous Surface Treatment, Type I-C	S.Y.	661
* 233-3	Type I Asphaltic Concrete Surface Course	Ton	57

Notes
For additional Canal information, see sheets 7 & 8.
For details of Approach Slab, see sheet 5.
Type I Asphaltic Concrete Surface Course shall be applied at a rate of 110 lbs/S.Y./in.
* This item includes 15 tons for bridge and approaches



PLAN
SURVEYED
PLOTTED
PLANS PREPARED
R/W CHECKED
NOTE BOOK
No. 606
C.M. Scott

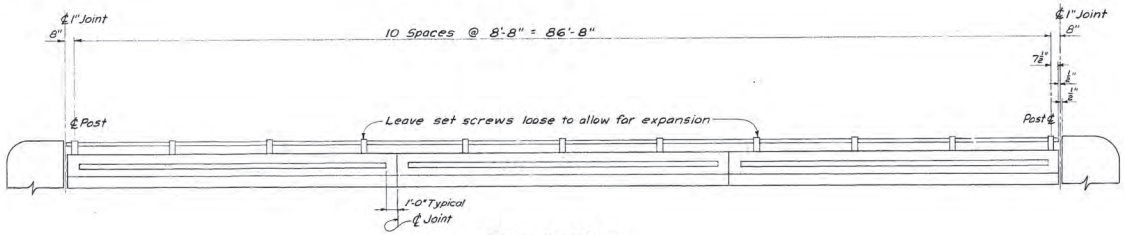
PROFILE
No. 606
C.M. Scott

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITIES		
			ROADWAY	BRIDGE	TOTAL
50-1	Maintenance of Traffic	L.S.	1		1
57-4	Regular Excavation (Canal Only)	L.S.		1	1
58-3	Grading (Including Borrow)	L.S.	1		1
100-1	Limerock Base (8" Thick)	S.Y.	661		661
190-2	Concrete Approach Slab	Ea.		2	2
210-2	Bituminous Surface Treatment, Type 1-C	S.Y.	661		661
233-1	Type I Asphaltic Concrete Surface Course	Ton	42	15	57
300-1	Class A* Concrete	C.Y.		86.1	86.1
310-1	Reinforcing Steel	Lb.		8400	8400
401-4	Prestressed Slab Units	S.F.		2736	2736
403-3A	Precast Concrete Piling Furnished (12")	L.F.		242	242
403-3B	Precast Concrete Piling Furnished (14")	L.F.		352	352
403-4A	Precast Concrete Piling Driven (12")	L.F.		242	242
403-4B	Precast Concrete Piling Driven (14")	L.F.		352	352
403-9A	Unloaded Test Piles (12")	L.F.		32	32
403-9B	Unloaded Test Piles (14")	L.F.		42	42
403-10	Test Loads	Ea.		2	2
403-14	Punching	Ea.		22	22
407-1	Aluminum Handrail	L.F.		176	176

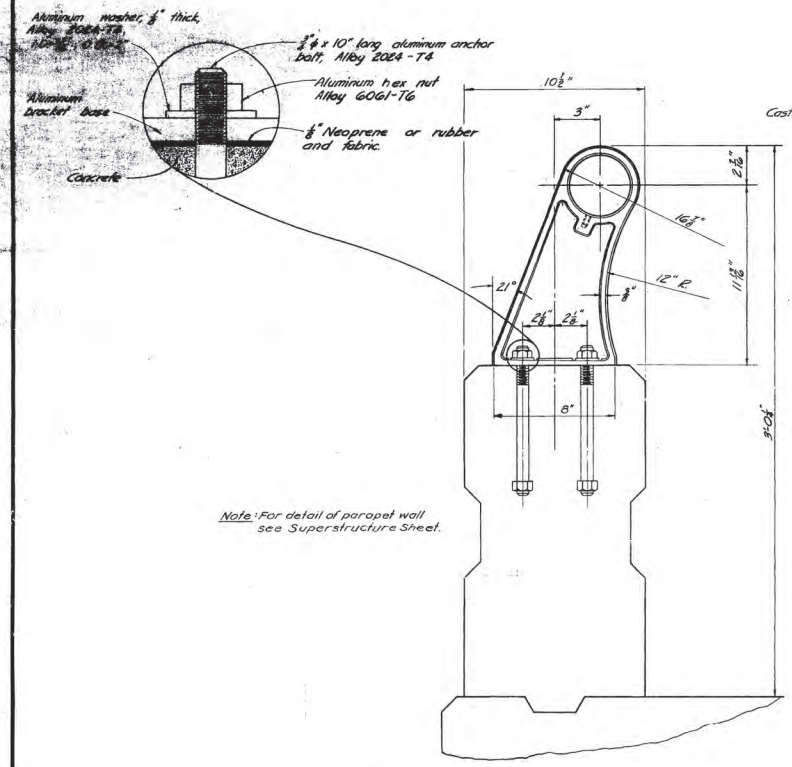
BC# 870633

870633



ELEVATION

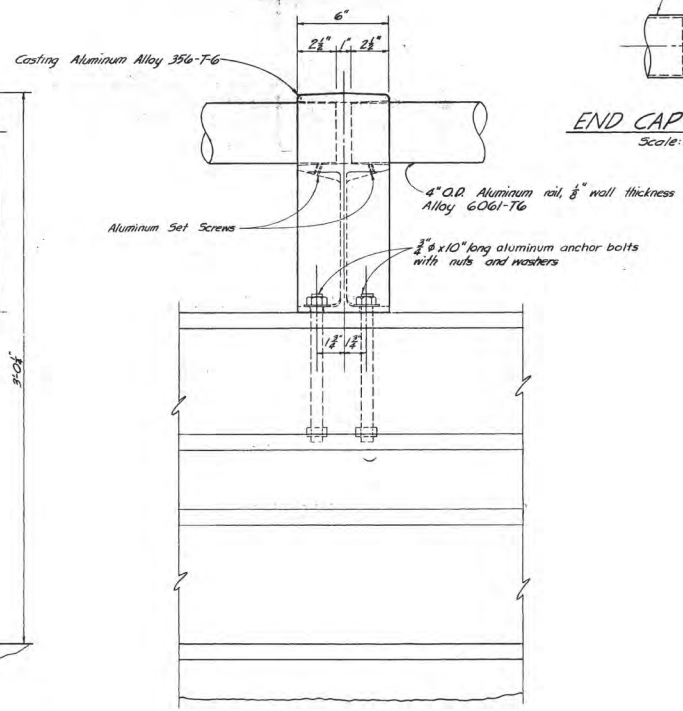
No Scale

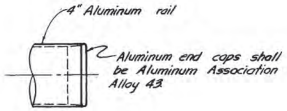


Note: For detail of parapet wall see Superstructure Sheet.

HANDRAIL DETAIL

Scale: 3"=1'-0"





END CAP DETAIL

Scale: 3"=1'-0"

Notes (Unless otherwise noted)

1. Cast post to be Alcoa No. 1003 Alloy 356-T6 as shown here, or equal subject to approval by the Engineer.
2. Rails to be Aluminum Alloy 6061-T6, sizes as shown, with minimum wall thickness of ⅛".
3. The anchor bolts and nuts in contact with concrete shall be coated with zinc chromate paint and allowed to dry before installation.
4. Drill ⅛" drain holes in bottom of pipe handrails, approximately midway between posts.
5. All aluminum handrail posts shall be seated on ⅛"x6"x9" neoprene pads or rubber and fabric.
6. Rails, posts and all parts of handrail assembly to be free from all dirt, grease and foreign material and to be throughly cleaned before final acceptance.
7. Rail end caps to be flush fitted.
8. Handrail shall be paid for per linear foot. Handrail shall be measured along ℄ of rail and end posts with no deductions for open joints.
9. Shop Drawings showing complete details of the proposed handrail shall be submitted by the Contractor for approval by the Engineer. Installation of the railing shall be in accordance with Manufacturer's recommendations.

DADE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

DESIGN T. Black	HANDRAIL DETAILS
DRAWN H. Fleischman	QUAIL ROOST DRIVE BRIDGE OVER BLACK CREEK CANAL
CHECK J. Brown	
PROPOSED F. Richards	

SUBMITTED	RECOMMENDED	APPROVED
HIGHWAY ENGINEER	CHIEF ENGINEER	DIRECTOR

DATE May 1962 FILE 8153 SHEET 14 OF 14

REVISION	DATE	DESCRIPTION	BY

APPENDIX E

Relevant Project Correspondence

Meeting Notes

Date and Time: July 8, 2021 – 9:00 AM
Meeting location: Microsoft Teams Meeting
Project: SR 994/Quail Roost Drive PD&E Study
From SW 137th Avenue to SW 127th Avenue, Miami-Dade, Florida
FM Number: 445804-1-22-01
Contract Number: CAE32

Project Kick-Off Meeting

Attendee	Agency/Company	Phone	E-mail
Alejandro Casals	D6 ROW Administration	305-470-5473	alejandro.casals@dot.state.fl.us
Alejandro Uribe	Gannett Fleming	305-908-3935	auribe@gfnet.com
Alicia Trujillo	D6 Legal	305-470-5374	alicia.trujillo@dot.state.fl.us
Alina Fernandez	Gannett Fleming	305-908-3937	afernadez@gfnet.com
Amanda Montgomery	D6 Production Services (Consultant)	561-687-2220	amanda.montgomery@dot.state.fl.us
Amy Streelman	Janus Research	813-636-8200	amy_streelman@janus-research.com
Ana Sandoval	Gannett Fleming	305-908-3709	ansandoval@gfnet.com
Courtney Arena	Gannett Fleming	561-328-2397	carena@gfnet.com
Diego Rivadeneira	D6 ROW Production	305-470-5161	diego.rivadeneira@dot.state.fl.us
Elizabeth Correal	Choice Engineering	786-250-5526	ecorreal@choiceeng.com
Elsa Riverol	D6 Consultant Management	305-470-5105	elsa.riverol@dot.state.fl.us
Eugenio Lopez	Choice Engineering	786-250-5526	elopez@choiceeng.com
Jim Mykytka	D6 PLEMO (Consultant)	813-636-2624	jim.mykytka@rsandh.com
Judy Solaun-Gonzalez	D6 Consultant Management	305-470-5343	judy.solaun@dot.state.fl.us
Karina Fuentes	D6 Design	305-470-5310	karina.fuentes@dot.state.fl.us
Lydia Santiago	M.G. Vera & Associates	561-203-2704	lsantiago@mgvera.com
Mark Clark	Cyriacks Environmental	305-509-6550	mc@cecosenvironmental.com
Marta Flores	D6 ROW Administration	305-470-5123	marta.flores@dot.state.fl.us
Mauricio Gomez	D6 PLEMO	305-470-5228	mauricio.gomez@dot.state.fl.us
Misleidys Leon	D6 Traffic Operations	305-470-5345	misleidys.leon@dot.state.fl.us
Monica Diaz	Infinite Source Communications	305-984-2715	monica@iscprgroup.com
Nilia Cartaya	D6 Modal Development Office	305-640-7557	nilia.cartaya@dot.state.fl.us
Pablo Orozco	D6 D/W Bridge Inspection	305-470-5370	pablo.orozco@dot.state.fl.us
Richard Glass	Glass Land Acquisition Service	305-270-8980	richard.glass@glasslandacq.com
Robert McMullen	D6 PLEMO	305-470-5149	robert.mcmullen@dot.state.fl.us
Rodrigo Ley	D6 Production Services	305-470-5263	rodrigo.ley@dot.state.fl.us
Tania Shagoury	D6 ROW Production	305-470-5193	tania.shagoury@dot.state.fl.us
Victor Marrero	D6 Surveying and Mapping	305-470-5194	victorm.marrero@dot.state.fl.us
X Negrin	D6 Surveying and Mapping	305-470-5242	x.negrin@dot.state.fl.us

1. **GF Team Introduction**
   Consultant Team Leads presented by Alina. See attached org chart.

2. **Project Overview**
   Project overview presented by Alina. See attached slides for details.

3. **Project Tasks**

3.1. Public Involvement

- *PIP due on 7/28/2021.*
- *Public Kick Off Meeting: Tentative Date 11/1/2021.*
- *Monica will coordinate with Tish on the upcoming activities.*

3.2. Engineering

3.2.1. Survey:

- *Survey completed by FDOT in April 2021. Files provided to GF.*
- *Supplemental Survey needed (see attached exhibit):*
  - *Existing Drainage*
  - *Topo/DTM for Black Creek Trail and side streets and missing parcel lines*
- *For proposed alternative/Design Phase need topo/DTM of:*
  - *impacted areas beyond existing R/W*
  - *SW 137th Avenue and SW 127th Avenue after ongoing projects are complete*
- *Formal supplemental survey request to be submitted in PSEE.*

3.2.2. Geotechnical

- *Data Collection to start on 7/9/2021*

3.2.3. Traffic and Safety

- *Traffic Methodology Meeting to be scheduled as soon as possible.*
- *Traffic Methodology Memorandum due two weeks after Methodology Meeting*
  - *Travel Demand Forecast Reviewer: Ken Jeffries (Planning)*
  - *Traffic Operations and Safety Reviewer: Misleidys Leon (Traffic Ops)*
- *Data collection to start after summer break. Scheduled for end of August.*
- *Data collection activities to be coordinated with adjacent project to the east (scheduled to start construction soon). Construction activities and/or detours will impact traffic patterns.*
- *Traffic Operations Office has received requests to advance improvements at the intersection of Quail Roost Dr and SW 134th Avenue. Ramon Sierra will be advancing improvements at this intersection under a separate project. The PD&E study should be coordinated with Ramon's project to avoid/minimize throwaway.*
- *Increased bicycle and pedestrian activities have been observed in the corridor recently.*
- *Bicycle and pedestrian data will be provided by the Planning office. Elsa will send the request and share the information with the team.*

3.2.4. Utilities

- *6 UAOs: Comcast Cable, MDTPW Traffic, FP&L, Crown Castle Fiber, Miami-Dade Water Sewer, AT&T Distribution*

- *Initial contact after concept development*
- *WASD has earmarked this project as a Potential Collaboration Project – further coordination needed*
- *Elsa will reach out to Xenia to confirm if a separate kickoff meeting is needed.*

3.2.5. Structures

- *Bridge over Black Creek Canal – new bridge alternative to consider accommodating trail crossing.*
- *Existing bridge is substandard for vertical clearance. Bridge replacement will be considered in the study.*
- *Pablo indicated that bridge replacement is a good approach for sonovoid bridges.*
- *For asbestos testing coordination, the contact person is Geidy Coello. The turnaround time is approximately three months.*

3.2.6. Drainage

- *2 Basins (east and west of canal). System will be self-contained, with French Drains. No new outfalls.*

3.2.7. Landscaping Analysis

- *Analysis of impacts and pros/cons of alternatives with respect to landscaping. This evaluation will be included in PER and evaluation matrix.*
- *PD&E study will identify opportunities to add landscaping but Landscape Opportunity Plans will not be developed at this stage.*

3.2.8. Construction Cost Estimates

- *Update LRE to reflect Scoping Report typical section. Not immediately. To be done once concepts or typicals have been developed.*
- *LRE to be created/updated before next gaming (end of year) in order to check if additional funds need to be programmed for the project.*

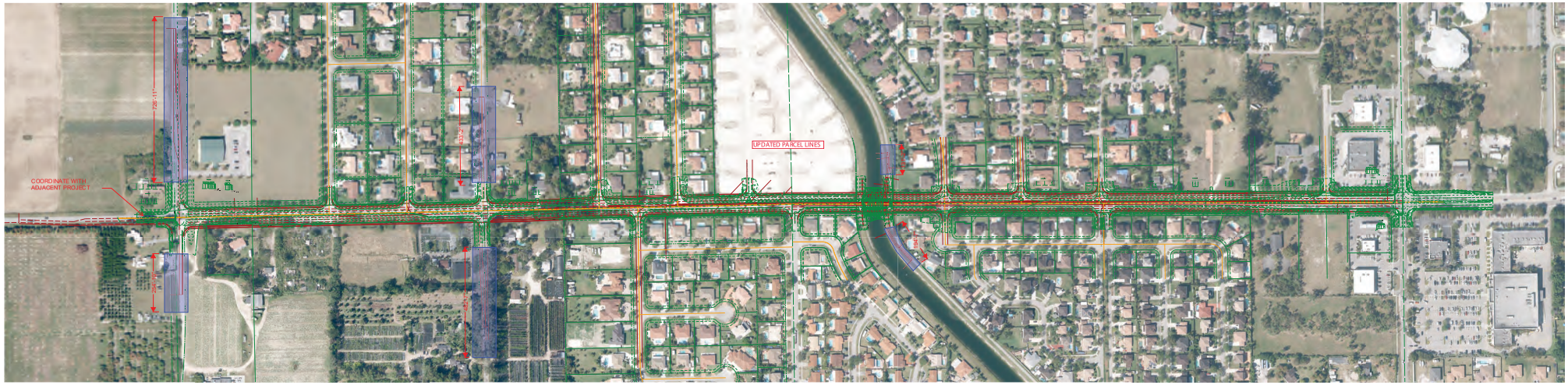
3.2.9. Right of Way

- *R/W Acquisition and Relocation is anticipated.*
- *R/W Analysis to start after the alternatives concept plans are developed.*
- *Potential impacts to three historic resources were identified during the proposal stage and will need to be evaluated in further detail.*
- *A three-lane typical will be evaluated as part of the PD&E study to minimize ROW takes.*
- *Project presentation to be sent to Diego Rivadeneira.*

3.3. Environment

- *Data collection can begin during the alternative selection process.*
- *Analysis and Report Preparation will start once the preferred alternative has been selected.*
- *Craig James and Mauricio Gomez will be invited to progress meetings.*
- *Barbara Culhane and Amy Streelman will be invited to meetings that include Cultural Resources coordination.*

4. **Action Items**
    - *Distribute project schedule to meeting attendees for review and input – Alina*
    - *Send calendar invite for progress meetings – Elsa/Alina*
    - *Coordinate upcoming Public Involvement activities with Tish – Monica*
    - *Submit formal supplemental survey request in PSEE – Elsa/Alina*
    - *Schedule Traffic Methodology Meeting – Eugenio*
    - *Send request for bicycle/pedestrian data to Planning Office – Elsa*
    - *Confirm with Xenia if separate kickoff meeting is needed for utilities – Elsa*
    - *Send project presentation to Diego Rivadeneira – Alina*


COORDINATE WITH
ADJACENT PROJECT
UPDATED PARCEL LINES

Organizational Chart

FDOT PROJECT MANAGER
Elsa Riverol, PE

GF PROJECT MANAGER
Alina Fernandez, PE

PD&E
Carlos Cejas, PE
Ana Sandoval, PE

DESIGN
Alejandro Uribe, PE
Guillermo Gomez, PE

PUBLIC INVOLVEMENT
Monica Diaz - *ISCG*

ENVIRONMENT
- Courtney Arena - *GF*
- Mark Clark - *CECOS*
- Amy Streelman – *Janus*

TRAFFIC/SAFETY
- Carlos Francis, PE – *Choice*
- Jeannette Berk - *GF*

STRUCTURES
Doug Hershey, PE - *H.W.L*

DRAINAGE
Carlos Ribbeck, PE
- *Ribbeck Engineering*

LANDSCAPE
Brian Shore, RLA -
Miller Legg

UTILITY COORDINATION
Lydia Santiago –
Manuel G. Vera & Associates

SURVEY/SUEs
Manny Vera Jr., PSM –
Manuel G. Vera & Associates

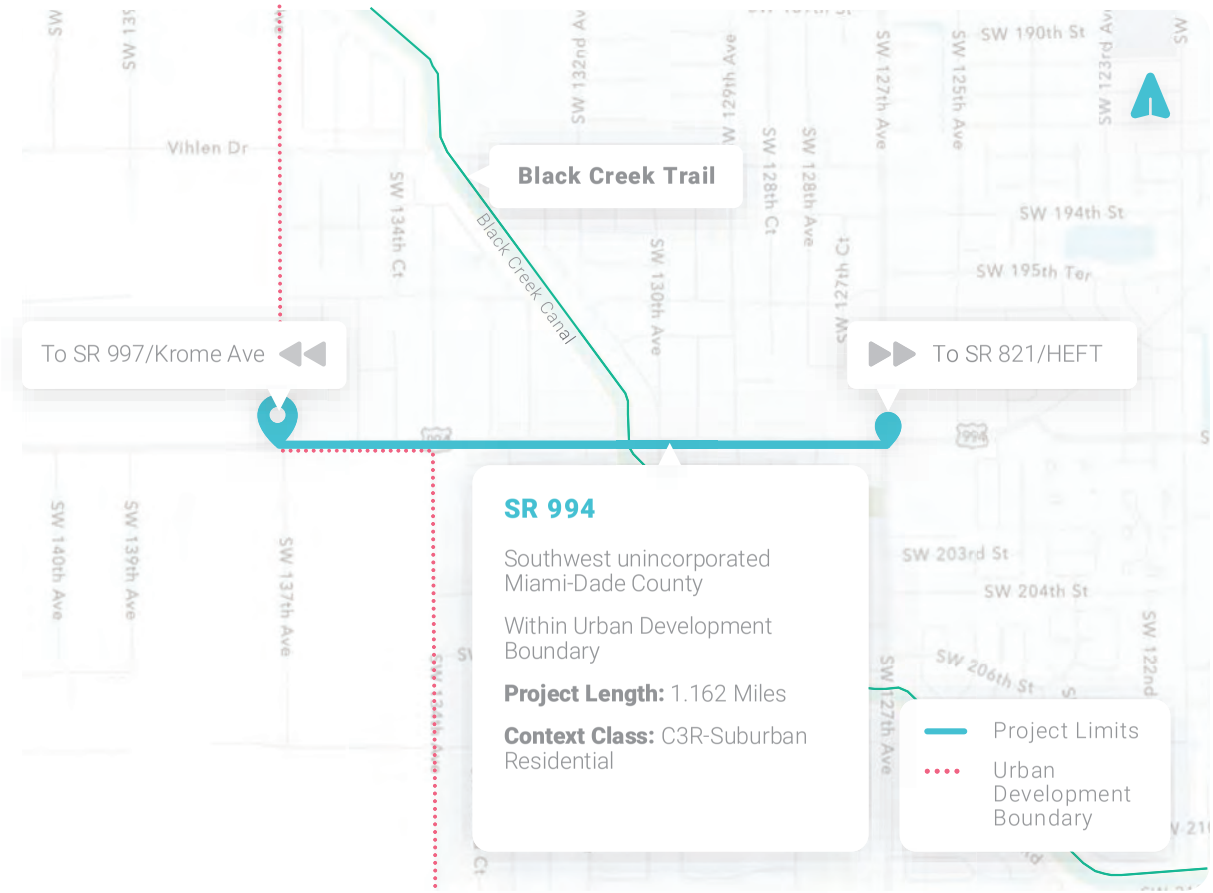
GEOTECHNICAL
Oracio Riccobono, PE -
Geosol

ROW ACQUISITION
Richard Glass –
Glass Land Acquisition

Project Location

SR 994 · SW 200th St · Quail Roost Drive

from West of SW 137 Ave (MP 4.000) to East of SW 127 Ave (MP 5.162)



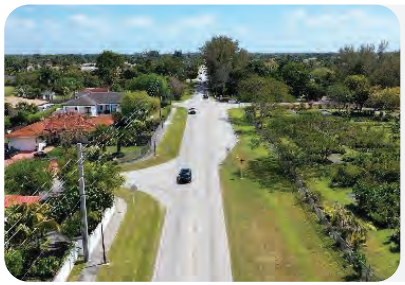
SR 994

Southwest unincorporated Miami-Dade County

Within Urban Development Boundary

Project Length: 1.162 Miles

Context Class: C3R-Suburban Residential



Land Use

Agricultural & Single-Family

Limits go beyond Urban Development Boundary Line

Key Features

Bridge over Black Creek Canal

Black Creek Trail Crossing

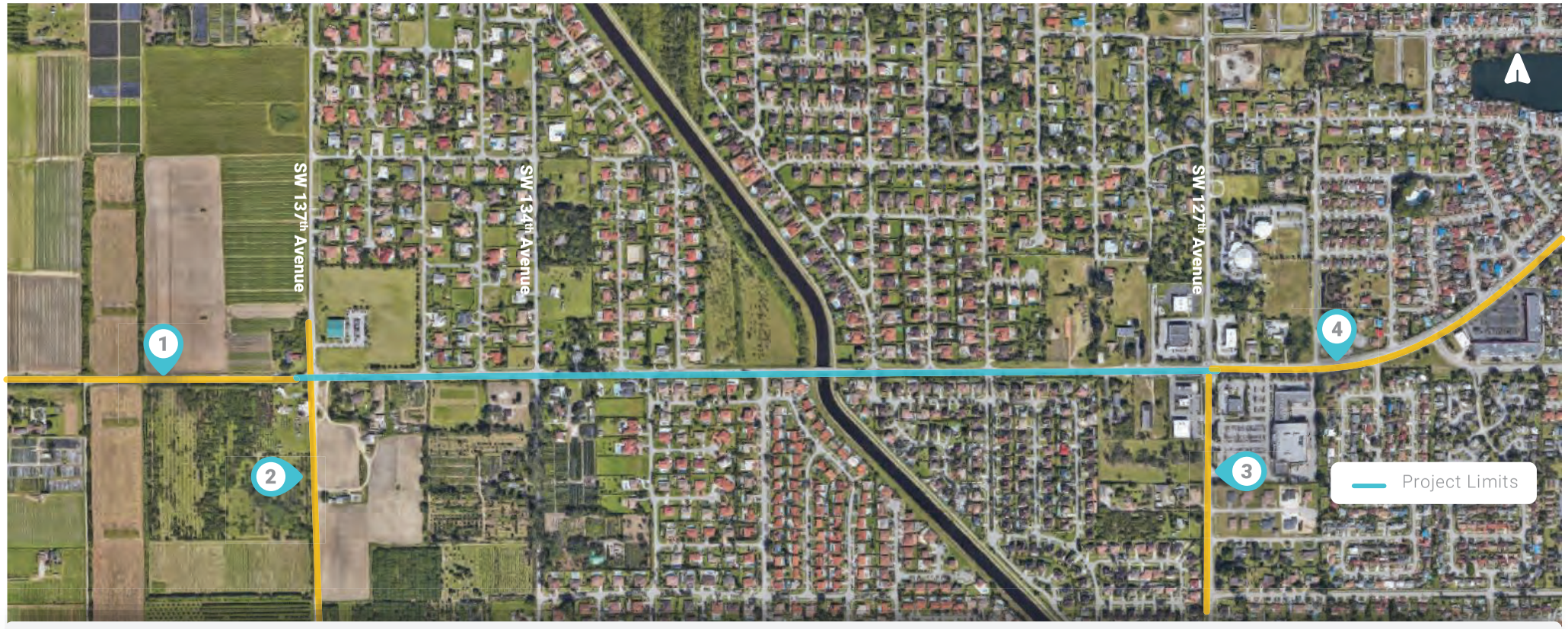
Historic Resources

Historic walls and homes:

- NW corner of SW 137th Ave
- SW corner of SW 137th Ave
- SE corner of SW 134th Ave

Existing Typical Section

Adjacent Projects



1 **FM 443907-1**
SR 994/Quail Roost Dr RRR from Krome Ave to SW 137th Ave
Letting 03/2023
Designed by Choice

2 **MDC Project No. 20040343**
SW 137th Ave widening from US-1 to Quail Roost Dr
Under construction
Completed by 10/2022

3 **MDC Project No. 20180004**
SW 127th Ave & SW 200th St
Intersection improvements
Design completed 11/2020
Construction starts 07/2021

4 **FM 429341-3**
SR 994/Quail Roost Dr 3R from SW 127th Ave to SW 113th Ave
Letting 03/2022
Designed by Gannett Fleming

Historic, Archeological, Recreational, Section 4(f)

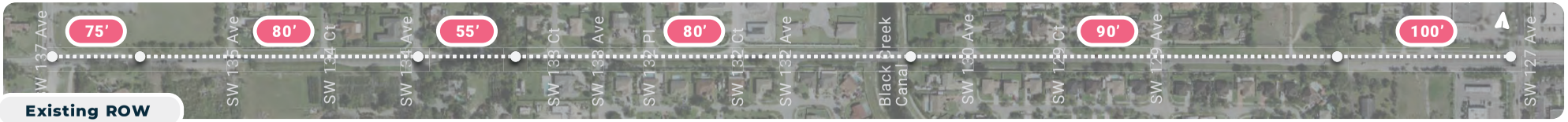
Three historic resources that may be eligible for inclusion in the National Register (NRHP) are likely within APE-require more research and documentation:

1. Talbott Estate/20101 SW 134th Avenue/13390 SW 200 St (County designated)
2. MacDonell House and Walls/ 13701 Quail Roost Road (County designated)
3. 20000 SW 137th Avenue – potentially significant

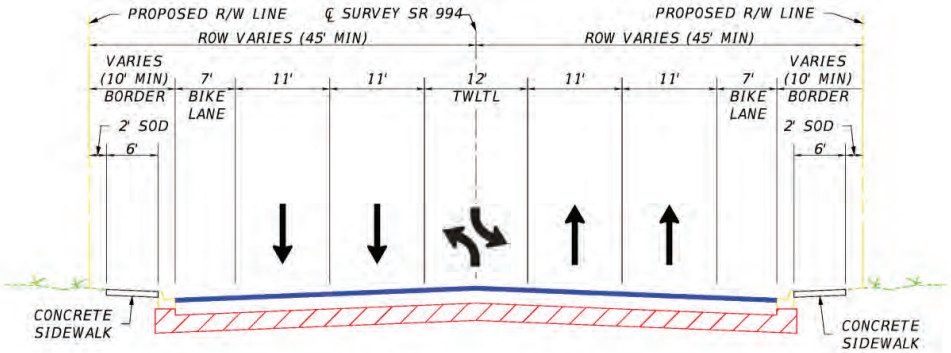
Recommendations

- Early documentation and determination of eligibility
- Early Consultation with agencies
- Conduct Section 106 and Section 4(f) concurrently
- Potential additional tasks under Section 106 – optional services
- Effects Determination Case Study, DHR/SHPO Consultation, Memorandum of Agreement (MOA)
- Advanced ROW acquisition
- Widening or reconstruction of the existing C-1W Canal bridge should provide trail for access and connectivity.
- Avoidance Alternatives must be considered: Prudent and Feasible test

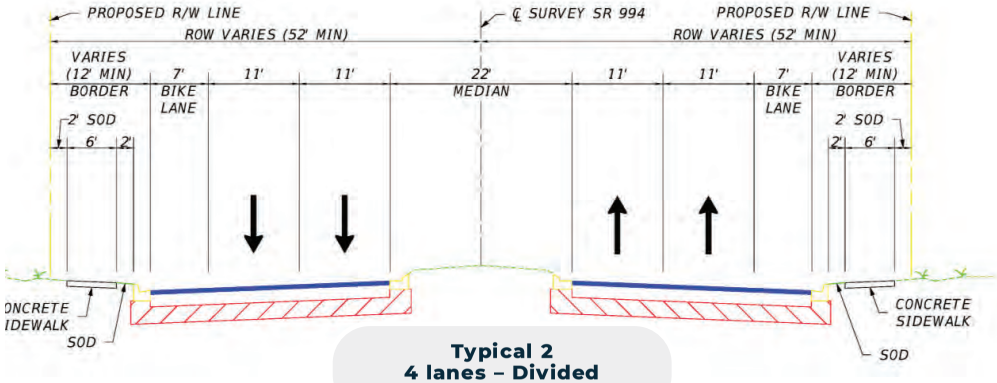
Typical Section Evaluation



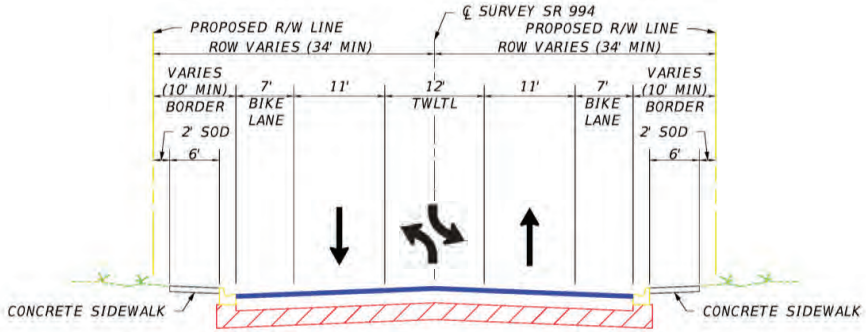
Existing ROW



Typical 1
4 lanes – TWLTL
90' ROW

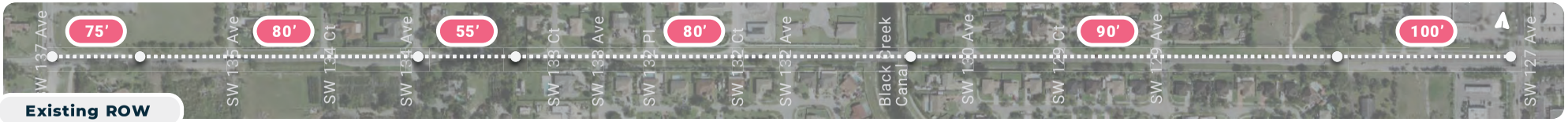


Typical 2
4 lanes – Divided
100' ROW

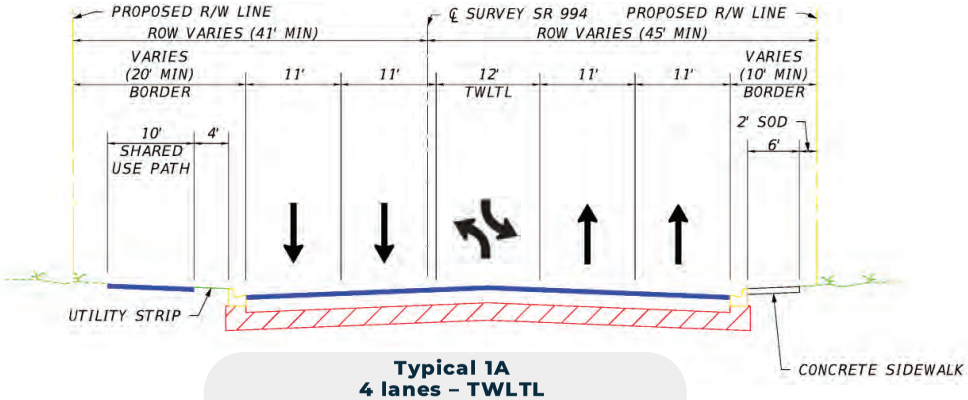


Typical 3
2 lanes – TWLTL
68' ROW

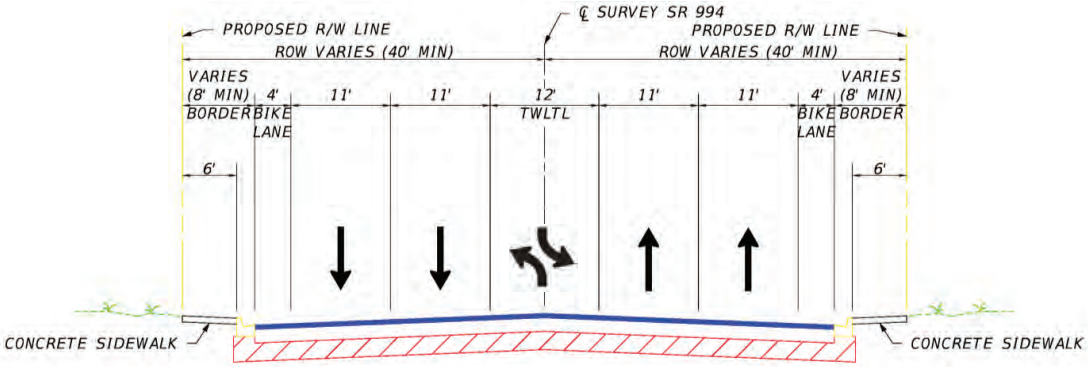
Typical Sections – Example of Variations



Existing ROW

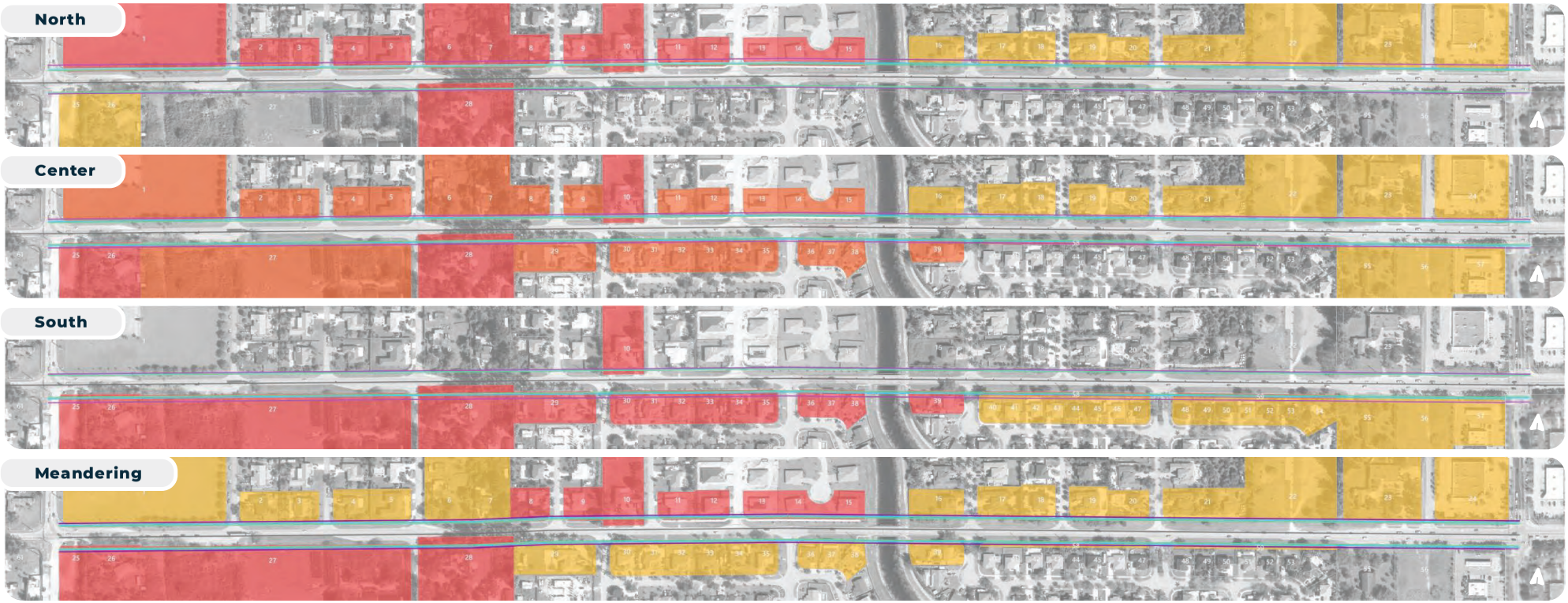


Typical 1A
4 lanes – TWLTL
Shared Use Path in lieu of bike lanes
86' ROW



Typical 1B
4 lanes – TWLT
4-ft Bike Lanes / 8-ft Border
80' ROW

Alignment Optimization & ROW Impacts



Alignments	North			Center			South			Meandering			* Centered Aligned only	
Widths / Map Legend	100'	90'	80'	100'	90'	80'	100'	90'	80'	100'	90'	80'	* 68'	* 58'
Parcels Impacted	27	18	16	44	32	4	36	18	18	51	12	12	2	1
Relocations	11	0	0	17	7	0	19	9	0	17	5	0	0	0

Map Legend

- *Parcels Impacted by 100' ROW*
- *Parcels Impacted by 90' & 100' ROW*
- *Parcels Impacted by 80', 90', & 100' ROW*

Least impactful overall (East & West)
Requires width variations

Least impactful without width variations
0 Impacts East of Bridge

Avoidance Approach

Shift alignment to minimize the number of parcels impacted

Minimize the number of shifts to **avoid excessive meandering** that could pose safety concerns

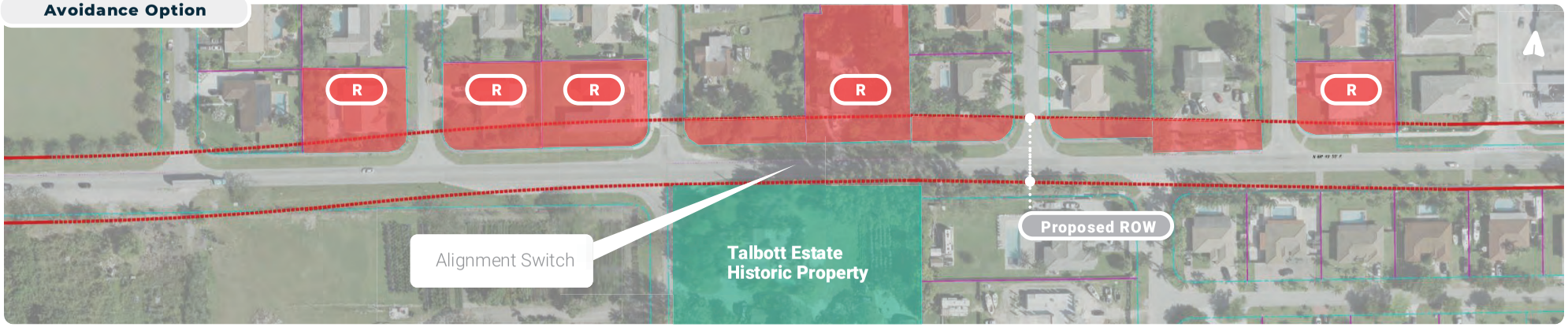
Avoid impacts to buildings and structures (pools, gazebos, etc.)

Minimize overhead pole relocation by matching existing R/W line on one side of the road

Meandering

Avoided Parcel *Impacted Parcel*

Avoidance Option



Impacted Parcel R *Potential Relocation*

Existing Bridge 870633 - Over Black Creek Canal

3-span structure **built in 1962 -SHPO Coordination Required**

Sonovoid slab superstructure (8 slabs) with transverse post-tensioning and 1" thick asphalt overlay

75.3 Sufficiency Rating

Functionally Obsolete

Utilities on south side: overhead electric and water line

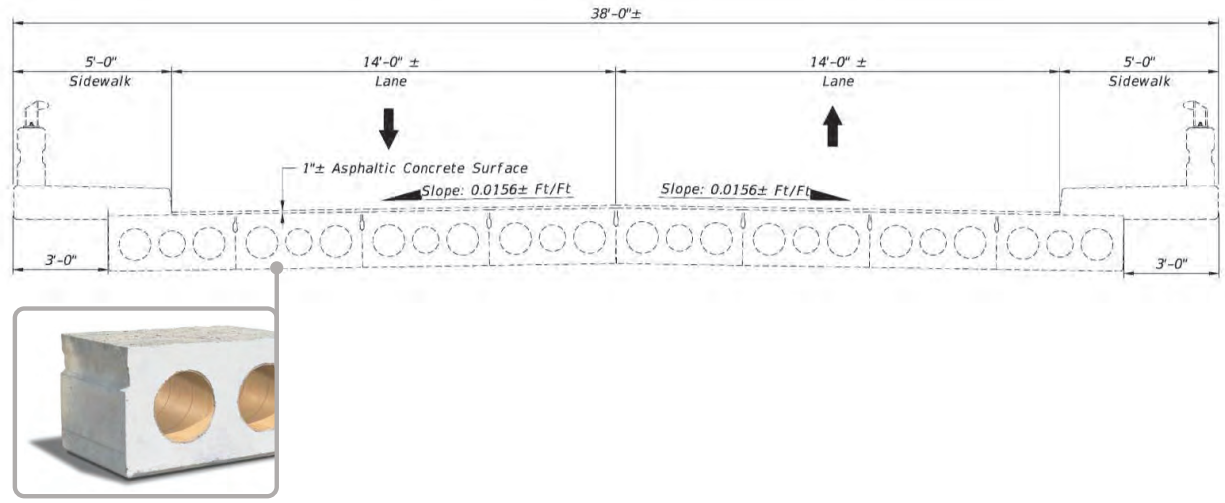
Trail crossing on east end

Substandard Vertical Clearance

- Required VC = 4.5 ft over Optimum Water Control (OWC) Elev.
- Black Creek Canal OWC Elev. = 4.3 ft (Coordinated with SFWMD)
- Existing Bridge Low Member EL. = 8.5 ft
- **Existing VC = 4.2 ft < 4.5 ft Required**

Widening may not be feasible

- 60-year-old bridge with new widened portion creates risks
- Vertical Clearance further reduced: **Widened Bridge VC = 2.83 ft.**
- Differential beam camber challenges



Black Creek Trail

Option 1

Relocate trail under proposed bridge

Pros

- No bike ped conflicts – **Improves Safety!**
- Eliminates delays for vehicles due to potential signalized crossing – **Improves Operations!**
- Improved Overall Bridge Vertical Clearance

Cons

- Higher profile
- Impacts to Adjacent properties, utilities, SFWMD access driveways
- More complex TCP

Option 2

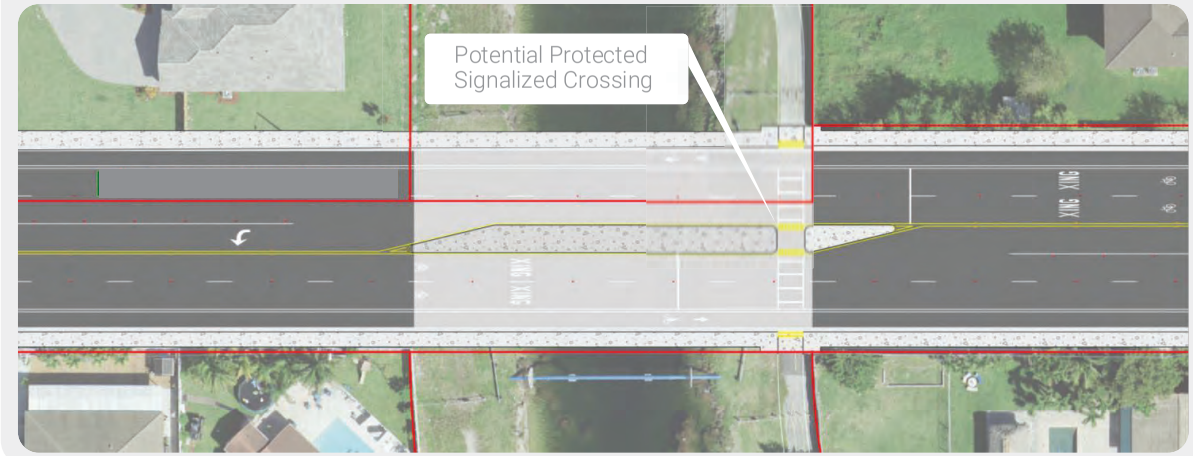
Maintain at-grade crossing

Pros

- Lower profile
- Minimizes impacts
  - SFWMD access
  - Adjacent Properties
  - TCP
  - Water Main Crossing

Cons

- Conflicts with peds and bikes
- Increases delay on Quail Roost (Vehicles stopped for peds/bikes)



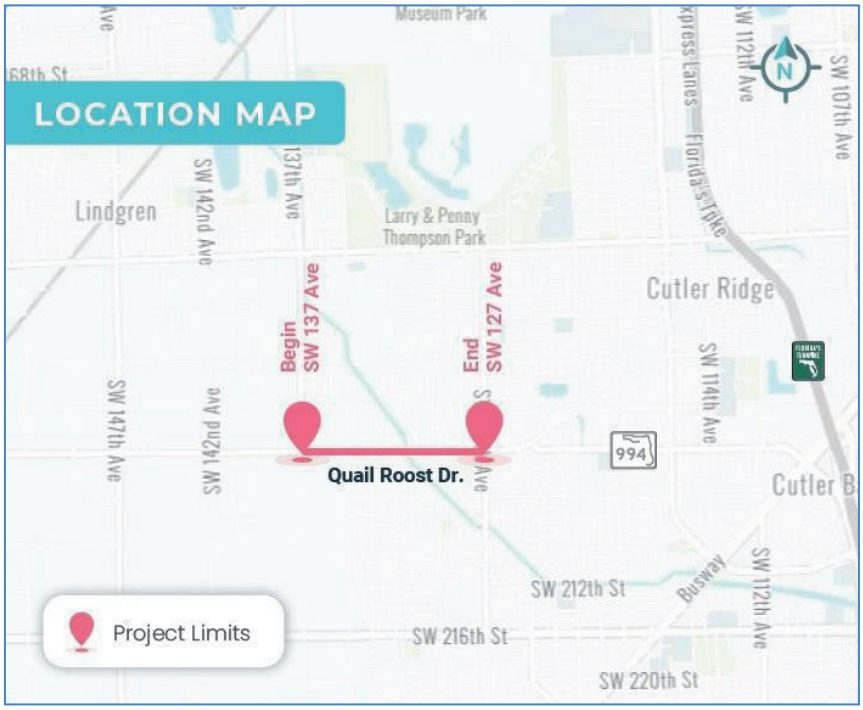
FLORIDA DEPARTMENT OF TRANSPORTATION
INTERAGENCY MEETING MINUTES

9:00 – 9:30 am: (D6) SW 200th Street/Quail Roost Dr from W of SW 137th Ave to E of SW 127th Ave

AGENDA SUMMARY:

PROJECT INFO

1. FPID/FM Number: 445804-1-22-01
2. FDOT Project Name: SR 994/SW 200th Street/Quail Roost Drive from W of SW 137th Ave to E of SW 127th Ave
3. FDOT Project Manager: Elsa Riverol
   FDOT Drainage Liaison: Nathan Pulido
   FDOT PLEMO Liaison: Steven Craig James, Robert McMullen
4. Consultant/Company Name and Contact information: Gannett Fleming; Project Manager: Alina Fernandez, afernandez@gfnet.com, 305.519.2987; Courtney Arena, carena@gfnet.com, 954.649.9450.
5. SR/Local Name: SR 994/SW 200th Street/Quail Roost Drive
6. County: Miami-Dade
7. Project Limits (provide location map and figures): SR 994/SW 200th Street/Quail Roost Drive from W of SW 137th Ave to E of SW 127th Ave



8. General Project Scope (include stage of project - PD&E, Design, Design/Build, Construction, etc.): Current Stage: PD&E
   General Scope: The proposed roadway widening is intended to improve Safety, Operational Conditions, Enhance Mobility Options. The project also replaces the existing bridge over Black Creek Canal (C-1W), and relocates the Black Creek Trail crossing under the new bridge.

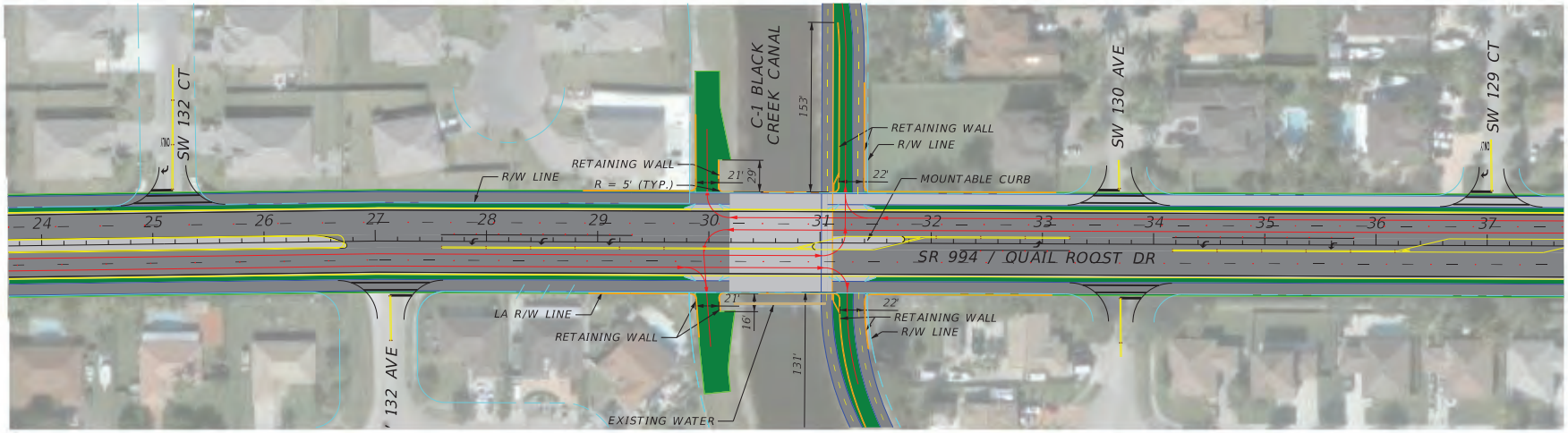
   The purpose of this project is to address traffic operations and capacity constraints on SR 994 from west of SW 137th Street to east of SW 127th Avenue in unincorporated Miami-Dade County in order to accommodate future travel demand projected as a result of population and employment growth along the corridor. Other goals of the project are to 1) improve safety conditions along the corridor, including emergency evacuation and response times, and 2) enhance mobility options and multimodal access.
9. Anticipated Permits: The project is currently in the PD&E Phase. Section 408 Review (USACE) - *Black Creek Canal (C-1W) is part of a federal flood control project, and a 408 review may be required for proposed bridge improvements*. SFWMD Environmental Resource Permit, Right-of-Way Occupancy Permit (SFWMD); Water Use Permit (obtained by construction contractor), National Pollutant Discharge Eliminated System (FDEP, obtained by construction contractor).
10. Provide specific agenda discussion topics (i.e., goal of meeting): Discuss bridge replacement and Black Creek Trail relocation passing under the bridge versus the existing at grade crossing. Refer to PowerPoint presentation.
11. Requested Attendees (SFWMD - Environmental Resources, Surface Water Management, Water Use, ROW; USACE; USFWS; NMFS, etc.): SFWMD- Environmental Resources including roadway drainage treatment; ROW for the Black Creek Trail (Section 4f) crossing along the C-1W Canal.
12. Does your project include impacts to any environmental resources? If yes, please answer Questions a- d:
    a. Have wetland and/or protected species impacts been identified? If so define the impact amount and type: No wetland impacts are anticipated. A minor amount of surface water impacts may occur as a result of the proposed bridge replacement.

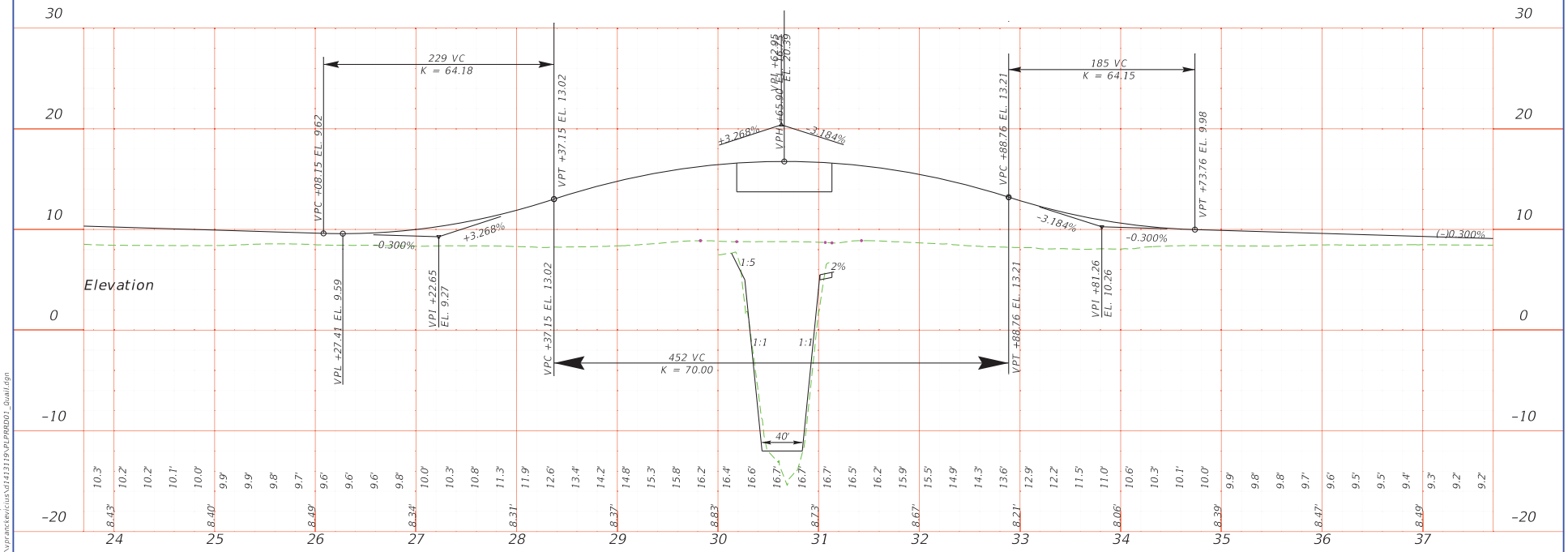
       Based on range and preferred habitat type the following species listed by the Federal Endangered Species Act and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), or State-Threatened (ST) have the potential to occur in the project area: American alligator (FT based on similarity of appearance to American crocodile), eastern indigo snake (FT), Florida bonneted bat (FE), wood stork (FT), little blue heron (ST), roseate spoonbill (ST), and tricolored heron (ST). All the aquatic and wetland species either likely or potentially utilize appropriate habitats in the vicinity of the bridge. Given that the area surrounding the project corridor is predominantly urban in nature, field reviews did not identify any suitable habitat for these species.

b. Have the project representatives discussed the wetland and/or protected species impacts with PL&EM? (List the PL&EM person who you discussed with and the date of the meeting/discussion): In Progress with FDOT District 6 PL&EM, Robert McMullen.
c. During the meeting/discussion with PL&EM did project representatives discuss avoidance and minimization criteria? Has PL&EM concurred these criteria were applied? (For District IV projects, participation in this interagency meeting is not permitted if elimination and reduction has not been explored with PL&EM): N/A
d. Have mitigation options for unavoidable impacts been discussed with PL&EM, and concurrence on the amount and type been achieved? (For District IV projects, participation in this interagency meeting is not permitted if options for unavoidable impacts been discussed with PL&EM): N/A

PRIOR COORDINATION

13. Has the project approach been discussed with:
    a. FDOT Drainage Liaison? Yes
    b. PLEMO Liaison? Yes
14. Have you coordinated with Cultural Resource Manager to determine if a SHPO concurrence letter has been received and can be included in the application? The project is in the PD&E phase and coordination with SHPO is on-going. We do not anticipate submitting a permit application at this time.
15. Have you coordinated with the Contamination Coordinator to determine if there are contamination concerns in the event a dewatering permit is required? A Contamination Screening is in progress.
16. Have you coordinated with Natural Resource Manager to determine if a USFWS concurrence letter has been received and can be included in the application? Coordination with USFWS is anticipated to occur later on in the PD&E phase.
17. For projects going into the permitting phase: Has a pre-application meeting been held or any preliminary correspondence been made by FDOT PM or Consultant with the regulatory agencies/reviewers? Specify the agencies and dates when meetings were held: N/A
18. For project in the permitting phase, please provide any application numbers and the reviewer's name: N/A
19. Anticipated Permits (or, if you already applied for or received any permits, please include the application/permit numbers): N/A





REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

PLAN-PROFILE

SHEET NO. 01

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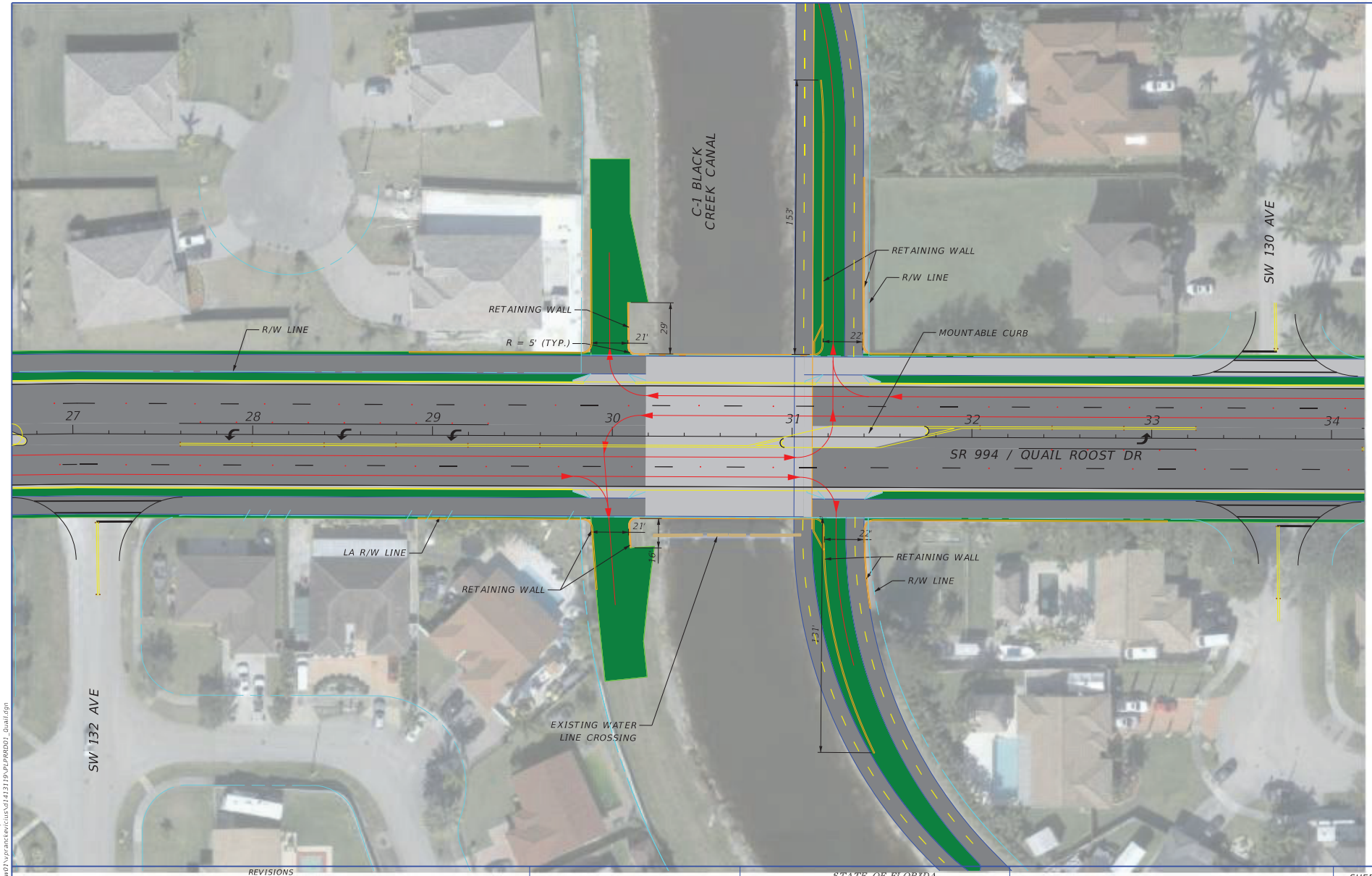

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

PLAN-PROFILE

SHEET NO. 02

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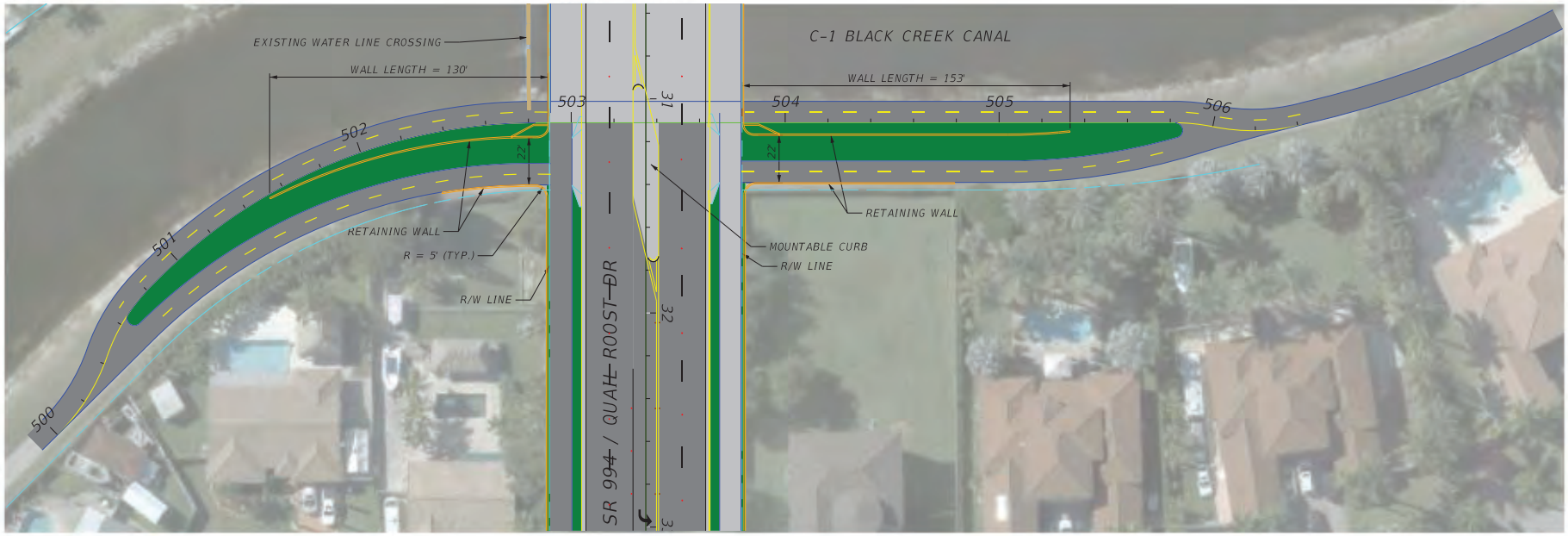

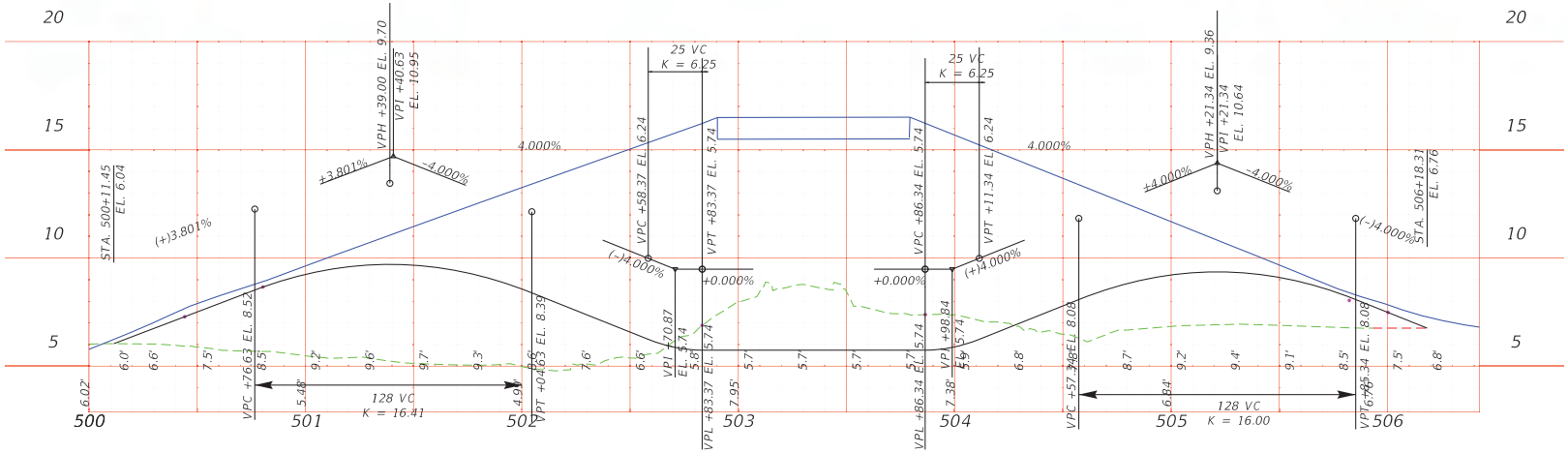

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

PLAN-PROFILE

SHEET NO.
PLAN 1

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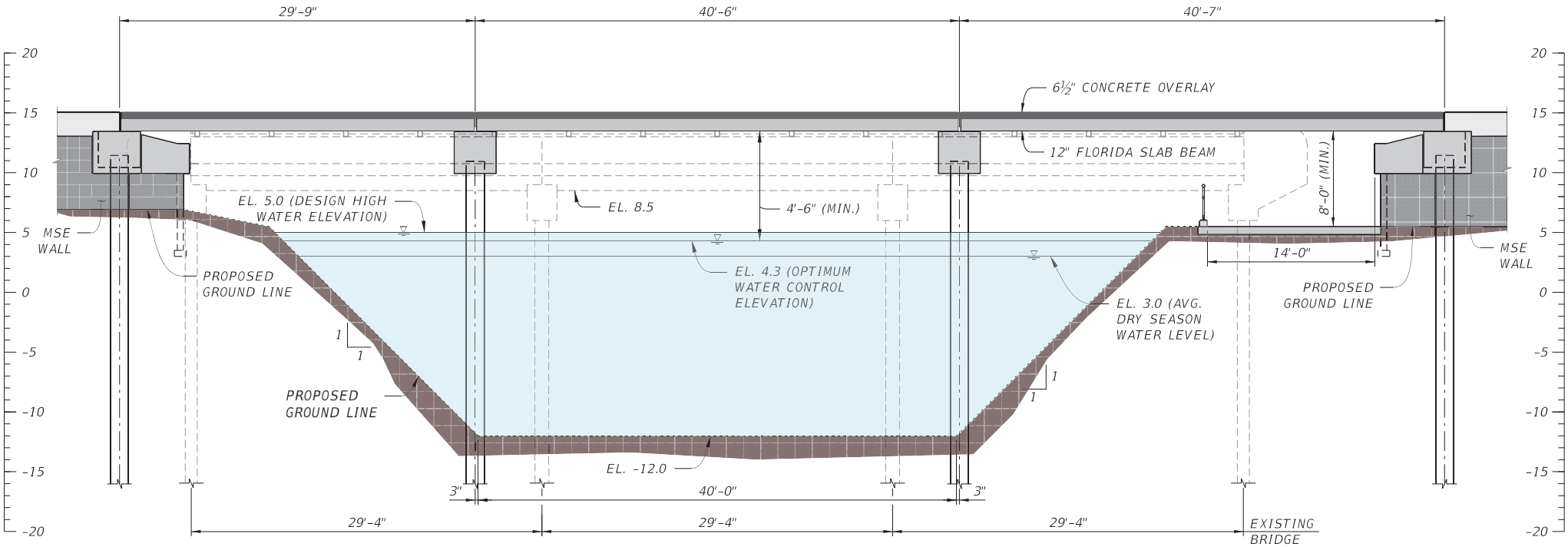
29'-9"
40'-6"
40'-7"
6½" CONCRETE OVERLAY
12" FLORIDA SLAB BEAM
EL. 5.0 (DESIGN HIGH WATER ELEVATION)
EL. 8.5
4'-6" (MIN.)
8'-0" (MIN.)
MSE WALL
PROPOSED GROUND LINE
EL. 4.3 (OPTIMUM WATER CONTROL ELEVATION)
EL. 3.0 (AVG. DRY SEASON WATER LEVEL)
14'-0"
PROPOSED GROUND LINE
MSE WALL
1
1
PROPOSED GROUND LINE
1
1
EL. -12.0
3"
40'-0"
3"
29'-4"
29'-4"
29'-4"
EXISTING BRIDGE
20
15
10
5
0
-5
-10
-15
-20

PROJECT MEETING SUMMARY:

ATTENDEES:

Name	Organization	Email Address
Dustin Wood	SFWMD	duwood@sfwmd.gov
Barb Conmy	SFWMD - ERP	bconmy@sfwmd.gov
Caitlin Westerfield	SFWMD - ERP	cwesterf@sfwmd.gov
John Hixenbaugh	SFWMD - ROW	jhixenba@sfwmd.gov
Teri Swartz	SFWMD - 408	tswartz@sfwmd.gov
Michelle Gilbert	USACE	michelle.l.gilbert@usace.army.mil
Elsa Riverol	FDOT - PM	elsa.riverol@dot.state.fl.us
Daniel ChominVirden	FDOT	daniel.chomin-virden@dot.state.fl.us
Alina Ferndandez	Gannett Fleming	afernandez@gfnet.com
Carlos Cejas	Gannett Fleming	ccejas@gfnet.com
Courtney Arena	Gannett Fleming	carena@gfnet.com
Alejandro Uribe	Gannett Fleming	auribe@gfnet.com
Amanda De Cun	Gannett Fleming	adecun@gfnet.com
Vinicius Pranckevicius	Gannett Fleming	vpranckevicius@gfnet.com
Carlos Ribbeck	Ribbeck Engineering	cribbeck@gmail.com
Francis Mitchell	Ribbeck Engineering	f-mitchell@att.net

The Project meeting started around 9:00 am and was completed by 9:40 am. After roll call of attendees, the overall project scope, limits, and approach were reviewed and presented by representatives of Gannett Fleming. The Project was described as a PD&E project for a 1.5-mile-long roadway improvement with bridge replacement including pedestrian mobility improvements. It is currently a two-lane undivided roadway and bridge that has substandard vertical clearance. There are two options being proposed: Option 1) Keep it as a two-lane bridge but add a turning lane and shared use path with lighting. This would increase the bridge footprint. Option 2) add two lanes to be a 4-lane roadway/bridge with median and shared use path. In either Option, the bridge would be replaced. It is a SFWMD canal and the shared use path and work is within the SFWMD ROW. The purpose of this meeting is to confirm the design considerations for the bridge and shared use path which is being proposed under the east side of the bridge. Proposed would be adding two piles at 40’ separation at bottom of canal with 1:1 slope up to grade. North would accommodate a 14’ wide paved shared use path under the bridge with 8’ clearance. West top of bank would be like existing with no path/access. At grade SFWMD access at top of bridge/roadway would be maintained.

Agency Discussion:

ROW:

- John of SFWMD confirmed maintenance access will need to be maintained at all four corners to accommodate drive and turning lane for trailers and cranes. Consultant indicated at grade access will remain as existing.

- Consultant inquired how much of "underpass" of shared use path will need to be paved. Proposing 10' paved with 22' of clear width (grass is drivable).
    - SFWMD indicated 14' wide paved driveway at the quadrant and aprons need to accommodate a vehicle 75 feet in length.
- SFWMD indicated they will need more detailed cross-sections to share with the maintenance team to confirm if proposed widths, lengths, gates, and guard rails are appropriate. Can e-mail him (John) the plans to coordinate with his team. Two (2) Cross-sections will be needed.
    - One cross-section to show the overall proposed profile of the driveways, underpass, guardrail locations, gates pave widths etc which will be shared with the maintenance group.
    - The second cross-section is set of cross-sectional surveys of the existing canal and right-of-way profiles to determine if dredging will be required. At a minimum, this set consists of five (5) surveys: one at the centerline, one at each proposed bridge face, one 25-feet upstream and one 25-feet downstream of the proposed bridge. (See SFWMD Bridge Application Checklist).
- SFMWD indicated more info on the slopes will be required for mowing considerations etc. If it is greater than 3:1, will need to be stabilized. A hardened slope will be required with 1:1 slope as follows:
    - 1:1 Articulated Block (Not riprap) from top of bank to toe of slope. Top of bank landward can be riprap (stabilization needs to be 25' from bridge face in each direction and can be articulated block)
    - 1.5:1 and shallower – riprap is allowed
    - 1.5:1 and steeper – a slope stability analysis would be required by USACE (per Teri)
- Consultant briefly shared a letter they received from Beverly Miller in 2021 with canal design requirements.
    - John indicated they looked to be current, so should still apply.
- Consultant inquired on canal depth. Proposing -12.0. Where it is greater depth than that, do they need to fill?
- SFWMD indicated it is what ever you need to fulfill the hydraulic needs, but no, they don't required to fill to be all uniform if existing is greater depth.

ERP

- Consultant indicated they do not anticipate any impacts to wetlands and drainage is anticipated to be self-contained with no new outfalls or modifications to existing systems.
- SFWMD stormwater indicated an ERP would be required for the work activity and would be a new permit.
- SFWMD environmental group would expect the following to be shown/discussed in permit application: acres of wetlands or other surface waters as their jurisdiction is to top of bank, riprap and any other dredge or fill required as part of the project. Plans need to show erosion control. A manatee protection plan during work activities would be required if appropriate for the location. If dewatering will be necessary this needs to be indicated in the application.

USACE

- Michelle confirmed a 408 authorization will be required for this project

ELSA RIVEROL	IN-HOUSE PROJECT MANAGER	3/17/2023	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Eugenio Lopez	DESIGNER	3/28/2023	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Hailing Zhang	LEAD REVIEWER	3/17/2023	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Haynel Negueruela	REVIEWER	3/17/2023	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
Heidi Solaun	LEAD REVIEWER	3/17/2023	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
JACQUES DEFRANT	REVIEWER	3/17/2023	ACTIVE	0
Name	**Assignment**	**Due Date**	**Status**	**Comments**
JAMES MYKYTKA	REVIEWER	3/17/2023	ACTIVE	4

No	Status	Current Holder	Reference	Categories
54	RESPONSE ACCEPTED		Section 6.2.3 Cultural Resources	ENVIRONMENTAL MANAGEMENT OFF.

Created By	Created On	Version	Delegate For
JAMES MYKYTKA	3/17/2023	1	

Discuss any avoidance and minimization measures considered including the avoidance alternatives that are being developed or considered to avoid impacts to the three NRHP-eligible resources.

Alina Fernandez	3/20/2023	1	Ana Sandoval

Text will be added in the PER to indicate that avoidance/minimization alternatives will be analyzed as part of the Individual Section 4(f) Statement currently under development. This section of the report will be updated after completion of the Individual Section 4(f) Statement.

JAMES MYKYTKA	3/21/2023	1

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
55	RESPONSE ACCEPTED		Section 6.1.2.4 Foundation Alternatives	ENVIRONMENTAL MANAGEMENT OFF.

Created By	Created On	Version	Delegate For
JAMES MYKYTKA	3/17/2023	1	

Section 6.1.2.4 Foundation Alternatives does not discuss the possible effects of vibration on nearby residences due to the proposed use of precast prestressed concrete piles. These piles require the use of a hydraulic hammer to be driven. Pre-drilling should be considered if the precast prestressed concrete piles are used. Auger cast in place concrete piles and drilled shafts will cause less vibration and will not have the noisy pile driving operation using the hydraulic hammer.

Doug Hershey	3/24/2023	1

Section 9.2.4 of the Geotechnical Report located in Appendix F addresses the need for preforming relative to the use of precast prestressed concrete piles. The following sentences will be added to the last paragraph in order to address vibration concerns:

"Due to the proximity of the proposed bridge to the existing bridge, existing utilities and nearby residences, predrilled pile holes in accordance with Specification Section 455 will be utilized in order to prevent refusal conditions and pile damage and to mitigate vibration to the aforementioned existing facilities. Vibration and settlement monitoring shall be carried out in accordance with Specification Section 108."

JAMES MYKYTKA	3/28/2023	1

Also, add similar text to the Noise Study Report and Type 2 CE to address potential vibration concerns associated with construction activities.

THIS IS THE ONLY COMMENT RECEIVED AS PART OF THE DRAFT PER / DRAFT BRIDGE ANALYSIS REPORT SUBMITTAL.

Submittal Report

Financial Project:	445804-1-52-01	Submittal Type:	REPORT
Submittal Phase:	PD&E	Submittal Staff Type:	CONSULTANT
Received Date:	4/2/2024	Response Due Date:	4/30/2024
Grace Period:	0	District:	SIXTH
Status:	OPEN	Create Date:	4/2/2024
Create User Id:	RD652LN	Last Update:	4/29/2024
		Last Update User Id:	RD652LN

Description:

445804-1: SR 994 at SW 200 ST and QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE - Preliminary Engineering Report
Group: PD & E
Phase Review Type: Preliminary Engineering Report
Status: Submitted
Phase Initiation Date: 4/1/2024
Comments Due Date: 4/22/2024
Days Allowed for Review: 21
Review Meeting: 4/30/2024 11:00 AM to 12:00 PM @ Teams Meeting
Plans Received Date: 4/1/2024.
Plans Format: Electronic
Comments: •Phase Initiation Date: 4/1/2024
•Comments Due Date: 4/22/2024
•Responses Due Date: 4/29/2024
•Review Meeting Date: 4/30/2024 @ 11:00 AM
•Teams Meeting Link: https://teams.microsoft.com/l/meetup-join/19%3ameeting_M2MyZmMzZWYtMWFjMy00MWEzLWE3NDAtNGUxYTcwNjAyNTFj%40thread.v2/0?context=%7b%22Tid%22%3a%227ec50e16-3787-4697-b086-795dd54b8c9a%22%2c%22Oid%22%3a%226834683c-4f63-4624-855e-fe9dd494a9e1%22%7d

Threads:

No	Status	Current Holder	Reference	Categories
135	RESPONSE ACCEPTED			STRUCTURES

Created By	Created On	Version	Delegate For
Kuo-ting Lin	4/22/2024	1	

Draft Final Bridge Analysis Report, Appendix B, B1-2: For the Black Creek Trail at End Bent 4, a trail width of 14 feet is proposed. Per FDM 224.7, a 2 feet wide graded area adjacent to both sides of the path should be maintained. Please clarify if the proposed path meets this requirement.

Doug Hershey	4/26/2024	1	

The 14-foot width shown includes a 10-foot shared use path plus 2-feet clear on each side for a total of 14-feet. The width provided meets the requirements of FDM 224.7.

Kuo-ting Lin	5/6/2024	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
136	RESPONSE ACCEPTED			STRUCTURES

Created By	Created On	Version	Delegate For
Kuo-ting Lin	4/22/2024	1	

Draft Final Bridge Analysis Report, Appendix B, B1-1: The proposed typical section shows shared use paths on both sides of the bridge. The northern and southern portions of the bridge will be built in Phase I, while maintaining the traffic on the existing bridge. In Phase 2, the traffic will be maintained on the newly constructed bridge portions. It appears that the shared use paths and railing cannot be built in Phase 1 due to the MOT requirements in Phase 2. Please clarify if the pedestrian uses on the bridge can be maintained in Phase 2. Suggest showing a bridge construction sequence section to demonstrate how both vehicular and pedestrian traffics can be maintained.

Doug Hershey	4/26/2024	1	

Providing construction sequence drawings was not in the scope of deliverables for the Bridge Analysis Report. Pedestrians will be able to use the bridge during all phases of construction. The full 17'-2" width of the shared use path will not be constructed during Phase 1. The narrowest portion being built during Phase 1 is 21'-10.125" with a distance of 20'-9.125" from the inside face of the 32" vertical shape traffic railing to the concrete overlay construction joint. If 5-foot is allocated for the sidewalk then this leaves 15'-9.125" for the travel lane and temporary barrier(s). If additional width is needed, wider Florida Slab Beams could be used in Phase 1 to increase the footprint. This will all be coordinated with the traffic control EOR during final design.

Kuo-ting Lin	4/29/2024	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
137	RESPONSE ACCEPTED			STRUCTURES

Created By	Created On	Version	Delegate For
Kuo-ting Lin	4/22/2024	1	

Draft Final Bridge Analysis Report, Appendix B, B1-2: Articulating concrete blocks are shown at the end bent slopes. Are these existing to remain or existing to be modified to fit the proposed geometry? Please clarify.

Doug Hershey	4/26/2024	1	

The articulating concrete block is a proposed item. ACB's were specifically requested by SFWMD as highlighted in the 6/16/2022 meeting minutes provided in Appendix E of the Bridge Analysis Report. The callout in the elevation view will be revised to "PROPOSED ARTICULATING CONCRETE BLOCK".

Kuo-ting Lin	4/29/2024	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
138	RESPONSE ACCEPTED			STRUCTURES

Created By	Created On	Version	Delegate For
Kuo-ting Lin	4/22/2024	1	

Draft Final Bridge Analysis Report, Section 2.3 Utilities, Page 3: Existing utilities are described. Please clarify if there is any utility relocation required and any utility to be carried on the bridge.

Doug Hershey	4/26/2024	1	

Section 2.3 will be expanded to reference the "Utility Assessment Package". This is Attachment H to the PER. Additionally, as shown in Exhibit A, both the existing water main and overhead electric faclities located on the southern side of the bridge are noted as being relocated. Section 2.3 will note the expected relocation of these two utilities along with a statement that no utilities are expected to be placed on the bridge. This is consistent with Section 3.3.5 where there is no utility dead load shown.

Kuo-ting Lin	4/29/2024	1	

Response Accepted & Comment Closed

No	Status	Current Holder	Reference	Categories
139	RESPONSE ACCEPTED			STRUCTURES

Created By	Created On	Version	Delegate For
Kuo-ting Lin	4/22/2024	1	

Draft Final Bridge Analysis Report, Section 5.0 Construction Cost, Page 10 : SDG 2024 edition shows the construction cost for FSB bridges is estimated between $180 (low) and $300 (high). Please verify if the cost estimate should be updated.

Doug Hershey	4/26/2024	1	

Agree. The cost/unit value will be updated to reflect the 2024 SDG ranges. Using the same logic as discussed in Section 5.0, the low end estimate is $180/SF and the high end estimate is $300/SF so the mid-range is $240/SF. When the 23% premium is added this results in a bridge cost estimate of approximately $295/SF. Applying the bridge area of 11,038 SF results in a total bridge cost of $3,256,210. The Table 2 total cost will be updated to reflect the revised bridge cost.

Kuo-ting Lin	4/29/2024	1

Response Accepted & Comment Closed

Hershey, Doug

From: Fernandez, Alina <afernandez@gfnet.com>
Sent: Monday, June 3, 2024 4:21 PM
To: Hershey, Doug; Uribe, Alejandro
Cc: Sandoval, Ana
Subject: RE: Quail Roost Bridge Typical Section

[EXTERNAL EMAIL] This is an external email. **NEVER CLICK or OPEN** unexpected links or attachments. **NEVER** provide User ID or Password. If this email seems suspicious, forward the email to spam for inspection.

Hi Doug,

After some back and forth coordination, D6 has decided to remove the underpass option for the trail and go with an at grade crossing. We had a meeting last week with R/W, Legal, Maintenance, Design and the critical factor in their decision was the need for retaining walls and therefore the need for a maintenance easement on 5 properties adjacent to the canals.
Do you have some time tomorrow for a quick meeting to discuss?

Regards,

Alina Fernandez, P.E. | Vice President
Gannett Fleming | 800 NW 62nd Avenue, Suite No. 490, Miami, FL 33126
O 305.908.3937 | **C** 305.519.2987 | afernandez@gfnet.com
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Appendix J – SFWMD Coordination

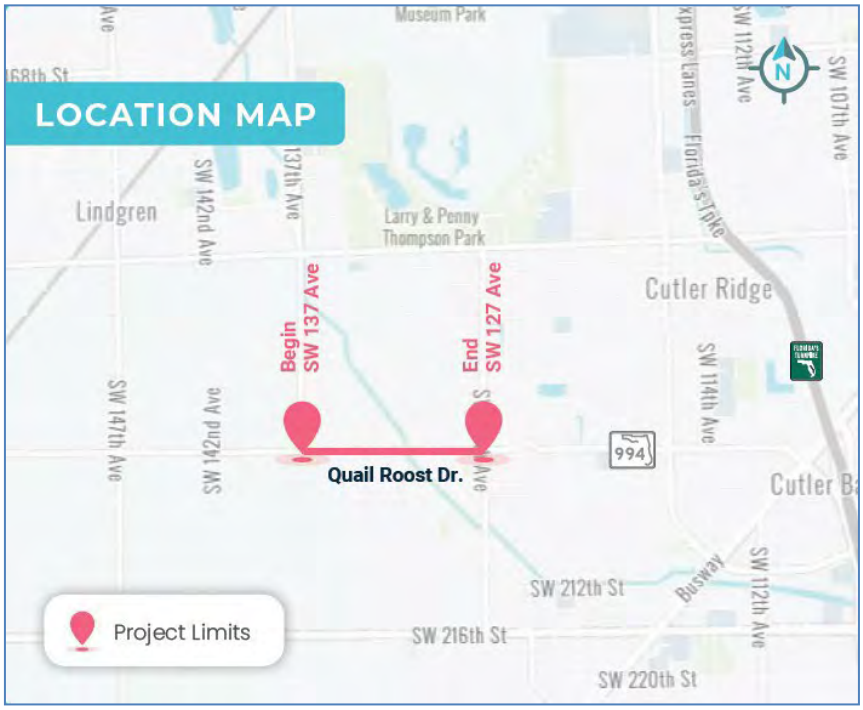
FLORIDA DEPARTMENT OF TRANSPORTATION
INTERAGENCY MEETING MINUTES

9:00 – 9:30 am: (D6) SW 200th Street/Quail Roost Dr from W of SW 137th Ave to E of SW 127th Ave

AGENDA SUMMARY:

PROJECT INFO

1. FPID/FM Number: 445804-1-22-01
2. FDOT Project Name: SR 994/SW 200th Street/Quail Roost Drive from W of SW 137th Ave to E of SW 127th Ave
3. FDOT Project Manager: Elsa Riverol
   FDOT Drainage Liaison: Nathan Pulido
   FDOT PLEMO Liaison: Steven Craig James, Robert McMullen
4. Consultant/Company Name and Contact information: Gannett Fleming; Project Manager: Alina Fernandez, afernandez@gfnet.com, 305.519.2987; Courtney Arena, carena@gfnet.com, 954.649.9450.
5. SR/Local Name: SR 994/SW 200th Street/Quail Roost Drive
6. County: Miami-Dade
7. Project Limits (provide location map and figures): SR 994/SW 200th Street/Quail Roost Drive from W of SW 137th Ave to E of SW 127th Ave



8. General Project Scope (include stage of project - PD&E, Design, Design/Build, Construction, etc.): Current Stage: PD&E
   General Scope: The proposed roadway widening is intended to improve Safety, Operational Conditions, Enhance Mobility Options. The project also replaces the existing bridge over Black Creek Canal (C-1W), and relocates the Black Creek Trail crossing under the new bridge.

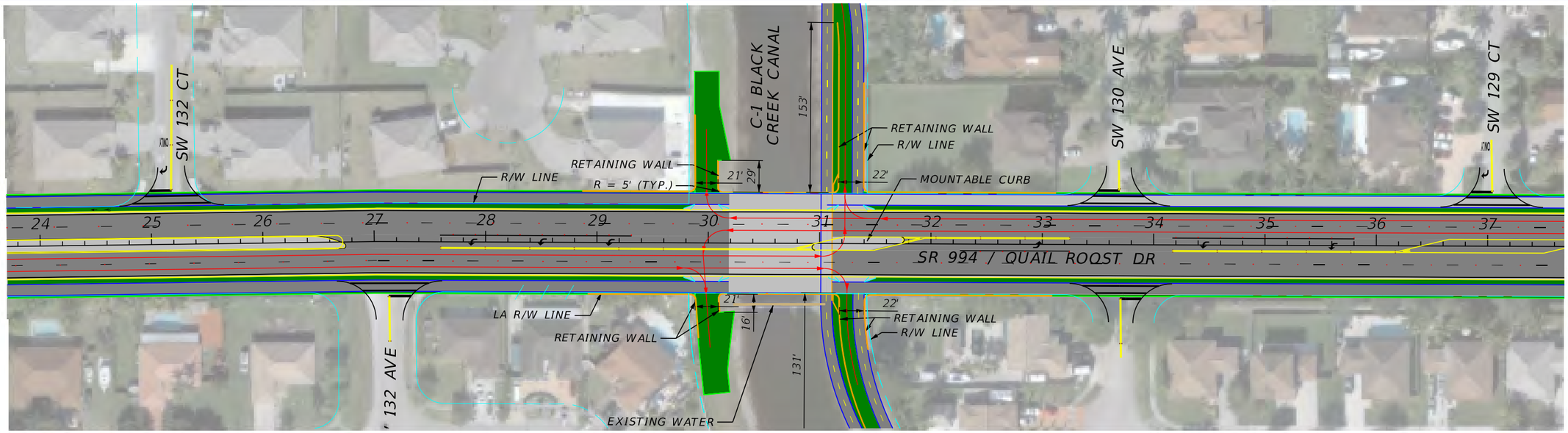
   The purpose of this project is to address traffic operations and capacity constraints on SR 994 from west of SW 137th Street to east of SW 127th Avenue in unincorporated Miami-Dade County in order to accommodate future travel demand projected as a result of population and employment growth along the corridor. Other goals of the project are to 1) improve safety conditions along the corridor, including emergency evacuation and response times, and 2) enhance mobility options and multimodal access.
9. Anticipated Permits: The project is currently in the PD&E Phase. Section 408 Review (USACE) - *Black Creek Canal (C-1W) is part of a federal flood control project, and a 408 review may be required for proposed bridge improvements*. SFWMD Environmental Resource Permit, Right-of-Way Occupancy Permit (SFWMD); Water Use Permit (obtained by construction contractor), National Pollutant Discharge Eliminated System (FDEP, obtained by construction contractor).
10. Provide specific agenda discussion topics (i.e., goal of meeting): Discuss bridge replacement and Black Creek Trail relocation passing under the bridge versus the existing at grade crossing. Refer to PowerPoint presentation.
11. Requested Attendees (SFWMD - Environmental Resources, Surface Water Management, Water Use, ROW; USACE; USFWS; NMFS, etc.): SFWMD- Environmental Resources including roadway drainage treatment; ROW for the Black Creek Trail (Section 4f) crossing along the C-1W Canal.
12. Does your project include impacts to any environmental resources? If yes, please answer Questions a- d:
    a. Have wetland and/or protected species impacts been identified? If so define the impact amount and type: No wetland impacts are anticipated. A minor amount of surface water impacts may occur as a result of the proposed bridge replacement.

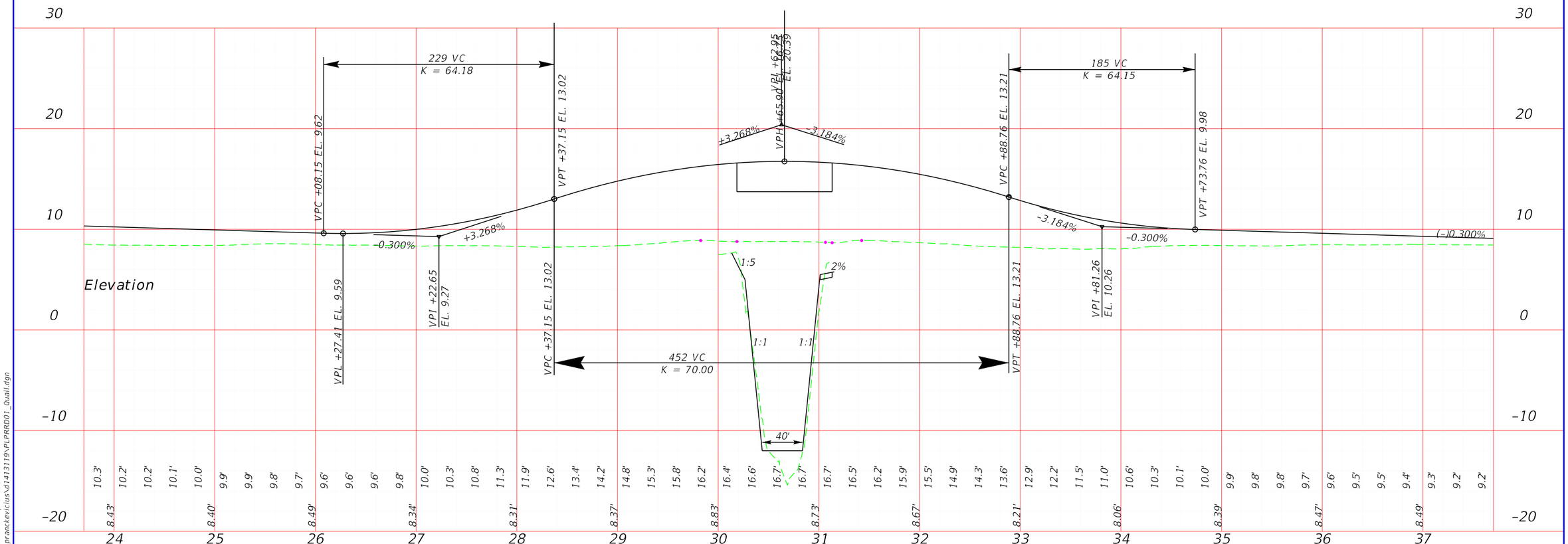
       Based on range and preferred habitat type the following species listed by the Federal Endangered Species Act and the State of Florida as Federally Endangered (FE), Federally Threatened (FT), or State-Threatened (ST) have the potential to occur in the project area: American alligator (FT based on similarity of appearance to American crocodile), eastern indigo snake (FT), Florida bonneted bat (FE), wood stork (FT), little blue heron (ST), roseate spoonbill (ST), and tricolored heron (ST). All the aquatic and wetland species either likely or potentially utilize appropriate habitats in the vicinity of the bridge. Given that the area surrounding the project corridor is predominantly urban in nature, field reviews did not identify any suitable habitat for these species.

b. Have the project representatives discussed the wetland and/or protected species impacts with PL&EM? (List the PL&EM person who you discussed with and the date of the meeting/discussion): In Progress with FDOT District 6 PL&EM, Robert McMullen.
c. During the meeting/discussion with PL&EM did project representatives discuss avoidance and minimization criteria? Has PL&EM concurred these criteria were applied? (For District IV projects, participation in this interagency meeting is not permitted if elimination and reduction has not been explored with PL&EM): N/A
d. Have mitigation options for unavoidable impacts been discussed with PL&EM, and concurrence on the amount and type been achieved? (For District IV projects, participation in this interagency meeting is not permitted if options for unavoidable impacts been discussed with PL&EM): N/A

PRIOR COORDINATION

13. Has the project approach been discussed with:
    a. FDOT Drainage Liaison? Yes
    b. PLEMO Liaison? Yes
14. Have you coordinated with Cultural Resource Manager to determine if a SHPO concurrence letter has been received and can be included in the application? The project is in the PD&E phase and coordination with SHPO is on-going. We do not anticipate submitting a permit application at this time.
15. Have you coordinated with the Contamination Coordinator to determine if there are contamination concerns in the event a dewatering permit is required? A Contamination Screening is in progress.
16. Have you coordinated with Natural Resource Manager to determine if a USFWS concurrence letter has been received and can be included in the application? Coordination with USFWS is anticipated to occur later on in the PD&E phase.
17. For projects going into the permitting phase: Has a pre-application meeting been held or any preliminary correspondence been made by FDOT PM or Consultant with the regulatory agencies/reviewers? Specify the agencies and dates when meetings were held: N/A
18. For project in the permitting phase, please provide any application numbers and the reviewer's name: N/A
19. Anticipated Permits (or, if you already applied for or received any permits, please include the application/permit numbers): N/A





REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

PLAN-PROFILE

SHEET NO.
01

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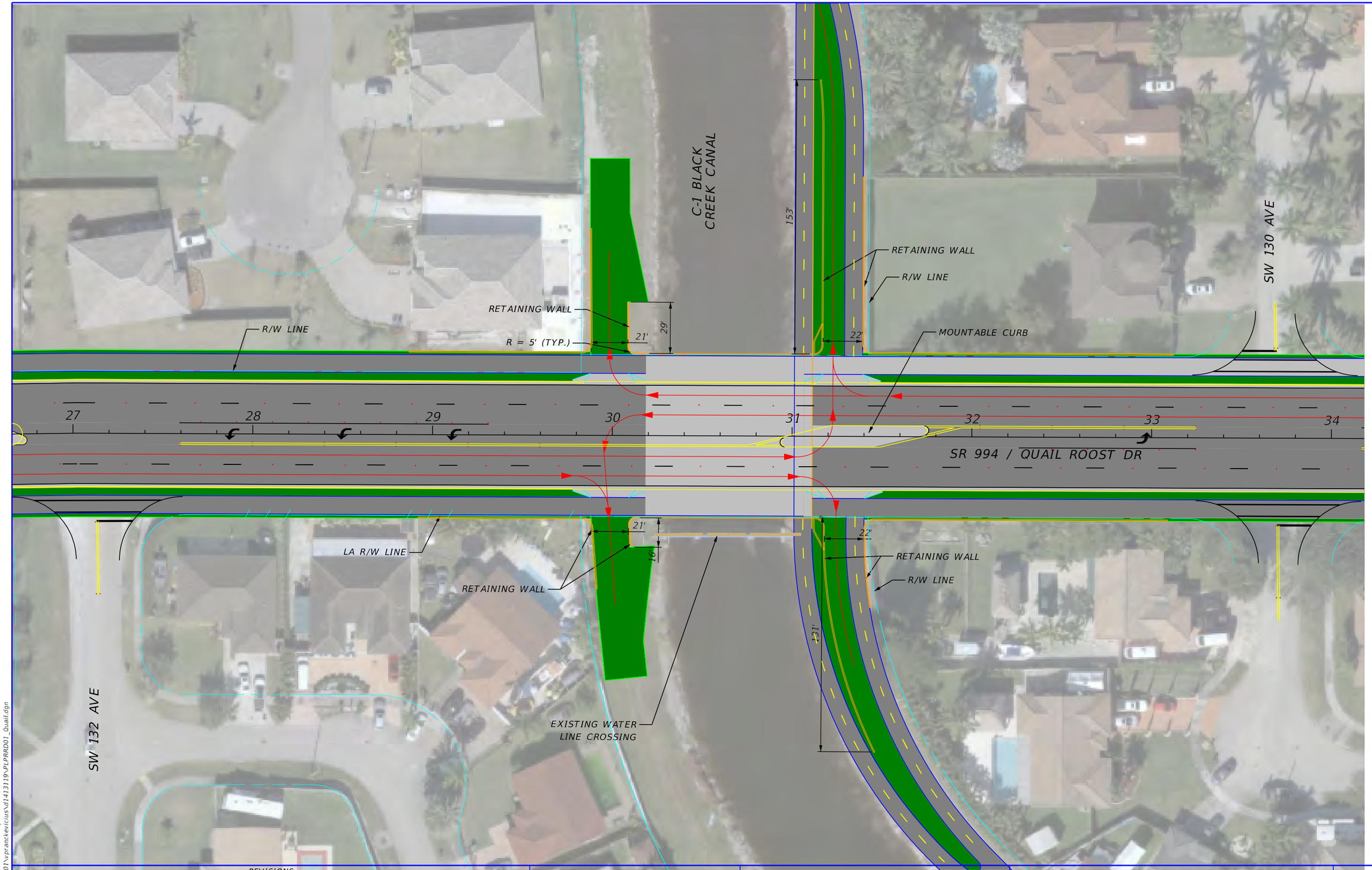

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

PLAN-PROFILE

SHEET NO.
02

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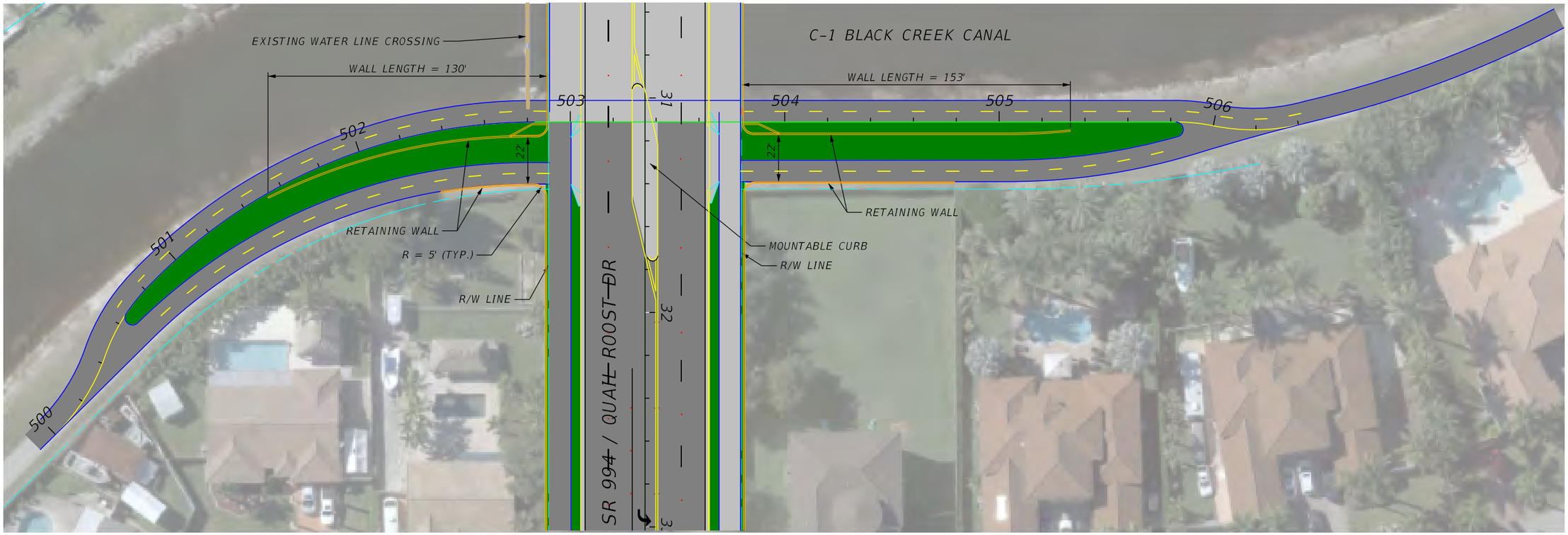

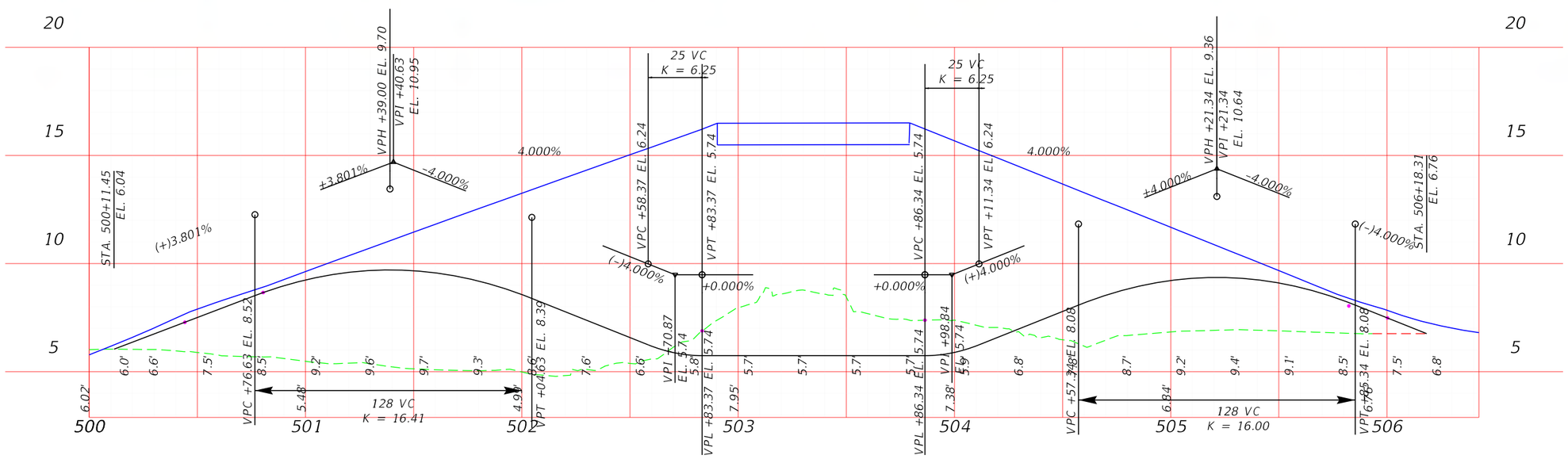

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

PLAN-PROFILE

SHEET NO.
PLAN 1

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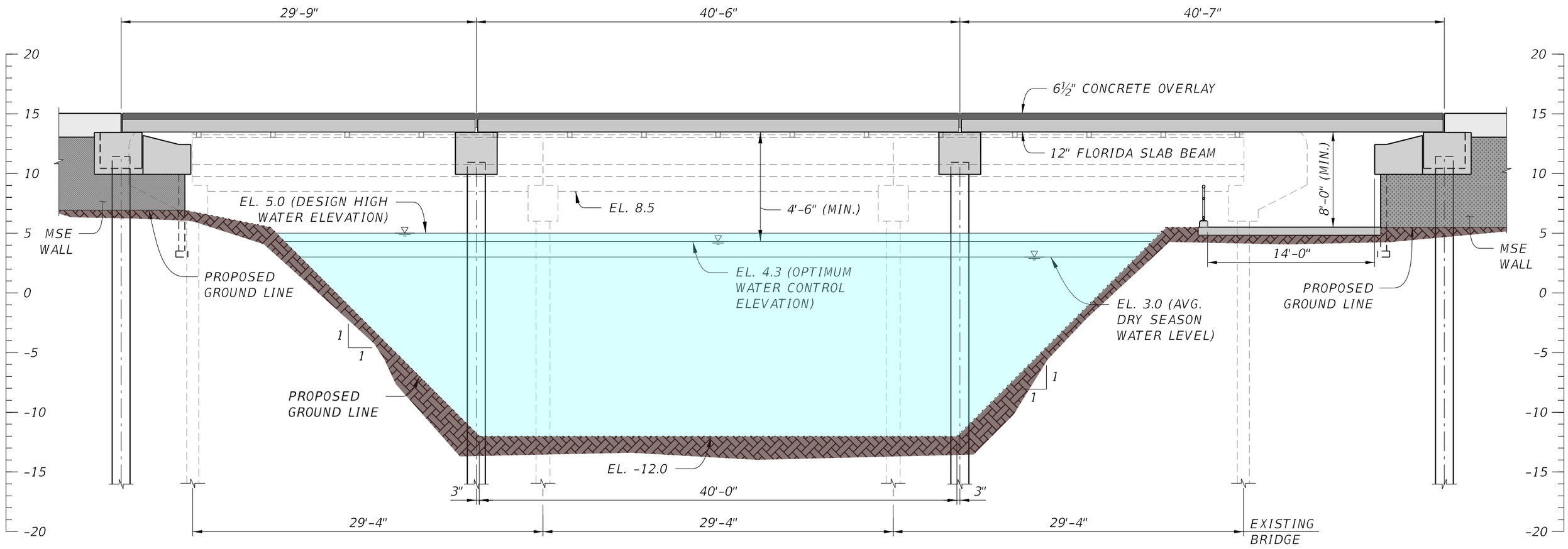

29'-9"
40'-6"
40'-7"
20
15
10
5
0
-5
-10
-15
-20
6½" CONCRETE OVERLAY
12" FLORIDA SLAB BEAM
8'-0" (MIN.)
EL. 5.0 (DESIGN HIGH WATER ELEVATION)
EL. 8.5
4'-6" (MIN.)
MSE WALL
PROPOSED GROUND LINE
EL. 4.3 (OPTIMUM WATER CONTROL ELEVATION)
14'-0"
EL. 3.0 (AVG. DRY SEASON WATER LEVEL)
PROPOSED GROUND LINE
MSE WALL
1
1
PROPOSED GROUND LINE
1
1
EL. -12.0
3"
40'-0"
3"
29'-4"
29'-4"
29'-4"
EXISTING BRIDGE

PROJECT MEETING SUMMARY:

ATTENDEES:

Name	Organization	Email Address
Dustin Wood	SFWMD	duwood@sfwmd.gov
Barb Conmy	SFWMD - ERP	bconmy@sfwmd.gov
Caitlin Westerfield	SFWMD - ERP	cwesterf@sfwmd.gov
John Hixenbaugh	SFWMD - ROW	jhixenba@sfwmd.gov
Teri Swartz	SFWMD - 408	tswartz@sfwmd.gov
Michelle Gilbert	USACE	michelle.l.gilbert@usace.army.mil
Elsa Riverol	FDOT - PM	elsa.riverol@dot.state.fl.us
Daniel ChominVirden	FDOT	daniel.chomin-virden@dot.state.fl.us
Alina Ferndandez	Gannett Fleming	afernandez@gfnet.com
Carlos Cejas	Gannett Fleming	ccejas@gfnet.com
Courtney Arena	Gannett Fleming	carena@gfnet.com
Alejandro Uribe	Gannett Fleming	auribe@gfnet.com
Amanda De Cun	Gannett Fleming	adecun@gfnet.com
Vinicius Pranckevicius	Gannett Fleming	vpranckevicius@gfnet.com
Carlos Ribbeck	Ribbeck Engineering	cribbeck@gmail.com
Francis Mitchell	Ribbeck Engineering	f-mitchell@att.net

The Project meeting started around 9:00 am and was completed by 9:40 am. After roll call of attendees, the overall project scope, limits, and approach were reviewed and presented by representatives of Gannett Fleming. The Project was described as a PD&E project for a 1.5-mile-long roadway improvement with bridge replacement including pedestrian mobility improvements. It is currently a two-lane undivided roadway and bridge that has substandard vertical clearance. There are two options being proposed: Option 1) Keep it as a two-lane bridge but add a turning lane and shared use path with lighting. This would increase the bridge footprint. Option 2) add two lanes to be a 4-lane roadway/bridge with median and shared use path. In either Option, the bridge would be replaced. It is a SFWMD canal and the shared use path and work is within the SFWMD ROW. The purpose of this meeting is to confirm the design considerations for the bridge and shared use path which is being proposed under the east side of the bridge. Proposed would be adding two piles at 40’ separation at bottom of canal with 1:1 slope up to grade. North would accommodate a 14’ wide paved shared use path under the bridge with 8’ clearance. West top of bank would be like existing with no path/access. At grade SFWMD access at top of bridge/roadway would be maintained.

Agency Discussion:

ROW:

- John of SFWMD confirmed maintenance access will need to be maintained at all four corners to accommodate drive and turning lane for trailers and cranes. Consultant indicated at grade access will remain as existing.

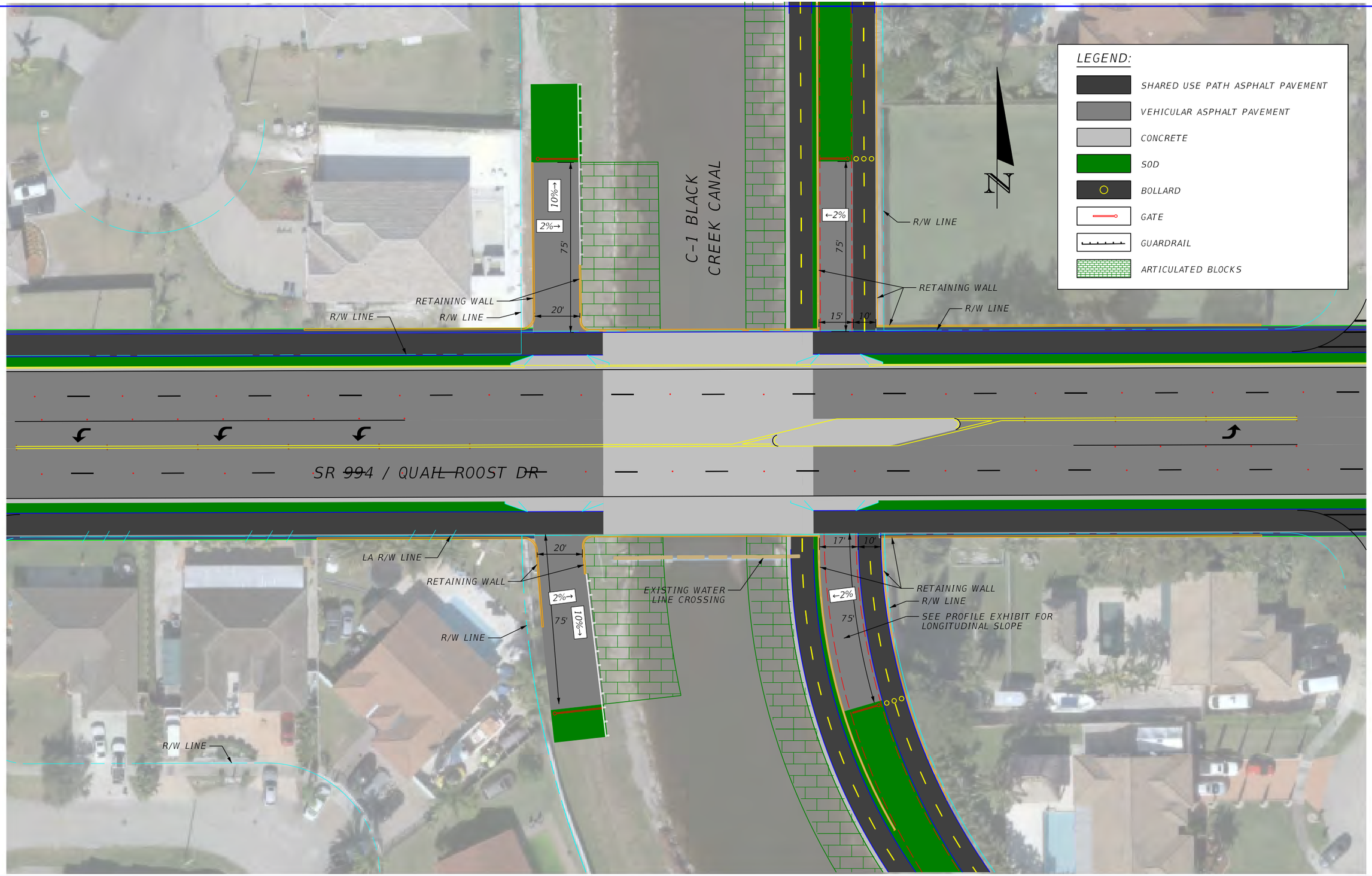
- Consultant inquired how much of "underpass" of shared use path will need to be paved. Proposing 10' paved with 22' of clear width (grass is drivable).
    - SFWMD indicated 14' wide paved driveway at the quadrant and aprons need to accommodate a vehicle 75 feet in length. A minimum 15' width and 75' length is provided - see pg 1 of Exhibits.pdf
- SFWMD indicated they will need more detailed cross-sections to share with the maintenance team to confirm if proposed widths, lengths, gates, and guard rails are appropriate. Can e-mail him (John) the plans to coordinate with his team. Two (2) Cross-sections will be needed.
    - One cross-section to show the overall proposed profile of the driveways, underpass, guardrail locations, gates pave widths etc which will be shared with the maintenance group. Refer to pg. 1 for location of guardrail, retaining walls, gates, paved widths. Refer to pg 2 for cross slope and longitudinal slope of west access road. See pg 3 for profile of east access road. Cross section on Pages 5 and 6 show guardrail and retaining walls.
    - The second cross-section is set of cross-sectional surveys of the existing canal and right-of-way profiles to determine if dredging will be required. At a minimum, this set consists of five (5) surveys: one at the centerline, one at each proposed bridge face, one 25-feet upstream and one 25-feet downstream of the proposed bridge. (See SFWMD Bridge Application Checklist). Please see pg. 4 to 6
- SFMWD indicated more info on the slopes will be required for mowing considerations etc. If it is greater than 3:1, will need to be stabilized. A hardened slope will be required with 1:1 slope as follows: These requirements will be included in the PD&E Project Engineering Report (PER) and will be reflected in the construction cost estimate for the selected alternative. We will adhere to this criteria during the design phase.
    - 1:1 Articulated Block (Not riprap) from top of bank to toe of slope. Top of bank landward can be riprap (stabilization needs to be 25' from bridge face in each direction and can be articulated block)
    - 1.5:1 and shallower – riprap is allowed
    - 1.5:1 and steeper – a slope stability analysis would be required by USACE (per Teri)
- Consultant briefly shared a letter they received from Beverly Miller in 2021 with canal design requirements.
    - John indicated they looked to be current, so should still apply.
- Consultant inquired on canal depth. Proposing -12.0. Where it is greater depth than that, do they need to fill?
- SFWMD indicated it is what ever you need to fulfill the hydraulic needs, but no, they don't required to fill to be all uniform if existing is greater depth.

ERP

- Consultant indicated they do not anticipate any impacts to wetlands and drainage is anticipated to be self-contained with no new outfalls or modifications to existing systems.
- SFWMD stormwater indicated an ERP would be required for the work activity and would be a new permit.
- SFWMD environmental group would expect the following to be shown/discussed in permit application: acres of wetlands or other surface waters as their jurisdiction is to top of bank, riprap and any other dredge or fill required as part of the project. Plans need to show erosion control. A manatee protection plan during work activities would be required if appropriate for the location. If dewatering will be necessary this needs to be indicated in the application.

USACE

- Michelle confirmed a 408 authorization will be required for this project



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DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

C-1 CANAL AT SR 994 / QUAIL ROOST DR

SHEET NO. 01

7/7/2022 10:30:50 AM vpranckevicius
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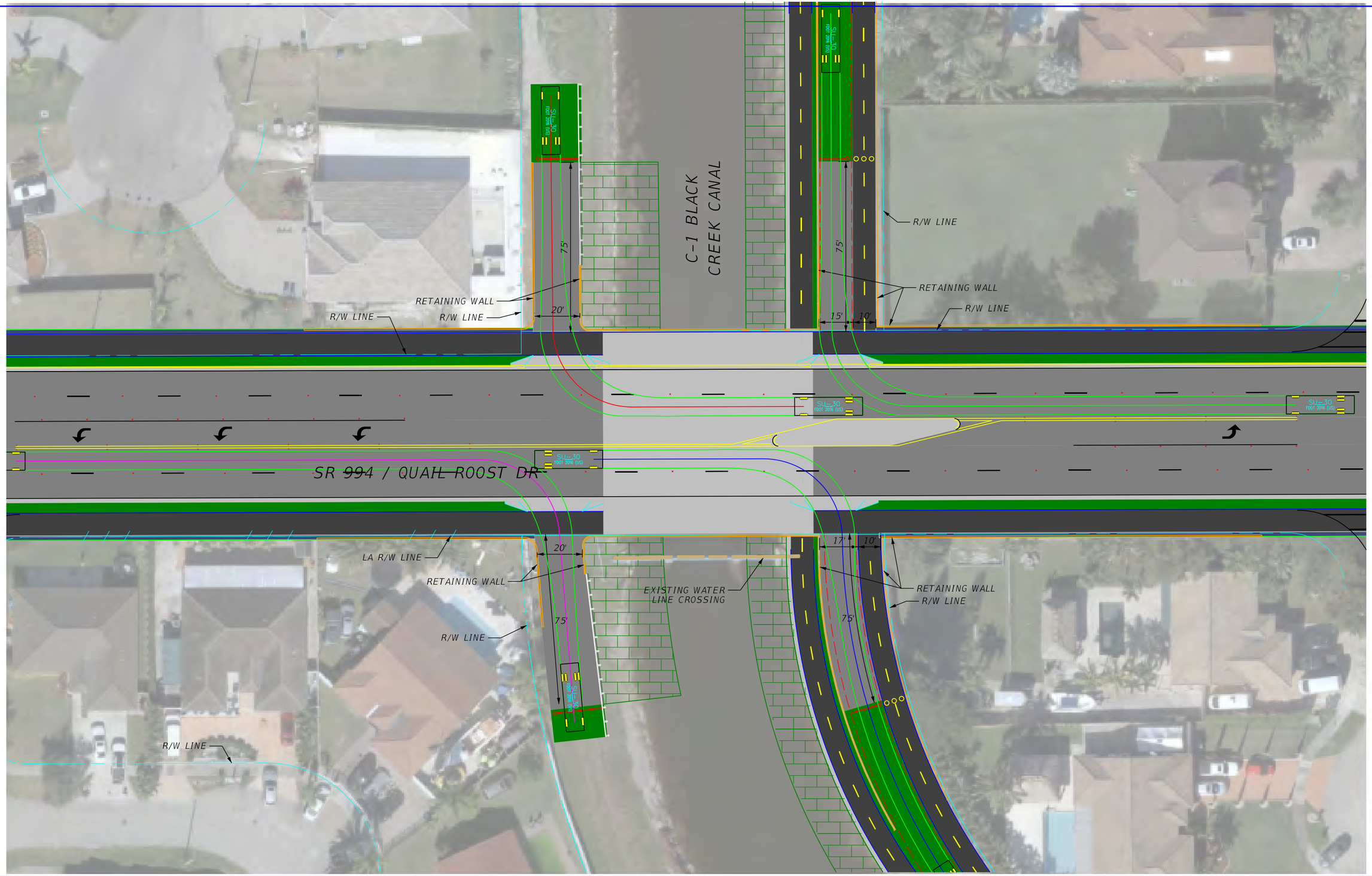

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

C-1 CANAL ACCESS FROM SR 994 / QUAIL ROOST DR

SHEET NO. 02

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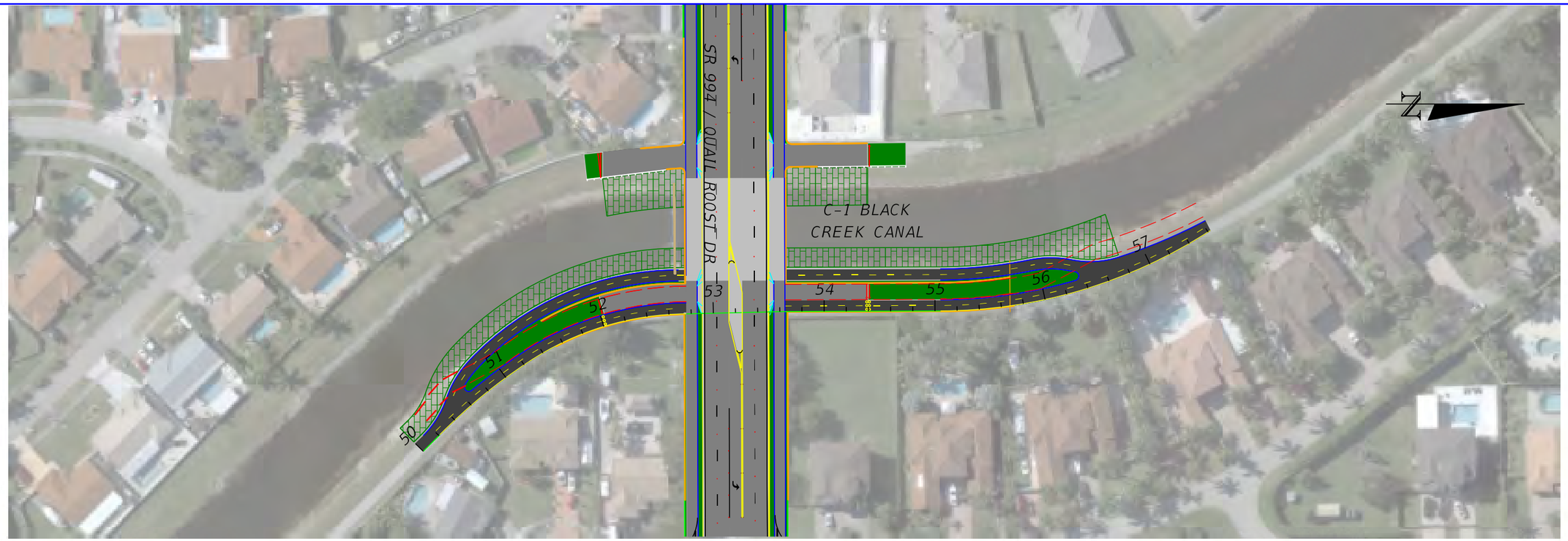

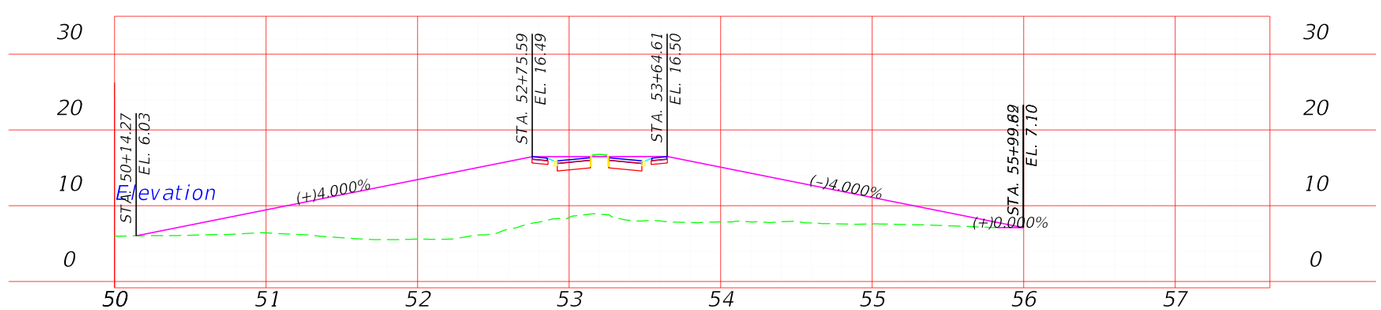

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

C-1 CANAL
EAST ACCESS ROAD PROFILE

SHEET NO.
04

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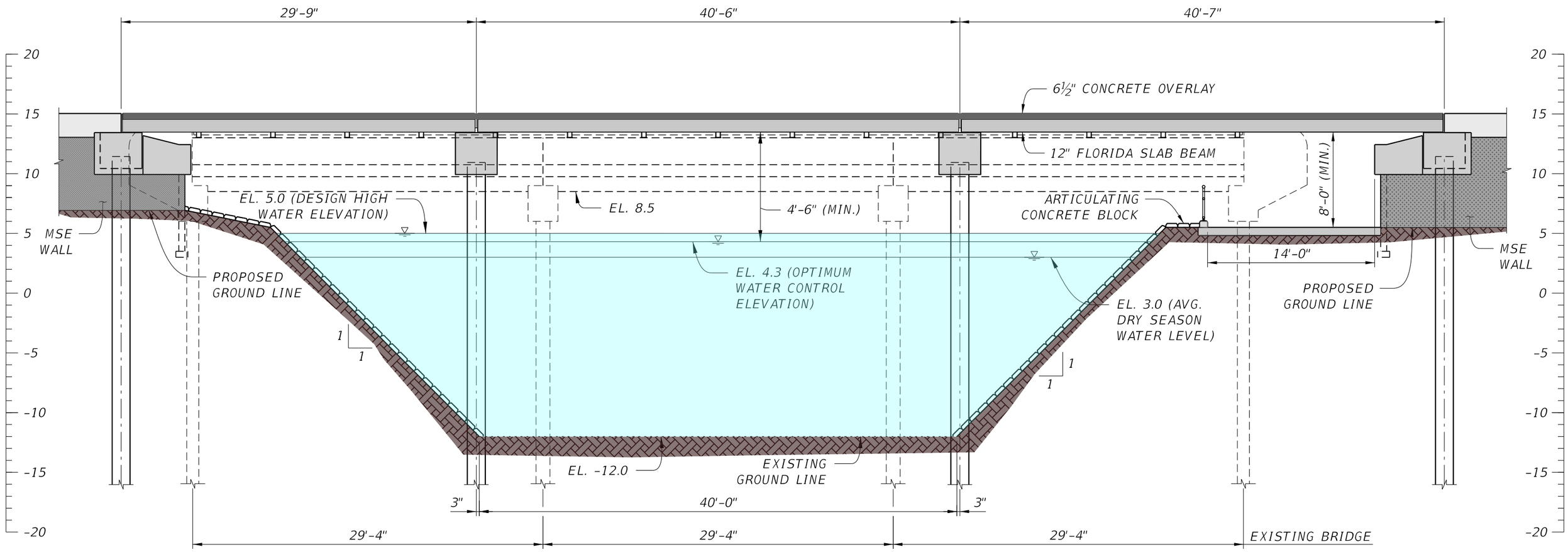
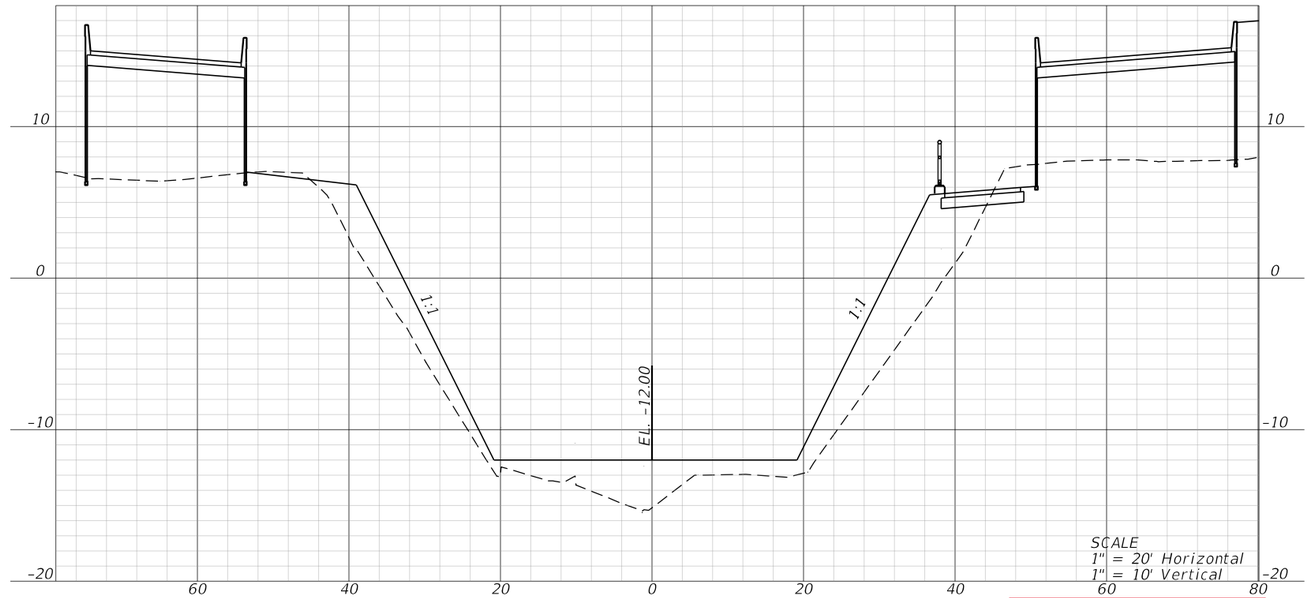
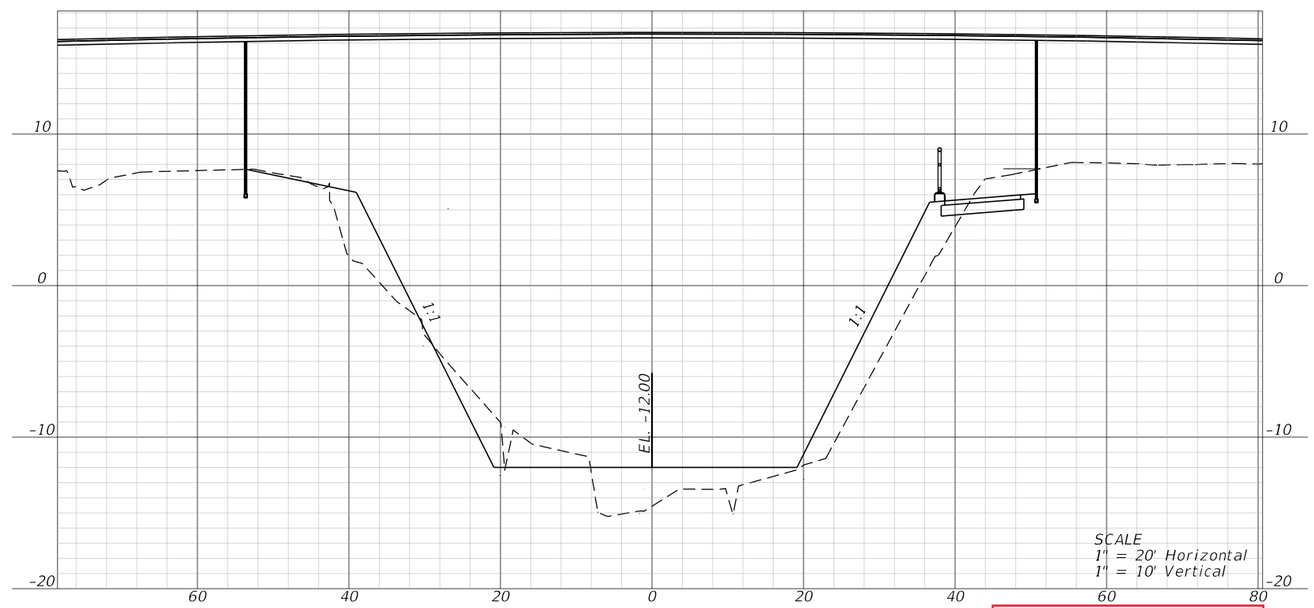


Quail Roost Drive Bridge
section over C-1 Canal



25 ft north of bridge



north face of bridge

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

CROSS SECTIONS

SHEET NO.

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8/11/2022 9:51:09 AM lmorgado
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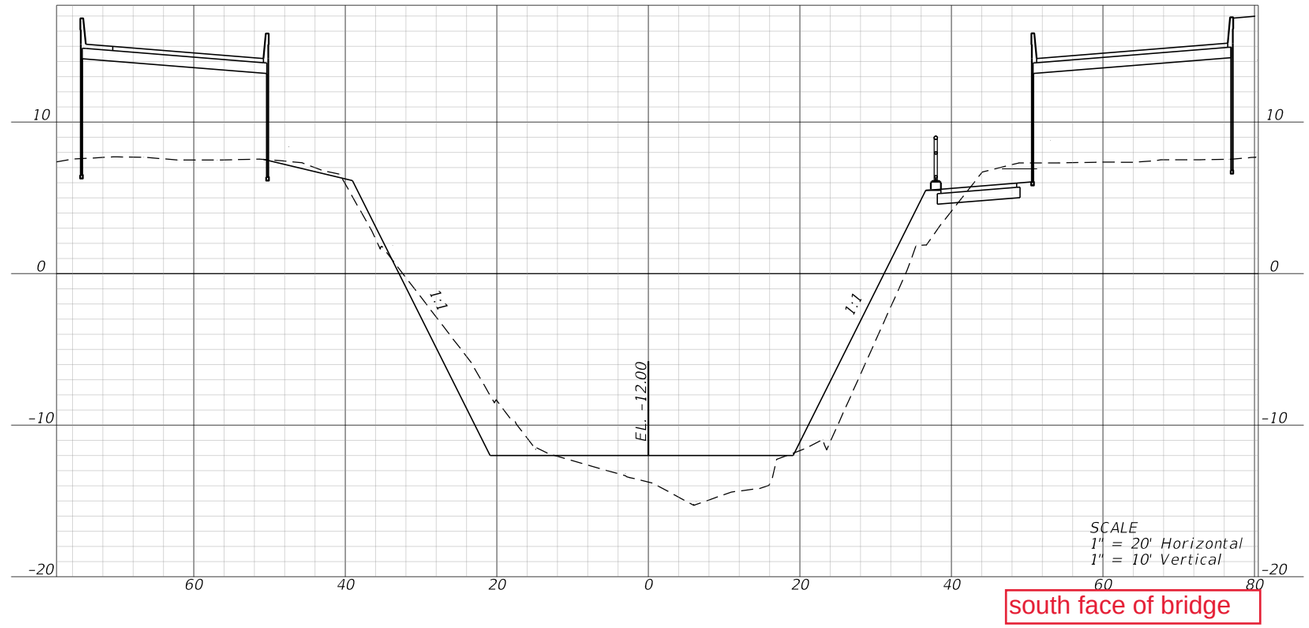

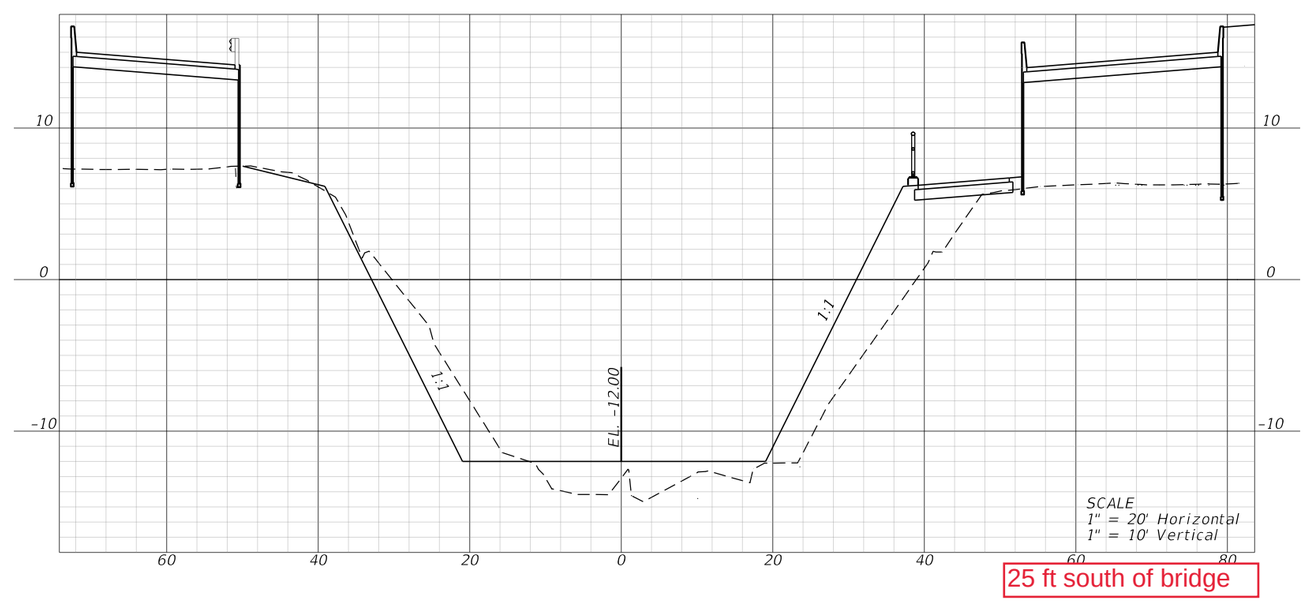

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
994	MIAMI-DADE	44580412201

CROSS SECTIONS

SHEET NO.
xx

8/11/2022 9:51:08 AM lmorgado
c:\pwworking\gf\pw01\lmorgado@gfnet.com\d1413119\RDXSRD01_canalxsection.dgn

Sandoval, Ana

Subject: FW: D6 June Interagency Meeting Minutes - Quail Roost Dr (445804-1)

From: Hixenbaugh, John <jhixenba@sfwmd.gov>
Sent: Tuesday, October 11, 2022 4:41 PM
To: Fernandez, Alina <afernandez@gfnet.com>
Cc: Crichton, Christopher <ccrichto@sfwmd.gov>
Subject: RE: D6 June Interagency Meeting Minutes - Quail Roost Dr (445804-1)

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

HI, Alina.

The District's field station has reviewed the proposed plans and provides the following comments/direction.

1. There are other utilities within the footprint of the project that are not shown on the drawing accompanying the minutes. All utilities must be shown to determine impacts to existing, authorized work in the right of way.
2. Pg. 5 of the Minutes/Drawing: The median with the mountable curb must be removed completely to provide unobstructed travel from the north to south right of way.
3. Page 2 of the Exhibits: The traffic patterns for the District to enter the right of way on all quadrants are hazardous because the flatbed truck/crane have to cut across traffic. The inner lanes must be widened or turning radii increased to accommodate the Districts' equipment.
4. The openings at each quadrant must each be 20 feet.

If you have any follow up questions, please contact Chris Crichton. Chris can be reached at (561) 682-2068 or ccrichto@sfwmd.gov.

Thanks!

John

John R. Hixenbaugh, J.D., AICP CUD
Section Administrator
Right-of-Way Section

For information about Right of Way Occupancy Permits, please visit us at:
www.sfwmd.gov/rowpermits

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406
(561) 682-2797 Voice
(561) 682-5096 Facsimile
jhixenba@sfwmd.gov

Florida enjoys a broad public records law. Any emails sent to or from this address will be subject to review by the public unless exempt by law.

From: Fernandez, Alina <afernandez@gfnet.com>
Sent: Friday, September 16, 2022 5:10 PM
To: Jennifer Shipley <JShipley@millerlegg.com>; Wood, Dustin <duwood@sfwmd.gov>; Conmy, Barbara <bconmy@sfwmd.gov>; Westerfield, Caitlin <cwesterf@sfwmd.gov>; Hixenbaugh, John <jhixenba@sfwmd.gov>; Swartz, Teri <tswartz@sfwmd.gov>; Gilbert, Michelle L CIV USARMY CESAJ (USA) <Michelle.L.Gilbert@usace.army.mil>; Elsa Riverol <elsa.riverol@dot.state.fl.us>; Chomin-Virden, Daniel <daniel.chomin-virden@dot.state.fl.us>; Cejas, Carlos M. <ccejas@GFNET.com>; Arena, Courtney <carena@GFNET.com>; Uribe, Alejandro <auribe@GFNET.com>; De Cun, Amanda I. <adecun@GFNET.com>; Carlos Ribbeck <cribbeck@gmail.com>; f-mitchell <f-mitchell@att.net>
Cc: Magar-Chhabra, Rupa <Rupa.Magar-Chhabra@dot.state.fl.us>; Poole, James <james.poole@dot.state.fl.us>
Subject: RE: D6 June Interagency Meeting Minutes - Quail Roost Dr (445804-1)

> Some people who received this message don't often get email from afernandez@gfnet.com. Learn why this is important

[Please remember, this is an external email]

Good afternoon all,

We wanted to provide responses and additional exhibits to clarify some of the questions the PD&E team received during this coordination meeting. I inserted some notes/responses to the meeting minutes (page 9 of the PDF), see also screenshot below. We will be including all these requirements in the Preliminary Engineering Report for this PD&E project.

- Consultant inquired how much of "underpass" of shared use path will need to be paved. Proposing 10' paved with 22' of clear width (grass is drivable).
  - SFWMD indicated 14' wide paved driveway at the quadrant and aprons need to accommodate a vehicle 75 feet in length. A minimum 15' width and 75' length is provided - see pg 1 of Exhibits.pdf
- SFWMD indicated they will need more detailed cross-sections to share with the maintenance team to confirm if proposed widths, lengths, gates, and guard rails are appropriate. Can e-mail him (John) the plans to coordinate with his team. Two (2) Cross-sections will be needed.
  - One cross-section to show the overall proposed profile of the driveways, underpass, guardrail locations, gates pave widths etc which will be shared with the maintenance group. Refer to pg. 1 for location of guardrail, retaining walls, gates, paved widths. Refer to pg 2 for cross slope and longitudinal slope of west access road. See pg 3 for profile of east access road. Cross section on Pages 5 and 6 show guardrail and retaining walls.
  - The second cross-section is set of cross-sectional surveys of the existing canal and right-of-way profiles to determine if dredging will be required. At a minimum, this set consists of five (5) surveys: one at the centerline, one at each proposed bridge face, one 25-feet upstream and one 25-feet downstream of the proposed bridge. (See SFWMD Bridge Application Checklist). Please see pg. 4 to 6
- SFMWD indicated more info on the slopes will be required for mowing considerations etc. If it is greater than 3:1, will need to be stabilized. A hardened slope will be required with 1:1 slope as follows: These requirements will be included in the PD&E Preliminary Engineering Report (PER) and will be reflected in the construction cost estimate for the selected alternative. We will adhere to this criteria during the design phase.
  - 1:1 Articulated Block (Not riprap) from top of bank to toe of slope. Top of bank landward can be riprap (stabilization needs to be 25' from bridge face in each direction and can be articulated block)
  - 1.5:1 and shallower – riprap is allowed
  - 1.5:1 and steeper – a slope stability analysis would be required by USACE (per Teri)

Please let us know if you need further clarification, additional drawings, etc.

Regards,

Alina Fernandez, P.E. | Vice President
Gannett Fleming | 800 NW 62nd Avenue, Suite No. 490, Miami, FL 33126
O 305.908.3937 | **C** 305.519.2987 | afernandez@gfnet.com
Excellence Delivered As Promised
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From: Jennifer Shipley <JShipley@millerlegg.com>
Sent: Thursday, July 28, 2022 5:53 PM
To: duwood@sfwmd.gov; Barbara Conmy <bconmy@sfwmd.gov>; cwesterf@sfwmd.gov; jhixenba@sfwmd.gov; tswartz@sfwmd.gov; Gilbert, Michelle L CIV USARMY CESAJ (USA) <Michelle.L.Gilbert@usace.army.mil>; Elsa Riverol <elsa.riverol@dot.state.fl.us>; Chomin-Virden, Daniel <daniel.chomin-virden@dot.state.fl.us>; Fernandez, Alina <afernandez@gfnet.com>; Cejas, Carlos M. <ccejas@GFNET.com>; Arena, Courtney <carena@GFNET.com>; Uribe, Alejandro <auribe@GFNET.com>; De Cun, Amanda I. <adecun@GFNET.com>; vpranckevicius@gfnet.co; Carlos Ribbeck <cribbeck@gmail.com>; f-mitchell <f-mitchell@att.net>
Cc: Magar-Chhabra, Rupa <Rupa.Magar-Chhabra@dot.state.fl.us>; Poole, James <james.poole@dot.state.fl.us>
Subject: RE: D6 June Interagency Meeting Minutes - Quail Roost Dr (445804-1)

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

All – please see the attached replacement meeting minutes which have been revised to clarify details discussed for the ROW permit. Please also reference the attached Bridge Application Checklist provided regarding expectations for the ROW permit applications.

Thanks!

Jennifer Shipley
MILLER LEGG
Improving Communities. Creating Environments.
5747 N. Andrews Way, Fort Lauderdale, Florida 33309
d | (954)628-3631 o | (954) 436-7000 c | (954) 868-5285

From: Jennifer Shipley
Sent: Thursday, July 28, 2022 3:54 PM
To: duwood@sfwmd.gov; Barbara Conmy <bconmy@sfwmd.gov>; cwesterf@sfwmd.gov; jhixenba@sfwmd.gov; tswartz@sfwmd.gov; Gilbert, Michelle L CIV USARMY CESAJ (USA) <Michelle.L.Gilbert@usace.army.mil>; elsa.riverol@dot.state.fl.us; Chomin-Virden, Daniel <daniel.chomin-virden@dot.state.fl.us>; Fernandez, Alina <afernandez@gfnet.com>; ccejas@gfnet.com; Arena, Courtney <carena@GFNET.com>; auribe@gfnet.com; De Cun, Amanda I. <adecun@GFNET.com>; vpranckevicius@gfnet.co; cribbeck@gmail.com; Mitchell, Francis <f-mitchell@att.net>
Cc: Magar-Chhabra, Rupa <Rupa.Magar-Chhabra@dot.state.fl.us>
Subject: D6 June Interagency Meeting Minutes - Quail Roost Dr (445804-1)

All – please see the attached meeting minutes for the June Interagency Meeting for the above – referenced project. Exhibits as presented in the meeting have been included.

Let me know if you have any questions or comments.

Thanks!

Jennifer Shipley

MILLER LEGG

Improving Communities. Creating Environments.

5747 N. Andrews Way, Fort Lauderdale, Florida 33309

d | (954)628-3631 o | (954) 436-7000 c | (954) 868-5285

Appendix K – Traffic Analysis and Safety Methodology Memorandum

Date: September 10, 2021

To: Kenneth Jeffries, FDOT D6 Planning Manager

Misleidys Leon, P.E., FDOT D6 Traffic Safety Program Engineer

From: Jeanette F. Berk; Eugenio S. Lopez, P.E.; Jessica Garcia, MSCE, E.I.

Project No.: 445804-1-22-01

Subject: SR 994/SW 200/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue – PD&E Traffic Analysis and Safety Methodology (FINAL)

1.0 PROJECT LOCATION

This document describes the traffic methodology for the PD&E project for SR 994/SW 200 Street/Quail Roost Drive (87091000) (hereafter referred to as SR 994) from just west of SW 137 Avenue (MP 4.000) to just east of SW 127 Avenue (MP 5.162) located in unincorporated Miami-Dade County, Florida. The project spans approximately 1.2 miles. The Miami-Dade County 2015 Urban Development Boundary is at SW 137 Avenue (the western limit of the study limits). Four major intersections are located along the project corridor, including two signalized intersections (SW 137 Avenue and SW 127 Avenue) and two unsignalized intersections (SW 134 Avenue and SW 132 Avenue). A signal warrant analysis was previously completed for the intersection of SR 994 and SW 134 Avenue which recommended future installation of a traffic signal. Eight other minor (unsignalized) intersections are located within the study corridor. The project location map is shown in **Figure 1**.

2.0 PROJECT NEEDS

SR 994 between SW 137 Avenue and SW 127 Avenue serves a dense residential area to the north and south. Directly to the west of SW 137 Avenue, SR 994 serves a large urban area encompassing agricultural lands. Within the study limits, SR 994 is a two-lane undivided arterial classified as a rural minor arterial from MP 4.035 to MP 4.073 (center of SW 137 Avenue) and an urban minor arterial from MP 4.073 to MP 5.162. SR 994 has a 40 MPH posted speed limit. The purpose of the PD&E project is to address traffic operations and capacity constraints on SR 994 from west of SW 137 Street to east of SW 127 Avenue to accommodate future travel demand projected due to population and employment growth along the corridor. Other goals of the project are to: 1) improve safety conditions along the corridor, including emergency evacuation and response times, and 2) enhance mobility options and multi-modal access. Alternatives under

consideration include widening SR 994 from two lanes to four lanes from west of SW 137 Avenue to west of SW 127 Avenue, which will provide connectivity to the existing four-lane segment west of SW 127 Avenue. Improvements also include operational enhancements at the existing intersections, widening/reconstruction of the bridge structure over Black Creek Canal, access management, and stormwater management needs. FDOT will evaluate Build Alternatives in comparison to the No-Action Alternative. The alternative analyses will consider opportunities to avoid and minimize right-of-way needs and potential environmental effects.

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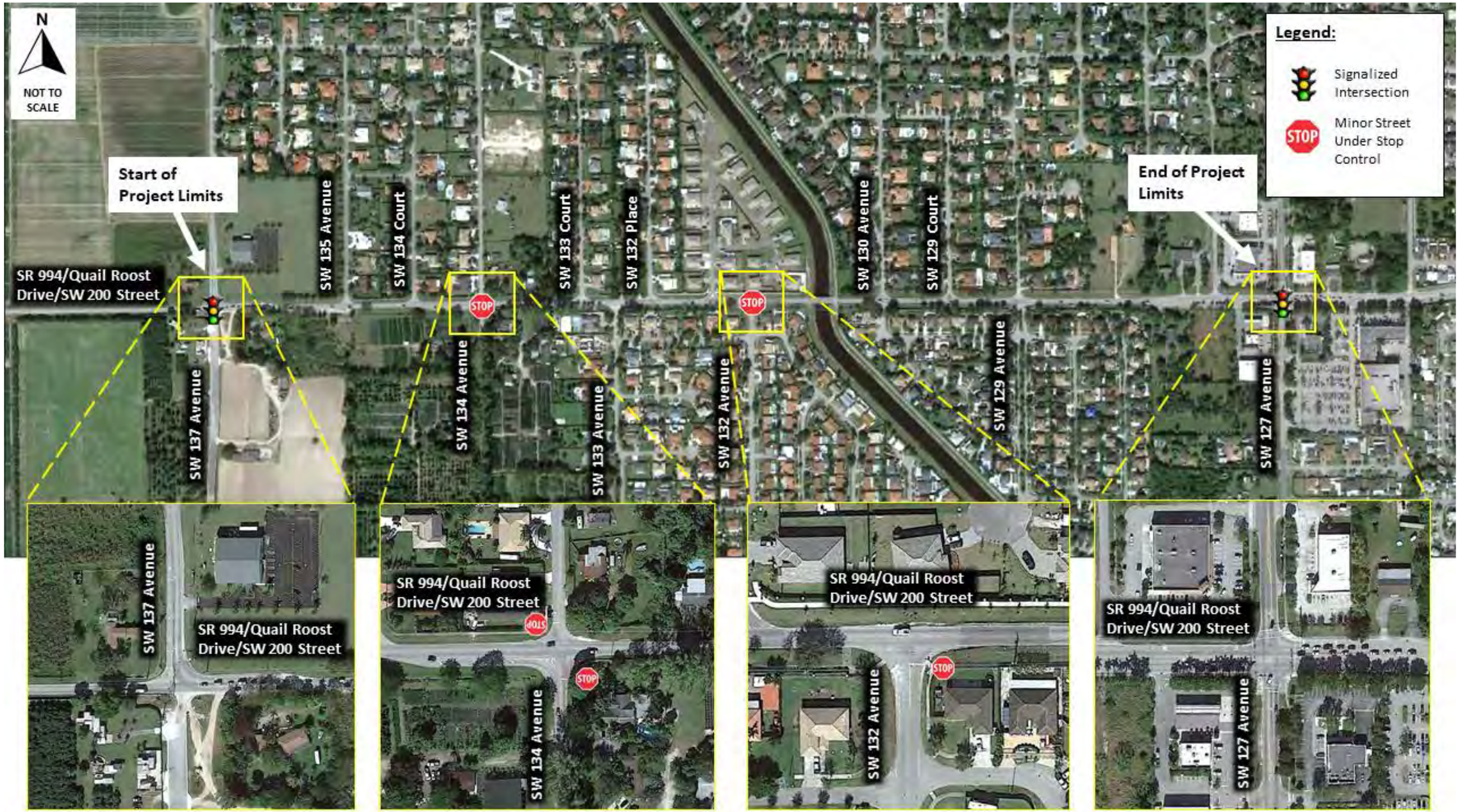

Figure 1. Project Location Map

3.0 TRAFFIC METHODOLOGY OVERVIEW

The traffic methodology process is illustrated in the flowchart shown in **Figure 2**. The operational analysis steps consist of collecting data, performing existing conditions analysis, identifying system deficiencies, performing regional model validation, forecasting future daily traffic volumes, establishing operational factors to convert daily traffic to peak hour volumes, developing improvement alternatives, and performing operational analysis for the AM and PM peak hours to identify a preferred alternative.

Intersection analysis and signal optimization will be performed using Synchro 11. The delay and level of service for each intersection movement, approach, and overall intersection will be based on the Highway Capacity Manual (HCM) methodology reports generated from Synchro. In addition, average vehicle delays, queue lengths, and volume/capacity ratios will be summarized by intersection movement. In descending order, these output reports will be generated based on the HCM 6th, HCM 2010, or HCM 2000 methodologies. Because there are analysis limitations for each HCM methodology, the methodology output report to be selected will be determined at the time of analysis. For instance, the HCM 2010 and 6th methodologies do not support shared lane operations. Nevertheless, for consistency the output reports for all intersections should be generated based on the same HCM methodology.

The Southeast Florida Regional Planning Model (SERPM) Version 8.5.12, which was released in June 2021, will be used to develop future roadway link traffic volumes for base year 2015 and design year 2045. Sub-area model enhancements will be performed for the 2015 base year. All modifications to the zonal data, network structure and model parameters will be documented and applied to future years. Distinct future SERPM networks will be developed for the Build and No Build alternatives. The model volume results will be based on the adopted year 2015 and 2045 socioeconomic data and the different networks developed for the analysis. The future roadway link traffic volumes for opening year 2025 will be developed by interpolating between years 2015 and 2045 model volume outputs.

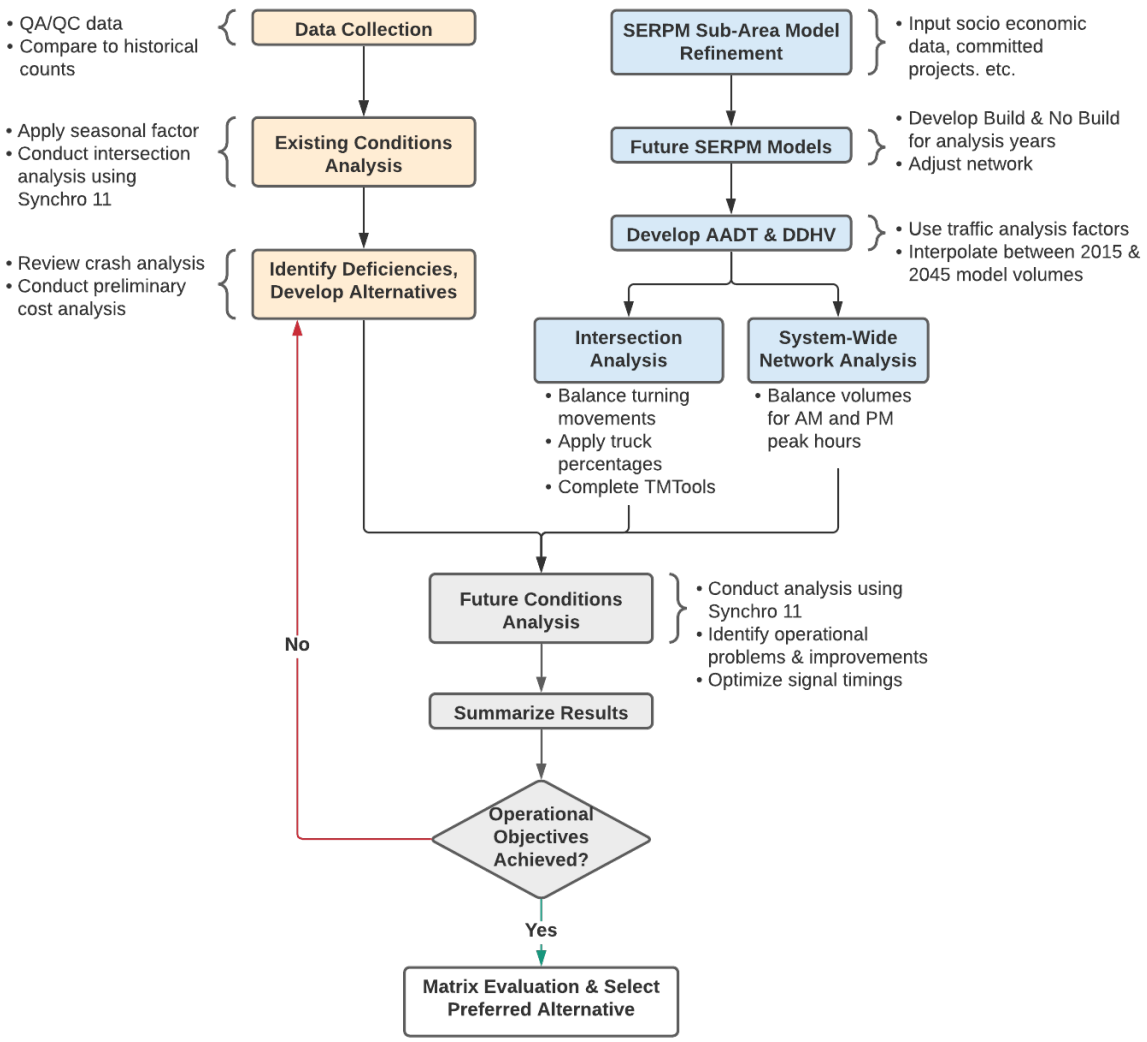

Figure 2. Traffic Methodology Process

4.0 ANALYSIS YEARS

The PD&E traffic analysis will be performed for the AM and PM peak hours for existing, opening year, and design year conditions. The analysis years are provided below:

Existing Year:	2021
Opening Year:	2025
Design Year:	2045

5.0 ALTERNATIVES CONSIDERED

The alternatives in this study include a No Build alternative, a Transportation Systems Management (TSM) alternative, and two Build alternatives with raised and painted medians. The TSM and Build Alternatives will be developed based on deficiencies identified from existing conditions. The performance of the proposed improvements will be evaluated for future conditions based on a set of Measures of Effectiveness (MOEs). Refinements to the proposed alternatives could be developed if desired MOEs could not be achieved, a more cost-effective improvement can be identified, or to further enhance the operational benefits of the proposed improvements. The following are descriptions of each alternative to be considered.

The No Build Alterative assumes no proposed improvements and serves as the baseline for comparison against the other alternatives. This alternative, however, will include any on-going construction projects and all funded and programmed improvements specified in approved development orders. These improvements must be outlined in the FDOT Five-Year Work Program, Miami-Dade County Transportation Planning Organization (TPO) cost feasible Long Range Transportation Plan (LRTP), Transportation Improvements Plan (TIP), the transportation element of Local Government Comprehensive Plans (LGCP), or developer-funded transportation improvements specified in approved development orders.

The TSM Alternative will consider low-cost improvements such as converting the median into a Two-Way-Left-Turn-Lane (TWLT) while maintaining the two-lane section on SR 994, adding turning lanes or extending storage bays at intersections, signal coordination and optimization, and improving turning radii.

The Build Alternatives include widening SR 994 from two lanes to four lanes from just west of SW 137 Avenue to just west of SW 127 Avenue, which will provide connectivity to the existing four-lane segment beginning just west of SW 127 Avenue. Two options will be considered, a raised median and a painted median, which will follow the requirements presented by Florida Statute 335.199 – Transportation Projects Modifying Access to Adjacent Property. The development of the alternatives should consider benefiting the pedestrian and bicycle traffic within the study corridor. For instance, providing special emphasis pedestrian markings and signals at all signalized intersections, and enhancing the pedestrian features at the existing pedestrian crossing just west of SW 130 Avenue Road, as necessary.

Other potential project alternatives will be identified, developed, assessed, and screened to meet the purpose and need for this project in accordance with Part 2, Chapter 3 of the PD&E Manual. Development of alternatives will consider previously completed planning products.

By considering project goals and objectives, purpose and need, and results of ETDM Programming screen event, the CONSULTANT in consultation with the DEPARTMENT will identify and document alternatives to be eliminated from further detailed study. Only viable or feasible alternatives should be carried forward for detailed study.

6.0 DATA COLLECTION

Traffic data will be obtained from primary sources or collected in the field. Data collection will include recent and historic traffic counts and data from FDOT's portable and permanent (telemetered) traffic monitoring sites; as well as any relevant information that can be obtained from the following Traffic Reports and Planning studies:

- *FM 443915-1 (2019) – Resurfacing, Restoration and Rehabilitation Safety Review (RRR) for SR 994 from west of SW 137 Avenue to west of SW 127 Avenue*
- *FM 249726-4 (2017) – Intersection Qualitative Assessment and Signal Warrant Analysis and Conceptual Design Alternatives Report for SR 994 at SW 134 Avenue*
- *FM 443907-1 (2023) – Resurfacing, Restoration, and Rehabilitation Project for SR 994 from east of SW 177 Avenue/Krome Avenue to west of SW 137 Avenue*

There are 12 intersections (2 signalized and 10 un-signalized) that will be included in the analysis of this study.

72-hour bi-directional counts will be collected during a typical weekday (i.e., Tuesday, Wednesday, and Thursday) at four strategic intersections within the study corridor. These intersections include:

72-hour Bi-Directional Counts:

1. SR 994 at SW 137 Avenue
2. SR 994 at SW 134 Avenue
3. SR 994 at SW 132 Avenue
4. SR 994 at SW 127 Avenue

Based on a review of the 72-hour counts, two 3-hour peak periods will be selected, one during AM and another for PM. These 3-hour peak periods will be representative of the study corridor's AM and PM peak traffic periods. Subsequently, TMCs will be collected during a typical weekday (Tuesday, Wednesday, or Thursday) during these two 3-hour peak periods at the following intersections:

3-Hour AM & 3-Hour PM TMCs:

1. SR 994 at SW 137 Avenue
2. SR 994 at SW 135 Avenue
3. SR 994 at SW 134 Court
4. SR 994 at SW 134 Avenue
5. SR 994 at SW 133 Court
6. SR 994 at SW 133 Avenue
7. SR 994 at SW 132 Place
8. SR 994 at SW 132 Avenue
9. SR 994 at SW 130 Avenue
10. SR 994 at SW 129 Court
11. SR 994 at SW 129 Avenue
12. SR 994 at SW 127 Avenue

The TMCs will be collected every 15-minute during the two 3-hour peak periods and will include pedestrian, bicycle, and truck volumes. A truck percentage will be calculated for each intersection movement to be used for the existing level of analysis. The same truck percentages used for existing conditions will be carried over to the future level of service analysis.

Peak Hour Factors (PHFs) for existing conditions will be calculated from the TMCs by the average for each intersection to be used in the level of service analysis. A PHF of 0.95, consistent with the study roadway facility type and low traffic flow variation within the analysis hour, will be applied to the analysis of future years as suggested in the 2021 FDOT Traffic Analysis Handbook.

It is noted that the traffic data collection will be conducted in the months of August and September of 2021 post the COVID-19 pandemic. Thus, the traffic data to be collected in 2021 will be verified against the following pre-pandemic counts and adjusted to at least 2019 traffic conditions on a per intersection basis, to ensure that the 2021 traffic data is not lower than in 2019 and it is representative of typical travel patterns in the study area:

- *FM 443915-1 (2019) – RRR for SR 994 from west of SW 137 Avenue to west of SW 127 Avenue:*
    - 72-hour counts collected in February 2019 at SW 137 Avenue (north, east, and west legs), SW 134 Avenue (all four legs), and SW 132 Avenue (south, east, and west legs).
    - TMCs collected in January and February 2019 at SW 137 Avenue, SW 134 Avenue, and SW 132 Avenue intersections.
- *FDOT Traffic Online website:*
    - FDOT Synopsis Report (February 2020) from Traffic Count Station No. 87-1116 (on SR 994 at 200 feet west of SW 127 Avenue).

In addition, the traffic data for 2021 may be also adjusted to concur with the traffic growth pattern, if any that is presented by the traffic volumes generated by the traffic demand model (as discussed in Section 12) from year 2015 to 2045. The final 2021 TMCs to be used in this study will be provided to FDOT for review and approval.

The data collection will also include:

- Traffic, planning, and PD&E studies within the study area.
- Land use data obtained from the Miami-Dade County, TPO and local jurisdictions.
- Master Plans, DRIs, employment residential and school data.
- Traffic crash data obtained from FDOT's CAR database, as discussed in Section 13.1.
- Signal timing and phasing data for the signalized study intersections will be obtained from the Miami-Dade County KITS Database.

7.0 TRAFFIC FACTORS

The traffic factors to be used to develop peak hour volumes consist of the Standard K factors in addition to D and T factors obtained from the Florida Traffic Online website, nearby telemetry stations, as well as new classification counts from the data collection effort. Standard K and D factors will be used to develop future directional design hour volumes (DDHVs), as presented in **Tables 7.1 and 7.2** as obtained from the FDOT's 2019 Project Traffic Forecasting Handbook.

Table 7.1. FDOT Standard K Factors

Area Type	Facility Type	K_{std}
Large Urban Areas with Core Freeways	Freeways	8.0-9.0
	Arterials	9.0
Other Urbanized Areas	Freeways	9.0
	Arterials	9.0

Table 7.2. FDOT Recommended D Factor Ranges

Road Type	Low D	Medium D	High D	Standard Deviation
Urban Freeways	50.4	55.8	61.2	4.11
Urban Arterials	50.8	57.9	67.1	4.60

Annual Average Daily Traffic (AADT) for existing conditions will be determined from the collected 72-hour bi-directional counts by multiplying the Average Daily Traffic (ADT) obtained from the counts by the Seasonal Factor (SF) and Axle Correction Factor (ACF).

$$AADT = ADT \times SF \times ACF$$

The SF and ACF to be used are 1.03 and 0.98, respectively, since the 72-hour counts will be collected in late August. These values were obtained from FDOT 2020 Peak Season Factor Category Report and FDOT 2020 Weekly Axle Factor Category Report. This SF value covers any data collected from August 25 to August 31. The ACF value covers any data collected from August 30 to September 12. These factors do not appear to have been impacted by COVID-19 abnormal traffic conditions, since the SF and ACF for 2019 are 1.02 and 0.98, respectively.

8.0 FIELD REVIEW

The study intersections will be visited during the 1-hour peak representative of each AM and PM period during a typical day of the week (Tuesday, Wednesday, or Thursday) to assess the existing traffic operations and qualitatively document queue lengths, vehicle delay, vehicular conflicts, cycle failures, start-up lost time, gap acceptance, and signal phasing and sequence. Intersection lane geometry and posted speed limits will be also confirmed in the field. In addition, the overall east/west travel patterns in the study area will be qualitatively assess. Photographs of the field observations will be also taken and documented in this study.

9.0 LOS STANDARDS

The FDOT's Statewide Minimum Level of Service (LOS) Standards for the State Highway System were adopted by Administrative Rule in 1992 (Rule Chapter 14-94) and are described in the "2020 Quality/Level of Service Handbook". According to FDOT Standard, the automobile mode level of service targets for the State Highway System during peak travel hours to operate at LOS D in urbanized areas, such as SR 994.

10.0 OPERATIONAL ANALYSIS

Synchro 11 will be used to code the study intersections for the AM and PM peak hour level of service analysis for the existing and future years, following the guidelines presented by FDOT Traffic Analysis Handbook (May 2021). Intersection geometry (lane assignments), posted speed limits, peak hour turning traffic volumes, truck percentages, PHFs, and signal timing/phase data will be coded into the Synchro models. The peak hour turning traffic volumes for existing and future analysis within adjacent intersections will be balanced within +/-10%. For existing conditions, the truck percentages by intersection movement and an overall average PHF by intersection will be used in the analysis. For future analysis, the truck percentages used for existing conditions will remain and the PHFs will concur with the FDOT's 2021 Traffic Analysis Handbook, as discussed in Section 6.

The following guidelines as presented in the FDOT handbook will be followed for the Synchro models (existing and future analyses):

- Lost time adjustment factor should be adjusted to replicate field observed queue lengths.
- Default gap acceptance factor should be checked and modified to replicate field conditions.
- All link terminals will extend at least 1,000 feet from the last node to reasonably calculate queueing in the model.
- 95th percentile queue lengths that are tagged with "#" or "m" will be assessed for the extent of queueing problems. The "#" indicates that the volume for the 95th percentile cycle exceeds capacity. The "m" indicates that volume for the 95th percentile queue is metered by an upstream signal.

The following MOEs will be generated and summarize for the Synchro models (existing and future analyses):

- Intersection:
  - Level of Service
  - Average Vehicle Delay
- Vehicle Movement:
  - Level of Service
  - Average Vehicle Delay
  - Volume/Capacity (v/c) Ratio
  - 95th Percentile Queue
- Arterial:
  - Level of Service
  - Average Vehicle Speed

11.0 INTERSECTION CONTROL EVALUATION

An Intersection Control Evaluation (ICE) will be performed at the unsignalized intersection of SW 134 Avenue in accordance with FDOT's Manual ICE and all applicable references. A signal warrant analysis was completed at this intersection which recommended the future installation of a traffic signal. It is anticipated that only a Stage 1 evaluation (CAP-X and SPICE analyses) are to be performed at the SW 134 Avenue intersection. Depending on the safety and operational improvements to be recommended at the intersection of SW 132 Avenue, ICE may be also required to be performed at this intersection.

12.0 TRAVEL DEMAND ESTIMATES

The travel demand modeling will be performed using the Southeast Regional Planning Model (SERPM) version 8.5.12 for this region. The SERPM covers the area of Palm Beach, Broward, and Miami-Dade counties. The SERPM uses a coordinated travel regional activity-based modeling platform (CT-RAMP) and is a time-of-day model with five time periods with a base year of 2015 and a horizon year of 2045. Future DDHVs will be smoothed throughout the network. TMTOOL will be used to develop future intersection turning movement volumes for the AM and PM peak hours at the four major intersections of the study corridor, which include SW 137 Avenue, SW 134 Avenue, SW 132 Avenue, and SW 127 Avenue. For the minor intersections, future turning

movement volumes for the AM and PM peak hours will be developed by applying a growth rate based on future planning model outputs and overall traffic growth within the study corridor. In addition, the future turning movement volumes throughout the study corridor will be balanced throughout and check for reasonableness. The final future turning movement volumes for all study intersections to be used in this study will be provided to FDOT for review and approval.

12.1 Model Review

Within the area of influence, the data inputs to the SERPM for the years 2015 and 2045 will be reviewed. These include the socioeconomic data files and the network files. The zonal structures, and in particular the centroid connector loading points, will be reviewed to ensure an accurate distribution of the trips. Other checks will involve parameters such as turning penalties and turning movement prohibitors.

The highway and transit network will be analyzed to ensure they reflect the right service levels as far as number of lanes, area types, facility types, traffic count data, transit routes, stop locations and headways, etc. Consistency between all the State and local plans, such as the Long-Range Transportation Plan (LRTP) the FDOT Work Program and the Transportation Improvement Program, will be checked and updates will be made if inconsistencies are found.

12.2 Analysis Years

Year 2015

Within the area of influence, the roadway volume assignments will be compared with the annual average daily traffic (AADT) counts to evaluate the accuracy of the model validation. The model accuracy criteria specified in FDOT's 2019 Project Traffic Forecasting Handbook Section 3.8.2.2 will be used in the subarea validation to confirm the reasonableness of the highway assignment. If transit routes are influencing the volumes on the project roadway, the ridership will be checked for those routes as well. The volumes within the area of influence will be shown on a map, while the project volumes will be listed on the map and in a table format.

Opening Year

The opening year 2025 volumes for the project will be developed by interpolating the year 2015 and 2045 volumes. To develop the Opening Year volumes, the networks will be kept the same, except for the project itself, and run with 2015 and 2045 data to interpolate the Opening Year volumes. A reasonable check will be conducted by comparing the Opening Year volumes against the Year 2019 AADTs within the area of influence. Both growth rates will be compared for reasonableness.

Within the area of influence, the growth rates associated with the population and employment will be established. The changes in socioeconomic data in the study area will be analyzed to ensure a reasonable growth is applied to the volume to represent the Opening Year. The Opening Year volumes within the area of influence will be shown on a map, while the project volume will be listed on the map and in a table format.

Year 2045 – No Build

The Cost Feasible Year 2045 model will be run, and the forecasts compared against historical growth rate projections. Reasonability will be established, and any needed refinements/adjustment made according the 2019 Project Traffic Forecasting Handbook (Section 3.10.4). The projected volumes within the area of influence will be shown on a map, while the project volume will be listed on the map and in a table format.

Design Year Scenarios

Up to three different networks reflecting the different alternatives (Two Alternatives plus one Preferred Alternative) by updating the year 2045 No Build network as well as other parameters, if needed. The results from the year 2045 model runs will be reviewed and reasonability established and/or needed refinements/adjustments made. Comparisons between the different scenarios and the No Build scenarios will be shown in a table format.

The Year 2045 model outputs for each of the scenarios will be updated using the developed growth rate to reflect the Design Year traffic volumes.

13.0 SAFETY

13.1 Crash Data & Collision Diagrams

The latest official five years (from January 2014 to December 2018) will be downloaded and summarized from FDOT Crash Analysis Reporting (CAR) Online for SR 994 (87091000) from MP 4.000 (approx. 400 feet west of SW 137 Avenue) to MP 5.212 (approx. 645 feet). The crash data will include the number and type of crashes, crash locations, number of fatalities and injuries, and estimates of property damage and economic loss. A review of the crash data will be conducted to evaluate the statistics for lighting conditions, pavement conditions (wet/dry), time of day, etc. This effort also includes reviewing the police reports for all crashes to confirm crash characteristics such as crash type and location. Collision diagrams will be also developed for all five years of data. Signal 4 Analytics will be used as a supplemental source to identify crash patterns and crashes resulting in severe injury from January 1, 2019, to latest available date in 2021.

13.2 Safety Analysis

A safety analysis in accordance with FDOT Safety Analysis Guidebook for PD&E Studies (August 2019) will be performed. Based on the information obtained from the crash data, the project safety needs associated with the existing and future conditions will be identified. The analysis will include calculation of crash rates, comparison with average crash rates for similar facilities, identification of high crash locations, and identification of segments and spots listed on the High Crash Lists. To accomplish the project's goal to enhance mobility options and multimodal access, the safety analysis will also specifically address the crashes and any safety issues for pedestrians and bicyclists, in addition to vehicle-to-vehicle crashes. For future conditions, the Highway Safety Manual (HSM) procedures will be used to estimate the safety performance of the Project alternatives.

14.0 NOISE & AIR QUALITY STUDY DATA

14.1 Traffic Data for Noise Analysis

Traffic data will be provided for the noise study and will include the following data for each road segment (i.e., intersection to intersection), ramps, cross streets, and frontage roads, for the existing year, opening year, and the design year for Build and No-Build alternatives:

- LOS C directional hourly volumes
- Demand peak hourly volumes (peak and off-peak directions)
- Existing and proposed posted speed
- Percentage of heavy trucks (HT) in the design hour
- Percentage of medium trucks (MT) in the design hour
- Percentage of buses in the design hour
- Percentage of motorcycles (MC) in the design hour

14.2 Traffic Data for Air Quality Analysis

Traffic data will be collected for the air quality analysis which will include the following:

- Intersection type and approach speed
- Intersections – peak hour volumes for each approach

15.0 DOCUMENTATION

15.1 Safety Analysis Report

The results of the safety analysis will be documented in accordance with the guidance published in the FDOT Safety Analysis Guidebook for PD&E Studies (August 2019).

15.2 Project Traffic Analysis Report

As described in Part 2, Chapters 2 and 3 of the PD&E Manual, the CONSULTANT will prepare the Project Traffic Analysis Report (PTAR) to document development of design traffic volumes and results of the traffic analysis for No-Build and Build Alternatives. The results must be shown on diagrams for each alternative and discussed in the report. The PTAR will also summarize the comparison of the operational and safety performance of all alternatives evaluated in detail and how they perform against each other.

Engineer's Certification

I, Eugenio S. Lopez, P.E. No. 68213, certify that I currently hold an active Professional Engineer's License in the State of Florida and am competent through education or experience to provide engineering services in the civil and traffic engineering disciplines contained in this report. I further certify that this report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusion, and recommendations made herein are true and correct to the best of my knowledge and ability.

EUGENIO SEBASTIAN LOPEZ * ENGINEER * PROFESSIONAL LICENSE NO. 68213 * STATE OF FLORIDA

9/10/2021

Eugenio S. Lopez, P.E.

Appendix L – Preliminary Conceptual Design Plans

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

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MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

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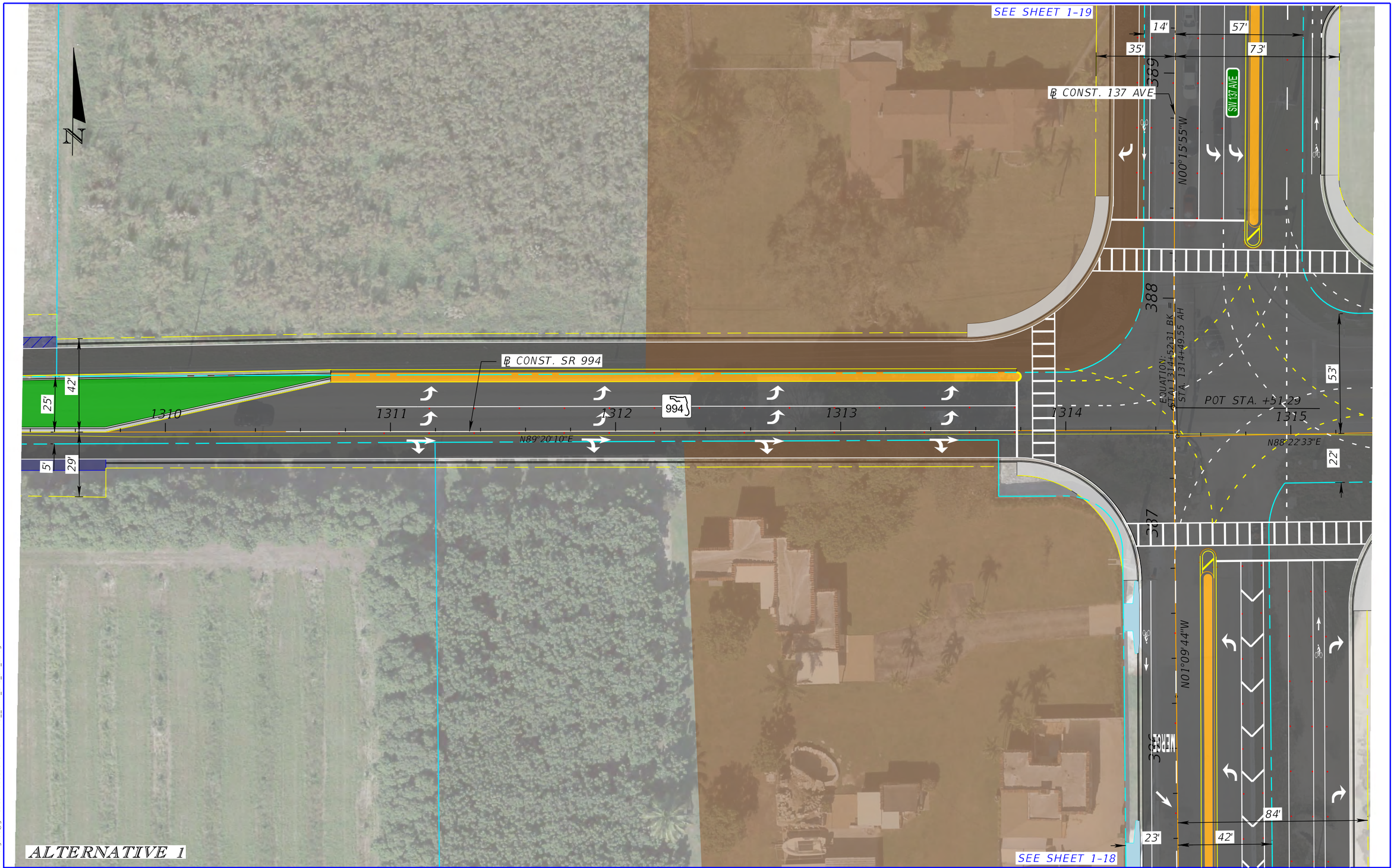

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

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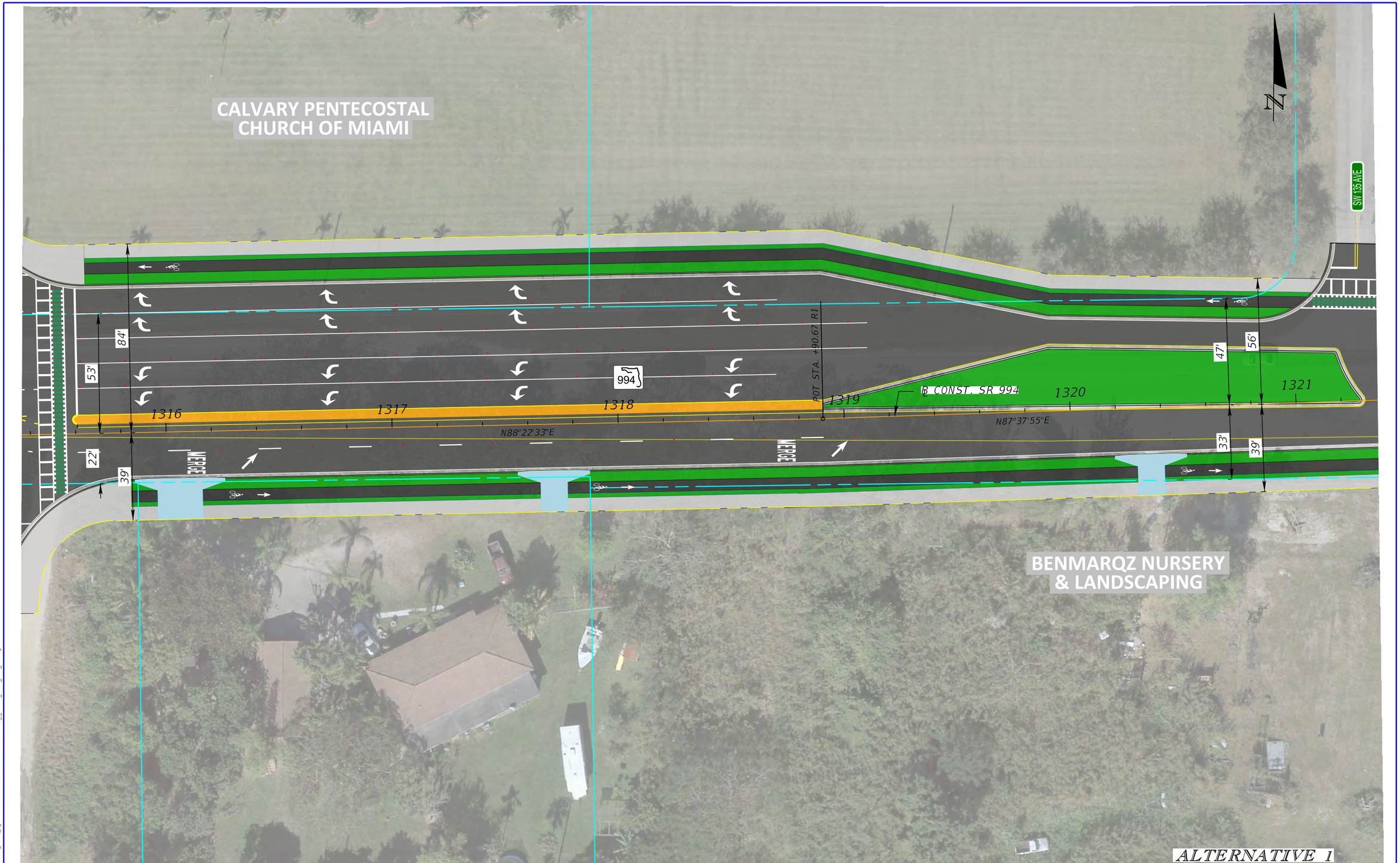

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

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Preliminary Conceptual Design Plans

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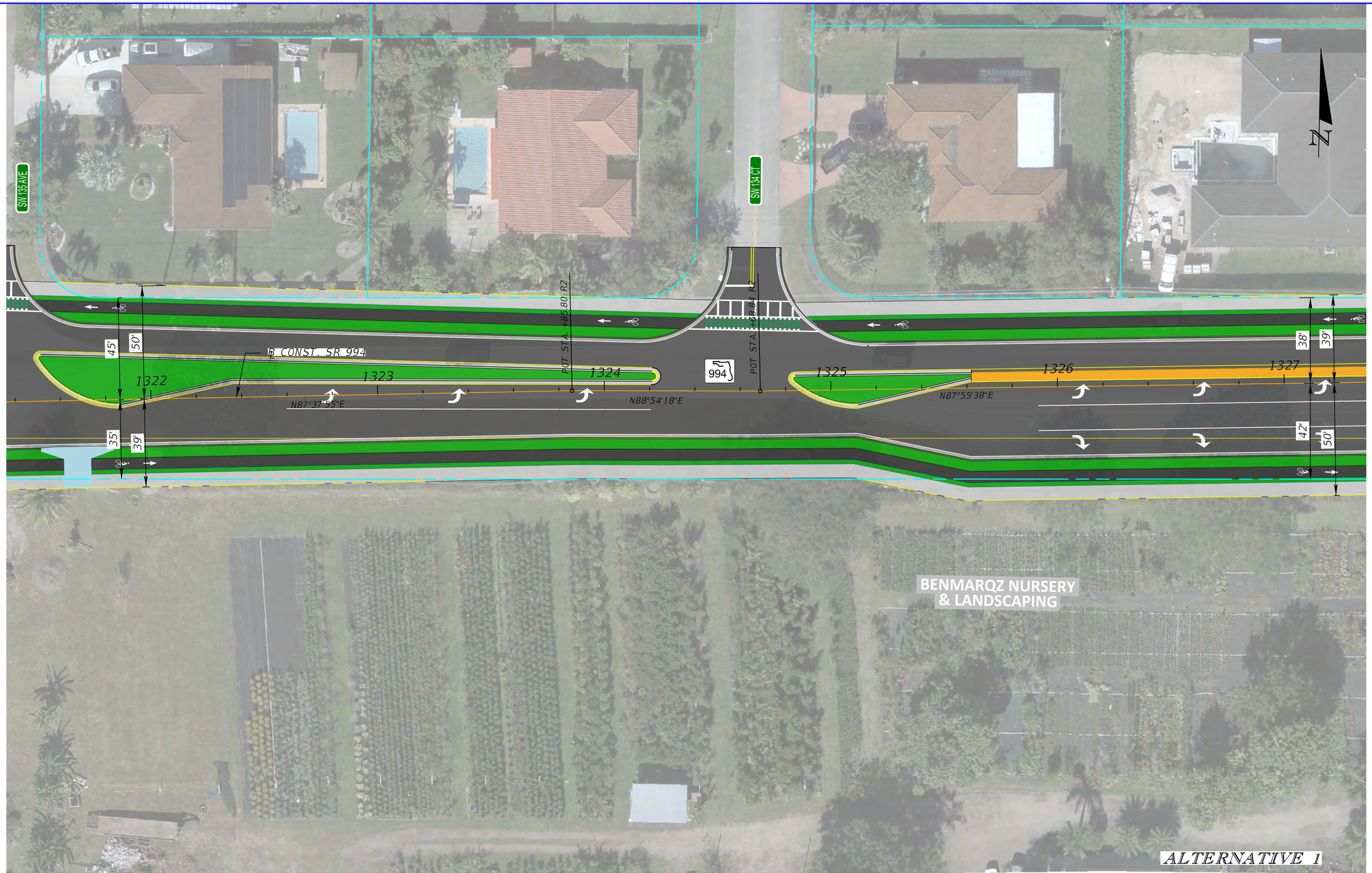

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES					
PATH	EXISITNG ROW	SHOULDER WIDENING					
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY					
BIKE LANE PATH	PARCEL LINE						

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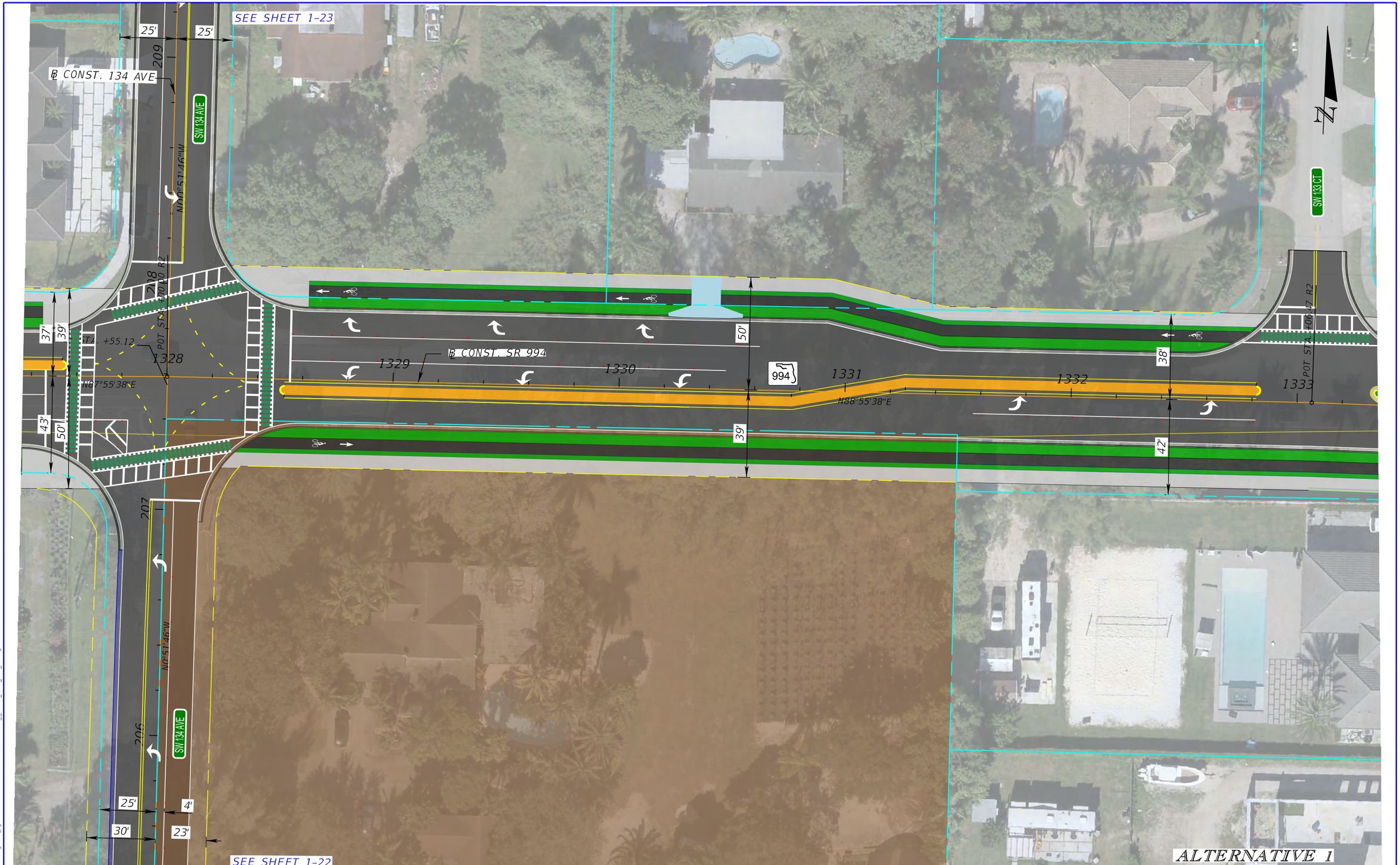

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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

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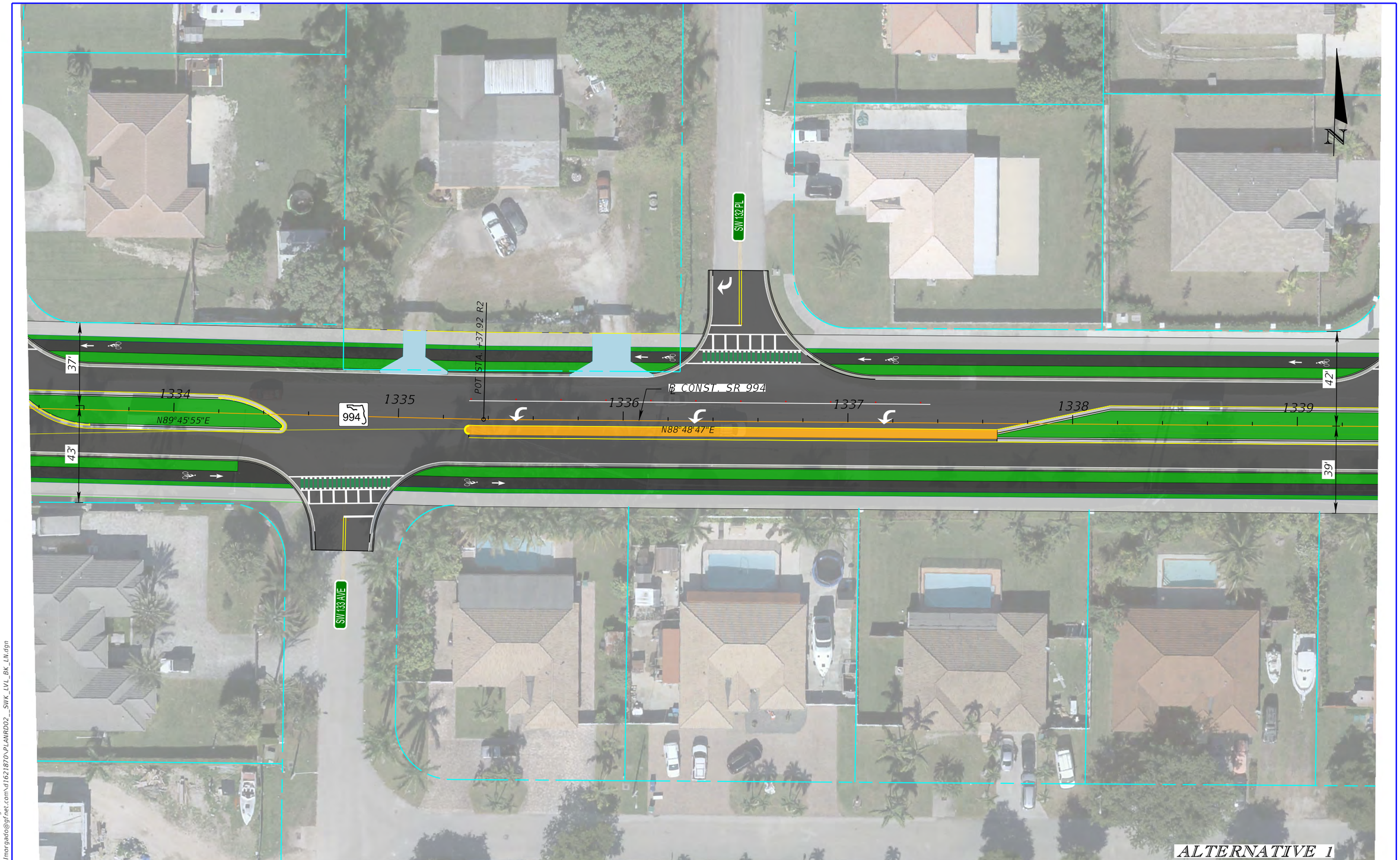

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				1-07
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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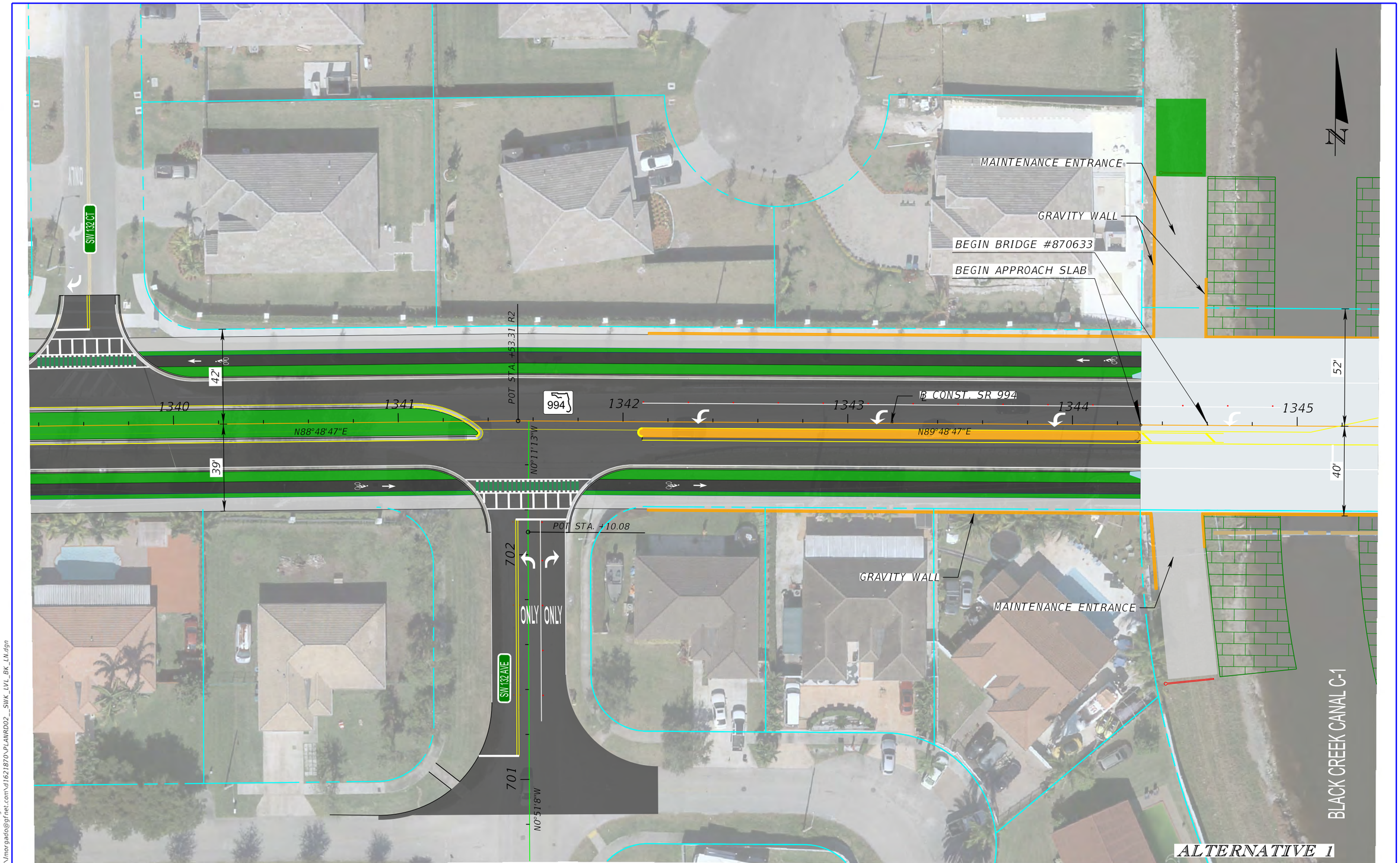

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			1-08
BIKE LANE PATH	PARCEL LINE					

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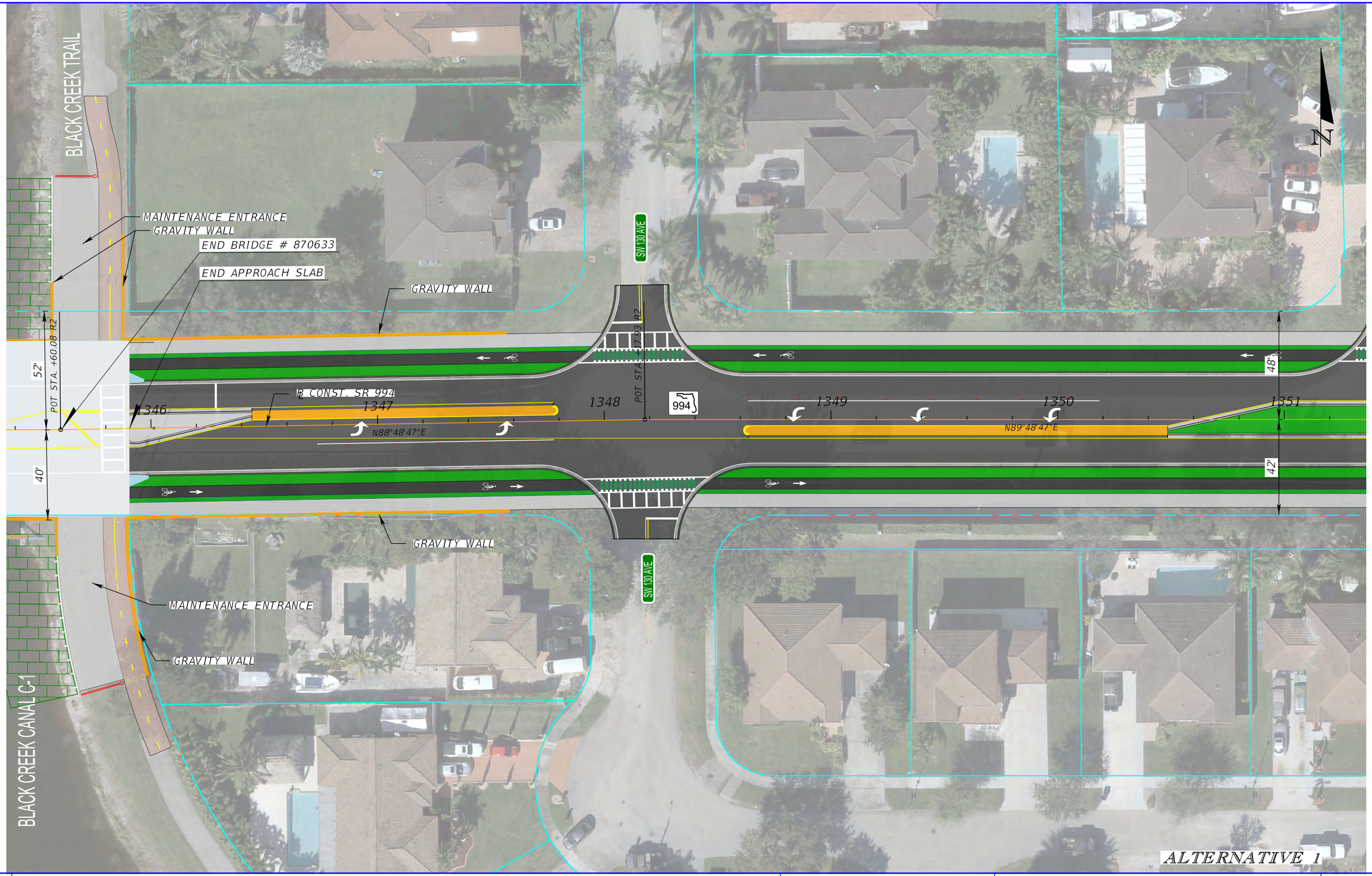

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SIDEWALK		EXISITNG ROW		SHOULDER WIDENING		
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY		
		PARCEL LINE				

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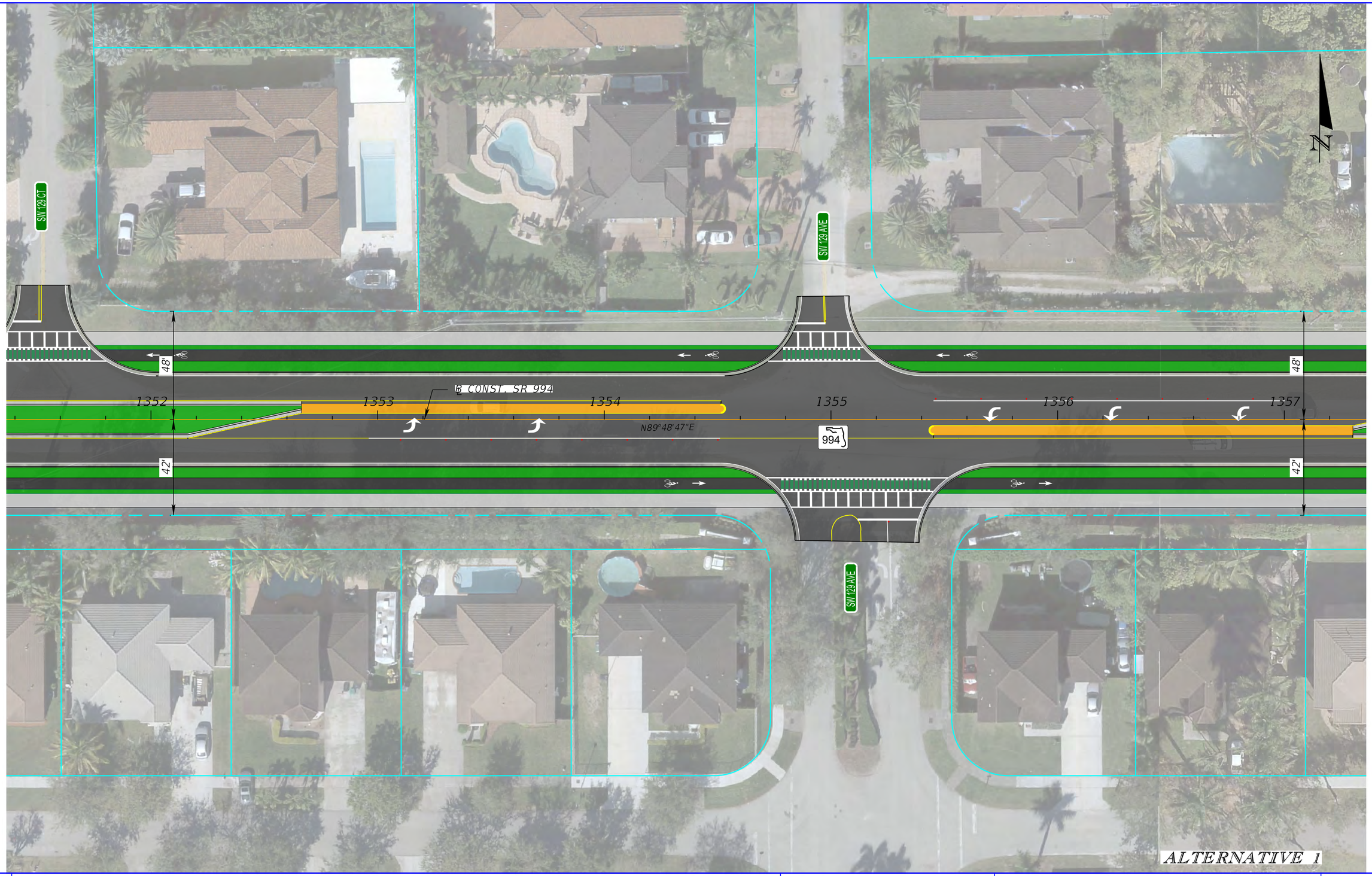

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SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES	DATE OF AERIAL: 2021			1-10
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING				
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY				
	PARCEL LINE					

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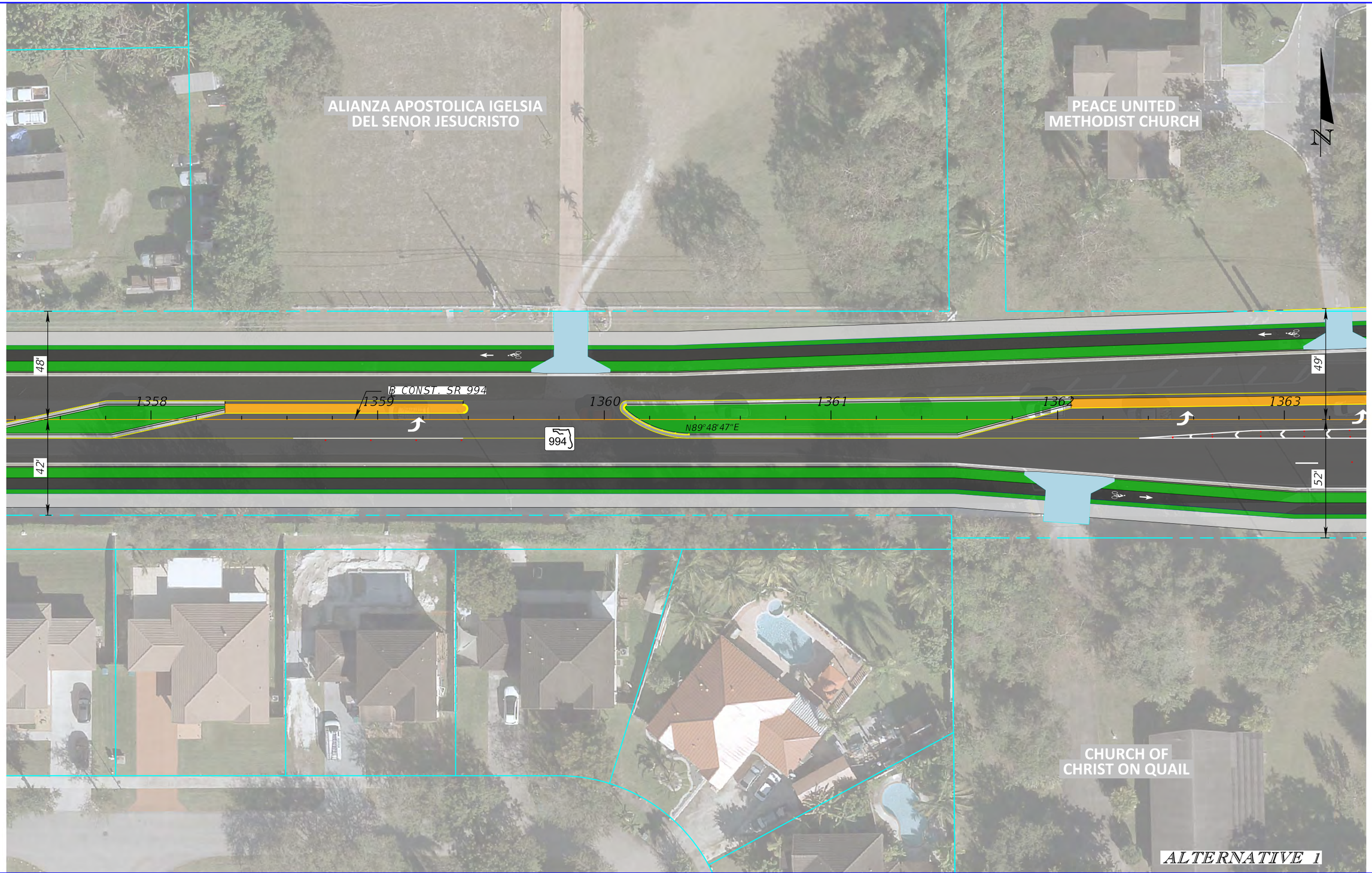

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PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

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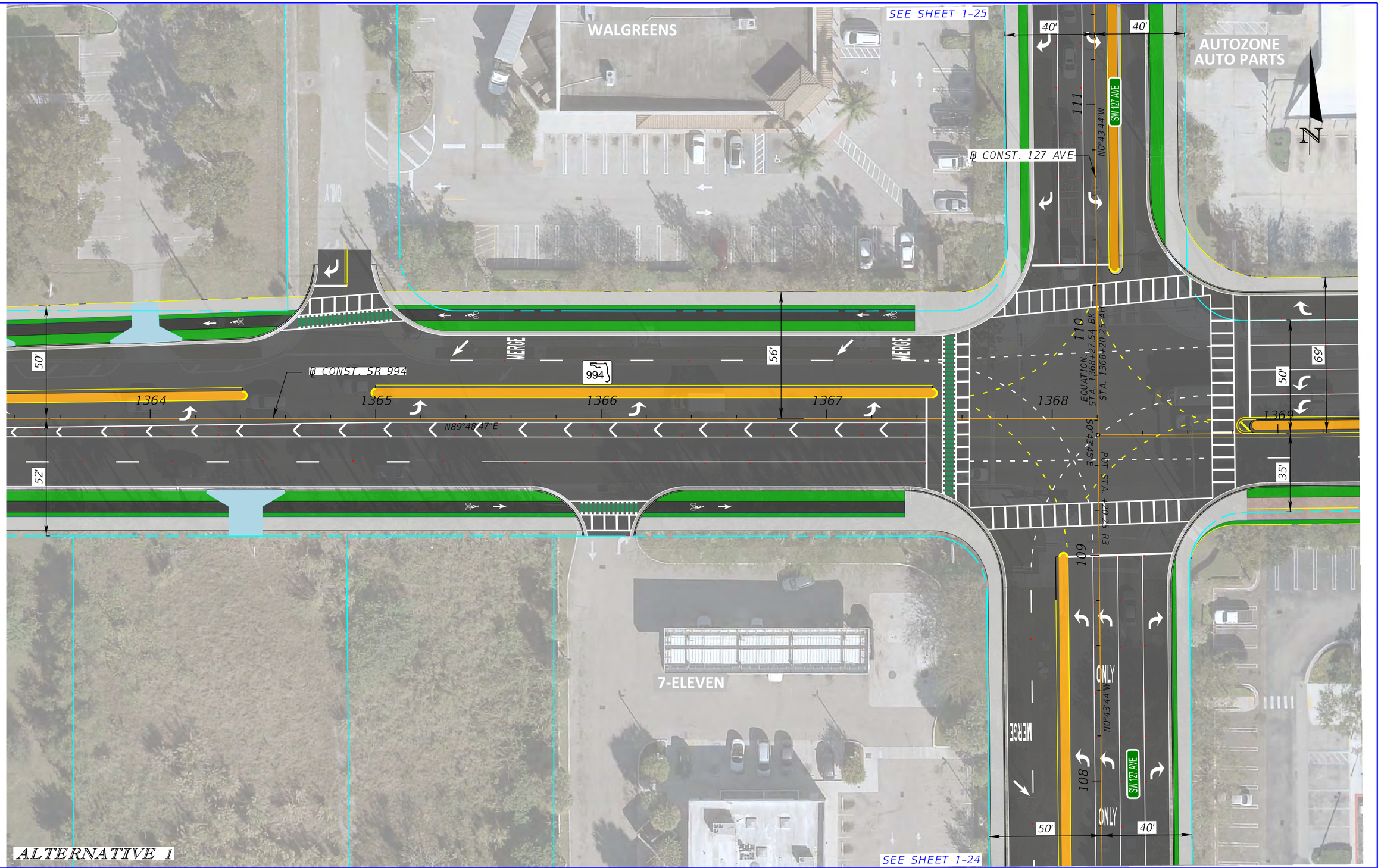

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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

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Feet

DATE OF AERIAL: 2021

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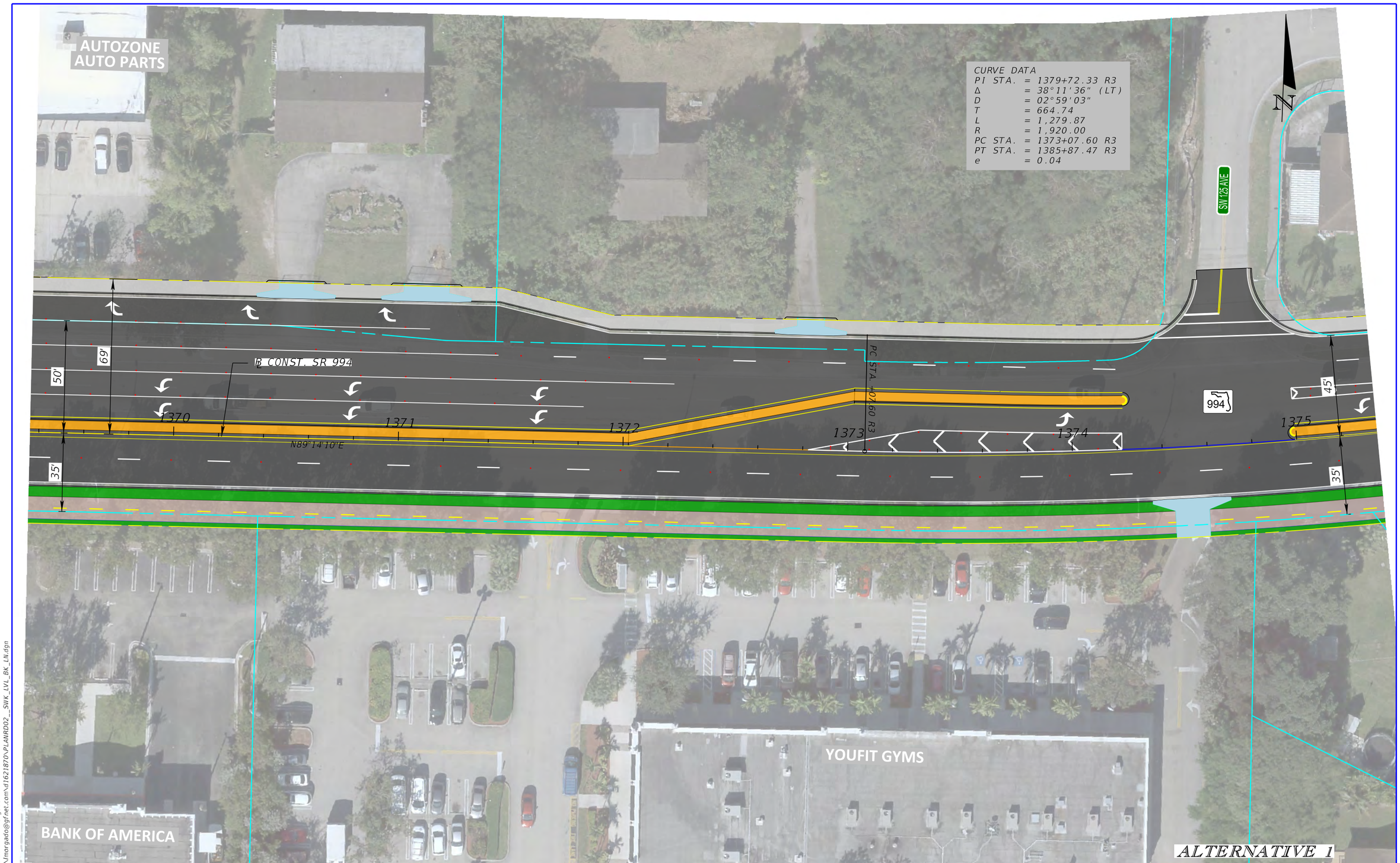

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SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES		DATE OF AERIAL: 2021	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING			
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY			
		PARCEL LINE					

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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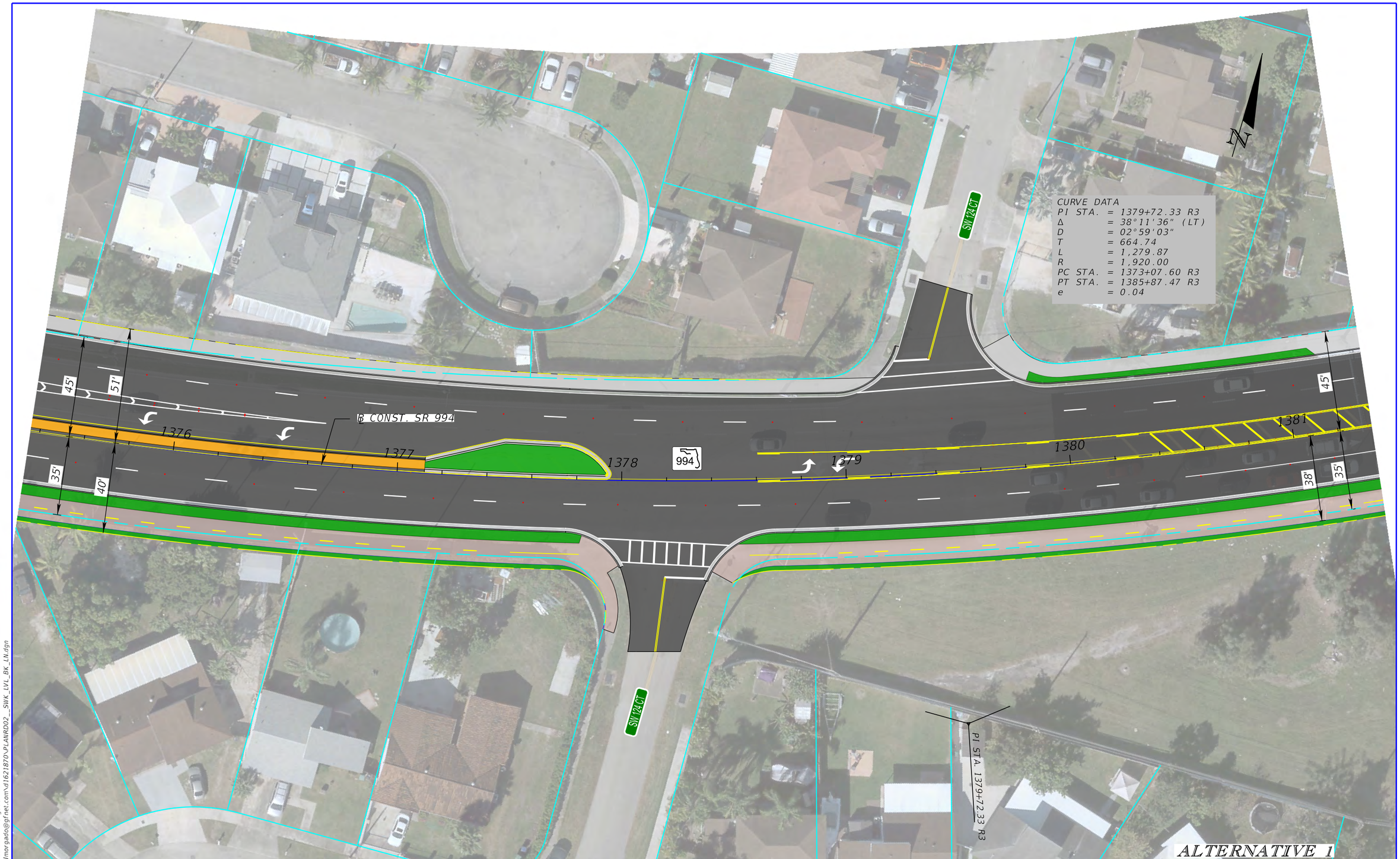

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES			
PATH	EXISITNG ROW	SHOULDER WIDENING			
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY			
BIKE LANE PATH	PARCEL LINE				

0 10 40
Feet

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PRELIMINARY CONCEPTUAL DESIGN PLANS

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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		Feet	
PATH		EXISITNG ROW		SHOULDER WIDENING		DATE OF AERIAL: 2021	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY			
BIKE LANE PATH		PARCEL LINE					

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
1-15

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LEGEND							
ROADWAY		BRIDGE		REGRADING/SOD		0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		DATE OF AERIAL: 2021	
PATH		EXISITNG ROW		SHOULDER WIDENING			
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY			
BIKE LANE PATH		PARCEL LINE					

SR 994 PD&E STUDY
Preliminary Conceptual Design Plans

SHEET NO.
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ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				1-17
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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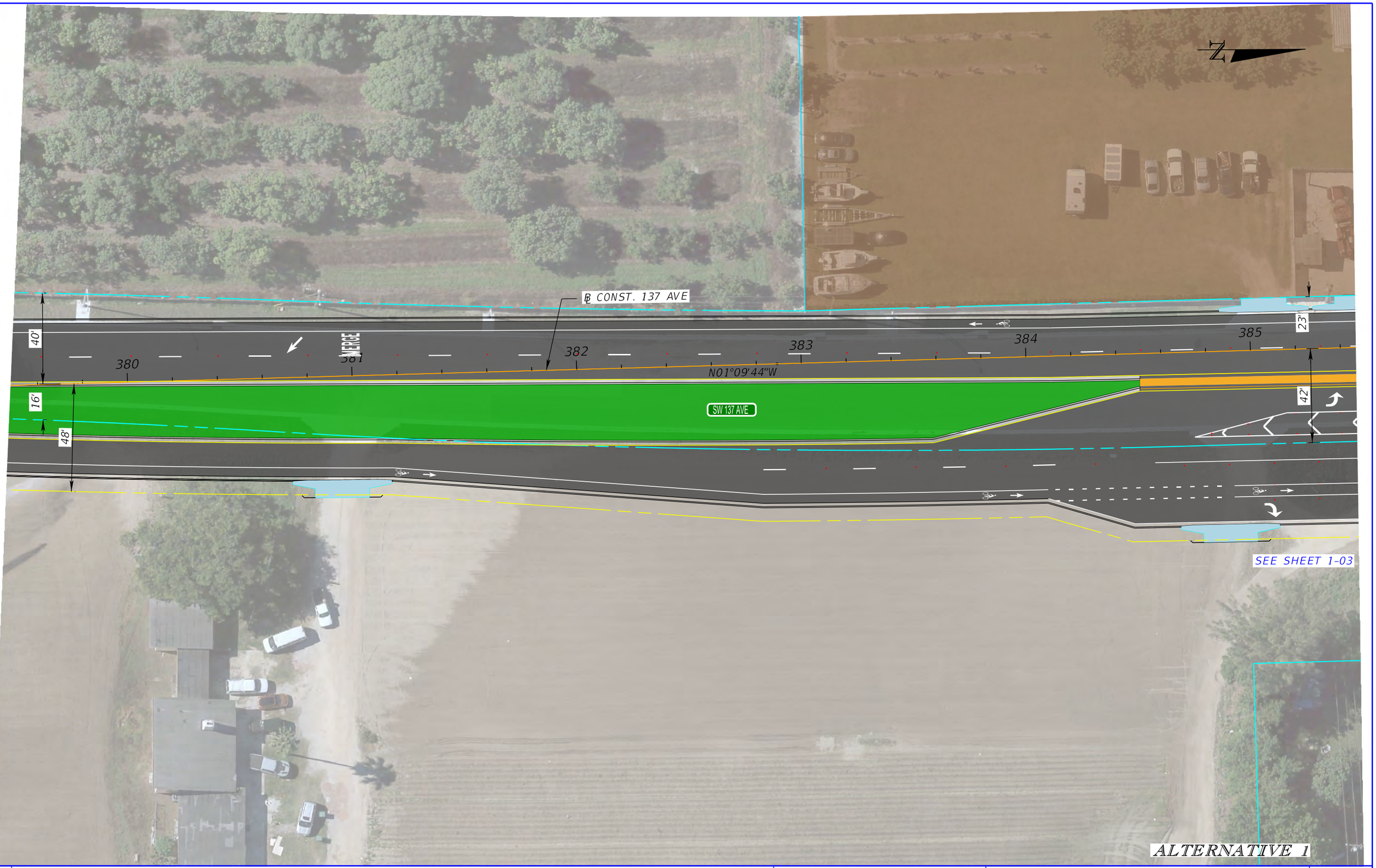

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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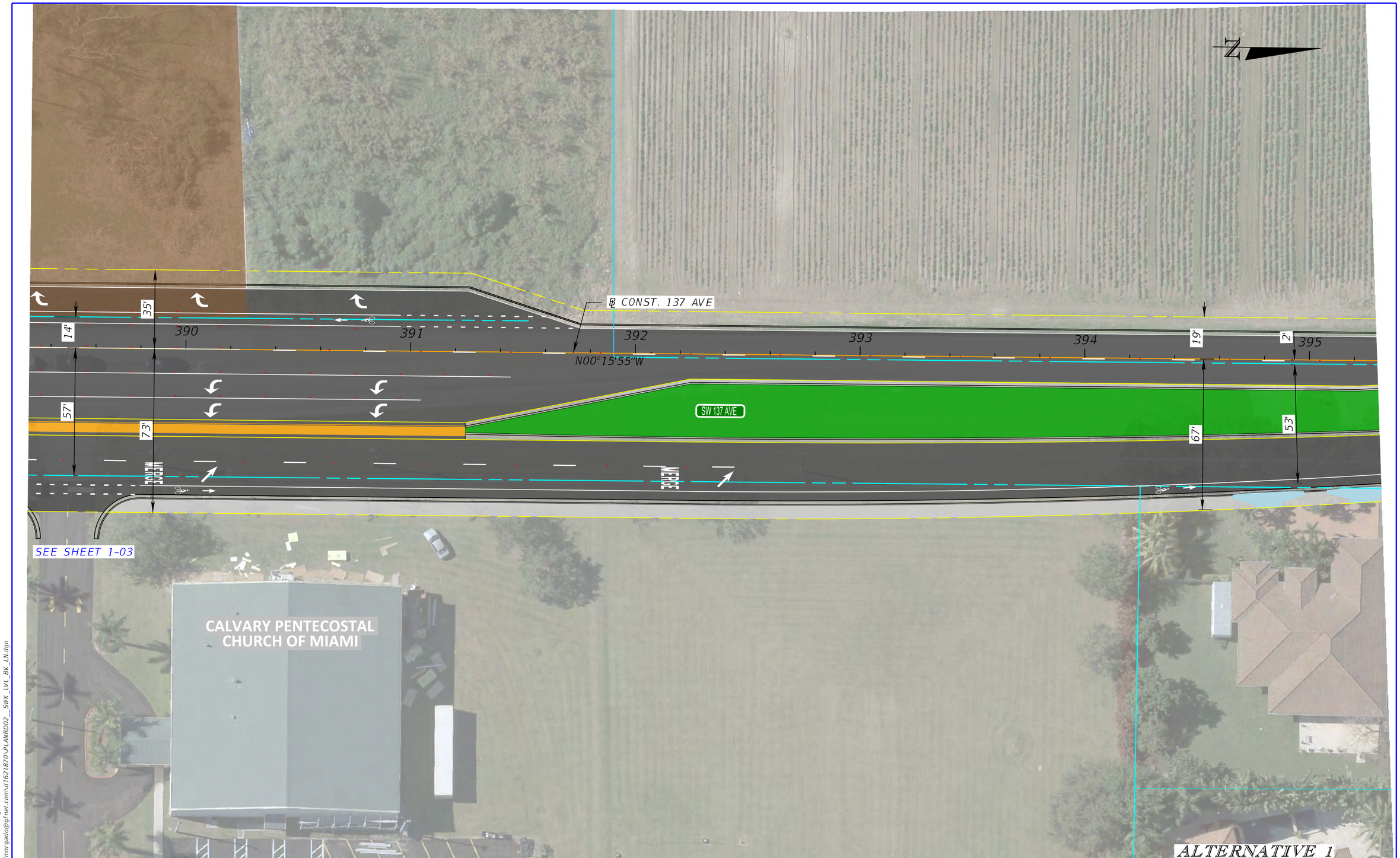

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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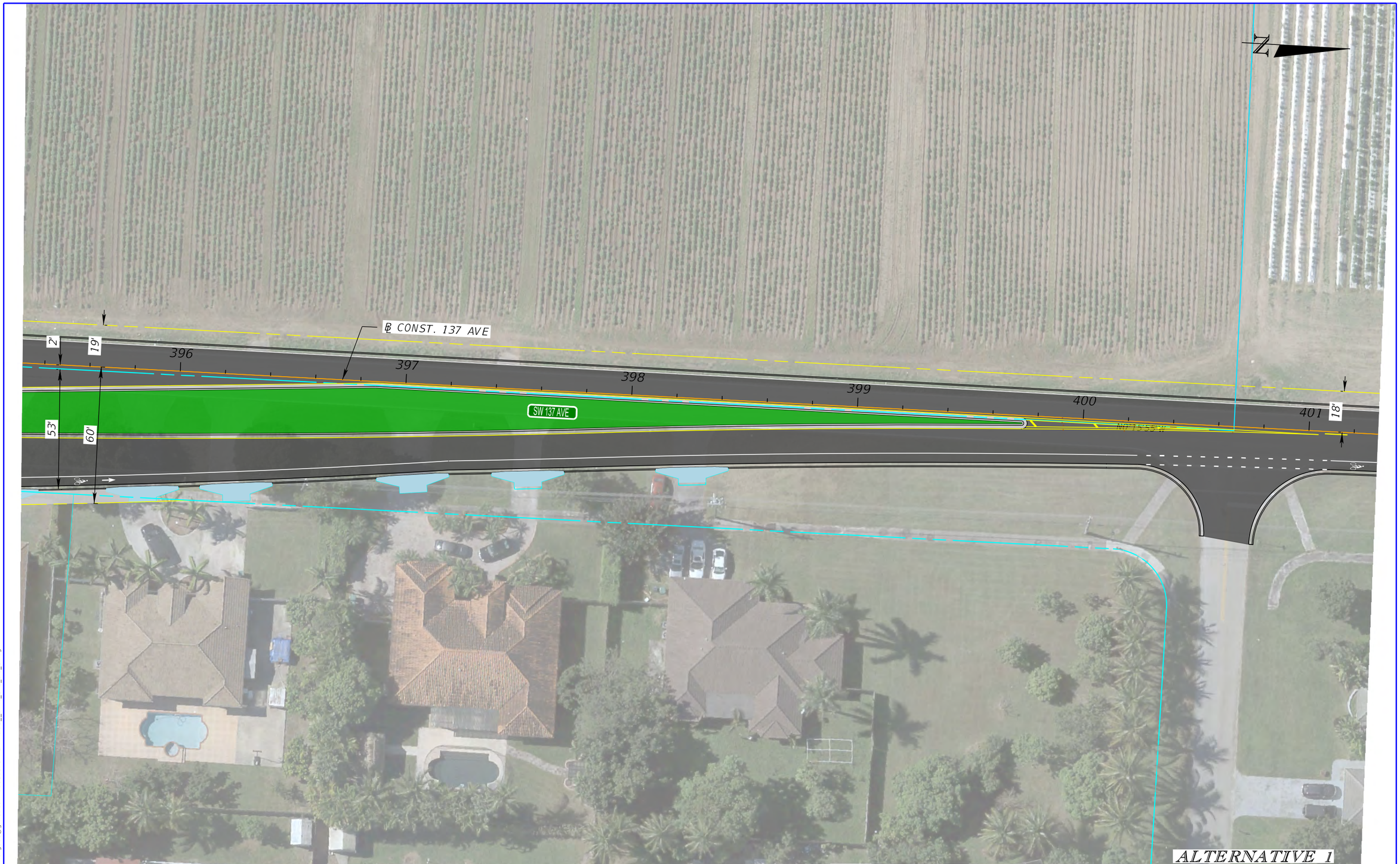

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES		
		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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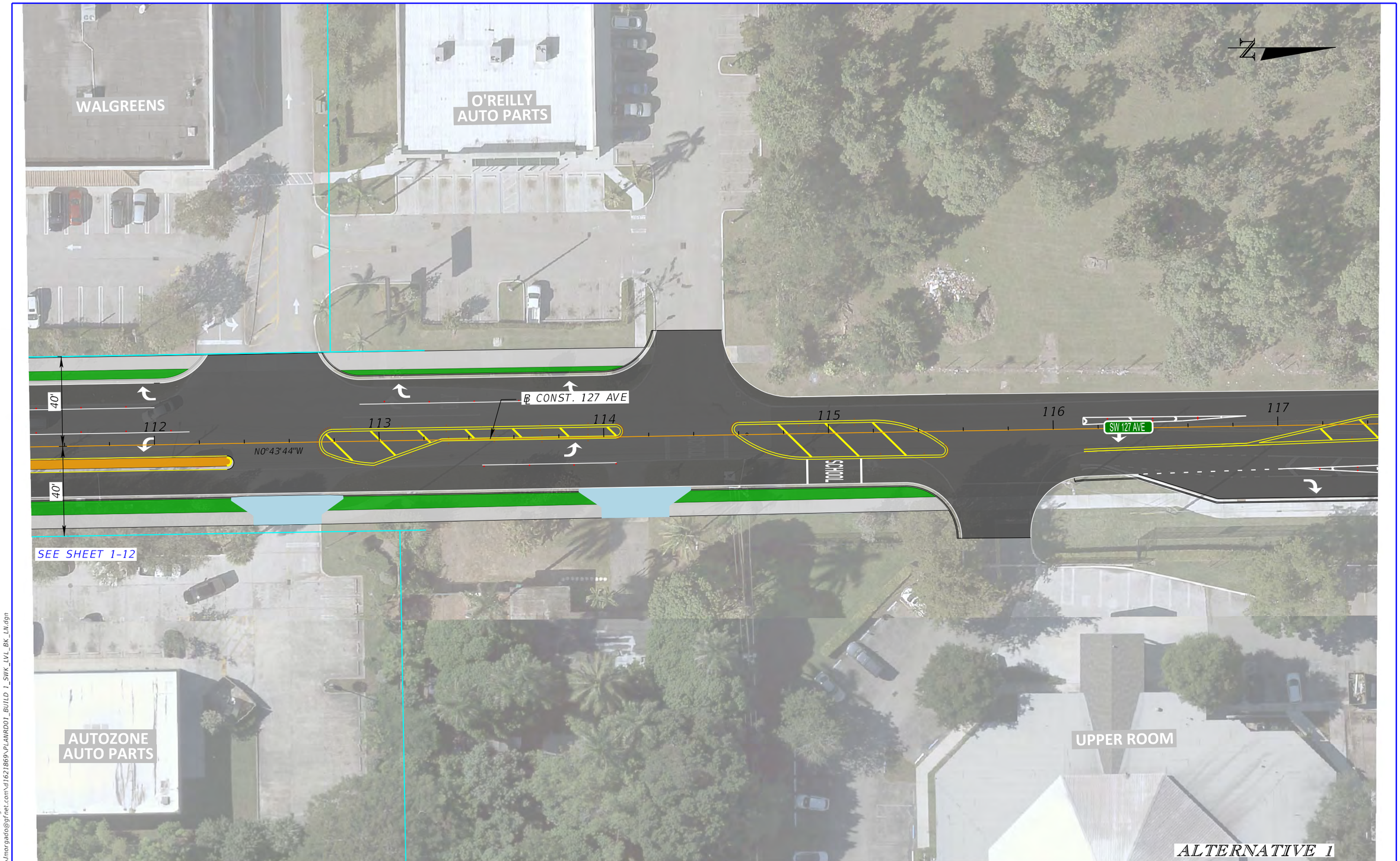

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ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				2-02
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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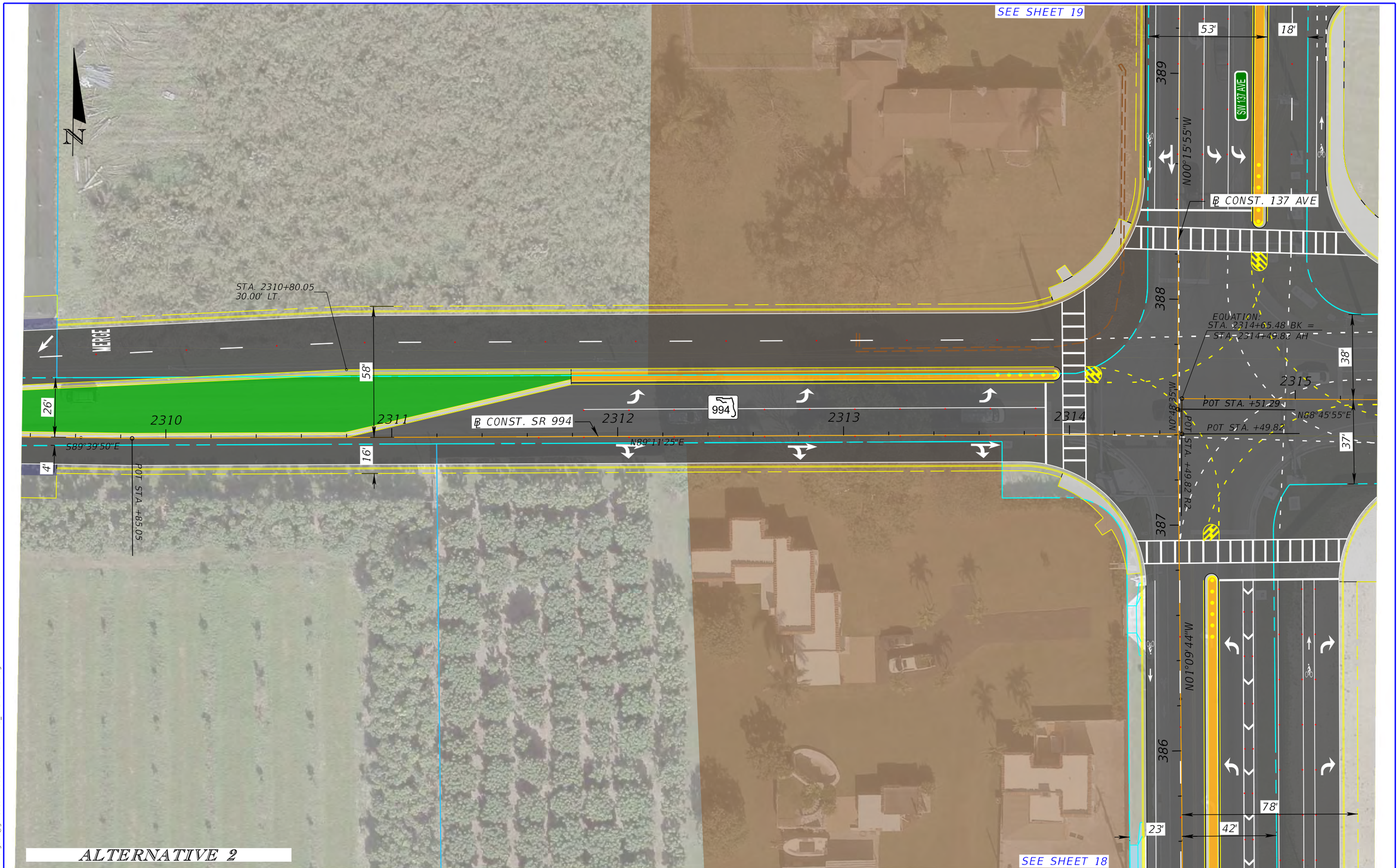

LEGEND					
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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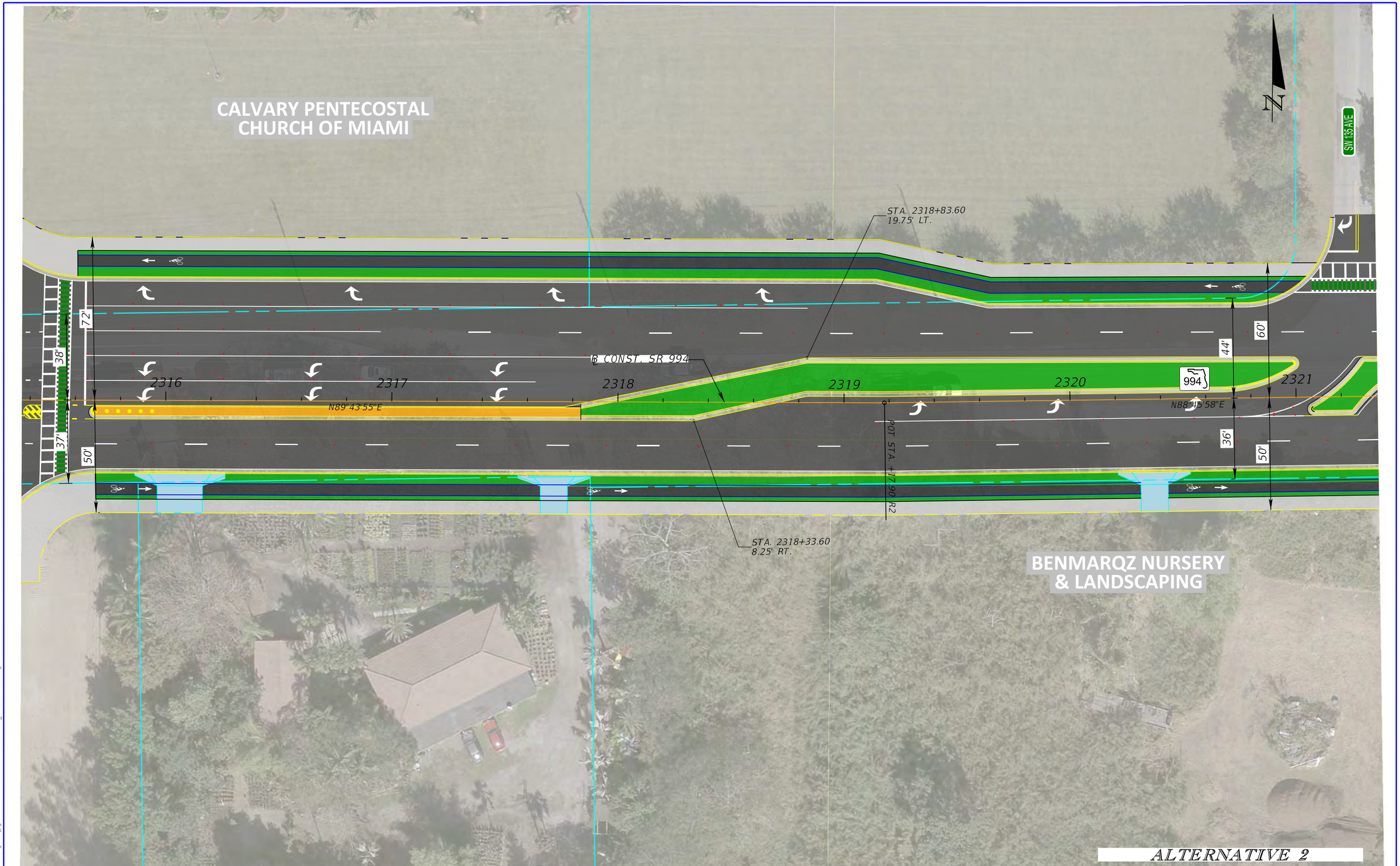

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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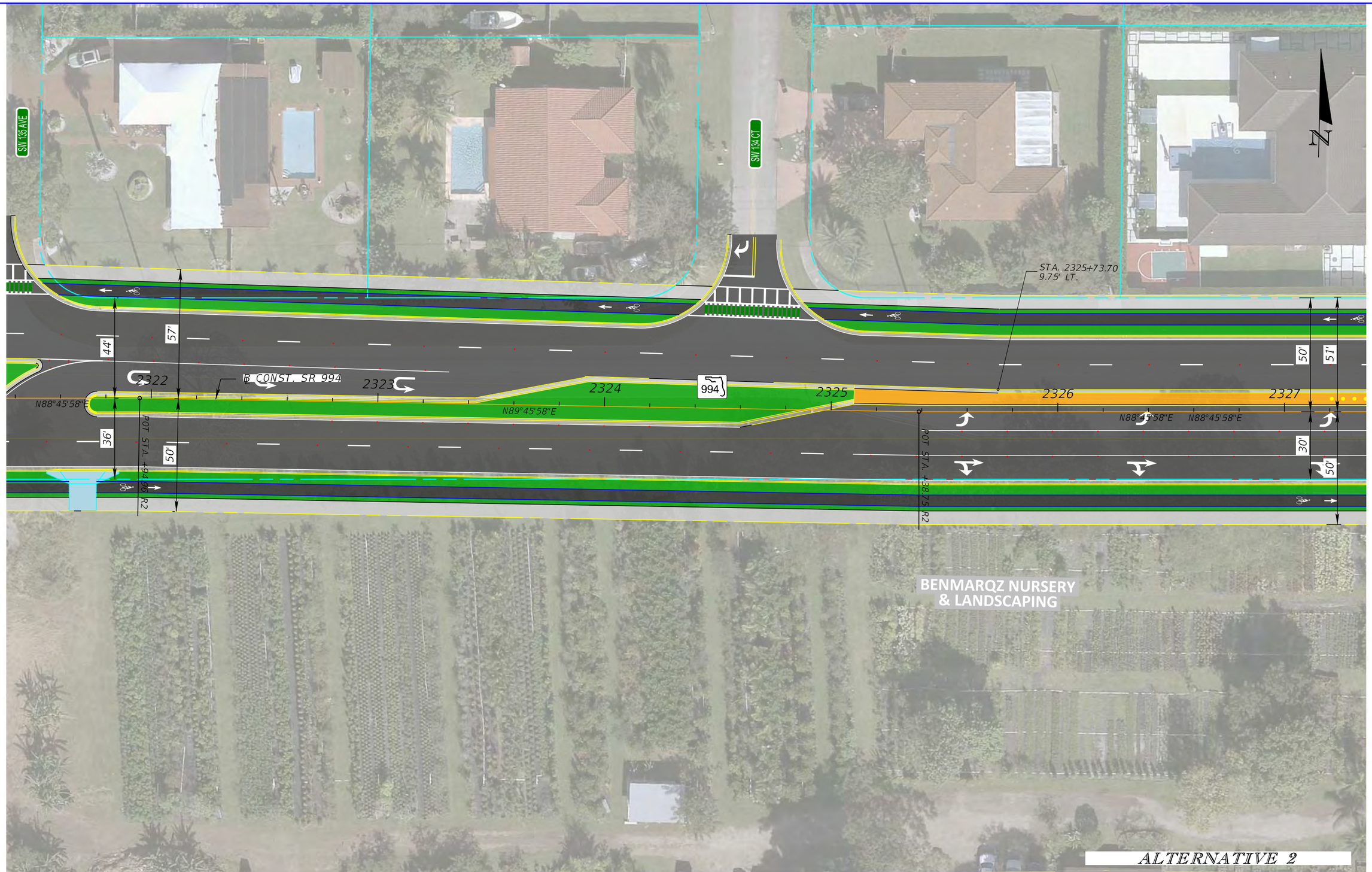

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN
PLANS

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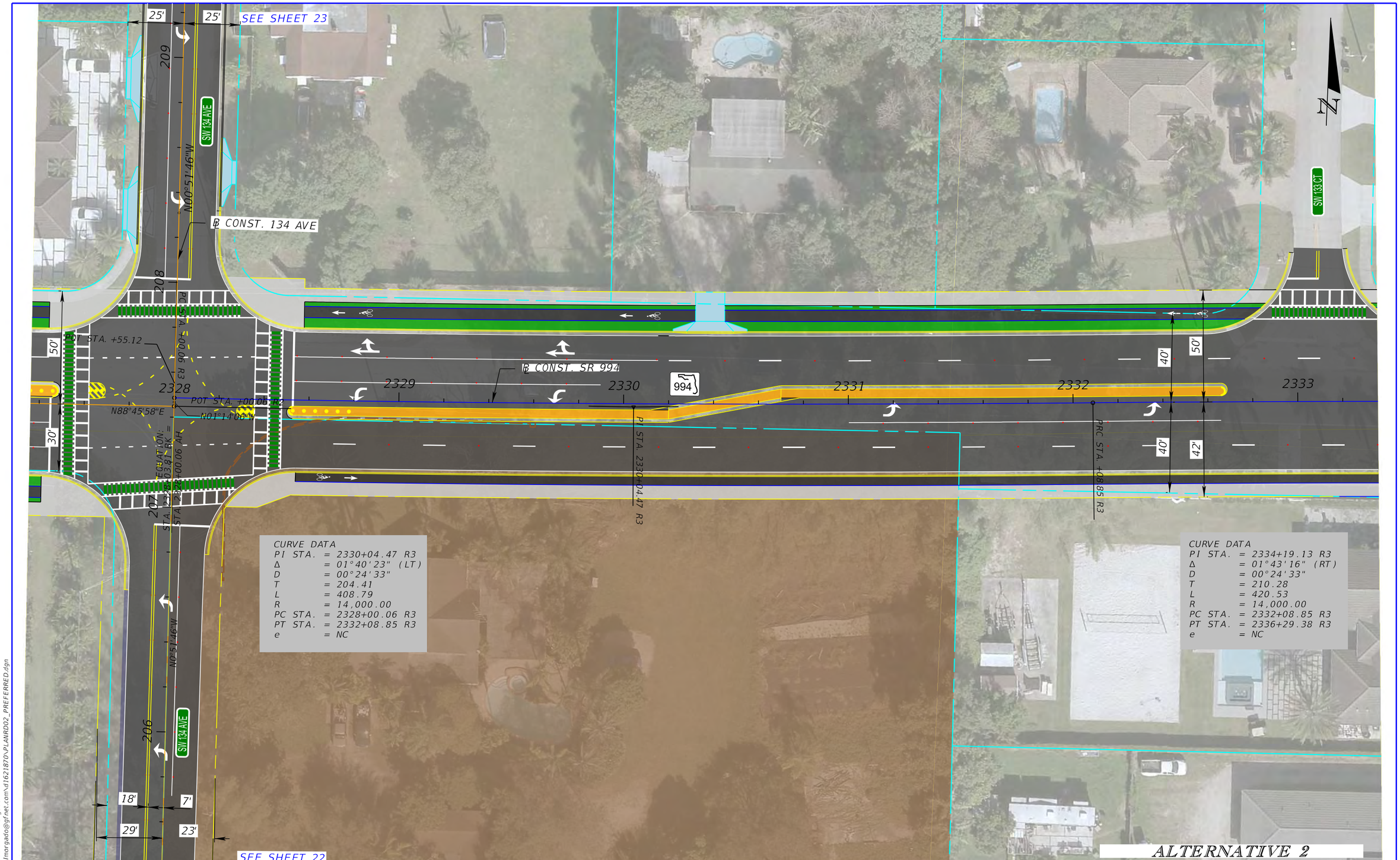

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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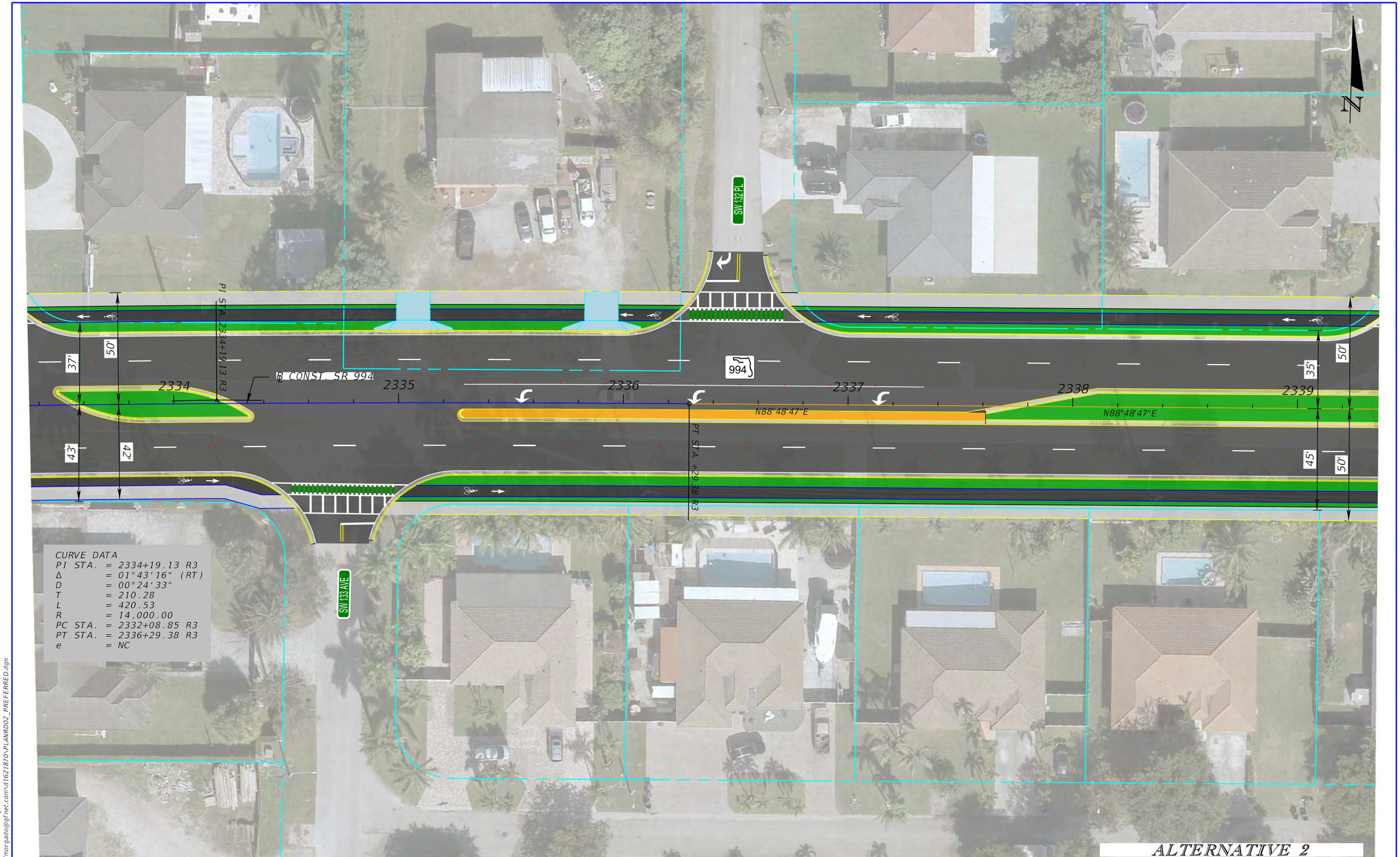

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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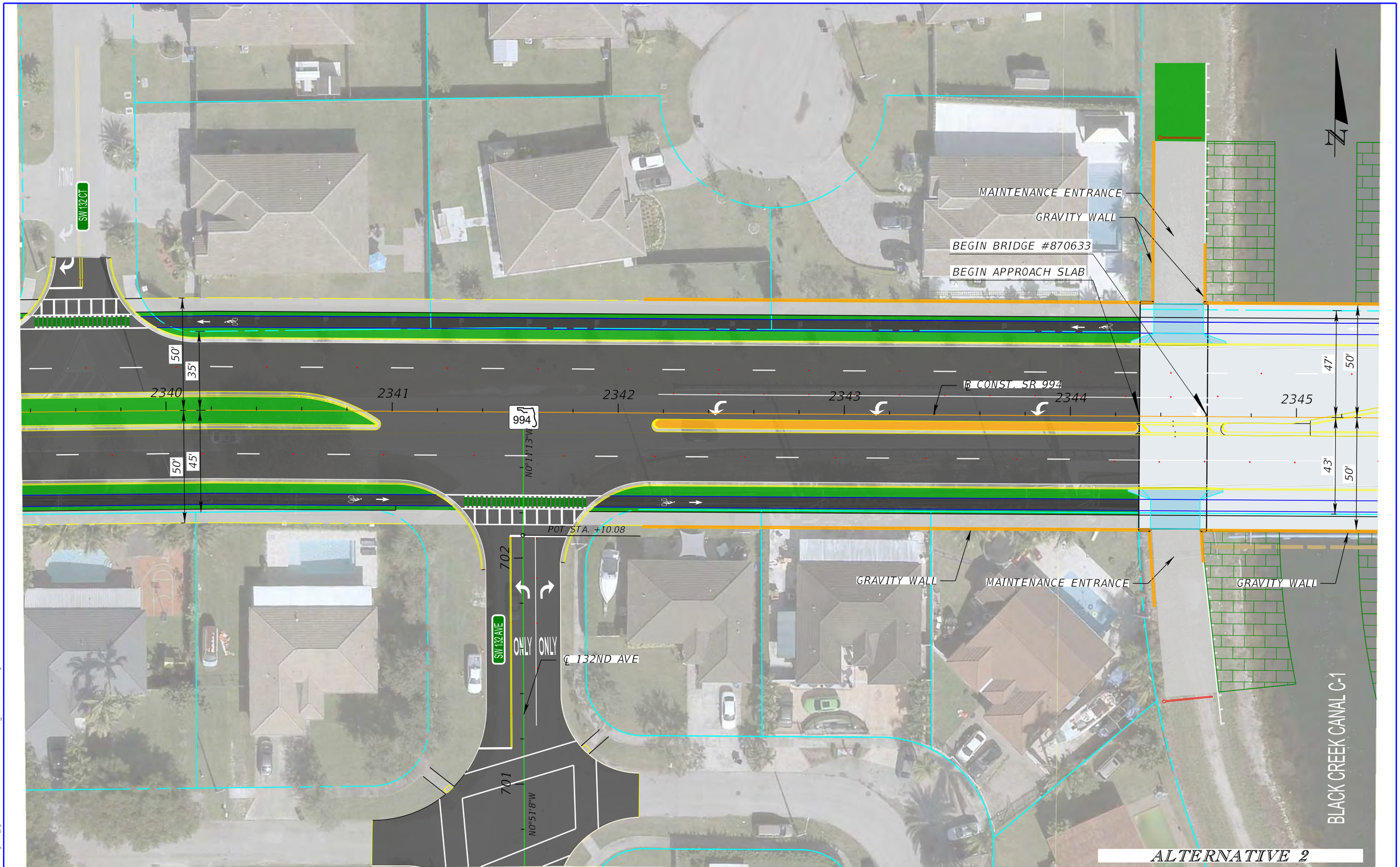

LEGEND					
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
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SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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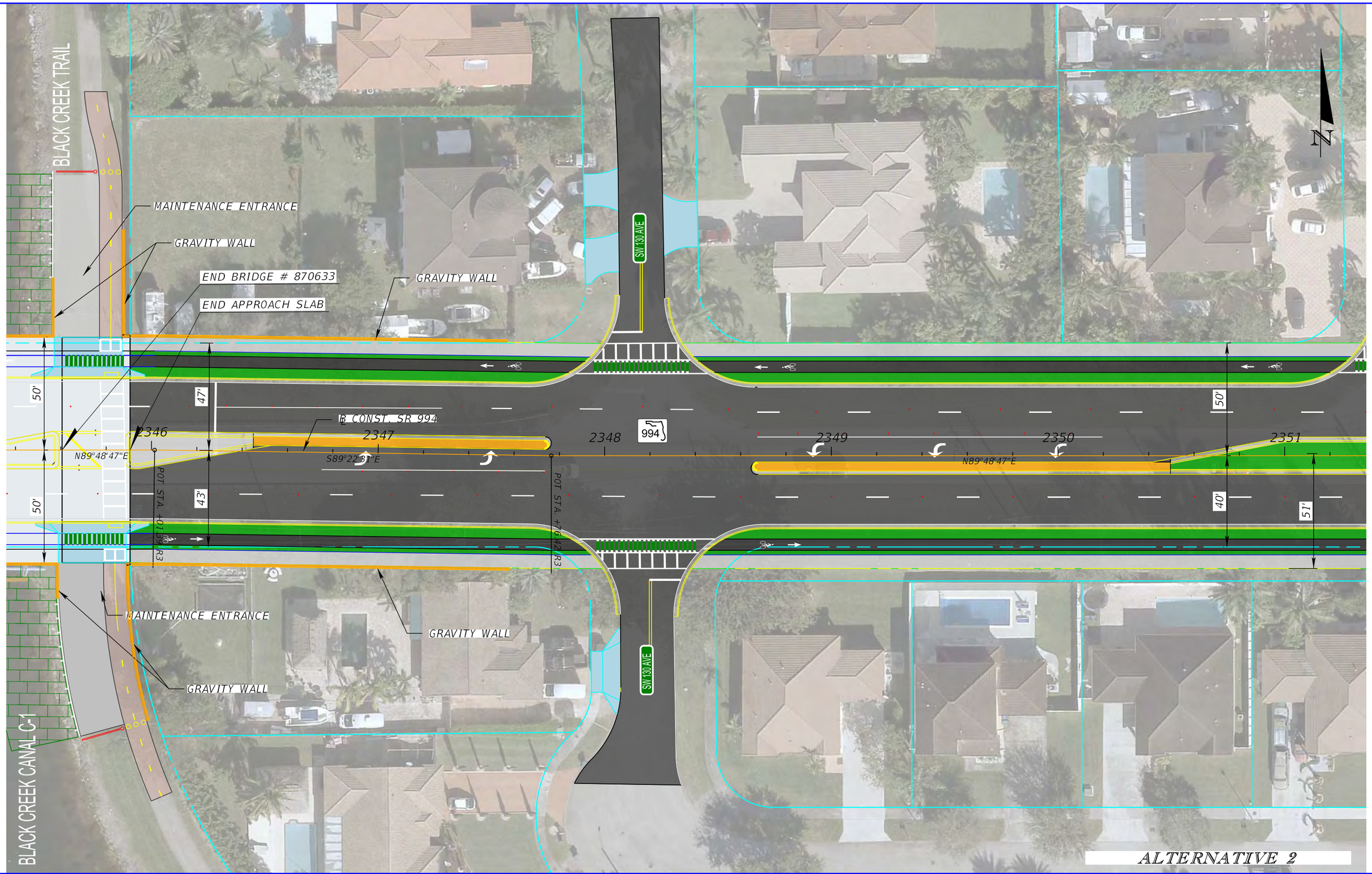

LEGEND

ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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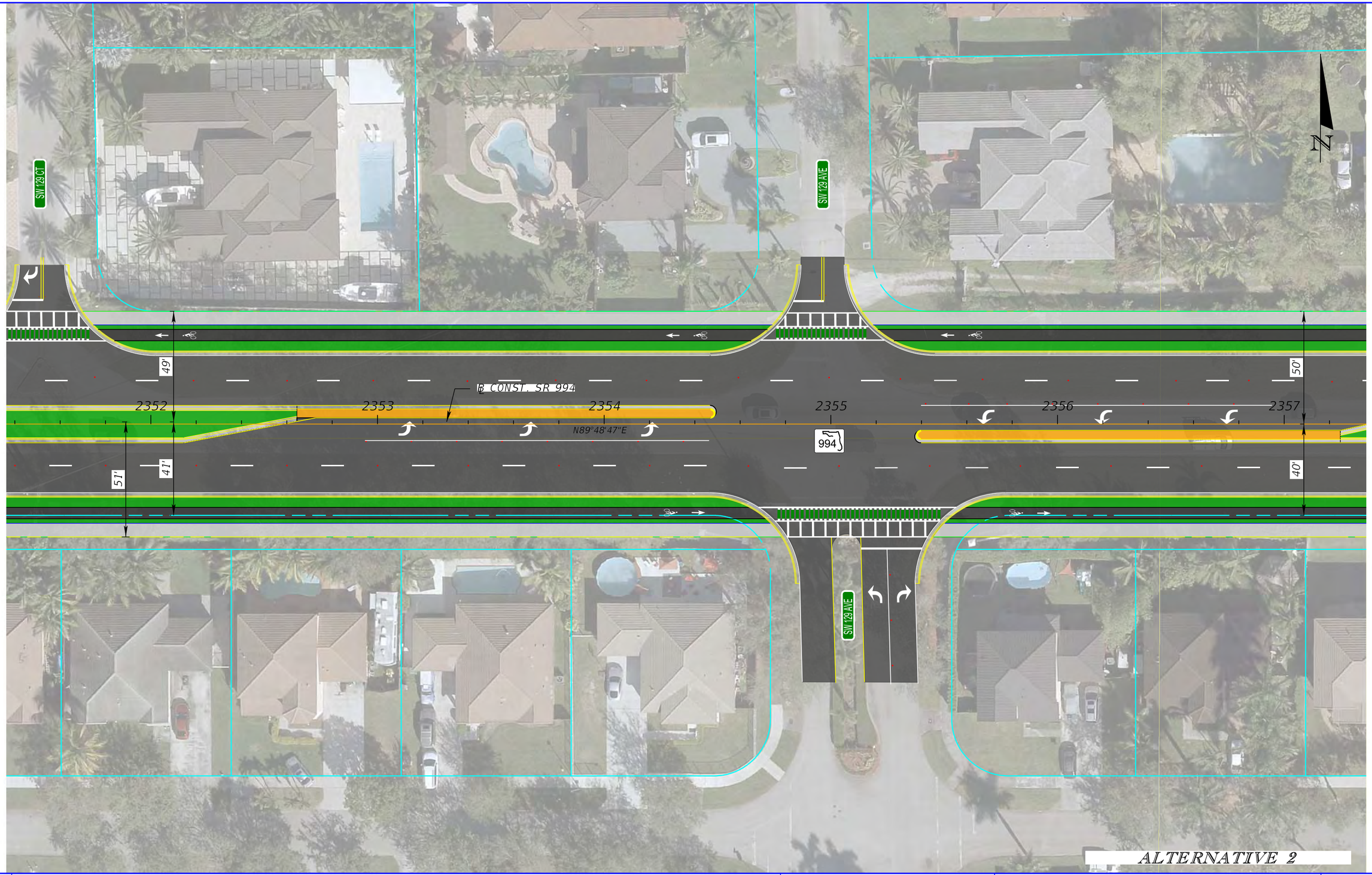

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
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SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
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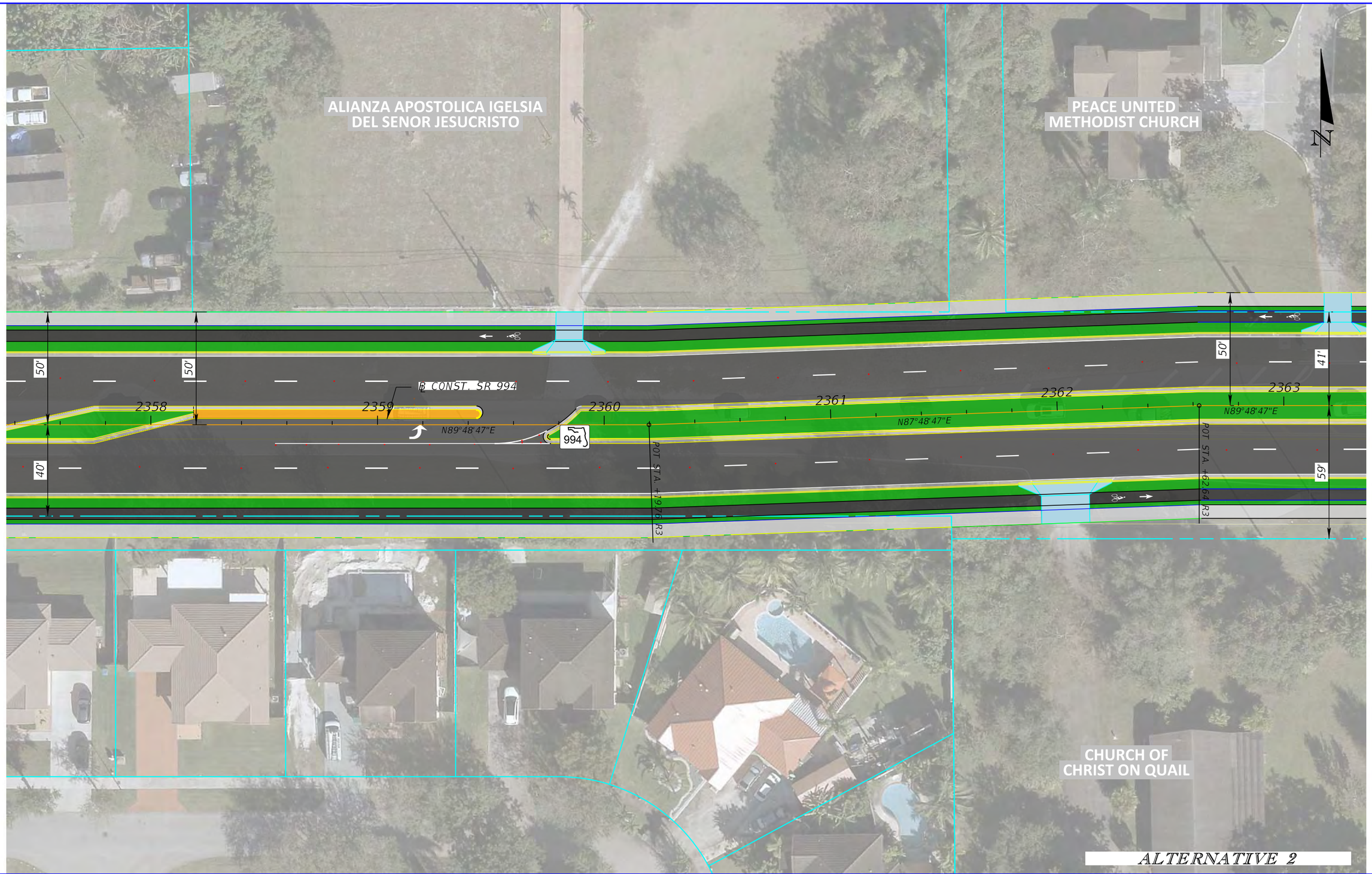

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
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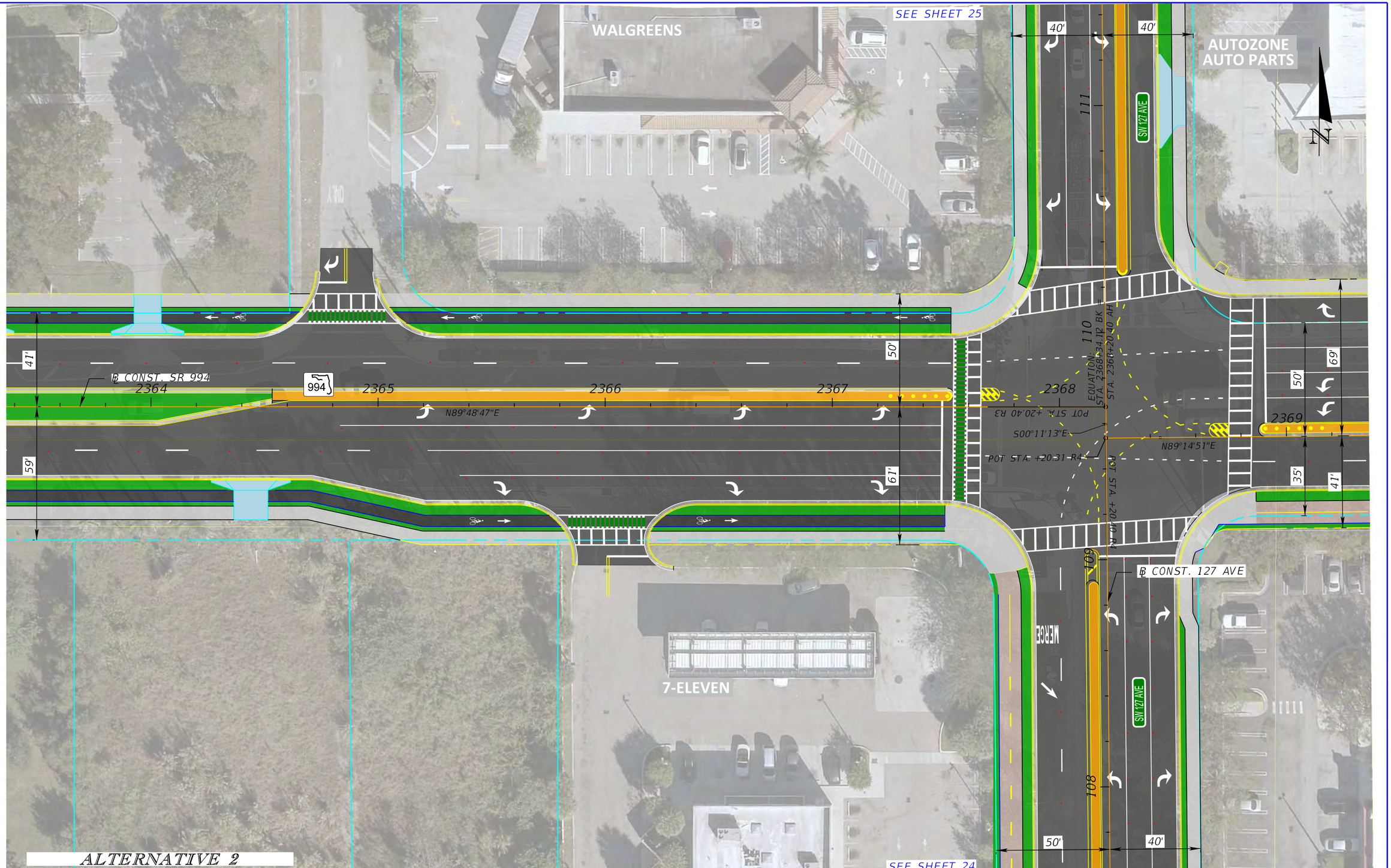

LEGEND							
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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		DATE OF AERIAL: 2021	
PATH		EXISITNG ROW		SHOULDER WIDENING			
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY			
BIKE LANE PATH		PARCEL LINE					

GANNETT FLEMING, INC.
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MIAMI, FL 33126

SR 994 PD&E STUDY
Preliminary Conceptual Design Plans

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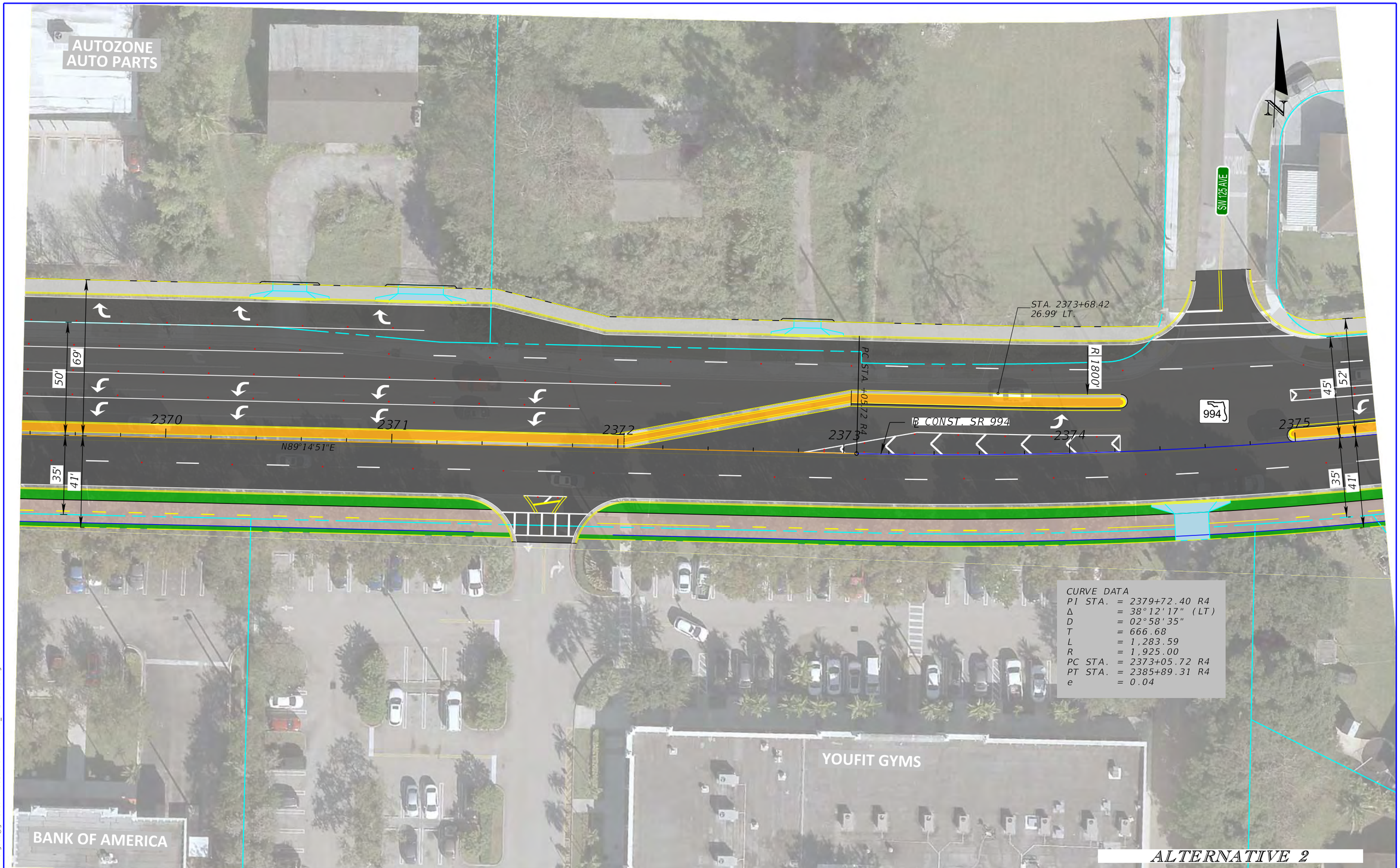

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				2-13
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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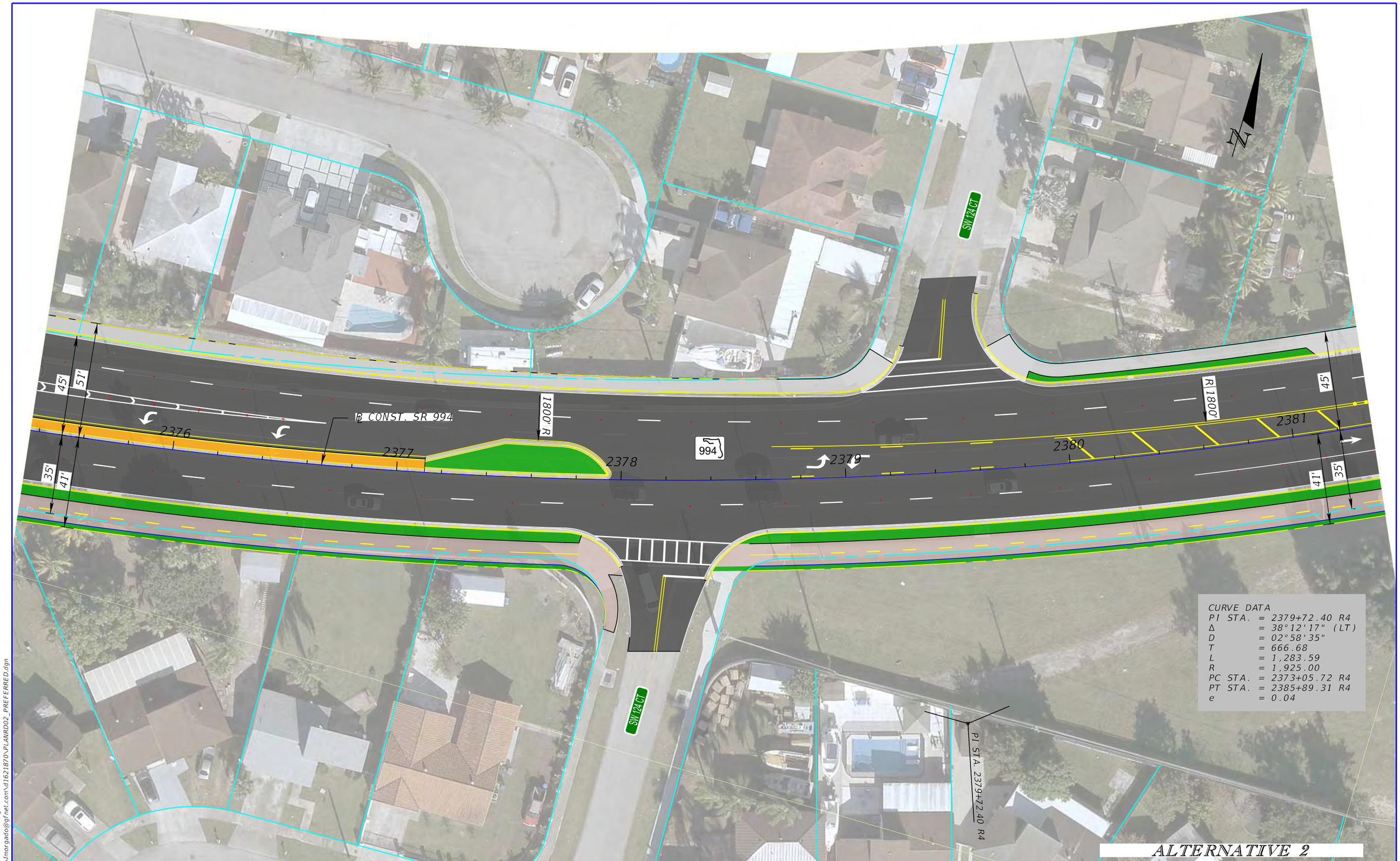

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
2-14

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
2-15

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LEGEND

ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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ALTERNATIVE 2

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				2-17
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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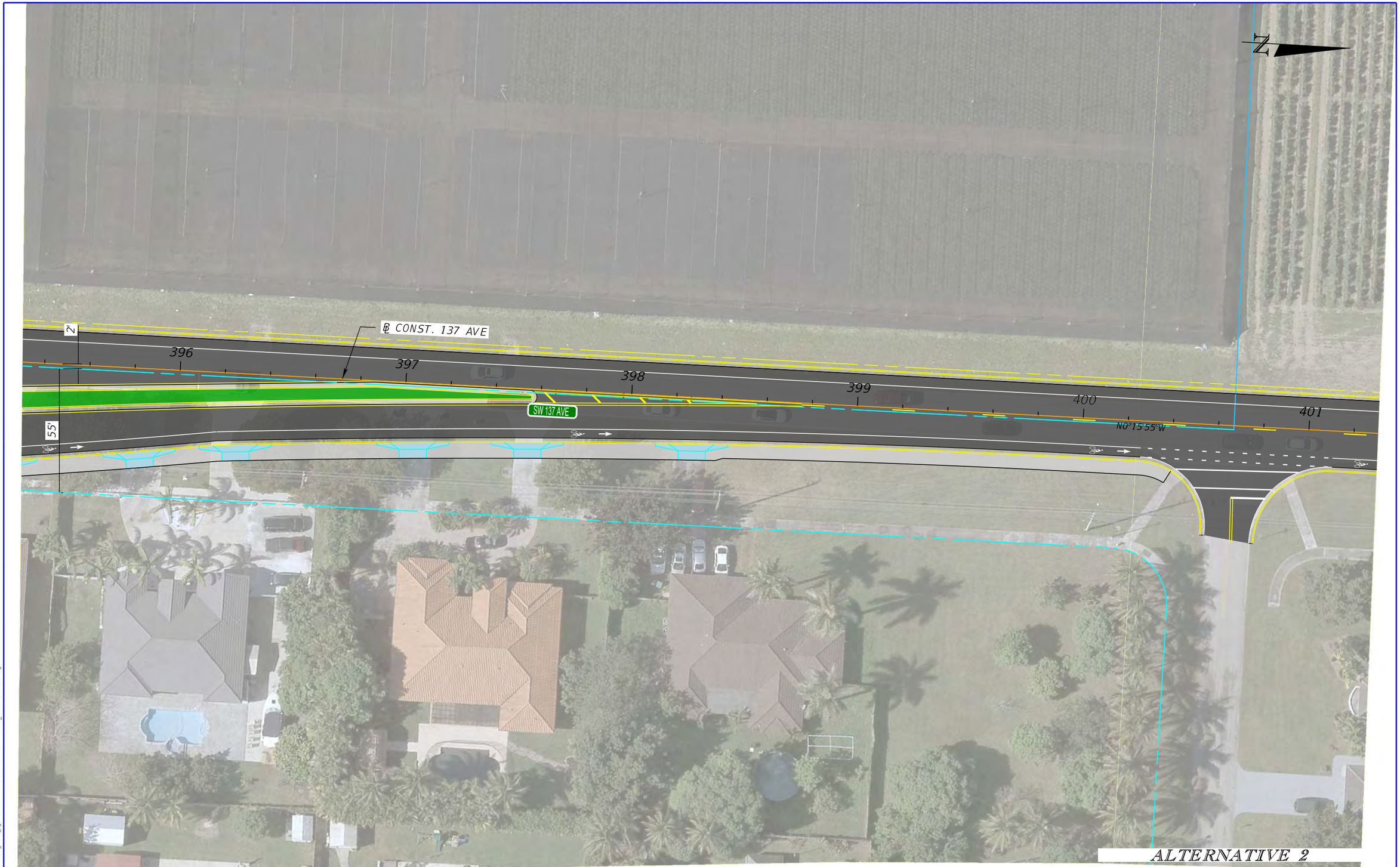

ALTERNATIVE 2

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				2-21
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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LEGEND					
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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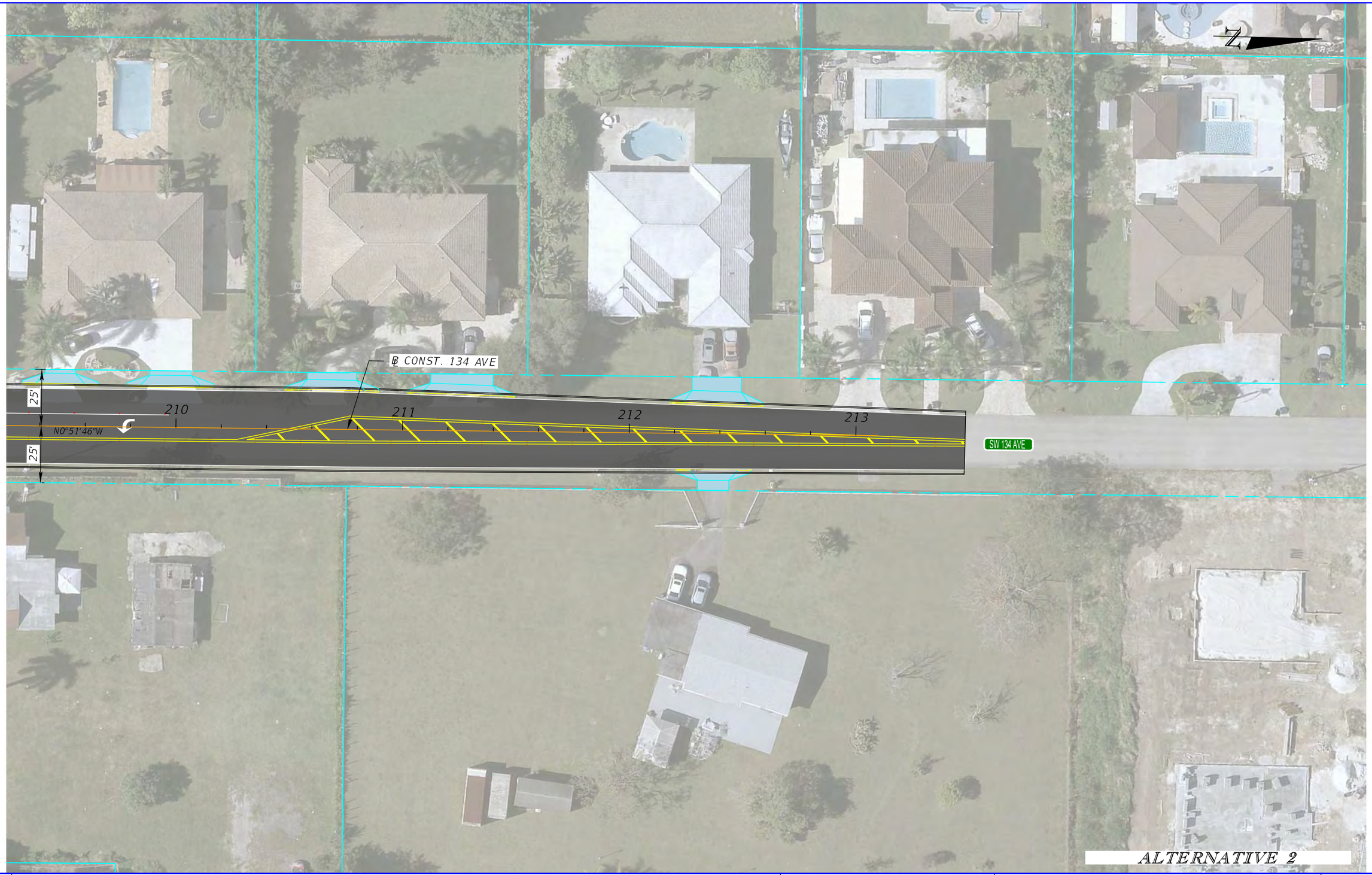

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			2-23
BIKE LANE PATH	PARCEL LINE					

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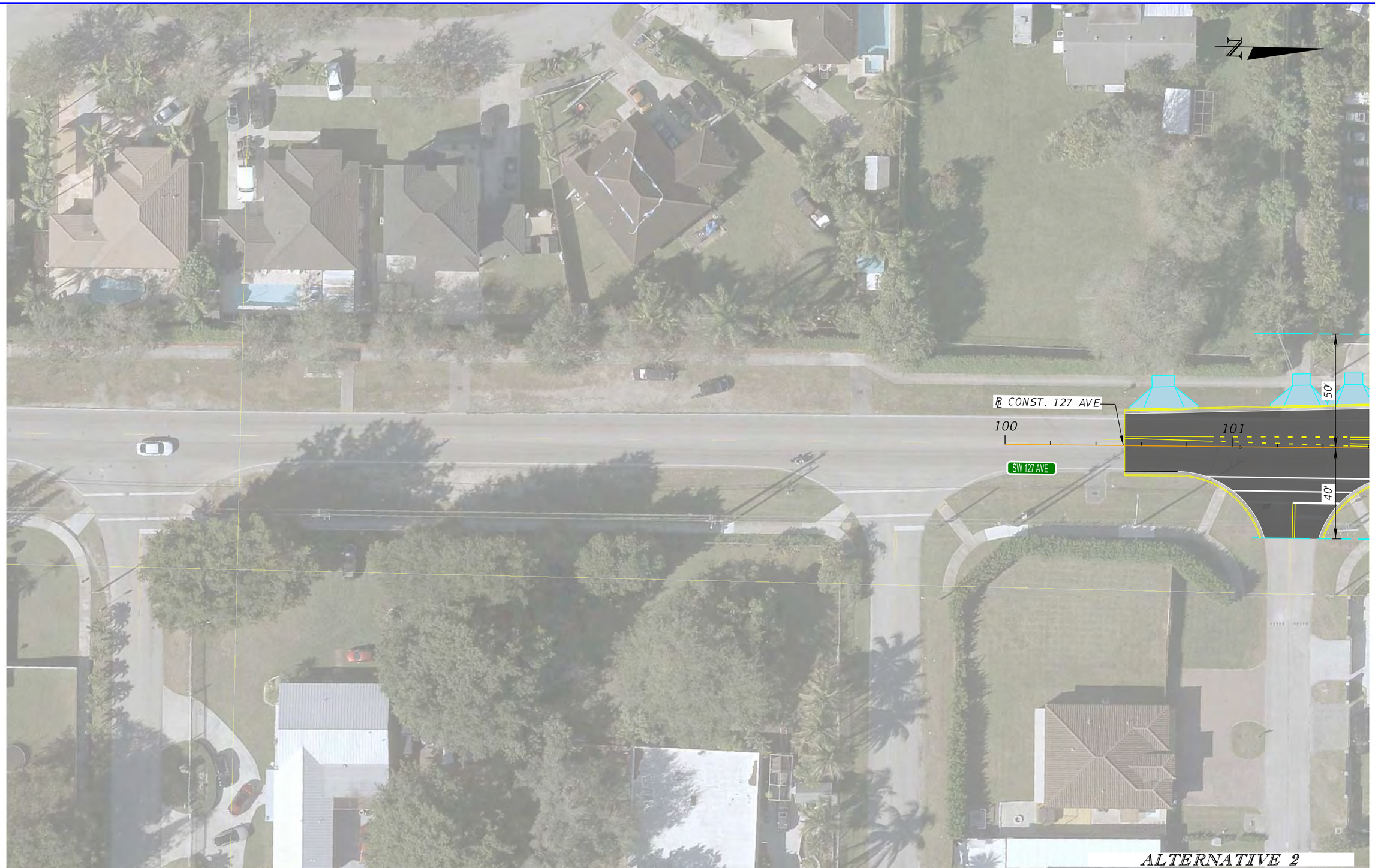

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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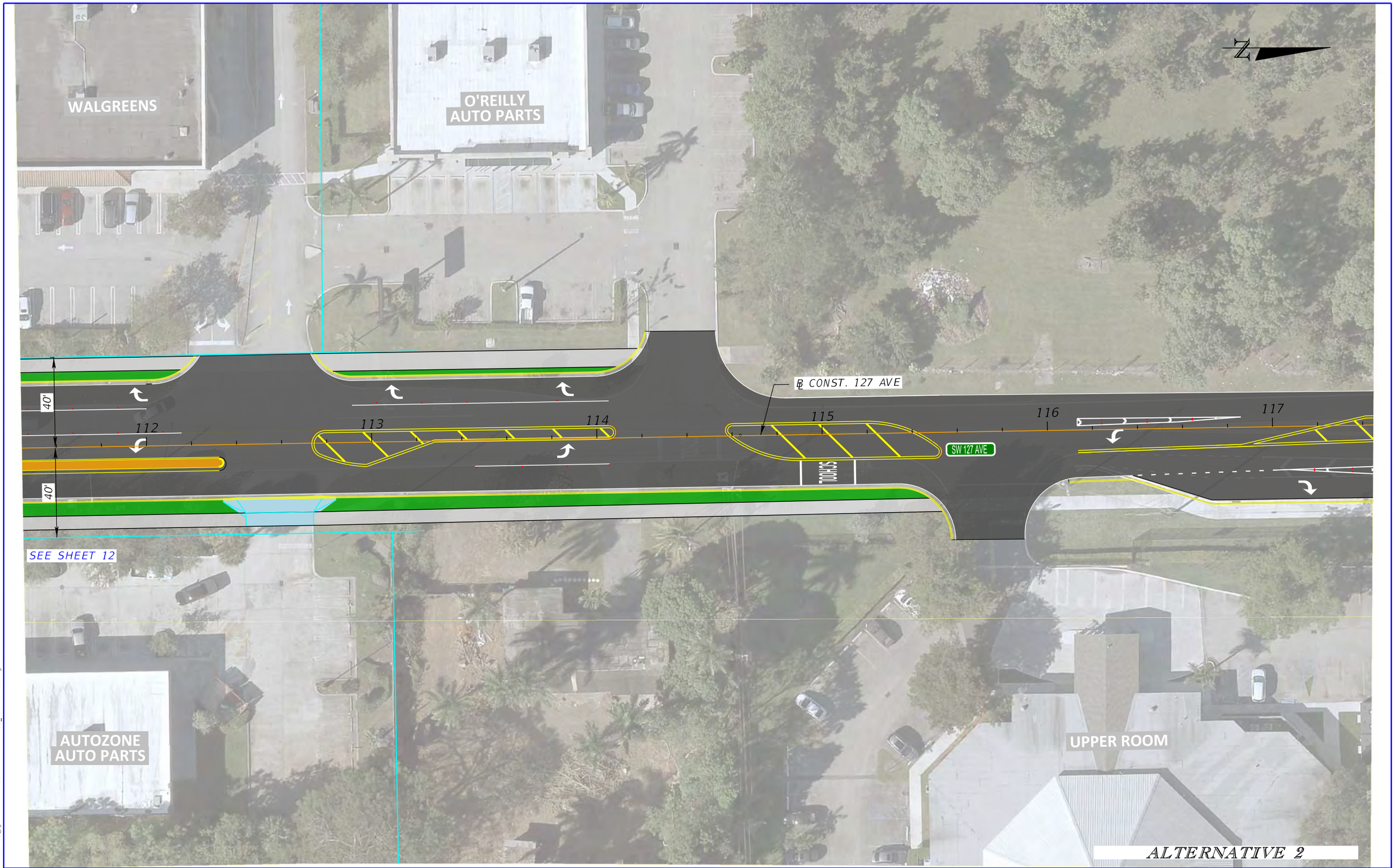

LEGEND					
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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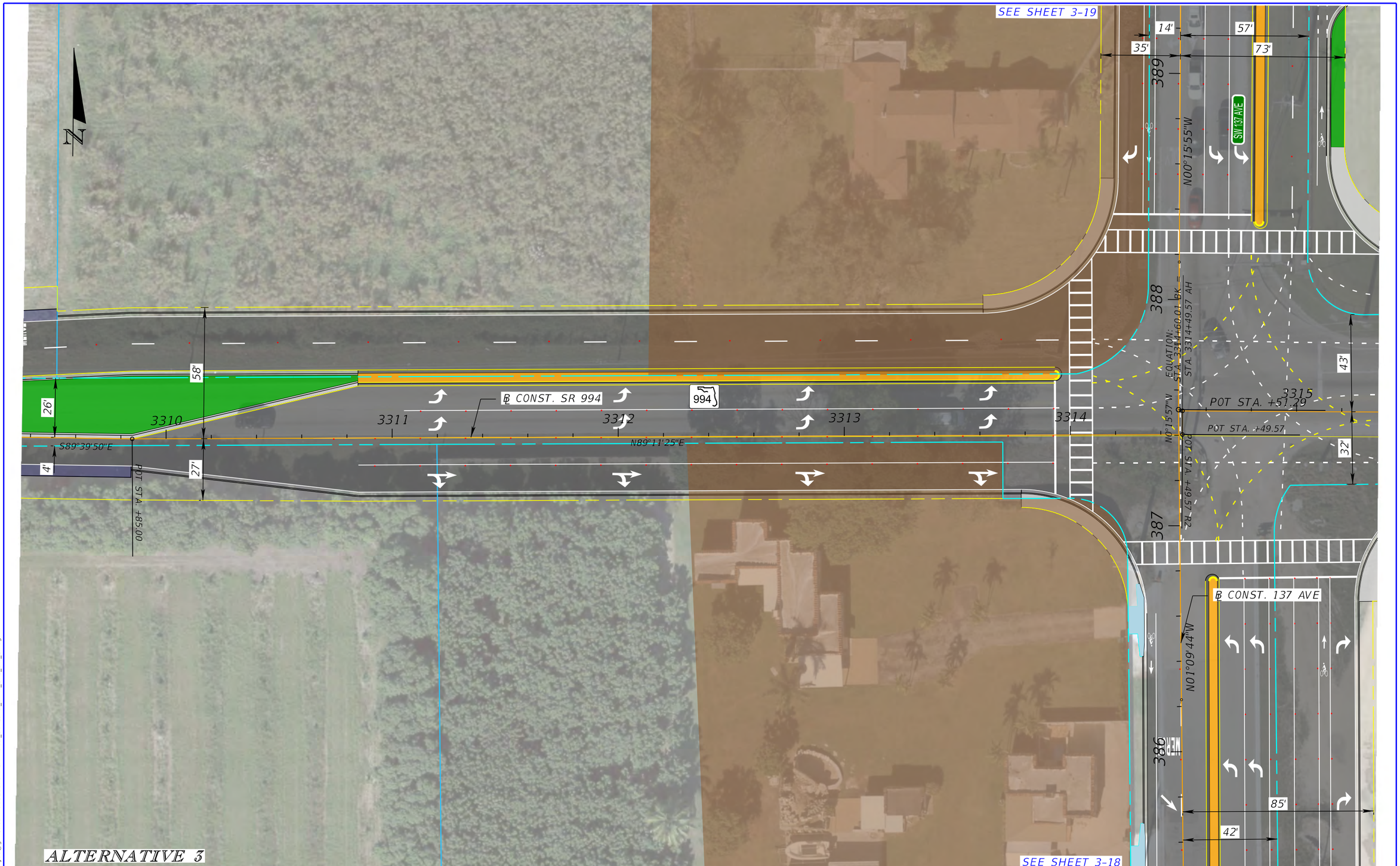

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
Preliminary Conceptual Design Plans

SHEET NO.
3-03

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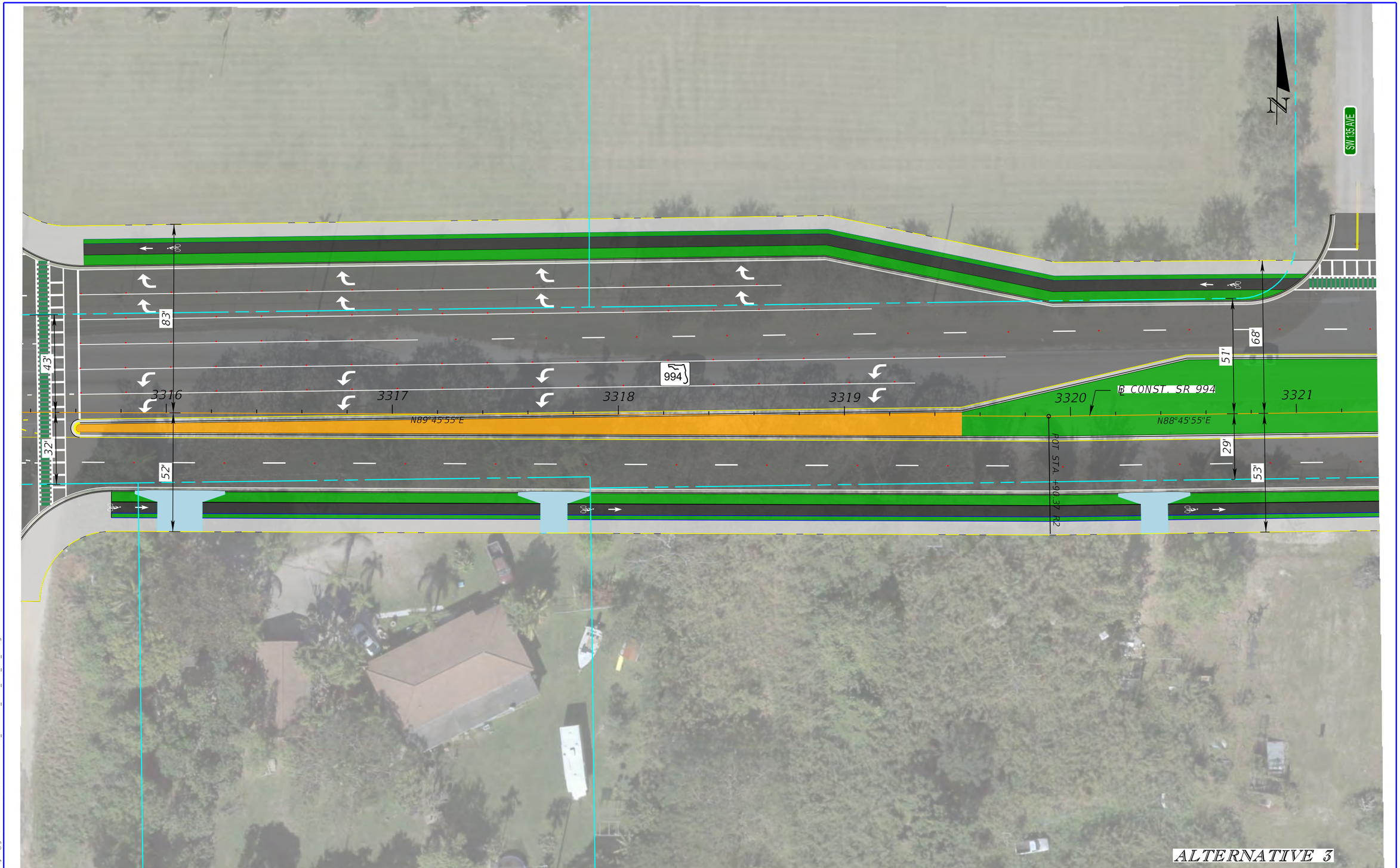

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES				3-04
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING				
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			
	PARCEL LINE					

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LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
Preliminary Conceptual Design Plans

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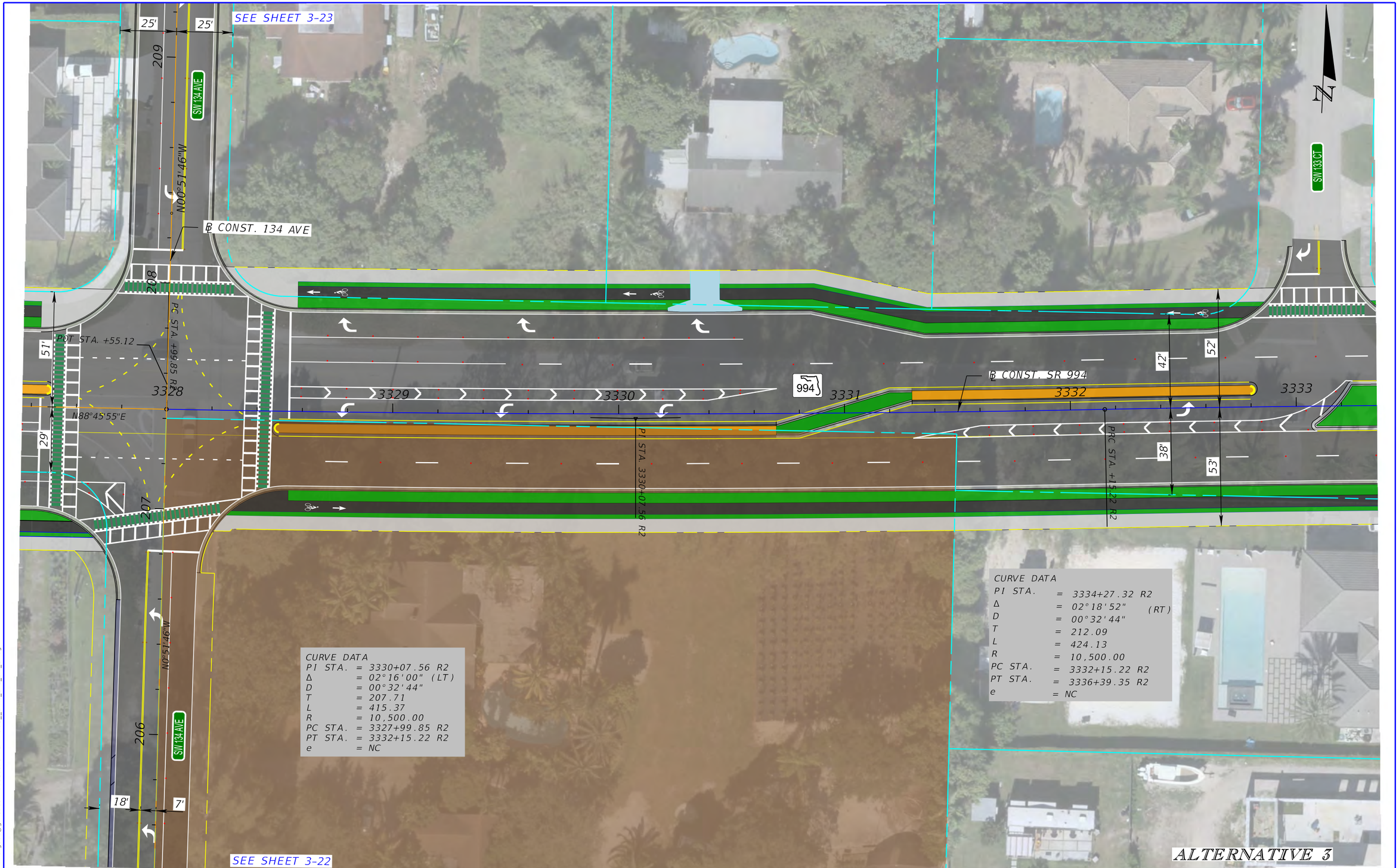

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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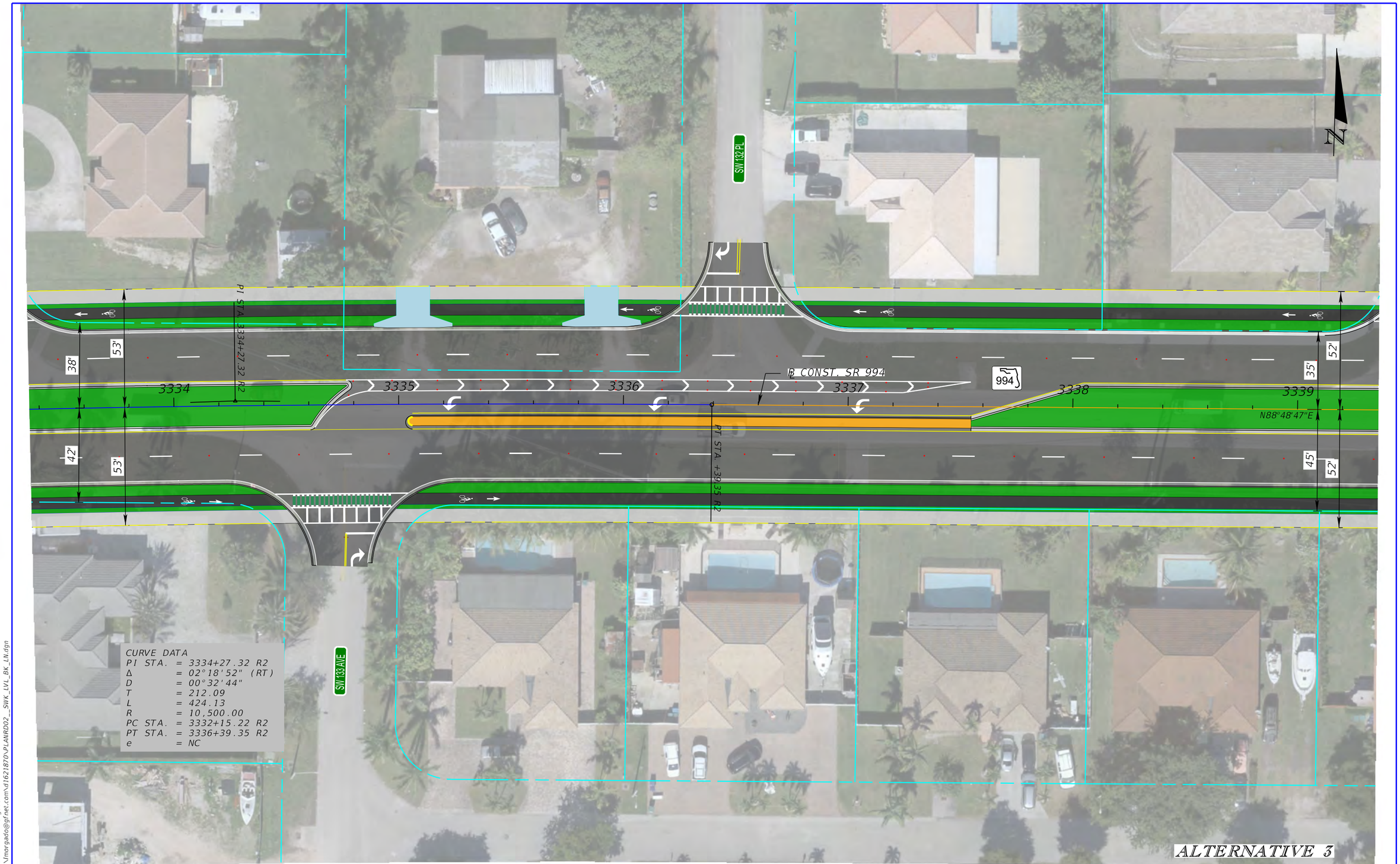

LEGEND

ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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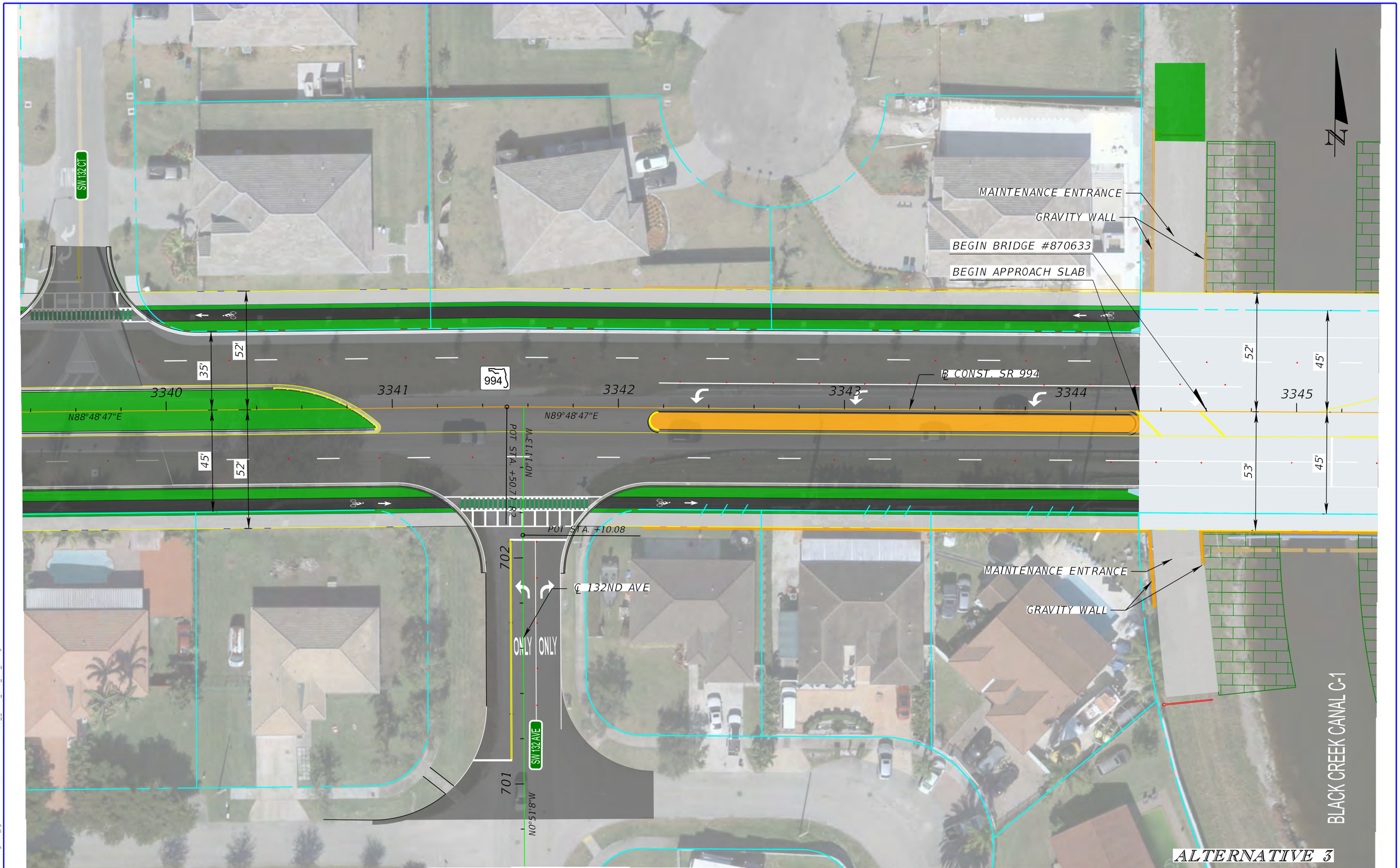

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LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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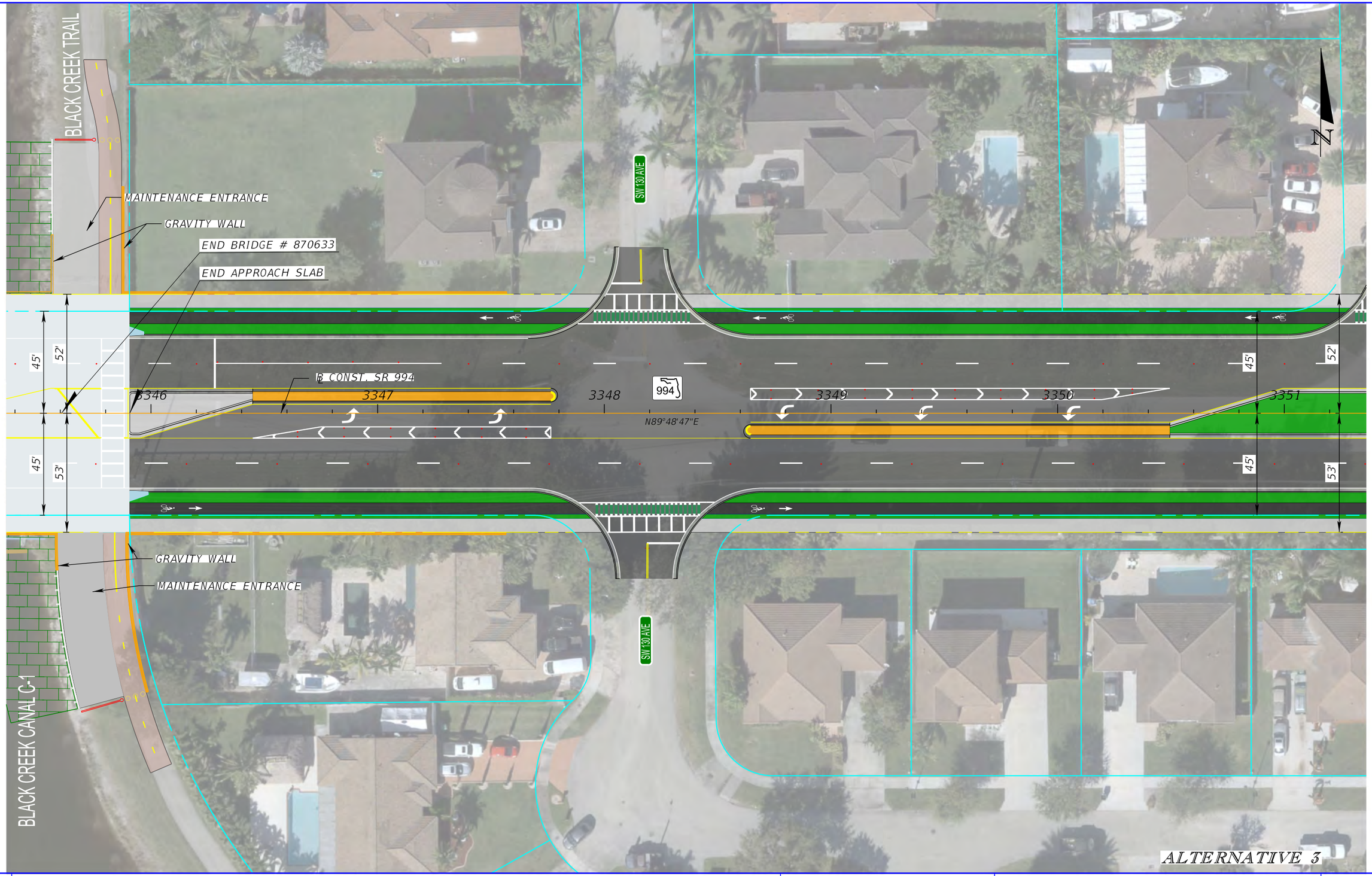

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		0 10 40	
SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES		Feet	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING		DATE OF AERIAL: 2021	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY			
		PARCEL LINE					

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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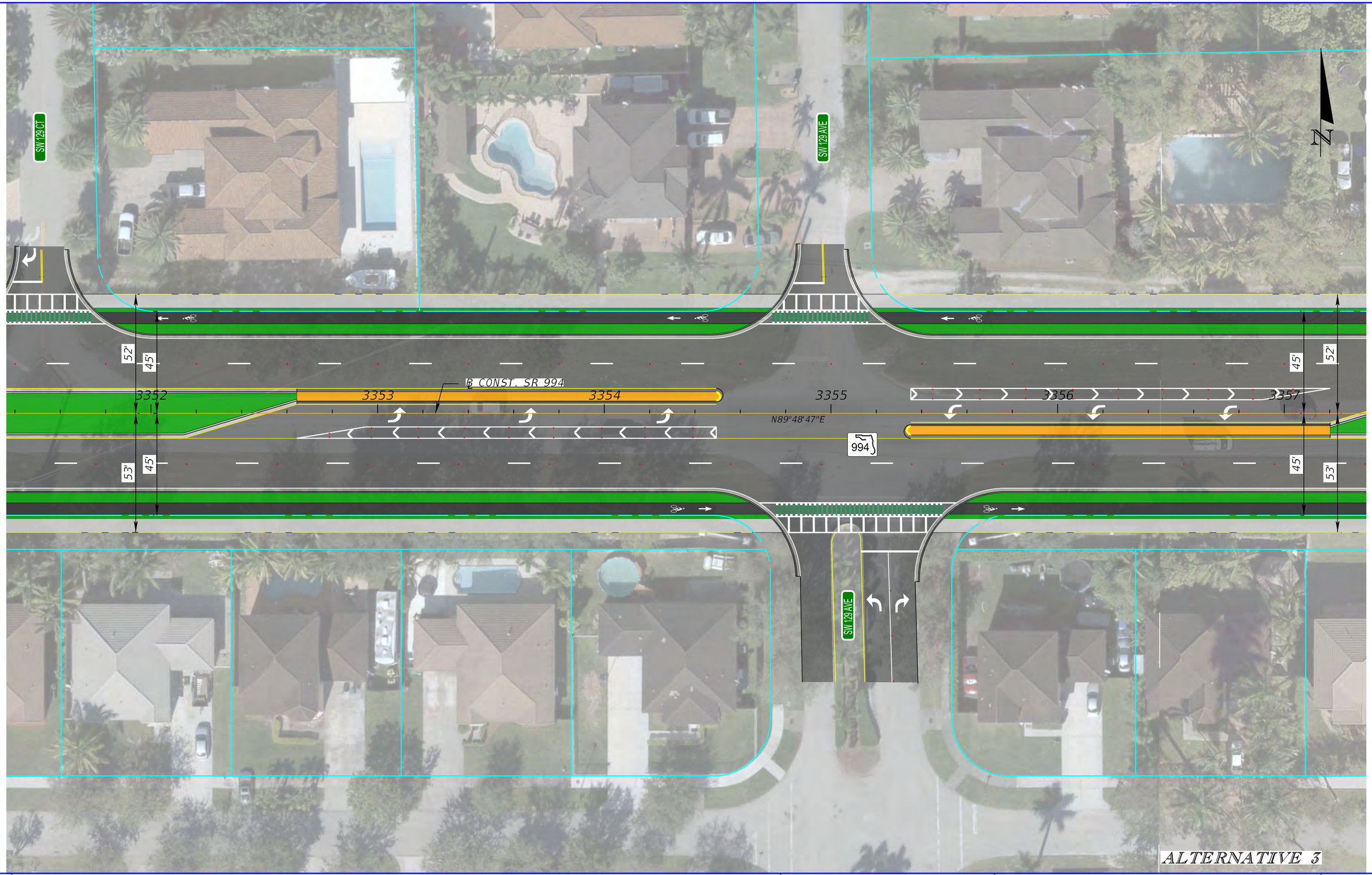

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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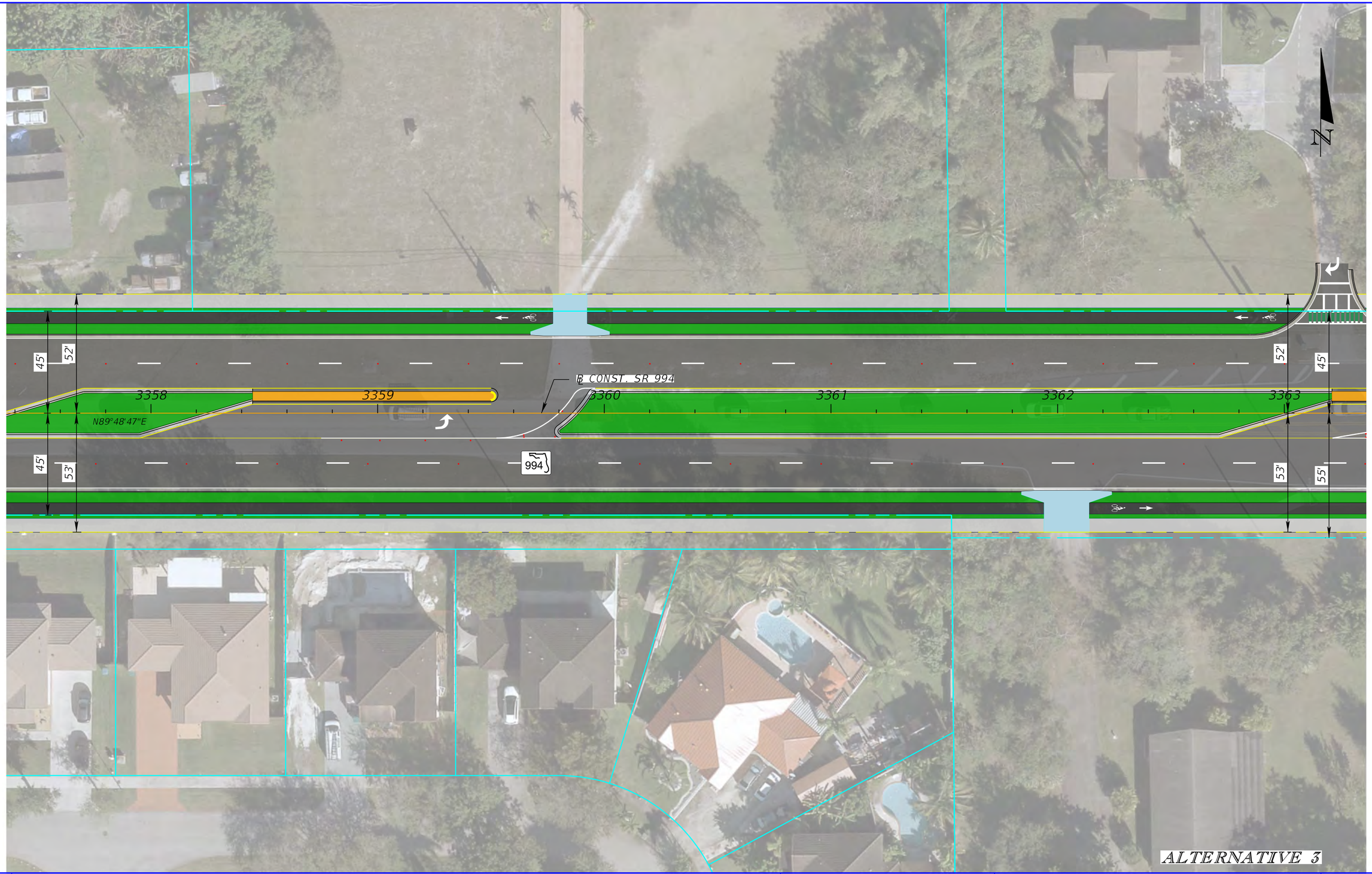

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			3-11
BIKE LANE PATH	PARCEL LINE					

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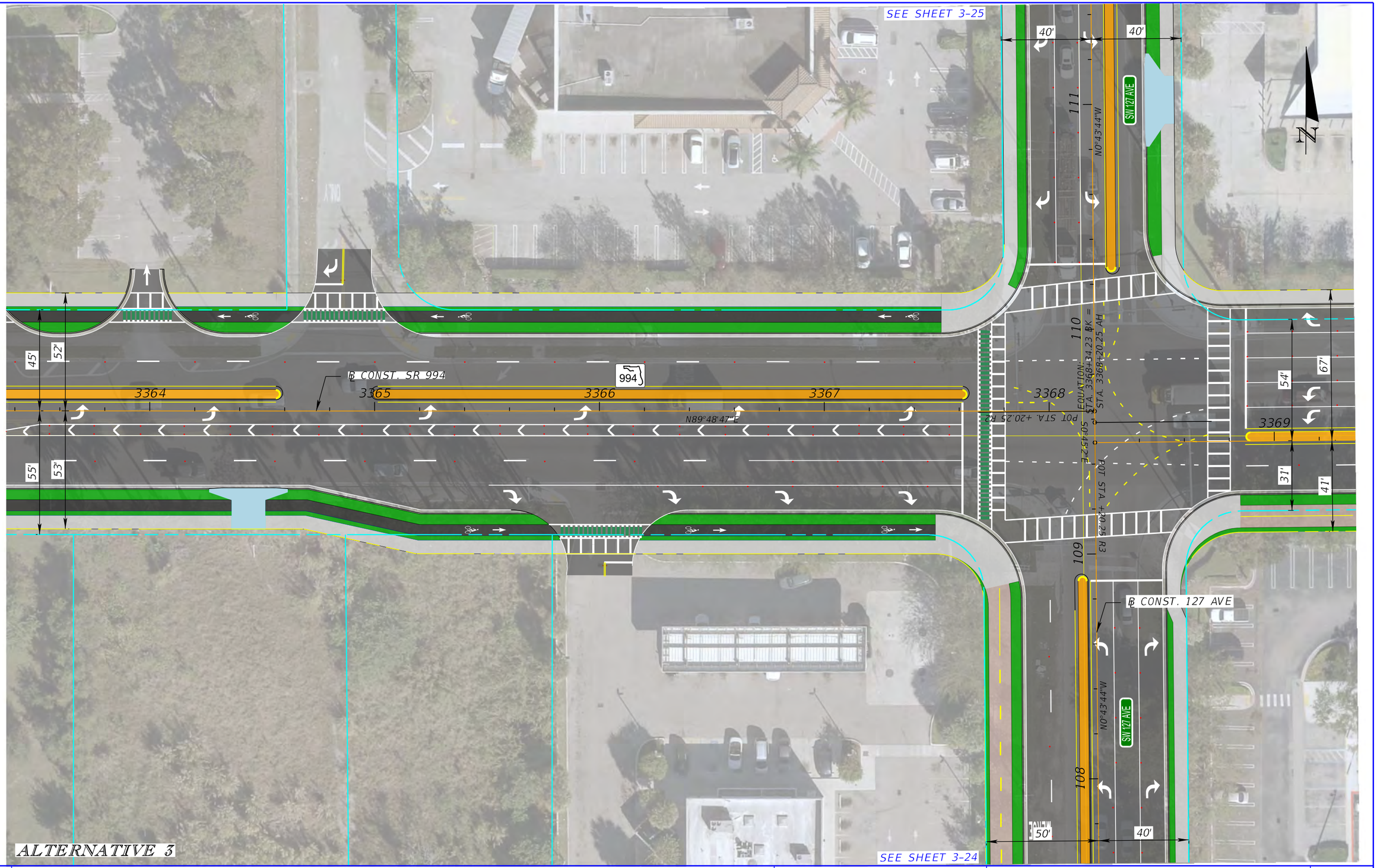

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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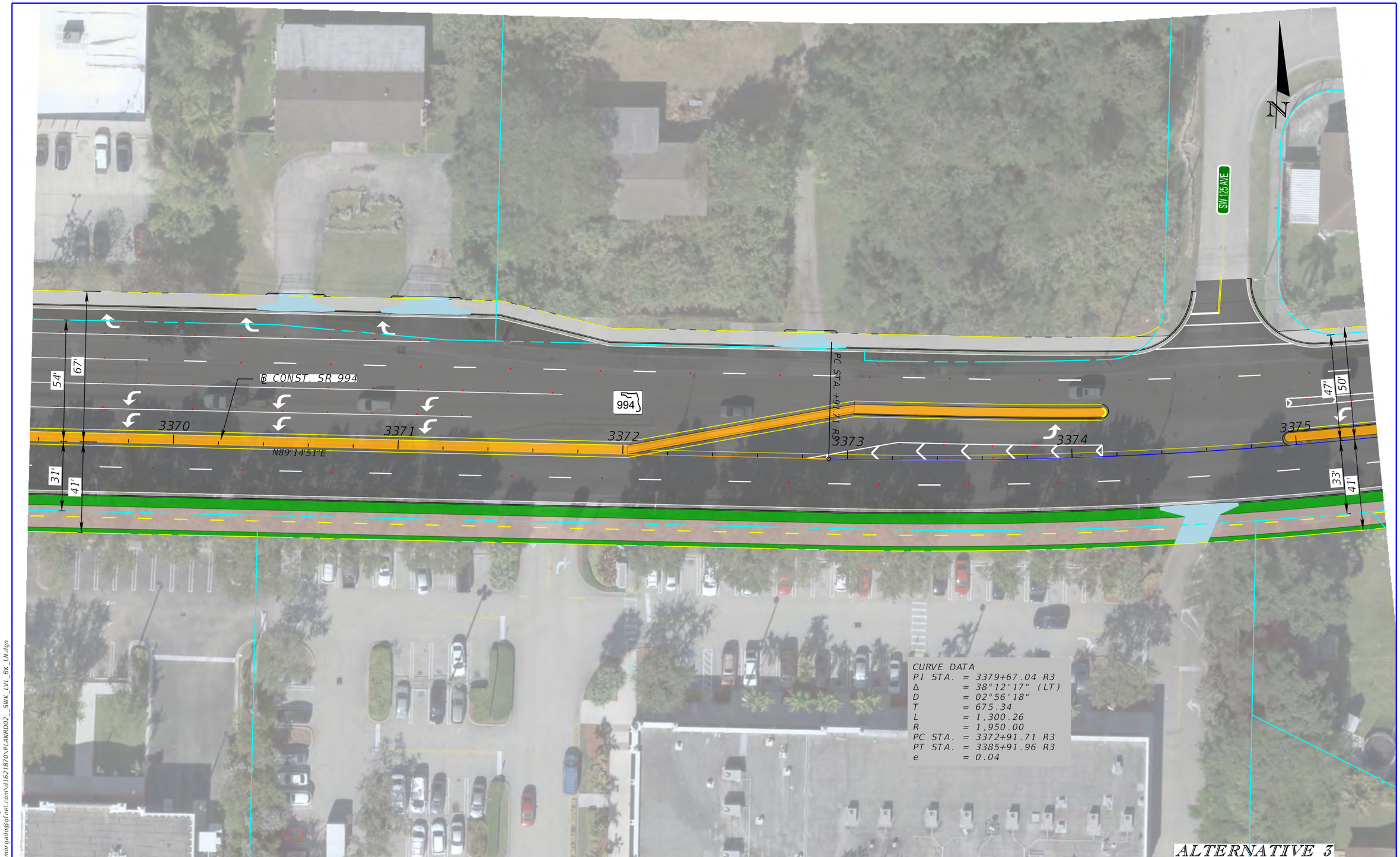

LEGEND					
ROADWAY	BRIDGE	REGRADING/SOD			
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES			
PATH	EXISITNG ROW	SHOULDER WIDENING			
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY			
BIKE LANE PATH	PARCEL LINE				

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DATE OF AERIAL: 2021

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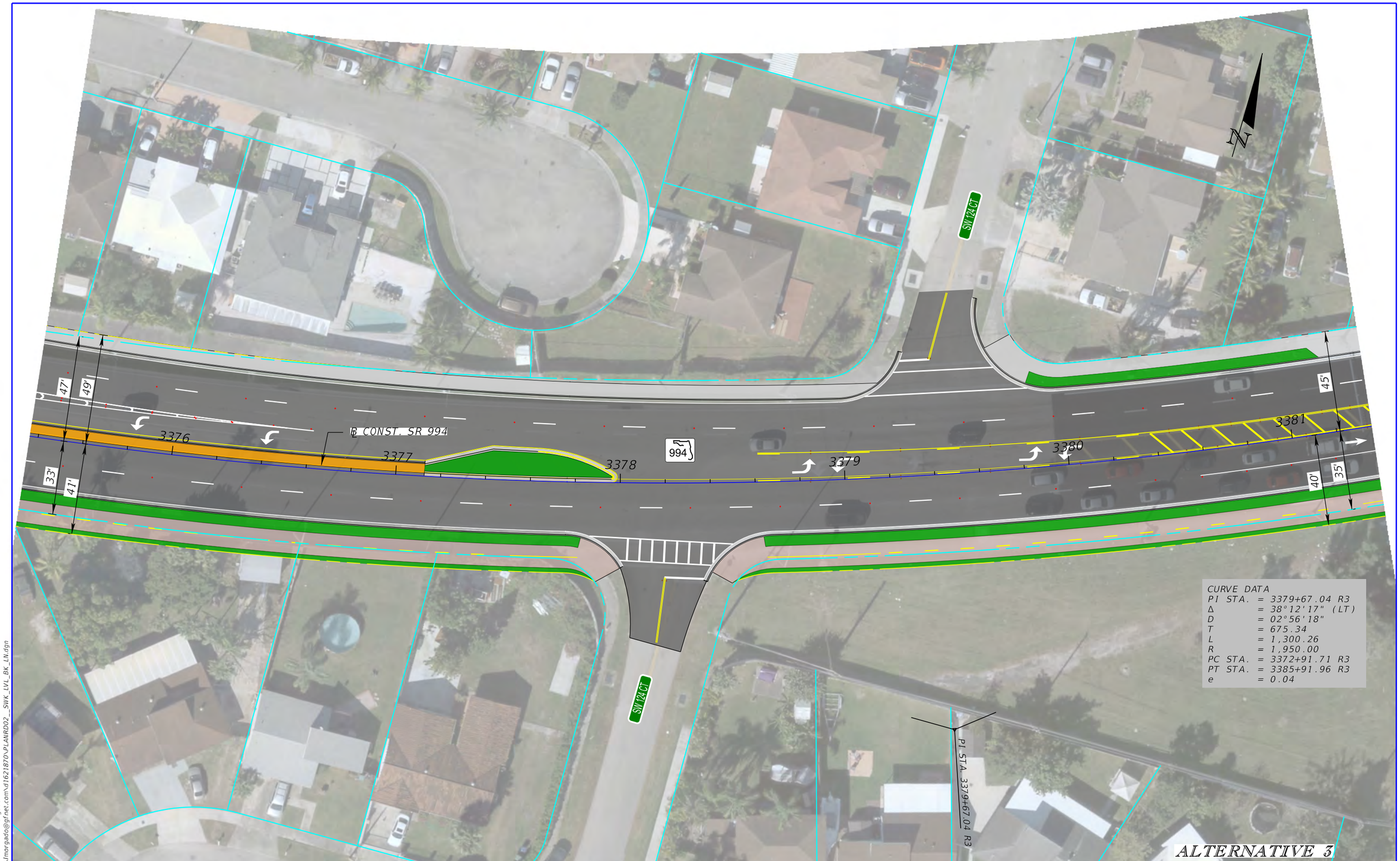

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

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SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES	DATE OF AERIAL: 2021			3-17
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING				
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY				
	PARCEL LINE					

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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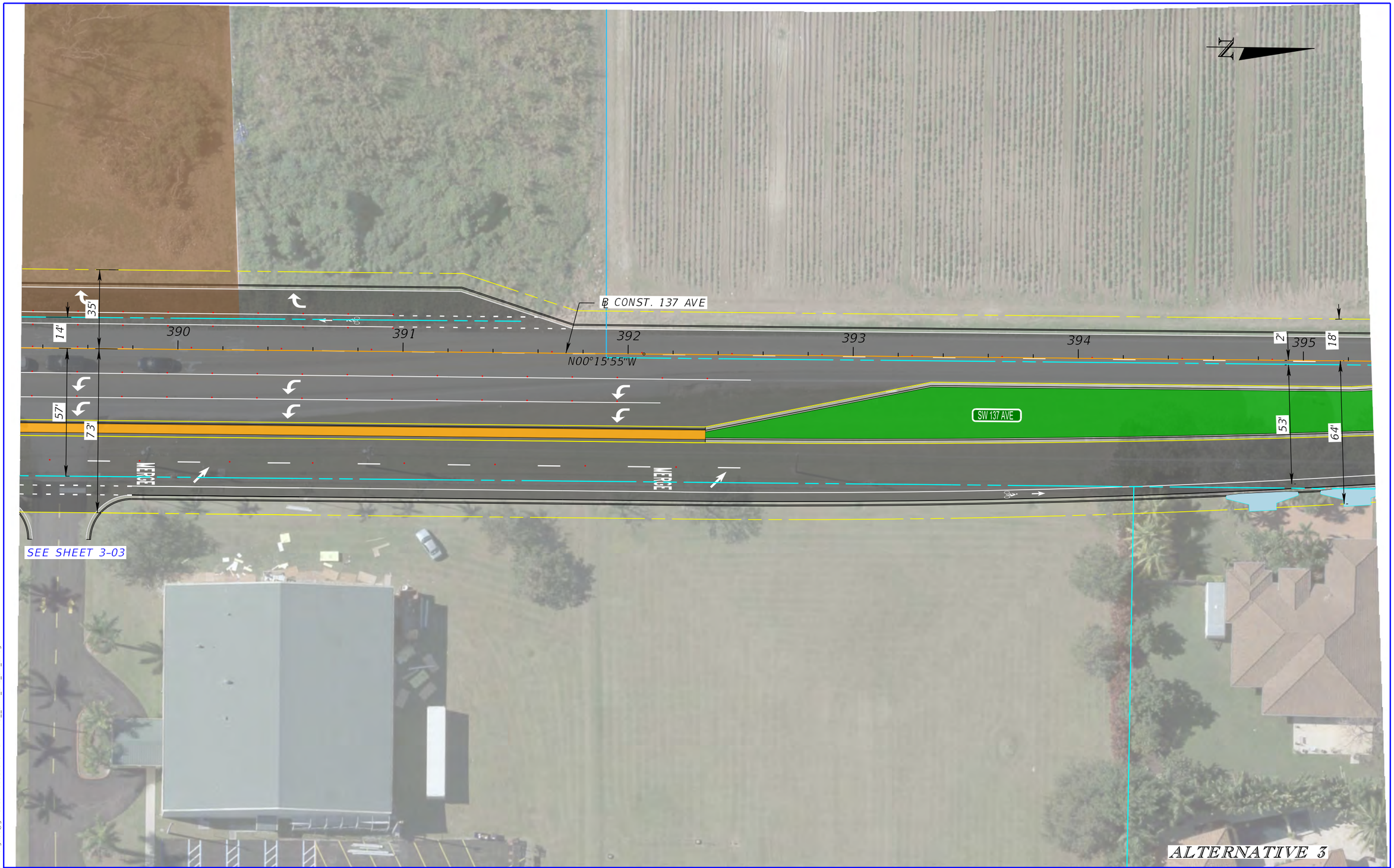

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND							
ROADWAY		BRIDGE		REGRADING/SOD		0 10 40 Feet	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		DATE OF AERIAL: 2021	
PATH		EXISITNG ROW		SHOULDER WIDENING			
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY			
BIKE LANE PATH		PARCEL LINE					

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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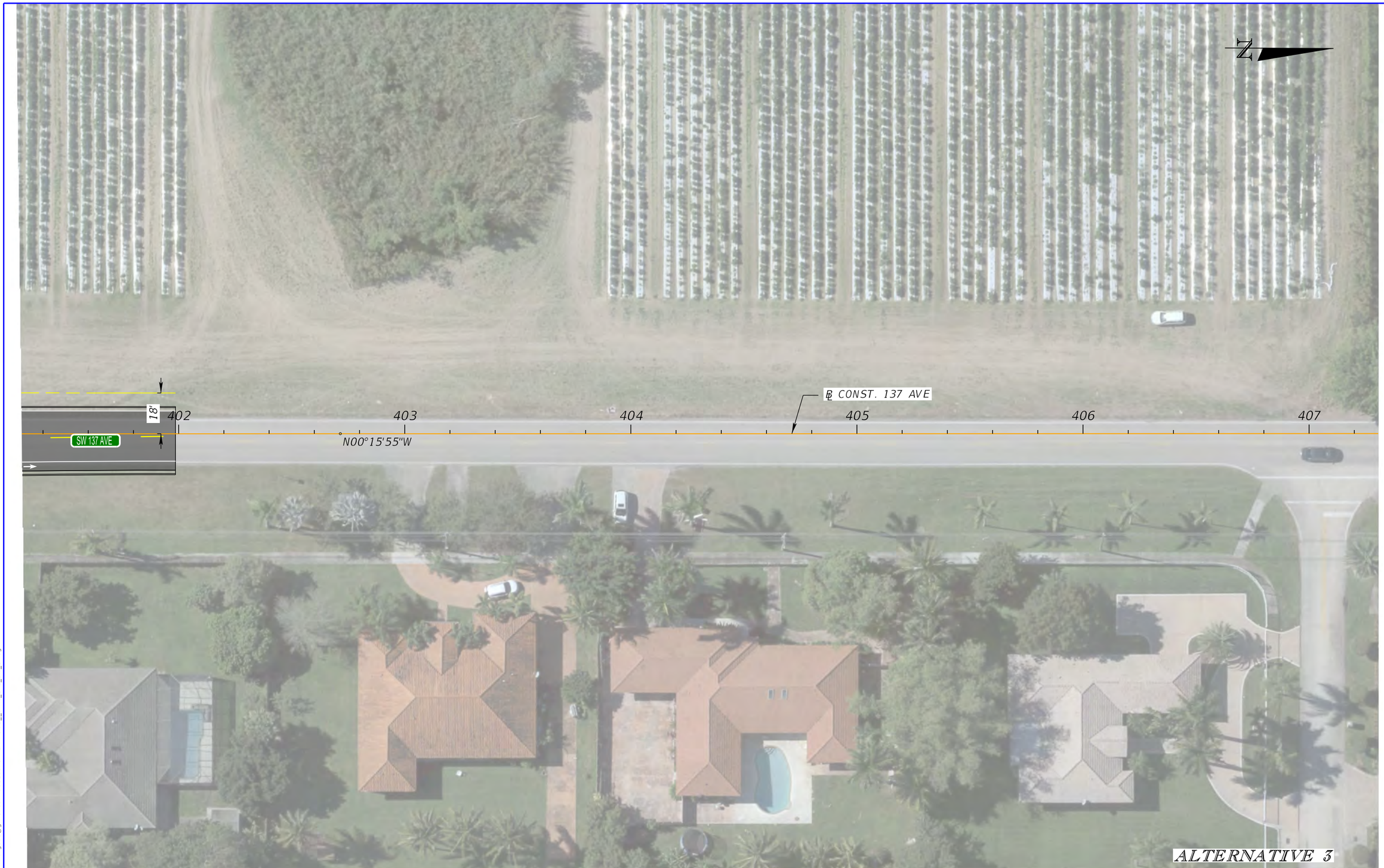

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ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				3-21
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				3-22
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES	
		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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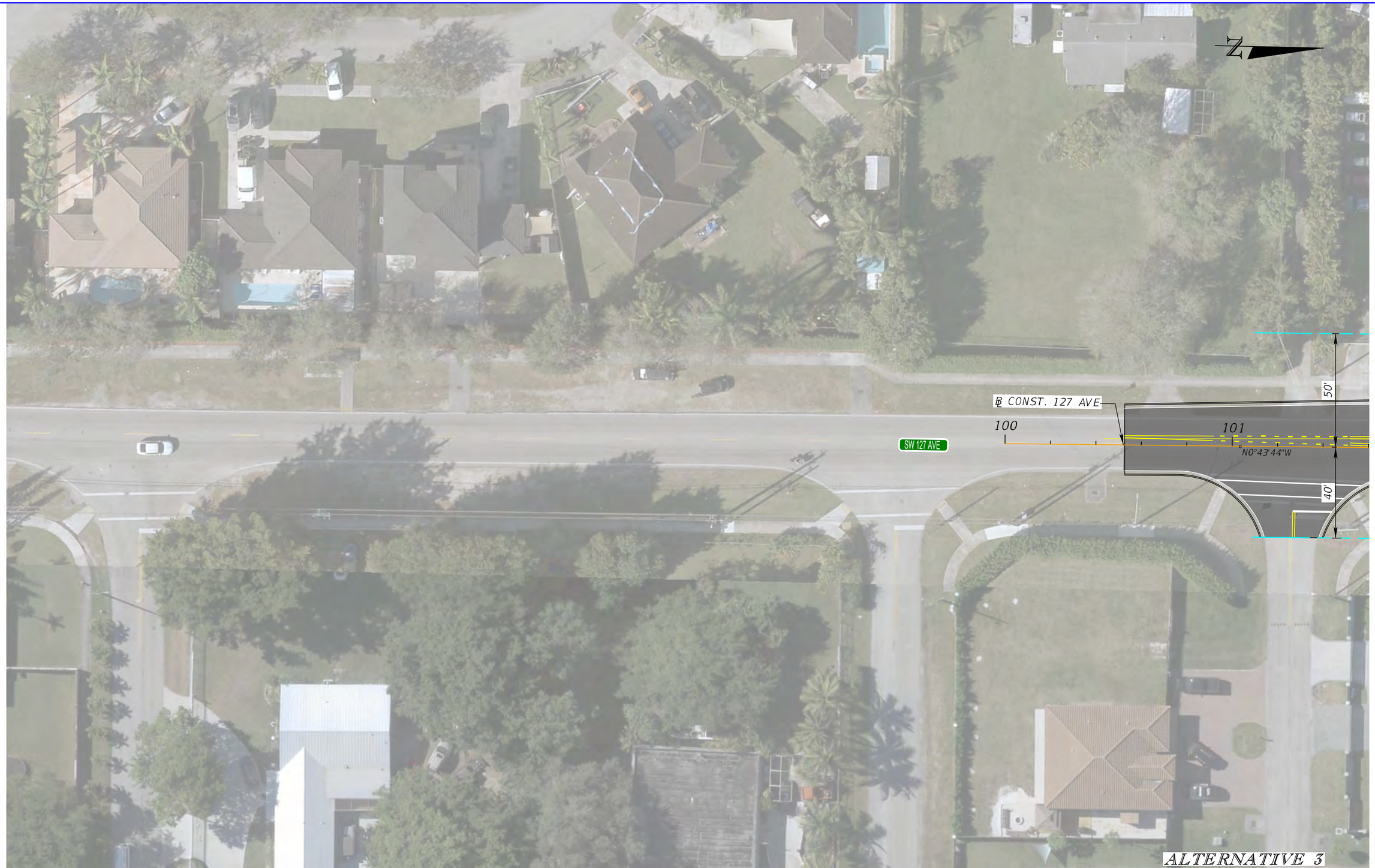

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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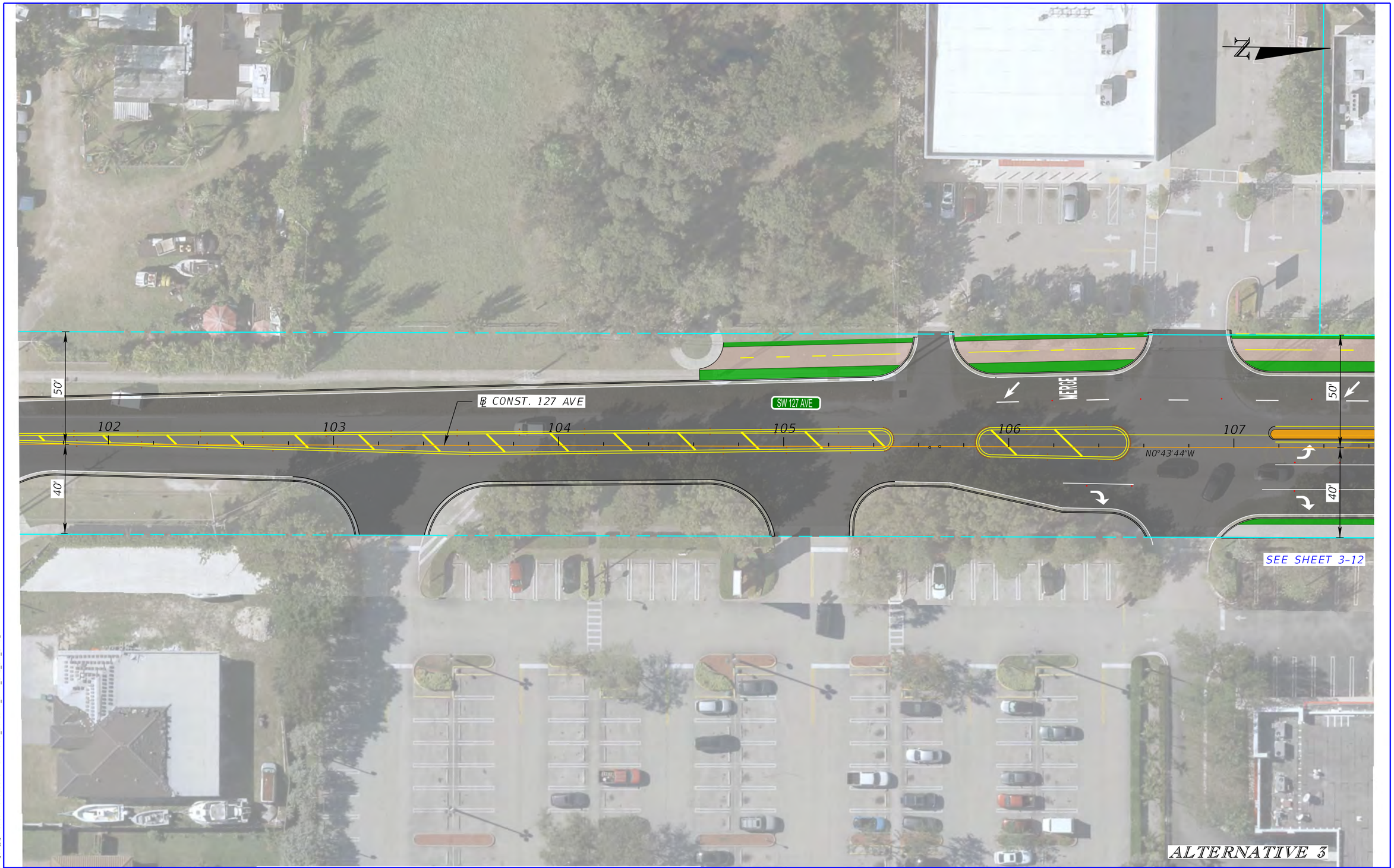

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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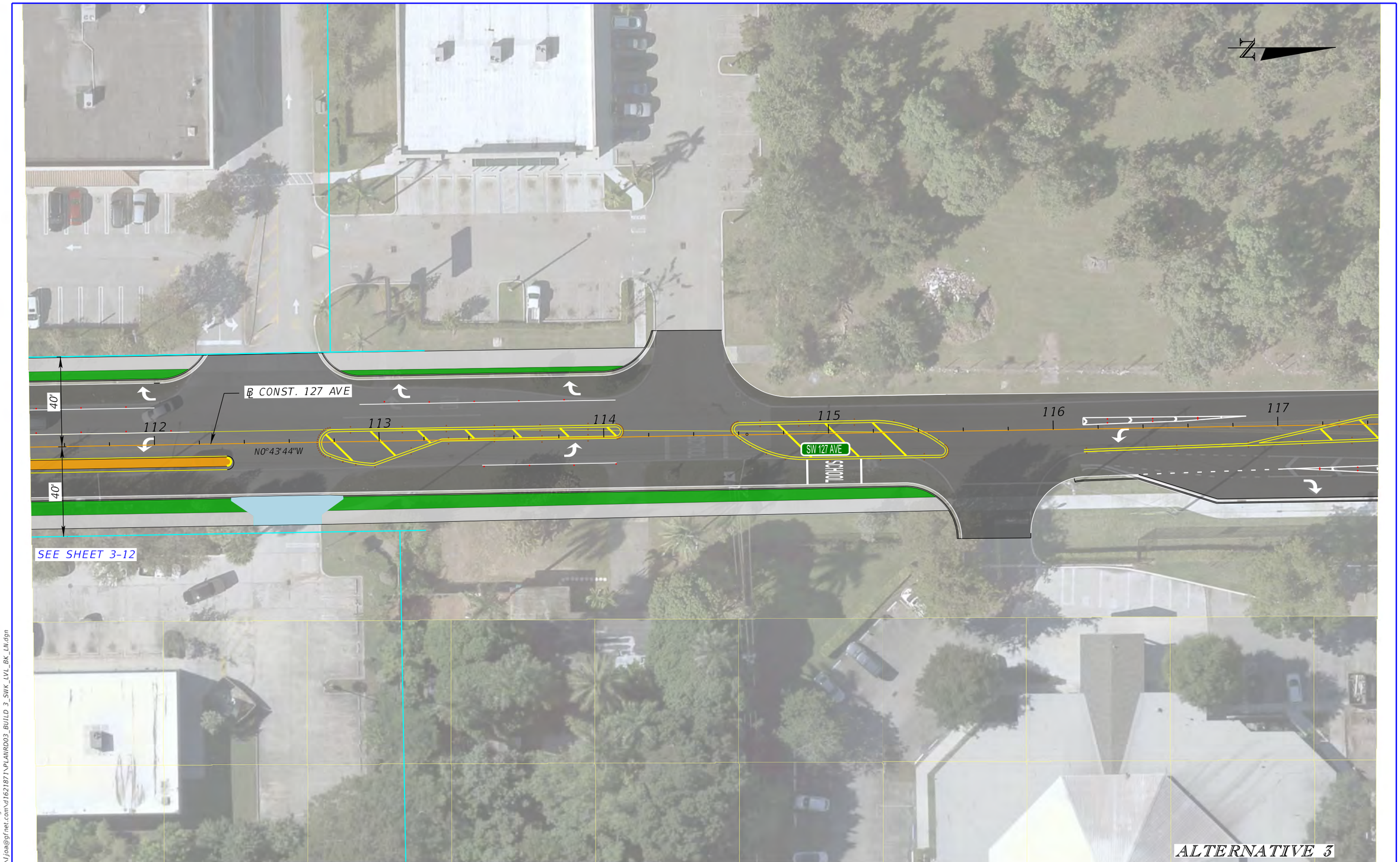

LEGEND							
WIDENING	BRIDGE	REGRADRING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES				
CONCRETE PATH OR SIDEWALK	EXISITNG ROW	SHOULDER WIDENING	DATE OF AERIAL: 2021			3-26
	PROPOSED ROW	PROP. CONC. DRIVEWAY				
	PARCEL LINE					

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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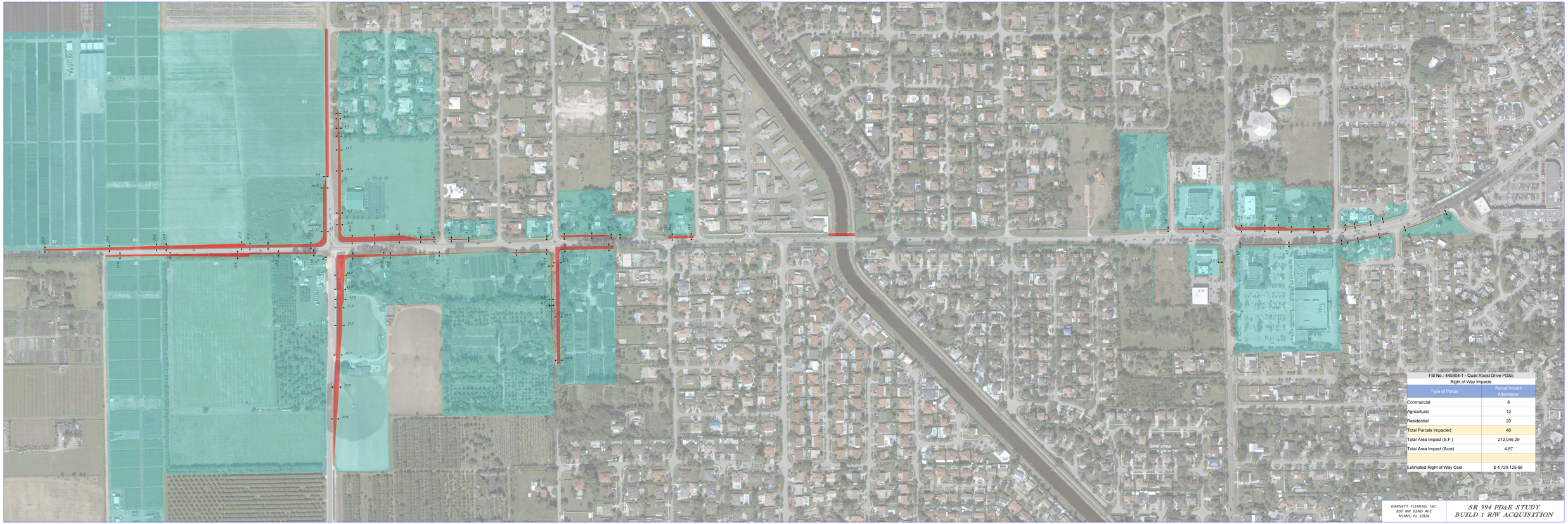
Appendix M – Right of Way Impacts

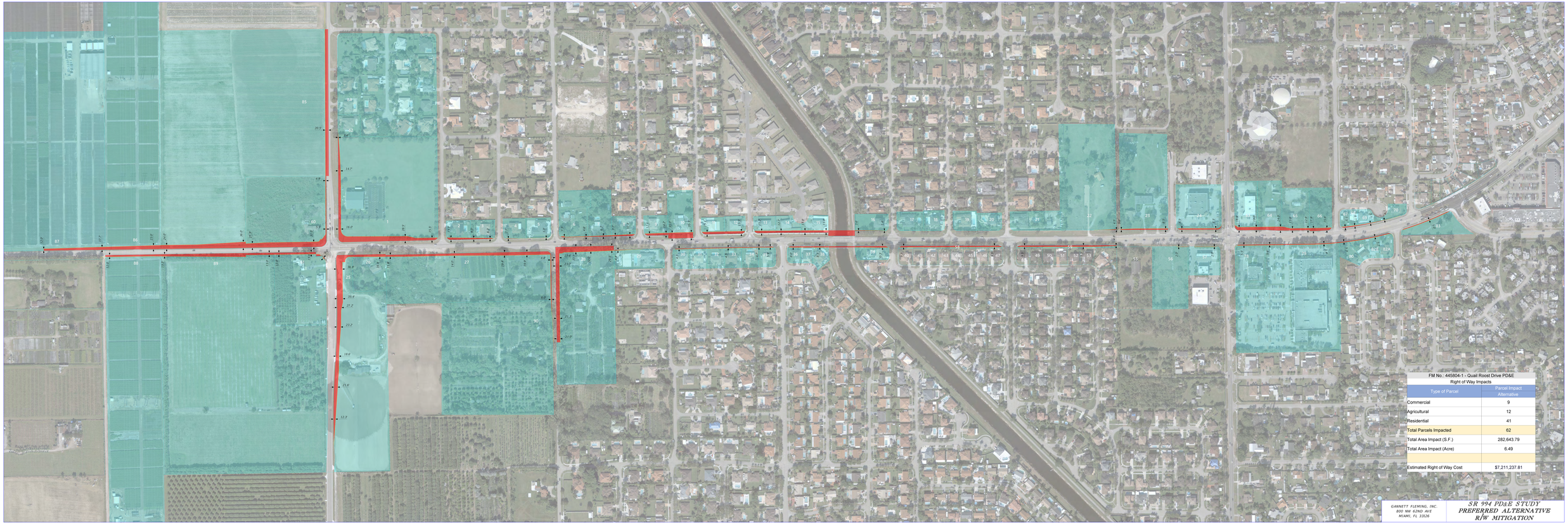


FM No.: 445804-1 - Quail Roost Drive PD&E
Right of Way Impacts

Type of Parcel	Parcel Impact Alternative
Commercial	8
Agricultural	12
Residentiial	20
Total Parcels Impacted	40
Total Area Impact (S.F.)	212,046.29
Total Area Impact (Acre)	4.87
Estimated Right of Way Cost	$ 4,729,125.68

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
BUILD 1 R/W ACQUISITION

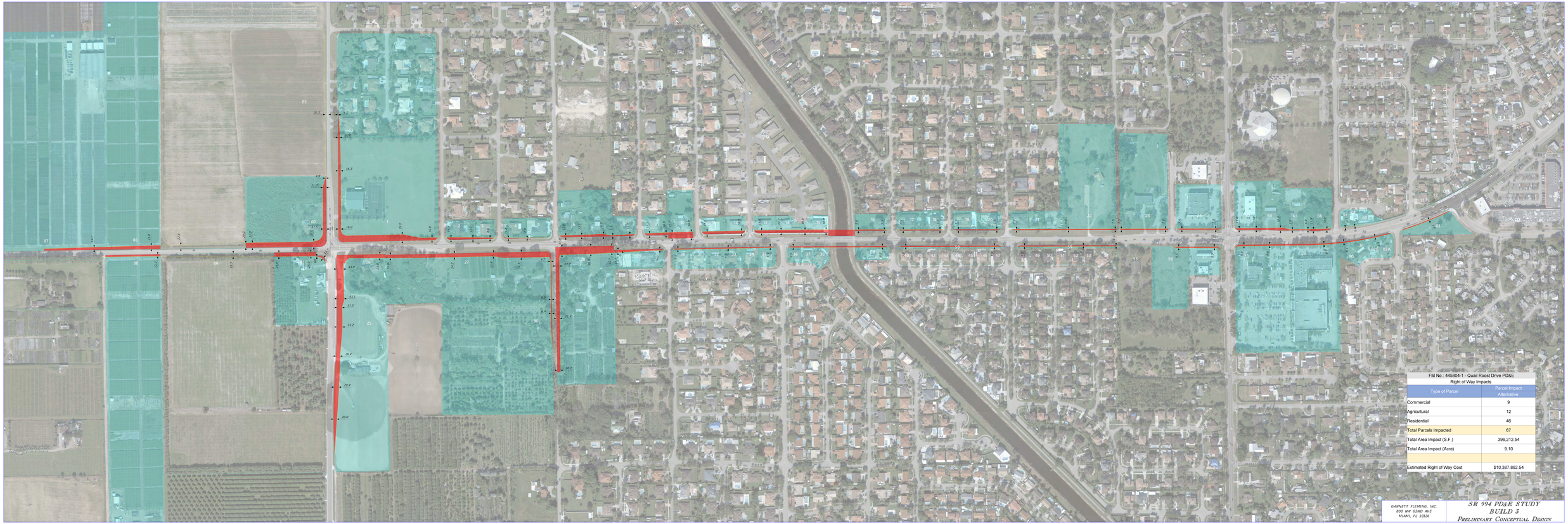


FM No.: 445804-1 - Quail Roost Drive PD&E
Right of Way Impacts

Type of Parcel	Parcel Impact Alternative
Commercial	9
Agricultural	12
Residential	41
Total Parcels Impacted	62
Total Area Impact (S.F.)	282,643.79
Total Area Impact (Acre)	6.49
Estimated Right of Way Cost	$7,211,237.81

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PREFERRED ALTERNATIVE
R/W MITIGATION



FM No.: 445804-1 - Quail Roost Drive PD&E
Right of Way Impacts

Type of Parcel	Parcel Impact Alternative
Commercial	9
Agricultural	12
Residential	46
Total Parcels Impacted	67
Total Area Impact (S.F.)	396,212.54
Total Area Impact (Acre)	9.10
Estimated Right of Way Cost	$10,387,862.54

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
BUILD 5
PRELIMINARY CONCEPTUAL DESIGN

FM No.: 445804-1 – SR 994/Quail Roost Drive PD&E

Potential Right of Way Impacts (as of 6/14/2024)

Type of Parcel	Parcel Impact		
	Build Alternative 1	Build Alternative 2	Build Alternative 3
Commercial	8	9	9
Agricultural	12	12	12
Residential	20	41	46
Total Parcels Impacted	40	62	67
Partial Impacts	39	62	64
Potential Relocation	6 (1-Res + 5 PP)	8 (8 PP)	10 (3-Res + 7 PP)
Total Area Impact (S.F.)	212,046	282,644	396,213
Total Area Impact (Acre)	4.87	6.49	9.10
Estimated Right of Way Cost	**$4,729,126**	**$7,211,238**	**$10,387,863**
Estimated Relocation Cost	**$105,100**	**$6,400**	**$344,750**

Relocation Cost

Alternative	Personal Property ($800 each)	Residential *(Replacement Housing Payment + Room Count Schedule)*	Total Relocation Cost
Build 1	$4,000.00 *(5 PP)*	$101,100 *[Parcel 62: $989,000 x 10% = $98,900 +$2,200 (8 rooms)]*	$105,100.00
Build 2	$6,400.00 *(8 PP)*	$0.00	$6,400.00
Build 3	$5,600.00 *(7 PP)*	$339,150 *[Parcel 7: $900,000 x 10% = $90,000 +$2,200 (8 rooms)]* *[Parcel 29: $1,430,000 x 10% = $143,000 +$2,850 (10 rooms)]* *[Parcel 62: $989,000 x 10% = $98,900 +$2,200 (8 rooms)]*	$344,750.00

Appendix N – Value Engineering Study Report

VALUE ENGINEERING REPORT

Florida Department of Transportation

District 6

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From West of SW 137th Avenue to East of SW 127th Avenue

Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

JUNE 2023

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

Value Engineering Study Report

SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue

Florida Department of Transportation

Miami-Dade County, FL

June 12-16, 2023

Prepared by:

HDR Engineering, Inc.
315 E Robinson Street
Suite 400
Orlando, FL, 32801

Engineer's Certification

I, hereby certify that I am a registered professional engineer in the State of Florida, practicing with HDR Engineering Inc., a Florida Corporation under Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statues, Certificate of Authorization (CA) Number 4213, by the State of Florida, Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for:

Project	FPID No.: 445804-1 Project Description: SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue Document Description: Value Engineering Study Report
Location:	Pinellas County, Florida
Report Prepared for:	Florida Department of Transportation District 6 1000 N.W. Avenue Miami, FL 33172
Report Prepared by:	Jose Theiler, P.E., CVS HDR Engineering, Inc. 440 S. Church St. - Suite 1000 Charlotte, NC 28202-2075 Certificate of Authorization No. 4213 Vendor No. VF-470680568

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

Electronically Signed and Sealed by Jose Theiler, PE, CVS on 08/10/2023 using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

JOSE THEILER
LICENSE
NO. 71566
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Jose Theiler
Date: 2023.08.10
07:24:24 -04'00'

Disclaimer

The information contained in this report is based on the professional opinions of the Value Engineering (VE) team members as developed during the study. These opinions are based on the information that was provided to the team at the time of the study. As the project continues to develop, recommendations and findings should be reevaluated as new information is received.

All costs displayed in the report are based on best available information at the time of the study and, unless otherwise noted, used the estimate as provided to the VE team. All drawings, graphics, maps, photos, etc., used in the report were supplied by the study sponsor or developed during the study.

The disposition of recommendations is based on the information in this report; it is independent of the resolutions generated after the study. HDR has no participation, direct or indirect, in such decisions.

For any recommendations that are accepted by the owner and design team as a result of this VE study, the responsibility for implementation into the design rests with the designer of record.

Study Statistics	
Baseline Cost:	$36,890,274
Number of Recommendations:	16
Total Number of Team Members:	10
FDOT Employees:	7
Others:	3
Facilitator Consultant:	HDR

Contents

Executive Summary v
Introduction v
Project Overview v
Scope of VE Study v
VE Recommendations vi
Implementation of Recommendations viii

1 Introduction 1-1
Scope of VE Study 1-1
VE Team Members 1-1

2 Information Phase 2-1
Information Provided to VE Team 2-1
Project History, Location and Purpose and Need 2-1
Proposed Improvements 2-2
Constraints and Controlling Decisions 2-3
Risk Identification 2-3
Site Visit Observations 2-3
Project Schedule 2-4
Project Cost Estimate 2-7

3 Project Analysis 3-1
VE Focus Points 3-1
Cost Model 3-1
Value Metrics 3-3
Performance Attributes 3-4
Performance Attribute Matrix 3-6

4 Function Analysis Phase 4-1
Overview 4-1
Function Analysis System Technique Diagram 4-2

5 Creativity Phase 5-1

6 Evaluation Phase 6-1
Evaluation Process 6-1
Evaluation Summary 6-2

7 Development Phase 7-1
Summary of Recommendations 7-1
FHWA Functional Benefit Criteria 7-2
Value Engineering Recommendation Approval 7-2
Individual Recommendations 7-3
VE Recommendation No. 1: Develop Alternative Drainage Solutions 7-5
VE Recommendation No. 2: Identify County & FDOT Property for Staging and Drainage Purposes 7-13

VE Recommendation No. 3: Modify Median Design 7-18
VE Recommendation No. 4: Use Preemption Technology 7-23
VE Recommendation No. 5: Modify Median Access 7-29
VE Recommendation No. 6: Modify SFWMD Canal Access 7-35
VE Recommendation No. 7: Remove Buffer along Bridge 7-41
VE Recommendation No. 8: Modify Pedestrian & Bicyclist Accommodations 7-47
VE Recommendation No. 9: Advance Safety Improvements at Critical Locations 7-51
VE Recommendation No. 10: Eliminate Trail Underpass 7-56
VE Recommendation No. 11: Implement TSMO Strategies 7-65
VE Recommendation No. 12: Reduce Limits of Projects along SW 127th,134th, SW 137th 7-71
VE Recommendation No. 13: Reduce Bridge Width 7-77
VE Recommendation No. 14: Install ITS Infrastructure Prior to Construction 7-83
VE Recommendation No. 15: Remove 196th Street Connector 7-89
VE Recommendation No. 16: Seek ROW Cost Reimbursement of County Encroachments to Private Owners 7-93

Performance Assessment 7-97
Performance Rating 7-97
Compare Value 7-101

Design Considerations 7-105

Design Validations 7-105
Design Validation No. 1: Reduce Number of Turn Lanes at SW 127th E-1
Design Validation No. 2: Modify Pavement Design E-5
Design Validation No. 3: Realign Roadway to Reduce ROW E-9

Tables

Table 1. Summary of Recommendations vi
Table 2. Information Provided to the VE Team 2-1
Table 3. Project Schedule 2-4
Table 4. Pareto Cost Analysis– Baseline Concept 3-1
Table 5. Performance Attributes and Description 3-4
Table 6. Random Function Identification 4-1
Table 7. Creative Idea List 5-1
Table 8. Idea Evaluation Summary Table 6-1
Table 9. Summary of Recommendations 7-1
Table 10. Performance Attribute Rating Scale 7-97
Table 11. Performance Matrix 7-98
Table 12. Value Index 7-102
Table 13. Design Considerations 7-105

Figures

Figure 1. Project Location 2-2
Figure 2. Cost Model 3-3
Figure 3. Performance Attribute Matrix 3-7
Figure 4. FAST Diagram 4-2
Figure 5. VE Process Information Flow 6-1

Appendices

Appendix A. Value Methodology Process

Appendix B. VE Recommendation Approval Form

Appendix C. VE Study Memo, Agenda, and Attendees

Appendix D. Project Estimate

Appendix E. Design Validations

Appendix F. Closing Presentation

Acronyms and Abbreviations

ATCS	adaptive traffic control system
CCTV	closed circuit television
CVS	Certified Value Specialist
CY	cubic yard
DMS	dynamic message sign
FAST	Function Analysis System Technique
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FPL	Florida Power & Light
FSB	Florida slab beam
IMR	Interchange Modification Report
ITS	Intelligent Traffic System
LDCA	Location and Design Concept Acceptance
LF	linear feet
LRE	long range estimate
MOT	maintenance of traffic
MSE	mechanically stabilized earth
MVDS	microwave vehicle detection sensor
PD&E	Project Development and Environment
SF	square feet
SIS	strategic intermodal system
SR	State Road
SY	square yard
TSM&O	Traffic System Management and Operation
UPS	uninterrupted power supply
VE	value engineering
VMA	Value Methodology Associate

Executive Summary

Introduction

This report summarizes the events and results of the VE study conducted by HDR Engineering, Inc. for The Florida Department of Transportation (FDOT) on the SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue project in Miami-Dade County, FL. The VE study consisted of an in person 5-day workshop conducted with a multidisciplinary team June 12-16, 2023 at FDOT's District 6 Headquarters in Miami, Florida and HDR's office in Doral, Florida. The team used Microsoft Teams as a platform to share content and collaborate throughout the workshop.

Project Overview

The purpose of this project is to address traffic operations, safety issues and capacity constraints on SR 994 from west of SW 137th Avenue to east of SW 127th Avenue in unincorporated Miami-Dade County to accommodate 2045 traffic. Other goals of the project are to improve multimodal safety conditions along the corridor, including emergency evacuation and response times, and to enhance mobility options and multimodal access.

Project improvements include widening SR 994 from a 2-lane urban minor collector to a 4-lane divided urban typical section, with 11-ft, 16.5-ft raised median with exclusive left turns throughout the corridor. The facility features one 10-ft shared use path in each direction with a 4.5-ft back of curb buffer. Three intersections will be signalized, two (SW 137th and SW 127th Avenues) will be upgraded and one new at SW 134th Ave. The bridge over Black Creek Canal will be replaced, raising the profile to accommodate a 10-ft shared use path (SUP) under the bridge and accommodate pedestrians and bicyclists along the Black Creek Trail.

At the time of the VE study, the total remaining cost of the project, including construction and right-of-way, was estimated at $36.89 million.

Scope of VE Study

The primary objectives of the study, through execution of the Value Methodology Job Plan (Appendix A), were to:

- Verify or improve on the various design concepts for the identified section of the SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue project.
- Conduct a thorough review and analysis of the key project functions using an independent, multidiscipline, cross-functional team.
- Improve the value of the project through innovative measures aimed at improving the performance while reducing costs of the project.

VE Recommendations

The VE team generated 51 ideas for the project. These concepts were compared against the baseline developed by the project team. The concepts that resulted in improved performance were further developed by the VE team and resulted in 16 recommendations (Table 1).

Table 1. Summary of Recommendations

#	Recommendation Title	Cost Savings/ (Cost Added) ($M)	Performance Improvement (%)
1	Develop Alternative Drainage Solution	$1.00	+6.2
2	Identify County & FDOT Property for Staging and Drainage Purposes	$0.00	0.0
3	Modify Median Design	$0.44	+4.8
4	Use Preemption Technology	($0.22)	+10.5
5	Modify Median Access	($0.04)	+10.5
6	Modify SFWMD Canal Access	($0.01)	+15.7
7	Remove Buffer along Bridge	$0.33	+1.2
8	Modify Pedestrian & Bicyclist Accommodations	$0.88	+1.9
9	Advance Safety Improvements at Critical Locations	($4.45)	+23.6
10	Eliminate Trail Underpass	$3.39	+21.6
11	Implement TSMO Strategies	($0.77)	+16.7
12	Reduce Limits of Projects along SW 127th, SW 134th & SW 137th	$0.52	0.0
13	Reduce Bridge Width	$0.71	+3.8
14	Install ITS Infrastructure Prior to Construction	($0.28)	+2.8
15	Remove 196th St Connector Improvements	$0.18	+8.3
16	Seek ROW Cost Reimbursement of County Encroachments to Private Owners	$0.33	0.0

The individual recommendations are summarized below; the detailed information about each recommendation is included in Section 7.

1— Develop Alternative Drainage Solution – The recommendation to develop alternative drainage solutions is to reduce the reliance on French drains and increase the pervious areas along the project limits.

2— Identify County & FDOT Property for Staging and Drainage Purposes – This recommendation identifies parcels that could be used to treat water.

3— Modify Median Design – The VE team recommends reducing the median width to meet AASHTO minimum widths.

4— Use Preemption Technology – The use of preemption technology improves emergency operations and reduces emergency response times. The use of backup generators and uninterrupted power supply units will offer uninterrupted emergency operations.

5— Modify Median Access – To improve safety, the VE team recommends using median directional triangular raised islands to channelize vehicular traffic and improve traffic flow.

6— Modify SFWMD Canal Access – The VE team recommends removing maintenance access for South Florida Water Management District (SFWMD) from the structure crossing Black Creek Cana to remove conflicts from travel lanes and to redirect maintenance crews to 130th and 132nd Avenues left turn bays,

7— Remove Buffer along Bridge – This recommendation is to reduce the structure width to fit within the current ROW footprint.

8— Modify Pedestrian & Bicyclist Accommodations – The VE team recommends using a shared use path (SUPP) on one side and a sidewalk on the opposite direction to reduce the footprint and ROW requirements.

9— Advance Safety Improvements at Critical Locations – The recommendation is to advance a separate project to immediately address safety issues at high-crash locations by adding turn lanes, extending WB merge lane west of SW 127th Ave, adding a traffic signal within existing footprint at SW 134th Ave. and using adaptive signal controls with Q-loops at SW 137th and SW 127th Ave.

10— Eliminate Trail Underpass – The VE team recommends removing the trail crossing under the structure at the Black Creek Canal and improve at grade traffic crossing.to reduce the bridge profile, reduce wall structures, and reduce neighboring homes intrusions.

11— Implement TSMO Strategies –. The VE team recommends using adaptive control system with Q-loops, dynamic message signs and video cameras to improve operations along the corridor and approaches at key locations.

12— Reduce Limits of Projects along SW 127th, SW 134th & SW 137th – The VE team recommends reducing project limits along SW 127th, SW 134th & SW 137th Avenues as prescribed by minimum taper standards.

13— Reduce Bridge Width – To reduce bridge width, the VE team recommends constructing two bridges and eliminating the median and buffers, while maintaining a straight alignment.

14— Install ITS Infrastructure Prior to Construction – Installing ITS infrastructure and components ahead of the project or during the first stage of construction will improve operations while reducing user delay costs during construction.

15— Remove 196th St Connector Improvements– This recommendation is to remove the proposed 196th Street improvements from the project as it is outside of the project limits.

16— Seek ROW Cost Reimbursement of County Encroachments to Private Owners – The intent of the recommendation is to seek County's funding participation to normalize the County's encroachment along SE edge of 134th Avenue.

Implementation of Recommendations

To facilitate implementation, a Value Engineering Recommendation Approval Form is included as Appendix B. If the state elects to reject or modify a recommendation, please include a brief explanation of the decision.

The VE team wishes to express its appreciation to the project design managers for the excellent support they provided during the study. We hope that the recommendations and design considerations provided will assist in the management decisions necessary to move the project forward through the project delivery process.

Sincerely,

Jose Theiler, PE, CVS®
Principal East Region
Project Risk Management and Value Engineering

1 Introduction

This VE report summarizes the events of the VE study conducted for The Florida Department of Transportation and facilitated by HDR. The subject of the study was SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue. The VE study was conducted in person on June 12-16, 2023 while the project was in the PD&E phase.

Scope of VE Study

Value is expressed as the relationship between functions and resources, where function is measured by the performance attributes defined by the customer, and resources are measured in materials, labor, price, and time required to accomplish that function. VE focuses on improving value by identifying the most resource-efficient way to reliably accomplish a function that meets the performance expectations of the customer.

The primary objectives of the study, through execution of the Value Methodology Job Plan (Appendix A), were to:

- Verify or improve on the various concepts for the identified section of the SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue.
- Conduct a thorough review and analysis of the key project functions using a multidiscipline, cross-functional team.
- Improve the value of the project through innovative measures aimed at improving the performance while reducing costs of the project.

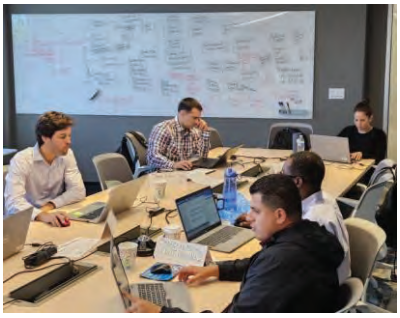
With this process, the VE team identified the essential project functions and alternative ways to achieve those functions; the team then selected the optimal recommendations to develop into workable solutions for value improvements.

VE Team Members

The VE study was facilitated by a Certified Value Specialist (CVS) from HDR. Multiple representatives and members of the FDOT project team also participated in the VE process to provide insight into the project's background and design development, as well as their requirements for the project and expectations for the VE study. Their support of this study is greatly appreciated, and the results provided herein reflect the information they provided throughout the study.

The VE team included the following. See Appendix C for details of attendees.

- Mark Alvarez (FDOT)
- Christopher Bacallao (FDOT)
- Alejandro Gomez (CTS)
- Claudia Gutierrez (FDOT)
- Christopher Johnson (HDR)
- Marceau Michel (FDOT)
- Carmen Negron (FDOT)
- Mario Perez (FDOT)
- Ryan Raghunandan (FDOT)
- Jose Theiler (HDR)



2 Information Phase

The VE team received the documentation and drawings from the project design team as shown in Table 2. The design team also introduced the project and its characteristics on the first day of the study. Project details and challenges as presented by the design team are summarized below.

Information Provided to VE Team

Table 2 lists the project documents provided to the VE team for use during the study.

Table 2. Information Provided to the VE Team

Document/Drawing/Schematic	Document Date
Draft Preliminary Engineering Report (PER)	02/24/2023
Drone Aerial Views Images	06/06/2023
Long Range Estimate (LRE) by Component	06/06/2023
LRE by Version	06/06/2023
Project Photos	06/06/2023
Quail Roost Design Files	60/14/2023
Quail Roost Schedule	04/05/2023
PSM Schedule	06/06/2023
Project Presentation for VE (FDOT)	06/12/2023
Roll Plot Alt 2	06/09/2023
Quail Roost PDE Build KMZ File	06/12/2023
HAWK Controller - Miami-Dade County Directive	06/12/2023
QR Alt 2 PER Plan-Profile at Bridge with Underpass	06/12/2023
Future Crash Analysis workbooks	03/08/2023
Traffic simulation Synchro files	03/08/2023

Project History, Location and Purpose and Need

The SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue project is in southwest unincorporated Miami-Dade County, primarily within the Miami Urbanized Area. It provides local east-west multimodal access and connects to two Strategic Intermodal System Highway Corridors. Within the project limits, SR 994 is classified primarily as an urban minor arterial composed of two-lane undivided roadway without designated bicycle accommodations and sidewalks are noncontinuous. The right-of-way width ranges from 30 to 100 feet.

The project's purpose and need is to address traffic operations and capacity constraints on SR 994, from west of SW 137th Avenue to east of SW 127th Avenue. It aims to meet the

anticipated increase in travel demand due to population and employment growth in the area. The project also seeks to enhance multimodal safety, including emergency response times, and provide improved mobility options and access to multimodal transportation.

Capacity/ Transportation demands:

The purpose of the proposed project is to meet the estimated travel demands in 2045. The county population is expected to grow by 33% by 2045 and employment growth is expected to grow from 1.4 million workers to 1.7 million workers.

Safety:

The project identified needs to address the deficiencies in LOS and crashes along the corridor. The following are locations that are proposed to be addressed.

- SR 994 at SW 137th Avenue
- SR 994 at SW 134th Avenue
- SR 994 at SW 132nd Avenue
- Segment- SR 994 from SW 137th Avenue to west of SW 127th Avenue

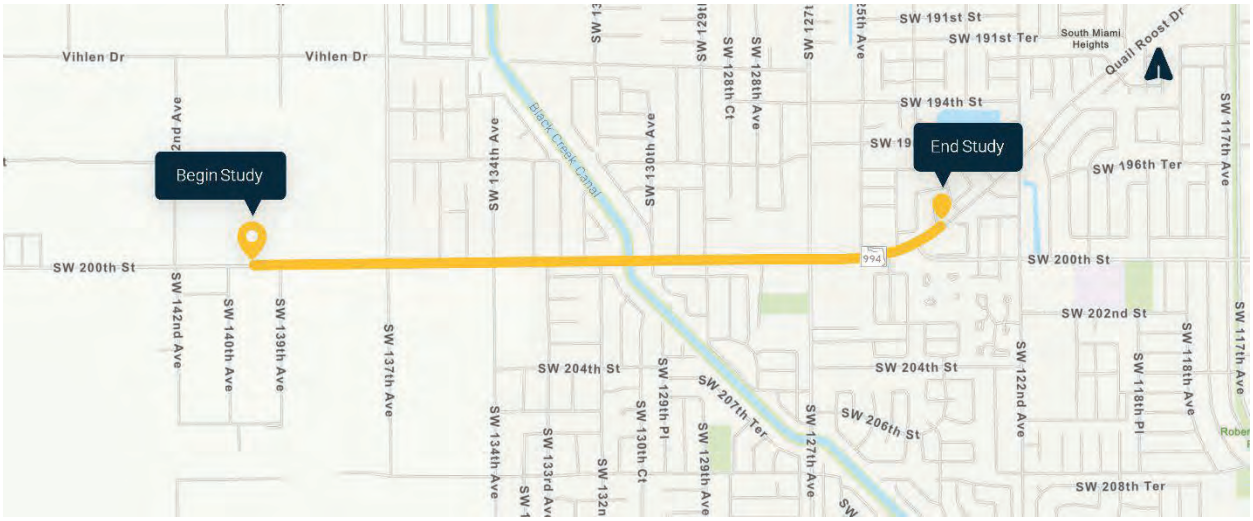
Multimodal:

There are no existing designated bicycle lanes within the project limits. The Black Creek Trail crosses SR 994 at Black Creek Canal and utilizes a flashing beacon for crossing pedestrians. Sidewalks along the facility are non-continuous and are generally located at residential subdivisions.

Evacuation Routes / Emergency Services:

SR 994 connects into two emergency evacuation routes that are a part of the Strategic Intermodal System (SIS). The eastern connection is at SR 994/Heft and the western connection is at SR 994/Krome. SR 997/Krome Avenue provides regional connectivity to US 1, which is a major evacuation route for the Florida Keys.

Figure 1. Project Location



Proposed Improvements

Alternative 2 proposes one additional travel lane in each direction, for two 11-ft lanes in each direction, and a 16.5-ft raised median with exclusive left turn lanes along SR 994. Curb and Gutter Type F is proposed on the outside of the travel lanes while Type E curb is the typical

condition on the median. This alternative also proposes a 10-ft Shared Use Path (SUP) along both sides of the corridor. A minimum 4.5-ft buffer is proposed from the back of curb to the front of the SUP. A 2-ft buffer is proposed behind the SUPs. A new traffic signal is proposed at the intersection of SR 994/Quail Roost Drive and SW 134th Avenue, while upgrading existing signals at SW 137th and SW 134th Avenues.

The existing concrete three-spans bridge will be replaced by a wider three-spans concrete bridge. The new bridge will accommodate five lanes of traffic. The new bridge will be 110'-9-in long, and 99'-8-in wide.

The proposed project's drainage systems have been designed to ensure no impact on the surrounding areas. The self-contained French drains will not overflow into adjacent water bodies. The systems meet local regulations for water quality and quantity. The system is designed to prevent any overflow onto private properties.

Constraints and Controlling Decisions

As part of the project briefing, the VE team received the following project constraints and controlling factors that needed to be considered when evaluating ideas:

- Avoid additional 4F impacts to the proposed design. Currently there is one 4F impact to half of a 14-ft wide linear park along SR 994 on the south side of the project.

Risk Identification

A risk analysis was not completed as part of this VE project; however, during the VE study, the team identified a few risks:

- The utility relocation is scheduled to complete by 11/13/2025. Florida Power and Light relocation is an ongoing concern due to past experience.
- This project grew in scope from the original safety project to address intersection congestion and accidents along the corridor. Additional scope creep is possible as the project continues to evolve to address issues in surrounding areas.
- There are a large number of parcels to acquire and limited resources available for appraisal, appraisal reviews, negotiation and condemnation procedures, including court dockets availability. While the schedule includes significant float, there is still a risk that letting may be delayed due to right-of-way delays.

Site Visit Observations

As part of the project overview, the VE team, project team, and stakeholders visited the project site. The following observations were made as a result of the site visit:

- The walls labeled as historic were in state of disrepair. Note: A follow-up conversation with the project team seemed to indicate that owners were not too concerned about the historic nature of the walls.
- Mid-day traffic congestion was apparent and that the current facility is highly utilized.

- There are large landscape trees used at various neighborhood entrances and that are within the FDOT ROW.
- The proposed SUP on both sides of the roadway appears optimistic in the current design. Utilizing one side for SUP could be an opportunity to reduce ROW acquisition totals.
- The buffer zone in the bridge seems unnecessary.
- The median maintenance cut/ crossover on the bridge creates a left turn from the eastbound mainlane and an unusual traffic movement creating additional turning conflicts along through lanes.
- The Black Creek Canal is accessible on all four corners of the bridge for SFWMD from structure.
- The intersection of SR994 and SW 130th Ave is missing N/S crossing for pedestrians.
- The Northbound SW 132nd Ave to WB SR 994 (Quail Roost Drive) turning movement does not have an acceleration lane.
- If needed, a construction detour will be 1+ miles using state-maintained roadways. It is not advised to use local County roadways for traffic detours.
- The intersections are designed to cater to county projects' needs.
- The proposed structure spans have different lengths, non-typical symmetry and will need to meet grade in 120-ft before intersections at SW 130th Avenue and SW 132nd Avenue Possible driveway access impacts along SW 130th Avenue due to bridge profile.
- The design team should validate driveway access opportunities and review permits for multi access parcels.
- There appears to be the possibility to include transit opportunities such as designated bus pick up and drop off locations.
- The bridge retaining walls containing the embankment on the adjacent properties are going to be significantly higher than in design examples.
- The use of median barriers or railings may be required to prevent pedestrian crossings.
- The pavement condition seems to be in fair condition and reusing the material may be an option during construction phase.

Project Schedule

The current schedule is shown in Table 3. It was assumed that the project will be constructed using the design bid build (DBB) delivery method. The project was in the PD&E phase with the DBB procurement anticipated to occur in early 2028 with construction starting in mid-2028.

Table 3. Project Schedule

Project Phase (Bolded Activities are Milestones)	Start	Finish
Value Engineering	6/12/2023	6/16/2023

Table 3. Project Schedule

Project Phase (Bolded Activities are Milestones)	Start	Finish
Design Consultant Advertise	12/4/2023	12/4/2023
Public Hearing	12/6/2023	12/6/2023
Consultant Longlisting	1/3/2024	1/3/2024
Consultant Shortlisting	1/8/2024	1/8/2024
PE Begin	1/9/2024	1/9/2024
Geotechnical Request	1/18/2024	1/18/2024
Final Selection	2/19/2024	2/19/2024
Location Design Concept Acceptance (LDCA) Approval	**4/5/2024**	**4/5/2024**
Public Notice	4/8/2024	4/8/2024
Pe Consultant Contract Encumbrance	4/10/2024	4/10/2024
Pe Consultant Contract Execution	4/30/2024	4/30/2024
Roadway Plans	5/13/2024	11/13/2025
Notice To Proceed	5/13/2024	5/13/2024
Utility Contact	6/11/2024	6/11/2024
Project Kick-Off Meeting Fy-24	6/11/2024	6/11/2024
Design Documents Submittal	7/24/2024	7/24/2024
Permit Involvement Form Submittal	8/14/2024	8/14/2024
60% Plans Submittal	8/22/2024	8/22/2024
Permitting Agencies Coordination Mtg	9/19/2024	9/19/2024
Cultural Resource Review	9/23/2024	6/20/2025
Contamination Review	9/23/2024	6/20/2025
Noise Review	9/23/2024	6/20/2025
60% Plans Review Meeting	9/23/2024	9/23/2024
Wetland / EFH Review	9/23/2024	6/20/2025
Section 4(F) Review	9/23/2024	6/20/2025
Species/ Habitat Review/ Survey	9/23/2024	6/20/2025
Determination Of Landscape Estimate	9/23/2024	9/23/2024
File Permits	9/24/2024	9/24/2024
ROW Coordination Mtg 60%	10/22/2024	10/22/2024
Determination Of Local Government Off System Project Agreement	10/22/2024	10/22/2024
ROW Requirements To ROW Eng	11/6/2024	11/6/2024

Table 3. Project Schedule

Project Phase (Bolded Activities are Milestones)	Start	Finish
MOA/Off System Agreement Coordination And Review By FDOT	11/21/2024	1/14/2025
Final ROW Map/Sketches & Legal To Row Admin.	1/9/2025	3/6/2025
Final MOA/Off-System Agreement Transmitted To Locals For Execution	1/15/2025	1/15/2025
90% Plans Submittal	1/23/2025	1/23/2025
90% Plans Review Meeting	2/21/2025	2/21/2025
ROW Coordination Mtg 90%	3/24/2025	3/24/2025
Documents To R/W Administration	4/4/2025	4/4/2025
Appraisals	4/16/2025	4/13/2026
MOA/Off-System Agreement Executed	5/13/2025	5/13/2025
100% Plans Submittal	5/20/2025	5/20/2025
Appraisals Review	6/12/2025	6/9/2026
USFWS/ NMFS Coordination	6/19/2025	8/14/2025
DHR Approval	6/19/2025	8/14/2025
100% Plans Review Meeting	6/19/2025	6/19/2025
Plans Completed	7/21/2025	7/21/2025
Relocation Work	8/8/2025	3/12/2027
Negotiations	10/6/2025	12/15/2026
Contamination Clear	10/15/2025	10/15/2025
All Utilities Clear	**11/13/2025**	**11/13/2025**
Railroad Clear	**11/13/2025**	**11/13/2025**
Construction Clear	11/13/2025	11/13/2025
Production Date	**11/13/2025**	**11/13/2025**
All Permits Clear	**11/13/2025**	**11/13/2025**
Environmental Clear	11/13/2025	11/13/2025
Landscape Estimate Due To Estimate Office	11/13/2025	11/13/2025
Condemnation	3/3/2026	3/12/2027
ROW Demo & Clear Work	4/28/2026	7/27/2027
Final ROW Order Of Taking	3/12/2027	3/12/2027
ROW Certified	**7/27/2027**	**7/27/2027**
Final Landscape Cost Estimate To DLA	1/14/2028	1/14/2028
DLA Concurrence On Landscape	1/24/2028	1/24/2028

Table 3. Project Schedule

Project Phase (Bolded Activities are Milestones)	Start	Finish
PS&E Review(s)	1/24/2028	2/21/2028
PS&E Submittal(s)	1/24/2028	1/24/2028
Transmit PS&E Package (District)	2/21/2028	2/21/2028
Advertise District Contract	**3/16/2028**	**3/16/2028**
Letting Date	**4/27/2028**	**4/27/2028**
CEI Consultant Contract Executed	7/25/2028	7/25/2028

Project Cost Estimate

At the time of the study, the VE team was provided with the most recent cost estimate. An abbreviated estimate is shown in table below. See Appendix D for a detailed estimate.

Cost Item	Cost
Estimated ROW	$ 8,438,713
Pavement	$ 5,994,644
Earthwork	$ 5,465,907
Drainage	$ 3,917,399
MOT	$ 2,422,156
Mobilization	$ 2,131,497
Clear & Grubbing	$ 2,096,256
Signalization	$ 1,333,031
Lighting	$ 1,211,046
Curb & Gutter	$ 1,138,957
Bridges	$ 470,901
Sidewalk	$ 378,920
Miscellaneous	$ 366,812
Estimated Relocation	$ 344,750
Concrete Block	$ 343,108
Signs	$ 236,014
Erosion Control	$ 190,827
Landscaping	$ 189,136
Retaining Walls	$ 63,728
Pavement Markings	$ 56,855

Cost Item	Cost
Fencing	$ 53,720
Barrier Wall	$ 43,440
Maintenance	$ 2,458

3 Project Analysis

VE Focus Points

Prior to the VE study and during the Information Phase, a number of activities were conducted to better understand the baseline concept. The following summarizes key focus points identified during these sessions and during the VE team's initial analysis.

- Identify alternatives to address safety issues along the SR 994 corridor.
- Review opportunities to improve capacity and implement improved traffic operations.
- Consider alternatives for the Black Creek Trail that crosses SR 994 near the Black Creek Canal.
- Evaluate opportunities to reduce ROW impacts.
- Noise walls and associated cost and ROW impacts.
- Evaluate alternative pedestrian/bicyclist accommodations and multimodal mobility opportunities.
- Review and analyze the intersection design around the Talbott Estate and MacDonnell Residence historic properties.

Cost Model

The VE facilitator prepared a cost model from the cost estimate provided by the project team. The model was organized to identify major construction elements or trade categories, the design team's estimated costs, and the percent of total project cost for the significant cost items (Table 4).

The cost model allows the team to focus on project elements with the highest degree of impact and utilize their time most effectively.

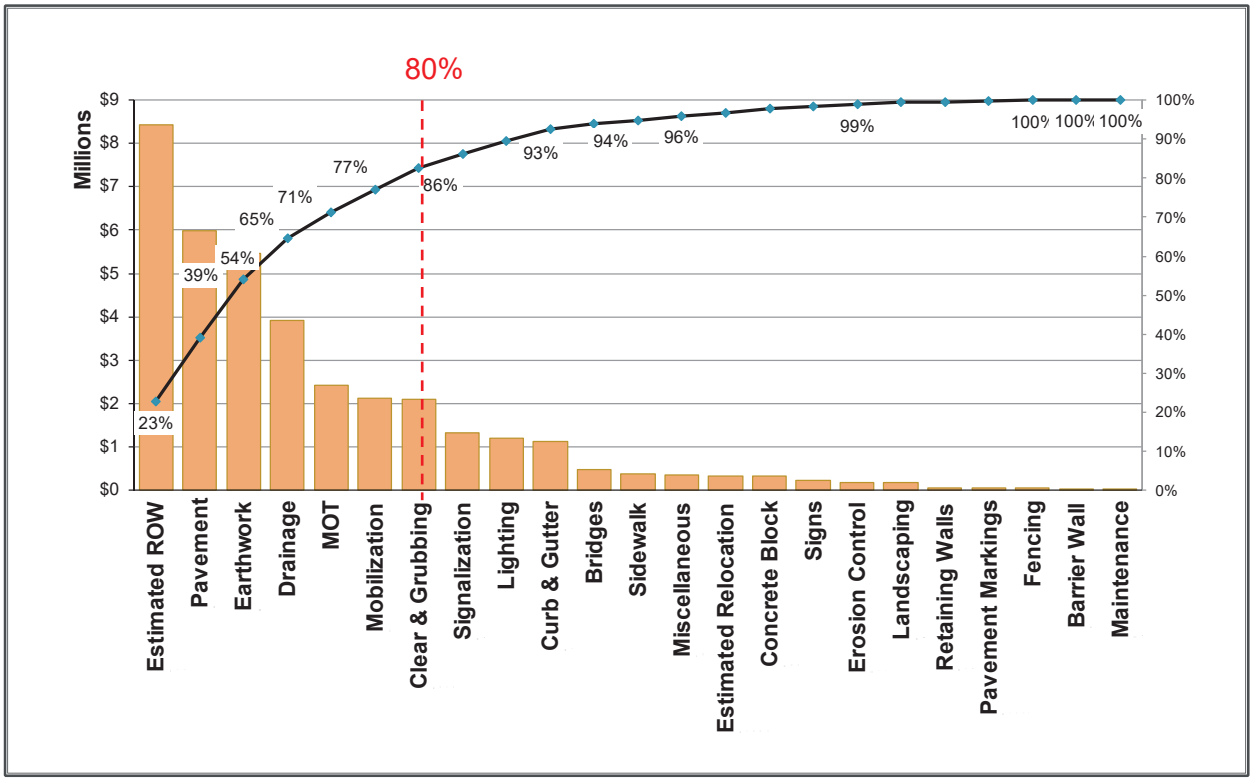
Table 4. Pareto Cost Analysis– Baseline Concept

Cost Item	Cost	Percent of Total	Cumulative Percentage
Estimated ROW	$8,438,713	22.9	23
Pavement	$5,994,644	16.2	39
Earthwork	$5,465,907	14.8	54
Drainage	$3,917,399	10.6	65
MOT	$2,422,156	6.6	71
Mobilization	$2,131,497	5.8	77
Clear & Grubbing	$2,096,256	5.7	83
Signalization	$1,333,031	3.6	86

Table 4. Pareto Cost Analysis– Baseline Concept

Cost Item	Cost	Percent of Total	Cumulative Percentage
Lighting	$1,211,046	3.3	89
Curb & Gutter	$1,138,957	3.1	93
Bridges	$470,901	1.3	94
Sidewalk	$378,920	1.0	95
Miscellaneous	$366,812	1.0	96
Estimated Relocation	$344,750	0.9	97
Concrete Block	$343,108	0.9	98
Signs	$236,014	0.6	98
Erosion Control	$190,827	0.5	99
Landscaping	$189,136	0.5	99
Retaining Walls	$63,728	0.2	100
Pavement Markings	$56,855	0.2	100
Fencing	$53,720	0.1	100
Barrier Wall	$43,440	0.1	100
Maintenance	$2,458	0.0	100
Total	**$36,888,277**		

Figure 2. Cost Model



Value Metrics

The value metrics process was used as an analysis tool to evaluate the baseline project and the VE recommendations. Value metrics is a system of techniques predicated on the theory that value is an expression of the relationship between the performance of a function and the cost of acquiring it. It provides a standardized means of identifying, defining, evaluating, and measuring performance. Performance is quantified in terms of how well a set of attributes contribute to the overall functional purpose of a given project.

The basic equation used for calculating value is:

$$Value = \frac{Performance}{Cost + Time}$$

In other words, value is equivalent to the relationship of the resources needed to provide a certain level of performance for a given function. Performance is defined as a set of requirements and attributes of a project's scope that are pertinent to the project's purpose and need. Participant responses are elicited for a series of paired comparisons in which the performance of alternatives are compared, with consideration of the project purpose and need, while taking into account the relative intensity of preference of one criterion over another. The following pages describe the steps in the value metrics process.

Performance Attributes

Performance attributes are an integral part of the value analysis process. The performance of each project must be properly defined and agreed on by the project team, VE team, and representatives at the beginning of the study. These attributes represent those aspects of a project's scope and schedule that possess a range of potential values.

Performance attributes can generally be divided between project scope components (highway operations, environmental impacts, maintainability, and system preservation) and project delivery components. It is important to make a distinction between performance *attributes* and performance *requirements*. Performance requirements are mandatory and binary in nature. All performance requirements must be met by any VE alternative concept being considered. Performance attributes possess a range of acceptable levels of performance. For example, if the project was the design and construction of a new bridge, a performance requirement might be that the bridge must meet all current seismic design criteria. In contrast, a performance attribute might be project schedule, which means that a wide range of alternatives could be acceptable that had different durations.

The VE team, along with the project team, identified and defined the performance attributes for this project and then defined the baseline concept as it pertains to these attributes. The performance attributes shown in Table 5 were used throughout the study to identify, evaluate, and document ideas and recommendations. The performance measures for each recommendation can be found in Section 7, Individual Recommendations.

Table 5. Performance Attributes and Description

Performance Attribute	Description of Attribute	Baseline Concept
Main Line Operations	An assessment of traffic operations and safety on the main line within the project limits. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	• Four 11-ft lanes • A 16.5-ft raised median with exclusive left turn lanes • Urban typical section • Landscaping area within the raised islands. • A 10-ft SUP along both sides • A 4.5-ft buffer from the back of curb • A 2-ft buffer behind the SUPs • Design speed: 45 MPH

Table 5. Performance Attributes and Description

Performance Attribute	Description of Attribute	Baseline Concept
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Local Operations include frontage roads as well as crossroads. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations and access.	• Traffic signal at SR 994 and SW 134th, SW137th Ave and 127th Ave • New sidewalk on missing segments • 5-ft outside paved shoulder along the study limits • Black Creek trail underpass to accommodate pedestrians and bicyclists across SR 994
Maintainability	An assessment of the long-term maintainability of the facilities and equipment. Maintenance considerations include the overall durability, longevity, and maintainability of structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	• 10-ft SUP underpass • 8-ft clearance under structure • Concrete Flat slab bridge superstructure • Asphalt SUPs • 4-way access to SFWMD maintenance crews
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to existing utilities; impacts to businesses and residents relative to access, visual effects, noise, vibration, dust, and construction traffic; environmental impacts.	• Bridge phased approach • No closures, maintains traffic throughout • Pavement nighttime pavement operations, others not likely

Table 5. Performance Attributes and Description

Performance Attribute	Description of Attribute	Baseline Concept
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts; impacts to shore edge; impacts to cultural, recreational, and historic resources.	• No wildlife impacts • No wetland impacts • 4f Impacts to 14-ft linear park • Historic property impacts (walls)
Project Schedule	An assessment of the total project delivery from the time as measured from the time of the VE Study to completion of construction.	• LDCA 4/5/2024 • ROW Clear 7/27/2027 • Utilities cleared 11/13/2025 • Production 11/13/2025 • Let 04/27/28

Performance Attribute Matrix

The performance attribute matrix was used to determine the relative importance of the performance attributes for the project. The project and VE team evaluated the relative importance of the performance attributes that would be used to evaluate the creative ideas.

These attributes were compared in pairs Figure 3, asking the question: “Which one is more important to the purpose and need of the project?” (e.g., A or B, A or C, A or D, etc.) The letter code (e.g., “A”) was entered into the matrix for each pair. After all pairs were discussed, they were tallied (after normalizing the scores by adding a point to each attribute) and the percentages calculated. These scores were then used to calculate the value of each recommendation during the VE team’s performance evaluation scoring (Section 6).

Figure 3. Performance Attribute Matrix

Performance Attributes Criteria Matrix								
Paired Comparison								
							Total points	% of Total
Main Line Operations	A	A	A	A	A	A/F	5.5	26%
Local Operations		B	B	B	B	B/F	4.5	21%
Maintainability			C	C	E	C/F	2.5	12%
Construction Impacts				D	E	D/F	1.5	7%
Environmental Impacts					E	E	4.0	19%
Project Schedule						F	3.0	14%
						Total	21.0	100%

4 Function Analysis Phase

Overview

Function analysis results in a unique view of the project. It transforms project elements into functions, which help guide the VE team in considering the functional concepts of the project–independent of the current design. Functions are defined in verb-noun statements to reduce the needs of the project to their most elemental level (Table 6). Identifying the functions of the major design elements of the project allows a broader consideration of alternative ways to accomplish the functions.

Table 6. Random Function Identification

Project Element	Functions
Project Objective	Accommodate Future Traffic Improve Operations Add Capacity Reduce Conflicts Accommodate Pedestrians/Bicyclists Add Lanes Manage Access Minimize ROW Meet Standards Accommodate (2045) Traffic Introduce Traffic Improve Connectivity Reduce (Response) Times
One-Time Functions	Phase Construction Mobilize Resources Sequence Work Secure Resources
All The Time Functions	Reduce Risk Reduce Uncertainty Remove Utility Conflicts Protect Workers Protec Drivers Create (Work) Zone Direct Traffic
ROW	Create Space Create (Emergency) Space
Pavement	Support Loads Remove Runoff
Bridges	Span Distance Support Loads
Pedestrian	Separate Modes Inform Users Remove Water Introduce Traffic Improve Connectivity

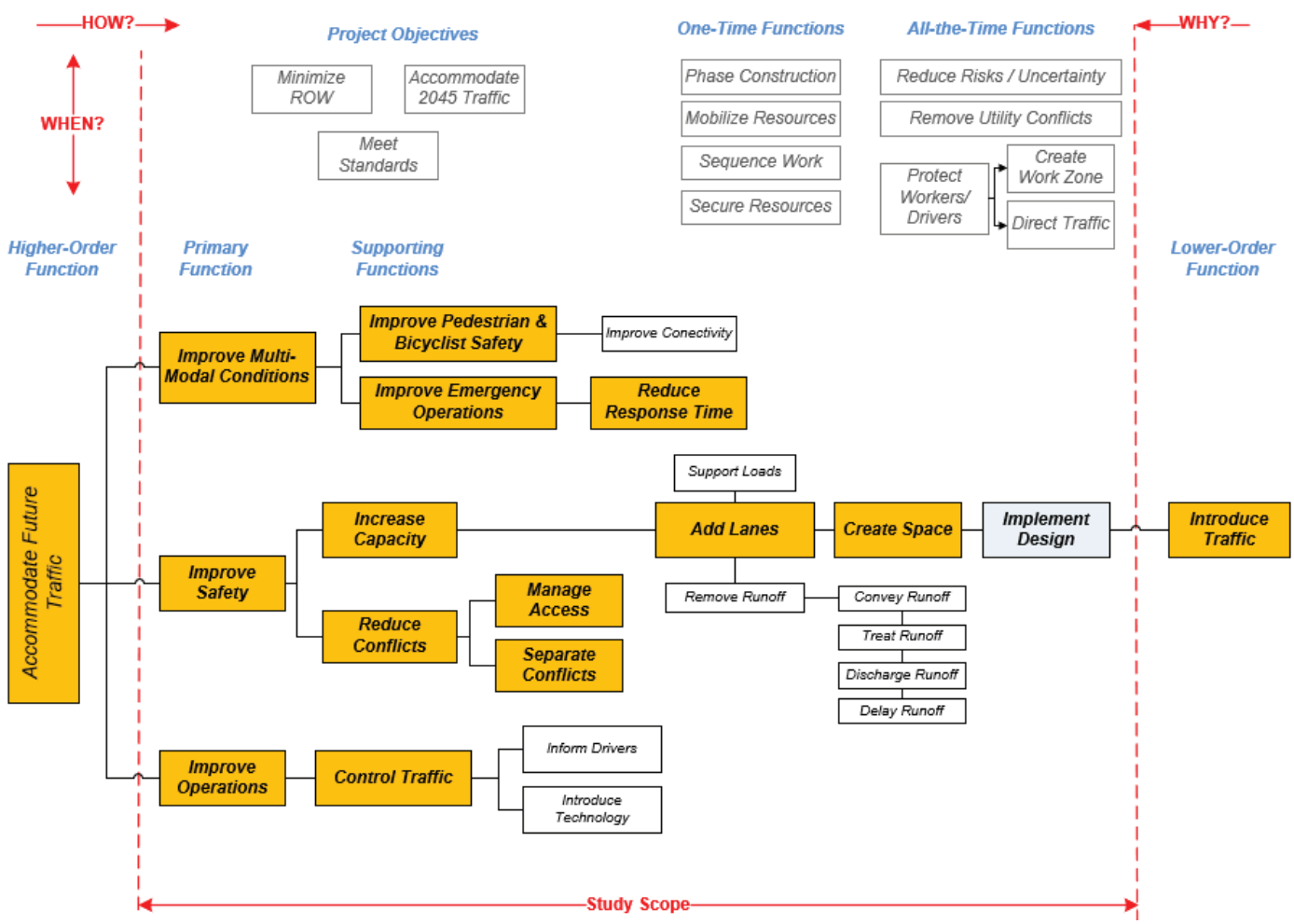
Table 6. Random Function Identification

Project Element	Functions
Traffic Control	Separate Traffic Separate Modes Maintain Traffic Monitor Traffic Direct Traffic Inform Drives

Function Analysis System Technique Diagram

The Function Analysis System Technique or "FAST" diagram arranges the functions in logical order so that when read from left to right, the functions answer the question "How?" If the diagram is read from right to left, the functions answer the question "Why?" Functions connected with a vertical line are those that happen at the same time as, or are caused by, the function at the top of the column. The FAST diagram (Figure 4) provided the VE team with an understanding of which functions offer the best opportunity for cost or performance improvement.

Figure 4. FAST Diagram



5 Creativity Phase

During the Creativity Phase, the VE team generated ideas on how to perform the various functions. The idea list was grouped by function or major project element. All the ideas generated are recorded in Table 7. The final disposition of each idea is included at the end of Section 6.

Table 7. Creative Idea List

Idea No.	Description
Function: Accommodate (Future) Traffic	
29	Reduce the limits of the project along crossing roads, transfer the scope to county project
Function: Accommodate Pedestrians/Bicyclists	
2	Eliminate trail under the bridge and use a signal
3	Use a HAWK (High-Intensity Activated crossWalK)
21	Use pedestrian crossing over structure
37	Use bike buffer lane, sharrows
Function: Add Capacity	
18	Extend the limits of the project to Chrome Ave.
50	No build -196th Street extension
Function: Attenuate Noise	
45	Re-run the noise wall benefit cost analysis to include updated prices
46	Build noise walls first to accommodate longer daily work durations
47	Landscape to abate noise
Function: Create Space	
10	Remove left turn lane from structure
12	Increase one SUP to 12-ft and convert other SUP to sidewalk (eliminate 4-ft buffer for sidewalk/ move sidewalk adjacent to roadway)
16	Revisit the number of lanes at SW127th Ave
20	Identify County and DOT property that could be used for drainage and staging areas
30	Reduce lane width to 10'
31	Reduce median width
32	Use sidewalks on each side of the road and incorporate a bike lane
33	Eliminate landscaping
34	Reduce bridge width and use median barriers in lieu of 16-ft median and buffers
35	Reduce SUP width on bridge to 8-ft each

Table 7. Creative Idea List

Idea No.	Description
36	Use traffic separators throughout the project
48	Align ROW to avoid critical ROW (Snake alignment)
51	Seek reimbursement from County to cover for County Road encroachment along 134th Ct. east side, south of Quail Roost
Function: Implement Design	
38	SPEC - Recycle bridge materials for riprap
39	Reuse asphalt for shoulder areas and other projects
Function: Improve (Emergency) Operations	
4	Use preemption technology for emergency operation vehicles
5	Install backup generators / UPS for emergency operations (signal operations)
Function: Improve (Traffic) Operations	
27	Implement ITS/ TSMO technology strategies
Function: Improve Safety	
6	Install solar apparatus on signals - (beacons, pedestrian signals, signal heads)
8	Right out only at SW 132nd Ave
17	Implement a series of safety improvements at critical locations aligning with future improvements to minimizes throwaway
22	Implement median control access strategies (reduce left outs from side streets)
49	Add continuous lighting through the corridor ((LED) cobra-head luminaires mounted on conventional aluminum light poles)
Function: Minimize ROW	
1	Realign the road to impact one side or the other, not both
9	Remove 5'2" buffer from each side of structure
Function: Mitigate Risk	
43	Advance utility relocation activities
Function: Protect Workers/Users	
44	Install ITS infrastructure prior to construction
Function: Reduce Conflicts	
7	Eliminate the left turn on structure for maintenance access (SFWMD)
28	Use a 1x1 roundabout at SW 134th Ave (interim design)
Function: Reduce Schedule	
40	Use ABC method (slide in bridge)
41	Use incentives / disincentives for early construction

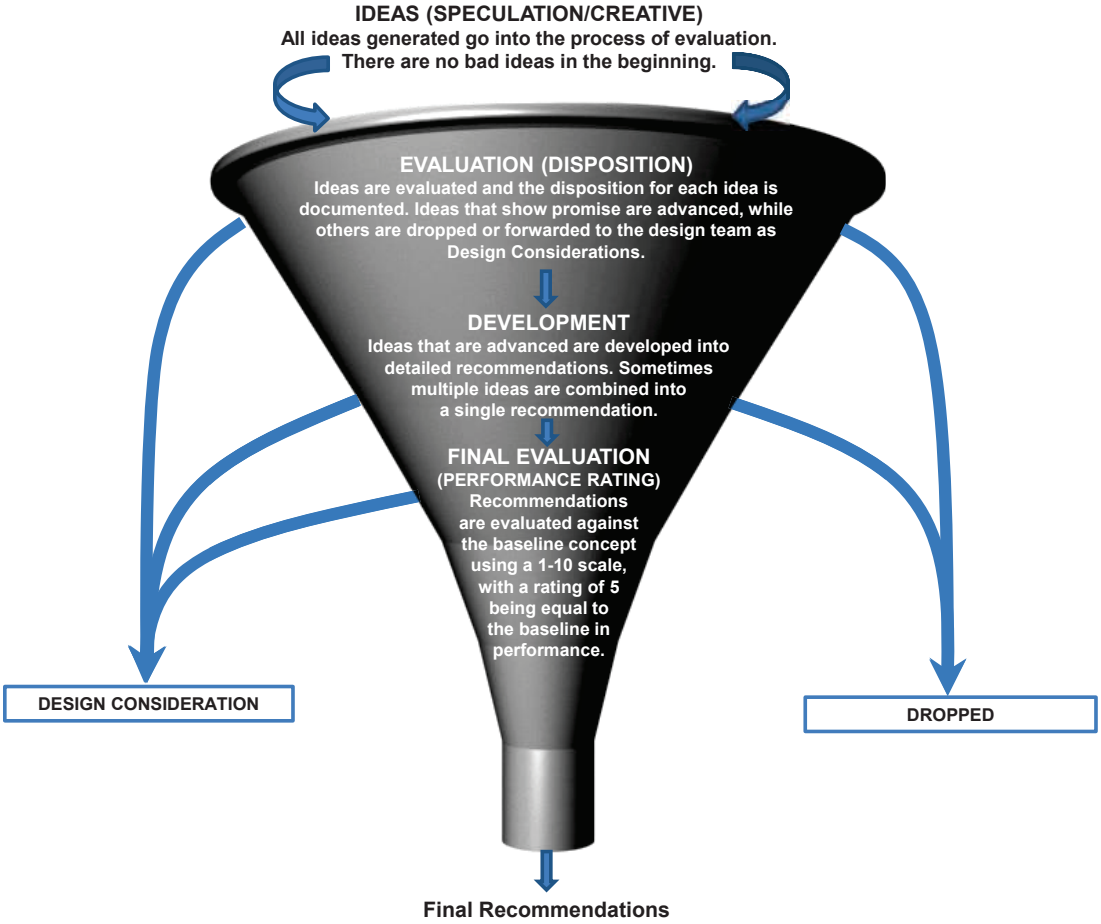
Table 7. Creative Idea List

Idea No.	Description
42	Adjust design schedule to accelerate allowable ROW activities before 60% design milestone and reduce duration from 36 months to 24 months
Function: Remove Water	
15	Convert striped median areas to grassy medians
Function: Span Distance	
11	Widen structure in lieu of replacement
26	Modify the bridge pier configuration to one/ two span(s)
Function: Support Loads	
23	Use concrete pavement
24	Evaluate alternative pavement design
25	Reuse existing pavement in final configuration in lieu of full reconstruction
Function: Treat Water	
13	Use swales instead of French drain where possible
14	Use grassy median areas for water treatment
19	Identify ponds for shared use runoff treatment

6 Evaluation Phase

Although each project is different, the evaluation process for each VE effort can be thought of in its simplest form as a way of combining, evaluating, and narrowing ideas until the VE team agrees on the recommendations to be forwarded. Figure 5 depicts the typical information flow for this part of the Value Methodology Job Plan.

Figure 5. VE Process Information Flow



Evaluation Process

The evaluation process begins by going through the ideas brainstormed during the Creativity Phase. Considering the information provided to the VE team at the time of the study and the constraints and controlling decisions that were also given to them, the team discussed the ideas and documented their advantages and disadvantages based on their relationship to the baseline concept.

The VE team also compared each idea with its baseline concept to determine whether the performance of the attribute (as introduced in Section Performance Attributes) was better than, equal to, or worse than the baseline concept.

Each idea was then carefully evaluated, with the VE team reaching consensus on the overall ranking of the idea (ranking values 0 through 3, as defined below).

3 = Advance for further development

2 = Design consideration; include as a comment or consideration for design team

1 = Poor Opportunity/dropped from further development

0 = Unacceptable impact/fatal flaw

This ranking resulted in the initial disposition of the idea. Those ideas ranked as a 3 were developed further; low-ranking ideas (those ranked 0 or 1) were dropped from further consideration; and those that were ranked 2 were brought forward as ideas the design team should pursue.

Evaluation Summary

All of the ideas that were generated during the Creativity Phase using brainstorming techniques are detailed in Table 8.

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
Function: Accommodate (Future) Traffic					
29	Reduce the limits of the project along crossing roads, transfer the scope to county project	• Reduce costs • Reduce construction duration • Transfers some ROW to county for acquisition	• May not operate as desired	*3*	*Move forward to Development*
Function: Accommodate Pedestrians/Bicyclist					
2	Eliminate trail under the bridge and use a signal	• Reduces structure footprint • Keep structure elevation lower • Decreases construction duration • Simplifies structures design • Reduces costs • Reduce schedule duration	• Creates potential conflict	*3*	*Combine 2,3* *Move forward to Development*
3	Use a HAWK (High-Intensity Activated crossWalK)	• Stops traffic for pedestrians	• Increase scope • Increase maintenance costs	*3*	*Combine 2,3* *Move forward to Development*
21	Use pedestrian crossing over structure	• Reduce costs • Reduces construction duration	• Increased costs • Privacy issues • Increased ROW • Traffic count doesn't justify cost	*1*	
37	Use bike buffer lane, sharrows	• Not feasible	• Not feasible	*1*	
Function: Add Capacity					
18	Extend the limits of the project to Chrome Ave.	• Outside of the scope	• Outside of the scope	*1*	

Ranking Scale:
3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
50	No build -196th Street extension	• Reduce cost • Reduce construction duration	• Non discussed	*0*	
Function: Attenuate noise					
45	Re-run the noise wall benefit cost analysis to include updated prices	• Accurate benefit cost ratio • May eliminate need of noise walls	• May have public outcry	*2*	
46	Build noise walls first to accommodate longer daily work durations	• Shelters construction noise from adjacent properties • Extend work hours	• Reduces work space • May conflict with utility locations	*1*	
47	Landscape to abate noise	• Landscape does not abate noise	• Landscape does not abate noise	*1*	
Function: Create Space					
10	Remove left turn lane from structure	• Reduces width of bridge • May reduce costs • May reduce ROW needs	• Does not align with safety study results • Reduce bay length capacity	*2*	
12	Increase one SUP to 12-ft and convert other SUP to sidewalk (eliminate 4-ft buffer for sidewalk/ move sidewalk adjacent to roadway)	• May reduces ROW footprint • Increased width of SUP • Reduce 6-ft from typical section • May reduce construction costs	• Not accommodating bicyclist on one side of the roadway • Increase conflict	*3*	*Combine 12, 32 Move forward to Development*
16	Revisit the number of lanes at SW127th Ave	• May reduce conflict at SB SW127th lane (Merge)	• Reducing amount of cars during phase • May affect through traffic due to lack of storage	*3*	*Move forward to Development*

Ranking Scale: 3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
20	Identify County and DOT property that could be used for drainage and staging areas	• Able to stage closer to site • May reduce ROW • Enhanced project coordination • Natural stormwater management	• None discussed	*3*	*Combine 19,20 Move forward to Development*
30	Reduce lane width to 10'	• Not feasible	• Requires design variations	*1*	
31	Reduce median width	• Reduces typical section size • Reduce ROW footprint	• Reduce treatment area • Reduce landscaping	*3*	*Combine 31,36 Move forward to Development*
32	Use sidewalks on each side of the road and incorporate a bike lane	• Reduce typical section • May reduce ROW • May reduce asphalt costs	• Reduce separation between traffic • May impact drainage design • May increase concrete costs	*3*	*Combine 12, 32 Move forward to Development*
33	Eliminate landscaping	• Reduce costs • Reduce ROW	• Reduce aesthetics • Public push back	*1*	
34	Reduce bridge width and use median barriers in lieu of 16-ft median and buffers	• Reduce ROW • Reduce bridge costs • Reduce impervious	• Introduce horizontal curve • Reduce construction options	*3*	
35	Reduce SUP width on bridge to 8-ft each	• Reduce ROW • Reduce bridge costs • Reduce impervious	• Introduce horizontal curve • Reduce construction options • Inconsistent typical section	*1*	

Ranking Scale:
3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
36	Use traffic separators throughout the project	• Reduces typical section size • Reduce ROW footprint	• Reduce treatment area • Reduce landscaping	*3*	*Combine 31,36* *Move forward to Development*
48	Align ROW to avoid critical ROW (Snake alignment)	• May reduce ROW costs • May calm traffic	• Introduce horizontal curves • Reduces the opportunity to use existing pavement	*3*	*Combine 1,48* *Move forward to Development*
51	Seek reimbursement from County to cover for County Road encroachment along 134th Ct. east side, south of Quail Roost	• Reduces cost of ROW • Normalizes Property encroachment • Allocates cost to County	• Requires funds transfer • Requires LFA	*0*	
Function: Implement Design					
38	SPEC - Recycle bridge materials for riprap	• May reduce costs of rip rap	• Contractor choice • Current practice on most projects	*2*	
39	Reuse asphalt for shoulder areas and other projects	• May reduce costs of rip rap	• Contractor choice • Current practice on most projects	*2*	
Function: Improve (Emergency) oOperations					
4	Use preemption technology for emergency operation vehicles	• Improves emergency response times • Improves evacuation times • Improves agency coordination	• Increased coordination • Increase costs	*3*	*Combine 4,5* *Move forward to Development*
5	Install backup generators / UPS for emergency operations (signal operations)	• Continuous operations • Potentially reduces conflicts • Reduces to dependency on emergency personnel	• Increased construction cost • Increase noise	*3*	*Combine 4,5* *Move forward to Development*

Ranking Scale: 3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
Function: Improve (Traffic) Operations					
27	Implement ITS/ TSMO technology strategies	• Improves operations • Improves emergency response • More efficient signal timing • Able to monitor and control traffic •	• Cost increase • Maintenance cost	*3*	*Move forward to Development*
Function: Improve Safety					
6	Install solar apparatus on signals - (beacons, pedestrian signals, signal heads)	• Doesn't rely on secondary energy source	• Limitations on materials by county • Requires ample supply if sunlight	*2*	
8	Right out only at SW 132nd Ave	• Reduce conflicts	• Increase travel times • Reduces access • Decrease storage	*3*	*Combine 8,22* *Move forward to Development*
17	Implement a series of safety improvements at critical locations aligning with future improvements to minimizes throwaway	• Reduces conflicts • Address safety concerns earlier in project delivery	• Increase rework	*3*	*Move forward to Development*
22	Implement median control access strategies (reduce left outs from side streets)	• Reduce conflicts	• Increase travel times • Reduces access • Decrease storage	*3*	*Combine 8,22* *Move forward to Development*
49	Add continuous lighting through the corridor ((LED) cobra-head luminaires mounted on conventional aluminum light poles)	• Increase visibility • May reduce nighttime conflicts	• Baseline	*2*	*Design team to include lighting design plans (not currently in drawings but included in cost estimate)*

Ranking Scale:
3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
Function: Minimize ROW					
1	Realign the road to impact one side or the other, not both	• Reduce number of parcels • Reduce cost • Reduce schedule duration • Reduces utility impact • Improves MOT	• Increase the impact to ROW parcels acquired •	*3*	*Combine 1,48* *Move forward to Development*
9	Remove 5'2" buffer from each side of structure	• Reduce width of bridge • May reduce costs • May reduce ROW need	• Requires design variation • Typical section continuity • Reduces distance between pedestrian and vehicles	*3*	*Move forward to Development*
Function: Mitigate Risk					
43	Advance utility relocation activities	• Identifies risks earlier in the project	• Common practice	*1*	
Function: Protect Workers/Users					
44	Install ITS infrastructure prior to construction	• Improves MOT during construction • Improves emergency response during construction	• Some rework may be necessary	*3*	*Move forward to Development*
Function: Reduce Conflicts					
7	Eliminate the left turn on structure for maintenance access (SFWMD)	• Reduces conflict • Reduces driver confusion • Reduce structure width • Reduce costs • Prevents illegal U-turn	• Reduce access	*3*	*Move forward to Development*

Ranking Scale: 3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
28	Use a 1x1 roundabout at SW 134th Ave (interim design)	• Reduce conflict points • Calms traffic • May reduce costs • Allows for landscaping	• Addition ROW required • Rework costs	*1*	
Function: Reduce Schedule					
40	Use ABC method (slide in bridge)	• Reduce construction duration • Improves MOT	• May increase cost • Requires specialized equipment • Requires specialized contractor	*3*	*Move forward to Development*
41	Use incentives / disincentives for early construction	• Reduces construction duration	• May increase costs • May not align with project goals	*2*	
42	Adjust design schedule to accelerate allowable ROW activities before 60% design milestone and reduce duration from 36 months to 24 months	• Reduce overall schedule duration	• May require additional ROW resources • Construction funding may not be available • Introduces risk for changes to ROW	*2*	*Due to known limitations on resources and construction funding availability, the VE team asks the design team to further investigate and develop a compressed project schedule*
Function: Remove Water					
15	Convert striped median areas to grassy medians	• May reduce costs	• None discussed	*3*	*Combine 13,14,15 Move forward to Development*
Function: Span Distance					
11	Widen structure in lieu of replacement	• Reduce costs • Reduces construction duration	• Does not meet minimum clearance • Reduce life of the bridge	*1*	

Ranking Scale:
3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

Table 8. Idea Evaluation Summary Table

Idea #	Description	Advantages	Disadvantages	Rating	Comments
26	Modify the bridge pier configuration to one/ two span(s)	• Reduce construction duration • Simplifies construction • Less evasive to canal	• Visual obstruction (I-Beam) • Tie in may increase in length • Complex design	*3*	*Move forward to Development*
Function: Support Loads					
23	Use concrete pavement	• Less maintenance • Improve service life • May help district meet concrete commitments	• Increase capital costs	*1*	
24	Evaluate alternative pavement design	• May reduce costs • May improve friction • May improve durability • May reduce maintenance costs	• None discussed	*3*	*Combine 24,25* *Move forward to Development*
25	Reuse existing pavement in final configuration in lieu of full reconstruction	• May reduce costs	• None discussed	*3*	*Combine 24,25* *Move forward to Development*
Function: Treat Water					
13	Use swales instead of French drain where possible	• May reduce costs • Improves maintenance • Easier to construct • Improves resiliency	• May require additional space	*3*	*Combine 13,14,15* *Move forward to Development*
14	Use grassy median areas for water treatment	• May reduce costs	• None discussed	*3*	*Combine 13,14,15* *Move forward to Development*
19	Identify ponds for shared use runoff treatment	• Reduce need for French drain • May reduce costs	• None discussed	*3*	*Combine 19,20* *Move forward to Development*

Ranking Scale:
3 = Advance for further development
2 = Design consideration; include as a comment or consideration for design team
1 = Dropped from further development

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from further development

7 Development Phase

This phase of the Value Methodology Job Plan takes the ideas that ranked the highest in the Evaluation Phase and further develops them into full VE recommendations. In many cases, it is possible that one or more ideas were combined to form an overall recommendation, which was then evaluated further by the VE team.

In the case of this project, of the 51 ideas that were generated during the Creativity Phase, 31 of those ideas were evaluated high enough to be taken forward, combined, and developed further. Some of the ideas were deemed more appropriate as a design consideration for the project team, rather than developed into a VE recommendation (Section 7). For the Development Phase, narratives, drawings, calculations, and cost estimates were prepared for each recommendation.

The VE recommendation documents in this section are presented as written by the team during the VE study. While they have been edited from the draft VE report to correct errors or better clarify the recommendation, they represent the VE team's findings during the VE study.

Each recommendation consists of a summary of the baseline concept, a description of the suggested change, a listing of its advantages and disadvantages, discussion of schedule and risk impacts (if applicable), a cost comparison, change in performance, and a brief narrative comparing the baseline design with the recommendation. Sketches, calculations, and performance measure ratings are also presented. The cost comparisons reflect a comparable level of detail as in the baseline estimate.

Summary of Recommendations

The recommendations developed by the VE team are shown in Table 9. The table summarizes each recommendation's cost impact and performance improvement.

Table 9. Summary of Recommendations

#	Recommendation Title	Cost Savings/ (Cost Added) ($M)	Performance Improvement (%)
1	Develop Alternative Drainage Solution	$1.00	+6.2
2	Identify County & FDOT Property for Staging and Drainage Purposes	$0.00	0.0
3	Modify Median Design	$0.44	+4.8
4	Use Preemption Technology	($0.22)	+10.5
5	Modify Median Access	($0.04)	+10.5
6	Modify SFWMD Canal Access	($0.01)	+15.7
7	Remove Buffer along Bridge	$0.33	+1.2
8	Modify Pedestrian & Bicyclist Accommodations	$0.88	+1.9

Table 9. Summary of Recommendations

#	Recommendation Title	Cost Savings/ (Cost Added) ($M)	Performance Improvement (%)
9	Advance Safety Improvements at Critical Locations	($4.45)	+23.6
10	Eliminate Trail Underpass	$3.39	+21.6
11	Implement TSMO Strategies	($0.77)	+16.7
12	Reduce Limits of Projects along SW 127th, SW 134th & SW 137th	$0.52	0.0
13	Reduce Bridge Width	$0.71	+3.8
14	Install ITS Infrastructure Prior to Construction	($0.28)	+2.8
15	Remove 196th St Connector Improvements	$0.18	+8.3
16	Seek ROW Cost Reimbursement of County Encroachments to Private Owners	$0.33	0.0

FHWA Functional Benefit Criteria

Each year, state departments of transportation are required to report on VE recommendations to the Federal Highway Administration (FHWA). In addition to cost implications, FHWA requires state departments of transportation to evaluate each approved recommendation in terms of the project features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in each category that is applicable. These same criteria can be found on each of the individual recommendations that follow.

- **Safety:** Recommendations that mitigate or reduce hazards on the facility.
- **Operations:** Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility.
- **Environment:** Recommendations that successfully avoid or mitigate impacts to natural and or cultural resources.
- **Construction:** Recommendations that improve work zone conditions or expedite the project delivery.
- **Right-of-way:** Recommendations that lower the impacts or costs of right-of-way.

Value Engineering Recommendation Approval

The resolution or disposition of recommendations is based on the information in this report and is independent of the proceeding of the VE study. HDR has no participation, direct or indirect, in such decisions. The VE Recommendation Approval Form shown in Appendix B is intended to aid the project manager in tracking and informing the state Value Engineer in

annual reporting of VE activities to FHWA. Resolution and disposition of recommendations contained in Appendix B are pending.

Individual Recommendations

Based on the evaluation process, individual recommendations were developed. Each recommendation consists of a summary of the baseline concept, a description of the recommendation, a listing of its advantages and disadvantages, and a brief narrative that includes justification, sketches, photos, assumptions, and calculations as developed by the VE team. Final recommendations can be found beginning on page 7-5. The markup used during this VE study of 31% includes 10% MOT, 8.8% Mobilization and 11.9% for Project Unknows.

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15

Baseline Concept

The baseline concept consists of widening SR 994/ Quail Roost Drive from 2 lanes to 4 lanes and proposes to use French drain for water quality and attenuation.

Recommendation Concept

Convert paved medians to grassy medians and maximize use of grassy areas for water treatment.

Advantages	Disadvantages
• Provides efficient treatment • May provide effective infiltration process • Cost efficiency • Better erosion control • Enhance landscape • Reduces impervious area • Natural drainage solution	• Increases maintenance • Seasonal drainage limitation due heavy rain (potential high-water table)

Cost Summary	Construction	Right-of-Way	Total
Baseline Concept	$2,534,194	$192,425	$2,726,619
Recommendation Concept	$1,725,516	$-	$1,725,516
Cost Avoidance/ (Added Value)	$808,677	$192,425	$1,001,102

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
		✓	✓	

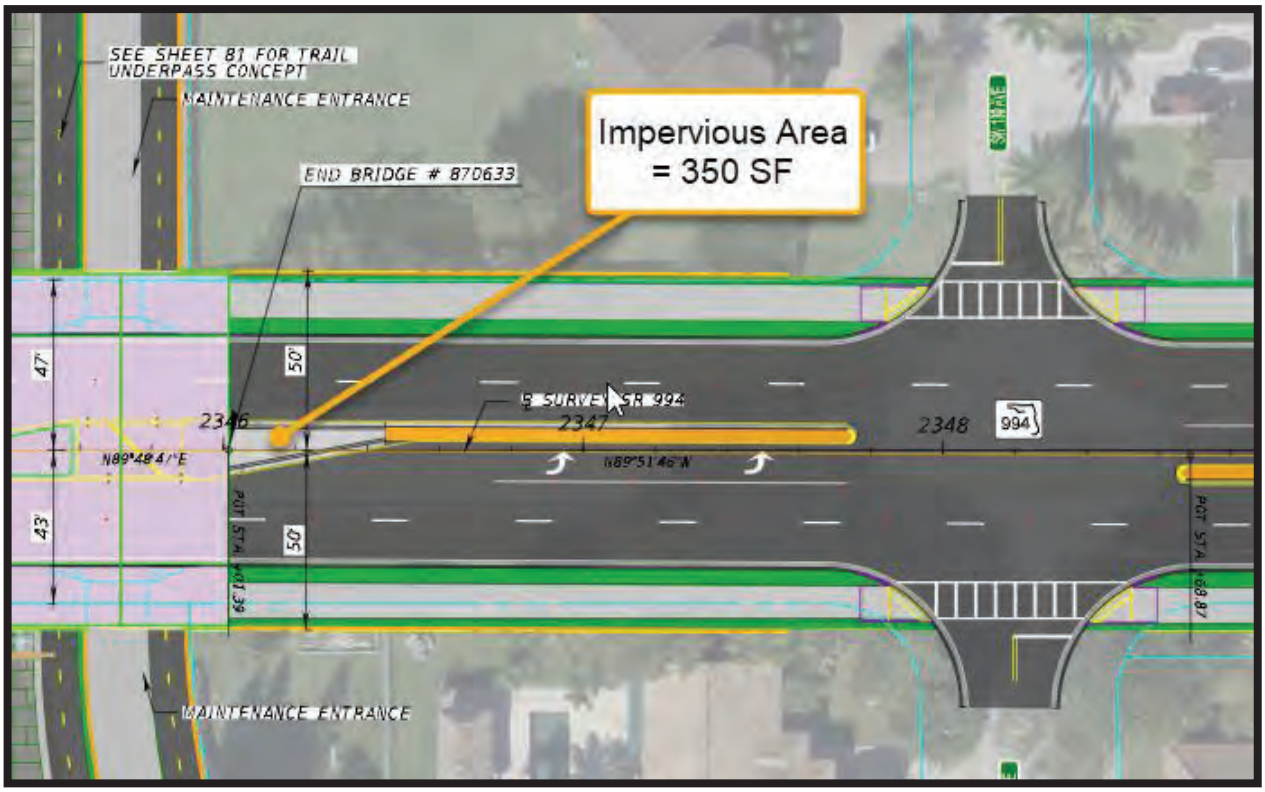
VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15

Discussion/Sketches/Photos/Calculations

The VE team's recommendation is to explore the usage of swale areas as much as possible to reduce the French drain trunk line system. Additionally, the idea is to remove impervious medians throughout the corridor and replace them with grassy pervious medians. The intent is to stay within the baseline footprint while reducing impervious drainage area.

For example, on the baseline survey of SR 994/Quail Roost at Sta. 2346+00, the baseline concept proposes concrete separator. The VE team calculated the area of the concrete separator at the end of the bridge to be approximately 350 SF. If a grassy median at this area is utilized, the amount of impervious surface will be minimized. See Baseline Figure 1.

Baseline Figure 1

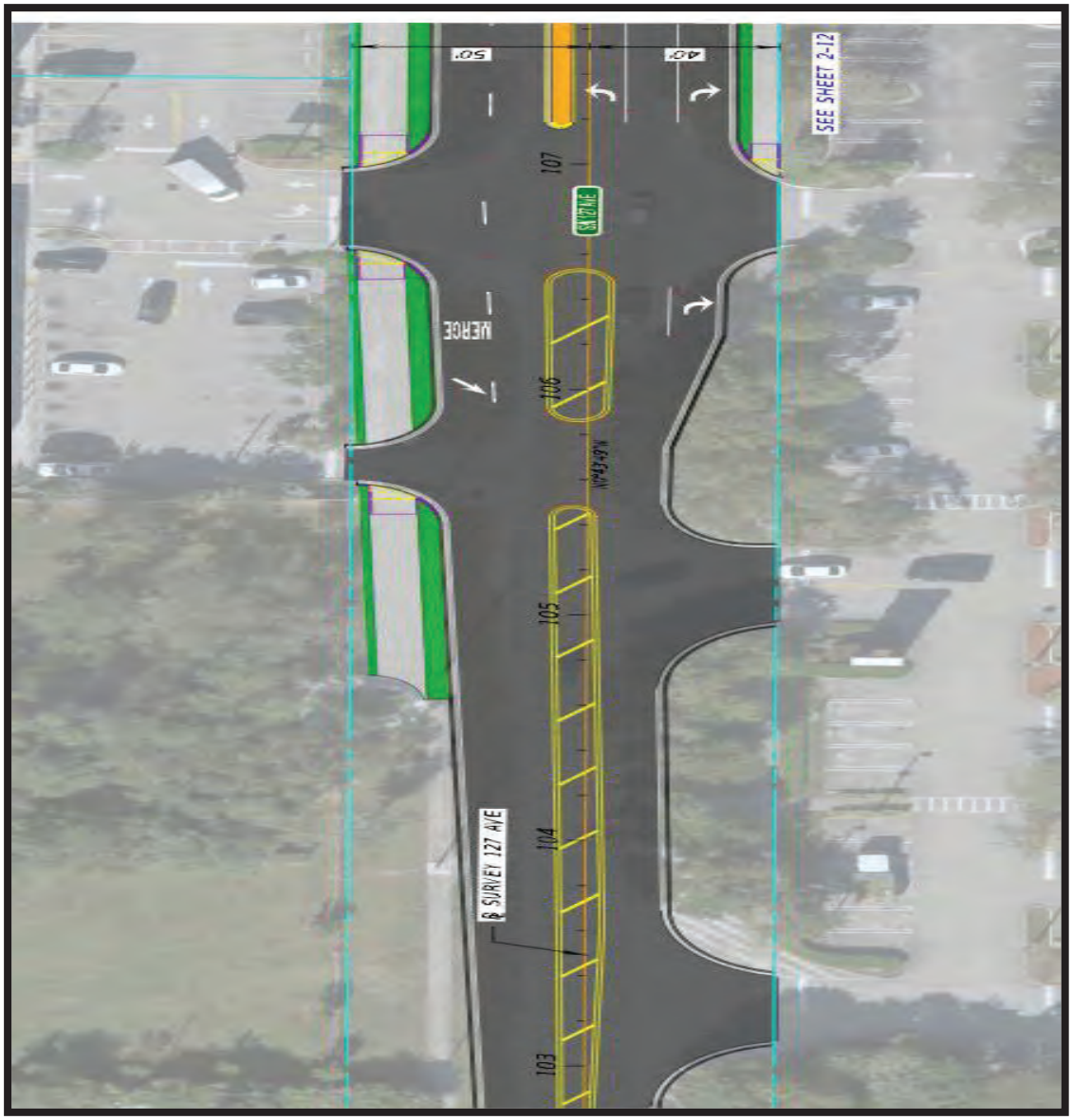


Reduction in impervious area: 350 SF approximately

Volume of treatment reduced: 2.5-inch x 350 SF/ 12 = 72.92 cubic feet.

At SW127 Ave from STA. 102+00 to STA. 106+00, the baseline concept proposes the construction of a concrete separator (average width of 10-ft and approximate length of 300'). See Baseline Figure 2.

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15



Baseline Figure 2

By utilizing a gassy median separator at this area the total impervious area will be reduced. Therefore, the treatment volume will be reduced.

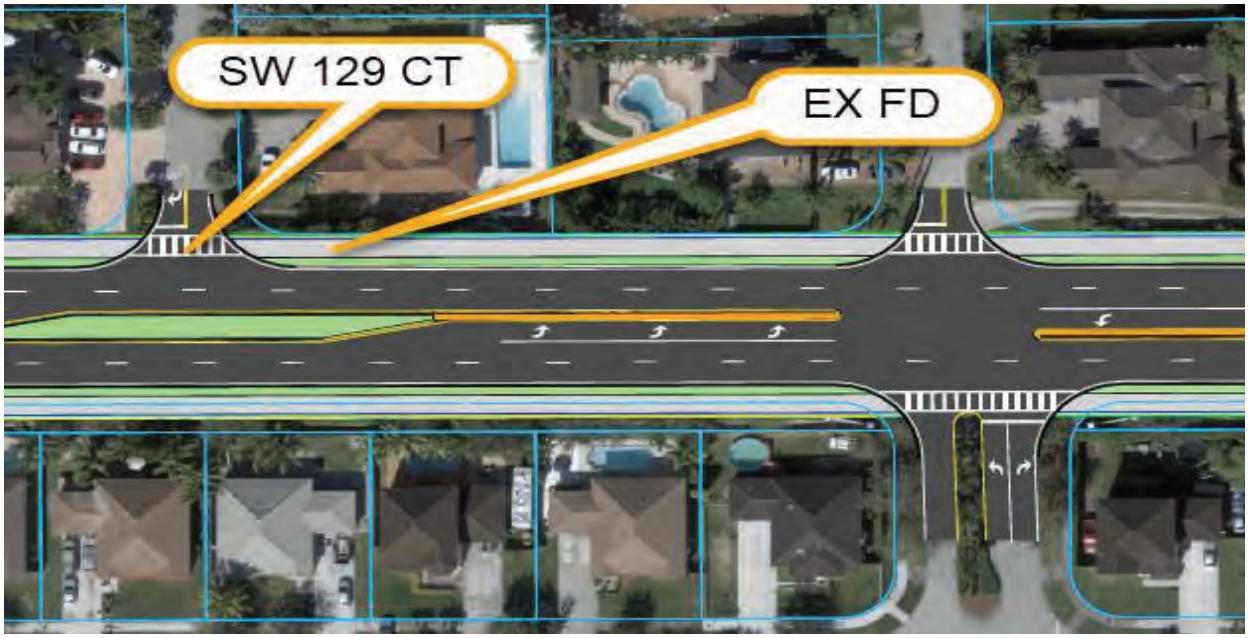
Reduction in impervious area: 10-ft x 300-ft = 3,000 SF approximately

Volume of treatment reduced: 2.5-inch x 3,000 SF/ 12 = 625 cubic feet.

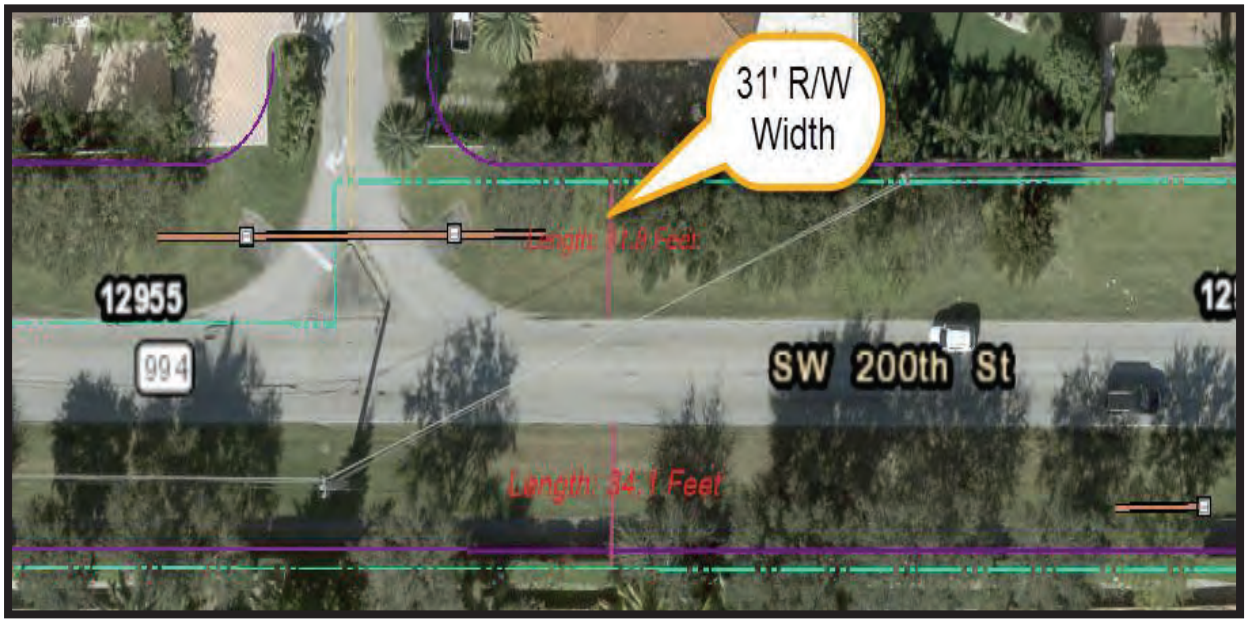
At SW 129th Ct, existing French drains are on the northern side of SR 994/ Quail Roost, see Baseline Figure 3. The available northern right-of-way width from edge of pavement is 31-ft and the other side 34-ft approximately. The proposed baseline concept keeps the existing alignment and widens in both sides, see Baseline Figure 4.

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15

It would be ideal to shift the alignment to the South to utilize more swale area in the northern side. Ditch bottom inlet would be used at low point within the swale to connect proposed French drains to existing ones for water quality and quantity.



Baseline Figure 3



Baseline Figure 4

Along the project corridor at the intersection of SW 129th Ave, the VE team found that the County owns 2 vacant parcels (see below Recommended Figure 1). The total area of the properties is 17,916 square

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15

feet. If the project team seeks donation from the County or a combined use of these shoulder parcels as swales for runoff treatment, this will greatly reduce the quantity of design French drains for water quality and attenuation.

This will bring some benefit to the project by reducing the cost of French drains which are more expensive to install compared to swale, as they require specialized materials and often involve excavation work.

French drains have limited natural filtration and groundwater recharge as effectively as swales. As French drains pores get clogged with sediment, they become ineffective and don't dissipate stormwater into the ground.

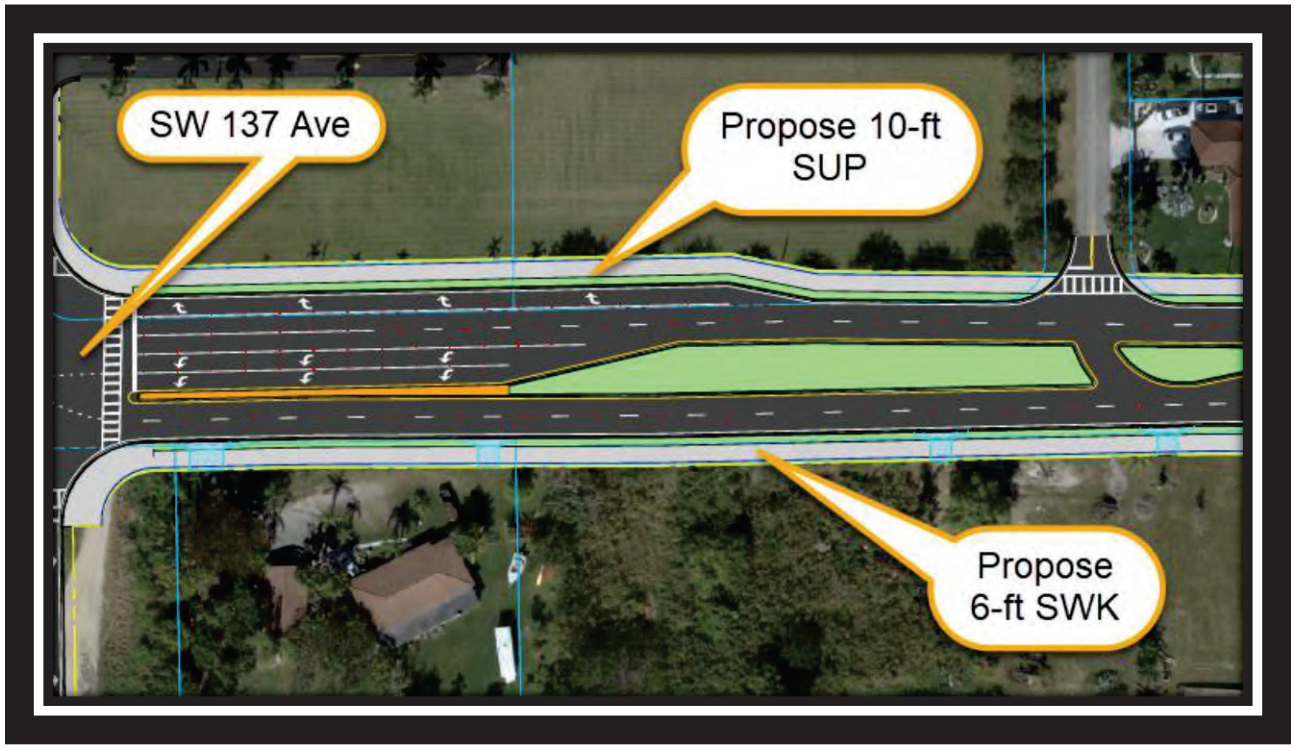
Recommended Figure 1

Another opportunity is with parcels 38 and 39, where the baseline design proposes to purchase from the County, about 50% of their property. The idea in this location is to seek the donation of their ROW in its entirety and use the remainder for drainage purposes. The total Baseline Concept impact: 3,885 + 3,812 = 7,697 SF, while the recommended use is 9,104 + 8,812 = 17,916 SF

Total potential shared use value is: 17,916 – 7,697 = 10,219 SF

The baseline alternative proposes a shared use path of 10-ft on each side of SR 994/ Quail Roost. To reduce impervious area and French drains and the capital cost of the project, the VE study recommends one (1) shared use path of 10-ft and one (1) sidewalk of 6-ft along the other side. This will save the project 4-ft of impervious area throughout the corridor.

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15



Recommended Figure 2

Cost Estimate:

The volume calculations for French drains were not able to be calculated without additional design work. The calculations below represent the medians, shared use path (SUP), and sidewalk costs.

Estimated impervious area from crossed road: 3,000 SF

Estimated impervious area from median: 72.92 SF

Estimated impervious area along project length for a 10-ft SUP:

10 ft* 1.67 mi *5280 ft/mi = 88, 176.40 SF

Average cost estimate of French drain per area in acre.

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
Raised median	SY	8.02	$ 51.90	$ 416		$ 51.90	$ -
Striped median seperator	TN	63.5	$ 143.06	$ 9,084		$ 143.06	$ -
Traffic concrete separator	SY	402.92	$ 92.70	$ 37,351		$ 92.70	$ -
2 SUP (Traffic C)	TN	12785.52	$ 148.01	$ 1,892,385	6392.5	$ 148.01	$ 946,154
				$ -		$ -	$ -
Area of proposed 6' concrete sidewalk (6" thick)	SY		$ 64.31	$ -	5819.62	$ 64.31	$ 374,260
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ 1,939,236*			*$ 1,320,413*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 594,958			$ 405,103
Total Construction				**$ 2,534,194**			**$ 1,725,516**
Utility Costs				$ -		$ -	$ -
Right of Way Costs	SF	7697.00	$ 25.00	$ 192,425.00	0.00	$ 25.00	$ -
TOTAL CAPITAL COST				***$ 2,726,619***			***$ 1,725,516***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ 1,001,102**

VE RECOMMENDATION NO. 1: DEVELOP ALTERNATIVE DRAINAGE SOLUTIONS	Idea No(s). 13, 14, 15

VE RECOMMENDATION NO. 1	IDEA NO.		
Develop Alternative Drainage Solution			
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No Change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations No Change	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability Requires mowing Reduces French drain maintenance	Rating	5	6
	Weight	11.9	
	Contribution	59.5	71.4
Construction Impacts No Change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts Adding pervious areas	Rating	5	6
	Weight	19.0	
	Contribution	95	114
Project Schedule	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	529
	Net Change in Performance		6%

VE RECOMMENDATION NO. 2: IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES	Idea No(s). 19, 20

Baseline Concept

Baseline concept is to use existing or acquired right of way (ROW) for staging areas during construction. Additionally, all alternatives propose new French Drains throughout the project.

Recommendation Concept

Recommended concept would be to identify County and FDOT property in the area for staging and drainage purposes. This would help to identify opportunities throughout the corridor that can be shared for runoff treatment and minimize French drain designs. Additionally, the VE team would propose that the County donate parcels 58 and 59.

Advantages	Disadvantages
• Able to stage closer to site • May reduce ROW • Enhanced project coordination • Natural stormwater management.	• Interagency coordination challenges • Ownership and liability concerns • May require Interagency coordination for maintenance • Political concerns may arise depending on potential impacts to stakeholders

Cost Summary	Construction Cost	Right-of-Way Costs	Total Cost
Baseline Concept			
Recommendation Concept			
Cost Avoidance/ (Added Value)		Not Assessed	

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
				✓

VE RECOMMENDATION NO. 2: IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES	Idea No(s). 19, 20

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

This recommendation is to identify County and FDOT property in the area for staging and drainage purposes. The advantages include cost savings, collaboration and resource sharing, enhanced project coordination, and potential environmental benefits. However, challenges may arise in terms of interagency coordination, ownership and liability concerns, limited control over maintenance, and potential political considerations. It is important to engage in open communication, establish clear agreements, and assess the specific circumstances to determine the feasibility and suitability of these options for this project.

The VE team would propose the County donate parcels 58 and 59. The total requested donation would be 10,219 square feet.

Assumptions/Calculations

The County's total property size (parcels 58 and 59) that would be used for staging, is 17,916 square feet.

Baseline Concept

It would be beneficial to utilize the whole parcel since the VE team is already proposing to acquire half of the parcel with the baseline concepts. And a donation by the county would increase staging areas and improve drainage opportunities for the project. This can be beneficial to the project by saving upfront costs.

VE RECOMMENDATION NO. 2: IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES	Idea No(s). 19, 20

Recommended Concept

The project team is in the process of acquiring several private properties within the corridor. Some of these are open lots that may be used for staging during construction. It may be beneficial to add an additional temporary easement for any extra staging areas. As shown in Figure 1 and Figure 2 below. The VE team did not identify any costs associated with the donation of property.

OFFICE OF THE PROPERTY APPRAISER

Summary Report

Generated On : 6/14/2023

Property Information	
Folio:	30-6911-001-0011
Property Address:	12740 SW 200 ST Miami, FL 33177-4818
Owner	POINTE QUAIL INVESTMENTS LLC
Mailing Address	1132 KANE CONCOURSE 2FL BAY HARBOR ISLAND, FL 33154 USA
PA Primary Zone	6200 COMMERCIAL - ARTERIAL
Primary Land Use	1081 VACANT LAND - COMMERCIAL : VACANT LAND
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	79,714 Sq.Ft
Year Built	0

Assessment Information			
Year	2022	2021	2020
Land Value	$797,140	$797,140	$797,140
Building Value	$0	$0	$0
XF Value	$12,600	$12,768	$12,936
Market Value	$809,740	$809,908	$810,076
Assessed Value	$809,740	$809,908	$810,076

Taxable Value Information			
	2022	2021	2020
County			
Exemption Value	$0	$0	$0
Taxable Value	$809,740	$809,908	$810,076
School Board			
Exemption Value	$0	$0	$0
Taxable Value	$809,740	$809,908	$810,076
City			
Exemption Value	$0	$0	$0
Taxable Value	$0	$0	$0
Regional			
Exemption Value	$0	$0	$0
Taxable Value	$809,740	$809,908	$810,076

Benefits Information				
Benefit	Type	2022	2021	2020

Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).

Short Legal Description
11 56 39 1.83 AC
TROPICO PB 2-57
BEG ON N/L & 241.69FT W OF NE COR
LOT 1 S409.3FT W212.84FT
N409.52FT E212.84FT TO POB LESS

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
02/27/2018	$100	30940-0560	Corrective, tax or QCD; min consideration
02/27/2018	$100	30924-1711	Corrective, tax or QCD; min consideration
01/19/2018	$100	30840-2061	Corrective, tax or QCD; min consideration
01/19/2018	$955,000	30840-2063	Qual by exam of deed

The Office of the Property Appraiser is continually editing and updating the tax roll. This website may not reflect the most current information on record. The Property Appraiser and Miami-Dade County assumes no liability, see full disclaimer and User Agreement at http://www.miamidade.gov/info/disclaimer.asp

Version:

Figure 1

VE RECOMMENDATION NO. 2: IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES	Idea No(s). 19, 20

OFFICE OF THE PROPERTY APPRAISER

Summary Report

Generated On : 6/14/2023

Property Information	
Folio:	30-6912-037-0040
Property Address:	
Owner	109 OAK PARK ESTATES DADE LLC
Mailing Address	1550 MADRUGA AVE SUITE 403 CORAL GABLES, FL 33146 USA
PA Primary Zone	6200 COMMERCIAL - ARTERIAL
Primary Land Use	1081 VACANT LAND - COMMERCIAL : VACANT LAND
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	34,848 Sq.Ft
Year Built	0

Assessment Information			
Year	2022	2021	2020
Land Value	$564,538	$564,538	$564,538
Building Value	$0	$0	$0
XF Value	$0	$0	$0
Market Value	$564,538	$564,538	$564,538
Assessed Value	$564,538	$564,538	$564,538

Taxable Value Information			
	2022	2021	2020
County			
Exemption Value	$0	$0	$0
Taxable Value	$564,538	$564,538	$564,538
School Board			
Exemption Value	$0	$0	$0
Taxable Value	$564,538	$564,538	$564,538
City			
Exemption Value	$0	$0	$0
Taxable Value	$0	$0	$0
Regional			
Exemption Value	$0	$0	$0
Taxable Value	$564,538	$564,538	$564,538

Benefits Information				
Benefit	Type	2022	2021	2020

Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).

Short Legal Description
OAK PARK ESTATES SEC 3 PB 127-19 LOCATED IN SEC 1 TR C LOT SIZE .8 AC M/L OR 18891-2945 11995

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
11/16/2018	$100	31246-0943	Corrective, tax or QCD; min consideration
08/26/2017	$1,050,100	30591-4240	Federal, state or local government agency
09/01/1992	$0	15653-0712	Sales which are disqualified as a result of examination of the deed
01/01/1988	$335,000	13551-0940	Sales which are qualified

The Office of the Property Appraiser is continually editing and updating the tax roll. This website may not reflect the most current information on record. The Property Appraiser and Miami-Dade County assumes no liability, see full disclaimer and User Agreement at http://www.miamidade.gov/info/disclaimer.asp

Figure 2

VE RECOMMENDATION NO. 2: IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES	Idea No(s). 19, 20

VE RECOMMENDATION NO. 2	IDEA NO.		
Identify County & FDOT Property for Drainage			
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations No change	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability Slight increase of area to maintain	Rating	5	5
	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts No change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts Further impacts County linear park (4f) Improves drainage area	Rating	5	5
	Weight	19.0	
	Contribution	95	95
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	499
	Net Change in Performance		0%

VE RECOMMENDATION NO. 3: MODIFY MEDIAN DESIGN	Idea No(s). 31,36

Baseline Concept

The baseline design proposes 16.5-ft standard median width throughout the corridor.

Recommendation Concept

The recommended concept is to reduce median widths to 10-ft where possible, meeting the AASHTO minimums and to use traffic separators rather than grassy medians.

Advantages	Disadvantages
• Reduces typical section size • Reduces ROW footprint • May reduce construction duration • May reduce MOT	• Reduces treatment area • Reduces landscaping

Cost Summary	Construction	Right-of-way	Total
Baseline Concept		$8,438,713	$8,438,713
Recommendation Concept		$7,996,713	$7,996,713
Cost Avoidance/ (Added Value)	Negligible	$442,000	$442,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
			✓	✓

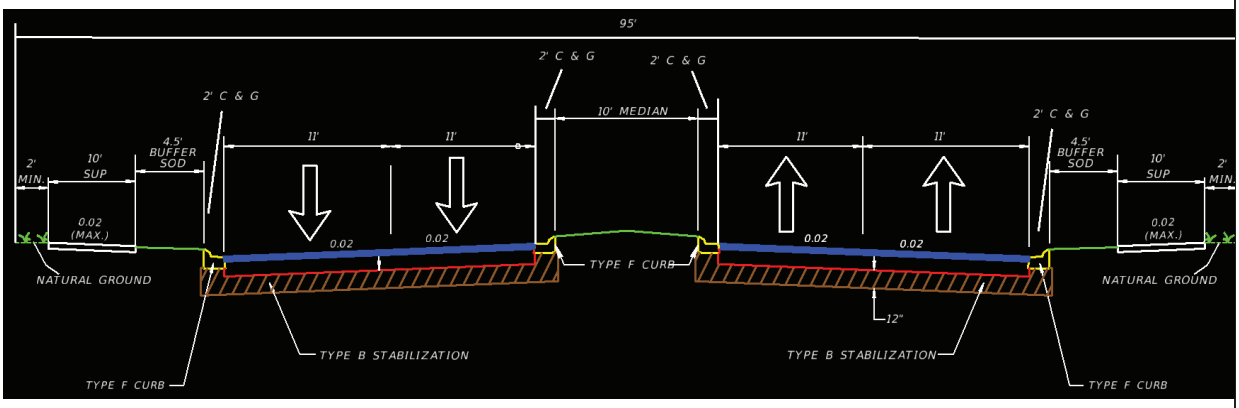
VE RECOMMENDATION NO. 3: MODIFY MEDIAN DESIGN	Idea No(s). 31,36

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The current median design uses 16.5-ft standard median widths, while the FDM recommends 22-ft and 16.5-ft median widths where severely constrained. AASHTO minimum median width is 10'.

Baseline



Recommendation

The recommended concept is to reduce median widths to 10-ft where possible meeting the AASHTO minimums and to use traffic separators rather than grassy medians.

The reduction in median widths will reduce right-of-way impacts and possibly eliminate them in certain locations. The VE team recognizes that this strategy will require a design variation.

Assumptions/Calculations

- Construction costs are assumed similar to the baseline
- Assuming a design variation is approved for purposed median width.

VE RECOMMENDATION NO. 3: MODIFY MEDIAN DESIGN	Idea No(s). 31,36

- A reduction from 16.5-ft to 10.0-ft would represent an approximate 40% reduction.
- There will be 6.5-ft less ROW acquisition required throughout the entire corridor where a median is being proposed.
- Assume cost of ROW is $25 per sq ft.
- Assume a uniform 3,400 ft of median width.
- Assume 50% of median reduction results in ROW improvements.
- 3400 x 6.5 x 80% = 17,680
- Then: ($25/square foot) *(17,680) = $ 442,000

VE RECOMMENDATION NO. 3: MODIFY MEDIAN DESIGN	Idea No(s). 31,36

VE RECOMMENDATION NO. 3	IDEA NO.		
Modify Median Design			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	4
Reduces shy distance (reduced median width) Requires a design variation	Weight	26.1	
	Contribution	130.5	104.4
Local Operations	Rating	5	5
No change	Weight	21.4	
	Contribution	107	107
Maintainability	Rating	5	6
Less area to maintain	Weight	11.9	
	Contribution	59.5	71.4
Construction Impacts	Rating	5	5
No change	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts	Rating	5	7
Less impervious Less ROW required	Weight	19.0	
	Contribution	95	133
Project Schedule	Rating	5	5
No change	Weight	14.2	
	Contribution	71	71
	Total Performance	499	522
	Net Change in Performance		5%

VE RECOMMENDATION NO. 4: USE PREEMPTION TECHNOLOGY	Idea No(s). 4,5

Baseline Concept

Preemption technology for emergency operation vehicles and backup generators was not considered in the baseline design.

Recommendation Concept

The VE team recommends the use of preemption technology for emergency operation vehicles and Install backup generators or uninterrupted power supply (UPS) backup for emergency signal operations

Advantages	Disadvantages
• Improves emergency response times • Improves evacuation times • Improves agency coordination • Improves resiliency	• Requires additional coordination • Increases construction cost

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$-		$-
Recommendation Concept	$224,719		$224,719
Cost Avoidance/ (Added Value)	($224,719)		($224,719)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓			

VE RECOMMENDATION NO. 4: USE PREEMPTION TECHNOLOGY	Idea No(s). 4,5

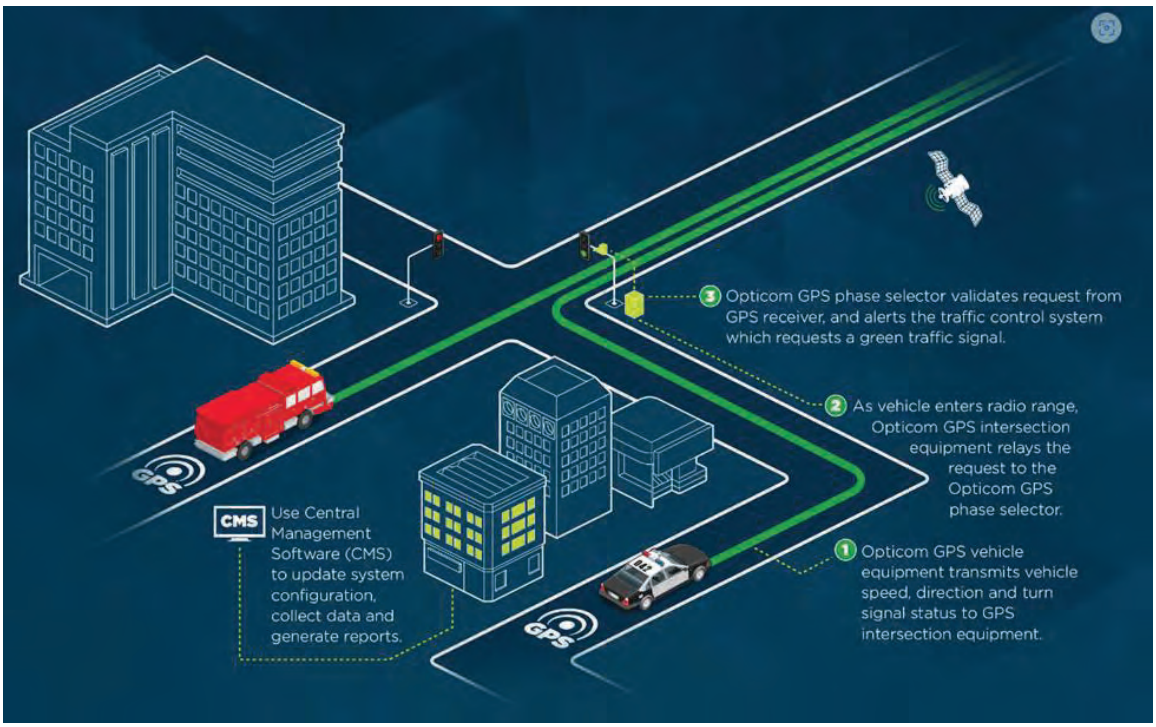
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The objective of this recommendation is to improve emergency operations and responses times along the project corridor and improve emergency evacuation. SR994/Quail Roost connects with two highway corridors, SR997/Krome Ave and SR821/Turnpike, designated as emergency evacuation routes that also connects with SR5/US-1 which is a major evacuation for the Florida Keys. The intent is to add new technology along the project corridor to enhance emergency evacuation process and interagency coordination during an emergency event.

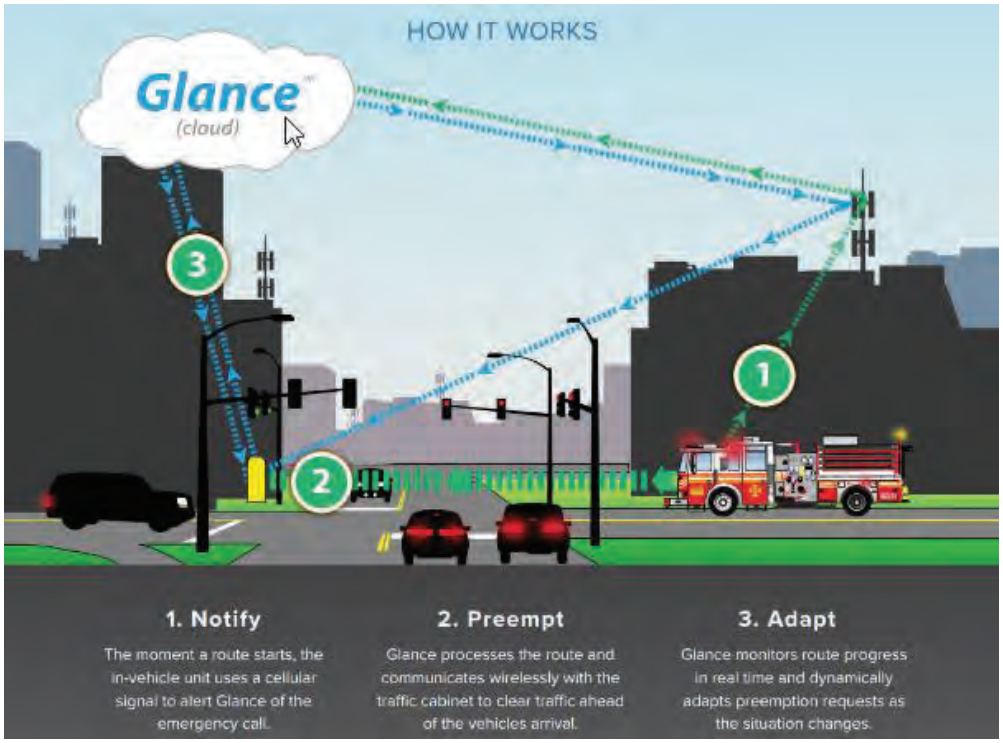
Preemption systems are used to transfer the normal operation of a traffic control signal to a special control mode of operation. They are designed to give to certain types of vehicles the right of way at and through a signalized intersection. Emergency vehicles using pre-emption send a pre-emption call to the traffic signal when responding to an emergency. Traffic is then able to move out of the way for the emergency vehicles while cross traffic is stopped from entering the responders' path.

The baseline design shows 3 signalized intersections: SW 137 Ave, SW 134 Ave, SW 127 Ave, which will carry this technology in the recommended concept.



Recommendation 1- Preemption systems

VE RECOMMENDATION NO. 4: USE PREEMPTION TECHNOLOGY	Idea No(s). 4,5



Recommendation 2 - Uninterruptible Power Supply (UPS):

This device provides temporary power when commercial AC power is interrupted and prevents failure of normal operations in a signalized intersection. See figure 1

Figure 1

Manual Transfer Switch:

Manual transfer switch is an externally mounted enclosure attached to the traffic control cabinet with an emergency generator interface. The purpose of this device is to provide temporary power when commercial AC power is interrupted.

Assumptions/Calculations

- Similar efforts have been done within D6 and have positive results.
- The proposed equipment for the preemption system is listed in the FDOT Approved Product List (APL) and MDC Qualified Product List (QPL).
    - OPTICOM EVP-GPS

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
SIGNAL PRIO & PREEMP, F&I, OPT, CABLE	EA		$ 6,245	$ -	3	$ 6,245	$ 18,735
SIGNAL, PRIO & PREEMP, F&I, GPS, DETECTOR	EA		$ 6,777	$ -	12	$ 6,777	$ 81,320
SIGNAL PRIO & PREEMP, F&I, CABINET EQUIPMENT	EA		$ 10,500		3	$ 10,500	$ 31,500
CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF		$ 34	$ -	800	$ 34	$ 26,912
PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA			$ -	12	$ 1,125	$ 13,494
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				$ -			$ *171,961*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ -			$ 52,758
Total Construction				**$ -**			**$ 224,719**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ -***			***$ 224,719***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ (224,719)**

VE RECOMMENDATION NO. 4: USE PREEMPTION TECHNOLOGY	Idea No(s). 4,5

VE RECOMMENDATION NO. 4	IDEA NO.		
Use Preemption Technology			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	7
Improves emergency response times Improves emergency evacuation	Weight	26.1	
	Contribution	130.5	182.7
Local Operations	Rating	5	5
No change	Weight	21.4	
	Contribution	107	107
Maintainability	Rating	5	5
No change	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts	Rating	5	5
No change	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts	Rating	5	5
No change	Weight	19.0	
	Contribution	95	95
Project Schedule	Rating	5	5
No change	Weight	14.2	
	Contribution	71	71
	Total Performance	499	551
	Net Change in Performance		10%

VE RECOMMENDATION NO. 5: MODIFY MEDIAN ACCESS	Idea No(s). 8, 22

Baseline Concept

In the baseline condition the median openings near side streets allow movements from all directions.

Recommendation Concept

The VE team recommends the addition of medians within median openings to assist with separating traffic in addition to providing a clear path for vehicles to traverse, including right-out only at SW 132nd Ave and reduction of EB and WB left turns.

Advantages	Disadvantages
• Reduces conflicts	• Increases travel times • Reduces access • Decreases storage

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$0		$0
Recommendation Concept	$41,414		$41,414
Cost Avoidance/ (Added Value)	($41,414)		($41,414)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓			

VE RECOMMENDATION NO. 5: MODIFY MEDIAN ACCESS	Idea No(s). 8, 22

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Within the corridor, the side streets were observed to see if a median opening was needed in addition to methods on how to reduce the possibility of conflicts between the vehicles. The following was reviewed:

- Traffic counts per specific leg movements.
- Viability of separating traffic while not restricting movements.

The following was observed:

> The EBL movement from SW 134th CT. has 8 movements. (Considering 2045 and AM hours). It seems that most vehicles use SW 135th Ave. Therefore, with the goal of removing possible conflicts, it is recommended to <u>not allow</u> the SBL movement from SW 134th Ct. to Quail Roost Drive. This could be accomplished by signing and/or re-designing the median to block the EBL movement.

The following median opening near the side streets were reviewed.:

<u>Westbound</u>

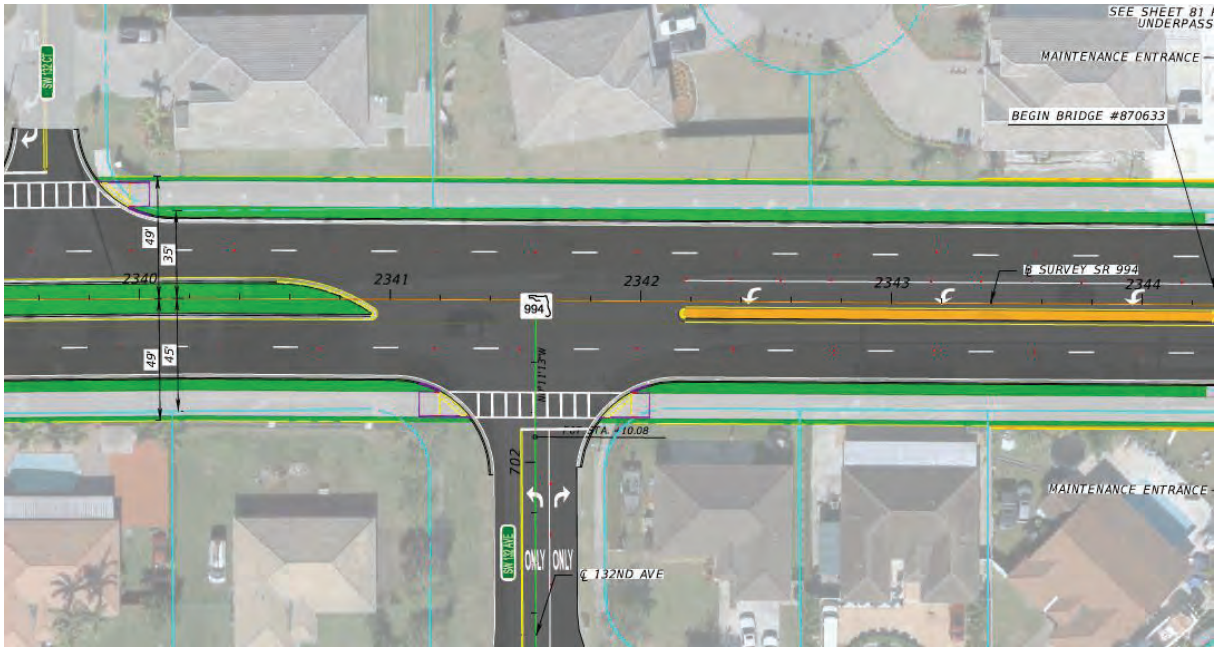
- SW 133rd Ct.
- SW 130th Ave.
- SW 129th Ave.

<u>Eastbound</u>

- SW 133rd Ave.
- SW 132nd Ave.
- SW 130th Ave.

Except for SW 130th Ave., all other median openings could install a directional median to assist with separating the conflict of turning vehicles. Below is an example of SW 132nd Ave baseline and recommendation.

VE RECOMMENDATION NO. 5: MODIFY MEDIAN ACCESS	Idea No(s). 8, 22



Baseline

Recommendation

Assumptions/Calculations: For the estimate the VE team considers the construction of concrete directional medians in five (5) intersections, SW 133rd Ct. (WB), SW 130th Ave. (WB), SW 129th Ave. (WB), SW 133rd Ave. (EB), and SW 132nd Ave. (EB).

VE RECOMMENDATION NO. 5: MODIFY MEDIAN ACCESS	Idea No(s). 8, 22

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
CONCRETE CURB TYPE D	LF		$ 30	$ -	473	$ 30	$ 14,006
CONCRETE SIDEWALK, 6"	SY		$ 64	$ -	275	$ 64	$ 17,685
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				$ -			*$ 31,691*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ -			$ 9,723
Total Construction				**$ -**			**$ 41,414**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ -***			***$ 41,414***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ (41,414)**

VE RECOMMENDATION NO. 5: MODIFY MEDIAN ACCESS	Idea No(s). 8, 22

VE RECOMMENDATION NO. 5	IDEA NO.		
Modify Median Access			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	7
Improves operations Reduces conflicts Reduces risks of accidents	Weight	26.1	
	Contribution	130.5	182.7
Local Operations	Rating	5	5
Reduces access Improves sight distance Improves conflict type Longer trip for drivers	Weight	21.4	
	Contribution	107	107
Maintainability	Rating	5	5
No Change	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts	Rating	5	5
No Change	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts	Rating	5	5
No Change	Weight	19.0	
	Contribution	95	95
Project Schedule	Rating	5	5
No Change	Weight	14.2	
	Contribution	71	71
	Total Performance	499	551
	Net Change in Performance		10%

VE RECOMMENDATION NO. 6: MODIFY SFWMD CANAL ACCESS	Idea No. 7

Baseline Concept

The base design shows left turn access on the bridge structure crossing Black Creek Canal to provide canal maintenance access to both the north and south sides.

Recommendation Concept

The recommended concept is to eliminate the left turn into the North and South side maintenance access South Florida Water Management District (SFWMD) on the structure to reduce conflict.

Advantages	Disadvantages
• Reduces conflict • Reduces driver confusion • Prevents illegal U-turn	• Reduce access

Cost Summary	Construction	Right-of-way	Total
Baseline Concept			
Recommendation Concept	Negligible		Negligible
Cost Avoidance/ (Added Value)	Negligible		Negligible

FHWA Function Benefit

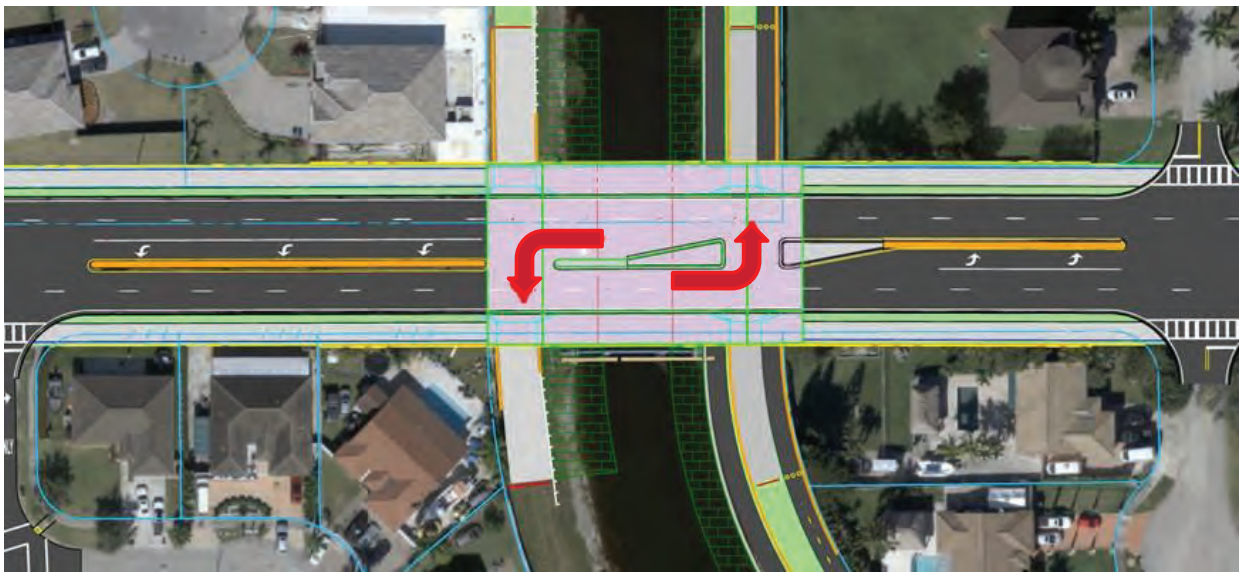
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓			

VE RECOMMENDATION NO. 6: MODIFY SFWMD CANAL ACCESS	Idea No. 7

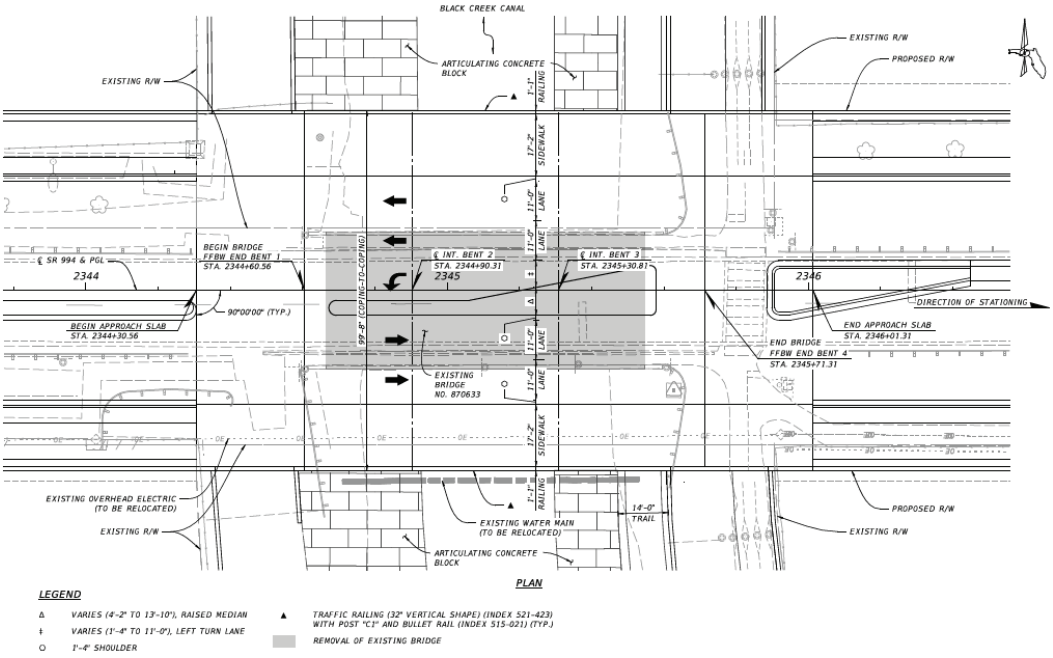
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The objective of this recommendation is to address left turns on the bridge intended only for maintenance access. The left turn without a designated left turn can create conflicts and confusion for the public, and proposed configuration introduces unnecessary conflict points from the main lanes. The provided left turns are unnecessary since there are designated left turns in each direction less than 300 ft away where maintenance vehicles can make U-Turns.



Baseline Figure 1



Baseline Figure 2

VE RECOMMENDATION NO. 6: MODIFY SFWMD CANAL ACCESS	Idea No. 7

Recommended Concept Figure 1

Figure 2 Similar treatment on 47th Ave @ NW 207th.

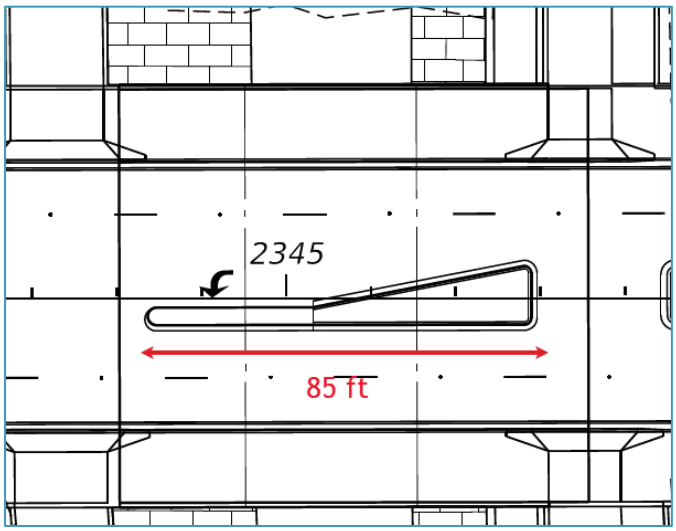
VE RECOMMENDATION NO. 6: MODIFY SFWMD CANAL ACCESS	Idea No. 7

Assumptions/Calculations

Concrete quantities for traffic separator are calculated in linear feet.

Baseline design:

Length = 85 ft

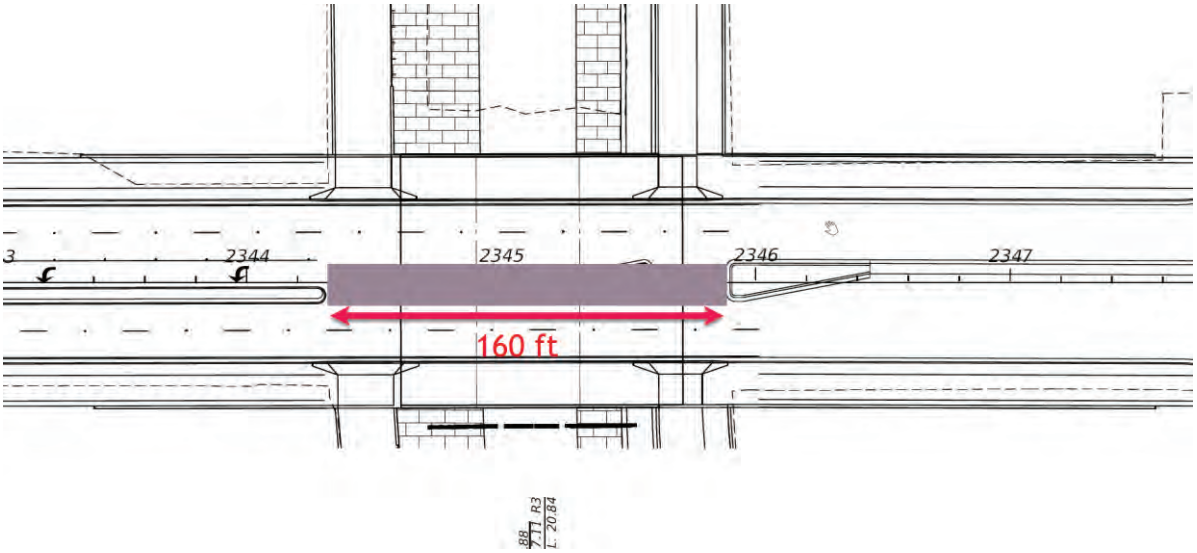


Baseline Measurement

Proposed:

Length = 160 ft

Recommended



Recommended Concept Measurement

VE RECOMMENDATION NO. 6: MODIFY SFWMD CANAL ACCESS	Idea No. 7

VE RECOMMENDATION NO. 6	IDEA NO.		
Modify SFWMD Canal Access			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	8
Prevents iligal U-turn Reduces conflicts from through lanes Improves driver expectancy	Weight	26.1	
	Contribution	130.5	208.8
Local Operations	Rating	5	5
No change	Weight	21.4	
	Contribution	107	107
Maintainability	Rating	5	5
No change	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts	Rating	5	5
No change	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts	Rating	5	5
No change	Weight	19.0	
	Contribution	95	95
Project Schedule	Rating	5	5
No change	Weight	14.2	
	Contribution	71	71
	Total Performance	499	577
	Net Change in Performance		16%

VE RECOMMENDATION NO. 7: REMOVE BUFFER ALONG BRIDGE	Idea No. 9

Baseline Concept

The current baseline concept recommends a typical section that is 99’-8” wide and contains a 5’2” buffer between the shared use path and travel lane. The bridge typical section contains a median that varies from 4’2” to 13’10”.

Recommendation Concept

Remove 5'2" buffer from each side of structure and replace with curb and gutter barriers. Shrink the median as much as needed in order to fit within the ROW.

Advantages	Disadvantages
• Reduces width of bridge • May reduce construction costs • May reduce ROW need	• Requires design variation • Enables typical section continuity • Reduces distance between pedestrian and vehicles

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$1,209,247	$8,438,713	$9,647,960
Recommendation Concept	$1,069,485	$8,247,463	$9,316,948
Cost Avoidance/ (Added Value)	$139,762	$191,250	$331,012

FHWA Function Benefit

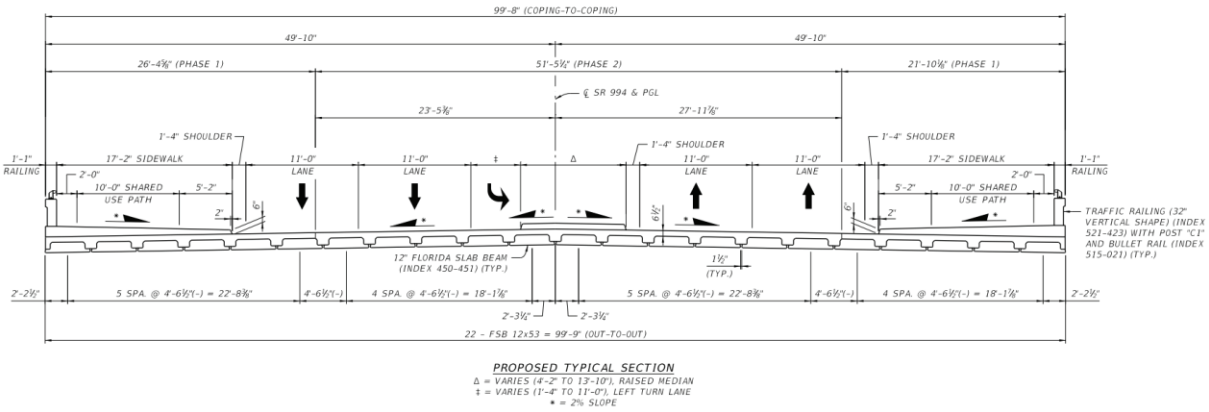
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
			✓	✓

VE RECOMMENDATION NO. 7: REMOVE BUFFER ALONG BRIDGE	Idea No. 9

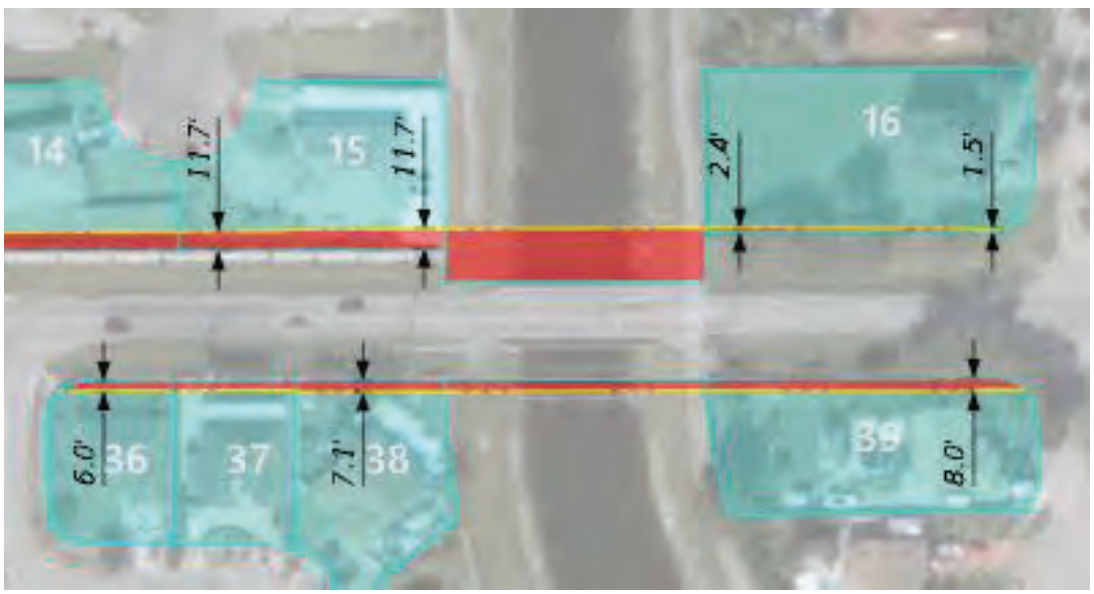
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The bridge typical section is currently designed to be 99-ft 8” wide. The existing ROW is only 90-ft wide. The existing bridge typical is shown below with 5’2” buffers and a median that varies between 4’2” to 13’10”. The typical section extends 9’8” outside the existing ROW.



Baseline Typical Section

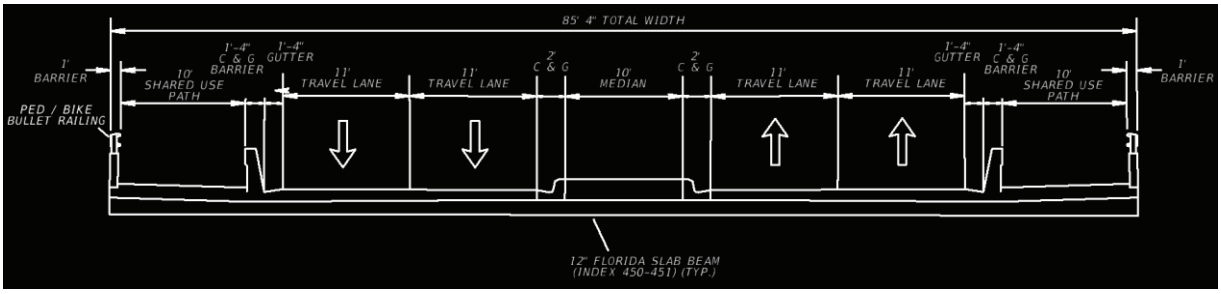


Baseline ROW acquisition

This recommendation is to shrink the typical section by installing concrete barriers in the buffer zone to reduce the width of the bridge. The example below shows barrier replacement and a 10-ft median. This design may be modified to accommodate the left turn lane in the median area and provide sufficient shoulder /gutter area as needed. Replacing the 5’2” buffers on each side with a 1’4” barrier.

This recommendation should reduce the bridge typical by 11’6” to 88’2” width. This will reduce the ROW required. An example typical section is shown below but can be modified as needed. This recommendation would reduce or eliminate slivers of ROW and reduce bridge construction cost.

VE RECOMMENDATION NO. 7: REMOVE BUFFER ALONG BRIDGE	Idea No. 9



Recommended Concept

Assumptions/Calculations

Baseline bridge width 99’8” – (5’2” buffers *2) = 89’4”
89’4” – (baseline max median width 13’10” – recommended 10-ft median width) = 85-ft 6”
85’6” + (1’4” barriers *2) = 88’2” recommended bridge width
99’8” – 88’2” = 11’6” width reduction
(110-ft length *11’6”) =1,265 SF.

NW corner Mean width SQFT =1’9” * 250-ft length to intersection =250 SF

SW corner Mean width SQFT = 8-ft * 250-ft length to intersection =2000 SF

SE corner Mean width = 6’5” * 300-ft length to intersection =1920 SF

NE corner Mean width =11’7” *300-ft length to intersection =3480 SF
Total ROW saved = 7,650 SQFT * $25 = $191,250

VE RECOMMENDATION NO. 7: REMOVE BUFFER ALONG BRIDGE	Idea No. 9

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
Bridge FL slab (110'x11' 6"reduction)	SF	9253.5	$ 100	$ 925,350	8,184	$ 100	$ 818,400
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ 925,350*			*$ 818,400*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 283,897			$ 251,085
Total Construction				**$ 1,209,247**			**$ 1,069,485**
Utility Costs				$ -		$ -	$ -
Right of Way Costs		337,549	$ 25.00	$8,438,713.00	329,899	$ 25.00	$8,247,463.00
TOTAL CAPITAL COST				***$ 9,647,960***			***$ 9,316,948***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ 331,012**

VE RECOMMENDATION NO. 7: REMOVE BUFFER ALONG BRIDGE	Idea No. 9

VE RECOMMENDATION NO. 7	IDEA NO.		
Remove Buffer along Bridge			
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations Introduces minor deflection	Rating	5	4.5
	Weight	26.1	
	Contribution	130.5	117.5
Local Operations No change	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability Less structure	Rating	5	5
	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts No change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts Reduces ROW impacts along the canal property	Rating	5	6
	Weight	19.0	
	Contribution	95	114
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	505
	Net Change in Performance		1%

VE RECOMMENDATION NO. 8: MODIFY PEDESTRIAN & BICYCLIST ACCOMMODATIONS	Idea No(s). 12, 32,

Baseline Concept

The baseline concept provides two 10-ft shared use path (SUP) along the corridor, one on each side of the roadway. The SUPs are design to have a 4.5-ft buffer to the back of curb and a 2-ft buffer to the ROW line.

Recommendation Concept

The VE team recommends to increase one SUP to 12-ft and convert the other SUP to a 6-ft sidewalk. Additionally, the VE team recommends to eliminate the 4'5" buffer for the sidewalk by moving the sidewalk adjacent to roadway. Lastly, the VE team recommends to add mid block crossings at locations determined by analyzing bicycle and pedestrian traffic data and warrant analysis.

Advantages	Disadvantages
• Increased width of SUP • Reduce 6-ft from typical section • May reduce construction costs • Reduce typical section • May reduce ROW • May reduce asphalt costs • No variation required • Increase permiable area	• Not accommodating bicyclist on one side of the roadway • Increase conflict • Reduce separation between traffic • May impact drainage design • May increase concrete costs

Cost Summary	Construction	Right-of-way	Total
Baseline Concept		$8,438,713	$8,438,713
Recommendation Concept		$7,556,953	$7,556,953
Cost Avoidance/ (Added Value)		$881,760	$881,760

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
		✓	✓	✓

VE RECOMMENDATION NO. 8: MODIFY PEDESTRIAN & BICYCLIST ACCOMMODATIONS	Idea No(s). 12, 32,

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The baseline typical section design provides a 97.5-ft typical section width which slightly clips several ROW parcels throughout the corridor. This baseline design has a 10-ft SUP on both sides of the roadway with a 4.5-ft buffer between the back of curb and the proposed SUPs. Also, there is a 2-ft buffer between the SUPs and edge of ROW. The baseline uses the 2-ft buffer along the South side of the project for utility poles. The 2-ft buffer behind a shared use path should not have any obstructions or signage within it so this would require variation as currently designed.

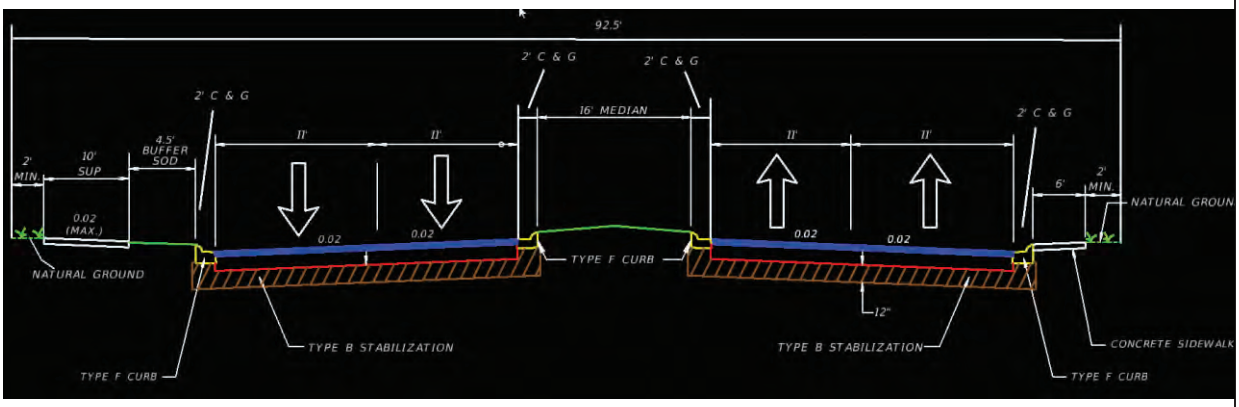
Baseline

The VE team's recommendation to convert the South side SUP to a sidewalk increases the space for utility location outside the 2-ft buffer zone, eliminating the need for a variation. Our recommendation also shrinks the typical section by approximately 5-ft throughout the corridor. Additionally, the design team could reduce the typical section even more by reducing the median size.

Further analysis should be done to determine which of the two shared use paths should be reduced to a sidewalk and whether the remaining shared use path should be widened to 12'. The recommended SUP is also allowed to pinch down to 8-ft in certain areas where ROW acquisition may be extremely difficult or impossible such as near the two historic walls within the project limits. This recommendation shrinks the project typical width, reduces cost of ROW acquisition, and increases permeable area for drainage.

During the presentation of results, the management team suggested the use of signalized mid-block crossings; the Design team should further evaluate mid-block crossing warrants and incorporate into the final design as appropriate.

VE RECOMMENDATION NO. 8: MODIFY PEDESTRIAN & BICYCLIST ACCOMMODATIONS	Idea No(s). 12, 32,



Recommended Concept Figure 1

Assumptions/Calculations

Assume cost of the new 6-ft sidewalk offsets the savings of the 4-ft SUP reduction.

Potentially a 5-ft reduction in ROW width required throughout the entire corridor.

Will be assuming only 80% of the corridor will require ROW acquisition.

Cost of ROW is $25 per sq ft.

Project Length is 1.67 miles = 8817.6’

Calculation for reduction in cost of ROW:

7054 * 5-ft = 35,270 SF

$25 * 35,270 SF = $881,760

VE RECOMMENDATION NO. 8: MODIFY PEDESTRIAN & BICYCLIST ACCOMMODATIONS	Idea No(s). 12, 32,

VE RECOMMENDATION NO. 8	IDEA NO.		
Modify Pedestrian & Bicyclist Accommodations			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	5
No change	Weight	26.1	
	Contribution	130.5	130.5
Local Operations	Rating	5	4
Increases bicyclist conflicts Reduces bicyclist capacity	Weight	21.4	
	Contribution	107	85.6
Maintainability	Rating	5	6
Less SUP to maintain	Weight	11.9	
	Contribution	59.5	71.4
Construction Impacts	Rating	5	5
No change	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts	Rating	5	6
Reduces impervious Reduces ROW requirements	Weight	19.0	
	Contribution	95	114
Project Schedule	Rating	5	5
No change	Weight	14.2	
	Contribution	71	71
	Total Performance	499	508
	Net Change in Performance		2%

VE RECOMMENDATION NO. 9: ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS	Idea No. 17

Baseline Concept

Baseline concept is to implement safety improvements with the current design and construct as one project.

Recommendation Concept

The VE team recommends implementing a series of safety improvements as a separate project at critical locations. These safety improvements would be designed to align with future improvements and minimize throwaway.

Advantages	Disadvantages
• Reduces conflicts • Addresses safety concerns before proposed project delivery • Improves operations earlier	• Would need to add a safety project in the short term • Safety funds may not be available • May lead to rework • Some safety improvements may affect user experience. • Design variations needed

Cost Summary	Construction	Right-of-Way	Total
Baseline Concept	$459,194		$459,194
Recommendation Concept	$4,909,736		$4,909,736
Cost Avoidance/ (Added Value)	($4,450,542)		($4,450,542)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓			

VE RECOMMENDATION NO. 9: ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS	Idea No. 17

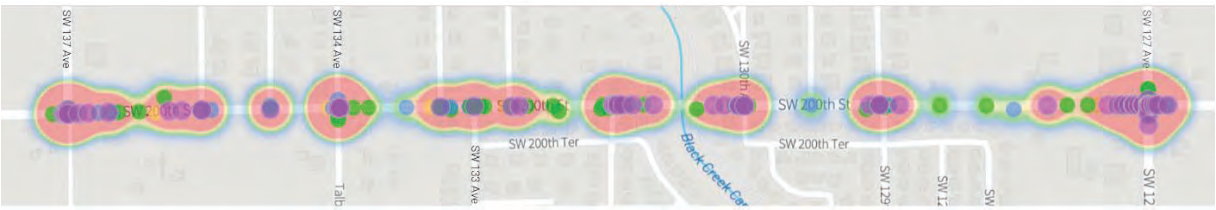
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

When considering safety improvements for a roadway design, several options can be implemented to enhance safety at critical locations. Examples include:

- Replacing traditional intersections with roundabouts to reduce high-speed collisions,
- Adding marked pedestrian crossings and sidewalks to prioritize pedestrian safety
- Implementing traffic calming measures like raised medians to reduce speeding
- Placing advanced warning signs and signals to provide critical information to drivers
- Installing median barriers to prevent head-on collisions or to reduce the number of conflict points

For medians at the intersections, protected left-turn lanes and signalization upgrades can prove beneficial. The selection of specific safety improvements should be based on careful analysis of road characteristics, traffic patterns, and accident data. Each improvement is tailored to improve visibility, reduce conflicts, manage speeds, and optimize traffic flow to enhance overall safety in high crash areas. Accelerating the following safety improvements can improve operations sooner.



Baseline Figure 1 Crash Data

The VE team recommends the following safety improvements to be designed and constructed as a preceding and separate project.

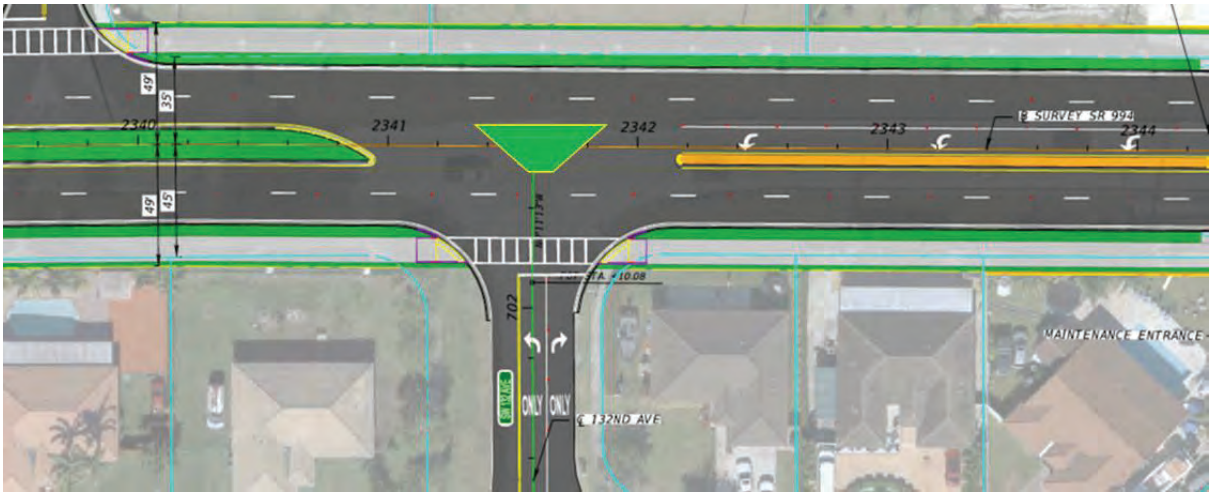
<u>137th:</u> Configure intersection as shown in Recommendation Figure 1 and add adaptive signal control system with Q-detection technology. Modify the signal cabinet to adapt green light along Quail Roost. Also, add Q-loop SB to EB left turn queue to adapt green signal and improve throughput. Extend queue lanes approaching the intersection to maximum length.

Recommendation Figure 1

134th: Signalize the intersection at 134th within existing ROW, Recommendation Figure 2 shows an example of a 78-ft mast arm placed diagonally within ROW.

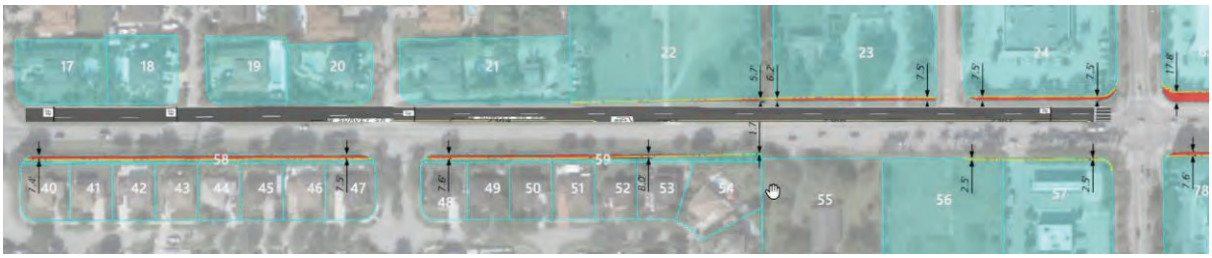
Recommendation Figure 2

132nd Ave, 133rd Ave, 133rd Ct, 130th Ave, 129th Ave: provide left turn lanes where ROW allows and provide directional bays to improve turning movements and prevent other movements, similarly as shown in Recommendation Figure 3 but one lane in each direction instead.



Recommendation Figure 3

127th: Extend the merge lane west of 127th Ave to increase the merge distance and increase capacity through 130th Ave.



Recommendation Figure 4

Assumptions/Calculations

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
SIGNALIZED INTERSECTION	EA	1	$ 280,000	$ 280,000	1	$ 150,000	$ 150,000
TYPE B STABILIZATION	SY		$ 9	$ -	24,000	$ 9	$ 221,760
OPTIONAL BASE, GROUP 9	SY		$ 37	$ -	24,000	$ 37	$ 894,000
SUPERPAVE ASPHALTIC CONC, TRAFFIC C	TNS		$ 143	$ -	8332	$ 143	$ 1,191,976
ASPHALT CONCRETE FRICTION COURSE,TRAFFIC C, FC-12.5, PG 76-22	TNS		$ 192	$ -	6249	$ 192	$ 1,202,183
CONCRETE SIDEWALK, 4"	SY		$ 45	$ -	287	$ 45	$ 12,901
CONCRETE CURB & GUTTER, TYPE F	LF		$ 24	$ -	287	$ 24	$ 6,785
LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	EA	47	$ 326	$ 15,303	51	$ 326	$ 16,606
LOOP ASSEMBLY, F&I, TYPE F	AS	47	$ 1,193	$ 56,085	51	$ 1,193	$ 60,858
Subtotal Construction				*$ 351,388*			*$ 3,757,068*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 107,806			$ 1,152,668
Total Construction				**$ 459,194**			**$ 4,909,736**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ 459,194***			***$ 4,909,736***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ (4,450,542)**

VE RECOMMENDATION NO. 9: ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS	Idea No. 17

VE RECOMMENDATION NO. 9	IDEA NO.		
Advance Safety Improvements at Critical Locations			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	7.5
Improves traffic control Increases capacity from SW127th to the bridge Reduces conflicts	Weight	26.1	
	Contribution	130.5	196
Local Operations	Rating	5	8
Improves queuing conditions Reduces conflicts Improves traffic control	Weight	21.4	
	Contribution	107	171
Maintainability	Rating	5	4
Increases traffic signals Increases pavement area	Weight	11.9	
	Contribution	59.5	48
Construction Impacts	Rating	5	5
No change	Weight	7.1	
	Contribution	35.5	36
Environmental Impacts	Rating	5	5
No change	Weight	19.0	
	Contribution	95	95
Project Schedule	Rating	5	5
No change	Weight	14.2	
	Contribution	71	71
	Total Performance	499	617
	Net Change in Performance		24%

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26

Baseline Concept

The baseline design proposes a trail crossing underneath span 3 of the bridge on Quail Roost over the Black Creek Canal.

Recommendation Concept

The recommendation concept is to eliminate the trail crossing under the bridge and keep at grade crossing with improved signalization alternatives.

Advantages	Disadvantages
• Reduces structure footprint • Keeps structure at a lower elevation • Decreases construction duration and MOT complexity. • Simplifies structures design (1 span FIB bridge) • Reduces costs • Reduces ROW impact • Reduces pile operations • Less intrusive to neighboring properties • Reduces noise	• Trail users crossing at grade • Introduces controlled conflict • Increases user trip duration • Increases user delay costs

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$4,422,062	$191,250	$4,613,312
Recommendation Concept	$1,219,933	$0	$1,219,933
Cost Avoidance/ (Added Value)	$3,202,130	$191,250	$3,393,380

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓	✓	✓	✓

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

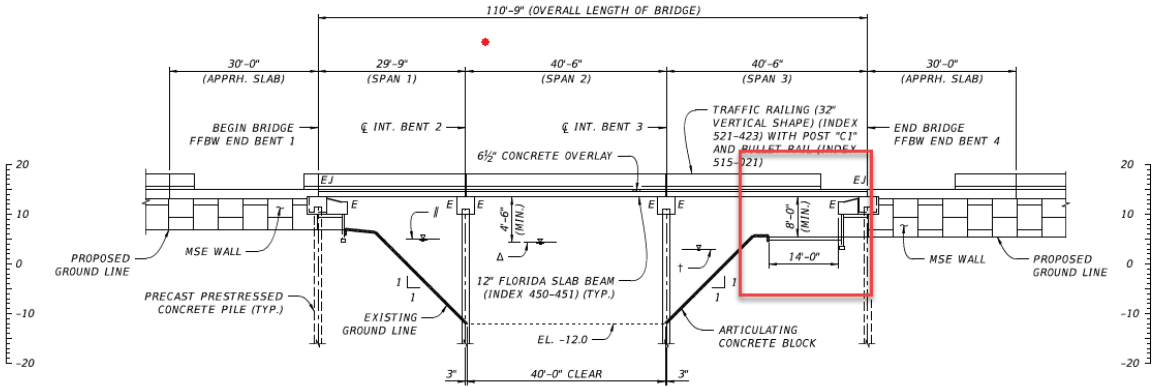
This recommendation addresses the proposed trail crossing under the bridge that crosses Black Creek Canal.

To accommodate the 8-ft minimum clearance required for the trail; the proposed ground level is approximately 8-ft higher than the existing which introduces the need for retaining walls around the bridge end bents parallel to the Black Creek Canal, and parallel to the four (4) adjacent residential properties . The proposed profile will significantly impact the profile of the side streets at the adjacent intersections.

The baseline profile shows an increase of 3-ft at the intersection, severely impacting the adjacent residential properties driveways. Although the baseline configuration provides the option of using the trail under the bridge, it does not eliminate the possibility of trail users crossing at grade since the trail has proposed extension on both ends that meet with the proposed shared use path (SUP) and the opening for the maintenance access of South Florida Water Management District (SFWMD).

Due to the proposed trail under the bridge, only shallow superstructures such as Florida Slab Beams (FSB) were considered viable which eliminates the possibility of a one span Florida I Beam (FIB) bridge.

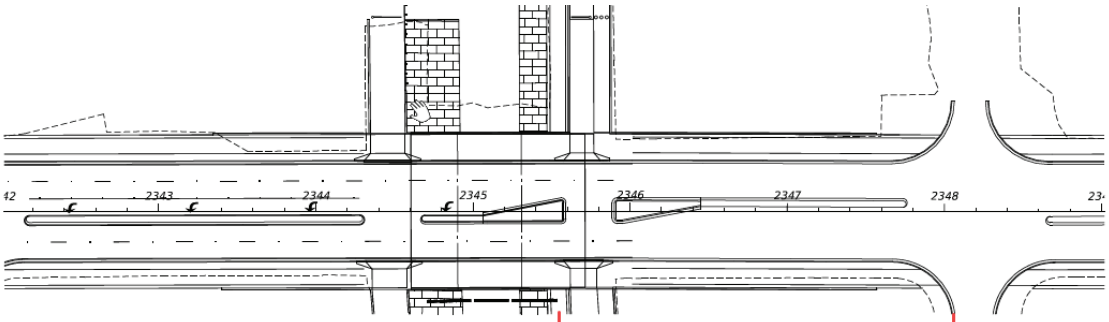
The proposed recommendation is to leave trail crossing at grade with similar or improved signalization alternatives. Currently the pedestrian crossing is equipped with rectangular rapid flash beacon (RRFB) and pavement markings to facilitate pedestrian/bicycle crossing and alert drivers of the pedestrian traffic. From the information provided there is no data indicating that pedestrian or bicycle accidents have occurred at this crossing. Keeping the bridge at grade will reduce the ROW impact to the adjoining residents.

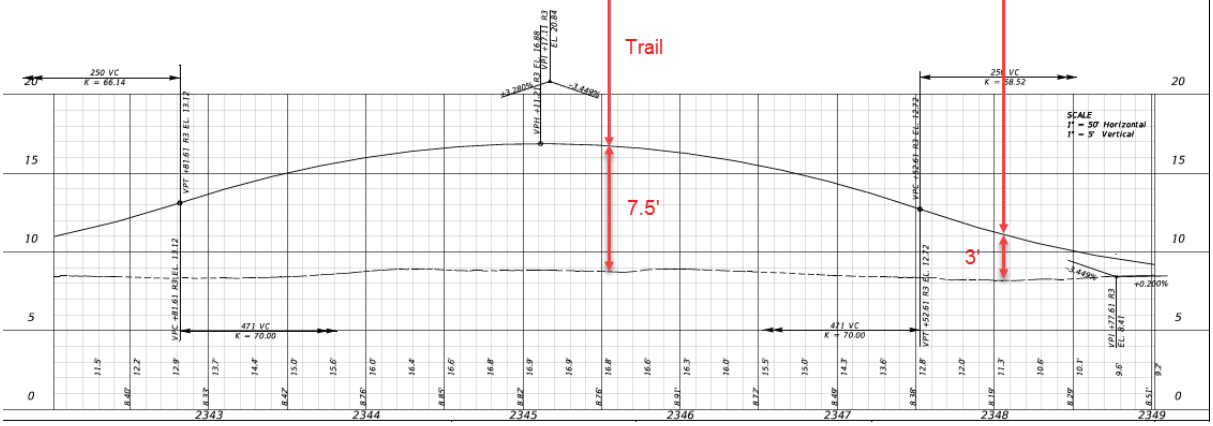


ELEVATION
(BULLET RAIL AND POST NOT SHOWN FOR CLARITY)

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26

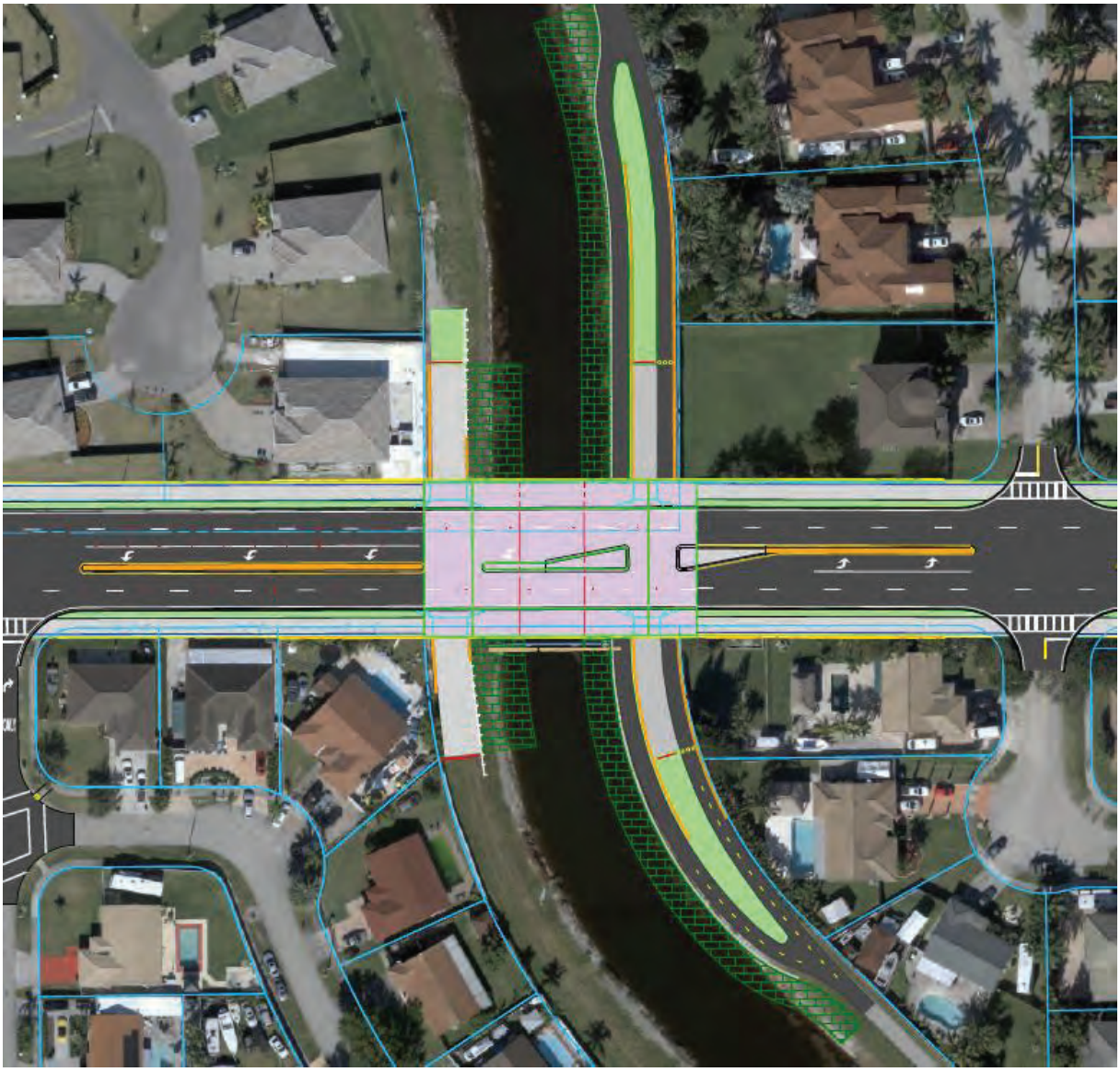
Baseline Figure 1





Baseline Figure 2

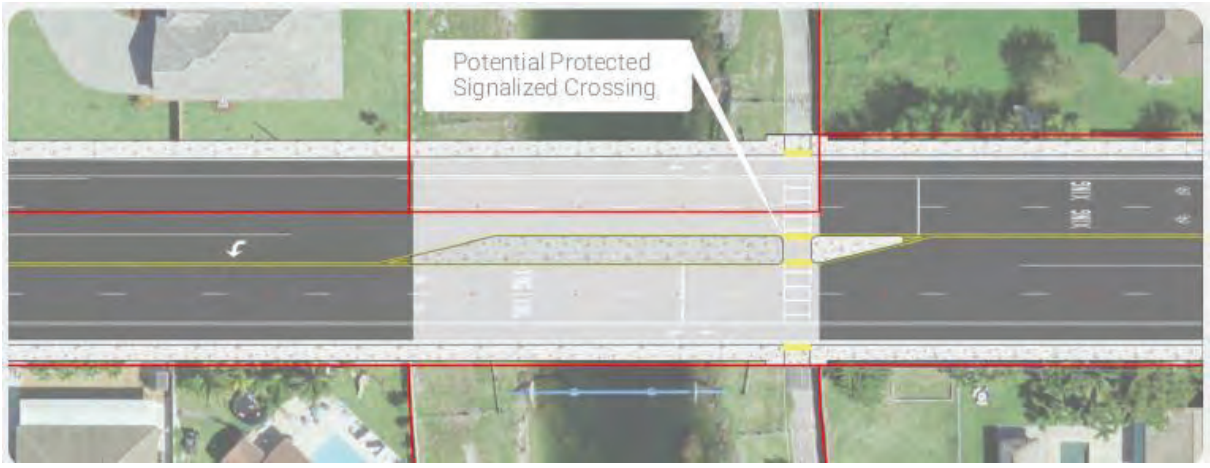
VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26



Baseline Figure 3

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26

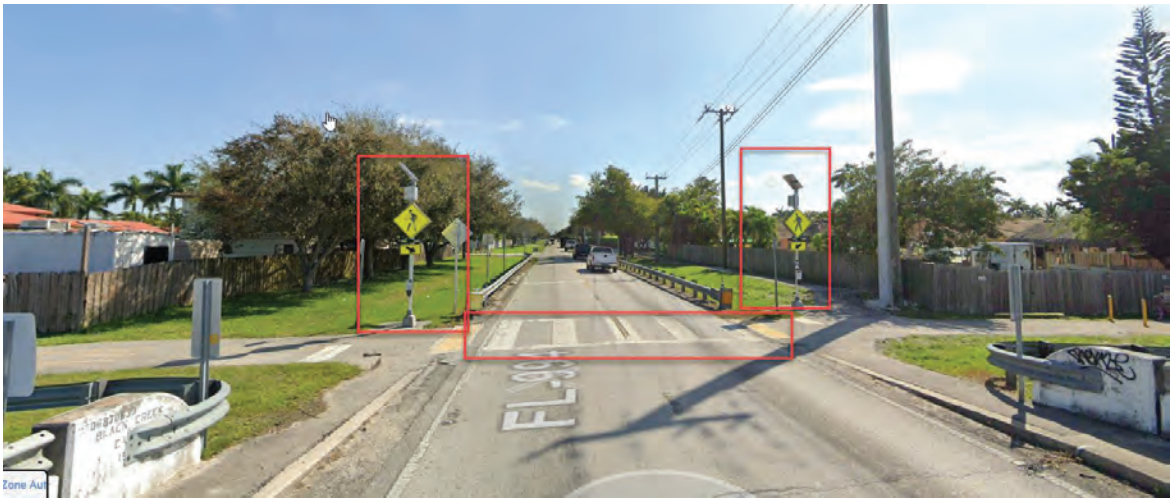
Baseline Figure 4



Recommended Concept Figure 1

Recommended Concept Figure 2

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26



Recommended Concept Figure 3

Assumptions/Calculations

This recommendation assumes a one span bridge using FIB 36” at 8-ft spacing.

The length of the bridge is assumed to be like the existing bridge length 88-ft = 90’.

For the bridge width assume same as baseline bridge width = 100’.

Cost per linear feet of FIB 36” = $ 240

Minimum deck thickness is 8.”

Deck concrete class II cost per cubic yard = $750

New Bridge Cost =

(Round up 100’/8’) *90’*240 + (100’*90’*8”/12) / 27 * 750 = 280,800 + 166,667 = $447,467

Midblock crossing cost assumption: Use a 78-ft mast arm assembly ($80,000) plus pedestrian pedestals, cabinets, striping, and incidentals, assumed $150,000.

NW corner Mean width SQFT =1’9” * 250-ft length to intersection =250 SF

SW corner Mean width SQFT = 8-ft * 250-ft length to intersection =2000 SF

SE corner Mean width = 6’5” * 300-ft length to intersection =1920 SF

NE corner Mean width =11’7” *300-ft length to intersection =3480 SF

Total ROW saved = 7,650 SQFT * $25 = $191,250

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
Bridge Baseline	SF	11038	$ 252	$ 2,781,576	0	$ 252	$ -
Bridge Recomendation FIB 36"	LF	0	$ 240	$ -	1,170	$ 240	$ 280,800
Bridge Recomendation Deck	CY	0	$ 750	$ -	222	$ 750	$ 166,667
Approach Slab Concrete	CY	222	$ 400	$ 88,800	222	$ 400	$ 88,800
Approach Slab Reinforcing	LB	44400	$ 1	$ 46,620	44400	$ 1	$ 46,620
Existing Bridge Demo	SF	3344	$ 60	$ 200,640	3344	$ 60	$ 200,640
East Side MSE Walls	SF	6600	$ 30	$ 198,000	0	$ 30	$ -
East Side MSE Walls	SF	2275	$ 30	$ 68,250	0	$ 30	$ -
Signalized Pedestrian Crossing, mast arm, cabinet, pedestrian pedestals, furnished & installed	AS	0	$ 150,000	$ -	1	$ 150,000	$ 150,000
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ 3,383,886*			*$ 933,527*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 1,038,176			$ 286,406
Total Construction				**$ 4,422,062**			**$ 1,219,933**
Utility Costs				$ -		$ -	$ -
Right of Way Costs	SF	7650.00	$ 25	$ 191,250.00	0	$ 25	$ -
TOTAL CAPITAL COST				***$ 4,613,312***			***$ 1,219,933***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ 3,393,380**

VE RECOMMENDATION NO. 10: ELIMINATE TRAIL UNDERPASS	Idea No(s). 2,3,26

VE RECOMMENDATION NO. 10	IDEA NO.		
Eliminate Trail Underpass			
PERFORMANCE MEASURES	Performance	Baseline	Recommendation
Attributes and Rating Rationale for Recommendation			
Main Line Operations	Rating	5	4
Introduces controlled conflict	Weight	26.1	
	Contribution	130.5	104
Local Operations	Rating	5	4.5
Removes free-flow pedestrian traffic	Weight	21.4	
	Contribution	107	96
Maintainability	Rating	5	7
Less walls Shorter structure	Weight	11.9	
	Contribution	59.5	83
Construction Impacts	Rating	5	8
Less intrusive to neighborhoods Reduces noise Reduces pile operations	Weight	7.1	
	Contribution	35.5	57
Environmental Impacts	Rating	5	8
Improves aesthetics External obsolescence Less intrusive to neighborhoods Reduces ROW impacts	Weight	19.0	
	Contribution	95	152
Project Schedule	Rating	5	8
Reduces pile operations Less embankment Reduces number of MSE walls	Weight	14.2	
	Contribution	71	114
	Total Performance	499	606
	Net Change in Performance		22%

VE RECOMMENDATION NO. 11: IMPLEMENT TSMO STRATEGIES	Idea No. 27

Baseline Concept

ITS components are being incorporated in the baseline design. However, it does not identify these components to be a part of a Traffic System Management and Operations plan.

Recommendation Concept

Use Traffic System Management and Operations (TSMO) strategies.

Advantages	Disadvantages
• Improves operations by adapting real-time traffic • Informs public of better/faster routes • Notifies public of delays • Provides platform for regional operations	• Slight cost increase for technology and maintenance • Requires coordination with County/City operator

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$0		$0
Recommendation Concept	$766,022		$766,022
Cost Avoidance/(Added Value)	($766,022)		($766,022)

FHWA Function Benefit

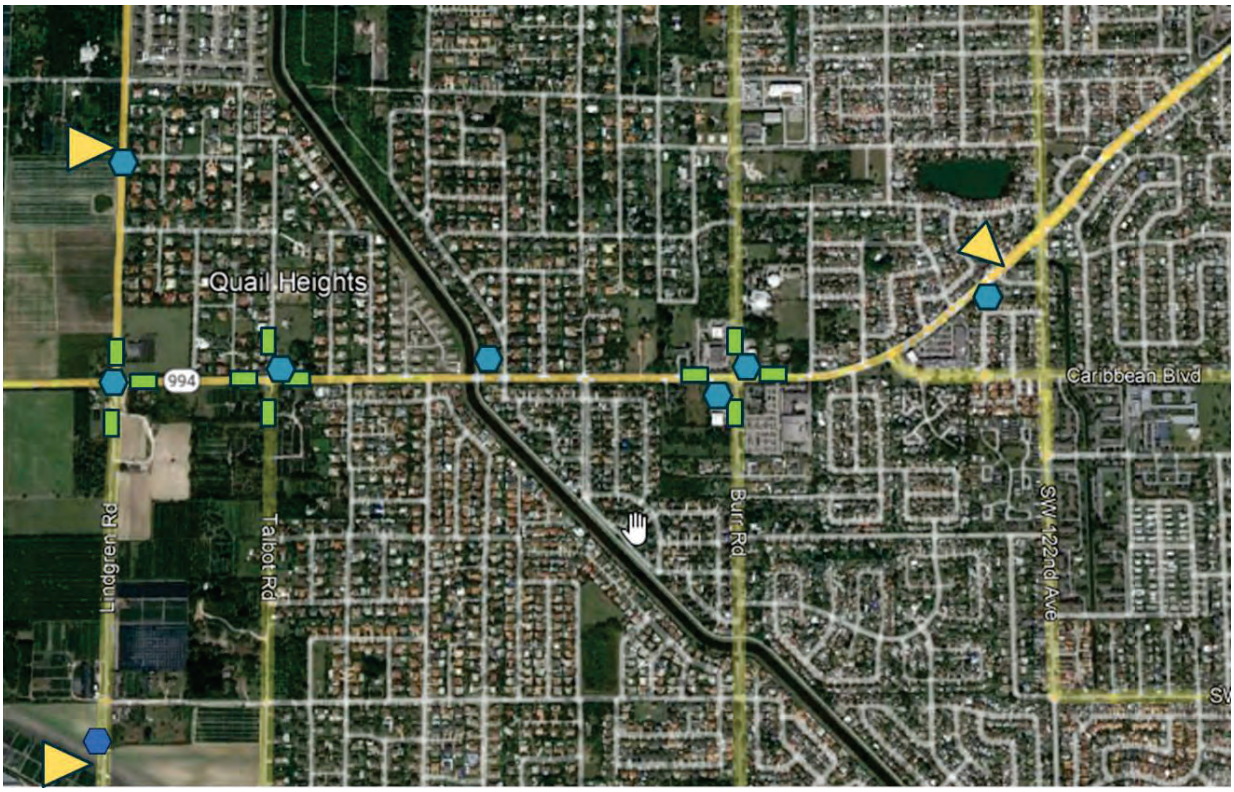
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓			

VE RECOMMENDATION NO. 11: IMPLEMENT TSMO STRATEGIES	Idea No. 27

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Baseline



Queue Loop Detector
Dynamic Message Sign (DMS)
Video Cameras

Recommended Concept

VE RECOMMENDATION NO. 11: IMPLEMENT TSMO STRATEGIES	Idea No. 27

The VE team recommends the installation and deployment of a single, centralized adaptive traffic control system (ATCS). To accomplish this, fiber optic cable communications to intersections that are not currently on fiber should also be installed, and Integrated Corridor Management (ICM) approach should be deployed into existing regional traffic operations and management. These strategies will manage traffic approaching the intersections and thus be able to improve operations along the entire corridor.

Adaptive Traffic Control Systems (ATCSs) adjusts traffic signal timing in real-time based on the current traffic conditions, volume/demand and system capacity. TSP, under the new ATCS, is an option to optimize bus operations, and would become a scalable module.

Signal timings and travel times for both transit and general traffic along the proposed corridor would be adjusted in real-time and optimized.

Assumptions/Calculations

Evaluate the 9 intersections/segments along the corridor to validate that they have Synchro Green Adaptive (SGA) technology and are in good condition and do not need to be upgraded. The estimate assumes replacing all 9.

The intersections/segments were as follows:

Signalized Intersections:

- SW 137th Avenue
- SW 127th Avenue
- SW 134th Avenue (Proposed)

Unsignalized Intersections:

- SW 133rd Avenue
- SW 132nd Place
- SW 132nd Avenue
- SW 130th Avenue
- SW 129th Avenue

The following intersections and segments are considered high crash locations and unsignalized, for which ITS components are recommended.

Intersection:

1. SW 134th Avenue (MP 4.30 to MP 4.36),
2. SW 132nd Avenue: (MP 4.58 to MP 4.59),

Segment

1. From SW 137th Avenue to east of SW 129th Avenue: (MP 4.075 to 4.961)

ITS Assets needed:

A. Field Equipment
   a. <u>Inductive loop detectors</u>

VE RECOMMENDATION NO. 11: IMPLEMENT TSMO STRATEGIES	Idea No. 27

Installed beneath the road surface to detect the presence of vehicles. These detectors generate an electromagnetic field and measure disturbances caused by passing vehicles, providing real-time traffic information such as vehicle presence, occupancy, and speed.

b. Video imaging
Video imaging systems employ cameras and computer vision algorithms to analyze live or recorded video footage of roadways. They can detect various traffic parameters, including vehicle count, speed, and lane occupancy. Additionally, video imaging systems are used for license plate recognition, incident detection, and surveillance purposes.

c. DMS boards communicate real-time information to users for improved decision options.

B. Communication

a. Wired communication
Wired communication infrastructure forms the backbone of an intelligent transport system. It includes fiber optic cables, Ethernet connections, and other wired networks that facilitate data transmission between various components of the system. Wired communication ensures high-speed and reliable data exchange.

b. Wireless communication
Wireless communication plays a vital role in ITS, enabling real-time connectivity between field devices, traffic management centers, and vehicles. Technologies such as cellular networks, Wi-Fi, and dedicated short-range communications (DSRC) allow for seamless data transmission and communication in both urban and remote areas.

C. Traffic management center

a. Basic facility
It includes workstations, servers, network infrastructure, and control systems necessary for system operation.

b. Incident detection
Transportation Management Centers (TMC) employ advanced algorithms and data analytics to detect traffic incidents such as accidents, congestion, or road hazards. Early detection enables prompt response, improving safety and minimizing the impact on traffic flow.

c. Incident response
Once an incident is detected, TMC facilitate quick and effective incident response. They coordinate emergency services, provide real-time information to drivers, and implement traffic diversions to ensure the safety of road users and minimize disruptions.

VE RECOMMENDATION NO. 11: IMPLEMENT TSMO STRATEGIES	Idea No. 27

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
Queue Loop Detector	EA	0	$381.52	$ -	19	$ 381.52	$ 7,249
Queue Loop Detector Assembly	EA	0	$1,529.65	$ -	19	$ 1,529.65	$ 29,063
UPS Power Supply	EA	0	$13,665.00	$ -	1	$ 13,665.00	$ 13,665
Dynamic Message Sign (DMS)	EA	0	$143,797.50	$ -	3	$ 143,797.50	$ 431,393
Video Cameras	EA	0	$8,881.50	$ -	8	$ 8,881.50	$ 71,052
Wired Communication	LS	0	$ 30,000.00	$ -	1	$ 30,000.00	$ 30,000
Wireless Communication	LS	0	$3,760.00	$ -	1	$ 3,760.00	$ 3,760
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ -*			*$ 586,182*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ -			$ 179,841
Total Construction				**$ -**			**$ 766,022**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ -***			***$ 766,022***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ (766,022)**

VE RECOMMENDATION NO. 11: IMPLEMENT TSMO STRATEGIES	Idea No. 27

VE RECOMMENDATION NO. 11 Implement TSMO Strategies	IDEA NO.		
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations Improve traffic operations Improve emergency operations Improves communications with drivers Traffic control adapts to demand	Rating	5	7
	Weight	26.1	
	Contribution	130.5	182.7
Local Operations Improves traffic operations Improves emergency operations	Rating	5	7
	Weight	21.4	
	Contribution	107	149.8
Maintainability Increases number of assets to maintain	Rating	5	4
	Weight	11.9	
	Contribution	59.5	47.6
Construction Impacts No change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts No change	Rating	5	5
	Weight	19.0	
	Contribution	95	95
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	582
	Net Change in Performance		17%

VE RECOMMENDATION NO. 12: REDUCE LIMITS OF PROJECTS ALONG SW 127TH,134TH, SW 137TH	Idea No. 29

Baseline Concept

The baseline concept shows extensive improvements along side streets that are maintained by Miami-Dade County. The roads are SW 137 Ave (1350-ft North of intersection, 1550-ft South of intersection), SW 134 Ave (700-ft South of intersection, 500-ft North of intersection) and SW 127 Ave (500-ft North of intersection, 850-ft South of intersection).

Recommendation Concept

Reduce the limits of the proposed baseline project along crossing roads and transfer the scope to Miami-Dade County . This includes reducing the limits of the project along SW 137th Ave, SW 134th Ave, and SW 127th Ave.

Advantages	Disadvantages
• Reduce costs • Reduce construction duration • Transfers some ROW to county for acquisition	• May not operate as desired

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$7,869,583		$7,869,583
Recommendation Concept	$7,344,869		$7,344,869
Cost Avoidance/ (Added Value)	$524,714		$524,714

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
			✓	✓

VE RECOMMENDATION NO. 12: REDUCE LIMITS OF PROJECTS ALONG SW 127TH,134TH, SW 137TH	Idea No. 29

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Below is an excerpt of the FDOT Design Manual (FDM), section 210 Arterials and Collectors.

210.2.5 Lane Tapers

The minimum merging roadway transition length (L) is calculated as follows:

(1) Use $L = (W*S^2)/60$ for design speeds ≤ 40 mph

(2) Use $L = W*S$ for design speeds ≥ 45 mph

Where: L = length of taper, feet

W = width of lateral transition, feet

S = design speed, mph

Exhibit 210-1 through ***210-6*** illustrate standard roadway transitions. For conditions not addressed in these figures, use the following minimum taper lengths:

- Merging Taper = L
- Shifting Taper = L/2
- Shoulder Taper = L/3

Where an abrupt change in roadway typical (e.g., 4-lane section to a 6-lane section) a striped lane transition may be considered when all the following conditions are met:

- New pavement widths are not substantially greater than the joining pavement,
- Grade differentials are slight, and
- Future widening is expected.

The work on the side streets is needed to connect the project back to the existing configuration along 137th Ave, 134th Ave and 127th Ave. The section shown above from the FDOT Design Manual (FDM) was used to determine the appropriate taper length for the corridor. With:

$$L = \frac{W * S^2}{60}$$

W1= 11

W2 = (SW 137th Ave. ½ north side median) = 11.25-ft

W3 = (SW 137th Ave. ½ south side median) = 8.5-ft

S = 40 mph

The Final Taper lengths are:

L1= (Length of Taper to merge lane) = 295-ft

L2 = (Length of North side lane turn divided to undivided) = 300-ft

L3 = (Length of North side lane turn divided to undivided) = 227-ft

VE RECOMMENDATION NO. 12: REDUCE LIMITS OF PROJECTS ALONG SW 127TH,134TH, SW 137TH	Idea No. 29

With these numbers it was determined that the lengths needed to merge the roads on SW 137th Ave. on the North side are 295-ft + 300 = 595-ft and on the South side 295-ft + 227-ft = 522-ft

Using the numbers calculated above the VE team chose a realistic approximate start point for this merge on both sides of SW 137th Avenue. When measuring out it was determined that the tapers are longer than necessary: on the North side approximately 445-ft and on the South side 695'. The calculated lengths needed to tie in include 50-ft of roadway to match existing conditions on both ends. The VE team did not learn of reasons that the taper lengths were started further away or were longer, and by FDM Standards there is about 1140-ft of extra roadway being constructed on a road that has upcoming projects from the County.

Looking at SW 127th Ave. the taper lengths seem appropriate, although there is an observation about the introduction of the right turn lane being unusual. This is something that may need to be reviewed by the contractor.

At SW 134th Ave. the taper lengths appeared to be appropriate to tie into the existing roadway.

Assumptions/Calculations

Reduction							
North					L	445	ft
Asphalt	342.65	ton	Assume similar pavement design as mainline		W	36	ft
Stabilization	1780	sy	Assume 3 Lanes - Reconstruction				
OBG	1780	sy					
Curb E	1278	lf					
South					L	695	ft
Asphalt	535.15	ton			W	36	ft
Stabilization	2780	sy					
OBG	2780	sy					
Curb E	640	lf					

VE RECOMMENDATION NO. 12: REDUCE LIMITS OF PROJECTS ALONG SW 127TH,134TH, SW 137TH	Idea No. 29

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
Type B Stabilization	SY	94312.34	$ 9.24	$ 871,446	89752.3	$ 9.24	$ 829,312
Optional Base, Base Group 9	SY	61419.92	$ 37.25	$ 2,287,892	56859.9	$ 37.25	$ 2,118,032
Superpave SP	TON	9241.4	$ 143.06	$ 1,322,079	8739.6	$ 143.06	$ 1,250,291
Asphalt FC	TON	5842	$ 192.38	$ 1,123,863	5466	$ 192.38	$ 1,051,461
Curb and Gutter - Type Curb E	LF	17628.83	$ 23.64	$ 416,746	15710.8	$ 23.64	$ 371,404
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ 6,022,025*			*$ 5,620,500*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 1,847,557			$ 1,724,369
Total Construction				**$ 7,869,583**			**$ 7,344,869**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ 7,869,583***			***$ 7,344,869***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ 524,714**

VE RECOMMENDATION NO. 12: REDUCE LIMITS OF PROJECTS ALONG SW 127TH,134TH, SW 137TH	Idea No. 29

VE RECOMMENDATION NO. 12 Reduce Limits of Projects along SW 127th, SW 134th & SW 137th	IDEA NO.		
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations Reduces transition length to FDM requirements	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability No change	Rating	5	5
	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts No change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts No change	Rating	5	5
	Weight	19.0	
	Contribution	95	95
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	499
	Net Change in Performance		0%

VE RECOMMENDATION NO. 13: REDUCE BRIDGE WIDTH	Idea No. 34

Baseline Concept

The baseline concept shows a median on the bridge that varies from 4’-2” to 13’-10” and a 5’-2” buffer on both sides.

Recommendation Concept

The VE team recommends reducing the bridge width by constructing two (2) separate bridges, eastbound and westbound, in lieu of the 13'10” median and eliminating the 5’2” buffers on both sides.

Advantages	Disadvantages
• Reduce ROW • Reduce bridge costs • Reduce impervious area	• Introduce horizontal curves • Eliminate maintenance access

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$3,634,964		$3,634,964
Recommendation Concept	$2,924,305		$2,924,305
Cost Avoidance/ (Added Value)	$710,659		$710,659

FHWA Function Benefit

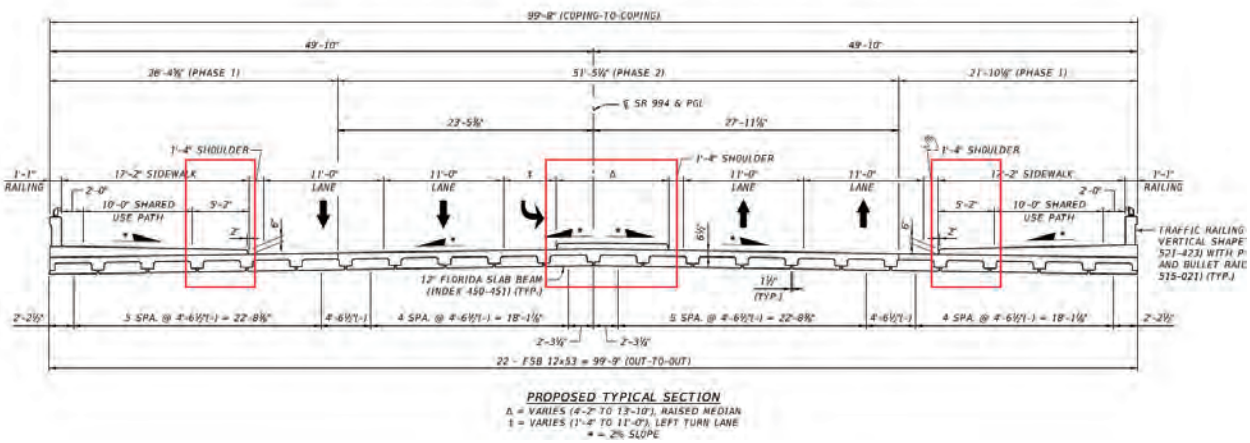
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	✓

VE RECOMMENDATION NO. 13: REDUCE BRIDGE WIDTH	Idea No. 34

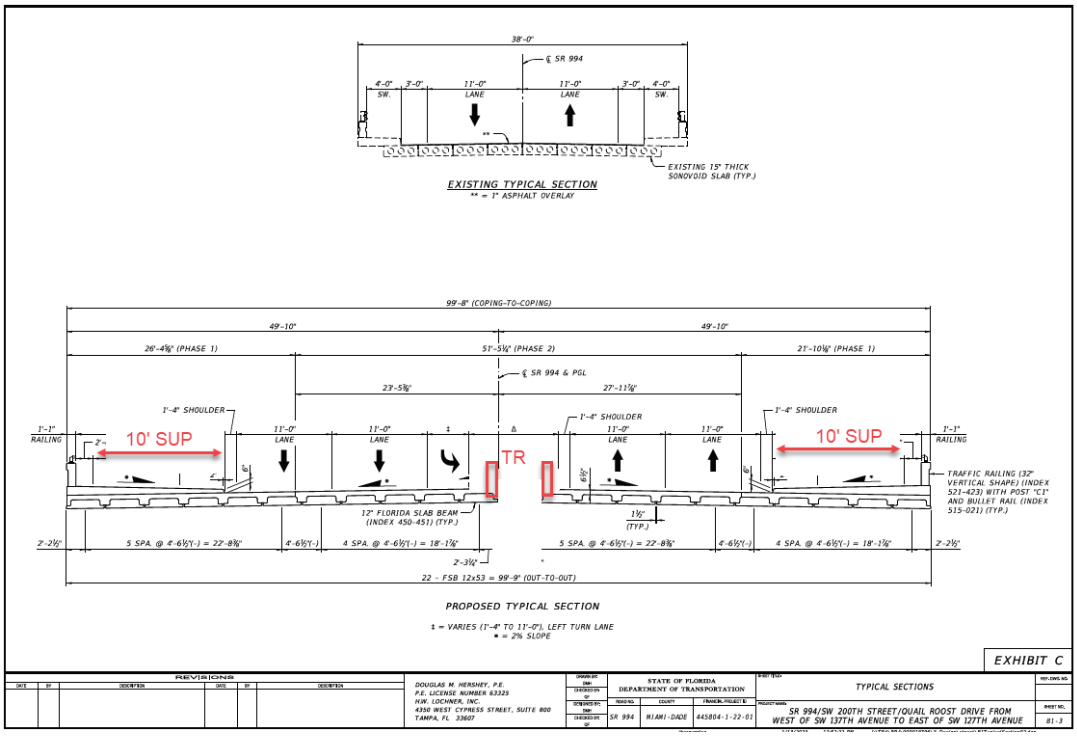
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The objective of this recommendation is to eliminate the 13'-10" median/traffic separator and the 5'-2" buffers from both sides. By building two separate bridges and removing the buffers the total area of the bridge portion will be reduced to about 8,880 sf (80-ft * 111') compared to the baseline design area 11,038 sf.

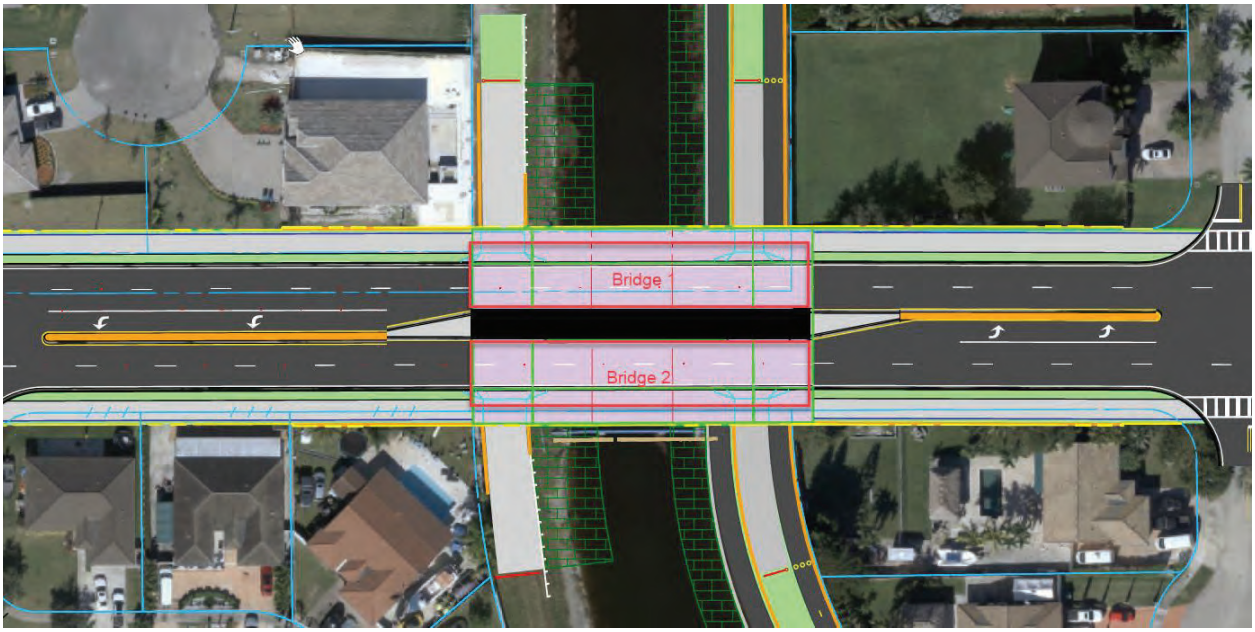


Baseline Figure 1



Recommended Concept Figure 1

VE RECOMMENDATION NO. 13: REDUCE BRIDGE WIDTH	Idea No. 34



Recommended Concept Figure 2

Splitting the bridge in two will help with constructability and may reduce construction duration.

Assumptions/Calculations

Assume ROW is donated by South Florida Water Management (SFWM)

Assumed 2 bridges with 40-ft width and 111-ft length

Area Bridge 1 = 40-ft * 111-ft =4440 sf

Area Bridge 2 = 40-ft * 111-ft =4440sf

Other costs related to designing and building two bridges not included

VE RECOMMENDATION NO. 13: REDUCE BRIDGE WIDTH	Idea No. 34

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
New Bridge Baseline	SF	11038	$ 252	$ 2,781,576		$ 252	$ -
Recommendation Bridge 1	SF	0	$ 252	$ -	4,440	$ 252	$ 1,118,880
Recommendation Bridge 2	SF	0	$ 252	$ -	4,440	$ 252	$ 1,118,880
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ 2,781,576*			*$ 2,237,760*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 853,388			$ 686,545
Total Construction				**$ 3,634,964**			**$ 2,924,305**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ 3,634,964***			***$ 2,924,305***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ 710,659**

VE RECOMMENDATION NO. 13: REDUCE BRIDGE WIDTH	Idea No. 34

VE RECOMMENDATION NO. 13 Reduce Bridge Width	IDEA NO.		
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations No change	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability No change	Rating	5	5
	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts No change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts Less impervious Less ROW requirement	Rating	5	6
	Weight	19.0	
	Contribution	95	114
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	518
	Net Change in Performance		4%

VE RECOMMENDATION NO. 14: INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION	Idea No. 44

Baseline Concept

It is assumed that there is no ITS planned during the construction phase of this project.

Recommendation Concept

Install ITS infrastructure prior to construction to monitor work zones during construction.

Advantages	Disadvantages
• Improves MOT during construction • Improves emergency response during construction • Improves public perception during construction by providing real-time travel information • Actively manages traffic and events (such as lane closure, crashes, etc.) • Creates safer work zones for both highway construction workers and motorists	• Some rework may be necessary • Operation and maintenance cost • Additional coordination with outside agencies

Cost Summary	Construction	Right-of-way	Total
Baseline Concept	$0		$0
Recommendation Concept	$278,871		$278,871
Cost Avoidance/ (Added Value)	($278,871)		($278,871)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓			✓	

VE RECOMMENDATION NO. 14: INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION	Idea No. 44

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The objective of this recommendation is the installation of ITS devices to collect real-time traffic and roadway conditions data, provide real-time traveler information to motorists in a visual format in advance of and within construction work zone zones, provide real-time alerts concerning traffic and roadway conditions to project stakeholders, enable stakeholders the ability to access real-time traffic and roadway conditions data, and coordinate deployment with general construction contractors for seamless MOT strategies within construction work zones.

Real-time traffic and roadway conditions data will be collected throughout the construction work zone limits, utilizing a variety of ITS equipment. Data collection-capable devices will be deployed at regular intervals to collect all pertinent traffic data and provide end-to-end coverage for the current construction limits. Devices proposed for data collection may include:

CCTV cameras are used to determine the details of traffic events along monitored arterial corridors. In addition, they are useful tools for detecting and verifying incidents and damage to the roadway infrastructure.

Recommended Concept Figure 1

Bluetooth receivers are capable of determining information about real-time traffic conditions, including average travel time and travel speed, as well as planning level information, such as origin-destination.

Recommended Concept Figure 2

VE RECOMMENDATION NO. 14: INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION	Idea No. 44

Microwave vehicle detection system (MVDS) is a technology subsystem utilized to collect raw traffic conditions data, including vehicle presence, travel speed, volume, lane occupancy, and more.

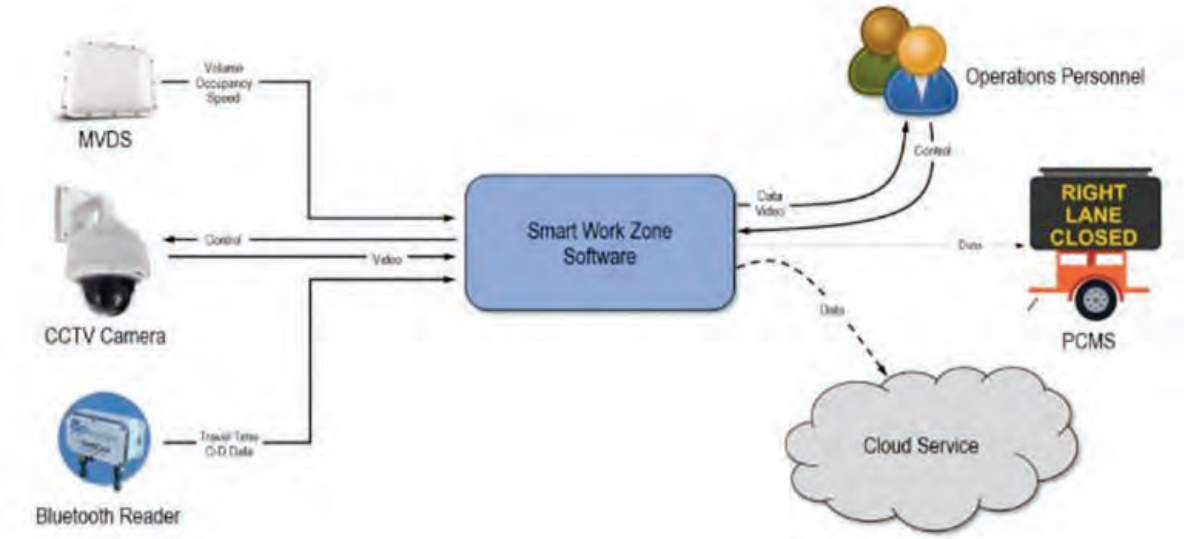
Recommended Concept Figure 3

To alert the roadway users about traffic conditions within the work zone, the use of Portable Changeable Message Signe (PCMS) is proposed. The PCMS is a traffic control device capable of displaying a variety of messages to inform motorists of upcoming driving conditions.

Recommended Concept Figure 4

VE RECOMMENDATION NO. 14: INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION	Idea No. 44

The use of these technologies during the construction phase will determine real-time traffic conditions and relay pertinent information to motorists in advance of and within the work zone limits. Raw traffic condition data (volume, lane occupancy, and speed) will be collected using vehicle detection systems and provided to the software for processing. The software will analyze the date and determine the information to be disseminated to the travelling public via PCMS. Operational staff will be provided the ability to monitor traffic and roadway conditions in real-time using CCTV cameras.



- Queue Detection and Warning:

  Provide ability to identify anomalies in traffic patterns (queues) and communicate to the travelling public in advance of the work zone limits and alert the drivers of these anomalies and reduce incoming speeds.

- Advanced Incident Warning:

  Identify roadway events (crashes, debris on roadway, stalled vehicle) and notify motorists ahead of the incident utilizing information displayed on PCMS. Operational staff will use CCTV cameras to verify incidents prior to enacting the appropriate response (notifying emergency responders, updating PCMS, and coordinating with local stakeholders).

- Advanced Detour Routing Information:

  Provide upstream notification of detours prior to entering the work zone. This information will offer motorists the opportunity to select alternative routes and/or prepare for the approaching detour accordingly.

Assumptions/Calculations

- Similar efforts have been done within D6 and have positive results.
- Existing video detection cameras at SW 127 Ave will be used. Only the Bluetooth devices and the Microwave Vehicle Detection Systems will be installed at this location.
- If the Districts elects to use TSMO strategies in the base cost, the cost of this recommendation should be eliminated.

VE RECOMMENDATION NO. 14: INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION

Idea No. 44

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
VEHICLE DETECTION SYSTEM- VIDEO, FURNISH & INSTALL CABINET EQUIPMENT	EA		$5,758	$ -	1	$ 5,758	$ 5,758
VEHICLE DETECTION SYSTEM- VIDEO, FURNISH & INSTALL ABOVE GROUND	EA		$3,826	$ -	4	$ 3,826	$ 15,305
SIGNAL CABLE- REPAIR/REPLACE/OTHER, FURNISH & INSTALL	LF		$12	$ -	250	$ 12	$ 3,015
CONDUIT, FURNISH & INSTALL, DIRECTIONAL BOR	LF		$34	$ -	200	$ 34	$ 6,728
PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA		$1,125	$ -	4	$ 1,125	$ 4,498
PORTABLE CHANGEABLE MESSAGE SIGN, TEMPORARY	ED		$11	$ -	250	$ 11	$ 2,660
VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA		$10,793	$ -	2	$ 10,793	$ 21,586
VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA		$15,023	$ -	8	$ 15,023	$ 120,180
BLUETOOTH DATA COLLECTION DEVICES	EA		$4,209	$ -	8	$ 4,209	$ 33,670
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				$ -			*$ 213,400*
Mark-Up (MOT, Mob., PE, CEI)	31%			$ -			$ 65,471
Total Construction				**$ -**			**$ 278,871**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ -***			***$ 278,871***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ (278,871)**

VE RECOMMENDATION NO. 14: INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION

Idea No. 44

VE RECOMMENDATION NO. 14 Install ITS Infrastructure Prior to Construction	IDEA NO.		
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations No change	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability No change	Rating	5	5
	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts Improves mobility during construction Improves accident response times Improves communications with drivers in a crash event	Rating	5	7
	Weight	7.1	
	Contribution	35.5	49.7
Environmental Impacts No change	Rating	5	5
	Weight	19.0	
	Contribution	95	95
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	513
	Net Change in Performance		3%

VE RECOMMENDATION NO. 15: REMOVE 196TH STREET CONNECTOR	Idea No. 50

Baseline Concept

Provide 196th Street connector between SW 134th Ave to SW 133 Court

Remove SW 196th Ave Connector

Remove 196th Street connector from project

Advantages	Disadvantages
• Reduces costs • Reduces construction duration • Reduces ROW costs	• County opposition • Reduces access to local roads (not Quail)

Cost Summary	Construction	Right-of-way	Total Cost
Baseline Concept	$177,812		$177,812
Recommendation Concept	$0		$0
Cost Avoidance/ (Added Value)	$177,812		$177,812

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
			✓	

VE RECOMMENDATION NO. 15: REMOVE 196TH STREET CONNECTOR	Idea No. 50

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The VE team discussed the need to whether add a county road into this State project is warranted and determined it was unnecessary. This proposed 196th Street connector is not mentioned in the Preliminary Engineering Report (PER) and only found in Appendix Q-Preferred Alternative Concept Plans PDF. There are no commitments in the PER related to the 196th Street connector. The VE identified a reduction in construction cost if the 196th Street connector was removed from the SR 994/Quail Roost project.

Baseline Concept

Recommended Concept

VE RECOMMENDATION NO. 15: REMOVE 196TH STREET CONNECTOR	Idea No. 50

Assumptions/Calculations

22-ft wide roadway x 483-ft roadway length = 10,867.5 SY (22'*483'=10,626 SF, 1181 SY)

Asphalt FC 1.5-ft = 99.62 TN

Asphalt SP 2.0-ft = 132.82 TN

VE Study Cost Calculations

SR 994 / SW 200thSt / Quail Roost Drive Project

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
TYPE B STABILIZATION	SY	3542	$ 9.24	$ 32,728	0	$ 9.24	$ -
OPTIONAL BASE,BASE GROUP 01	SY	3542	$ 18.40	$ 65,173	0	$ 18.40	$ -
SUPERPAVE ASPHALTIC CONC, TRAFFIC C	TON	133	$ 143.06	$ 19,001	0	$ 143.06	$ -
ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	TON	100	$ 192.38	$ 19,165		$ 192.38	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
				$ -		$ -	$ -
Subtotal Construction				*$ 136,067*			$ -
Mark-Up (MOT, Mob., PE, CEI)	31%			$ 41,745			$ -
Total Construction				**$ 177,812**			**$ -**
Utility Costs				$ -		$ -	$ -
Right of Way Costs				$ -		$ -	$ -
TOTAL CAPITAL COST				***$ 177,812***			***$ -***
COST CAPITAL SAVINGS / (VALUE ADDED)							**$ 177,812**

VE RECOMMENDATION NO. 15: REMOVE 196TH STREET CONNECTOR	Idea No. 50

VE RECOMMENDATION NO. 15 Remove 196th St Connector Improvements	IDEA NO.		
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations Removing scope of work that shouldn't have been included No change overall	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability No new road to maintain	Rating	5	6
	Weight	11.9	
	Contribution	59.5	71.4
Construction Impacts Eliminates construction impacts in that street	Rating	5	6
	Weight	7.1	
	Contribution	35.5	42.6
Environmental Impacts Eliminates impervious in that street/area	Rating	5	6
	Weight	19.0	
	Contribution	95	114
Project Schedule Reduce permits requirements Reduce construction duration (not in critical path)	Rating	5	5.25
	Weight	14.2	
	Contribution	71	74.6
	Total Performance	499	540
	Net Change in Performance		8%

VE RECOMMENDATION NO. 16: SEEK ROW COST REIMBURSEMENT OF COUNTY ENCROACHMENTS TO PRIVATE OWNERS	Idea No. 26

Baseline Concept

The baseline concept shows the purchase of land along 134th Ave, south of Quail Roost, to normalize an encroachment by the County onto private owners.

Recommendation Concept

Seek reimbursement from County of cost of land to normalize the encroachment.

Advantages	Disadvantages
• Reduces cost of ROW • Normalizes property encroachment • Allocates cost to County	• Requires funds transfer • Requires Local Funding Agreement (LFA)

Cost Summary	Construction	Right-of-way	Total
Baseline Concept		$330,000	$330,000
Recommendation Concept		$0	$0
Cost Avoidance/(Added Value)		$330,000	$330,000

FHWA Function Benefit

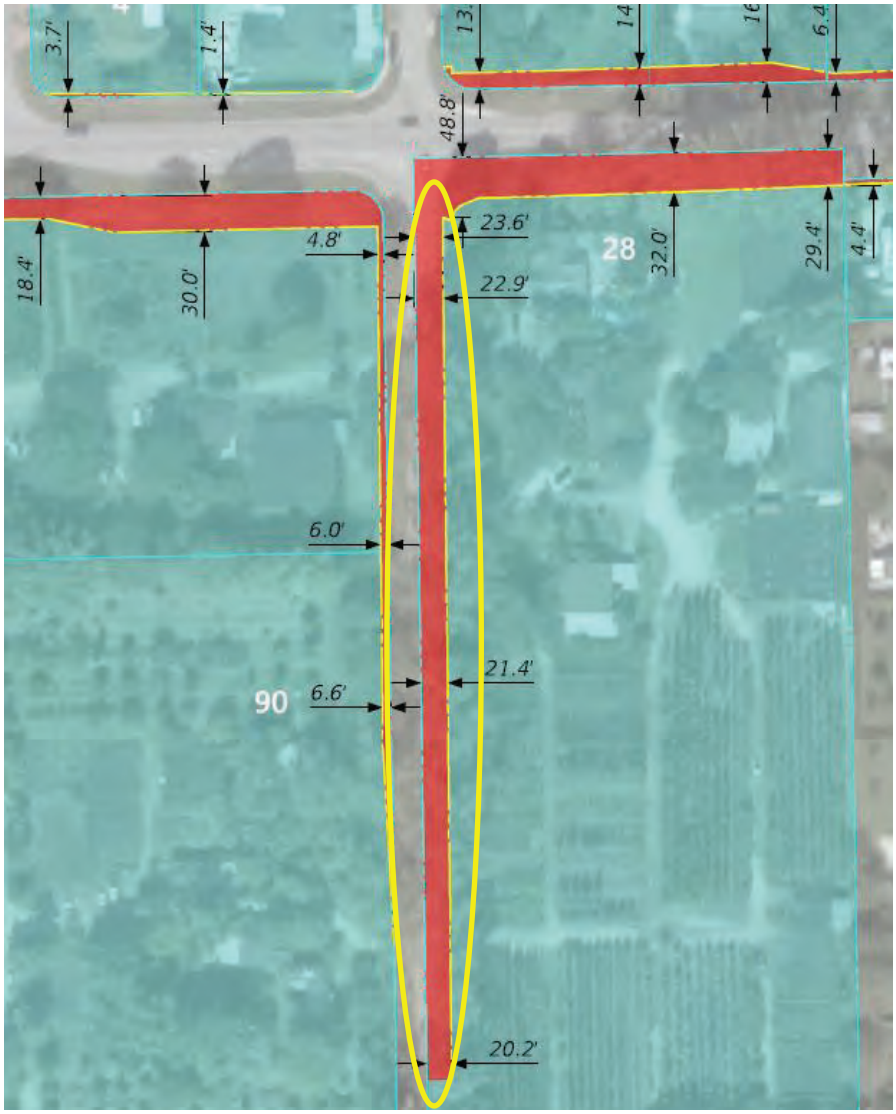
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
				✓

VE RECOMMENDATION NO. 16: SEEK ROW COST REIMBURSEMENT OF COUNTY ENCROACHMENTS TO PRIVATE OWNERS	Idea No. 26

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The baseline design shows the normalization of County's encroachment to private owners along the east side of 134th Ave, south of Quail Roost. Below the affected area is circled in yellow.



Recommend Concept Figure 1

Assumptions/ Calculations

The properties encroached sum a total of 600-ft long by an average of 22-ft wide = 13,200 SF, at unit cost of $25/SF = $330,000.

VE RECOMMENDATION NO. 16: SEEK ROW COST REIMBURSEMENT OF COUNTY ENCROACHMENTS TO PRIVATE OWNERS	Idea No. 26

Seek ROW Cost Reimbursement along SW 134th South of Quail Roost			
PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	Performance	Baseline	Recommendation
Main Line Operations No change	Rating	5	5
	Weight	26.1	
	Contribution	130.5	130.5
Local Operations No change	Rating	5	5
	Weight	21.4	
	Contribution	107	107
Maintainability No change	Rating	5	5
	Weight	11.9	
	Contribution	59.5	59.5
Construction Impacts No change	Rating	5	5
	Weight	7.1	
	Contribution	35.5	35.5
Environmental Impacts No change	Rating	5	5
	Weight	19.0	
	Contribution	95	95
Project Schedule No change	Rating	5	5
	Weight	14.2	
	Contribution	71	71
	Total Performance	499	499
	Net Change in Performance		0%

Performance Assessment

As the VE team developed recommendations, the performance of each was compared to the baseline for potential value improvement. For this exercise, the baseline was given a score of 5. Table 10 shows the criteria used to evaluate the performance of the alternative concepts relative to the baseline concept.

Table 10. Performance Attribute Rating Scale

Rating	Performance Attribute Scales
10	Alternative concept is extremely preferred
9	Alternative concept is very strongly preferred
8	Alternative concept is strongly preferred
7	Alternative concept is moderately preferred
6	Alternative concept is slightly preferred
5	***Concepts are equally preferred***
4	Baseline concept is slightly preferred
3	Baseline concept is moderately preferred
2	Baseline concept is strongly preferred
1	Baseline concept is very strongly preferred
0	Baseline concept is extremely preferred

Performance Rating

The performance matrix (Table 11) permits the comparison of various recommendations against the baseline concept by organizing the data developed for the performance attributes into a matrix format to yield value indices.

The matrix is essential for understanding the performance and value of the baseline and VE concepts. Comparing the performance suggest which recommendations are potentially as good as, or better than, the baseline concept, in terms of overall value. Comparison at the value index level suggest which recommendations have the best functionality or provides the project with the best value.

The performance rating and rationale for each alternative generated by the VE team is located on the individual recommendation forms in Section 7.

Table 11. Performance Matrix

Attribute	Attribute Weight	Concept	Performance Rating	Total Performance
Main Line Operations	26.1	Baseline	5	130.5
		1	5	130.5
		2	5	130.5
		3	4	104.4
		4	7	182.7
		5	7	182.7
		6	8	208.8
		7	4.5	117.5
		8	5	130.5
		9	7.5	195.8
		10	4	104.4
		11	7	182.7
		12	5	130.5
		13	5	130.5
		14	5	130.5
		15	5	130.5
		16	5	130.5
Local Operations	21.4	Baseline	5	107.0
		1	5	107.0
		2	5	107.0
		3	5	107.0
		4	5	107.0
		5	5	107.0
		6	5	107.0
		7	5	107.0
		8	4	85.6
		9	8	171.2
		10	4.5	96.3
		11	7	149.8
		12	5	107.0
		13	5	107.0
		14	5	107.0
		15	5	107.0

Table 11. Performance Matrix

Attribute	Attribute Weight	Concept	Performance Rating	Total Performance
		16	5	107.0
Maintainability	11.9	Baseline	5	59.5
		1	6	71.4
		2	5	59.5
		3	6	71.4
		4	5	59.5
		5	5	59.5
		6	5	59.5
		7	5	59.5
		8	6	71.4
		9	4	47.6
		10	7	83.3
		11	4	47.6
		12	5	59.5
		13	5	59.5
		14	5	59.5
		15	6	71.4
		16	5	59.5
Construction Impacts	7.1	Baseline	5	35.5
		1	5	35.5
		2	5	35.5
		3	5	35.5
		4	5	35.5
		5	5	35.5
		6	5	35.5
		7	5	35.5
		8	5	35.5
		9	5	35.5
		10	8	56.8
		11	5	35.5
		12	5	35.5
		13	5	35.5
		14	7	49.7

Table 11. Performance Matrix

Attribute	Attribute Weight	Concept	Performance Rating	Total Performance
		15	6	42.6
		16	5	35.5
Environmental Impacts	19.0	Baseline	5	95.0
		1	6	114.0
		2	5	95.0
		3	7	133.0
		4	5	95.0
		5	5	95.0
		6	5	95.0
		7	6	114.0
		8	6	114.0
		9	5	95.0
		10	8	152.0
		11	5	95.0
		12	5	95.0
		13	6	114.0
		14	5	95.0
		15	6	114.0
		16	5	95.0
Project Schedule	14.2	Baseline	5	71.0
		1	5	71.0
		2	5	71.0
		3	5	71.0
		4	5	71.0
		5	5	71.0
		6	5	71.0
		7	5	71.0
		8	5	71.0
		9	5	71.0
		10	8	113.6
		11	5	71.0
		12	5	71.0
		13	5	71.0

Table 11. Performance Matrix

Attribute	Attribute Weight	Concept	Performance Rating	Total Performance
		14	5	71.0
		15	5.25	74.6
		16	5	71.0

Compare Value

Understanding the relationship of cost, performance, and value of the project baseline and VE concepts is essential in evaluating VE recommendations. Comparing the performance and cost suggests which recommendations are potentially as good as or better than the project baseline concept in terms of overall value.

Table 12. Value Index

	Recommendations	Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
	Baseline	499	---	$37.7	---	---	13.22	---
1	Develop Alternative Drainage Solution	529	+6.2%	$36.7	($1.00)	-2.7%	14.42	+9%
2	Identify County & FDOT Property for Staging and Drainage Purposes	499	0.0%	$37.7	$0.00	0.0%	13.22	0%
3	Modify Median Design	522	+4.8%	$37.3	($0.44)	-1.2%	14.02	+6%
4	Use Preemption Technology	551	+10.5%	$37.9	$0.22	+0.6%	14.52	+10%
5	Modify Median Access	551	+10.5%	$37.7	$0.04	+0.1%	14.59	+10%
6	Modify SFWMD Canal Access	577	+15.7%	$37.7	$0.00	0.0%	15.30	+16%
7	Remove Buffer along Bridge	505	+1.2%	$37.4	($0.33)	-0.9%	13.50	+2%
8	Modify Pedestrian & Bicyclist Accommodations	508	+1.9%	$36.8	($0.88)	-2.3%	13.80	+4%
9	Advance Safety Improvements at Critical Locations	616	+23.6%	$42.2	$4.45	+11.8%	14.62	+11%
10	Eliminate Trail Underpass	606	+21.6%	$34.3	($3.39)	-9.0%	17.67	+34%
11	Implement TSMO Strategies	582	+16.7%	$38.5	$0.77	+2.0%	15.12	+14%
12	Reduce Limits of Projects along SW 127th, SW 134th & SW 137th	499	0.0%	$37.2	($0.52)	-1.4%	13.41	+1%
13	Reduce Bridge Width	518	+3.8%	$37.0	($0.71)	-1.9%	13.99	+6%
14	Install ITS Infrastructure Prior to Construction	513	+2.8%	$38.0	$0.28	+0.7%	13.50	+2%

Table 12. Value Index

	Recommendations	Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
15	Remove 196th St Connector Improvements	540	+8.3%	$37.5	($0.18)	-0.5%	14.39	+9%
16	Seek ROW Cost Reimbursement of County Encroachments to Private Owners	499	0.0%	$37.4	($0.33)	-0.9%	13.34	+1%

Design Considerations

The VE team generated the following design suggestions for the project design team's consideration. These items represent ideas that are general in nature and are listed below in Table 13. Additional details can be found in the evaluation form in Section 6.

Table 13. Design Considerations

Idea No.	Description
6	Install solar operated signals - (beacons, pedestrian signals, signal heads)
10	Shorten left turn queue length to remove it from structure
38	Recycle bridge materials for riprap
39	Reuse asphalt for shoulder areas and other projects
41	Use incentives / disincentives for early construction
42	Adjust design schedule to accelerate allowable ROW activities before 60% design milestone and reduce duration from 36 Mo to 24 Mo
45	Re-run the noise wall benefit cost analysis to include updated prices
49	Add continuous lighting through the corridor ((LED) cobra-head luminaires mounted on conventional aluminum light poles) (not currently in drawings but included in cost estimate)

Design Validations

Several ideas the VE team initially brought forward as recommendations were dropped from consideration after it was determined the baseline design was more economical and feasible. These write-up justifications can be found in Appendix E.

Appendix A. Value Methodology Process

Value Methodology is a systematic process using a multidisciplinary team to improve the value of a project through the analysis of its functions. This process incorporates, to the extent possible, the values of design, construction, maintenance, contractor, state, local, and federal approval agencies, other stakeholders, and the public.

The primary objective of a Value Engineering (VE) study is value improvement. Value improvements might relate to scope definition, functional design, constructability, coordination (both internal and external), or the schedule for project development. Other possible value improvements are reduced environmental impacts, reduced public (traffic) inconvenience, or reduced project cost.

The VE team employed the eight-phase Value Methodology in analyzing the project. This process is recommended by SAVE International® and is composed of the following phases:

Pre-VE Study

Preparation Phase – Prior to the start of a VE study, the Project Manager, and the VE facilitator carry out the following activities:

- Initiate study – Identify study project and define study goals
- Organize study – Conduct pre-VE study meeting and select team members
- Prepare data – Collect and distribute data and prepare cost models.

All the information gathered prior to the VE study is given to the team members for their use.

Workshop Phases

Information – The team reviews and defines the current conditions of the project and identifies the goals of the study.

Function Analysis – The team defines the project functions using a two-word active verb/ measurable noun context. The team reviews and analyzes these functions to determine which need improvement, elimination, or creation to meet the project's goals.

Creativity – The team employs creative techniques to identify other ways to perform the project's function(s).

Evaluation – The team follows a structured evaluation process to select those ideas that offer the potential for value improvement while delivering the project's function(s) and considering performance requirements and resource limits.

Development – The team develops the selected ideas into alternatives (or proposals) with a sufficient level of documentation to allow decision makers to determine if the alternative should be implemented.

Presentation – The VE facilitator develops a report and/or presentation that documents and conveys the adequacy of the alternative(s) developed by the team and the associated value improvement opportunity.

Post-Study

Implementation Phase – The project team is then charged with reviewing the report and may hold a Disposition Meeting with management and other stakeholders, to determine which recommendations will be implemented in the design. The project team then tracks their implementation into the plans.

Performance-Based Value Engineering

The following is a general discussion and overview of the Performance-Based VE process. Ideas that have been introduced and warrant further consideration, will be documented with their advantages and disadvantages; each idea will then be carefully evaluated against project-specific attributes.

Performance measures an integral part of the VE process. It provides the cornerstone of the VE process by giving a systematic and structured way of considering the relationship of a project's performance and cost as they relate to value. Project performance must be properly defined and agreed on by the stakeholders at the beginning of the VE study. The performance attributes and requirements that are developed are then used throughout the study to identify, evaluate, and document alternatives.

Introduction

Value engineering has traditionally been perceived as an effective means for reducing project costs. This paradigm only addresses one part of the value equation, oftentimes at the expense of overlooking the role that VE can play related to improving project performance. Project costs are relatively easy to quantify and compare through traditional estimating techniques. Performance is not so easily quantifiable.

The VE facilitator will lead the team and external stakeholders through the methodology, using the power of the process to distill subjective thought into an objective language that everyone can relate to and understand. The dialogue that develops forms the basis for the VE teams understanding of the performance requirements of the project and to what degree the current design concept is meeting those requirements. From this baseline, the VE team can focus on developing alternative concepts that will quantify both performance and cost and contribute to overall project value.

Performance-based VE yields the following benefits:

- Builds consensus among project stakeholders (especially those holding conflicting views)
- Develops a better understanding of a project's goals and objectives
- Develops a baseline understanding of how the project is meeting performance goals and objectives
- Identifies areas where project performance can be improved through the VE process
- Develops a better understanding of a VE alternative's effect on project performance
- Develops an understanding of the relationship between performance and cost in determining value
- Uses value as the true measurement for the basis of selecting the right project or design concept
- Provides decision-makers with a means of comparing costs and performance (i.e., costs vs. benefits) in a way that can assist them in making better decisions.

Methodology

The application of Performance-based VE consists of the following steps:

1. Identify key project (scope and delivery) performance attributes and requirements for the project.
1. Establish the hierarchy and impact of these attributes on the project.
2. Establish the baseline of the current project performance by evaluating and rating the effectiveness of the current design concepts.
3. Identify the change in performance of alternative project concepts generated by the study.
4. Measure the aggregate effect of alternative concepts relative to the baseline project's performance as a measure of overall value improvement.

The primary goal of value engineering is to improve the value of the project. A simple way to think of value in terms of an equation is as follows:

$$Value = \frac{Performanœ}{Cost}$$

Assumptions

Before embarking on the details of this methodology, some assumptions need to be identified. The methodology described in the following steps assumes the project functions are well established. Project functions are defined as what the project delivers to its users and stakeholders; a good reference for the project functions can be found in the environmental document's purpose and need statement. Project functions are generally well defined prior to the start of the VE study. If project functions have been substantially modified, the methodology must begin anew (Step 1).

Step 1 – Determine the Major Performance Attributes

Performance attributes can generally be divided between project scope components (highway operations, environmental impacts, and system preservation) and project delivery components. It is important to make a distinction between performance *attributes* and performance *requirements*. Performance requirements are mandatory and binary in nature. All performance requirements MUST be met by any VE alternative concept being considered. Performance attributes possess a range of acceptable levels of performance. For example, if the project was the design and construction of a new bridge, a performance requirement might be that the bridge meets all current seismic design criteria. In contrast, a performance attribute might be project schedule, which means that a wide range of alternatives could be acceptable that had different durations.

The VE facilitator will initially request representatives from project team and external stakeholders identify performance attributes that they feel are essential to meeting the overall need and purpose of the project. Usually, four to seven attributes are selected. It is important that all potential attributes be thoroughly discussed. The information that comes out of this discussion will be valuable to both the VE team and the project owner. It is important that each attribute be discretely defined and be quantifiable in some form. Most performance attributes that typically appear in transportation VE studies have been standardized. This standardized list can be used "as is" or adopted with minor adjustments as required.

Typical standardized project performance attributes are shown below. Specific definitions of each attribute can be found below.

- Main Line Operations
- Local Operations
- Maintainability
- Construction Impacts
- Environmental Impacts
- Project Schedule

PERFORMANCE ATTRIBUTE AND DEFINITIONS	
Performance Attribute	**Description of Attribute**
Main Line Operations	An assessment of traffic operations and safety on the main line. Operational considerations include level of service relative to the 20-year traffic projections as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane widths; bicycle and pedestrian operations and access, including shared use path.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity, and maintainability of pavements, structures, and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust, and construction traffic. Temporary environmental impacts related to water quality, air quality, soil erosion, and local flora and fauna.
Environmental Impacts	An assessment of the permanent impacts to the environment, including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.
Project Schedule	An assessment of the total project delivery as measured from the time of the VE study to completion of construction.

Step 2 – Determine the Relative Importance of the Attributes

Once the group has agreed on the project's performance attributes, the next step is to determine their relative importance in relation to each other. This is accomplished using an evaluative tool termed in this report as the "Performance Attribute Matrix." This matrix compares the performance attributes in pairs, asking the question: "An improvement in which attribute will provide the greatest benefit to the project relative to purpose and need?"

A letter code (e.g., "A") is entered into the matrix for each pair, identifying which of the two is more important. If a pair of attributes is of essentially equal importance, both letters (e.g., "A/B") are entered into the appropriate box. This, however, should be discouraged, as it has been found that in practice a tie usually indicates that the pairs have not been adequately discussed. When all pairs have been discussed, the number of "votes" for each is tallied and percentages (which will be used as weighted multipliers later in the process) are calculated. It is not uncommon for one attribute to not receive any "votes." If this occurs, the attribute is given a token "vote," as it made the list in the first place and should be given some degree of importance.

An example of this exercise is shown below.

PERFORMANCE ATTRIBUTE MATRIX

[Project Name]

Which attribute is more important to the project?							**TOTAL**	**%**
Main Line Operations	A	B	A	A	[illegible]	A	5.0	**23.8%**
Local Operations		B	[illegible]	B	B	B/F	5.5	**26.2%**
Maintainability			[illegible]	C	E	F	2.0	9.5%
Construction Impacts				D	E	D/F	1.5	7.1%
Environmental Impacts					E	E	4.0	19.0%
Project Schedule						F	3.0	14.3%
						Total	21.0	100%

Without emphasis on preference

A = A is of greater importance

A/B = A and B are of equal importance

EXAMPLE

For the example project above, the project owner, design team, and stakeholders determined that Main Line Operations, followed by Environmental, gave the greatest improvement relative to the projects purpose and need, while Construction Impacts and Project Schedule gave the least improvement.

Step 3 – Establish the Performance Baseline for the Original Design

The next step in the process is to document the project-specific elements for the performance attributes developed in Step 1. This step establishes a baseline against which the VE alternative concepts can be compared. An example of project-specific elements is shown below.

Evaluation of Baseline Project		
Standard Performance Attribute	**Description of Attribute**	**Baseline Design Rating Rational**
Main Line Operations	An assessment of traffic operations and safety on the project. Operational considerations include level of service relative to the 20-year traffic projections as well as geometric considerations such as design speed, sight distance, lane widths, and shoulder widths.	Design Speed - __ MPH Bridge – __' Lanes, __' shoulders Roadway - __' Lanes, __' shoulders Bridge ___ Loading
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20 year traffic projections; geometric considerations such as design speed, sight distance, lane widths; bicycle and pedestrian operations and access.	Revisions will need to be made to the existing streets and private approaches due to vertical alignment
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity, and maintainability of pavement structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	Baseline design assumes a replacement bridge Bridge design – low slump overlay on a 7" deck Steel welded plate girder 100' - 150' - 250' - 250' - 150' - 100' spans
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	Maintain traffic across river Noise permit required Short term detour to construct tie-ins to existing highways
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	In-water window Considered a navigable body of water Existing bridge is under consideration for historical significance
Project Schedule	An assessment of the total project delivery from the time as measured from the time of the study to completion of construction.	Advertisement date ____ Construction start of ____ 26-month overall construction duration

EXAMPLE

Once the baseline definitions for the various attributes have been established, their total performance should be calculated by multiplying the attribute's weight (which was developed in Step 2) by its rating. While one could assign a 0 to 10 rating for each attribute, using the definitions and scales developed in Step 1, a baseline rating of 5 is typically used as a mid-point so that alternatives can be evaluated – better than or worse than the baseline.

Total baseline performance is calculated by multiplying the attribute's weight (which was developed in Step 2) by its rating (5). The baseline design's total performance of 500 points can be calculated by adding all of the scores for the attributes. This numerical expression of the original designs performance forms the baseline against which all alternative concepts will be compared.

Step 4 – Evaluate the Performance of the VE Alternative Concepts

Once the performance of the baseline has been established for the original design concept, it can be used to help the VE team develop performance ratings for individual VE alternative concepts as they are developed during the study. The Performance Measures Form is used to capture this information. This form allows a side-by-side comparison of the original design and VE alternative concepts to be performed.

It is important to consider the alternative concept's impact on the entire project (rather than on discrete components) when developing performance ratings for the alternative concept.

Proposals are evaluated against the baseline for all attributes to compare the potential for value improvement. As discussed in Step 3, the baseline is given a rating of 5. The following ratings were used to evaluate the performance of the alternative concepts relative to the baseline concept.

Rating	Performance Attribute Scale
10	Alternative concept is extremely preferred
9	Alternative concept is very strongly preferred
8	Alternative concept is strongly preferred
7	Alternative concept is moderately preferred
6	Alternative concept is slightly preferred
5	*Baseline*
4	Baseline concept is slightly preferred
3	Baseline concept is moderately preferred
2	Baseline concept is strongly preferred
1	Baseline concept is very strongly preferred
0	Baseline concept is extremely preferred

Step 5 – Compare the Performance Ratings of Alternative Concepts to the Baseline Project

As the VE team develops alternatives, the performance of each is rated against the original design concept (baseline). Changes in performance are always based on the overall impact to the total project. Once performance and cost data have been developed by the VE team, the net change in value of the VE alternatives can be compared to the baseline design concept. The resulting "Value Matrix" provides a summary of these changes and allows a way for the Project Team to assess the potential impact of the VE recommendations on total project value.

The VE team groups the VE alternatives into a strategy (or strategies) to provide the decision-makers a clear picture of how the alternatives fit together into possible solutions. At least one strategy is developed to present the VE team's consensus of what should be implemented. Additional strategies are developed as necessary to present other combinations to the decision-makers that should be considered. The strategy(s) of VE alternatives are rated and compared against the baseline concept. The performance ratings developed for the VE strategies are entered into the matrix, and the summary portion of the Value Matrix is completed. The summary provides details on net changes to cost, performance, and value, using the following calculations:

- % Performance Improvement = ∆ Performance VE Strategy/Total Performance Original Concept

Performance Attribute Ratings				
Attribute	**Attribute Weight**	**Concept**	**Performance Rating**	**Total Performance**
Main Line Operations	28.9	Baseline	5	144.5
		1	7	202.3
		2	7	202.3
		3	5	144.5
Local Operations	14.2	Baseline	5	71.0
		1	5	71.0
		2	5	71.0
		3	8	113.6
Maintainability	14.2	Baseline	5	71.0
		1	3	42.6
		2	6	85.2
		3	4.5	63.9
Environmental Impacts	16.6	Baseline	5	83.0
		1	6.5	107.9
		2	5	83.0
		3	4.5	74.7
Construction Impacts	14.2	Baseline	5	71.0
		1	4	56.8
		2	6	85.2
		3	5	71.0
Project Schedule	11.9	Baseline	5	59.5
		1	5	59.5
		2	5	59.5
		3	5	59.5

EXAMPLE

- Value Index = Total Performance/Total Cost (in Millions)
- % Value Improvement = ∆Value Index VE Strategy/Value Index Original Concept.

The following is an example of a Value Matrix worksheet.

Recommendation Summary								
Recommendations		Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
	Baseline	500	---	$46.1	---	---	10.85	---
1	Recommendation No. 1 - Title	540	+8.0%	$46.6	$0.5	+1.2%	11.58	+6.8%
2	Recommendation No. 2 - Title	586	+17.2%	$46.5	$0.4	+0.9%	12.60	+16.2%
3	Recommendation No. 3 - Title	527	+5.4%	$46.1	$0.0	+0.0%	11.43	+5.4%
			Total		$3.9			

Appendix B. VE Recommendation Approval Form

Project: SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue
VE Study Date: June 12-16, 2023

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost Avoidance or Cost Added ($M)	Actual Estimated Cost Avoidance or Cost Added
1	Develop Alternative Drainage Solution				✓	✓		$0.81	
2	Identify County & FDOT Property for Staging and Drainage Purposes						✓	$0.00	
3	Modify Median Design					✓	✓	$0.44	
4	Use Preemption Technology		✓	✓				($0.22)	
5	Modify Median Access		✓	✓				($0.04)	
6	Modify SFWMD Canal Access		✓	✓				($0.01)	
7	Remove Buffer along Bridge					✓	✓	$0.62	
8	Modify Pedestrian & Bicyclist Accommodations				✓	✓	✓	$1.02	
9	Advance Safety Improvements at Critical Locations		✓	✓				($4.45)	
10	Eliminate Trail Underpass			✓	✓	✓	✓	$3.39	
11	Implement TSMO Strategies		✓	✓				($0.77)	
12	Reduce Limits of Projects along SW 127th, SW 134th & SW 137th					✓	✓	$0.52	
13	Reduce Bridge Width			✓		✓	✓	$0.71	

14	Install ITS Infrastructure Prior to Construction		✓			✓		$0.28	
15	Remove 196th St Connector Improvements					✓		$0.18	
16	Seek ROW Cost Reimbursement of County Encroachments to Private Owners						✓	$0.33	
	TOTALS		6	7	3	9	8		

Please provide justification if the value engineering study recommendations are **not** approved or are implemented in a modified form.

Florida DOT is required to report Value Engineering results annually to FHWA. To facilitate this reporting requirement, the Value Engineering Recommendation Approval Form is included herein. If the Department elects to reject or modify a recommendation, please include a brief explanation of why. Please complete the form and return it to Florida DOT State Value Engineer.

_____ _____

Signature – Project Manager Date

_____

Name (please print)

FHWA Functional Benefit Criteria

Each year, State DOTs are required to report on VE recommendations to FHWA. In addition to cost implications, FHWA requires the DOTs to evaluate each approved recommendation in terms of the project feature or features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in *each category that is applicable*.

Safety: Recommendations that mitigate or reduce hazards on the facility.

Operations: Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility.

Environment: Recommendations that successfully avoid or mitigate impacts to natural and/or cultural resources.

Construction: Recommendations that improve work zone conditions or expedite the project delivery.

Right-of-way: Recommendations that lower the impacts or costs of right-of-way.

Appendix C. VE Study Memo, Agenda, and Attendees

Memo

Date:	Monday, June 05, 2023
Project:	SR 994/SW 200 St/Quail Roost Drive from West of SW 137 to East of SW 27 Ave
To:	VE Team Members
From:	Jose Theiler, PE, CVS®
Subject:	Value Engineering Study

Congratulations!!! You have been chosen to participate in this Value Engineering (VE) study because of your expertise and valuable contributions to the project.

This memo is to introduce some of the expectations for the upcoming VE study. I'm looking forward to working with you on this endeavor. My hope is that this memo will provide information about the project and expectations on working together.

If you have any questions, please contact me, Jose Theiler, at 561-386-3879 (cell), or e-mail: jose.theiler@hdrinc.com.

VE Study Dates and Location

The VE study will be in person as follows:

June 12 and June 16, 2023 at District 6 Headquarters (Conference Room B Adam Leigh Cann Bldg.)

June 13 through 15, 2023 at HDR Office located at 8333 NW 53rd ST, Doral - Magic City Conference Room

What to Bring

Be sure to bring your normal tools of the trade (e.g., calculator, laptop computer, scale, etc.). Bring a creative and open mind. VE studies are a lot of work, but if you bring your creativity and sense of humor you will have a good time and a rewarding experience.

Ground Rules

A VE study follows a prescribed process that has been proven over many years to produce the best results. This process requires the team members be fully engaged and have an open mind to "step" outside of the box throughout the week.

To maintain our schedule and provide the best results to the project team, I ask that we follow some basic ground rules:

a. We will use MS-Teams as a holding place for conversations, notes, documentation, etc. Follow the link (Quail Roost Drive VE Study) to make sure you have access and become familiar with the site.

b. Please be prepared to attend the entire duration of the workshop. You were selected to assist on this team based on your expertise. If you cannot be in attendance for the entire time, then please notify me prior to the study. When team members leave part way through, or come and go frequently, the VE team can lose its momentum and cohesiveness. We understand that conducting business virtually is different and typical interruptions or noise

background is expected at times. Please minimize disruptions by muting your phone or asking for a break.

c. Avoid multitasking during the study. Unless it is information to assist the team, please try to wait until breaks to return phone calls, check on messages, or sort through e-mails.

d. Dress code. I want everyone to be comfortable. Some of us will attend from our homes; please dress appropriately (business casual).

e. A laptop is required for the workshop. We will develop recommendations using templates in Word format and will exchange and share files throughout the workshop.

Our success will be evaluated based on the level of contribution that we bring to the project. Remember that the goal of any VE study is to add value to the project; saving money is just a byproduct. We want to make recommendations based on solid engineering judgment that will result in an improved project.

Value Engineering Job Plan

The VE team will employ the basic eight-phase VM job plan in analyzing the project. This process is recommended by SAVE International® and AASHTO, and is composed of the following phases:

Preparation Phase – Prior to the VE study, the Project Manager and the VE facilitator carry out the following activities:

- Initiate study – identify study project and define study goals
- Organize study – conduct pre-VE study meeting to establish team members, logistics and parameters to analyze the project
- Prepare data – Collect and distribute data and prepare cost models

Information Phase – The objective of this phase is to obtain a thorough understanding of the project's design criteria and objectives by reviewing the project's documents and drawings, cost estimates, and schedules.

Function Analysis Phase – Identifying each of the key functions of the project is the most important phase of value engineering, as it is the basis for unlocking the creativity of team members. As part of this phase, the team performs the following tasks with the assistance of the VE Facilitator:

- Defines project and risk functions and assigns them to key project components.
- Classifies functions as either "basic" or "secondary."
- Sequence functions to understand their relationships using the Function Analysis System Technique (FAST).
- Establishes performance measures.
- Creates the project's cost model.

Creativity Phase – During this phase the team will employ creative techniques such as team brainstorming to develop a number of alternative concepts that satisfy the project's basic and supporting functions and mitigate project risks.

Evaluation Phase – The purpose of this phase is to evaluate the alternative concepts developed by the VE team during the brainstorming sessions. To that purpose, the team discusses advantages and disadvantages, and uses a number of tools to determine the qualitative and quantitative merits of each concept.

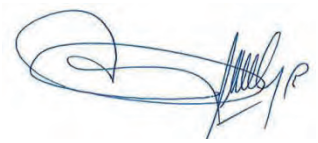
Mid-point Review With Management Team: At this point, the VE team holds a meeting with the project team, management, and other stakeholders, to validate the direction of the team and that ideas moving forward to the development phase do not step outside the boundaries set forth by project constraints.

Development Phase – Those concepts that ranked highest in the evaluation are further developed into VE recommendations. Recommendation narratives, additional advantages and disadvantages, drawings, calculations, and life cycle cost analysis are prepared for each recommendation.

Presentation Phase – The VE team presents their finding during an oral presentation to the owner and the project team. Following the workshop, a written report is submitted that summarizes the study, its findings, and recommendations.

Implementation Phase – The project team is then charged with reviewing the report and may hold a Disposition Meeting with management and other stakeholders, to determine which recommendations will be implemented in the design. The project team then tracks their implementation into the plans.

I look forward to working with you on this VE study and appreciate each of you blocking time out of your busy schedules to participate. Please call or e-mail me with any questions.
Sincerely,



Jose Theiler, PE CVS®
Principal - East Region
Project Risk Management and Value Engineering
HDR Engineering, Inc
440 S. Church Street, Suite 1000
Charlotte, NC 28202-2075
M 561.386.3879
jose.theiler@hdrinc.com

Agenda

Day 1	Monday, June 12, 2023 Objective for the day: Learn about VE and the project	
8:00	• **Welcome and Team Introductions** • **Value Engineering Process Overview**	**All audiences** Project owner, PMs, designers, VE team
9:00 *Information Phase*	**Project Overview** • Purpose and need of the project • Goals and objectives of the project • Constraints • Basis of design • Risks • Focus for VE team • Questions and answers	**All Audiences facilitated by** Project team/designer
10:00	**Break**	
10:15 *Information Phase*	**Define and Prioritize Performance Attributes**	**All Audiences facilitated by** Jose Theiler, PE, CVS
11:00 *Information Phase*	**Site Visit** • Plan stops • Travel to site area • Lunch	**All Audiences facilitated by** Jose Theiler, PE, CVS
12:00	**Lunch**	
2:00 *Information Phase*	**Project Documentation Review** • Site visit observations • Review plans/schematics, cross sections, typical sections, traffic control plans, construction constraints • Cost estimate, including construction, right-of-way, utilities, railroad, environmental, etc. • Project schedule, including construction phasing/sequencing, work windows	**VE team facilitated by** Jose Theiler, PE, CVS
3:15	**Break**	
3:30 *Function Analysis Phase*	**Function Analysis** • Review project cost model • Define key project functions using “verb + noun” expressions	**VE team facilitated by** Jose Theiler, PE, CVS
5:00	**Adjourn**	

Day 2	**Tuesday June 13, 2023** **Objective for the day: Brainstorming Ideas, Evaluate Ideas**	
8:00	**Function Analysis (continues)** • Day 1 Recap • Finalize function analysis	**VE team facilitated by** Jose Theiler, PE, CVS
9:00 *Creative Phase*	**Creative Phase** • Brainstorm alternative ways to perform key functions • Brainstorm ways to improve value of key functions • Brainstorm ideas to mitigate risks	**VE team facilitated by** Jose Theiler, PE, CVS
12:00	**Lunch**	
1:00 *Evaluation Phase*	**Evaluate Ideas** • Discuss advantages and disadvantages for each idea • Score ideas based on predetermined criteria to develop further into recommendations	**VE team facilitated by** Jose Theiler, PE, CVS
5:00	**Adjourn**	

Day 3	**Wednesday June 14, 2023** **Objective for the day: Evaluate Ideas and Begin Developing**	
8:00 *Evaluation Phase*	**Evaluate Ideas continues** • Discuss advantages and disadvantages for each idea • Score ideas based on predetermined criteria to develop further into recommendations	**VE team facilitated by** Jose Theiler, PE, CVS
10:45	**Break**	
11:00	Roll Call **Mid-point review**	**Facilitator, Value Engineer, PMs, Managers**
12:00	**Lunch**	

1:00
Development Phase
	Develop Ideas into Recommendations
	• Individual/team assignments
	• Development of recommendations:
	  ○ Test design feasibility
	  ○ Design analysis
	  ○ Technical narratives
	  ○ Further discussion on advantages and disadvantages
	  ○ Cost analysis (life cycle cost comparison)
		VE team facilitated by
		Jose Theiler, PE, CVS

5:00	**Adjourn**	

Day 4	**Thursday June 15, 2023** **Objective for the day: Develop and Review Recommendations**	
8:00 *Development Phase*	**Develop Ideas into Recommendations** • Individual/team assignments • Development of recommendations: ○ Test design feasibility ○ Design analysis ○ Technical narratives ○ Further discussion on advantages and disadvantages ○ Cost analysis (life cycle cost comparison)	**VE team facilitated by Jose Theiler, PE, CVS**
12:00	**Lunch**	
1:00 *Development Phase*	**Develop Ideas into Recommendations** • Individual/team assignments • Development of recommendations: ○ Test design feasibility ○ Design analysis ○ Technical narratives ○ Further discussion on advantages and disadvantages ○ Cost analysis (life cycle cost comparison)	**VE team facilitated by** Jose Theiler, PE, CVS
3:00 *Development Phase*	**Peer Review of Recommendations**	**VE team facilitated by** Jose Theiler, PE, CVS
4:00 *Development Phase*	**Evaluate Performance Attributes of Recommendations**	**VE team facilitated by** Jose Theiler, PE, CVS
5:00	**Adjourn**	

Day 5	**Friday June 16, 2023** **Objective for the day: Deliver Close-out Presentation**	
8:00 *Development Phase*	• **Evaluate Performance Attributes of Recommendations**	**VE team facilitated by** Jose Theiler, PE, CVS
10:00	**Break**	
10:15 *Presentation Phase*	**Finalize Close-out Presentation** Team Rehearsal	**VE team facilitated by** Jose Theiler, PE, CVS
12:00	**Lunch**	
1:00 *Presentation Phase*	**Presentation of VE Findings** • Team presents recommendations to management • Questions and answers	**All Audiences:** Project owner, management, stakeholders, designers, etc.
2:30	**Adjourn**	

VE Study Attendees
SR 994/SW 200 St/Quail Roost Drive from West of SW 137 to East of SW 27 Ave

June 2023					NAME Core VE Team in Yellow	ORGANIZATION – POSITION / DISCIPLINE	EMAIL	PHONE
12	13	14	15	16				
✓					Abuhamid, Maal	FDOT	maal.abuhamid@dot.state.fl.us	
✓	✓	✓	✓	✓	Alvarez, Mark	FDOT	mark.alvarez@dot.state.fl.us	
✓	✓	✓	✓	✓	Bacallao, Christopher	FDOT	christopher.bacallao@dot.state.fl.us	
				✓	Badri, Dru	FDOT	dru.badri@dot.state.fl.us	305-401-1560
✓		✓		✓	Bull, Bobby	FDOT	bobby.bull@dot.state.fl.us	
✓		✓		✓	Cejas, Carlos M.	GANNETT FLEMING	ccejas@gfnet.com	
					Defrant, Jacques	FDOT	jacques.defrant@dot.state.fl.us	
✓		✓		✓	Fernandez, Alina	GANNETT FLEMING	afernandez@gfnet.com	
	✓	✓	✓	✓	Gomez, Alejandro	CTS	agomez@ctsinc.com	787-312-0389
✓	✓	✓	✓	✓	Gutierrez, Claudia	FDOT	claudia.gutierrez@dot.state.fl.us	
				✓	Hoffman, George	FDOT	george.hoffman@dot.state.fl.us	305-962-4928
✓	✓	✓		✓	Huynh, Dat	FDOT	dat.huynh@dot.state.fl.us	
				✓	Iglesias, Daniel	FDOT	daniel.inglesis@dot.state.fl.us	305-470-5464

VE Study Attendees
SR 994/SW 200 St/Quail Roost Drive from West of SW 137 to East of SW 27 Ave

June 2023					NAME Core VE Team in Yellow	ORGANIZATION – POSITION / DISCIPLINE	EMAIL	PHONE
12	13	14	15	16				
✓	✓	✓	✓	✓	Johnson, Christopher	HDR	christopher.johnson@hdrinc.com	704-915-7810
				✓	Louis, Carla	FDOT	carla.louis@dot.state.fl.us	
				✓	Marrero, Renato	FDOT	renato.marrero@dot.state.fl.us	305-470-5359
✓	✓	✓	✓	✓	Michel, Marceau	FDOT Drainage Engineer	marceau.michel@dot.state.fl.us	
				✓	Miller, Stacy	FDOT	stacy.miller@dot.state.fl.us	
✓					Miranda, Jessica	FDOT	jessica.miranda@dot.state.fl.us	
✓	✓	✓	✓	✓	Negron, Carmen	FDOT	carmen.negron@dot.state.fl.us;	
✓	✓	✓	✓	✓	Perez, Mario	FDOT	mario.perez@dot.state.fl.us	
✓	✓	✓	✓	✓	Raghunandan, Ryan	FDOT	ryan.raghunandan@dot.state.fl.us	
✓		✓		✓	Riverol, Elsa	FDOT	elsa.riverol@dot.state.fl.us	
				✓	Solaun, Heidi	FDOT	heidi.solaun@dot.state.fl.us	305-962-4612
✓				✓	Tavella, Christopher	FDOT	chris.tavella@dot.state.fl.us	
✓	✓	✓	✓	✓	Theiler, Jose	HDR Facilitator	jose.theiler@hdrinc.com	561-386-3879
✓	✓	✓		✓	Uribe, Alejandro	GANNETT FLEMING	auribe@gfnet.com	787-845-9540

VE Study Attendees
SR 994/SW 200 St/Quail Roost Drive from West of SW 137 to East of SW 27 Ave

June 2023					NAME Core VE Team in Yellow	ORGANIZATION – POSITION / DISCIPLINE	EMAIL	PHONE
12	13	14	15	16				
				✓	Valido, Raymond	FDOT	raymond.valido@dot.state.fl.us	305-470-5266
✓					White, Dongming	FDOT	dongming.white@dot.state.fl.us	
✓					Zhang, Hailing	FDOT	hailing.zhang@dot.state.fl.us	

Appendix D. Project Estimate

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01 **Letting Date:** 04/2028

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE

Project Manager: RIVEROL, ELSA

Version 3 Project Grand Total **$28,925,210.55**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.

EARTHWORK COMPONENT

Pay Items

Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
110-1-1	CLEARING & GRUBBING	27.18	AC	$77,124.93	$2,096,255.60
120-1	REGULAR EXCAVATION	770.00	CY	$20.68	$15,923.60
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1,327.81	CY	$27.62	$36,674.11
120-6	EMBANKMENT	202,745.67	CY	$26.70	$5,413,309.38
	Earthwork Component Total				$7,562,162.69

ROADWAY COMPONENT

Pay Items

Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
160-4	TYPE B STABILIZATION	94,312.34	SY	$9.24	$871,446.03
285-701	OPTIONAL BASE,BASE GROUP 01	13,318.50	SY	$18.40	$245,060.40
285-709	OPTIONAL BASE,BASE GROUP 09	61,419.92	SY	$37.25	$2,287,892.02
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	17,648.05	SY	$2.76	$48,708.62
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	9,241.43	TN	$143.06	$1,322,078.96
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	5,841.89	TN	$192.38	$1,123,862.79
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	350.00	LF	$82.03	$28,710.50
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	222.00	LF	$63.72	$14,145.84
521-72-60	SHLDR CONC BARRIER,38" WALL SHIELD BARR	200.00	LF	$217.20	$43,440.00
550-10-120	FENCING, TYPE A, 5.1-6.0, STANDARD	4,000.00	LF	$13.43	$53,720.00
706-1-3	RAISED PAVMT MARK, TYPE B	1,155.00	EA	$3.78	$4,365.90
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	13.82	GM	$920.95	$12,727.53

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01 **Letting Date:** 04/2028

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE

Project Manager: RIVEROL, ELSA

Version 3 Project Grand Total **$28,925,210.55**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.

710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	5.68	GM	$373.96	$2,124.11
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.87	GM	$382.85	$333.08
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.63	GM	$5,486.63	$3,456.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.32	GM	$1,807.75	$578.48
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	6.66	GM	$4,222.32	$28,120.65
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	3.98	GM	$1,293.64	$5,148.69
	Roadway Component Total				$6,095,920.18

SHOULDER COMPONENT

Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
104-10-3	SEDIMENT BARRIER	30,392.16	LF	$2.07	$62,911.77
104-11	FLOATING TURBIDITY BARRIER	597.41	LF	$14.79	$8,835.70
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	597.41	LF	$13.91	$8,309.97
104-15	SOIL TRACKING PREVENTION DEVICE	10.00	EA	$2,826.29	$28,262.90
104-18	INLET PROTECTION SYSTEM	122.00	EA	$117.43	$14,326.46
107-1	LITTER REMOVAL	52.70	AC	$18.94	$998.13
107-2	MOWING	52.70	AC	$27.70	$1,459.79
285-704	OPTIONAL BASE,BASE GROUP 04	2,377.58	SY	$14.59	$34,688.90
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	181.57	TN	$143.06	$25,975.41
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	181.57	TN	$192.38	$34,930.44
520-1-10	CONCRETE CURB & GUTTER, TYPE F	24,598.48	LF	$29.36	$722,211.36
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	8,429.81	SY	$44.95	$378,919.96
530-4-6	ARTICULATING CONC BLOCK REVET SYS, 6"	1,870.00	SY	$183.48	$343,107.60

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01 **Letting Date:** 04/2028

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE

Project Manager: RIVEROL, ELSA

Version 3 Project Grand Total **$28,925,210.55**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.

570-1-1	PERFORMANCE TURF	13,388.89	SY	$2.39	$31,999.44
	Shoulder Component Total				$1,696,937.83

MEDIAN COMPONENT

Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	17,628.83	LF	$23.64	$416,745.54
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	2,730.00	LF	$63.72	$173,955.60
570-1-1	PERFORMANCE TURF	14,200.71	SY	$2.39	$33,939.70
	Median Component Total				$624,640.84

DRAINAGE COMPONENT

Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	91.00	EA	$6,611.89	$601,681.99
425-1-451	INLETS, CURB, TYPE J-5, <10'	30.00	EA	$7,419.98	$222,599.40
425-1-521	INLETS, DT BOT, TYPE C, <10'	15.00	EA	$5,664.97	$84,974.55
425-2-41	MANHOLES, P-7, <10'	32.00	EA	$4,843.54	$154,993.28
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	576.00	LF	$185.68	$106,951.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	10,040.00	LF	$124.04	$1,245,361.60
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	2,312.00	LF	$237.63	$549,400.56
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	240.00	LF	$613.46	$147,230.40
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,947.99	$3,895.98
443-70-6	FRENCH DRAIN, 36"	3,700.00	LF	$216.30	$800,310.00
570-1-1	PERFORMANCE TURF	937.54	SY	$2.39	$2,240.72
	Drainage Component Total				$3,919,640.16

SIGNING COMPONENT

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01 **Letting Date:** 04/2028

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE

Project Manager: RIVEROL, ELSA

Version 3 Project Grand Total **$28,925,210.55**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.

Pay Items

Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
700-1-11	SINGLE POST SIGN, F&I GM,	59.00	AS	$359.59	$21,215.81
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	32.00	AS	$1,114.91	$35,677.12
700-1-50	SINGLE POST SIGN, RELOCATE	3.00	AS	$287.77	$863.31
700-1-60	SINGLE POST SIGN, REMOVE	15.00	AS	$23.22	$348.30
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	2.00	AS	$4,672.57	$9,345.14
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	$5,512.64	$11,025.28
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	7.00	AS	$7,584.95	$53,094.65
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	5.00	AS	$10,804.94	$54,024.70
700-2-60	MULTI- POST SIGN, REMOVE	3.00	AS	$653.31	$1,959.93
	Signing Component Total				$187,554.24

LIGHTING COMPONENT

Pay Items

Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	12,299.24	LF	$15.85	$194,942.96
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	2,304.61	LF	$23.72	$54,665.35
635-2-11	PULL & SPLICE BOX, F&I, 13" X 24"	79.00	EA	$771.13	$60,919.27
639-1-111	ELECTRICAL POWER SRV,F&I,OH,M,FURNISHED	1.00	AS	$4,313.81	$4,313.81
639-3-11	ELEC SERV DISCON, F&I, POLE MNT	1.00	EA	$1,831.97	$1,831.97
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	44,396.20	LF	$3.45	$153,166.88
715-4-13	LIGHT POLE COMPLETE, F&I- STD, 40'	49.00	EA	$6,106.25	$299,206.25
715-7-12	LOAD CENTER, F&I, PRIMARY VOLTAGE	1.00	EA	$10,785.92	$10,785.92

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01 **Letting Date:** 04/2028

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE

Project Manager: RIVEROL, ELSA

Version 3 Project Grand Total **$28,925,210.55**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.

715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	30.00	EA	$11,736.51	$352,095.30
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	79.00	EA	$1,001.50	$79,118.50
	Lighting Component Total				$1,211,046.21

SIGNALIZATIONS COMPONENT

Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,150.00	LF	$15.85	$34,077.50
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	850.00	LF	$23.72	$20,162.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	3.00	PI	$6,325.75	$18,977.25
635-2-11	PULL & SPLICE BOX, F&I, 13" X 24"	60.00	EA	$771.13	$46,267.80
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	3.00	AS	$4,707.82	$14,123.46
639-2-1	ELECTRICAL SERVICE WIRE, F&I	180.00	LF	$5.92	$1,065.60
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	2.00	EA	$1,459.29	$2,918.58
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	20.00	EA	$1,387.10	$27,742.00
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	20.00	EA	$1,292.86	$25,857.20
649-21-6	STEEL MAST ARM ASSEMBLY, F&I, 50'	2.00	EA	$45,186.33	$90,372.66
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	14.00	EA	$57,830.80	$809,631.20
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	52.00	AS	$999.20	$51,958.40
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	24.00	AS	$806.55	$19,357.20
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	47.00	EA	$325.60	$15,303.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	47.00	AS	$1,193.30	$56,085.10
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	24.00	EA	$270.67	$6,496.08

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01 **Letting Date:** 04/2028

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE

Project Manager: RIVEROL, ELSA

Version 3 Project Grand Total **$28,925,210.55**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.

670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	3.00	AS	$30,878.48	$92,635.44
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	24.00	EA	$391.28	$9,390.72
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	12.00	EA	$3,255.78	$39,069.36
	Signalizations Component Total				$1,381,490.75

LANDSCAPING COMPONENT

	Landscaping Lump Sum Cost Total	$189,136.25
	Landscaping Component Total	$189,136.25

BRIDGES COMPONENT

Bridge Type: Medium Level

Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
400-2-10	CONC CLASS II, APPROACH SLABS	206.67	CY	$577.42	$119,335.39
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	8,184.00	SF	$37.08	$303,462.72
415-1-9	REINF STEEL- APPROACH SLABS	36,167.25	LB	$1.33	$48,102.44

Bridge No. 01 Type=MLB **Length=88 FT** **Width=93 FT**

Bridge Basic Cost based on Factored Cost $100.00 SF $818,400.00

Bridge Final Cost Per SF $120.46

Bridges Component Total $1,289,300.55

RETAINING WALLS COMPONENT

Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,600.00	SF	$39.83	$63,728.00
	Retaining Walls Component Total				$63,728.00

FDOT Long Range Estimating System - Production

R4: Project Details Composite Report

By Component

Project: 445804-1-52-01					**Letting Date:** 04/2028
Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE					
District: 06	**County:** 87 MIAMI-DADE				
Project Manager: RIVEROL, ELSA					
Version 3 Project Grand Total					**$28,925,210.55**
Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE.					
Project Sequences Subtotal					**$24,221,557.70**
102-1	MAINTENANCE OF TRAFFIC	10.00			$2,422,155.77
101-1	MOBILIZATION	8.00			$2,131,497.08
Project Sequences Total					**$28,775,210.55**
Project Unknowns			0.00	%	$0.00
Design/Build			0.00	%	$0.00
Non-Bid Components:					
Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					$150,000.00
Version 3 Project Grand Total					**$28,925,210.55**

Appendix E. Design Validations

DESIGN VALIDATION NO. 1: REDUCE NUMBER OF TURN LANES AT SW 127TH	**Idea No. 16**

Baseline Concept

The baseline consists of an additional left-turn lane to address the queue back-up along Quail Roost Drive and SW 127th Ave. The additional left-turn lane leads to a lane which merges and provides enough distance to reduce the amount of traffic spilled onto the intersection.

Recommendation Concept

Revisit the number of lanes at SW127th Ave.

Advantages	Disadvantages
• May reduce conflict at SB SW127th lane (Merge)	• Reducing amount of cars during phase • May affect through traffic due to lack of storage

Cost Summary	Construction	Right-of-way	Total
Baseline Concept			
Recommendation Concept			
Cost Avoidance/ (Added Value)			

FHWA Function Benefit

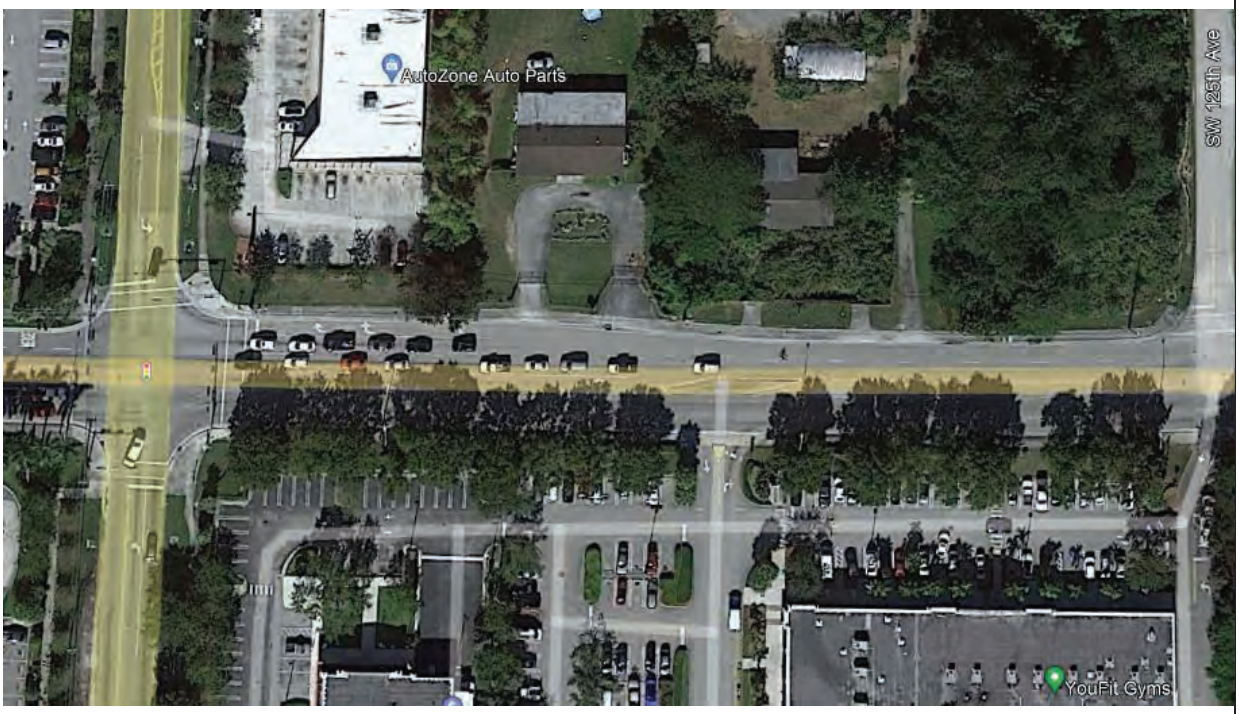
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓			✓

DESIGN VALIDATION NO. 1: REDUCE NUMBER OF TURN LANES AT SW 127TH	Idea No. 16

Discussion/Sketches/Photos/Calculations

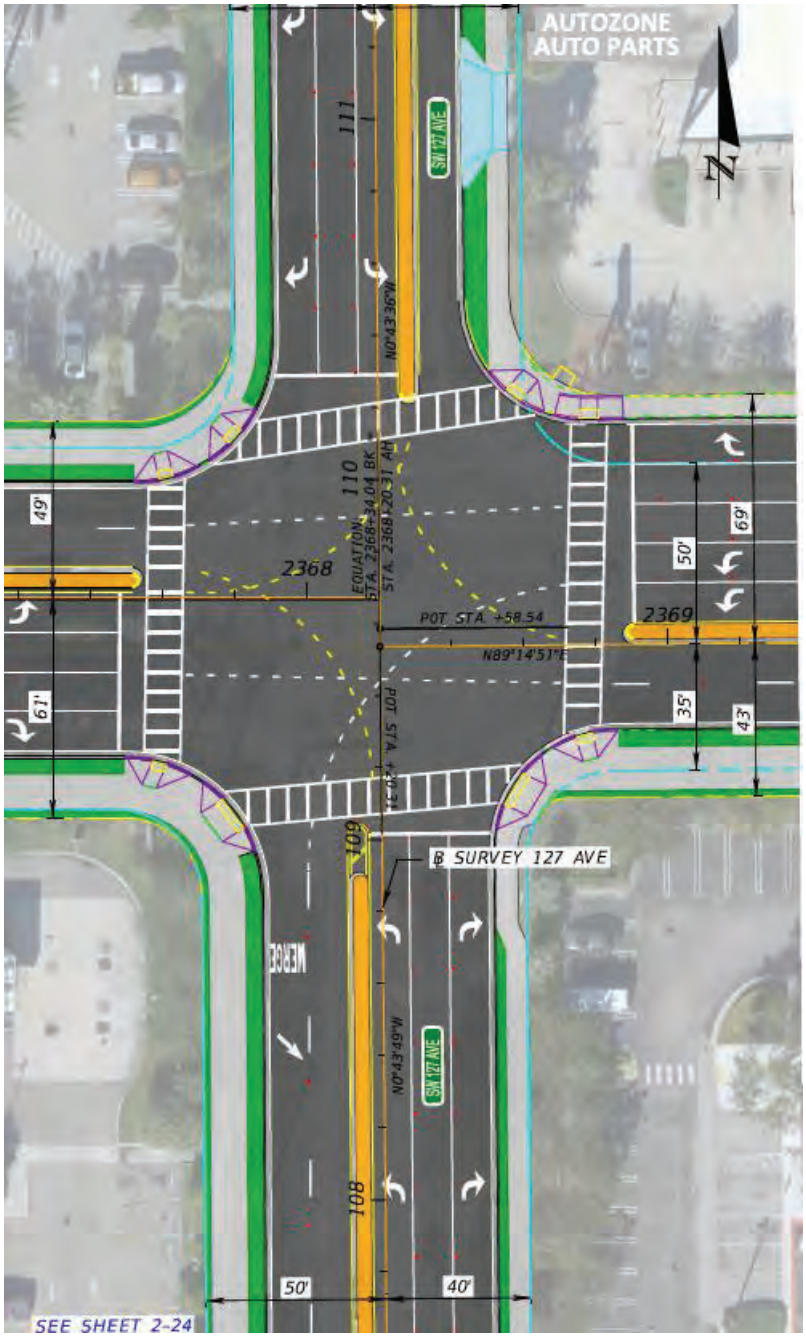
Technical Discussion/Sketches

The exercise completed was done with the intention of removing the Southbound additional lane at the intersection of Quail Roost and SW 127th Avenue.



Baseline Figure 1

DESIGN VALIDATION NO. 1: REDUCE NUMBER OF TURN LANES AT SW 127TH	Idea No. 16



Baseline Figure 2

The first step needed was to find the traffic counts expected to be received by the left-turn lanes within the baseline model.

DESIGN VALIDATION NO. 1: REDUCE NUMBER OF TURN LANES AT SW 127TH	Idea No. 16

Timings
127: SW 127 AVE & SR 994 01/17/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	1106	150	271	701	164	210	180	294	84	195	47
Future Volume (vph)	179	1106	150	271	701	164	210	180	294	84	195	47

Figure 3. AM Traffic

Timings
127: SW 127 AVE & SR 994 01/17/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	938	193	357	801	130	168	172	175	117	247	71
Future Volume (vph)	92	938	193	357	801	130	168	172	175	117	247	71

Figure 4. PM Traffic

According to FDM 232.2, "… (4) Where left turn volumes exceed 300 VPH, a double left turn should be considered."

Extension of the existing left-turn lane is possible; however, this would involve reconstruction and the additional amount of storage is not significant. The value exceeds 300 VPH.

Based on this information the VE team validates the design team's configuration.

DESIGN VALIDATION NO. 2: MODIFY PAVEMENT DESIGN	**Idea No(s). 24, 25**

Baseline Concept

The PER does not show a pavement design at this stage of development. The LRE shows pavement quantities and pay items automatically generated by the system.

Recommendation Concept

The VE team recommends an in depth evaluation of the pavement design to use an alternative pavement design, including the reuse of existing pavement in final configuration in lieu of full reconstruction

Advantages	Disadvantages
• May reduce costs • May improve friction • May improve durability • May reduce maintenance costs	• None discussed

Cost Summary	Construction	Right-of-way	Total
Baseline Concept			
Recommendation Concept			
Cost Avoidance/ (Added Value)			

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
			✓	

DESIGN VALIDATION NO. 2: MODIFY PAVEMENT DESIGN	Idea No(s). 24, 25

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The VE team reviewed the typical sections (Existing & Proposed) shown below in Figure 1 & Figure 2 respectively.

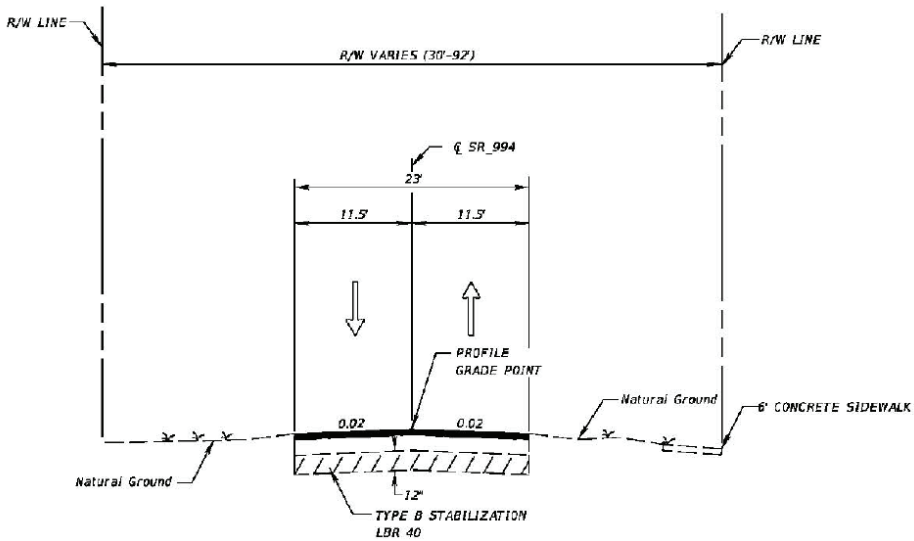


Figure 1. Existing Typical from SW 137th ST. to SW 127th ST.

Figure 2. Proposed Typical Section SW 137th ST. to SW 127th ST.

DESIGN VALIDATION NO. 2: MODIFY PAVEMENT DESIGN	Idea No(s). 24, 25

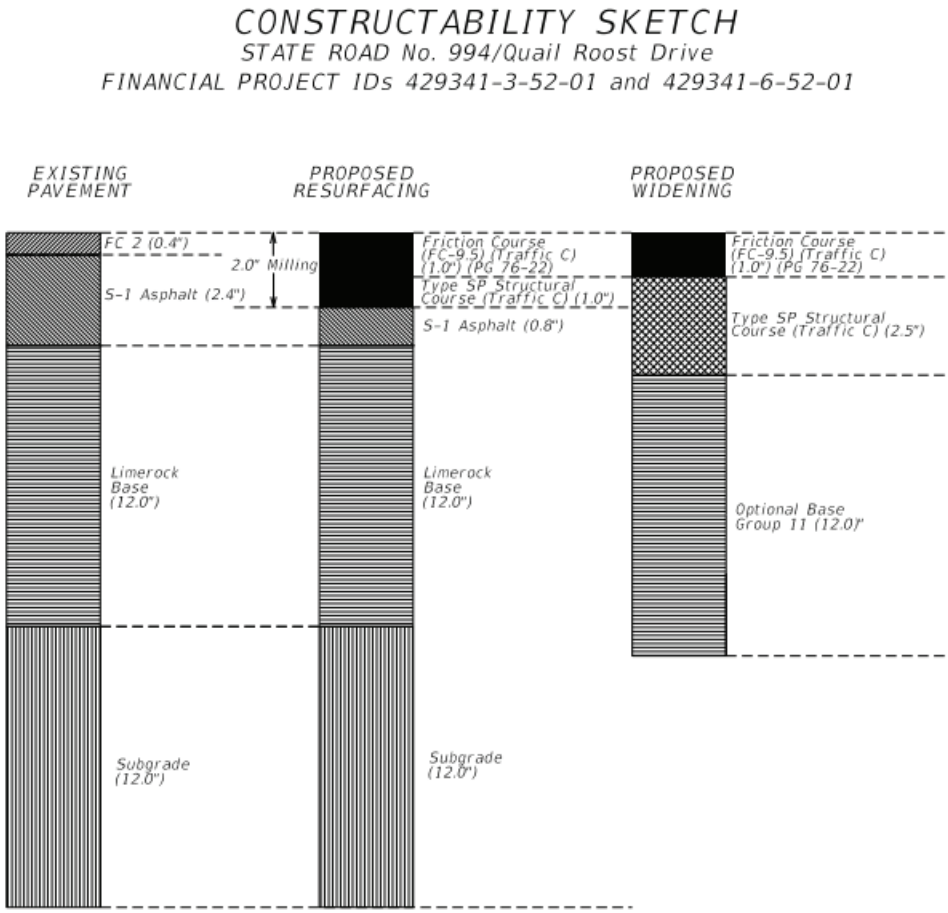


Figure 3. Existing Pavement Design on East Project (429341-3)

DESIGN VALIDATION NO. 2: MODIFY PAVEMENT DESIGN	Idea No(s). 24, 25

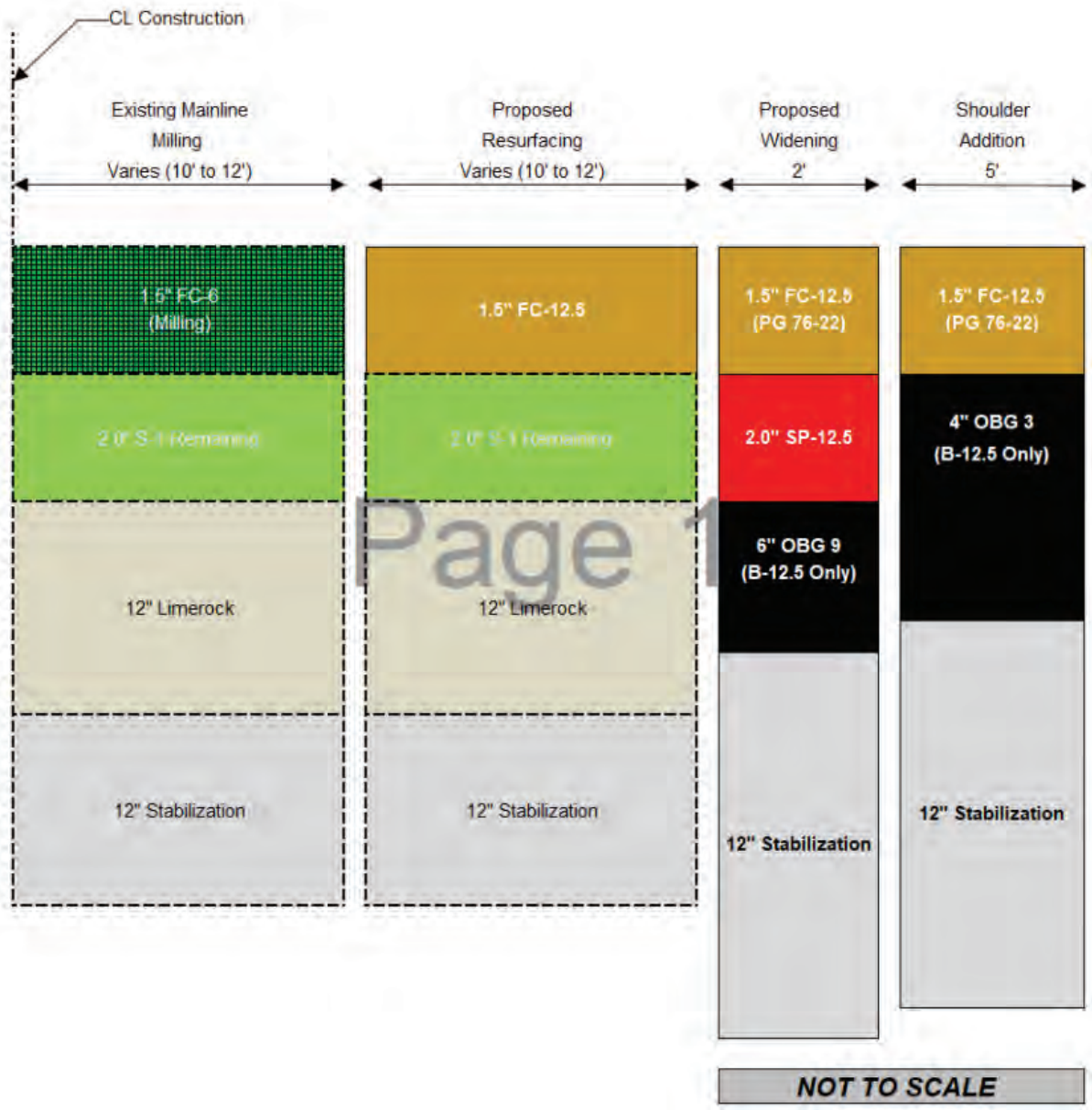


Figure 4. Pavement Design on West project. (443907-1)

After review of the information available, the LRE quantifies a pavement design equal to adjacent project to the west and likely the final pavement will be a comparable section. Therefore, the VE team validates the LRE quantified pavement design.

In addition, considering that the design includes a 16' median, and how the alignment is in relation to the existing pavement, the only pavement that could be reused is a small strip of about 1-ft per direction. Therefore, there is no advantage in reusing pavement for this project. The VE team notes though, that the estimate contains resurfacing pay items; then the design team should validate the quantities applicable for tie ins and other minor pavement areas.

DESIGN VALIDATION NO. 3: REALIGN ROADWAY TO REDUCE ROW	**Idea No(s). 1, 48**

Baseline Concept

The current baseline design aligns the roadway through the center of the corridor and impacts parcels on both sides.

Recommendation Concept

The recommended concept is to realign the roadway to only impact parcels on one side of the corridor and avoid parcels that will be more expensive.

Advantages	Disadvantages
• Reduce number of parcels • Reduce cost • Reduce schedule duration • Reduces utility impact • Improves MOT • May reduce ROW costs • May calm traffic	• Increase the impact to ROW parcels acquired • Introduce horizontal curves • Reduces the opportunity to use existing pavement

Cost Summary	Construction	Right-of-way	Total
Baseline Concept			
Recommendation Concept			
Cost Avoidance/ (Added Value)			

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	✓

DESIGN VALIDATION NO. 3: REALIGN ROADWAY TO REDUCE ROW	Idea No(s). 1, 48

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The current baseline concept design aligns the roadway through the center of the corridor and impacts parcels on both sides. The recommnded concept is to realign the roadway to only impact parcels on one side of the corridor and avoid parcels that will be more expensive.

Reviewing the CADD plans and attempting ot shift the alignment it was clear that the existing usable space was maximized and that ROW acquisition was only necessary in areas where actually needed.This analysis was done assuming a typical section width of 97-ft .

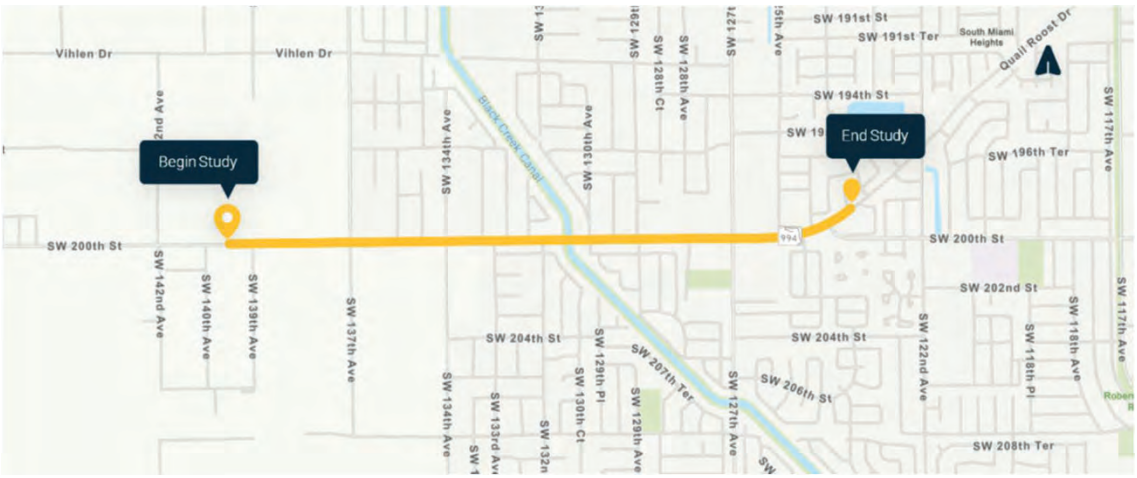
However, if the preferred alternative were to shrink the typical section width in anyway, the VE team recommends that the roadway and potential impacts be reanalyzed to determine if any existing structures or historical wall / buildings can be avoided. Currently most ROW impacts appear to be minimal.

Overall, the VE team's analysis reinforces the current recommendation stating that the current layout is minimizing the amount of ROW required for the baseline design with the given typical section.

Assumptions/Calculations

No calculations needed as recommendation validates baseline.

Appendix F. Closing Presentation



VALUE ENGINEERING STUDY

SR 994 / SW 200thSt / Quail Roost Drive Project

From: SW 137th Avenue To: SW 127th Avenue

FPN# 445804-1-22-01

Miami-Dade County, Florida

June12-16, 2023

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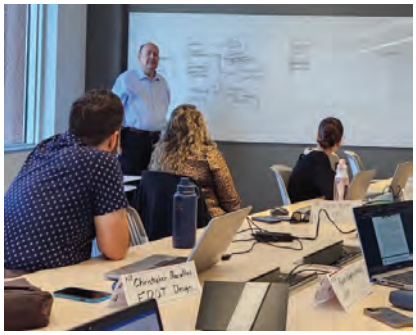
SAFETY FIRST

- Emergency exits
- Meeting point
- CPR
- Defibrillators?
- “911” Callers

VE TEAM



Mark Alvarez (FDOT)

Christopher Bacallao (FDOT)

Alejandro Gomez (CTS)

Claudia Gutierrez (FDOT)

Christopher Johnson (HDR)

Marceau Michel (FDOT)

Carmen Negron (FDOT)

Mario Perez (FDOT)

Ryan Raghunandan (FDOT)

Jose Theiler (HDR)

PROJECT INFORMATION

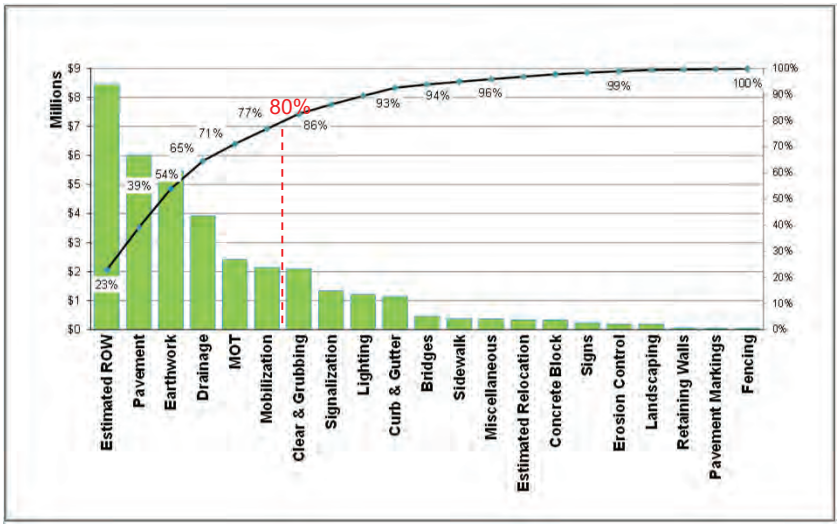
Purpose and Need

- Improve operations
- Improve safety
- Improve emergency operations and reduce response time
- Accommodate pedestrians and bicyclists

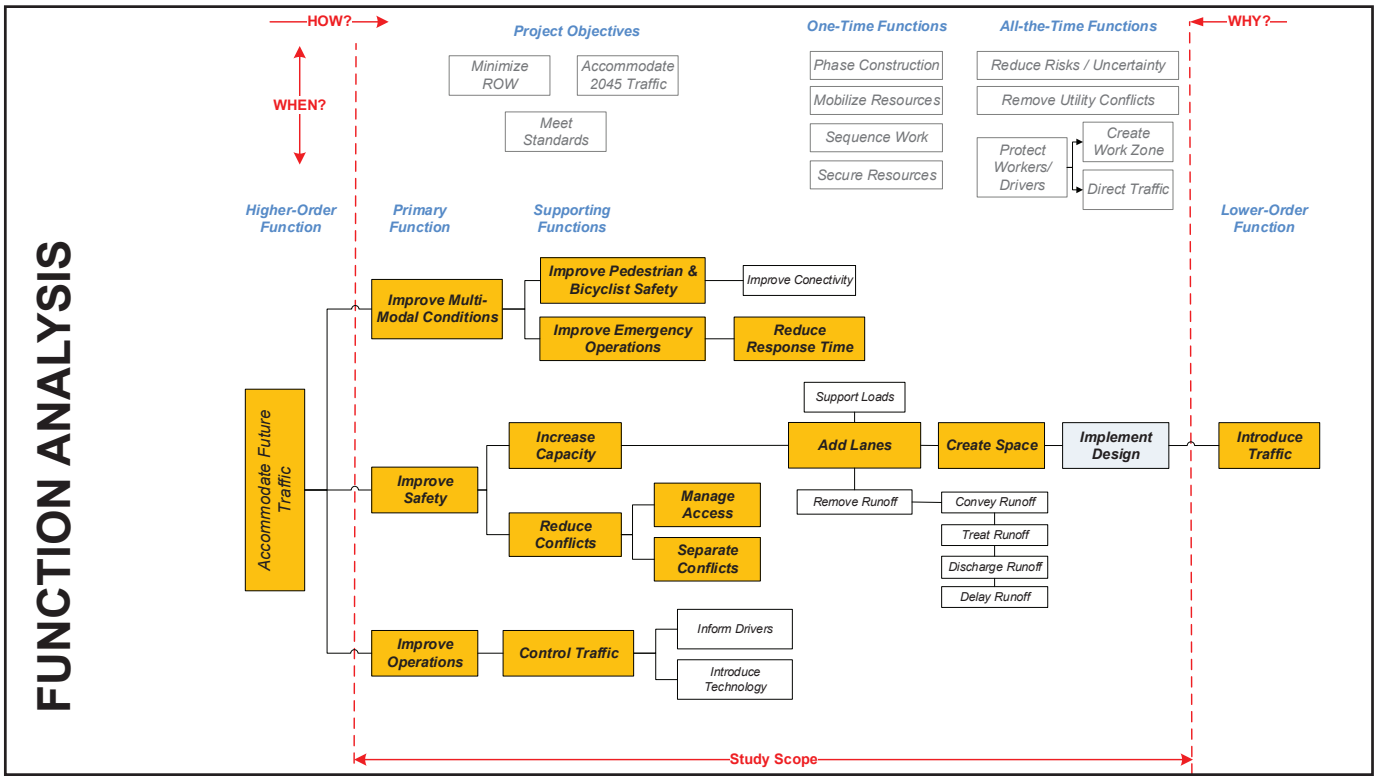
PROJECT INFORMATION

- Widen Quail Roost Drive
  - Four 11’ lanes
  - 16.5’ median
  - 10’ SUP in each direction
  - Four signalized intersections
  - Replace Bridge over Black Creek Canal
  - Create a trail underpass
- Project length: 1.67 miles

COST MODEL



Description	Amount	
Estimated ROW	$	8,438,713
Pavement	$	5,994,644
Earthwork	$	5,465,907
Drainage	$	3,917,399
MOT	$	2,422,156
Mobilization	$	2,131,497
Clear & Grubbing	$	2,096,256
Signalization	$	1,333,031
Lighting	$	1,211,046
Curb & Gutter	$	1,138,957
Bridges	$	470,901
Sidewalk	$	378,920
Miscellaneous	$	366,812
Estimated Relocation	$	344,750
Concrete Block	$	343,108
Signs	$	236,014
Erosion Control	$	190,827
Landscaping	$	189,136
Retaining Walls	$	63,728
Pavement Markings	$	56,855
Fencing	$	53,720
Barrier Wall	$	43,440
Maintenance	$	2,458
Total Cost	**$**	**36,890,274**



OBJECTIVE OF THE VE STUDY

The objective of the VE team is to **VALIDATE or IMPROVE** on the various concepts for the **Quail Roost Drive from 12th Ave to 137 Ave** project, through the application of the VE job plan.

$$Value = \frac{Performance}{Cost}$$

EVALUATION PROCESS – TIER 1

Function: Mobilize Resources

23	Deliver and remove material using the RR. Build temporary spur.	• Provides a means of access • May improve schedule duration • Reduces contractor risks • Provides means to remove materials (demo)	• RR agreement • Means and methods	3	Move forward to Development Phase

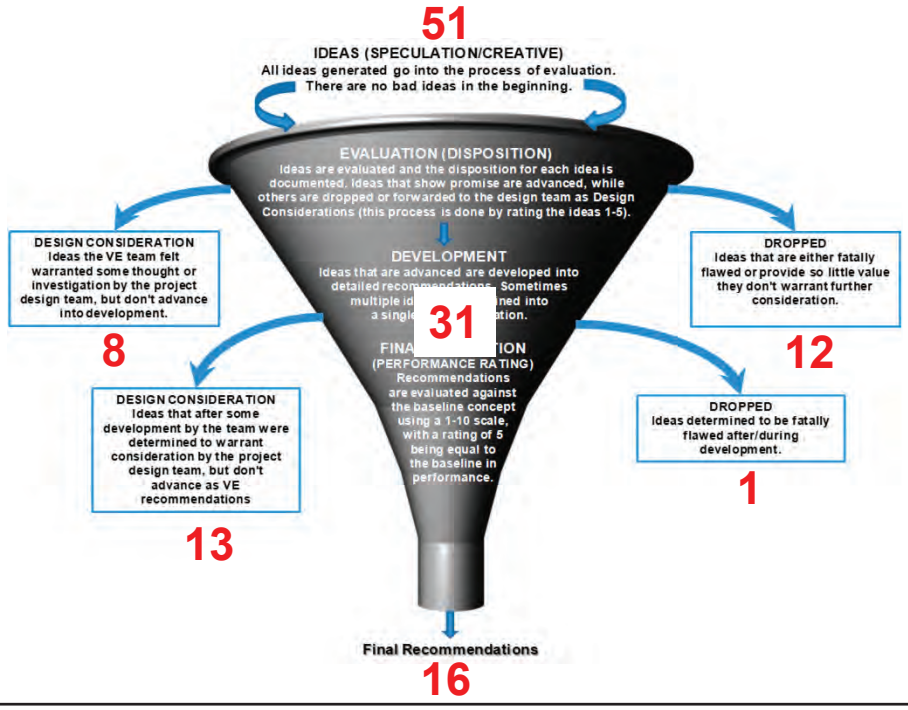
0-Unacceptable Impact / Fatal Flaw

1-Poor Opportunity

2-Good idea for design team to pursue

3-Good Opportunity

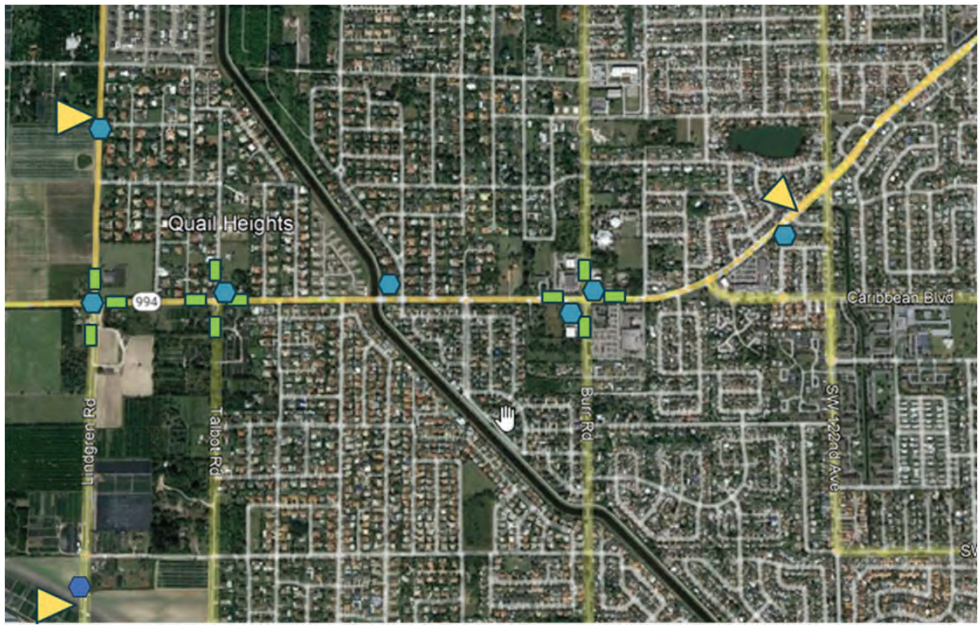
EVALUATION PROCESS – INFORMATION FLOW



IMPLEMENT TSMO STRATEGIES

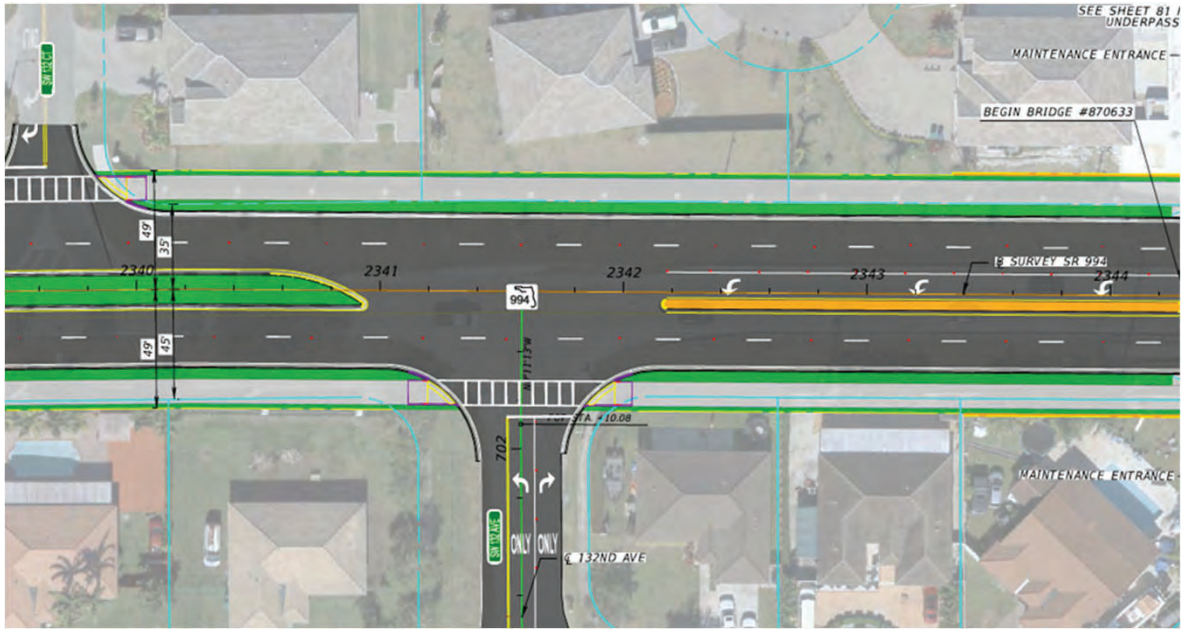
Baseline

IMPLEMENT TSMO STRATEGIES



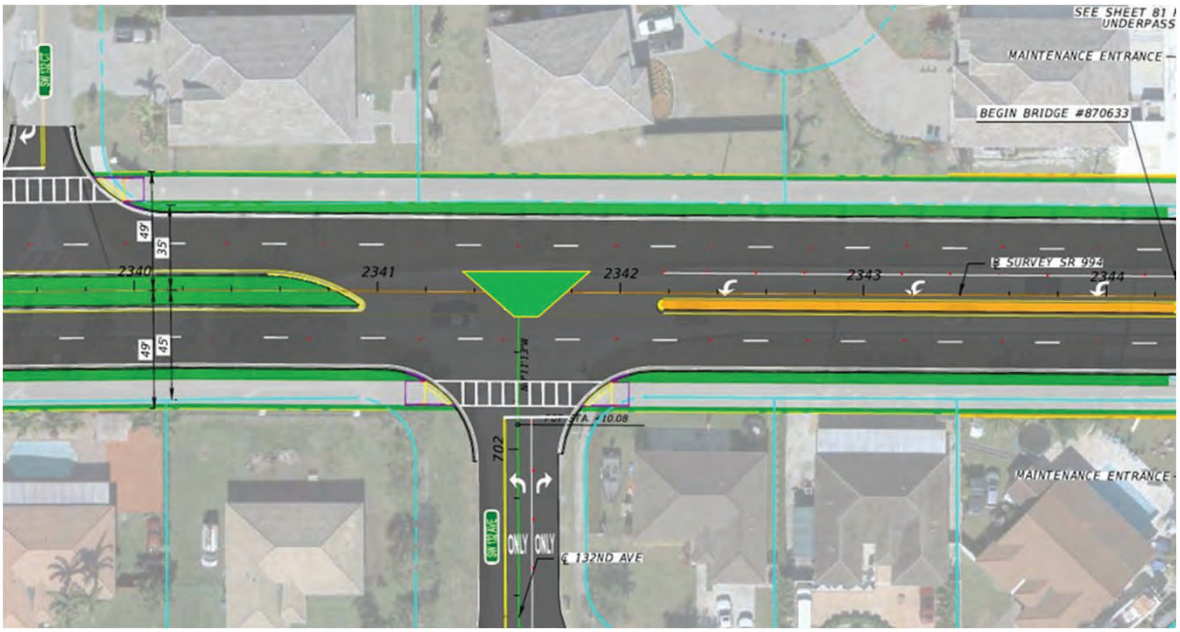
Recommendation

MODIFY MEDIAN ACCESS



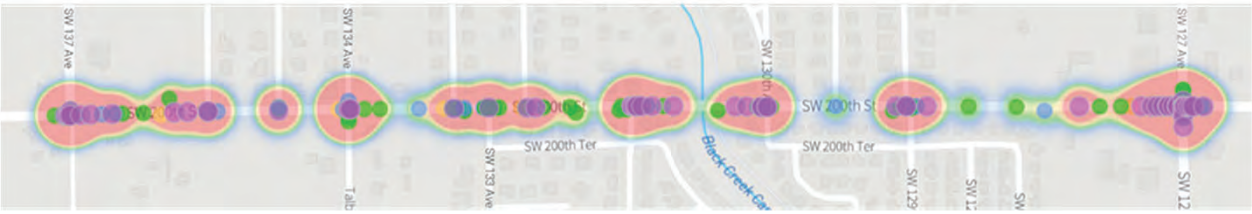
Baseline

MODIFY MEDIAN ACCESS



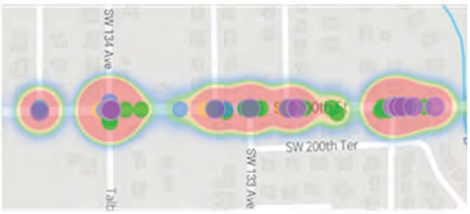
Recommendation

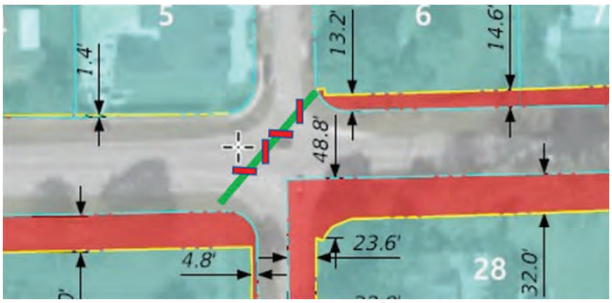
ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS

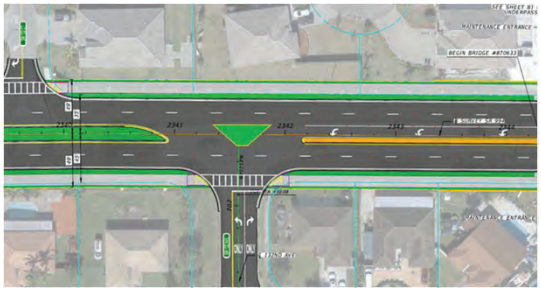


Baseline

ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS

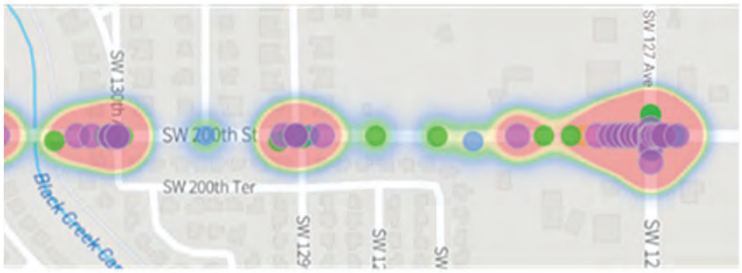






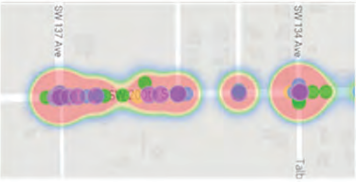
Recommendation

ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS



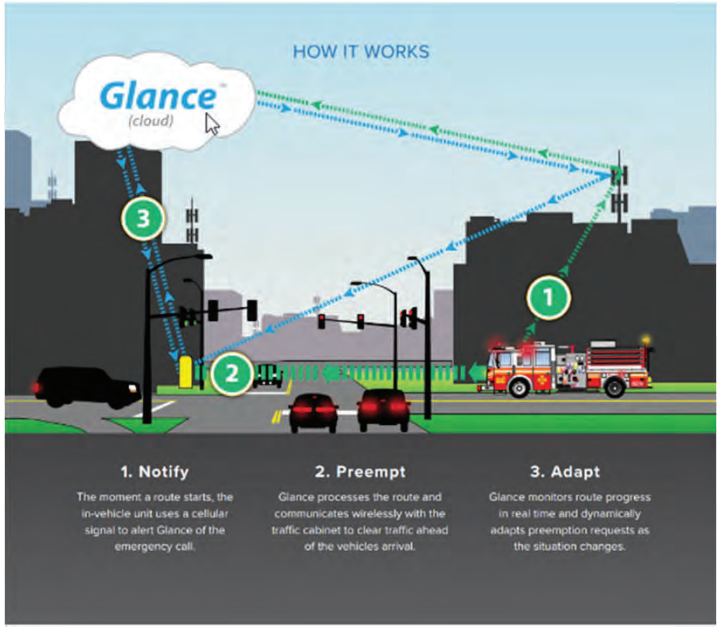
Recommendation

ADVANCE SAFETY IMPROVEMENTS AT CRITICAL LOCATIONS



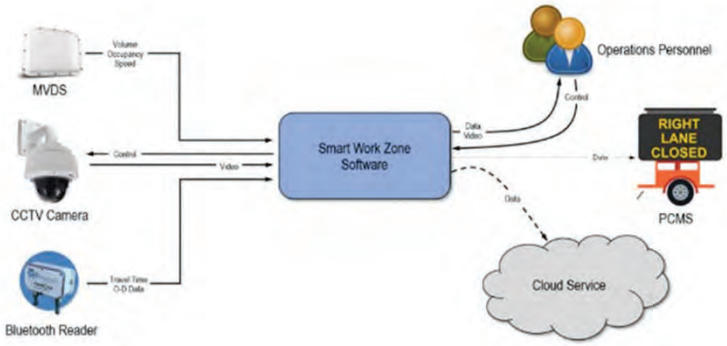
Recommendation

USE PREEMPTION TECHNOLOGY



Recommendation

INSTALL ITS INFRASTRUCTURE PRIOR TO CONSTRUCTION



Recommendation

REMOVE 196th STREET CONNECTOR IMPROVEMENT

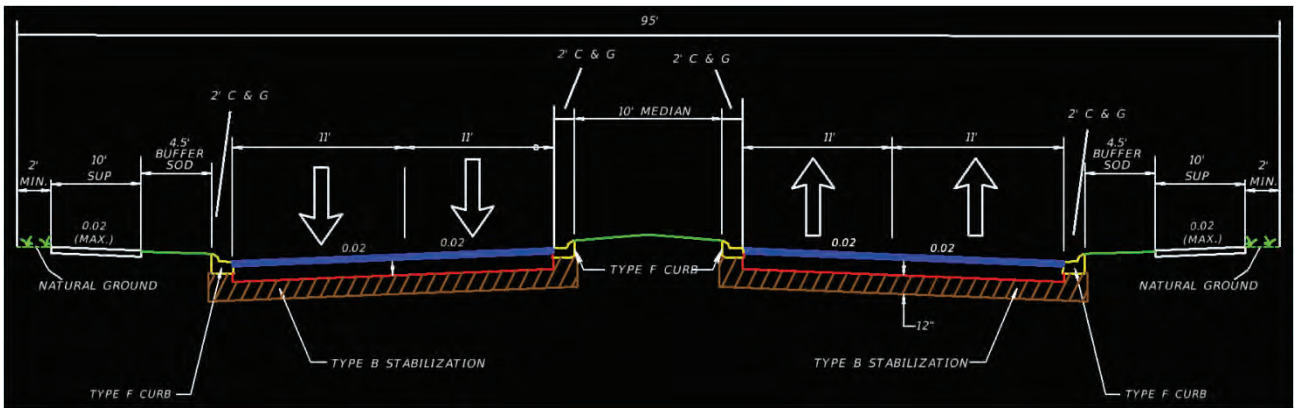
Baseline

Recommendation

MODIFY MEDIAN DESIGN

Baseline

MODIFY MEDIAN DESIGN

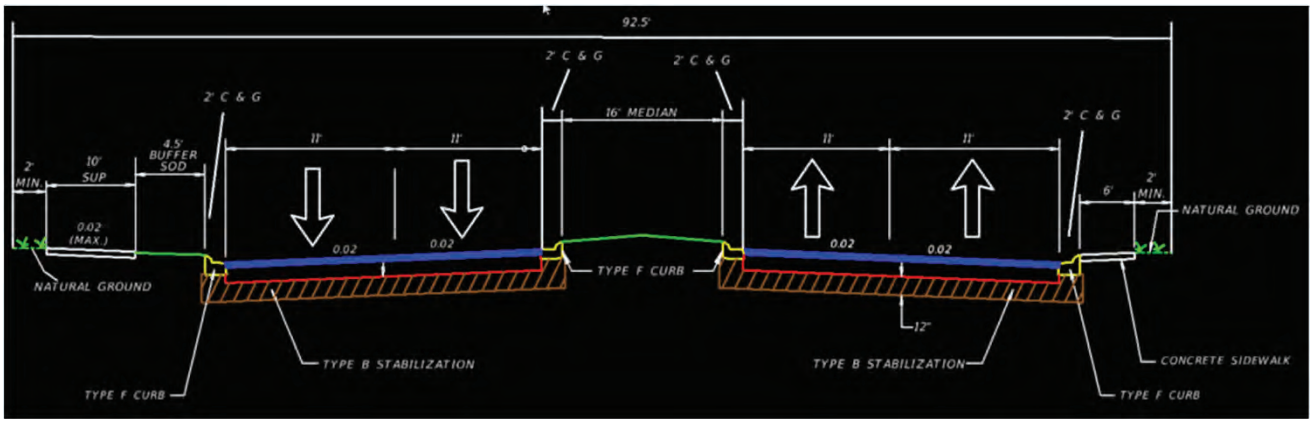


Recommendation

MODIFY PEDESTRIAN & BICYCLIST ACCOMMODATIONS

Baseline

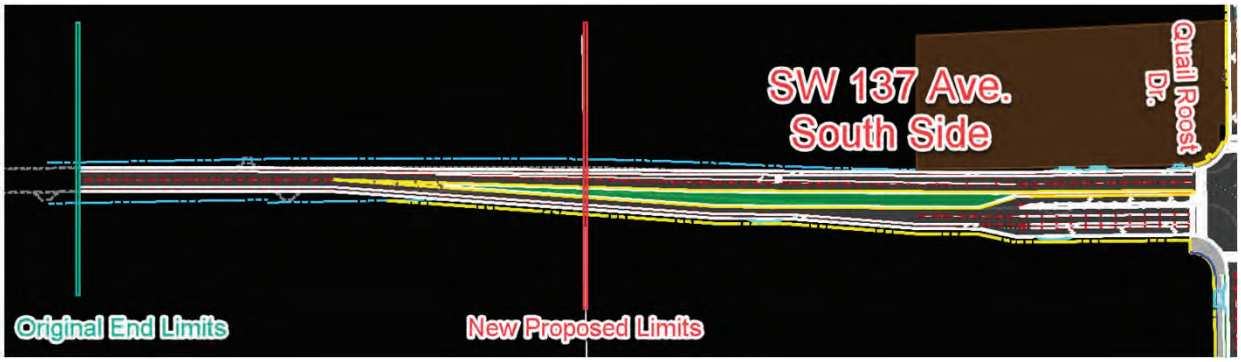
MODIFY PEDESTRIAN & BICYCLIST ACCOMMODATIONS



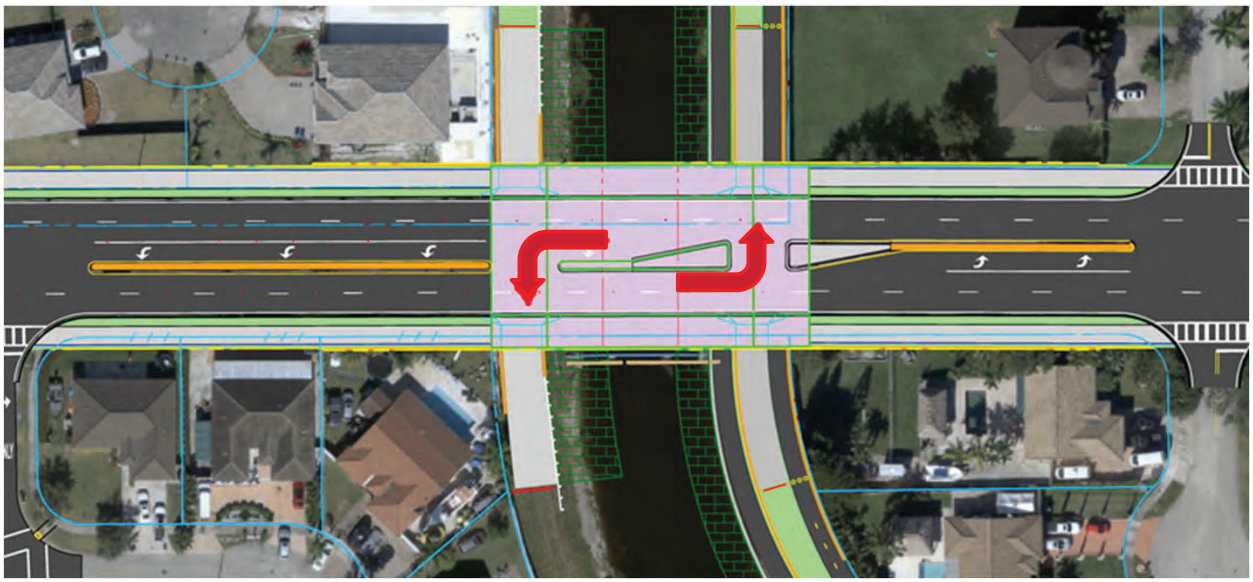
Recommendation

REDUCE LIMITS OF PROJECTS ALONG SW 127, SW 134, SW 137

REDUCE LIMITS OF PROJECTS ALONG SW 127, SW 134, SW 137

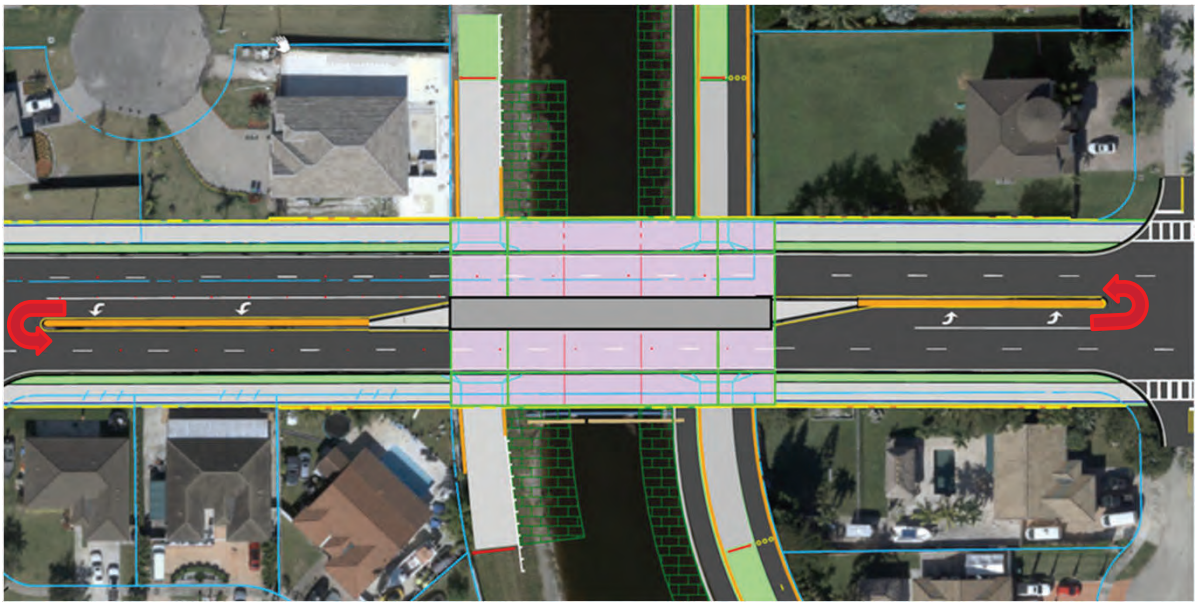


MODIFY SFWMD CANAL ACCESS



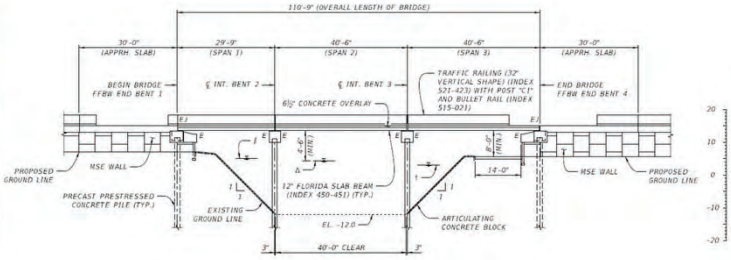
Baseline

MODIFY SFWMD CANAL ACCESS



Recommendation

ELIMINATE TRAIL UNDERPASS

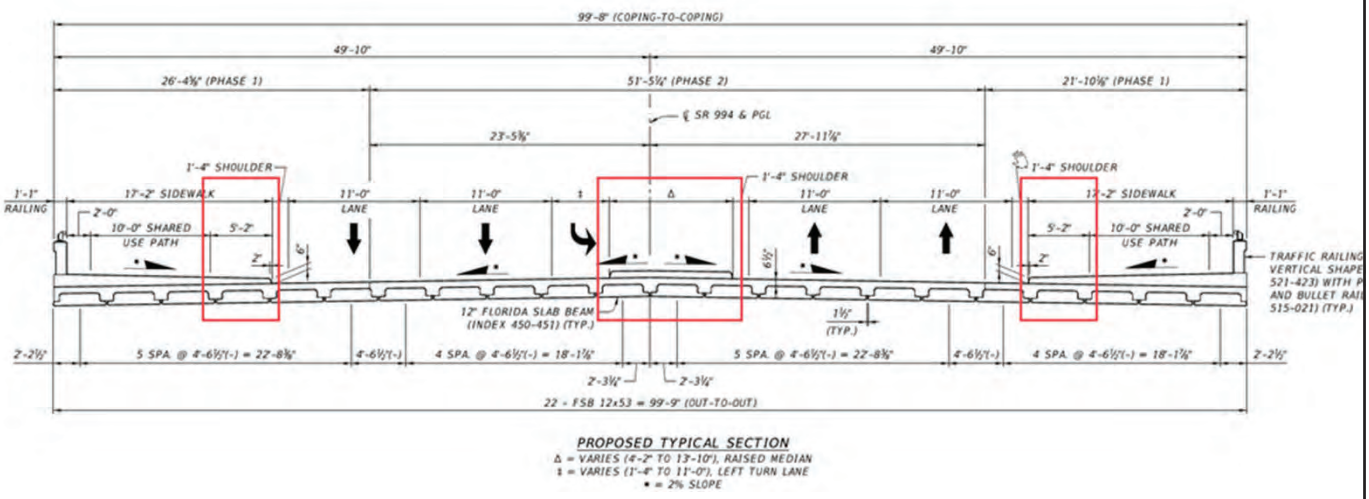


Baseline

ELIMINATE TRAIL UNDERPASS

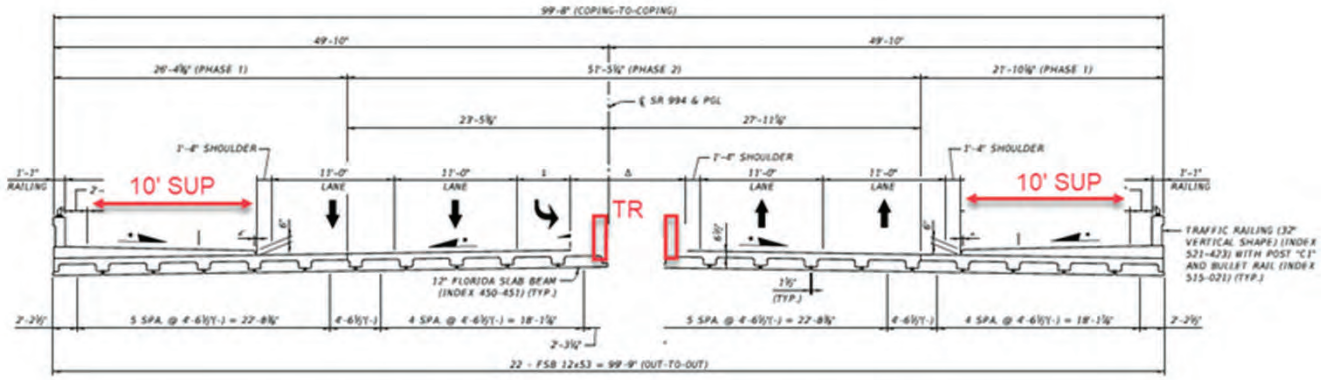
Recommendation

REDUCE BRIDGE WIDTH



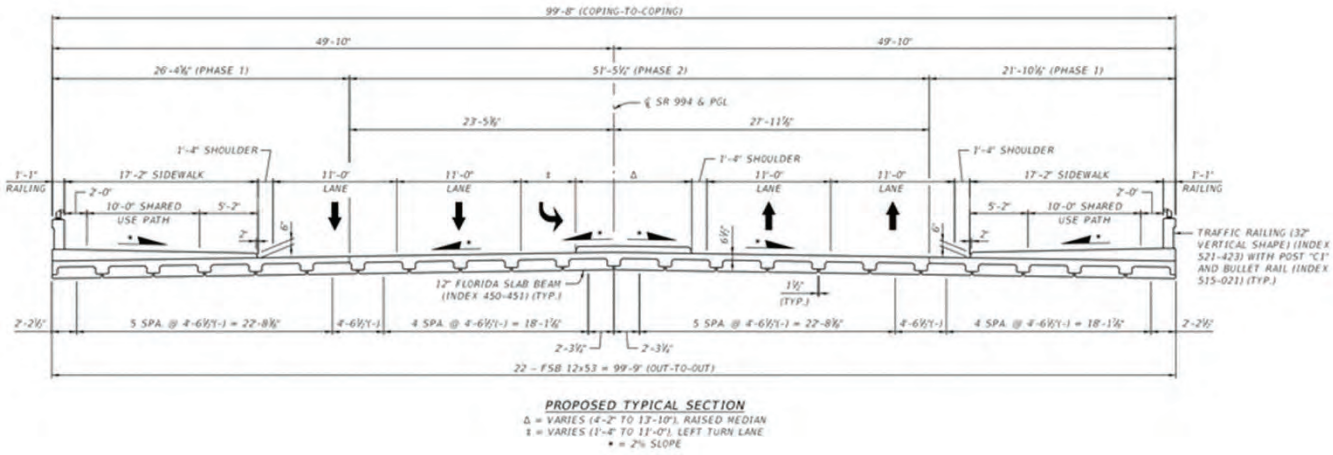
Baseline

REDUCE BRIDGE WIDTH



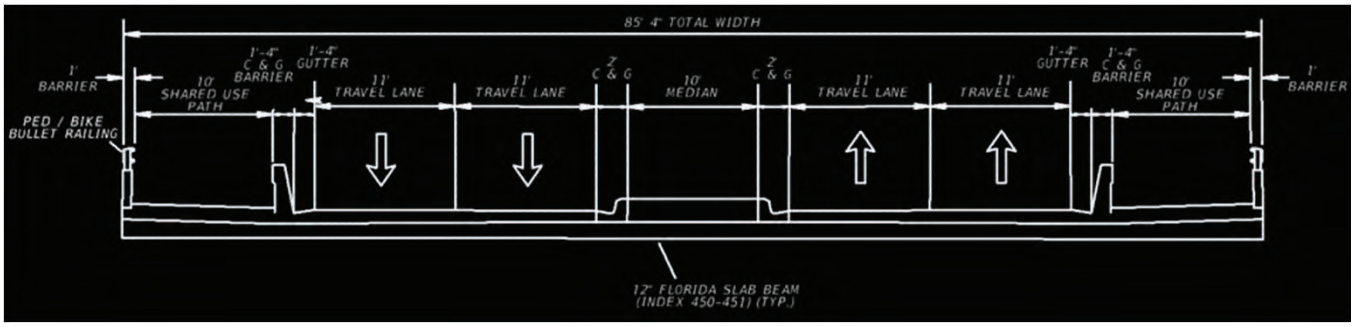
Recommendation

REMOVE BUFFER ALONG BRIDGE



Baseline

REMOVE BUFFER ALONG BRIDGE

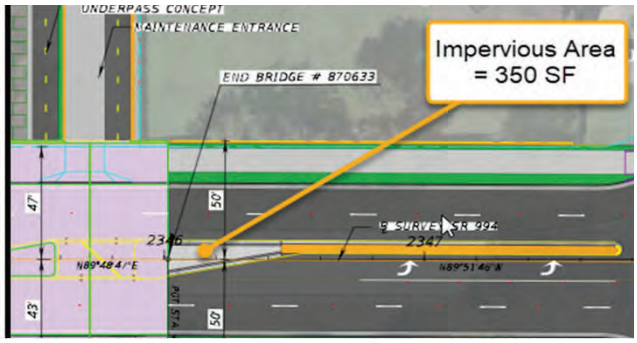


Recommendation

IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES

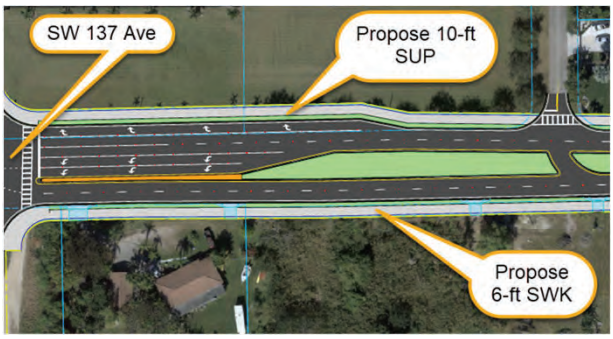
Recommendation

DEVELOP ALTERNATIVE DRAINAGE SOLUTION



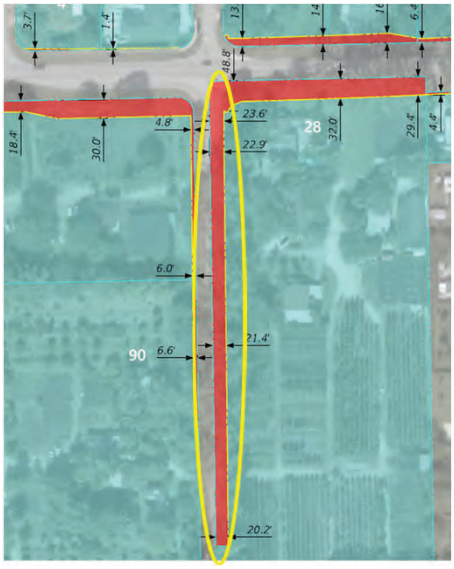
Baseline

DEVELOP ALTERNATIVE DRAINAGE SOLUTION



Recommendation

SEEK REIMBURSEMENT FOR 134th AVE ROW COST TO NORMALIZE ENCROACHMENT



Recommendation

DESIGN CONSIDERATIONS

ID	Idea Description
6	Install solar operated signals - (beacons, pedestrian signals, signal heads)
10	Shorten left turn queue length to remove it from structure
33	Reduce comprehensive landscaping to one focal location
38	Recycle bridge materials for riprap
39	Reuse asphalt for shoulder areas and other projects
41	Use incentives / disincentives for early construction
42	Adjust design schedule to accelerate allowable ROW activities before 60% design milestone and reduce duration from 36 Mo to 24 Mo
45	Re-run the noise wall benefit cost analysis to include updated prices

DESIGN CONSIDERATIONS TIER 2

Value engineering has traditionally been perceived as an effective means for reducing project costs.

This paradigm only addresses one part of the value equation, oftentimes at the expense of overlooking the role that VE can play regarding improving project performance.

Performance-based VE

$$Value = \frac{Worth}{Cost} = \frac{Performance}{Cost}$$

PERFORMANCE ATTRIBUTES – PAIRED COMPARISON

Paired Comparison							Total points	% of Total
Main Line Operations	A	A	A	A	A	A/F	5.5	26%
Local Operations		B	B	B	B	B/F	4.5	21%
Maintainability			C	C	E	C/F	2.5	12%
Construction Impacts				D	E	D/F	1.5	7%
Environmental Impacts					E	E	4.0	19%
Project Schedule						F	3.0	14%
						Total	21.0	100%

Performance Attributes – Paired Comparison

$$Value = \frac{Worth}{Cost} = \frac{Performance}{Cost}$$

VE RECOMMENDATION NO. 1	IDEA NO.		
UTILIZE TURBINE INTERCHANGE			
PERFORMANCE MEASURES	*Performance*	*Baseline*	*Recommendation*
Attributes and Rating Rationale for Recommendation			
Main Line Operations	*Rating*	5	7
Improves system vs service movements Increase ramp speed Increase throughput at ramps Lowers sawgrass through operational speed Provides all movements at interchange	*Weight*	28.5	
	Contribution	142.5	199.5
Local Operations	*Rating*	5	5
No Change	*Weight*	23.8	
	Contribution	119	119
Maintainability	*Rating*	5	4
More bridges to maintain Higher bridges to increase complex inspection	*Weight*	19.0	
	Contribution	95	76
Construction Impacts	*Rating*	5	4.5
Eliminates the Punch Through Pile driving closer to home Increase overnight detours and closures	*Weight*	7.1	
	Contribution	35.5	32
Environmental Impacts	*Rating*	5	6.72
Reducing the Quite Waters Park ROW and ENV impact May increase noise by bringing traffic closer to neighborhoods Improves all connections satisfying stakeholder wishes	*Weight*	14.2	
	Contribution	71	95.4
Project Schedule	*Rating*	5	5
No Change	*Weight*	7.1	
	Contribution	35.5	35.5
	Total Performance	499	557
	Net Change in Performance		12%

Total Value Improvement Summary

Value Index								
Recommendations		Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
	Baseline	499	---	$37.7	---	---	13.22	---
1	Develop Alternative Drainage Solution	605	+21.4%	$36.7	($1.00)	-2.7%	16.49	+25%
2	Identify County & FDOT Property for Drainage	499	0.0%	$37.7	$0.00	0.0%	13.22	0%
3	Modify Median Design	532	+6.7%	$37.3	($0.44)	-1.2%	14.27	+8%
4	Use Preemption Technology	594	+19.1%	$37.9	$0.22	+0.6%	15.65	+18%
5	Modify Median Access	529	+6.2%	$37.7	$0.04	+0.1%	14.02	+6%
6	Modify SFWMD Canal Access	577	+15.7%	$37.7	$0.01	+0.0%	15.30	+16%
7	Remove Buffer along Bridge	493	-1.2%	$37.3	($0.42)	-1.1%	13.21	0%
8	Modify Pedestrian & Bicyclist Accommodations	508	+1.9%	$36.6	($1.10)	-2.9%	13.88	+5%

Total Value Improvement Summary

Value Index								
Recommendations		Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
	Baseline	499	---	$37.7	---	---	13.22	---
9	Advance Safety Improvements at Critical Locations	616	+23.6%	$42.1	$4.44	+11.8%	14.62	+11%
10	Eliminate Trail Underpass	606	+21.6%	$34.5	($3.20)	-8.5%	17.58	+33%
11	Implement TSMO Strategies	582	+16.7%	$38.5	$0.77	+2.0%	15.12	+14%
12	Reduce Limits of Projects along SW 127th, SW 134th & SW 137th	502	+0.7%	$37.2	($0.52)	-1.4%	13.50	+2%
13	Reduce Bridge Width	506	+1.4%	$37.0	($0.71)	-1.9%	13.67	+3%
14	Install ITS Infrastructure Prior to Construction	513	+2.8%	$37.4	($0.28)	-0.7%	13.70	+4%
15	Remove 196th St Connector Improvements	512	+2.6%	$37.5	($0.18)	-0.5%	13.63	+3%
16	Seek ROW Cost Reimbursement along SW 134th South of Quail Roost	499	0.0%	$37.4	($0.33)	-0.9%	13.34	+1%

QUESTIONS

Jose Theiler, PE, CVS
Christopher Johnson, VMA, PMP

IDENTIFY COUNTY & FDOT PROPERTY FOR STAGING AND DRAINAGE PURPOSES

Baseline

Appendix B. VE Recommendation Approval Form

Project: SR 994/SW 200 Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue
VE Study Date: June 12-16, 2023

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost Avoidance or Cost Added ($M)	Responses
1	Develop Alternative Drainage Solution	Y			✓	✓		$0.81	Recommendation will be considered during the design phase, based on approved typical section package.
2	Identify County & FDOT Property for Staging and Drainage Purposes	Y					✓	$0.00	Recommendation will be coordinated with Miami-Dade County after 60% design.
3	Modify Median Design	Y				✓	✓	$0.44	A 12-ft median was previously considered but it was not accepted by the DDE.
4	Use Preemption Technology	Y	✓	✓				($0.22)	Recommendation will be considered during design phase, as part of the signalization design.

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost Avoidance or Cost Added ($M)	Responses
5	Modify Median Access	Y	✓	✓				($0.04)	Storage area as proposed for SW 132nd Ave would require a design variation due to insufficient acceleration length. The island at SW 134 CT has been reconfigured to restrict the SBL movement as recommended.
6	Modify SFWMD Canal Access	Y	✓	✓				($0.01)	As part of the coordination with SFWMD during the PD&E phase, the proposed concept reflects the design requested by SFWMD. Recommendation can be further evaluated during design as part of the SFWMD ROW Occupancy Permit coordination process.
7	Remove Buffer along Bridge	Y				✓	✓	$0.62	Per FDM, the bridge typical section needs to match the typical section of the roadway approaches. Removing buffer would require design variation.
8	Modify Pedestrian & Bicyclist Accommodations	Y			✓	✓	✓	$1.02	The PD&E concept with one SUP on either side of the road was previously coordinated with the PLEMO and Safety offices and it was determined to be the preferred option. After further analysis and coordination with the District 6 Design Office, the SUPs were replaced by sidewalks with sidewalk level SBLs.

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost Avoidance or Cost Added ($M)	Responses
9	Advance Safety Improvements at Critical Locations	Y	✓	✓				($4.45)	The improvements at SW 134th Ave and SW 132nd Ave were previously evaluated by the Safety Office and it was determined that improvements would be included in this project. Also, at some of the critical locations like SW 134th Avenue, even an interim improvement will require ROW.
10	Eliminate Trail Underpass	Y		✓	✓	✓	✓	$3.39	After further analysis and coordination with the District 6 Design, Maintenance and ROW Offices, an at-grade crossing is being proposed as the preferred option for the trail crossing.
11	Implement TSMO Strategies	Y	✓	✓				($0.77)	ITS improvements were coordinated with the TSM&O Office. The study corridor has not been identified by the FDOT District 6 as a priority corridor for implementation of TSM&O strategies such as Adaptive Signal Control Technologies (ASCT) or Traffic Signal Priority (TSP). Please refer to section 6.1.9 of the Preliminary Engineering Report (PER) for additional information.

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost Avoidance or Cost Added ($M)	Responses
12	Reduce Limits of Projects along SW 127th, SW 134th & SW 137th	Y				✓	✓	$0.52	The proposed improvements at the intersections with County roads are controlled by traffic operations needs to achieve an acceptable Level of Service (LOS). The proposed work along the County roads is limited to the minimum acceleration length required, taking into account not only the FDOT standard plans but also the queue length to avoid spillover into the intersection (prior to the merge). Also, note the design speed for SW 137 Ave was assumed to be 45 mph per as-built plans.
13	Reduce Bridge Width	Y		✓		✓	✓	$0.71	The buffer reduction was discussed under VE Recommendation No. 7. Providing two separate bridges would restrict the length of the left turn lane to SW 132 Ave and it would impact SFWMD's maintenance access. Also, the overall footprint of the two bridges would be similar to the one-bridge alternative due to pair bridges needing inside shoulders and railings per FDM.
14	Install ITS Infrastructure Prior to Construction	Y	✓			✓		$0.28	Please refer to response to VE Response No. 11. No ITS improvements proposed.
15	Remove 196th St Connector Improvements	Y				✓		$0.18	SW 196 Street connector has been removed from the project.

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost Avoidance or Cost Added ($M)	Responses
16	Seek ROW Cost Reimbursement of County Encroachments to Private Owners	Y					✓	$0.33	Recommendation will be coordinated during the ROW Acquisition phase.
	TOTALS		6	7	3	9	8		

Please provide justification if the value engineering study recommendations are **not** approved or are implemented in a modified form.

Florida DOT is required to report Value Engineering results annually to FHWA. To facilitate this reporting requirement, the Value Engineering Recommendation Approval Form is included herein. If the Department elects to reject or modify a recommendation, please include a brief explanation of why. Please complete the form and return it to Florida DOT State Value Engineer.

Raul E Quintela

Digitally signed by: Raul E Quintela
DN: CN = Raul E Quintela C = US O = FLORIDA DEPARTMENT OF TRANSPORTATION
Date: 2024.06.11 11:45:03 -04'00'

Signature – Project Manager Date

Name (please print)

FHWA Functional Benefit Criteria

Each year, State DOTs are required to report on VE recommendations to FHWA. In addition to cost implications, FHWA requires the DOTs to evaluate each approved recommendation in terms of the project feature or features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in *each category that is applicable*.

Safety: Recommendations that mitigate or reduce hazards on the facility.

Operations: Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility.

Environment: Recommendations that successfully avoid or mitigate impacts to natural and/or cultural resources.

Construction: Recommendations that improve work zone conditions or expedite the project delivery.

Right-of-way: Recommendations that lower the impacts or costs of right-of-way.

Appendix O – Advance Notification Package

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111 Avenue
Miami, FL 33172-5800

KEVIN J. THIBAULT, P.E.
SECRETARY

June 4, 2020

Mr. Chris Stahl, Clearinghouse Coordinator
State Clearinghouse Project Review
Office of Intergovernmental Programs
Department of Environmental Protection
2600 Blair Stone Road, Mail Station 47
Tallahassee, FL 32399-2400

SUBJECT: Advance Notification
SR 994/SW 200th Street/Quail Roost Drive:
West of SW 137th Avenue to East of SW 127th Avenue
ETDM Number: 14429
Federal Aid Project Number: TBD
Work Program Item Segment Number: 445804-1-22-01
Miami-Dade County, Florida

Dear Mr. Stahl:

This Advance Notification (AN) Package is being sent to your office for distribution to state agencies that conduct federal consistency reviews (consistency reviewers) in accordance with the Coastal Zone Management Act and Presidential Executive Order 12372. Although we will request specific comments during the permitting process, we are asking that consistency reviewers examine the attached information and provide us with their comments.

Consistency reviewers have forty-five (45) days from the Programming Screen Notification to provide their comments. Once you have received their comments, please submit a consistency determination for the State of Florida within sixty (60) days of the Programming Screen Notification. If you need more review time, please send a written request for an extension to our office within the initial sixty (60)-day comment period.

This is a federal action. The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Federal Highway Administration and FDOT. FDOT will determine what type of environmental documentation will be necessary. The determination will be based upon in-house environmental evaluations and comments received through coordination with other agencies. Please provide a consistency review for this project in accordance with the State's Coastal Zone Management Program.

In addition, please review this project's consistency, to the maximum extent feasible, with the requirements of Chapter 163 of the Florida Statutes.

The project is currently under review through the Environmental Screening Tool (EST) as part of the Efficient Transportation Decision Making (ETDM) Programming Screen phase. The project is listed as #14429 SR 994/SW 200th Street/Quail Roost Drive from W of SW 137th Avenue to E of SW 127th Avenue.

The Environmental Technical Advisory Team (ETAT) members may review this project on the ETDM website. Non-ETAT agencies may review this project on the public access website located at: http://etdmpub.fla-etat.org/.

Your comments should be submitted via the EST if you are an ETAT representative, or emailed or mailed to the District contact below:

Mr. Dat Huynh, P.E., CSM
District Planning & Environmental Administrator
Planning & Environmental Management Office
Florida Department of Transportation – District Six
Adam Leigh Cann Building
1000 NW 111th Avenue, Room 6111A
Miami, Florida 33172
dat.huynh@dot.state.fl.us

Sincerely,

Dat Huynh, P.E., CSM
District Planning & Environmental Administrator

cc: Curlene Thomas, FDOT District Six
Kenneth Jeffries, FDOT District Six
Steven Craig James, FDOT District Six
Irene Varela, FDOT District Six
Elsa Riverol, FDOT District Six
Advance Notification Transmittal List

Attachments: Advance Notification Package

Advance Notification Package

Project #14429 - SR 994/SW 200th Street/Quail Roost Drive
Programming Screen - Published on 06/04/2020
Printed on: 6/04/2020

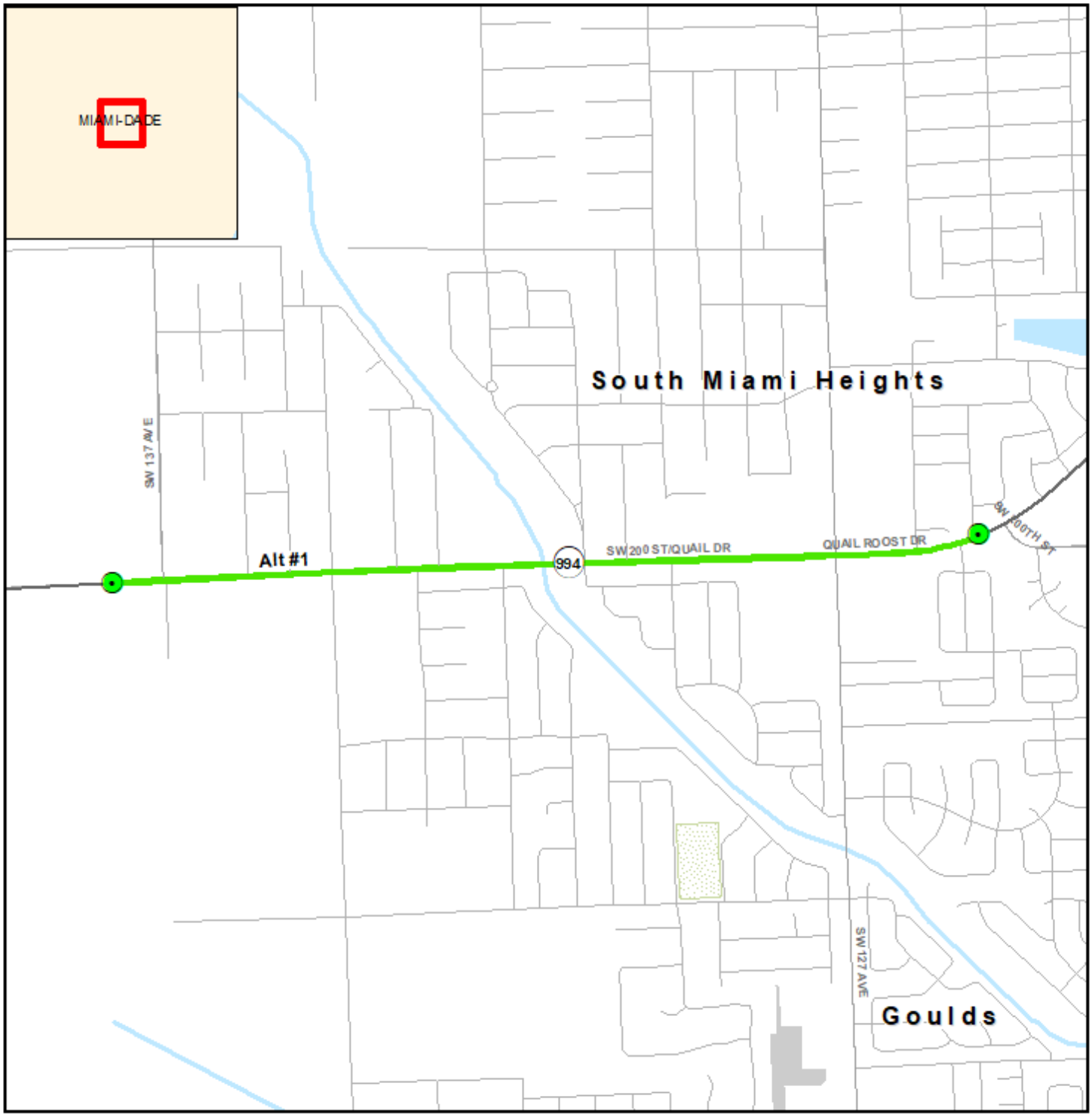
Table of Contents

I. Location Maps 1
II. Fact Sheet 4
a. Purpose and Need 4
b. Project Description 6
c. Preliminary Environmental Discussion 7
i. Social and Economic 7
1. Land Use Changes 7
2. Social 7
3. Relocation Potential 8
4. Farmlands 8
5. Aesthetic Effects 8
6. Economic 9
7. Mobility 9
ii. Cultural 9
1. Section 4(f) Potential 9
2. Historic and Archaeological Sites 10
3. Recreation Areas 10
iii. Natural 10
1. Wetlands and Surface Waters 10
2. Water Quality and Quantity 11
3. Floodplains 11
4. Coastal Zone Consistency 11
5. Wildlife and Habitat 11
6. Coastal and Marine 12
iv. Physical 12
1. Noise 12
2. Air Quality 12
3. Contamination 13
4. Infrastructure 13
5. Navigation 13
v. Special Designations 13
1. Special Designations: Outstanding Florida Waters 13
2. Special Designations: Aquatic Preserves 14
3. Special Designations: Scenic Highways 14
4. Special Designations: Wild and Scenic Rivers 14
d. Anticipated Permits 14
e. Anticipated Technical Studies 14
III. Application for Federal Assistance 15
IV. Transmittal List 20

I. Location Maps

14429 - SR 994/SW 200th Street/Quail Roost Drive

W of SW 137th Avenue TO E of SW 127th Avenue



Project Base Map

- ETDM Alternative
- ETDM Alternative Terminus
- ETDM Alternative Eliminated
- Local Road or Trail
- Major Road
- City Limits
- Managed Conservation Lands

Data Sources:
NAVTEQ
US Geological Survey
US Census Bureau
County Property Appraisers
Florida Natural Areas Inventory

0 0.05 0.1 0.2 Miles

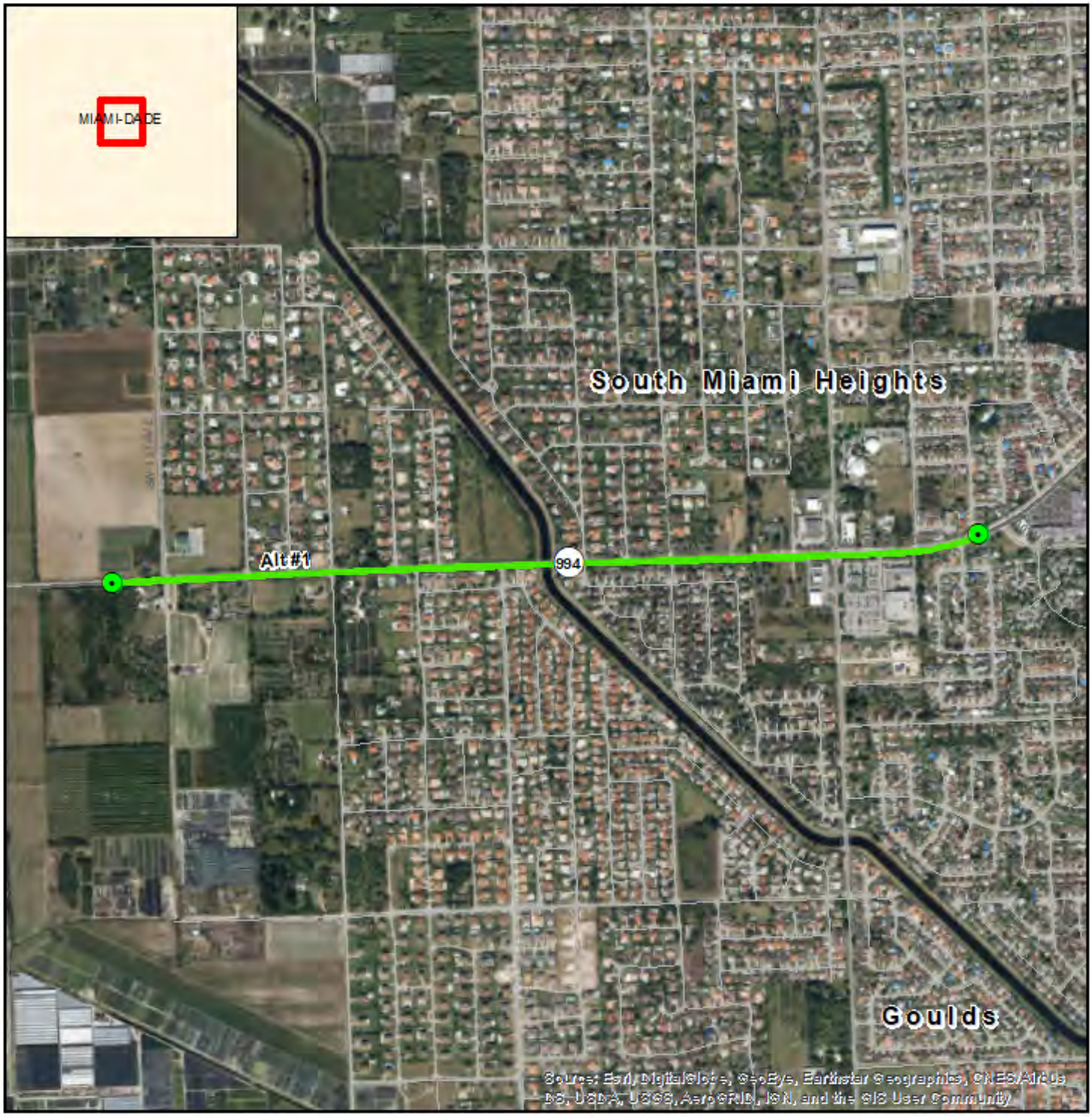
N

ETDM EST FDOT

This map and its content is made available by the Florida Department of Transportation on an "as is," "as available" basis without warranties of any kind, express or implied.

14429 - SR 994/SW 200th Street/Quail Roost Drive

W of SW 137th Avenue TO E of SW 127th Avenue



Project Aerial Map

- ETDM Alternative
- ETDM Alternative Terminus
- ETDM Alternative Eliminated
- Major Road
- Local Road or Trail

Data Sources:
Highways - NAVTEQ
Digital Orthophotograph - ArcGIS Online

0 0.05 0.1 0.2 Miles

N

ETDM EST FDOT

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II. Fact Sheet

Disclaimer

DISCLAIMER: The Fact Sheet data consists of the most up-to-date information available at the time the Advance Notification Package is published. Updates to this information may be found on the ETDM website at http://etdmpub.fla-etat.org

Special Note: Please be aware of the selected Milestone date when viewing project data on the ETDM website. Snapshots of project and analysis data have been taken for Project #14429 at various points throughout the project's life-cycle. On the website these **Project Milestone Dates** are listed in the the project header immediately after the project contact information. Click on any of the dates listed to view the information available on that date.

Overview

#14429 SR 994/SW 200th Street/Quail Roost Drive

District: District 6
County: Miami-Dade
Planning Organization: FDOT District 6
Plan ID: Not Available
Federal Involvement: FHWA Funding Other Federal Permit

Phase: Programming Screen
From: W of SW 137th Avenue
To: E of SW 127th Avenue
Financial Management No.: 445804-1-22-01

Contact Information: Dat Huynh (305) 470-5201 Dat.Huynh@dot.state.fl.us
Snapshot Data From: Current Draft Data

a. Purpose and Need

The purpose of this project is to address traffic operations and capacity constraints on SR 994 from west of SW 137th Street to east of SW 127th Avenue in unincorporated Miami-Dade County in order to accommodate future travel demand projected as a result of population and employment growth along the corridor. Other goals of the project are to 1) improve safety conditions along the corridor, including emergency evacuation and response times, and 2) enhance mobility options and multimodal access. The need for this project is based on the following criteria:

CAPACITY/TRANSPORTATION DEMAND: Improve Operational Conditions and Accommodate Projected Travel Demand

This project is anticipated to improve traffic operations along SR 994 by increasing the capacity to meet projected travel demand as a result of Miami-Dade County population and employment growth. Miami-Dade County is the most populous county in Florida with almost 2.5 million residents in 2010. By 2040, the county's population is expected to grow by over 30% to over 3.3 million residents. Employment growth in the county is expected to increase from 1.4 million workers in 2010 to more than 2 million workers by 2040.

Between SW 137th Avenue and SW 127th Avenue, the corridor has experienced a 7% increase in Annual Average Daily Traffic (AADT) from 2015 to 2019 with traffic volumes growing from 17,900 to 19,200 vehicles per day. Traffic is anticipated to continue to increase due to population growth and residential development occurring within infill parcels along the study corridor, such as the Willow Trace development under construction east of SW 132nd Place and west of the Black Creek Canal.

Intersection operational analyses for the Existing Year (2019) were performed for the Resurfacing, Restoration, and Rehabilitation (RRR) Safety Review Study (conducted for the corridor in June 2019) using Synchro Traffic Software, which calculates Level of Service (LOS) based on the Highway Capacity Manual methodology. The analysis determined that segments along the corridor performed at LOS F. As travel demand continues to increase throughout the corridor, the LOS is anticipated to continue to deteriorate without additional capacity improvements.

SAFETY: Improve Vehicular Safety Conditions and Emergency Evacuation and Response Times

As part of the RRR Study, a crash analysis was conducted from west of SW 137th Avenue to west of SW 127th Avenue. The crash data for the latest three-year period (January 2014 to December 2016) was downloaded from the FDOT's Crash Analysis Reporting System (CARS) and summarized for the project segment. A total of 137 crashes were

documented for the three-year period within the project limits. The leading types of crashes along the corridor were rear end (with 77 crashes) and angle (with 24 crashes). Based on crash severity, 34.3% (47 crashes) were injury type crashes and 65.0% (89 crashes) were property damage only crashes. There was one fatal crash during the three-year study period. Based on FDOT's 2014-2016 High Crash Lists, the following locations were considered high-crash spots/segments:

- SR 994 at SW 137th Avenue
- SR 994 at SW 134th Avenue
- SR 994 at SW 132nd Avenue
- SR 994 from SW 137th Avenue to west of SW 127th Avenue

According to the safety review, congestion/lack of capacity and lack of left-turn lanes serve as the probable causes of the safety issues within the corridor. Providing additional capacity and improving intersections along the corridor are anticipated to result in reduced crashes and safety benefits. Improved traffic operations due to increased capacity are also anticipated to decrease emergency response times for emergency response vehicles.

SR 994 connects directly to two Strategic Intermodal System (SIS) Highway Corridors at SR 997/Krome Avenue (west of the project limits) and SR 821/HEFT (east of the project limits). According to the Florida Division of Emergency Management, both SR 997/Krome Avenue and SR 821/HEFT are designated emergency evacuation routes. SR 997/Krome Avenue additionally provides regional connectivity to US 1, which is a major evacuation route for the Florida Keys. The project is anticipated to enhance emergency evacuation capabilities by improving the capacity of the roadway and, thereby, increasing the number of residents that can be evacuated safely during an emergency event and enhancing access from the residential areas along the corridor to designated emergency evacuation routes.

MODAL INTERRELATIONSHIPS: Enhance Mobility Options and Multi-Modal Access

There are no existing designated bicycle lanes within the project limits. Sidewalks are noncontinuous and generally located at residential subdivisions along the project corridor. The Black Creek Trail intersects the project corridor just east of the Black Creek Canal. The trail is a 17-mile-long greenway corridor that connects the Everglades Levee (L-31N Canal) with Black Point Park and Marina in Homestead.

Based on 2010 United States Census Data, approximately 4% of the housing units (192 housing units) within the study area are transit-dependent (no vehicle available); in addition, approximately 392 housing units within the study area use public transportation for work. This noted transit-dependent population has a higher propensity to walk, bike, or take transit to access essential services. The project is anticipated to improve multi-modal connectivity and mobility options for the transit-dependent population and the overall residential population within the project area by providing continuous bicycle and pedestrian facilities along the entire corridor and improving access to the Black Creek Trail.

PROJECT STATUS

A RRR Study was completed in June 2019 for SR 994 from west of SW 137th Avenue to west of SW 127th Avenue (FPID: 250650-4) to evaluate safety and operational improvements recommended during the potential milling and resurfacing of SR 994. Based on the operations analysis and safety review, the RRR Study recommended consideration of widening SR 994 up to four lanes (two lanes per direction) within the project limits.

A review of existing transportation plans was completed for the project corridor. The plans included the Florida Department of Transportation's (FDOT) Five Year Work Program (FY 2020-2025 Tentative), the FDOT's State

Transportation Improvement Program (STIP) (dated July 10, 2019), the Miami-Dade Transportation Planning Organization's (TPO) 2020 Transportation Improvement Program (TIP), and the Miami-Dade TPO's 2045 Long Range Transportation Plan (LRTP). These documents include the following information about the proposed project:

- FDOT's Five Year Work Program (FMN: 445804-1): PD&E phase programmed in FY 2021 ($590,000) and Design phase funded in FY 2023 ($650,000).
- STIP: Not Listed.
- Miami-Dade TPO 2020 TIP: Included from West of SW 137th Avenue to West of SW 127th Avenue as a resurfacing project (Construction FY 2023). The TIP will need to be updated to reflect the change from a milling and resurfacing project to a roadway widening of up to four lanes.
- Miami-Dade TPO 2045 LRTP: The widening of the roadway from two up to four lanes is included as a cost-feasible improvement. The Preliminary Engineering phase ($1.14 Million) and Construction phase ($15.8 Million) are identified for years 2020-2025.

b. Project Description

This roadway project involves the potential widening of SR 994/SW 200th Street/Quail Roost Drive up to four lanes from west of SW 137th Avenue to east of SW 127th Avenue (Mile Post [MP] 4.000 - 5.162). The project corridor is approximately 1.162 miles in length. Within the project limits, the roadway is locally known as Quail Roost Drive.

While the project is located in southwest unincorporated Miami-Dade County, it occurs within the Miami Urbanized Area (as defined by the Miami-Dade County 2015 Urban Development Boundary). The project corridor primarily serves existing and future residential land uses and provides local east-west access and connectivity. Outside of the project limits, SR 994 connects directly to two Strategic Intermodal System (SIS) Highway Corridors at SR 997/Krome Avenue (west of study limits) and SR 821/HEFT (east of study limits).

Within the project limits, SR 994 is classified as a rural major collector from MP 4.000 to MP 4.075 (center of SW 137th Avenue) and an urban minor arterial from MP 4.073 to MP 5.162. The corridor primarily has a C3R Suburban Residential Context Classification and a posted speed of 40 miles per hour. Four major intersections are located along the project corridor, including two signalized intersections (SW 137th Avenue and SW 127th Avenue) and two unsignalized intersections (SW 134th Avenue and SW 132nd Avenue). Eight other minor (unsignalized) intersections are located within the study corridor.

Currently, SR 994 is a two-lane roadway (one lane in each direction) from west of 137th Avenue to west of 127th Avenue. From west of SW 127th Avenue to SR 821/HEFT, SR 994 is a four-lane roadway. The existing SR 994 typical section consists of two undivided 11.5-foot travel lanes with unpaved shoulders and open drainage. Curb and gutter exists at the SR 994/SR 134th Avenue intersection and east of SW 127th Avenue within the study limits. Sidewalks, varying in width, are noncontinuous and generally located at residential subdivisions along the study corridor. There are no existing designated bicycle lanes on SR 994 within the study limits. There is one unrecorded historic bridge within the study limits that spans over the Black Creek Canal. There is a pedestrian crossing just east of the bridge for access to the Black Creek Trail, which intersects SR 994. The right-of-way along the study corridor varies from 30 to 92 feet.

In addition to the potential widening, the proposed roadway improvements may include operational enhancements at the existing intersections, widening/reconstruction of the bridge structure over Black Creek Canal, access management measures, and stormwater management facilities. The Project Development and Environment (PD&E) Study will evaluate typical section alternatives based on design criteria, safety and operational needs, and the minimization of environmental effects and right-of-way needs. The PD&E Study will evaluate the provision of ADA compliant facilities as well as new/enhanced pedestrian and bicycle infrastructure, including paved shoulders/designated bicycle lanes, sidewalks,

and/or a shared-use path connection to the existing Black Creek Trail.

Additional right-of-way may be required depending on the proposed improvements; specific right-of-way requirements will be determined during the PD&E Study.

c. Preliminary Environmental Discussion

i. Social and Economic

1. Land Use Changes

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The project corridor is located in unincorporated Miami-Dade County and traverses one U.S. Census Designated Place, South Miami Heights. The project's western boundary is along the 2015 Miami-Dade County Urban Development Boundary, as well as the adopted Miami-Dade County 2020 and 2030 Land Use Plan (updated January 2019), the 2020 Urban Development Boundary, and the 2030 Urban Expansion Area Boundary. Land use surrounding the corridor within the 500-foot buffer distance is mostly developed and consists primarily of low-density to medium-density residential uses with some agricultural land concentrated near SW 137th Avenue. According to Miami-Dade County's Adopted 2020 and 2030 Land Use Plan, future land use is anticipated to be primarily Estate Density Residential (maximum of 2.5 dwelling units per gross acre) to Low Density Residential (maximum of 6.0 dwelling units per gross acre) with business/office land uses concentrated at the SW 127th Avenue intersection. A new single-family residential housing development located on the west bank of Black Creek Canal and just north of SW 200th Street is under construction and comprises an area of approximately 420,000 square feet. The development is expected to add an additional 24 single-family homes along the corridor. The new housing community is expected to be managed by the Willow Trace Homeowners Association (HOA) and has no additional land use types within the area.

Land uses surrounding the project corridor are anticipated to remain consistent with existing land uses; therefore, minimal impacts or changes to land uses are expected as a result of the project. A Sociocultural Effects Evaluation will be included in the Project Development and Environment Study scoping recommendations.

2. Social

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The project area primarily consists of low-density residential land use. The project traverses one U.S. Census Designated Place (South Miami Heights) as well as several communities, including Kristina Estates, Med South, Renaissance Ranches, and Countryside. Within the 500-foot project buffer, there are four religious centers, a private daycare/learning center, an assisted living facility, a trail (Black Creek Trail), and a park (Charles Burr Park). The park is not directly adjacent to the existing corridor.

When comparing the social characteristics of the project area (using the American Community Survey 5-year estimates 2014-2018 within 0.221 square miles) to that of Miami-Dade County, the project area contains similar population percentages of Whites and Hispanics, a slightly lower Black or African American population percentage, a lower percentage of housing units with no vehicle available, and a lower percentage of individuals age 65 and over. The United States Census Block Groups containing the project corridor have lower percentages of individuals who "speak English not well or not at all" compared to that of Miami-Dade County. However, Limited English Proficiency (LEP) accommodations will likely be required during public involvement efforts of the Project Development phase, as 16.5% of individuals or 919 persons in the Census Block Groups containing the project corridor "speak English not well or not at all". The American Community Survey 5-year estimates 2014-2018 also indicate that the project area has a lower percentage of population below the poverty level compared to Miami-Dade County, and the median family income is higher than that of Miami-Dade County [$16,992 more]. However, review of the 2010 United States Census Data indicates that 20% or

more of households east of the Black Creek Canal are below the poverty level. Considering development began in the area in the mid-2000's, data collected in 2010 may not have been complete.

Overall, in the long term, the proposed project is intended to enhance the social environment and community cohesion by improving multi-modal connectivity and mobility options for the transit-dependent population and the overall residential population within the project area through the potential provision of continuous bicycle and pedestrian facilities along the project corridor and enhanced access to the Black Creek Trail. The project is also intended to improve safety and congestion in the area which is a benefit to the community. No further neighborhood division or social isolation is expected to occur as a result of the project. Minimal involvement regarding social aspects is anticipated given that access to proximate residences and businesses could be temporarily affected and/or modified as a result of project construction.

3. Relocation Potential

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

Residential and agricultural land uses surround the corridor along with pockets of commercial activity. Numerous residences abut the right-of-way of the project corridor. Existing right-of-way along the corridor ranges from approximately 30 feet at the western end to 92 feet just west of SW 127th Street, with the typical ranging between 80 and 90 feet. Potential proposed typical sections for the project corridor may range from 90 feet to 104 feet. Impacts to properties along the facility may be necessary to accommodate the proposed widening. The proposed improvements will be designed to minimize existing right-of-way acquisitions to the greatest extent practicable. Specific right-of-way requirements will be determined during project development. Based on development of preliminary potential typical sections (included in the Project Development and Environment (PD&E) Study Final Scoping Report attached in the EST under Supplemental Project Documents), minimal involvement regarding relocation potential is anticipated. A Sociocultural Effects Evaluation and Conceptual State Relocation Plan will be included in the Project Development and Environment Study scoping recommendations.

4. Farmlands

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

Within the 200-foot project buffer, there are 61.00 acres of soils designated as Prime Farmlands of Unique Importance; there are 30.00 acres within the 100-foot project buffer. It should be noted that significant development has occurred along the project corridor. According to Miami-Dade County's Adopted 2020 and 2030 Land Use Plan, future land use is anticipated to be primarily Estate Density Residential (maximum of 2.5 dwelling units per gross acre) to Low Density Residential (maximum of 6.0 dwelling units per gross acre) with business/office land uses concentrated at the SW 127th Avenue intersection. In addition, the project occurs within the Miami Urbanized Area (2015 Urbanized Development Boundary). For these reasons, no involvement regarding farmlands is anticipated as a result of the project. No further coordination with the Natural Resources Conservation Service is needed as the project does not meet the definition of farmland as defined in 7 CFR 658 and the provisions of the Farmland Protection Policy Act of 1981.

5. Aesthetic Effects

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The proposed project corridor consists of residential and agricultural uses with pockets of commercial activity. The project corridor traverses one U.S. Census Designated Place, South Miami Heights. Specific community features within the 500-foot project buffer

associated with aesthetics include multiple neighborhoods, a private daycare/learning center, a trail (Black Creek Trail), and a park (Charles Burr Park).

The project is not anticipated to result in impacts to views/vistas as the proposed improvements are anticipated to remain at-grade. Additionally, proximate land uses along the corridor are not expected to change, and the project appears to be consistent with the future land use vision of the Miami-Dade County 2020 and 2030 Land Use Plan (updated January 2019). Additionally, pedestrian and bicycle facilities are proposed to be included as part of the project which are anticipated to improve the aesthetics and appeal of the corridor. Overall, minimal involvement regarding aesthetic effects is anticipated. A Sociocultural Effects Evaluation will be included in the Project Development and Environment Study scoping recommendations.

6. Economic

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The project corridor is within the Miami Dade Urbanized Area (2015 Urban Development Boundary) and traverses one U.S. Census Designated Place, South Miami Heights. The project is expected to improve mobility along the corridor by accommodating future travel demand spurred by population and employment growth in the area. However, minimal economic impacts are anticipated due to temporary effects on access to (particularly during project construction) and/or modified access to proximate businesses as a result of the project.

7. Mobility

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

SR 994 connects two Strategic Intermodal System (SIS) Highway Corridors: SR 997/Krome Avenue and SR 821/Homestead Extension of Florida's Turnpike (HEFT). The project is expected to improve mobility along the corridor to accommodate existing and future traffic demands. The addition of pedestrian and bicycle facilities will enhance multi-modal connectivity within the area, particularly access to the Black Creek Trail, which will allow further multi-modal mobility north and south of the project corridor. Therefore, mobility is expected to be enhanced as a result of the project.

ii. Cultural

1. Section 4(f) Potential

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

Within the 100-foot buffer, potential Section 4(f) resources in the project area include the Black Creek Trail. The Black Creek Trail is a 17-mile greenway corridor that runs along the Black Creek Canal and connects multiple parks, trails, and schools. Further, the trail ties into a larger 27-mile network of trails near Biscayne Bay. Although Black Creek Trail intersects SR 994, the proposed improvements are not anticipated to permanently impact the use of the trail.

Within the 500-ft buffer is the Charles Burr Park, located south of the project corridor, along SW 127th Avenue. The park is owned and operated by Miami-Dade County Department of Parks, Recreation and Open Spaces. No direct impacts to the park are anticipated as part of the proposed improvements. Additionally, there are two historic standing structures (Talbott Estate/DA05087 and a structure at 12641 SW 200th Street/DA02827). The Talbott Estate is locally designated as a historic resource. Neither of the structures have been evaluated by the State Historic Preservation Officer (SHPO).

Should federal aid funds be used for this project, moderate involvement regarding Section 4(f) potential is anticipated due to the potential presence of unrecorded historic resources [which will need to be evaluated for National Register of Historic Places (NRHP)-eligibility] and temporary construction impacts to recreational trails during construction. A Section 4(f) Determination of Applicability Form [Form No. 650-050-45] will be included in the Project Development and Environment Study scoping recommendations to determine the extent of involvement regarding potential Section 4(f) resources.

2. Historic and Archaeological Sites

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

Review of the Florida State Historic Preservation Office Master Site File indicates that one linear resource, Princeton Canal C-102, exists within the 100-foot project buffer that has not been evaluated by the State Historic Preservation Officer (SHPO). The Black Creek Canal (C-1W) is an unrecorded historic canal, the Black Creek Bridge (Bridge No. 870633) is an unrecorded historic bridge (built 1962), and the MacDonell House is a locally designated historic resource within the noted buffer area.

Within the 500-foot project buffer, two historic standing structures exist (Talbott Estate/DA05087 and a structure at 12641 SW 200th Street/DA02827). Neither of the structures have been evaluated by the SHPO. Moderate involvement regarding historic and archaeological sites is anticipated because of the presence of potentially eligible National Register of Historic Places (NRHP) resources that have not been previously evaluated. A comprehensive Cultural Resources Assessment Survey (CRAS) will be included in the Project Development and Environment Study scoping recommendations.

3. Recreation Areas

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The recreation areas identified within the 100-foot project buffer include one recreational trail, Black Creek Trail. The Black Creek Trail is a 17-mile greenway corridor that runs along the Black Creek Canal and traverses from the northwest to the southeast (Everglades Levee L-31N/West Kendall District Park to Black Point Park and Marina located along Biscayne Bay). The trail is a non-motorized multi-use facility that connects multiple parks, trails, and schools and was developed by the Redland Conservancy in the South Dade Greenway Network Master Plan (adopted by the Miami-Dade County Board of County Commissioners in 1995). The trail connections tie into a larger 27-mile network of trails near Biscayne Bay that traverse six municipalities providing access to numerous significant cultural facilities, environmentally sensitive lands, and parks. Black Creek Trail also connects to the East Coast Greenway corridor, which links East Coast cities and towns from Maine to the Florida Keys.

The Charles Burr Park, located south of the project corridor along SW 127th Avenue, is within the 500-foot project buffer. The park is owned and operated by the Miami-Dade County Department of Parks, Recreation and Open Spaces.

Minimal involvement regarding recreation areas/features is expected due to the Black Creek Trail crossing the project corridor. Temporary impacts to trail access from the project corridor are anticipated during project construction. However, the addition of continuous pedestrian and bicycle facilities along the corridor will enhance multi-modal connectivity within the area, particularly access to the Black Creek Trail, which will allow further multi-modal mobility north and south of the project corridor.

iii. Natural

1. Wetlands and Surface Waters

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The National Wetlands Inventory database identified 1.0 acre (1.00%) of riverine wetlands within the 200-foot project buffer and 2.0 acres (1.00%) within the 500-foot project buffer. These wetlands are associated with the canals in the area. Avoidance and minimization measures will be incorporated into the project's design, and best management practices will be utilized during construction activities. Therefore, minimal involvement regarding wetland resources is anticipated. A Natural Resources Evaluation will be included in the Project Development and Environment Study scoping recommendations.

2. Water Quality and Quantity

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The project crosses one SFWMD maintained canal, Black Creek Canal/C-1W. The project lies within two drainage basins: C-1 (Black Creek Canal/WBID 3297) and C-102 (WBID 3300). Neither of the waterbodies are impaired. Other water quality and quantity resources located within the 100-foot project buffer include the Biscayne Aquifer [a surficial unconfined aquifer underlying Broward, Miami-Dade, Monroe, and Palm Beach Counties and an important source or potable water for southeast Florida] and a recharge area of the Floridan Aquifer. Within the 500-foot project buffer are three NPDES stormwater permits. The proposed stormwater management system will be developed to meet the design and performance criteria established in the SFWMD Environmental Resource Permit Applicant's Handbook Volumes I and II for the treatment and attenuation of discharge to impaired waters; the design will make every effort to maximize the treatment of stormwater runoff from the proposed roadway improvements. A Storm Water Pollution Prevention Plan (SWPPP) will also be implemented [as required by the NPDES Construction Generic Permit] to control the effects of stormwater runoff during construction. For these reasons, minimal involvement regarding water quality and quantity is anticipated. A Water Quality Impact Evaluation and a Pond Siting Report will be included in the Project Development and Environment Study scoping recommendations.

3. Floodplains

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

According to the Digital Flood Insurance Rate Map (DFIRM) 100-Year Floodplain Data, the 100-foot project buffer is located within 0.44 acre (1.36%) of Flood Zone AE and 0.64 acre (1.97%) of Flood Zone AH, both designated as Special Flood Hazard Areas; these flood zones are located west of Black Creek Canal (C-1W). It should be noted that the majority of the 100-foot project buffer is located within Flood Zone X, which is defined as an area outside of the 0.2% annual chance floodplain. The proposed improvements are not anticipated to affect flood heights or base floodplain limits. For this reason and given the limited extent of Special Flood Hazard Areas west of the Black Creek Canal within the vicinity of the project, minimal involvement regarding floodplains is anticipated. A Location Hydraulic Report will be included in the Project Development and Environment Study scoping recommendations.

4. Coastal Zone Consistency

Coastal Zone Consistency Determination is Required: **Yes**

Project is subject to a consistency review as required by **15 CFR 930**.

5. Wildlife and Habitat

For the official list of fish and wildlife designated by the state of Florida as Endangered, Threatened or Species of Special Concern, please refer to sections 68A-27.003, .0031 and 005 in *Rules Relating to Endangered or Threatened Species*, Chapter 68A-27, Florida Administrative Code, https://www.flrules.org/gateway/ChapterHome.asp?Chapter=68A-27.

For general information on Florida imperiled species and species conservation programs, go to https://myfwc.com/wildlifehabitats/wildlife/

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The 200-foot project buffer occurs within the South Florida Ecosystem Management Area, Black Bear Range (rare), USFWS American Crocodile Consultation Area, USFWS Florida Bonneted Bat Consultation Area, USFWS Miami-Dade Keys Plants Consultation Area, and a USFWS Wood Stork Core Foraging Area. No critical habitat falls within the 500-foot project buffer. Other wildlife and habitat features within the 100-foot project buffer include two Florida Natural Areas Inventory (FNAI) element occurrences for threatened or endangered species (mangrove rivulus and pine snake). A number of additional federally listed species have the potential to occur within the project vicinity. While a notable number of wildlife and habitat resources are present within the project vicinity, minimal involvement regarding these resources is anticipated as the project is proposed along an existing corridor and is in a predominantly urban area.

Avoidance and minimization measures will be implemented for the noted species to the greatest extent practicable. In addition, agency coordination will take place to address potential project impacts to each noted species. For these reasons and given the surrounding urban environment, minimal involvement regarding wildlife and habitat resources is anticipated. A Natural Resources Evaluation will be included in the Project Development and Environment Study scoping recommendations.

6. Coastal and Marine

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The 100-foot project buffer falls within the Biscayne Bay Estuarine Drainage Area. In addition, the project occurs within a coastal county pursuant to the Coastal Zone Management Act (CZMA); therefore, additional interagency coordination associated with the CZMA noticing requirements is anticipated. No coastal resources are expected to be directly impacted by the project. The project [including the proposed stormwater management system] will be designed to meet state water quality and quantity requirements, avoidance and minimization measures will be utilized for the proposed project design, and best management practices will be adhered to during project construction to prevent water quality impacts [primarily siltation] to any downstream estuarine habitats. For these reasons, minimal involvement regarding coastal and marine resources is anticipated. A Natural Resources Evaluation will be included in the Project Development and Environment Study scoping recommendations.

iv. Physical

1. Noise

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments

Alternative #1

The 100-foot project buffer contains 23.15 acres of residential uses. Other community features within the 100-foot project buffer that may be sensitive to noise and vibration effects include a recreational trail (Black Creek Trail) and four religious centers. It should be noted, that there are no existing noise barriers within proximity to the project corridor. Increased noise levels during construction and presumable noise level increases from higher traffic volumes as a result of the proposed project could have impacts on nearby residences, businesses, and recreational features. However, given that abatement criteria will be considered to offset any potential unavoidable adverse effects, overall noise and vibration related impacts as a result of the project are anticipated to be minimal. A Noise Study Report will be included in the Project Development and Environment Study scoping recommendations.

2. Air Quality

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

Current information published on the U.S. Environmental Protection Agency (USEPA) website was consulted for the project. The current data indicates that the project corridor is not located within a USEPA-designated Air Quality Maintenance or Non-Attainment Area for any of the six pollutants [ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and small particulate matter] specified by the USEPA in National Ambient Air Quality Standards. Therefore, the Clean Air Act conformity requirements do not apply to this project at this time. While potential temporary impacts to air quality could occur as a result of emissions from equipment and dust generated from project construction activities, no permanent effects to air quality are anticipated.

3. Contamination

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

The 200-foot project buffer includes one FDEP storage tank contamination monitoring site and one State Underground Petroleum Environmental Response (Super) Act risk source. Due to the proximity of these sources to the project corridor and the potential for unreported sources of subsurface contamination, moderate involvement regarding contamination is anticipated. A Contamination Screening Evaluation Report will be included in the Project Development and Environment Study scoping recommendations.

4. Infrastructure

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

The project includes a bridge crossing over the Black Creek Canal (C-1W), and a pedestrian crossing signal is located at the crossing for the Black Creek Trail just east of the bridge. Existing utilities were observed at the bridge crossing. In addition, overhead power lines, street lights, and utility boxes are present along the length of the corridor. Given potential conflicts with the utilities present and the likelihood of additional right-of-way being required, moderate involvement regarding infrastructure-related features is anticipated. A Utility Assessment Package will be included in the Project Development and Environment Study scoping recommendations.

5. Navigation

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

The project includes a bridge crossing over the Black Creek Canal (C-1). The canal is not considered navigable due to flood control structures that hinder access to open water. No involvement regarding navigation is anticipated.

v. Special Designations

1. Special Designations: Outstanding Florida Waters

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

There are no Outstanding Florida Waters reported within the 200-foot project buffer; therefore, no involvement regarding these specially-designated resources is anticipated.

2. Special Designations: Aquatic Preserves

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

There are no Aquatic Preserves reported within the 200-foot project buffer; therefore, no involvement regarding these specially-designated resources is anticipated.

3. Special Designations: Scenic Highways

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

There are no Scenic Highways reported within the 200-foot buffer project buffer; therefore, no involvement regarding these specially designated resources is anticipated.

4. Special Designations: Wild and Scenic Rivers

Project PED Comments

Refer to Analysis Area PED Comments.

Analysis Area PED Comments
Alternative #1

There are no Wild and Scenic Rivers reported within the 200-foot project buffer; therefore, no involvement regarding these specially-designated resources is anticipated.

d. Anticipated Permits

There are no anticipated permits identified for this project in the EST.

e. Anticipated Technical Studies

There are no anticipated technical studies identified for this project in the EST.

III. Form SF-424: Application for Federal Assistance

OMB Number: 4040-0004
Expiration Date: 6/30/2022

Application for Federal Assistance SF-424 Version 02

*1. Type of Submission:	*2. Type of Application	* If Revision, select appropriate letter(s)
☐ Preapplication	☒ New	
☒ Application	☐ Continuation	*Other (Specify)
☐ Changed/Corrected Application	☐ Revision	

3. Date Received:

4. Applicant Identifier: 445804-1-22-01

5a. Federal Entity Identifier:

*5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

*a. Legal Name: Florida Department of Transportation

*b. Employer/Taxpayer Identification Number (EIN/TIN): 59-6001874

*c. Organizational DUNS:

d. Address:

*Street 1: 605 Suwannee Street
Street 2:
*City: Tallahassee
County: Leon
*State: Florida
Province:
*Country: United States
*Zip / Postal Code 32399-0450

e. Organizational Unit:

Department Name: Florida Department of Transportation

Division Name: Office of Design

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.
*First Name: Dat
Middle Name:
*Last Name: Huynh
Suffix: P.E., CSM

Title: District Six Planning & Environmental Administrator

Organizational Affiliation:

*Telephone Number: 305-470-5201
Fax Number:

*Email: dat.huynh@dot.state.fl.us

Application for Federal Assistance SF-424 Version 02

***9. Type of Applicant 1: Select Applicant Type:**

A

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

*Other (Specify)

***10 Name of Federal Agency:**

U.S. Department of Transportation

11. Catalog of Federal Domestic Assistance Number:

20-205

CFDA Title:

Highway Planning and Construction

***12 Funding Opportunity Number**:

*Title:

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Miami-Dade County, Florida

***15. Descriptive Title of Applicant's Project**:

SR 994/SW 200th Street/Quail Roost Drive from West of SW 137th Avenue to East of SW 127th Avenue, FM #445804-1-22-01

Application for Federal Assistance SF-424 Version 02

16. Congressional Districts Of:

*a. Applicant: FL-2 *b. Program/Project: FL-26

17. Proposed Project:

*a. Start Date: 06/2020 *b. End Date: 06/2022

18. Estimated Funding ($):

*a. Federal	TBD
*b. Applicant	
*c. State	TBD
*d. Local	
*e. Other	
*f. Program Income	
*g. TOTAL	$590,000 (PD&E) $650,000 (Design)

***19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☒ a. This application was made available to the State under the Executive Order 12372 Process for review on 06/04/2020.

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☐ c. Program is not covered by E.O. 12372

***20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**

☐ Yes ☒ No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U. S. Code, Title 218, Section 1001)

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions

Authorized Representative:

Prefix: Mr. *First Name: Dat

Middle Name:

*Last Name: Huynh

Suffix: P.E., CSM

*Title: District Six Planning & Environmental Administrator

*Telephone Number: 305-470-5201 Fax Number: 305-470-5205

* Email: dat.huynh@dot.state.fl.us

*Signature of Authorized Representative: *Date Signed: 6/4/2020

Application for Federal Assistance SF-424 Version 02

***Applicant Federal Debt Delinquency Explanation**

The following should contain an explanation if the Applicant organization is delinquent of any Federal Debt.

IV. Transmittal List

Official Transmittal List

	Organization	Name
1.	FDOT District 6	Huynh, Dat
2.	FDOT District 6	James, Steven C.
3.	FDOT Office of Environmental Management	Garrett, Harrison
4.	FDOT Office of Environmental Management	Kirby, Marjorie
5.	FDOT Office of Environmental Management	McDaniel, Mike
6.	FDOT Office of Environmental Management	McGilvray, Peter
7.	FDOT Office of Environmental Management	Overton, Maria
8.	FDOT Office of Environmental Management	Sykes, Michael M.
9.	FDOT Office of Environmental Management	Turner, Jonathan
10.	Federal Aviation Administration	* Federal Aviation Administration Orlando Airports District Office
11.	Federal Emergency Management Agency	* Director, Region IV Mitigation Division
12.	Federal Rail Administration	* Director, Office of Public Engagement
13.	Federal Rail Administration	* Regional Administrator
14.	Federal Transit Administration	* Regional Administrator
15.	FL Department of Agriculture and Consumer Services	Camposano, Brian
16.	FL Department of Economic Opportunity	Preston, Matt
17.	FL Department of Environmental Protection	Stahl, Chris
18.	FL Department of State	Aldridge, Jason
19.	FL Department of State	Daggett, Adrianne
20.	FL Department of State	McManus, Alyssa
21.	FL Department of State	Rothrock, Lindsay S.
22.	FL Fish and Wildlife Conservation Commission	Ganey, Jessica
23.	FL Fish and Wildlife Conservation Commission	Gilbert, Terry
24.	FL Fish and Wildlife Conservation Commission	Goff, Jennifer
25.	FL Fish and Wildlife Conservation Commission	Hight, Jason
26.	FL House	Raschein, Holly
27.	FL Senate	Taddeo, Annette
28.	Florida Inland Navigation District	Director, Executive
29.	Florida's Turnpike Enterprise	Stein, Philip
30.	Miami-Dade Board of County Commissioners	Bovo, Jr., Esteban L.
31.	Miami-Dade Board of County Commissioners	Diaz, Jose "Pepe"
32.	Miami-Dade Board of County Commissioners	Edmonson, Audrey M.
33.	Miami-Dade Board of County Commissioners	Heyman, Sally A.
34.	Miami-Dade Board of County Commissioners	Higgins, Eileen
35.	Miami-Dade Board of County Commissioners	Jordan, Barbara J.
36.	Miami-Dade Board of County Commissioners	Levine Cava, Daniella
37.	Miami-Dade Board of County Commissioners	Martinez, Joe A.
38.	Miami-Dade Board of County Commissioners	Monestime, Jean
39.	Miami-Dade Board of County Commissioners	Moss, Dennis C.
40.	Miami-Dade Board of County Commissioners	Sosa, Rebeca
41.	Miami-Dade Board of County Commissioners	Souto, Javier D.
42.	Miami-Dade Board of County Commissioners	Suarez, Xavier L.
43.	Miami-Dade County	Bell, Jerry
44.	Miami-Dade County	Bravo, P.E., Alice N.
45.	Miami-Dade County	Cody, Sarah

46.	Miami-Dade County	Cominsky, Alan
47.	Miami-Dade County	Fernandez, Michael
48.	Miami-Dade County	Gimenez, Carlos A.
49.	Miami-Dade County	Hefty, Lee
50.	Miami-Dade County	Kemp, Maurice
51.	Miami-Dade County	Kim, Inson
52.	Miami-Dade County	Kogon, Nathan
53.	Miami-Dade County	Kuryla, Juan
54.	Miami-Dade County	Liu, Michael
55.	Miami-Dade County	Lynskey, Kevin
56.	Miami-Dade County	Marquez, Edward
57.	Miami-Dade County	Moon, Jennifer
58.	Miami-Dade County	Nardi, Maria I.
59.	Miami-Dade County	Osterholt, Jack
60.	Miami-Dade County Public Schools	Carvalho, Alberto M.
61.	Miami-Dade County	Ramirez II, Alfredo
62.	Miami-Dade County	Sandanasamy, Vinod
63.	Miami-Dade County School Board	Gallon III, Steve
64.	Miami-Dade County School Board	Hantman, Perla T.
65.	Miami-Dade County	Smith, Tara C.
66.	Miami-Dade County	Sola, Lester
67.	Miami-Dade County	Stillings, Noel
68.	Miami-Dade Expressway Authority	Diaz, Mayra
69.	Miami-Dade Transportation Planning Organization	Boucle, Aileen
70.	Miami-Dade Transportation Planning Organization	Chance, Paul
71.	Miami-Dade Transportation Planning Organization	Colmenares, Lisa
72.	Miami-Dade Transportation Planning Organization	Fernandez, Wilson
73.	Miami-Dade Transportation Planning Organization	Gaslonde, Jeannine
74.	Miami-Dade Transportation Planning Organization	Rockwell, Elizabeth
75.	Miami-Dade Transportation Planning Organization	Salim, Zainab
76.	Miami-Dade Transportation Planning Organization	Teresita Vilches, Maria
77.	Miami-Dade Transportation Planning Organization	Villaamil, Vivian
78.	Miccosukee Tribe of Indians of Florida	* Dayhoff, Fred
79.	Miccosukee Tribe of Indians of Florida	* The Honorable Mr. Billy Cypress, Chairman
80.	Muscogee (Creek) Nation	* Historic & Cultural Preservation Department
81.	Muscogee (Creek) Nation	* The Honorable Mr. James Floyd, Principal Chief
82.	National Marine Fisheries Service	Schull, Jennifer
83.	National Park Service	Barnett, Anita
84.	Natural Resources Conservation Service	Crockett, Leroy
85.	Poarch Band of Creek Indians	* Haikey, Larry D.
86.	Poarch Band of Creek Indians	* The Honorable Ms. Stephanie A. Bryan, Tribal Chair
87.	Seminole Nation of Oklahoma	* The Honorable Mr. Leonard M. Harjo, Principal Chief
88.	Seminole Tribe of Florida	Backhouse, Paul N.
89.	Seminole Tribe of Florida	Echeverry, David
90.	Seminole Tribe of Florida	Menchaca, Victoria
91.	Seminole Tribe of Florida	Swing, Alison
92.	Seminole Tribe of Florida	* The Honorable Mr. Marcellus W. Osceola, Chairman
93.	South Florida Regional Planning Council	Hamilton, Karen
94.	South Florida Water Management District	Conmy, Barb
95.	South Florida Water Management District	Stone, Trisha
96.	US Army Corps of Engineers	Kizlauskas, Andrew A.

97.	US Army Corps of Engineers	Ovdenk, Cynthia
98.	US Army Corps of Engineers	Tamblyn, Mark M.
99.	US Army Corps of Engineers	Turner, Randy
100.	US Coast Guard	Kowalczyk, Lisia
101.	US Coast Guard	Overton, Randall D.
102.	US Coast Guard	Tate, William G.
103.	US Coast Guard	Tompkins, Darayl
104.	US Coast Guard	Zercher, Jennifer
105.	US Department of Health and Human Services	* National Center for Environmental Health Centers for Disease Control and Prevention
106.	US Department of Housing and Urban Development	* Regional Environmental Officer
107.	US Department of Interior	* Bureau of Land Management, Southeastern States Field Office
108.	US Department of Interior	Sumner, David M.
109.	US Environmental Protection Agency	Kajumba, Ntale
110.	US Environmental Protection Agency	Singh-White, Alya
111.	US Environmental Protection Agency	Somerville, Amanetta
112.	US Environmental Protection Agency	White, Roshanna
113.	US Fish and Wildlife Service	Cantrell, Mark
114.	US Fish and Wildlife Service	Wrublik, John
115.	US House	Mucarsel-Powell, Debbie
116.	US Senate	Rubio, Marco
117.	US Senate	Scott, Rick

* Hardcopy recipient

Appendix P – Public Involvement Plan

PUBLIC INVOLVEMENT PLAN

Florida Department of Transportation

District 6

SR 994/SW 200th Street/Quail Roost Drive PD&E Study

From West of SW 137th Avenue to East of SW 127th Avenue

Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01

ETDM Number: 14429

October 1, 2021

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

PUBLIC INVOLVEMENT PLAN

SR 994 / SW 200 Street / Quail Roost Drive Project Development & Environment Study From SW 137 Avenue to SW 127 Avenue Miami-Dade County, Florida

Financial Management Number: 445804-1-22-01
FAP Project Number: Not Assigned
Efficient Transportation Decision-Making Number: 14429

Prepared for:
Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

Prepared by:
Infinite Source Communications
1150 NW 72 Avenue
Suite 180
Miami, Florida 33126

October 1, 2021

PUBLIC INVOLVEMENT PLAN

Project Name: State Road (SR) 994 SW 200 Street/Quail Roost Drive Project Development and Environment (PD&E) Study
Project Limits: SR 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue
County/State: Miami-Dade County, Florida
Financial Management Number: 445804-1-22-01
Federal Aid Project Number: N/A
Efficient Transportation Decision Making (ETDM): 14429

In accordance with Part 1, Chapter 11 of the **Project Development and Environment (PD&E) Manual**, this Public Involvement Plan is submitted to the manager of the District office in charge of PD&E studies as appropriate based on District organizational structure for Department review and approval.

Submitted by: Alina Fernandez, P.E.
Project Manager
Gannett Fleming, Inc.

Date: October 1, 2021

This plan is in compliance with the Florida Department of Transportation's (FDOT) *Project Development and Environment (PD&E) Manual, Part 1, Chapter 11*. The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

Approved by: _____
Raul Quintela, P.E.
Project Manager
Florida Department of Transportation, District 6

Date: _____

Table of Contents

I. Description of Proposed Improvements.....1

II. Project Area 2

III. Project Background 4

IV. Project Goals 6

V. Identification of Elected Officials and Agencies 6

VI. Identification of Affected Communities and Stakeholders 8

VII. Outreach Activities.....9

VIII. Coordination with Local Agencies 12

IX. Public Hearing.....12

X. Public Hearing Follow-Up 15

XI. Public Involvement During Design 15

List of Figures

Figure 1 – Project Location Map 3

List of Tables

Table 1 – Project Schedule Milestones.....12

List of Appendices

Appendix A: Initial Public Officials Contact List

Appendix B: Demographic Information

Appendix C: Initial Stakeholders Contact List

Appendix D: Initial Property Owner Map and Mailing List

PUBLIC INVOLVEMENT PLAN

Project Development and Environment (PD&E) Study
SR 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue
Miami-Dade, Florida

The purpose of this Public Involvement Plan (PIP) is to assist in providing information to and obtaining input from concerned citizens, agencies, private groups (residential/business), and governmental entities. The overall goal of this plan is to help ensure that the study reflects the values and needs of the communities it is designed to benefit. A schedule of events and a list of documentation exhibiting compliance with these procedures are included.

This plan is in compliance with the FDOT PD&E Manual, Part 1, Chapter 11

I. DESCRIPTION OF PROPOSED IMPROVEMENT

Financial Management Number:	445804-1-22-01
Federal Aid Project Number:	N/A
Project Limits:	SR 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue
Proposed Activity:	To evaluate widening of SR 994 from west of SW 137 Avenue to west of SW 127 Avenue and safety and operational improvements throughout the study limits from west of SW 137 Avenue to east of SW 127 Avenue in Miami-Dade County and document information necessary for the Department to reach a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility.
Class of Action:	A Categorical Exclusion (CE) Type II is the level of environmental documentation required for the project.

II. PROJECT AREA

The project involves the potential widening of SR 994 from two lanes to four lanes in unincorporated Miami-Dade County. The approximately 1.2-mile segment of SR 994 runs along SR 994/SW 200 Street/Quail Roost Drive from west of SW 137 Avenue to east of SW 127 Avenue (MP 4.000 to 5.162). The Miami-Dade County 2015 Urban Development Boundary is at SW 137 Avenue (the western limit of the study limits).

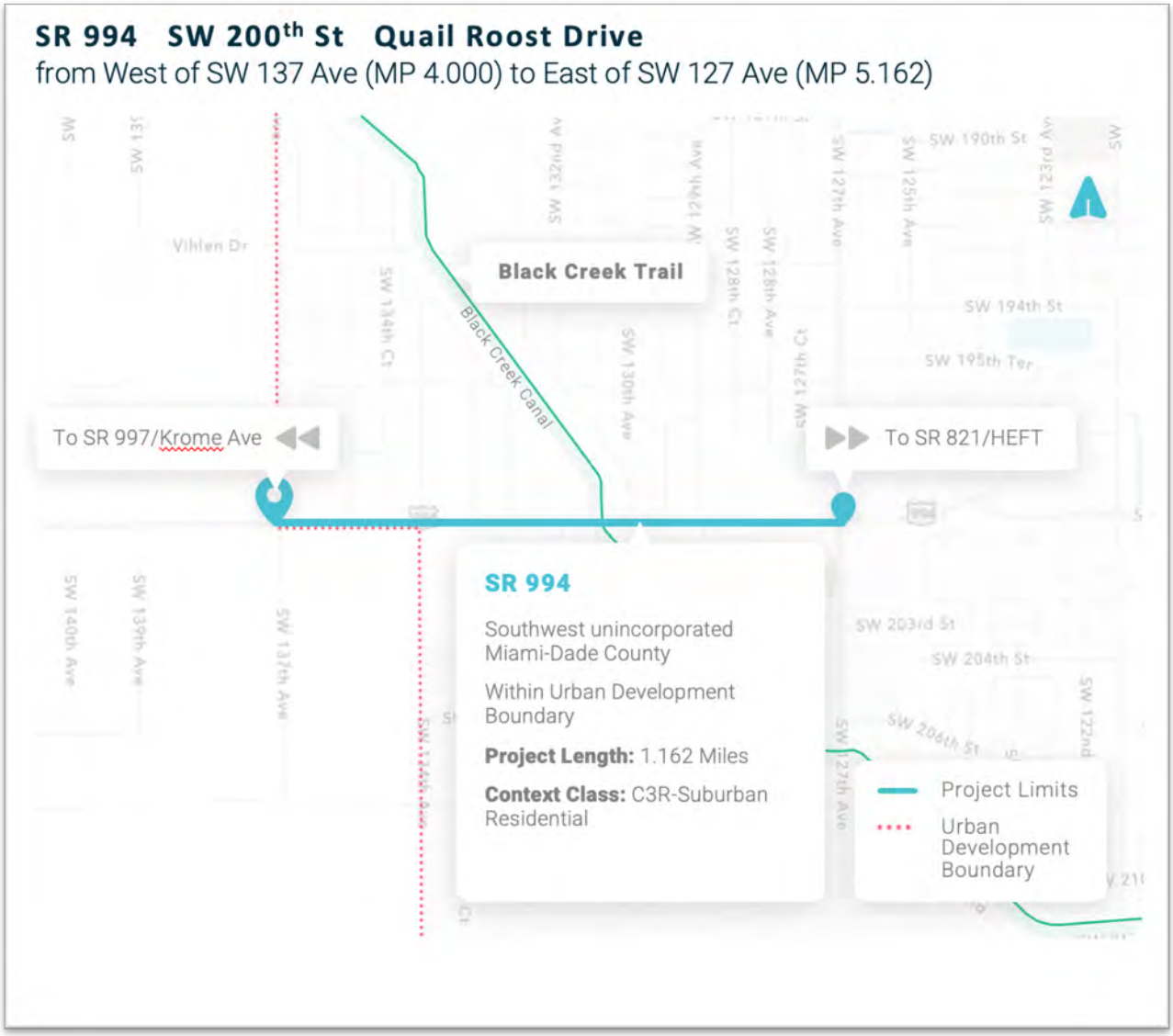
Within the study limits, SR 994 is classified as a rural minor arterial from MP 4.035 to MP 4.073 (center of SW 137 Avenue) and an urban minor arterial from MP 4.073 to MP 5.162. The study corridor primarily has a C3R-Suburban Residential Context Classification. Within the study limits, SR 994 has a posted speed of 40 miles per hour. Four major intersections are located along the project corridor, including two signalized intersections (SW 137 Avenue and SW 127 Avenue) and two unsignalized intersections (SW 134 Avenue and SW 132 Avenue).

There are no existing designated bicycle lanes within the study limits. Sidewalks are noncontinuous and generally located at residential subdivisions along the study corridor. There is one existing bridge within the project limits that spans the Black Creek Canal. The bridge was constructed in 1962 and has a sufficiency rating of 75.3, a health index of 99.90, and is considered functionally obsolete. There is a pedestrian crossing signal just east of the bridge for access to the Black Creek Trail, which intersects SR 994.

The community is comprised of residential, business, and nurseries, farms and agricultural facilities. Key stakeholders include the community of Quail Heights, Redland Shopping Plaza, numerous nurseries and farms, congregations, nearby schools, and the Sport Horse Stables. The Florida Farm Bureau is also a key stakeholder that will be engaged during the study. Lennar Homes, LLC filed a Tentative Plat, Plat No. 24478, seeking to develop 80 single family residential units in the vicinity of SW 134 Avenue and SW 184 Street that includes various improvements to signals, intersections and the roadway within the project limits. This project will require engagement of identified major stakeholders, traveling public and commuters.

Outside of the study limits, SR 994 connects directly to two Strategic Intermodal System (SIS) Highway Corridors at SR 997/Krome Avenue (west of study limits) and SR 821/HEFT (east of study limits). SR 997/Krome Avenue provides regional connectivity to US 1, which is a major evacuation route for the Florida Keys.

Figure 1 – Project Location Map



Project Contact Information

For additional information regarding this project contact:

Dat Huynh, P.E., CSM
FDOT District Planning
and Environmental Administrator

Address: 1000 NW 111 Avenue
Miami, Florida 33172

Telephone: 305-470-5201

E-mail: dat.huynh@dot.state.fl.us

Elsa Riverol, P.E.
FDOT Project Manager

Address: 1000 NW 111 Avenue
Miami, Florida 33172

Telephone: 305-470-5471

E-Mail: elsa.riverol@dot.state.fl.us

III. PROJECT BACKGROUND

In November 1988, an Environmental Analysis Report (EAR) was finalized for widening SR 994 from SW 177th Avenue (SR 997/Krome Avenue) to US 1 (SR 5) under Work Program Number 6113760. The Federal Highway Administration concurred that the Class of Action (COA) for the EAR was a Categorical Exclusion as part of the signed Environmental Determination in October 1988. Within the Scoping Report study limits from west of SW 137 Avenue to east of SW 127 Avenue, the EAR Preferred Alternative included reconstruction of SR 994 from two lanes to a four-lane divided rural section from west of SW 127 Avenue to SR 997/Krome Avenue and to a four-lane divided urban typical section from SW 127 Avenue to the Homestead Extension of Florida's Turnpike (HEFT) interchange.

A Value Engineering Study Summary was prepared in April 1988 and recommended to defer the reconstruction of the segment of SR 994 from 177 Avenue to 127 Avenue until traffic projections demonstrated the need for widening more clearly. Since 1988, the existing conditions (including surrounding land uses and traffic patterns) have changed substantially. As such, the proposed action will result in environmental effects that were not evaluated in the original PD&E Study. Therefore, the 1988 EAR will not provide a basis for existing conditions or environmental clearance.

In the existing condition, SR 994 is an existing two-lane roadway (one lane per direction) from west of 137 Avenue to west of 127 Avenue. From west of SW 127 Avenue to east of SW 127 Avenue, SR 994 is an existing four-lane roadway. Right-of-way (ROW) for future widening to four lanes was not previously acquired for the segment of SR 994 within the study limits that remains two lanes and will be evaluated during this study.

Since 1988, residential housing has increased significantly along the project corridor leading to increased traffic volumes. Review of the FDOT Traffic Online Web Application (2018), indicates the Annual Average Daily Traffic (AADT) within the study corridor has increased from 17,500 in 2014 to 19,700 in 2018.

In June 2019, a Resurfacing, Restoration, and Rehabilitation (RRR) Safety Review for SR 994 was completed from west of SW 137 Avenue to west of SW 127 Avenue under Financial

Management Number (FMN) 250650-4 to evaluate safety and operational improvements recommended during the potential milling and resurfacing of SR 994. Intersection operational analyses were performed for the RRR study using Synchro Traffic Software, which calculates Level of Service (LOS) based on the Highway Capacity Manual methodology. The analysis determined segments along the corridor performed at LOS F based on the worst performing intersection approaches. Based on the operations analysis and safety review, the RRR study recommended consideration of widening SR 994 to four lanes (two lanes per direction) from SW 137 Avenue to west of SW 127 Avenue (MP 4.035–4.961).

As a result of the RRR Safety Review, FDOT removed the RRR milling and resurfacing project from FDOT's Five Year Work Program and programmed a PD&E phase for SR 994 from west of SW 137 Avenue to east of SW 127 Avenue (MP 4.000–5.162) to further evaluate the potential SR 994 widening. The PD&E Study limits include the SW 127 Avenue intersection, which is located just east of the roadway transition to four lanes, for logical termini to evaluate the intersection operations. The traffic and safety needs for the SW 127 Avenue intersection will need to be evaluated during this PD&E Study.

Improvements also include operational enhancements at the existing intersections, widening/reconstruction of the bridge structure over Black Creek Canal, access management, and stormwater management needs. FDOT will evaluate Build Alternatives in comparison to the No-Action Alternative. The alternatives analysis will consider opportunities to avoid and minimize right-of-way needs and potential environmental effects.

A signal warrant was previously completed for the intersection at SR 994/SW 134 Avenue which recommended future installation of a traffic signal. Eight other minor (unsignalized) intersections are located within the study corridor. FDOT will evaluate the need for a signal SW 134 Avenue, and the need for safety enhancements at SW 132nd Avenue as part of this PD&E Study.

The RRR Safety Review noted that based on FDOT's 2014-2016 High Crash Lists, the following locations were considered high-crash spots/segments:

- SR 994 at SW 137th Avenue
- SR 994 at SW 134th Avenue
- SR 994 at SW 132nd Avenue
- SR 994 from SW 137th Avenue to west of SW 127th Avenue

According to the safety review, congestion/lack of capacity and lack of left-turn lanes were a probable cause in the safety issues along the corridor.

The purpose of the proposed improvements is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community. Additionally, the project will improve emergency evacuation and response/recovery time for the surrounding communities by providing improved access to SR 997/Krome Avenue and SR 821/HEFT, which are designated emergency evacuation routes.

IV. PROJECT GOALS

This FDOT project has the following objectives:

- Implementing safety and operational improvements (including potential roadway widening) throughout the study limits from west of SW 137 Avenue to east of SW 127 Avenue in Miami-Dade County
- Documenting information necessary for the Department to reach a decision on the feasibility, location, and conceptual design that will improve mobility and accessibility

V. IDENTIFICATION OF ELECTED OFFICIALS AND AGENCIES

The following local, regional, state, or federal agencies as well as Native American Tribes having a concern in this project due to jurisdictional review or expressed interest have been identified and will be contacted directly by the FDOT through the Advance Notification (AN) process at the outset of the project in accordance with the *PD&E Manual, Part 1, Chapter 3, Preliminary Environmental Discussion and Advance Notification*. As other concerned public agencies are identified throughout the study, they also will be listed and contacted. A contact list has been developed including all entities listed below (provided in **Appendix A**), and through the Official Transmittal List found in the project AN package within the Environmental Screening Tool (EST), [https://etdmpub.flaetat.org], ETDM project #14429. Subsequent contact list updates will be found in the culminating Comments and Coordination Report for this project.

Federal:

- Federal Aviation Administration
- Federal Emergency Management Agency
- Federal Rail Administration
- Federal Highway Administration
- Federal Transit Administration
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Department of Health and Human Services
- U.S. Department of Interior - National Park Service
- U.S. Department of Interior- U.S. Fish and Wildlife Service
- U.S. Department of Commerce - National Marine Fisheries Service
- U.S. Environmental Protection Agency
- U.S. Department of Housing and Urban Development

Native American Tribes:

- Tribal Historic Preservation Office
- Miccosukee Tribe of Indians of Florida
- Seminole Nation of Oklahoma
- Poarch Band of Creek Indians
- Muscogee (Creek) Nation
- Tamiami Station
- Seminole Tribe of Florida

State:

- FDOT District Six
- FDOT Office of Environmental Management
- FL Department of State
- FL Department of State, Division of Historical Resources
- FL Department of Agriculture and Consumer Services
- FL Department of Environmental Protection
- FL Department of Fish and Wildlife Conservation Commission
- FL Department of Economic Opportunity
- Florida Inland Navigation
- Florida's Turnpike Enterprise

Regional/Local:

The following Regional Agencies will be contacted. As other concerned public agencies are identified throughout the study, they also will be listed and contacted. This list will be updated prior to each mailing. Subsequent contact list updates will be found in the culminating Comments and Coordination Report for this project.

- Miami-Dade Transit
- Miami-Dade Transportation Planning Organization (TPO)
- South Florida Water Management District
- South Florida Regional Planning Council
- Miami-Dade County Historical Preservation Board

Local Elected and Appointed Officials:

The following elected officials will be contacted directly by the FDOT through the AN process. **Appendix A** lists the contact information for the following officials at the time of project execution. Subsequent contact list updates will be found in the culminating Comments and Coordination Report for this project.

Federal Delegation – U.S. Congress:

- Carlos A. Gimenez — U.S. House of Representatives, District 26

Federal Delegation – U.S. Senate:

- Marco Rubio — U.S. Senator
- Rick Scott — U.S. Senator

Florida State Senators for Local Districts:

- Ana Maria Rodriguez — Senator, District 39
- Anette Taddeo — Senator, District 40

Florida State Representatives for Local Districts:

- James "Jim" Vernon Mooney, Jr. — Representative, District 120

Miami-Dade County:

- Miami-Dade County Clerk of Court
- Miami-Dade County Commission – District 8
- Miami-Dade County Public Schools
- Greater Miami Expressway Agency
- Miami-Dade County Property Appraiser
- Miami-Dade County Sheriff
- Miami Dade County Supervisor of Elections
- Miami-Dade Fire Rescue

Subsequent contact list updates will be found in the culminating Comments and Coordination Report for the project. Updates are expected to occur prior to the public hearing

VI. IDENTIFICATION OF AFFECTED COMMUNITIES AND STAKEHOLDERS

This project is located in Unincorporated Miami-Dade County. A map of the project area is provided in **Figure 1**. This area contains a mixed use of commuters traveling to and from SR 997/Krome Avenue and SR 821/HEFT, residential communities, local businesses, industrial facilities, places of worship, nurseries, and schools.

Limited English Proficiency (LEP) accommodations will be required during public involvement efforts for this project as 30.96% or 4,034 persons of 13,028 persons within the census block groups containing the project corridor "speak English less than very well". See **Appendix B** for the Sociocultural Data Report. The project team will hold all public meetings at a location accessible by all and translate all collaterals in English and Spanish.

The following local, state, and national public interest groups or organizations having a direct or expressed interest in the project study have been identified and will be contacted by the Florida Department of Transportation. **Appendix C** lists preliminary contact information for potential stakeholders and will be updated throughout the life of the project. All public and private groups, organizations, agencies and/or businesses that request placement on the project mailing list will be added throughout the course of the project.

Major Stakeholders

- Florida Trucking Association
- Dade County Farm Bureau
- Community Council 24
- Chamber South
- South Dade Chamber of Commerce
- Zoo Miami
- Florida Department of Children and Families
- Miami-Dade Fire Rescue Station 52
- Miami-Dade Region VI Police Station
- Red Farm Nursery

- George's Farm
- San Lazaro Church
- Grape Yard Nursery
- Pure Beauty Farms
- All Smooth Lawn
- County Garden Nursery
- Calvary Pentecostal Church
- Publix
- Sport Horse Stables, Corp
- Richard Lyons' Nursery
- Benmarqz Nursery
- Numerous businesses and occupied commercial space in the vicinity and surrounding areas

Residential Communities:

- Quail Heights

Schools within 2 miles of the project corridor:

- Somerset Academy Dade
- Robert Morgan High School
- South Miami Heights Elementary
- Academir Charter School Preparatory
- Kids Learning Center South Dade
- Miami Southridge Senior High School
- Caribbean K-8 Center
- Herbert Ammos Middle School
- Florida Technical College South Miami Campus
- Pinevilla Elementary School

VII. OUTREACH ACTIVITIES

The following techniques will be used to notify the public of the proposed transportation improvement and to solicit public input into the project development process.

Newspaper(s): The Miami Herald/El Nuevo Herald

- Donna Boase: Dboase@mcclatchy.com

In addition to working with the media, a number of different notification techniques will be used throughout the project development process. A brief description of these techniques is provided below.

Letter/Newsletter(s): Invitational and informational letters and newsletters will be distributed to elected and appointed officials, property owners/tenants, business owners/operators, and interested parties as feasible. It is anticipated that more than 1,000 newsletters will be distributed for this study, as

noted in the public outreach schedule. Notices will be delivered by hand and/or mail to residences and businesses located directly along the project corridor as deemed necessary by the FDOT.

News/Press Releases: News/press releases will be submitted to the FDOT seven days prior to each public meeting and the public hearing.

Online: Project notices will be published on social media platforms and website for FDOT and agency partners. A website project page will also be developed via the District Six website and all project information and documents will be updated to this page throughout the life of the project.

https://www.facebook.com/MyFDOTMiami/
https://www.instagram.com/myfdot_miami/
https://twitter.com/MyFDOT_Miami
http://www.fdotmiamidade.com/
http://www.miamidadetpo.org/
http://www.miamidade.gov/

Public Notices/Ads: Public advertisement will be published in the area newspaper with the largest circulation once prior to the public meeting/hearing, and once to announce Location and Design Concept Acceptance (LDCA) at the end of the study. Notice of public hearings will also be placed on the agency website and in the Florida Administrative Register (FAR).

Public Announcements: In order to distribute PD&E phase information, fliers will be made available to organizations such as neighborhood/civic groups, the FDOT, and Miami-Dade County, to publish in existing newsletters, and websites. Any such correspondence will be coordinated through the District's Public Information Office (PIO).

Direct Mail List for Public Hearings: The following will be contacted by direct mail in order to obtain input throughout the project development process and/or in order to provide project information:

- Those whose property lies, in whole or part, within at least 300 feet on either side of the centerline of each project alternative (Section 339.155, F.S.), as well as other local citizens who may be impacted by the construction of this project. This portion of the mailing list will be based on the County Property Appraiser's tax rolls. An initial list can be found in **Appendix D.**

- Local elected and appointed public officials or individuals who request to be placed on the mailing list for this project.

- Public and private groups, organizations, agencies, or businesses that request to be placed on the mailing list for this project.

Techniques:

Presentations to Local Officials: Presentations will be given to local officials and agencies such as the District Commissioners and Miami-Dade TPO prior to the Public Information Meeting(s) and the public hearing to apprise local officials of the project status, specific location, and design concepts, and to receive their comments.

Public Information Meetings: The following public meetings will be conducted, as required by the FDOT; a Public Kick-off Meeting, Elected Officials/Agencies Kick-off Meeting and an Alternatives Information Public Meeting (AIPM). The Public Information Meetings will present the project and the conceptual project alternatives being considered to obtain comments from the general public. These meetings will be hybrid format, both virtual and in-person. Notices to be sent at least 25 to 30 calendar days to Elected Officials and 14 to 21 calendar days to the general public prior to the meeting date. All meetings will be held in compliance with current Centers for Disease Control and Prevention (CDC) standards.

Public Hearing: A formal public hearing, as required by federal regulations and state law, will be held. The hearing will be held in compliance with current Centers for Disease Control and Prevention (CDC) standards.

Informal Meetings: In addition to the scheduled public meetings, there may be several additional meetings with the public, elected and appointed officials, public agencies, or civic groups. The purpose of these meetings will be to apprise the attendees of the project status, specific location, and design concepts, and to receive input.

TABLE 1 – PUBLIC OUTREACH ACTIVITY SCHEDULE 2020-2023:

Public Outreach Activity Schedule

- **Calendar Year – 2020:**
  Advance Notification — June 2020
- **Calendar Year – 2021:**
  Public Kick-off Hybrid Meeting — November 2021
- **Calendar Year – 2022:**
  Hybrid Alternative Public Workshop — August 2022
- **Calendar Year – 2023:**
  Hybrid Public Hearing — May 2023
  LDCA — November 2023

VIII. COORDINATION WITH LOCAL AGENCIES (MIAMI-DADE COUNTY)

Copies of aerial maps depicting all alignment and design concepts under consideration, along with draft copies of engineering and environmental study documentation, will be furnished to the Miami-Dade County Department of Transportation and Public Works (DTPW) with their review and written comments solicited. Updated information will also be forwarded to the county(s) for review and comment prior to the scheduled public hearing.

The Consultant will notify the FDOT's liaison for DTPW of project execution. The FDOT's liaison will coordinate with the FDOT Project Manager to schedule meetings with DTPW and the Miami-Dade TPO, as needed.

IX. PUBLIC HEARING

In compliance with the PD&E Manual, 23 CFR 771, and Section 339.155, FS, a public hearing will be held. The format is anticipated to be a "hybrid public hearing".

FDOT is implementing appropriate public engagement activities which are inclusive of all affected stakeholders and offer a combination of both face-to-face as well as virtual options. Public hearings must be hybrid, providing two ways for the public to participate: virtually and in-person at a physical location.

This PIP is mindful of the need to provide a variety of methods for the public to receive information and provide input on plans and projects, while meeting public health guidelines and protecting vulnerable populations and civil liberties. The overall goal is to replicate the experience of a

traditional public hearing in flexible ways that foster participation for all interested parties, increase engagement opportunities, add convenience, and enhance access to the public. It is important to be diligent about providing multiple opportunities for people to participate, receive information, interact with staff, and provide comments. The guiding principles for hybrid public hearings include:

- Incorporating safe social distancing practices.
- Minimizing time of exposure for staff and the public in indoor spaces.
- Using Personal Protective Equipment (PPE) and consideration of safety barriers.
- Providing a touchless experience for staff and the public, to the greatest extent possible.
- Following the practices of early, continuous, collaborative, and inclusive public engagement.

The guidelines established in this document comply with:

- Conducting Proceedings by Communications Meeting Technology (CMT), Rule Chapter 28-109, Florida Administrative Code.
- Public Business: Miscellaneous Provisions (Government in the Sunshine), Section 286.011, Florida Statutes.
- Administrative Procedure Act, Section 120.525, Florida Statutes.

To keep the public informed and engaged while adhering to current requirements using an inclusive process, a hybrid public hearing will be scheduled for this project using GoToWebinar, which is the FDOT's preferred online meeting platform. The following sections describe proposed hybrid public hearing elements, including but not limited to considerations for venues, safety measures, and logistics. These hybrid public hearing procedures and techniques will be updated as additional guidance becomes available, as warranted.

Public Hearing Site: The hybrid public hearing will be held simultaneously online and in a physical location at an appropriate facility, as convenient to the study area as possible under current conditions, including a venue which meets current requirement criteria for social distancing, social gathering limits, and room capacity limit. The virtual portion of the hybrid public hearing will use GoToWebinar. The physical portion of the hybrid public hearing may be held at a venue yet to be determined.

Public Advertisement: A display advertisement will appear in The Miami Herald and the El Nuevo Herald twice (at least 15 days and no more than 30 days) prior to the hybrid public hearing. All advertisements will be sent to local newspapers via email. In addition, an announcement of the hybrid public hearing will be published in the FAR and on the FDOT's Public Meeting Notices Website at least seven days prior to the hybrid public hearing.

Letters of Invitation: Letters will be mailed to all property owners at least 20 calendar days prior to the date of the meeting as required by Section 339.155, F.S., and at least 25 but no more than 30 calendar days prior to the hybrid public hearing date to local elected and appointed government officials notifying them of the upcoming hybrid public hearing. Notices may be hand-delivered to residences and businesses located directly along the project corridor as deemed necessary by the FDOT.

Hearing Preparation: Slide presentations and/or video presentations, project corridor aerial maps, graphics, and handouts will be prepared to supplement the oral hybrid public hearing presentation.

Transcript: A verbatim transcript of the hybrid public hearing will be compiled to include written comments received at the hearing and written comments received within the established comment period after the hybrid public hearing. All hybrid public hearing documentation (handouts, presentation, graphics, etc.) will be included with the transcript. The transcript will include a script of the recorded presentation, if applicable.

Documents for Public Review: All draft documents to support PD&E studies evaluation will be available for public review at least 21 calendar days prior to the hybrid public hearing date.

Locations of Documents for Public Review: Public notice will be provided in the public hearing advertisement and by mailed invitational letters as to where the study documents are located for public review. Suggested public review sites are:

- TBD
- TBD

Title VI and Related Statutes: Title VI information will be provided in the presentation, by handout, signage, and through availability of personnel regarding the Title VI Program and the Relocation Assistance Program.

Americans with Disabilities Act Compliance: Notification of the Department's intent to comply with the Americans with Disabilities Act (ADA) will be provided in the public advertisements for the hybrid public hearing, in invitational letters to property owners/tenants and local officials, in handouts, and by selection of a hybrid public hearing site that meets ADA requirements.

X. PUBLIC HEARING FOLLOW-UP

The following procedures will occur after the public hearing.

Responses: Responses to letters received as a result of the hybrid public hearing and questions and comments not answered at the hybrid public hearing will be made in writing within 14 days following the hearing.

Recommendation Notice: A legal notice announcing the Office of Environmental Management's (OEM's) approval of the final document and recommendations will be published in The Miami Herald newspapers. In addition, press releases detailing the Department's recommendations will be provided to local media.

Public Hearing Transcript Package: A Transcript Package will be produced and submitted following the hybrid public hearing. The Transcript Package will include a verbatim hearing transcript prepared by an approved court reporter, an errata sheet detailing any transcript discrepancies, a copy of correspondence received by the Department as part of the hybrid public hearing record, and affidavits of publication for newspaper ads advertising the hybrid public hearing.

Comments and Coordination Report: A Comments and Coordination Report will be produced under a separate cover, and submitted at the conclusion of the study, containing, at a minimum, documentation regarding public participation performed throughout the study period. This summary will include comments and responses received from the public, as well as Advance Notification, coordination with local officials and agencies, and public meetings; the verbatim transcript from the hybrid public hearing; proof of publication of ads; sign-in sheets; hybrid public hearing certification by the Project Manager (Moderator); and public comments.

XI. PUBLIC INVOLVEMENT DURING DESIGN

To the extent public involvement activities are necessary in the Design phase, the Design Project Manager will be responsible for coordinating any such activities. These public involvement activities may include additional coordination meetings with local government and environmental permitting agencies, work sessions, and small group meetings, as directed by the FDOT.

APPENDIX A: INITIAL PUBLIC OFFICIALS CONTACT LIST

APPENDIX B: DEMOGRAPHIC INFORMATION

APPENDIX C: INITIAL STAKEHOLDERS CONTACT LIST

APPENDIX D: INITIAL PROPERTY OWNER MAP AND MAILING LIST

APPENDICES

APPENDIX A: INITIAL PUBLIC OFFICIALS CONTACT LIST

APPENDIX B: DEMOGRAPHIC INFORMATION

APPENDIX C: INITIAL STAKEHOLDERS CONTACT LIST

APPENDIX D: INITIAL PROPERTY OWNER MAP AND MAILING LIST

APPENDIX A:

INITIAL PUBLIC OFFICIALS CONTACT LIST

Elected Officials

Title	Name	Letter Greeting	Envelope Greeting	Title 2	Municipality	Street Address	City	State	ZIP	Phone	Fax	Email	Website
The Honorable	James Vernon "Jim" Mooney, Jr.	Representative Mooney	The Honorable James Vernon Mooney, Jr.	Representative, District 120	Florida House of Representatives	1102 The Capitol 402 S Monroe St	Tallahassee	FL	32399	850-717-5120		jim.mooney@myfloridahouse.gov.	https://www.myfloridahouse.gov/Sections/Representatives/details.aspx?MemberId=4797&SessionId=80
The Honorable	Carlos A. Gimenez	Congressman Gimenez	The Honorable Carlos A. Gimenez	Congressman, District 26	U.S. House of Representatives	419 Cannon House Office Building	Washington	DC	20515	305-222-0160		CAG@mail.house.gov	https://gimenez.house.gov/
The Honorable	Marco Rubio	Senator Rubio	The Honorable Marco Rubio	Senator	United States Senate	7400 SW 87th Avenue, Suite 270	Miami	FL	33173	305-596-4224	305-594-4014	tea_padron@rubio.senate.gov	https://www.rubio.senate.gov/public/
The Honorable	Rick Scott	Senator Scott	The Honorable Rick Scott	Senator	United States Senate	901 Ponce de Leon Boulevard, Suite 505	Miami	FL	33134	786-501-7141, 202- 224-5274		help@rickscott.senate.gov	https://www.rickscott.senate.gov/
The Honorable	Annette Taddeo	Senator Taddeo	The Honorable Annette Taddeo	Senator, District 40	Florida State Senate	9100 South Dadeland Boulevard	Miami	FL	33176	305-596-3003		taddeo.annette.web@flsenate.gov	https://www.myfloridahouse.gov/MyElectedOfficials?lat=25.581521?&long=-80.4127863
The Honorable	Ana Maria Rodriguez	Senator Rodriguez	The Honorable Ana Maria Rodriguez	Senator, District 39	Florida State Senate	318 Senate Building 404 S Monroe St	Tallahassee	FL	32399	850-487-5039		AnaMaria.Rodriguez@myfloridahouse.gov.	https://www.myfloridahouse.gov/MyElectedOfficials?lat=25.474618&long=-80.4743649999955
The Honorable	Danielle Cohen Higgins	Commissioner	The Honorable Danielle Cohen Higgins	Commissioner, District 8	Miami-Dade County	111 NW 1st Street, Suite 220	Miami	FL	33128	305-375-5218	305-253-7495 ; 305-372-6073	district8@miamidade.gov	http://www.miamidade.gov/global/government/commission/district08/about-commissioner-higgins.page
The Honorable	Daniella Levine Cava	Mayor Levine Cava	The Honorable Daniella Levine Cava	Mayor	Miami-Dade County	111 NW 1st Street, 29 Floor	Miami	FL	33128	305-375-5071	305-375-2531	mayor@miamidade.gov	http://www.miamidade.gov/mayor/
The Honorable	Jose "Pepe" Diaz	Chairman Diaz	The Honorable Jose "Pepe" Diaz	Chairman	Miami-Dade County	111 NW 1st Street	Miami	FL	33139	305-375-4343		district12@miamidade.gov	https://www.miamidade.gov/global/government/commission/district12/home.page
The Honorable	Harvey Ruvin	Harvey Ruvin	The Honorable Harvey Ruvin	Clerk	Miami-Dade County	73 W Flagler St, Ste 133	Miami	FL	33130	305-349-7333		ruhlv01@miamidade.gov	https://www.miamidade.gov/humanresources/library/directors-list-by-alpha.pdf
Mr.	Alfredo Ramirez III	Mr. Ramirez	Mr. Alfredo Ramirez	Police Director	Miami-Dade County	9105 NW 25 Street, Room 3072	Doral	FL	33172	305-471-3272	305-471-2163	directorsoffice@mdpd.com/ aramireziii@mdpd.com	www.miamidade.gov
Mr.	Alan R. Cominsky	Mr. Cominsky	Mr. Alan R. Cominsky	Fire Chief	Miami-Dade County	9300 NW 41 Street, Room 218	Miami	FL	33178	786-331-5118	786-331-5101	firechief@miamidade.gov	www.miamidade.gov
Ms.	Aileen Bouclé, AICP	Ms. Boucle	Ms. Aileen Boucle	Executive Director of the Miami-Dade Transportation Planning Organization (TPO)	Miami-Dade County	111 NW 1 Street, Suite 920	Miami	FL	33128	305- 375-4507	305-375-4950	aileen.boucle@miamidade.gov / information@mdtpo.org	www.miamidade.gov
Mr.	Jimmy Morales	Mr. Morales	Mr. Jimmy Morales	Interim Director of Department of Transportation and Public Works	Miami-Dade County	701 NW 1 Court, Suite 1700	Miami	FL	33136	786-469-5675		jm0452@miamidade.gov	www.miamidade.gov
Dr.	Steve Gallon III	Mr. Gallon	Mr. Steve Gallon	Vice Chair, Board Member, District 1	Miami-Dade County Public Schools	1450 NE 2 Avenue, Suite 700	Miami	FL	33132	305-995-1000	305-995-2730	sgallon3@dadeschools.net.	http://www.dadeschools.net
Mr.	Alberto M. Carvalho	Mr. Carvalho	Mr. Alberto M. Carvalho	Superintendent of Schools	Miami-Dade County Public Schools	1450 NE 2 Avenue, Suite 912	Miami	FL	33132	305-995-1430	305-995-1488	acarvalho@dadeschools.net / superintendentsoffice@dadeschools.net	http://www.dadeschools.net
Ms.	Lubby Navarro	Ms. Navarro	Ms. Lubby Navarro	Chairperson, The Board of Miami Dade County Schools, District 7	Miami-Dade County Public Schools	1450 NE 2 Avenue	Miami	FL	33132	305-995-1334	305-995-2765	District7@dadeschools.net	http://www.dadeschools.net

ETAT

Title	Name	Letter Greeting	Envelope Greeting	Agency	Street Address	City	State	ZIP	Phone	Email
Ms.	Lindsay S Rothrock	Ms. Rothrock	Ms. Lindsay S Rothrock	Florida Department of State, Division of Historical Resources	500 South Bronough Street 4th Floor	Tallahassee	FL	32399	850-245-6307	lindsay.rothrock@dos.myflorida.com
Mr.	Jason Aldridge	Mr. Aldridge	Mr. Jason Aldridge	Florida Department of State, Division of Historical Resources	500 South Bronough Street 4th Floor	Tallahassee	FL	32399	850-245-6344	Jason.Aldridge@dos.myflorida.com
Ms.	Alyssa McManus	Ms. McManus	Ms. Alyssa McManus	Florida Department of State, Division of Historical Resources	500 South Bronough Street 4th Floor	Tallahassee	FL	32399	850-245-6368	alyssa.mcmanus@dos.myflorida.com
Ms.	Adrianne Daggett	Ms. Daggett	Ms. Adrianne Daggett	Florida Department of State, Division of Historical Resources	500 South Bronough Street 4th Floor	Tallahassee	FL	32399	850-245-6372	Adrianne.Daggett@dos.myflorida.com
Mr.	Mark Kiser	Mr. Kiser	Mr. Mark Kiser	Florida Department of Agriculture and Consumer Services	3125 Conner Blvd, Suite 257	Tallahassee	FL	32399	850-681-5885	Mark.Kiser@fdacs.gov
Mr.	Chris Stahl	Mr. Stahl	Mr. Chris Stahl	Florida Department of Environmental Protection	3900 Commonwealth Blvd, Mail Station 47	Tallahassee	FL	32399	850-717-9076	Chris.Stahl@FloridaDEP.gov
Ms.	Jennifer Goff	Ms. Goff	Ms. Jennifer Goff	Florida Department of Fish and Wildlife Conservation Commission	620 S. Meridian St	Tallahassee	FL	32399	850-488-3831	jennifer.goff@MyFWC.com
Mr.	Jason Hight	Mr. Hight	Mr. Jason Hight	Florida Department of Fish and Wildlife Conservation Commission	620 South Meridian St MS5B5	Tallahassee	FL	32399	850-413-6966	Jason.Hight@MyFWC.com
Mr.	Matt Preston	Mr. Preston	Mr. Matt Preston	Florida Department of Economic Opportunity	7400 SW 87th Avenue, Suite 270	Miami	FL	33173	305-596-4224	matt.preston@deo.myflorida.com
Mr.	Dat Huynh	Mr. Huynh	Mr. Dat Huynh	FDOT District Six	1000 NW 111th Avenue, Room 6111	Miami	FL	33172	305-470-5201	Dat.Huynh@dot.state.fl.us
Ms.	Brittany Ann Bianco	Ms. Bianco	Ms. Brittany Ann Bianco	FDOT Office of Environmental Management	605 Suwannee Street	Tallahassee	FL	32399	850-414-5217	Brittany.Bianco@dot.state.fl.us
Mr.	T. Spencer Crowley, III	Mr. Crowley	Mr. T. Spencer Crowley, III	Florida Inland Navigation	1314 Marcinski Road	Jupiter	FL	33477	561-627-3386	Spencer.crowley@akerman.com
Ms.	Amanda Ashby	Ms. Ashby	Ms. Amanda Ashby	Florida's Turnpike Enterprise	3000 Dovera Drive, Suite 200	Oviedo	FL	32765	407-971-8850	aashby@inwoodinc.com
Mr.	Stan Mitchell	Mr. Mitchell	Mr. Stan Mitchell	Federal Transit Administration	230 Peachtree St NW, Suite 800	Atlanta	GA	30327	404-865-5643	stanley.a.mitchell@dot.gov
Mr.	Bart Vernace	Mr. Vernace	Mr. Bart Vernace	Federal Aviation Administration	8427 South Park Circle, Suite 524	Orlando	FL	32819	407-487-7220	Bart.Vernace@faa.gov
Mr.	Andrew A Kizlauskas	Mr. Kizlauskas	Mr. Andrew A Kizlauskas	U.S. Army Corps of Engineers	415 Richard Jackson Blvd, Suite 411	Panama City Beach	FL	32407	904-304-9095	andrew.a.kizlauskas@usace.army.mil
Ms.	Jennifer Zercher	Ms. Zercher	Ms. Jennifer Zercher	U.S. Coast Guard	909 SE 1st Avenue, Suite 432	Miami	FL	33131	305-415-6740	Jennifer.N.Zercher@uscg.mil
Ms.	Anita Barnett	Ms. Barnett	Ms. Anita Barnett	U.S. Department of Interior - National Park Service	100 Alabama Street, 1924 Building	Atlanta	GA	30303	404-507-5706	anita_barnett@nps.gov
Mr.	John Wrublik	Mr. Wrublik	Mr. John Wrublik	U.S. Department of Interior - U.S. Fish and Wildlife Service	1339 20th Street	Vero Beach	FL	32960	772-469-4282	john_wrublik@fws.gov
Ms.	Jennifer Schull	Ms. Schull	Ms. Jennifer Schull	U.S. Department of Commerce - National Marine Fisheries Service	400 N. Congress Avenue, Suite 270	West Palm Beach	FL	33401	561-440-1748	Jennifer.Schull@noaa.gov
Ms.	Alya Singh-White	Ms. Singh-White	Ms. Alya Singh-White	U.S. Environmental Protection Agency	61 Forsyth Street SW	Atlanta	GA	30303	404-562-9339	Singh-White.Alya@epa.gov
Ms.	Amanetta Somerville	Ms. Somerville	Ms. Amanetta Somerville	U.S. Environmental Protection Agency	61 Forsyth Street SW	Atlanta	GA	30303	404-562-9025	somerville.amanetta@epa.gov
Ms.	Ntale Kajumba	Ms. Kajumba	Ms. Ntale Kajumba	U.S. Environmental Protection Agency	61 Forsyth Street SW	Atlanta	GA	30303	404-562-9620	Kajumba.Ntale@epamail.epa.gov

Tribes

Tribe leader	Tribe / Affiliation Name	Tittle	Address	City	State	Zip	Phone	Email
Ms. Catherine Bradley	Tribal Historic Preservation Office	Interim Director	30290 Josie Billie Highway, PMB 1004	Clewiston	FL	33440	850-414-5209850-414-5209	Catherine.Bradley@dot.state.fl.us
Mr. Larry Haikey	Poarch Band of Creek Indians	PBCI Tribal Historic Preservation Officer	5811 Jack Springs Road	Atmore	AL	36502	251-368-9136 ext. 2072	lhaikey@pci-nsn.gov
The Honorable Ms. Stephanie A. Bryan	Poarch Band of Creek Indians	Tribal Chair	5811 Jack Springs Road	Atmore	AL	36502	251-368-9136 ext. 2937	sbryan@pci-nsn.gov
The Honorable Mr. Billy Cypress	Miccosukee Tribe of Indians of FloridaTamiami Station	Chairman	Tamiami Station P.O. Box 440021	Miami	FL	33144	305-480-1924	sales@miccosukeetours.com
Mr. Kevin Donaldson	Miccosukee Tribe of Indians of Florida Tamiami Station	Environmental Specialist	Tamiami Station P.O. Box 440021	Miami	FL	33144		kevind@miccosukeetribe.com
The Honorable Mr. Greg Chilcoat	Seminole Nation of Oklahoma	Principal Chief	P.O. Box 1498	Wewoka	OK	74884	405-257-7200	
Ms. Brigita Leader	Seminole Nation of Oklahoma	Interim Director/TCNS CoordinatorHistoric Preservation Office	PO Box 1498	Wewoka	OK	74884	405-257-7200	leader.bs@sno-nsn.gov
The Honorable Mr. Marcellus W. Osceola	Seminole Tribe of Florida	Chairman	6300 Stirling Road	Hollywood	FL	33024	954-966-6300 or 800-683-7800	
Ms. Anne H. Mullins, MCRP	Seminole Tribe of Florida	Director, Heritage and Environmental Office (HERO)	30290 Josie Billie Highway, PMB 1004	Clewiston	FL	33440	863-983-6549 ext. 12262	annemullins@semtribe.com
Dr. Paul N. Backhouse	Seminole Tribe of Florida	Sr. Director, Heritage and Environmental Office (HERO)	30290 Josie Billie Highway, PMB 1004	Clewiston	FL	33440		paulbackhouse@semtribe.com
Kad Henderson	Seminole Tribe of Florida	Compliance Review Specialist	30290 Josie Billie Highway, PMB 1004	Clewiston	FL	33440		kadhenderson@semtribe.com
Mr. Bradley Mueller	Seminole Tribe of Florida	Compliance Review SupervisorTribal Historic Preservation Office	30290 Josie Billie Highway, PMB 1004	Clewiston	FL	33440		bradleymueller@semtribe.com
Danielle A. Simon	Seminole Tribe of Florida Simon	Compliance Review Specialist						daniellesimon@semtribe.com
The Honorable Mr. David Hill	Muscogee (Creek) Nation	Principal Chief Office of the Administration	P.O. Box 580	Okmulgee	OK	74447		
Historic & Cultural Preservation Department	Muscogee (Creek) Nation		P.O. Box 580	Okmulgee	OK	74447		
Ms. Jennifer Marshall, P.E.	Office of Environmental Management, Director	FDOT Native American Coordinator					850-414-4316	Jennifer.Marshall@dot.state.fl.us

APPENDIX B:

DEMOGRAPHIC INFORMATION

Sociocultural Data Report

ETDM #14429 - Alternative #1

Milestone: 06/04/2020 - Programming Screen ETAT Review Started

Area: 1.128 square miles

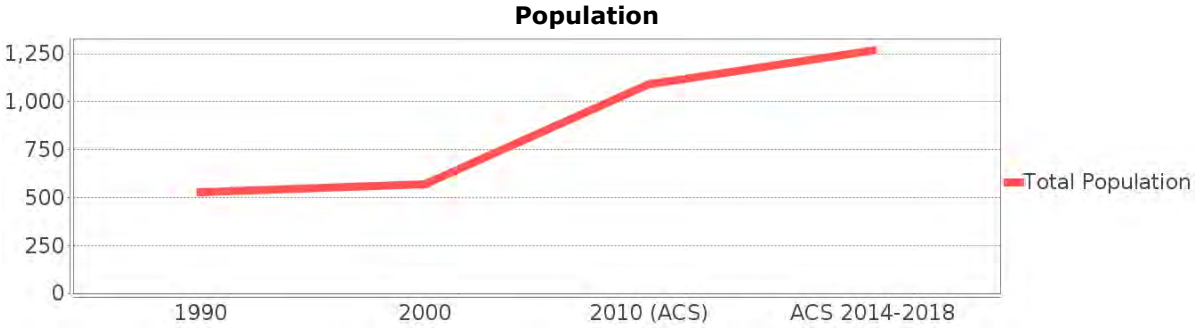
Jurisdiction(s): **Cities:** NA
Counties: Miami-Dade

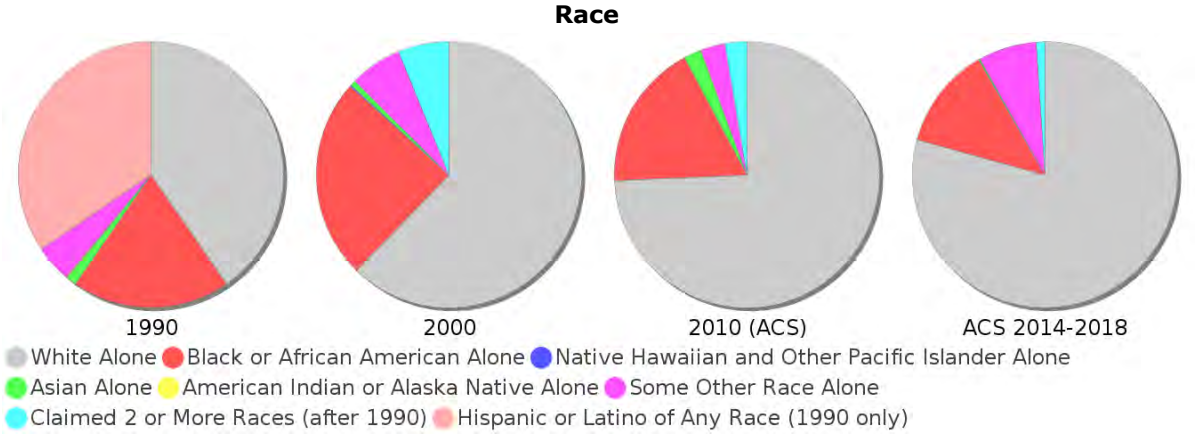
General Population Trends

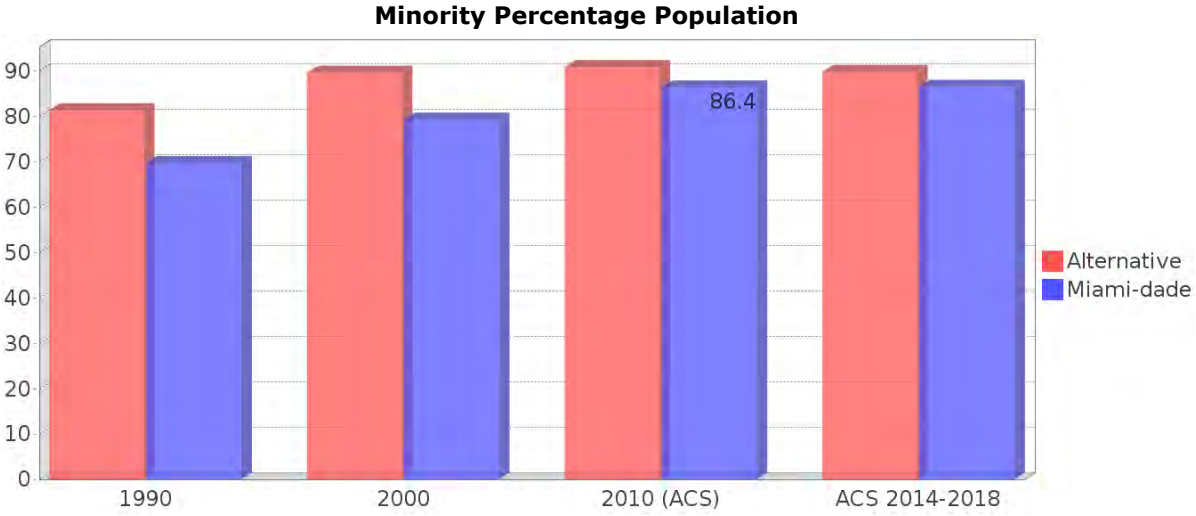
Description	1990	2000	2010 (ACS)	ACS 2014-2018
Total Population	526	570	1,089	1,266
Total Households	161	155	301	303
Average Persons per Acre	4.68	4.73	8.70	10.45
Average Persons per Household	3.06	2.81	3.85	3.90
Average Persons per Family	3.47	3.11	3.85	4.32
Males	258	280	541	622
Females	267	289	547	644

Race and Ethnicity Trends

Description	1990	2000	2010 (ACS)	ACS 2014-2018
White Alone	323 (61.41%)	353 (61.93%)	808 (74.20%)	1,001 (79.07%)
Black or African American Alone	154 (29.28%)	138 (24.21%)	194 (17.81%)	157 (12.40%)
Native Hawaiian and Other Pacific Islander Alone	0 (0.00%)	1 (0.18%)	0 (0.00%)	0 (0.00%)
Asian Alone	10 (1.90%)	4 (0.70%)	23 (2.11%)	2 (0.16%)
American Indian or Alaska Native Alone	1 (0.19%)	0 (0.00%)	1 (0.09%)	0 (0.00%)
Some Other Race Alone	36 (6.84%)	36 (6.32%)	32 (2.94%)	90 (7.11%)
Claimed 2 or More Races	NA (NA)	35 (6.14%)	29 (2.66%)	13 (1.03%)
Hispanic or Latino of Any Race	276 (52.47%)	360 (63.16%)	780 (71.63%)	961 (75.91%)
Not Hispanic or Latino	250 (47.53%)	210 (36.84%)	309 (28.37%)	305 (24.09%)
Minority	428 (81.37%)	511 (89.65%)	990 (90.91%)	1,137 (89.81%)

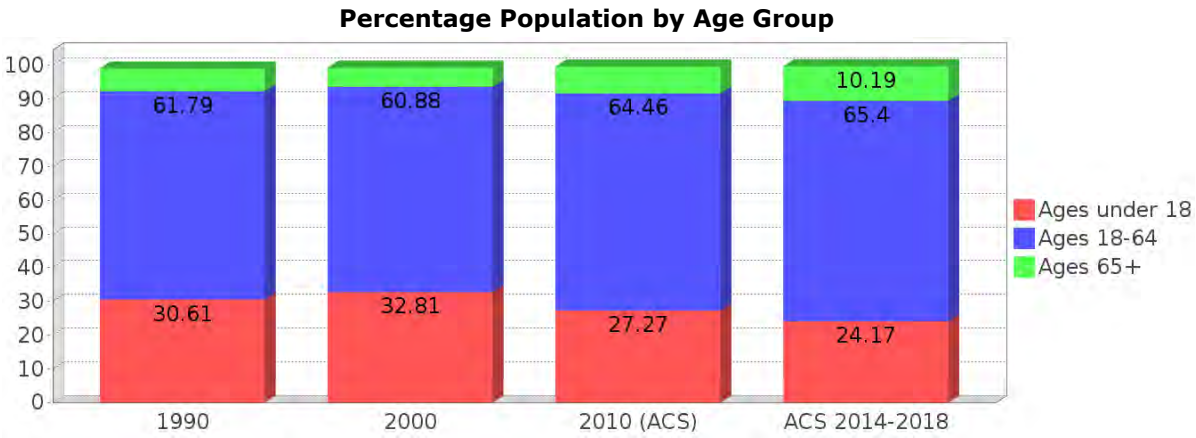






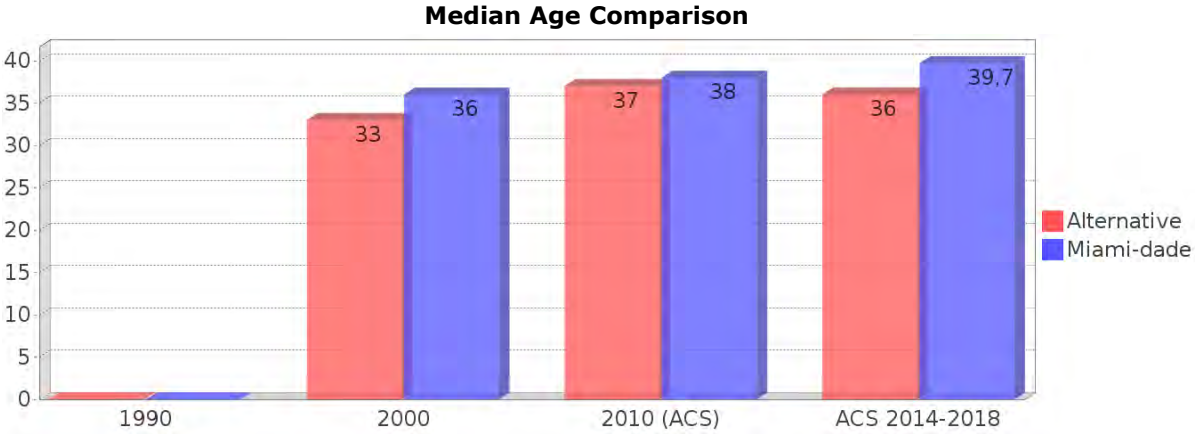
Age Trends

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Under Age 5	9.32%	7.54%	6.43%	4.74%
Ages 5-17	21.29%	25.26%	20.84%	19.43%
Ages 18-21	6.08%	5.44%	6.24%	7.03%
Ages 22-29	13.50%	11.23%	9.27%	10.03%
Ages 30-39	18.06%	15.61%	15.34%	12.80%
Ages 40-49	12.74%	16.32%	17.54%	17.46%
Ages 50-64	11.41%	12.28%	16.07%	18.09%
Age 65 and Over	6.65%	5.61%	7.90%	10.19%
-Ages 65-74	3.99%	3.86%	4.68%	6.56%
-Ages 75-84	2.09%	1.23%	2.48%	2.21%
-Age 85 and Over	0.38%	0.53%	0.64%	1.34%
Median Age	NA	33	37	36



Income Trends

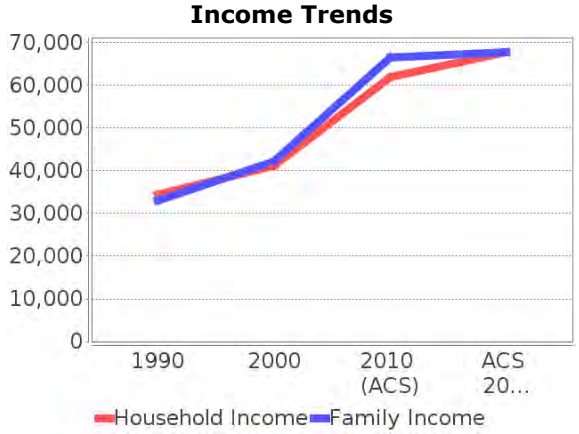
Description	1990	2000	2010 (ACS)	ACS 2014-2018
Median Household Income	$34,349	$40,993	$61,898	$67,734
Median Family Income	$32,987	$42,099	$66,500	$67,734
Population below Poverty Level	13.31%	16.14%	10.65%	7.58%
Households below Poverty Level	13.66%	12.90%	9.97%	9.90%
Households with Public Assistance Income	8.70%	5.81%	1.66%	3.96%

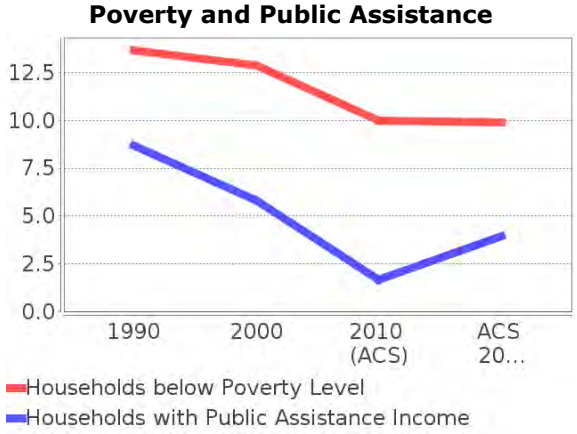


Disability Trends

See the Data Sources section below for an explanation about the differences in disability data among the various years.

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Population 16 To 64 Years with a disability	22 (5.74%)	94 (17.84%)	(NA)	(NA)
Population 20 To 64 Years with a disability	(NA)	(NA)	(NA)	47 (5.97%)





Educational Attainment Trends

Age 25 and Over

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Less than 9th Grade	55 (17.97%)	43 (12.99%)	75 (10.36%)	88 (10.80%)
9th to 12th Grade, No Diploma	50 (16.34%)	68 (20.54%)	64 (8.84%)	63 (7.73%)
High School Graduate or Higher	201 (65.69%)	219 (66.16%)	585 (80.80%)	663 (81.35%)
Bachelor's Degree or Higher	28 (9.15%)	46 (13.90%)	171 (23.62%)	159 (19.51%)

Language Trends

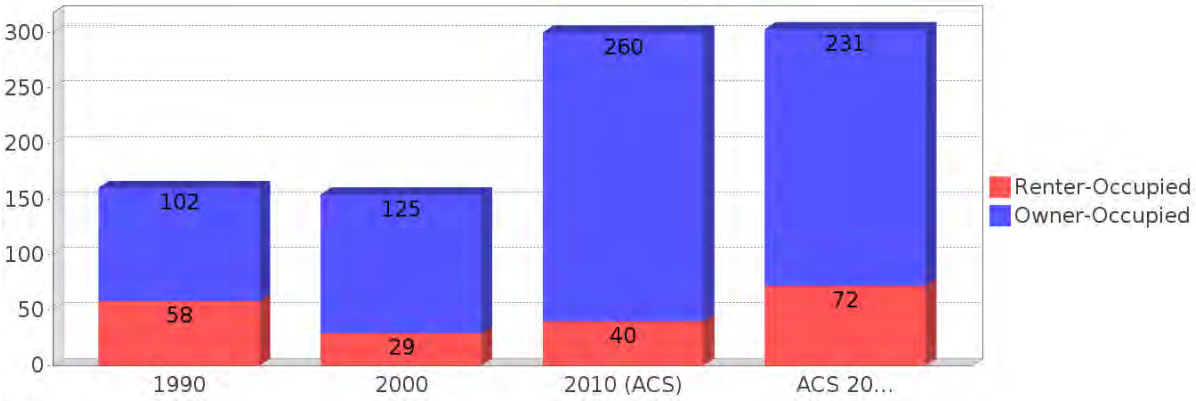
Age 5 and Over

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Speaks English Well	57 (11.95%)	72 (13.66%)	108 (9.42%)	110 (9.12%)
Speaks English Not Well	NA (NA)	58 (11.01%)	132 (11.51%)	160 (13.27%)
Speaks English Not at All	NA (NA)	28 (5.31%)	64 (5.58%)	93 (7.71%)
Speaks English Not Well or Not at All	72 (15.09%)	86 (16.32%)	196 (17.09%)	253 (20.98%)

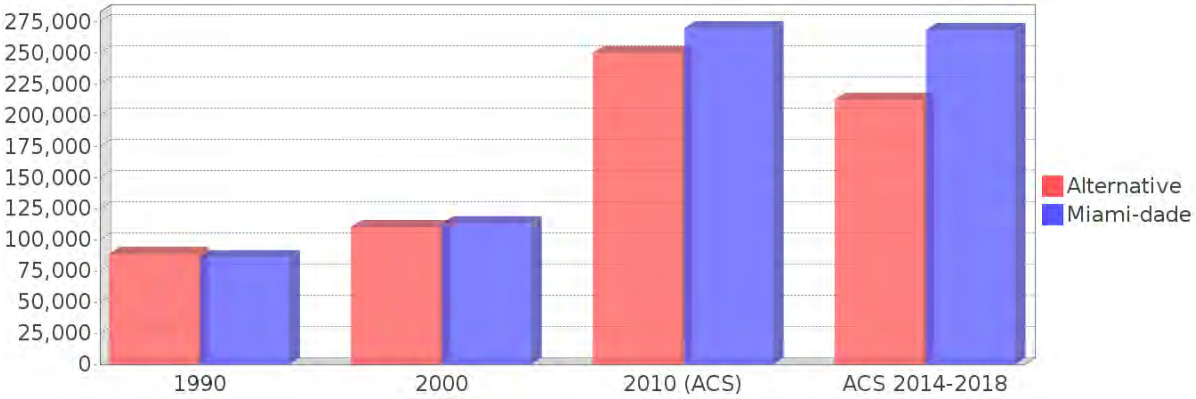
Housing Trends

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Total	178	165	314	316
Units per Acre	1.20	1.12	1.83	1.84
Single-Family Units	114	154	335	314
Multi-Family Units	43	8	2	0
Mobile Home Units	0	2	0	1
Owner-Occupied Units	102	125	260	231
Renter-Occupied Units	58	29	40	72
Vacant Units	16	10	13	12
Median Housing Value	$88,650	$110,150	$249,700	$212,300
Occupied Housing Units w/No Vehicle	14 (8.64%)	13 (8.39%)	14 (4.65%)	4 (1.32%)

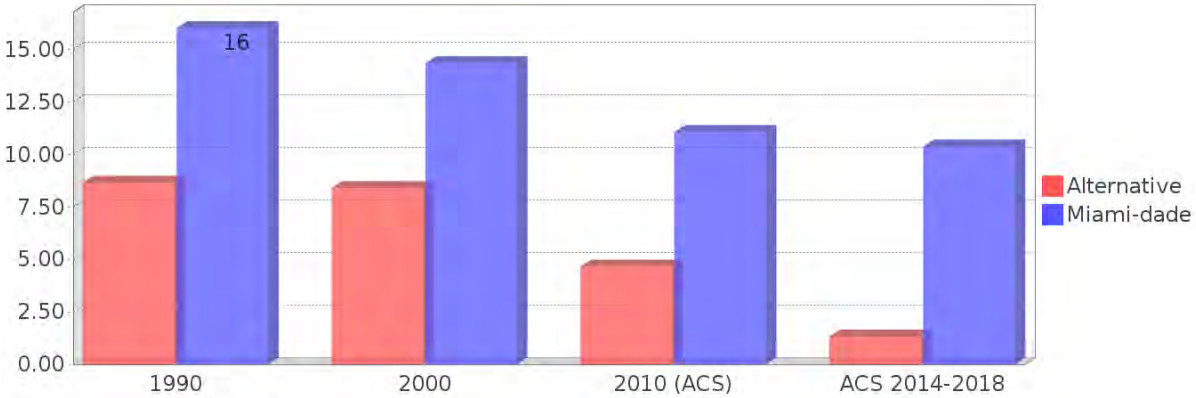
Housing Tenure



Median Housing Value Comparison

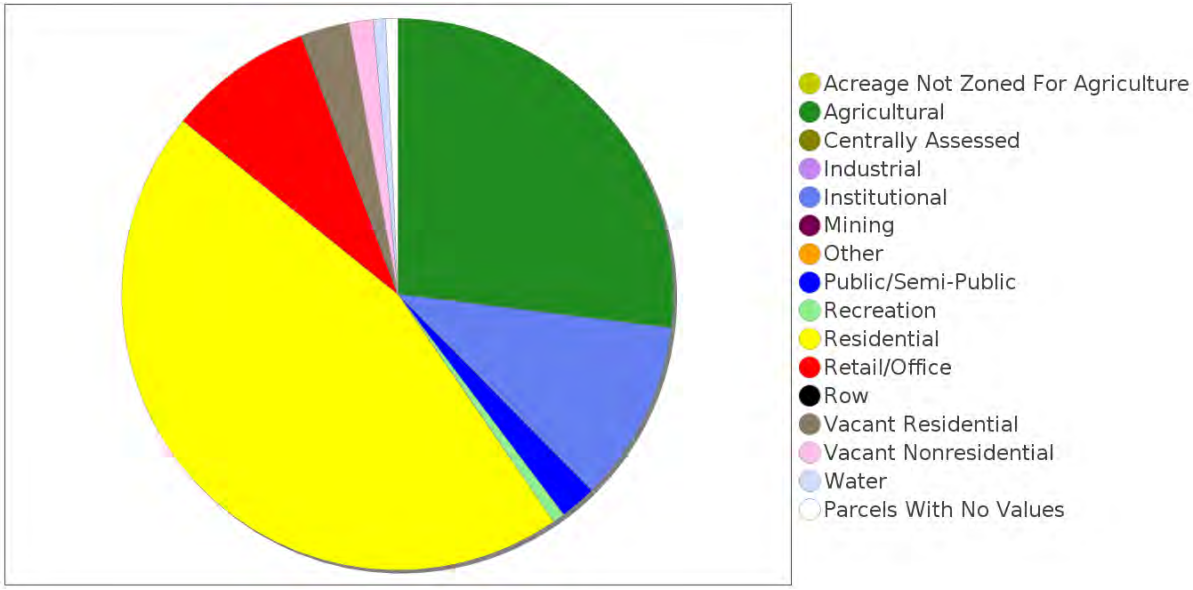


Occupied Units With No Vehicles Available

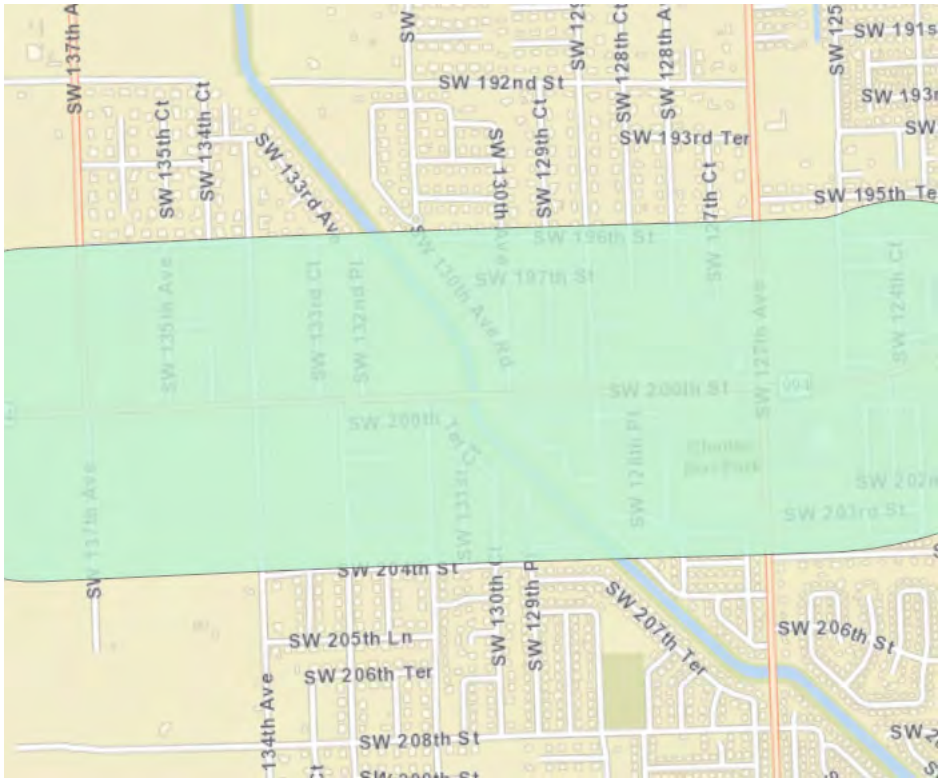


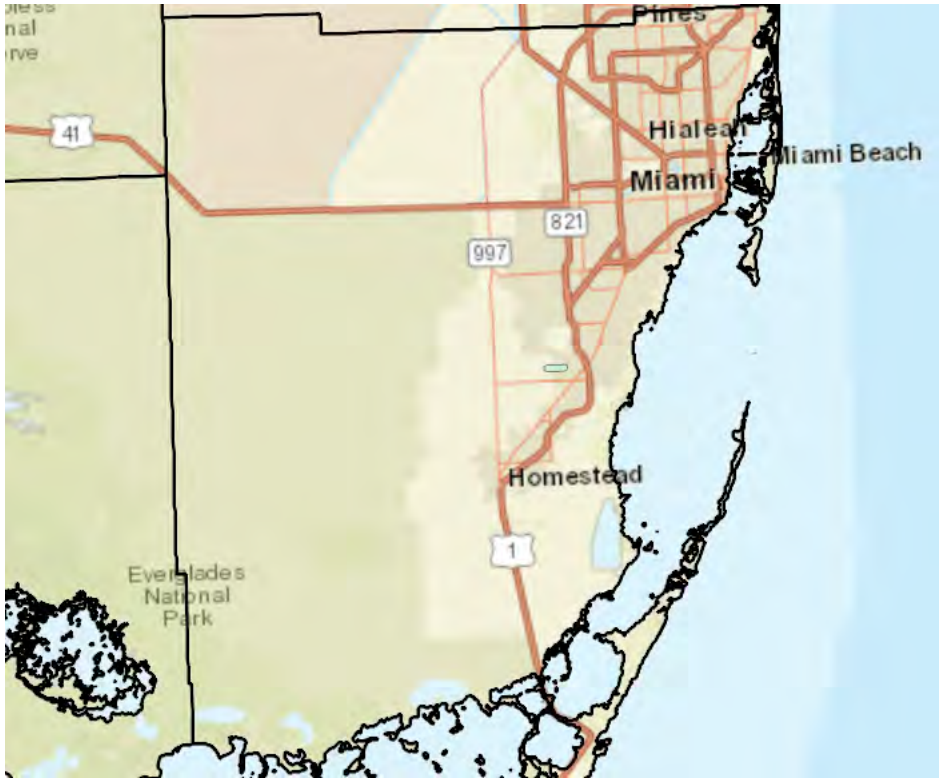
Existing Land Use

Land Use Type	Acres	Percentage
Acreage Not Zoned For Agriculture	0	0.00%
Agricultural	38	5.26%
Centrally Assessed	0	0.00%
Industrial	0	0.00%
Institutional	15	2.08%
Mining	0	0.00%
Other	0	0.00%
Public/Semi-Public	3	0.42%
Recreation	1	0.14%
Residential	64	8.86%
Retail/Office	12	1.66%
Row	0	0.00%
Vacant Residential	4	0.55%
Vacant Nonresidential	2	0.28%
Water	1	0.14%
Parcels With No Values	1	0.14%



Location Maps





Community Facilities

The community facilities information below is useful in a variety of ways for environmental evaluations. These community resources should be evaluated for potential sociocultural effects, such as accessibility and relocation potential. The facility types may indicate the types of population groups present in the project study area. Facility staff and leaders can be sources of community information such as who uses the facility and how it is used. Additionally, community facilities are potential public meeting venues.

Florida Parks and Recreational Facilities

Facility Name	Address	Zip Code
CHARLES BURR PARK	20200 SW 127TH AVE	33177

Religious Centers

Facility Name	Address	Zip Code
CHURCH-CHRIST ON QUAIL ROOST	12780 SW 200TH STREET	33177
CHRIST FAITHFUL COMMUNITY CHURCH	12825 QUAIL ROOST DR	33177
CALVARY PENTECOSTAL CHURCH	19901 SW 137TH AVENUE	33177
PEACE UNITED METHODIST CHURCH	12755 QUAIL ROOST DRIVE	33177
CHURCH-CHRIST ON QUAIL ROOST	12780 SW 200TH STREET	33177
UPPER ROOM ASSEMBLY OF GOD	19701 SOUTHWEST 127TH AVENUE	33177
CHRIST FAITHFUL COMMUNITY CHURCH	12825 QUAIL ROOST DR	33177
CALVARY PENTECOSTAL CHURCH	19901 SW 137TH AVENUE	33177
PEACE UNITED METHODIST CHURCH	12755 QUAIL ROOST DRIVE	33177

Public and Private Schools

Facility Name	Address	Zip Code
FIRST IMPRESSIONS PRE-SCHOOL	12300 QUAIL ROOST DRIVE	33177
BUMBLE BEE DAYCARE LEARNING CENTER	12332 QUAIL ROOST DR	33177

Group Care Facilities

Facility Name	Address	Zip Code
MARTIN RESIDENCES, INC	19940 SW 124 COURT	33177
BUMBLE BEE DAYCARE & LEARNING CENTER	12332 QUAIL ROOST DRIVE	33177
MARTIN RESIDENCES, INC	19940 SW 124 COURT	33177
SOMERSET DADE (SITE2) CHARTER SCHOOL	19701 SW 127 AVENUE	33177
LIVING EXCELLENCE GROUP OF MIAMI	12949 SW 197TH ST	33177
FIRST IMPRESSIONS PRE SCHOOL	12300 QUAIL ROOST DRIVE	33177
BUMBLE BEE DAYCARE & LEARNING CENTER	12332 QUAIL ROOST DRIVE	33177

Block Groups

The following Census Block Groups were used to calculate demographics for this report.

1990 Census Block Groups

120250102019, 120250102023, 120250102016, 120250102029, 120250102034, 120250102039, 120250102019, 120250102023, 120250102016, 120250102029, 120250102034, 120250102039

2000 Census Block Groups

120860102043, 120860102034, 120860102039, 120860102019, 120860102041, 120860102016, 120860102043, 120860102034, 120860102039, 120860102019, 120860102041, 120860102016

2010 Census Block Groups

120860102092, 120860102041, 120860102043, 120860102011, 120860102091, 120860102012, 120860102044, 120860102092, 120860102041, 120860102043, 120860102011, 120860102091, 120860102012, 120860102044

Census Block Groups

120860102011, 120860102091, 120860102041, 120860102043, 120860102012, 120860102092, 120860102044, 120860102011, 120860102091, 120860102041, 120860102043, 120860102012, 120860102092, 120860102044

Data Sources

Area

The geographic area of the community based on a user-specified community boundary or area of interest (AOI) boundary.

Jurisdiction

Jurisdiction(s) includes local government boundaries that intersect the community or AOI boundary.

Demographic Data

Demographic data reported under the headings General Population Trends, Race and Ethnicity Trends, Age Trends, Income Trends, Educational Attainment Trends, Language Trends, and Housing Trends is from the U.S. Decennial Census (1990, 2000) and the American Community Survey (ACS) 5-year estimates from 2006-2010 and ACS 2014-2018. The data was gathered at the block group level for user-specified community boundaries and AOIs, and at the county level for counties. Depending on the dataset, the data represents 100% counts (Census Summary File 1) or sample-based information (Census Summary File 3 or ACS).

About the Census Data:

User-specified community boundaries and AOIs do not always correspond precisely to block group boundaries. In these instances, adjustment of the geographic area and data for affected block groups is required to estimate the actual population. To improve the accuracy of such estimates in the SDR report, the census block group data was adjusted to exclude all census blocks with a population of two or fewer. These areas were eliminated from the corresponding years' block groups. Next, the portion of the block group that lies outside of the community or AOI boundary was removed. The demographics within each block group were then recalculated, assuming an equal area distribution of the population. Note that there may be areas where there is no population.

Use caution when comparing the 100% count data (Decennial Census) to the sample-based data (ACS). In any given year, about one in 40 or 2.5% of U.S. households will receive the ACS questionnaire. Over any five-year period, about

one in eight households will receive the questionnaire, as compared to about one in six that received the long form questionnaire for the Decennial Census 2000. (Source: http://mcdc.missouri.edu/pub/data/acs/Readme.shtml) The U.S. Census Bureau provides help with this process:
https://www.census.gov/programs-surveys/acs/guidance/comparing-acs-data/ACS 2014-2018.html

Use caution when interpreting changes in Race and Ethnicity over time. Starting with the 2000 Decennial Census, respondents were given a new option of selecting one or more race categories. Also in 2000, the placement of the question about Hispanic origin changed, helping to increase responsiveness to the Hispanic-origin question. Because of these and other changes, the 1990 data on race and ethnicity are not directly comparable with data from later censuses. (Source: http://www.census.gov/prod/2001pubs/c2kbr01-1.pdf;
http://www.census.gov/pred/www/rpts/Race%20and%20Ethnicity%20FINAL%20report.pdf)

The "Minority" calculations are derived from Census and ACS data using both the race and ethnicity responses. On this report, "Minority" refers to individuals who list a race other than White and/or list their ethnicity as Hispanic/Latino. In other words, people who are multi-racial, any single race other than White, or Hispanic/Latino of any race are considered minorities.

Disability data is not included in the 2010 Decennial Census, or the 2006-2010 ACS. This data is available in the ACS 2014-2018 ACS.
Because of changes made to the Census and ACS questions between 1990 and ACS 2014-2018, disability variables should not be compared from year to year. For example: 1) With the 1990 data the disabilities are listed as a "work disability" while this distinction is not made with 2000 or ACS 2014-2018 ACS data; 2) The ACS 2014-2018 ACS data includes the institutionalized population (e.g. persons in prisons and group homes), while this population is not included in 1990 or 2000; 3) the age groupings changed over the years.
Please take the following two concerns into account when viewing this data: 1) With the 1990 data the disabilities are listed as a "work disability" while this distinction is not made with 2000 or ACS 2014-2018 ACS data; 2) The ACS 2014-2018 ACS data includes the institutionalized population (e.g. persons in prisons and group homes), while this population is not included in 1990 or 2000.

The category Bachelor's Degree or Higher under the heading Educational Attainment Trends is a subset of the category High School Graduate or Higher.

Income of households. This includes the income of the householder and all other individuals 15 years old and over in the household, whether they are related to the householder or not. Because many households consist of only one person, average household income is usually less than average family income.
Income of families. In compiling statistics on family income, the incomes of all members 15 years old and over related to the householder are summed and treated as a single amount.
Age Trends median age for 1990 is not available.

Land Use Data

The Land Use information Indicates acreages and percentages for the generalized land use types used to group parcel-specific, existing land use assigned by the county property appraiser office according to the Florida Department of Revenue land use codes.

Community Facilities Data

- Assisted Rental Housing Units - Identifies multifamily rental developments that receive funding assistance under federal, state, and local government programs to offer affordable housing as reported by the Shimberg Center for Housing Studies, University of Florida.

- Mobile Home Parks - Identifies approved or acknowledged mobile home parks reported by the Florida Department of Business and Professional Regulation and Florida Department of Health.
- Migrant Camps - Identifies migrant labor camp facilities inspected by the Florida Department of Health.
- Group Care Facilities - Identifies group care facilities inspected by the Florida Department of Health.
- Community Center and Fraternal Association Facilities - Identifies facilities reported by multiple sources.
- Law Enforcement Correctional Facilities - Identifies facilities reported by multiple sources.
- Cultural Centers - Identifies cultural centers including organizations, buildings, or complexes that promote culture and arts (e.g., aquariums and zoological facilities; arboreta and botanical gardens; dinner theaters; drive-ins; historical places and services; libraries; motion picture theaters; museums and art galleries; performing arts centers; performing arts theaters; planetariums; studios and art galleries; and theater producers stage facilities) reported by multiple sources.
- Fire Department and Rescue Station Facilities - Identifies facilities reported by multiple sources.
- Government Buildings - Identifies local, state, and federal government buildings reported by multiple sources.
- Health Care Facilities - Identifies health care facilities including abortion clinics, dialysis clinics, medical doctors, nursing homes, osteopaths, state laboratories/clinics, and surgicenters/walk-in clinics reported by the Florida Department of Health.
- Hospital Facilities - Identifies hospital facilities reported by multiple sources.
- Law Enforcement Facilities - Identifies law enforcement facilities reported by multiple sources.
- Parks and Recreational Facilities - Identifies parks and recreational facilities reported by multiple sources.
- Religious Center Facilities - Identifies religious centers including churches, temples, synagogues, mosques, chapels, centers, and other types of religious facilities reported by multiple sources.
- Private and Public Schools - Identifies private and public schools reported by multiple sources.
- Social Service Centers - Identifies social service centers reported by multiple sources.
- Veteran Organizations and Facilities

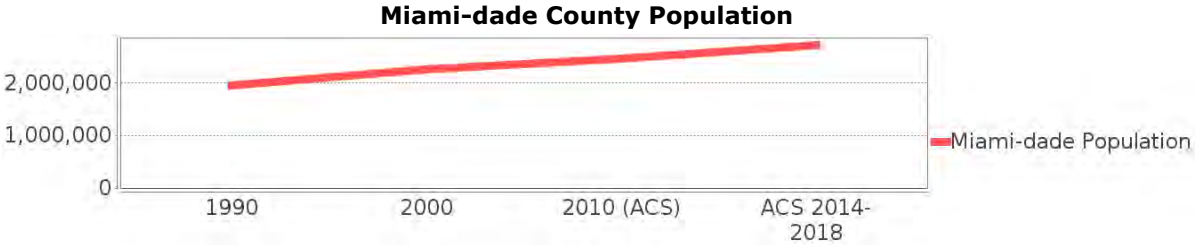
Miami-dade County Demographic Profile

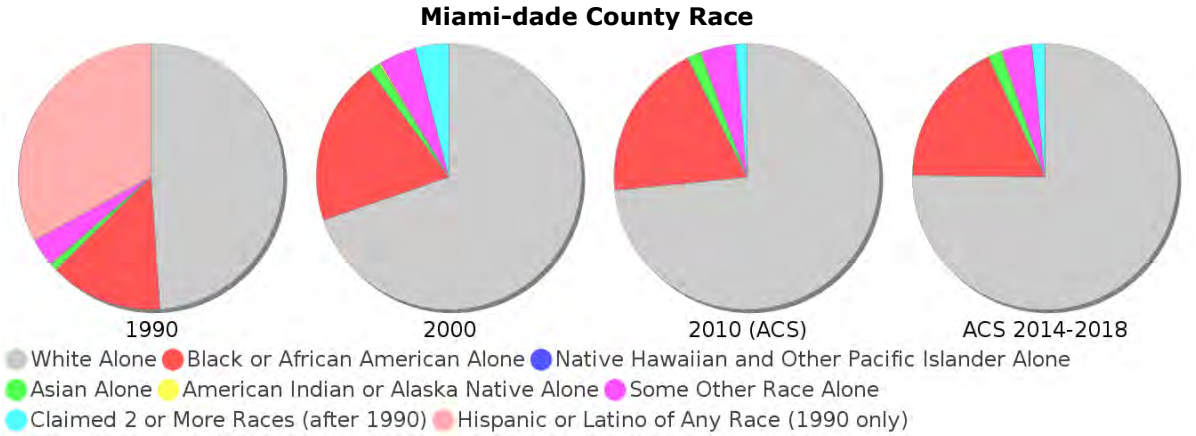
General Population Trends - Miami-dade

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Total Population	1,937,094	2,253,362	2,445,374	2,715,516
Total Households	692,355	776,774	827,556	870,051
Average Persons per Acre	1.528	1.774	1.925	2.14
Average Persons per Household	2.798	2.84	3.00	3.07
Average Persons per Family	3.413	3.488	3.591	3.88
Males	928,411	1,086,558	1,182,784	1,318,627
Females	1,008,683	1,166,804	1,262,590	1,396,889

Race and Ethnicity Trends - Miami-dade

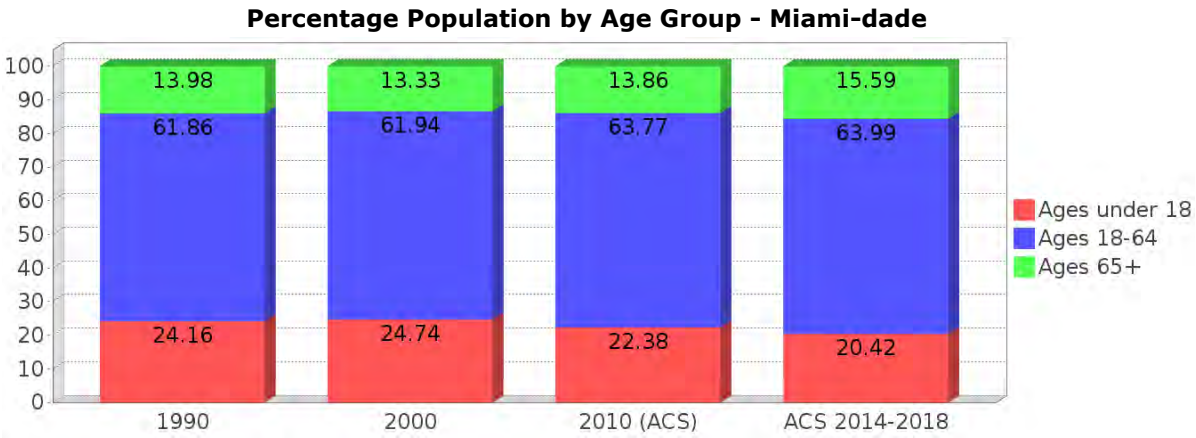
Description	1990	2000	2010 (ACS)	ACS 2014-2018
White Alone	1,413,015 (72.95%)	1,570,990 (69.72%)	1,794,730 (73.39%)	2,041,796 (75.19%)
Black or African American Alone	397,993 (20.55%)	452,333 (20.07%)	470,326 (19.23%)	481,976 (17.75%)
Native Hawaiian and Other Pacific Islander Alone	(NA)	605 (0.03%)	649 (0.03%)	751 (0.03%)
Asian Alone	25,869 (1.34%)	30,692 (1.36%)	38,813 (1.59%)	43,289 (1.59%)
American Indian or Alaska Native Alone	3,066 (0.16%)	4,841 (0.21%)	3,572 (0.15%)	4,668 (0.17%)
Some Other Race Alone	96,713 (4.99%)	102,436 (4.55%)	102,938 (4.21%)	100,332 (3.69%)
Claimed 2 or More Races	(NA)	91,465 (4.06%)	34,346 (1.40%)	42,704 (1.57%)
Hispanic or Latino of Any Race	953,407 (49.22%)	1,291,681 (57.32%)	1,565,410 (64.02%)	1,845,646 (67.97%)
Not Hispanic or Latino	983,687 (50.78%)	961,681 (42.68%)	879,964 (35.98%)	869,870 (32.03%)
Minority	1,351,487 (69.77%)	1,787,468 (79.32%)	2,112,884 (86.40%)	2,350,385 (86.55%)





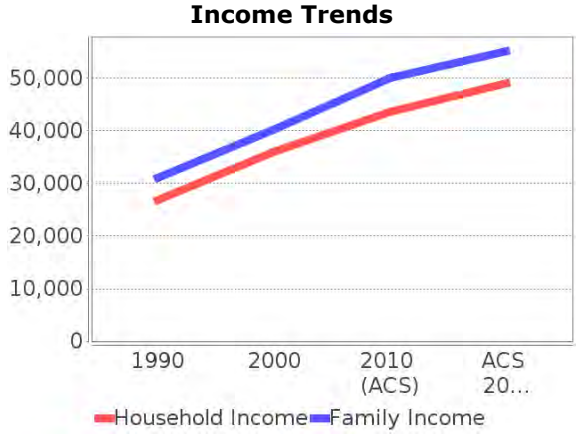
Age Trends - Miami-dade

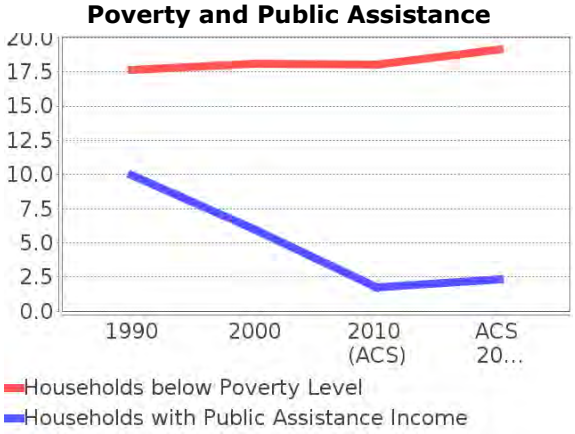
Description	1990	2000	2010 (ACS)	ACS 2014-2018
Under Age 5	7.21%	6.43%	6.20%	5.80%
Ages 5-17	16.95%	18.31%	16.18%	14.62%
Ages 18-21	5.60%	5.24%	5.83%	4.97%
Ages 22-29	13.10%	10.97%	10.98%	11.07%
Ages 30-39	16.06%	16.33%	14.14%	13.88%
Ages 40-49	12.47%	14.49%	15.67%	14.52%
Ages 50-64	14.63%	14.90%	17.15%	19.55%
Age 65 and Over	13.98%	13.33%	13.86%	15.59%
-Ages 65-74	7.54%	7.23%	7.34%	8.33%
-Ages 75-84	4.88%	4.41%	4.71%	4.99%
-Age 85 and Over	1.55%	1.69%	1.81%	2.26%
Median Age	NA	36	38	39.7



Income Trends - Miami-dade

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Median Household Income	$26,909	$35,966	$43,605	$48,982
Median Family Income	$31,113	$40,260	$50,065	$55,111
Population below Poverty Level	17.94%	17.97%	17.18%	18.04%
Households below Poverty Level	17.62%	18.10%	18.02%	19.14%
Households with Public Assistance Income	9.96%	6.01%	1.74%	2.36%





Disability Trends - Miami-dade

See the Data Sources section below for an explanation about the differences in disability data among the various years.

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Population 16 To 64 Years with a disability	78,949 (5.28%)	324,062 (15.60%)	NA (NA)	NA (NA)
Population 20 To 64 Years with a disability	NA (NA)	NA (NA)	NA (NA)	112,608 (6.81%)

Educational Attainment Trends - Miami-dade

Age 25 and Over

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Less than 9th Grade	228,426 (17.83%)	219,066 (14.68%)	202,413 (12.23%)	191,214 (9.94%)
9th to 12th Grade, No Diploma	219,856 (17.16%)	260,287 (17.45%)	178,335 (10.77%)	164,661 (8.56%)
High School Graduate or Higher	833,013 (65.01%)	1,012,436 (67.87%)	1,274,809 (77.00%)	1,566,993 (81.49%)
Bachelor's Degree or Higher	240,460 (18.77%)	323,399 (21.68%)	434,574 (26.25%)	553,997 (28.81%)

Language Trends - Miami-dade

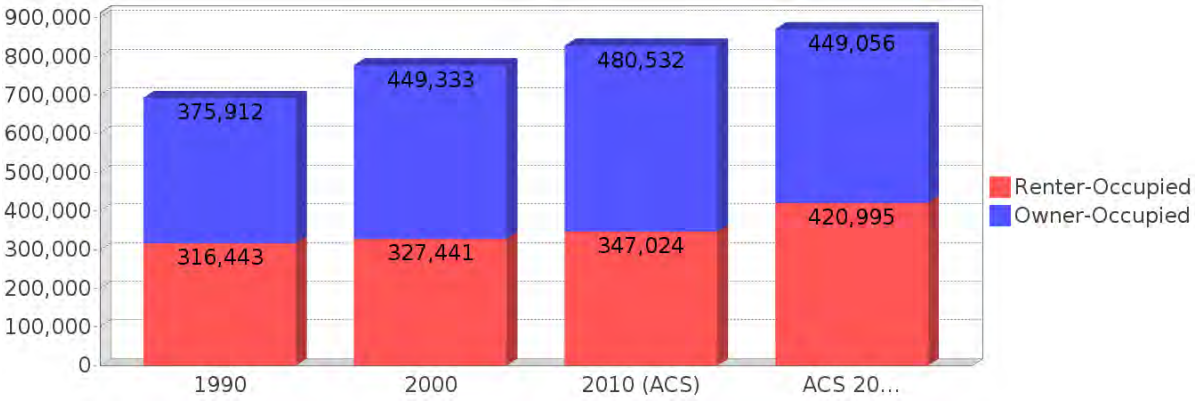
Age 5 and Over

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Speaks English Well	221,943 (12.34%)	285,783 (13.55%)	302,397 (13.18%)	333,962 (13.06%)
Speaks English Not Well	NA (NA)	261,782 (12.42%)	294,777 (12.85%)	321,520 (12.57%)
Speaks English Not at All	NA (NA)	184,249 (8.74%)	217,650 (9.49%)	234,290 (9.16%)
Speaks English Not Well or Not at All	341,005 (18.96%)	446,031 (21.15%)	512,427 (22.34%)	555,810 (21.73%)

Housing Trends - Miami-dade

Description	1990	2000	2010 (ACS)	ACS 2014-2018
Total	771,288	852,278	980,580	1,016,653
Units per Acre	0.608	0.671	0.772	0.80
Single-Family Units	365,600	448,569	508,364	504,591
Multi-Family Units	301,870	387,550	457,465	498,644
Mobile Home Units	15,359	15,338	14,234	13,070
Owner-Occupied Units	375,912	449,333	480,532	449,056
Renter-Occupied Units	316,443	327,441	347,024	420,995
Vacant Units	78,933	75,504	153,024	146,602
Median Housing Value	$86,000	$113,200	$269,600	$268,200
Occupied Housing Units w/No Vehicle	110,809 (16.00%)	111,323 (14.33%)	91,558 (11.06%)	90,236 (10.37%)

Housing Tenure - Miami-dade



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source:
https://www.census.gov/people/disability/methodology/acs.html
https://www.census.gov/population/www/cen2000/90vs00/index.html

The category Bachelor's Degree or Higher under the heading Educational Attainment Trends is a subset of the category High School Graduate or Higher.

Metadata

- Community and Fraternal Centers https://etdmpub.fla-etat.org/meta/gc_communitycenter.xml
- Correctional Facilities in Florida https://etdmpub.fla-etat.org/meta/gc_correctional.xml
- Cultural Centers in Florida https://etdmpub.fla-etat.org/meta/gc_culturecenter.xml
- Fire Department and Rescue Station Facilities in Florida https://etdmpub.fla-etat.org/meta/gc_firestat.xml
- Local, State, and Federal Government Buildings in Florida https://etdmpub.fla-etat.org/meta/gc_govbuild.xml
- Florida Health Care Facilities https://etdmpub.fla-etat.org/meta/gc_health.xml
- Hospital Facilities in Florida https://etdmpub.fla-etat.org/meta/gc_hospitals.xml
- Law Enforcement Facilities in Florida https://etdmpub.fla-etat.org/meta/gc_lawenforce.xml
- Florida Parks and Recreational Facilities https://etdmpub.fla-etat.org/meta/gc_parks.xml
- Religious Centers https://etdmpub.fla-etat.org/meta/gc_religion.xml
- Florida Public and Private Schools https://etdmpub.fla-etat.org/meta/gc_schools.xml
- Social Service Centers https://etdmpub.fla-etat.org/meta/gc_socialservice.xml
- Assisted Rental Housing Units in Florida https://etdmpub.fla-etat.org/meta/gc_assisted_housing.xml
- Group Care Facilities https://etdmpub.fla-etat.org/meta/groupcare.xml
- Mobile Home Parks in Florida https://etdmpub.fla-etat.org/meta/gc_mobilehomes.xml
- Migrant Camps in Florida https://etdmpub.fla-etat.org/meta/migrant.xml
- Veteran Organizations and Facilities https://etdmpub.fla-etat.org/meta/gc_veterans.xml
- Generalized Land Use - Florida DOT District 6 https://etdmpub.fla-etat.org/meta/d6_lu_gen.xml
- Census Block Groups in Florida https://etdmpub.fla-etat.org/meta/e2_cenacs_cci.xml
- 1990 Census Block Groups in Florida https://etdmpub.fla-etat.org/meta/e2_cenblkgrp_1990_cci.xml
- 2000 Census Block Groups in Florida https://etdmpub.fla-etat.org/meta/e2_cenblkgrp_2000_cci.xml
- 2010 Census Block Groups in Florida https://etdmpub.fla-etat.org/meta/e2_cenblkgrp_2010_cci.xml

APPENDIX C:

INITIAL STAKEHOLDERS CONTACT LIST

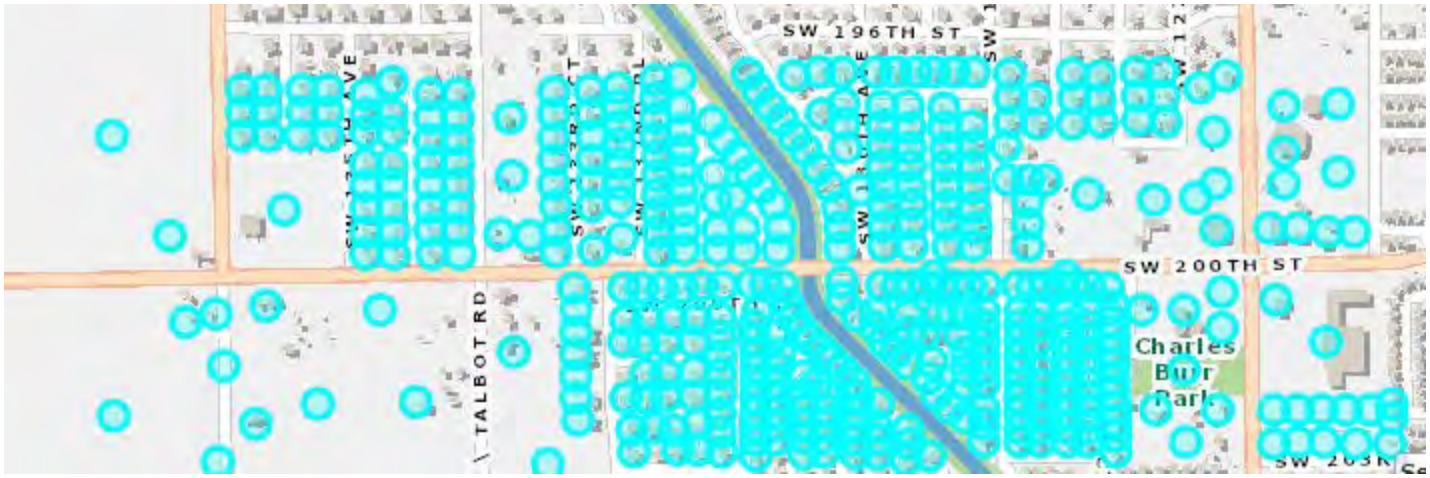
Stakeholders

	LETTER GREETING NAME	ENVELOPE LABEL NAME	TITLE	MUNICIPALITY/COMPANY	St ADDRESS	CITY	STATE	ZIPCODE	PHONE	FAX	EMAIL
MUNICIPALITIES	Ms. Rodriguez	Ms. Elsa Rodriguez	District Secretary, 120	Florida House of Representatives	1102 The Capitol 402 S Monroe St	Tallahassee	FL	32399	850-717-5120		Elsa.Rodriguez@myfloridahouse.gov
	Mr. Ferro	Mr. Alex Ferro	Chief of Staff, District 26	U.S. House of Representatives	419 Cannon House Office Building	Washington	DC	20515	305-222-0160 ; 205-225-2778		alex.ferro@mail.house.gov
	Ms. Padron	Ms. Lea Padron	Regional Director, Senator Rubio	United States Senate	7400 SW 87th Avenue, Suite 270	Miami	FL	33173	305-596-4224, Cell: 786-575-3016		lea_padron@rubio.senate.gov
	Mr. Foltz	Mr. John Foltz	Legislative Director, Senator Scott	United States Senate	716 Hart Senate Office Building	Washington	DC	20510	202- 224-5274		john_foltz@rickscott.senate.gov
	Ms. Lofton	Ms. Janeen Lofton	Legislative Assistant, District 40	Florida State Senate	9100 South Dadeland Boulevard	Miami	FL	33176	305-596-3003		Lofton.janeen@flsenate.gov
	Mr. Arian Monzon	Mr. Arian Monzon	District Secretary, 39	Florida State Senate	318 Senate Building 404 S Monroe St	Tallahassee	FL	32399	850-487-5039		Monzon.Arian@flsenate.gov
	Ms. Hegedus	Ms. Irene Hegedus	Chief of Transportation Enhancements	Miami-Dade County	701 NW 1 Ct, Suite 1700	Miami	FL	33136	786-469-5675	305-375-1262	ihegedus@miamidade.gov
	Ms. Delgado	Ms. Ilene Delgado	Chief of Marketing	Miami-Dade County	701 NW 1 Ct, Suite 1700	Miami	FL	33136	786-469-5675		ilieend@miamidade.gov
	Ms. Lopez	Ms. Jennie Lopez	DTPW's Public Works PIO	Miami-Dade County	112 NW 1 St, Suite 2910	Miami	FL	33128	786-469-5420		Jennie.Lopez@miamidade.gov
	Mr. Espinoza	Mr. Luis Espinoza	DTPW's Transit PIO	Miami-Dade County	113 NW 1 St, Suite 2910	Miami	FL	33128	786-469-5365		Luis.Espinoza@miamidade.gov
	Ms. Carol Gustafson	Ms. Carol Gustafson	Executive Assistant, District 8	Miami-Dade County	111 NW 1st Street, Suite 220	Miami	FL	33128	305-375-5218	305-253-7495	Carol.Gustafson@miamidade.gov
	Ms. Luciani	Ms. Erika Luciani	Administrative Operations Specialist/Management and Budget	Miami-Dade County	111 NW 1 St, Suite 250	Miami	FL	33128	305-375-5367	305-375-2099	erika.luciani@miamidade.gov
	Ms. Soto	Ms. Elizabeth Soto	Clerk of The Courts Secretary	Miami-Dade County	73 W Flagler St, Ste 133	Miami	FL	33130	305-349-7403		HARVEY@miamidade.gov
	Mr. Garcia	Mr. Pedro J. Garcia	Property Appraiser	Miami-Dade County	111 NW 1 St, Ste 710	Miami	FL	33128	305-375-4712		mdcpa@mdcpa.net ; pagio@mdcpa.net
	Ms. White	Ms. Christina White	Supervisor of Elections	Miami-Dade County	2700 NW 87 Ave	Miami	FL	33172	305-499-8683		swedade@miamidade.gov
	Mr. Fernandez	Mr. Michael J. Fernandez	Director of Solid Waste	Miami-Dade County	2525 NW 62 St	Miami	FL	33147	305-514-0666		dswm@miamidade.gov
	Mr. Cueto	Mr. Joseenrique Cueto	Director Miami-Dade Water and Sewer Department (WASD)	Miami-Dade County	3071 SW 38 Ave	Miami	FL	33146	305-665-7477	305-655-7477	Joseenrique.Cueto@miamidade.gov
	Mr. Palacio	Mr. Ignacio Palacio	Department of Safety, Environment, and Hazards District Coordinator	Miami-Dade County Public Schools	12525 NW 28 Ave	Miami	FL	33167	305-995-4090		ipalacio@dadeschools.net
	Mr. Martin	Mr. Juan Martin	Traffic Safety Coordinator	Miami-Dade County Public Schools	12525 NW 28 Ave	Miami	FL	33167	843-469-1340		jcmartin@dadeschools.net
	Ms. Diaz	Ms. Amarylys Diaz	Administrative Assistant, District 7	Miami-Dade County Public Schools	1450 NE 2 Avenue	Miami	FL	33132	305-995-1334	305-995-2765	amdiaz@dadeschools.net
	Ms. Garcia	Ms. Teresita Garcia	Public Information Manager	Miami-Dade Expressway Authority	3790 NW 21 Street	Miami	FL	33142	786-277-9292		tgarcia@mdxway.com
	Ms. Navia Lobo	Ms. Maria Luisa Navia Lobo	Board Secretary	Miami-Dade Expressway Authority	3790 NW 21 Street	Miami	FL	33142	305-637-3277 Ext. 2201		boardsecretary@mdxway.com
	Major Dellapietra	Major Christopher Dellapietra	Troop E Commander, Miami	Florida Highway Patrol	1011 NW 111 Ave	Miami	FL	33172	305-470-2500		chrisdellapietra@flhsmv.gov
	Lieutenant Camacho	Lieutenant Alejandro Camacho	Troop E, Miami, Public Affairs Officer	Florida Highway Patrol	1011 NW 111 Ave	Miami	FL	33172	305-308-0586		alejandrocamacho@flhsmv.gov
SCHOOLS & ASSOCIATIONS ALONG THE CORRIDOR	Darrin Johns	Pastor Johns	Pastor	Calvary Pentecostal Church of Kendall	19901 SW 137 Ave	Miami	FL	33177	305-233-3479		info@calvarypcmiami.com
	Management		Management	Upper Room	19701 SW 127 Ave	Miami	FL	33177	305-251-0876		N/A
	Management		Management	River of Life Church	12775 SW 204 Ln	Miami	FL	33177	305-252-6544		N/A
			Management	San Lazaro Church	Quail Heights	Homestead	FL	33187	N/A		N/A
	Management		Management	Eternity Life	13126 SW 196 St	Miami	FL	33177	305-235-6599		N/A
	Dr. M. Kristina Ledo	Dr. Ledo	Principal	Academir Charter School Preparatory	19185 SW 127 Ave	Miami	FL	33177	305-964-7542		mkledo@dadeschools.net
	Maria E. Calvet-Cuba	Ms. Calvet-Cuba	Principal	Caribbean K-8 Center	11990 SW 200 St	Miami	FL	33177	305-233-7131		CK8@dadeschools.net
	Humberto J. Miret	Mr. Miret	Principal	Miami Southridge Senior High School	19355 SW 114 Ave	Miami	FL	33157	305-238-6110		hmiret@dadeschools.net
	Dr. Yolanda D. Green-Samuel	Dr. Green-Samuel	Principal	South Miami Heights Elementary	12231 SW 190 Terr	Miami	FL	33177	305-238-6610		YGreen@dadeschools.net
	Annette Cacicedo	Ms. Annette Cacicedo	Director	Kids Learning Center-South Dade	11500 Quail Roost Dr	Miami	FL	33177	786-573-3017		klcmain@klcschools.com ; acacicedo@klcschools.com
	Elianeys Basulto	Ms. Elianeys Basulto	Principal	Pinevilla Elementary	21300 SW 122 Ave	Miami	FL	33177	305-258-5366		pr4461@dadeschools.net
			Principal	Florida Technical College - South Miami Campus	20505 S Dixie Hwy	Miami	FL	33189	786-405-1100		info@ftccollege.edu
	Maria Costa	Ms. Maria Costa	Principal	Herbert A. Ammons Middle School	17990 SW 142 Ave	Miami	FL	33177	305-971-0158		costam@dadeschools.net
	Kenneth Williams	Mr. Kenneth Williams	Principal	Robert Morgan High School	18180 SW 122 Ave	Miami	FL	33177	305-259-2881		kenwilliams@dadeschools.net
	Suzette Ruiz	Ms. Ruiz	Principal	Somerset Academy	18491 SW 134 Ave	Miami	FL	33177	305-969-6074		sruiz@somersetdade.com
	Management		Principal/Management	Sponsor-A-Scholar Foundation	12654 SW 190 Terr	Miami	FL	33177	786-552-2625		N/A
			Principal/Management	Florida Trucking Association	350 East College Avenue	Tallahassee	FL	32301	704-234-6005	877-722-6005	N/A
	James Pierce	Mr. James Pierce	Executive Director	Dade County Farm Bureau	1850 Old Dixie Hwy	Homestead	FL	33033	305-246-5514		James.Pierce@fbic.com
			Principal/Management	Community Council 24	111 NW 1st St, 11 FLR	Miami	FL	33128	305-375-2800		dpnz@miamidade.gov ; MediaRER@miamidade.gov
			Principal/Management	Chamber South	6410 SW 80 St	South Miami	FL	33143	305-661-1621		info@chambersouth.com
			Principal/Management	South Dade Chamber of Commerce	47 N Krome Ave	Homestead	FL	33030	305-247-2332		sdccinfo@southdadechamber.org
	Management		Principal/Management	Cutler Bay Business Association	12915 SW 207 St	Miami	FL	33177	N/A		N/A
	Management		Principal/Management	Association-Exchange & Development	12812 SW 209 St	Miami	FL	33177	N/A		N/A
			Public Information Officer	Miami Dade Fire Rescue 52	12105 Quail Roost Dr	Miami	FL	33177	786-331-5000		mdfrpio@miamidade.gov
	Raeann Bacchus	Ms. Bacchus	Regional Managing Director	Florida Department of Children and Families	12340 Quail Roost Dr	Miami	FL	33177	305-506-3475		N/A
	Patky Changkachith	Mr. Changkachith	Major	South District Police Station	10800 SW 211 St	Cutler Bay	FL	33189	305-232-2918		sta04info@mdpd.com
Businesses			Management	Grandpa's Resort at Rustic Hill	20104 SW 129 Pl	Miami	FL	33177	N/A		N/A
	Javier A. Betancourt	Mr. Betancourt	Executive Director, Office of the Citizens' Independent Transportation Trust (CITT)	Office of the Citizens' Independent Transportation Trust (CITT)	111 NW 1st Street, Suite 1010	Miami	FL	33128	305-375-1357		Javier.Betancourt@miamidade.gov
			Management	Richard Lyons' Nursery	20200 SW 134 Ave	Miami	FL	33177	305-251-6293		N/A
			Management	Tamiami Nurseries	20245 SW 134 Ave	Miami	FL	33177	305-252-3213		N/A
			Management	Cutter Joe Landscape Management	20533 SW 133 Ave	Miami	FL	33177	305-290-1668		juniormartinez560@yahoo.com
			Management	Matrix Tactical	20800 SW 134 Ave	Miami	FL	33177	786-458-3130		N/A
			Management	Positive Store 27	13551 SW 208 St	Miami	FL	33177	786-560-4766		positivestore27@gmail.com
			Management	Felicia's Farms	20508 SW 140 Ave	Miami	FL	33177	786-402-3297		N/A
	Taryn Sport Vincent	Ms. Sport Vincent	Founder	Sport Horse Stables	19525 SW 142 Ave	Miami	FL	33177	305-360-4104		taryn@sporthorsestable.com
			Management	De Colors Painting	13235 SW 205 Ln	Miami	FL	33177	305-278-1100		N/A
			Management	Irma Floral Design	20220 SW 132 Ave	Miami	FL	33177	786-873-0762		N/A
			Management	Floridian Finance Brokers	20782 SW 129 Pl	Miami	FL	33177	305-969-6253		N/A
			Management	Blue Diamond Auto Leasing	13191 SW 200 Terr	Miami	FL	33177	954-534-5016		eric@bluediamondautoleasing.com
			Management	Dr. Horton	19971 SW 132 Pl	Miami	FL	33177	N/A		N/A
			Management	Residential House	19880 SW 132 Ct	Miami	FL	33177	N/A		N/A
			Management	Gator Pools & Spa Construction	13295 SW 200 St	Miami	FL	33177	305-222-2220		gatorpools@gatorpoolsandspa.com
			Management	Charles Burr Park	20100 Burr Rd	Miami	FL	33177	N/A		N/A
	Maria Brous	Ms. Brous	Director of Communications	Publix Super Market	20201 SW 127 Ave	Miami	FL	33177	863-688-1188 ext. 55339		maria.brous@publix.com
			Management	7-Eleven	12720 SW 200 St	Miami	FL	33177	305-971-0694		N/A
			Management	Walgreens	12711 SW 200 St	Miami	FL	33177	305-506-0562		N/A
			Management	O'Reilly Auto Parts	19870 SW 127 Ave	Miami	FL	33177	305-702-9071		N/A
	Ron Magill	Mr. Ron Magill	Communications Director	Zoo Miami	12400 SW 152 St	Miami	FL	33177	305-251-0400		rmagill@miamidade.gov
			Management	George's Farm	20165 FL-997	Miami	FL	33187	305-431-8405		N/A
			Management	Grapeyard Nursery	16701 SW 200 St	Miami	FL	33187	305-252-8524		N/A
			Management	Pure Beauty Farms	16350 SW 200 St	Miami	FL	33187	305-255-0422		N/A
			Management	Country Garden Nursery	15210 SW 200 St	Miami	FL	33187	305-233-9033		sales@bromeliadworld.com
			Management	All Smooth Lawn	15890 SW 200 St	Miami	FL	33187	305-238-8694		N/A
			Management	Benmarqz Nursery & Landscaping	13400 SW 200 St	Miami	FL	33177	786-379-0885		N/A
			Management	AutoZone	12695 SW 200 St	Miami	FL	33177	305-232-9953		N/A

APPENDIX D:

INITIAL PROPERTY OWNER MAP AND MAILING LIST

GIS Property Pull - 500 Feet



Property Owners/Current Occupants

FOLIO	Property Owner Name	Or Current Occupant	Mailing Street Address	Mailing City and State	Mailing Zip Code
3069120480010	BANK OF AMERICA NA	OR CURRENT OCCUPANT	101 N TRYON ST	CHARLOTTE, NC	28255
3069020270020	19870 SW 127TH AVE	OR CURRENT OCCUPANT	107 S BRUNSWICK AVE	MARGATE, NJ	8402
3069100000025	MIAMI DADE COUNTY	OR CURRENT OCCUPANT	111 NW 1 ST STE 1610	MIAMI, FL	33128
3069110010011	POINTE QUAIL INVESTMENTS	OR CURRENT OCCUPANT	1132 KANE CONCOURSE 2FL	BAY HARBOR ISLAND, FL	33154
3069110130590	ULISES RAUDEZ	OR CURRENT OCCUPANT	1213 GLYNN R ARCHER JR DR LOT 201	KEY WEST, FL	33040-4157
3069010040220	AUTOZONE STORES	OR CURRENT OCCUPANT	123 SOUTH ST 8700	MEMPHIS, TN	38103
3069110000070	LYONS	OR CURRENT OCCUPANT	1230 NW 7 ST	MIAMI, FL	33125-3702
3069110090020	MIGUEL DE ARMAS	OR CURRENT OCCUPANT	12305 SW 255 TER	HOMESTEAD, FL	33032
3069110090210	LARRY LAZ GARCIA	OR CURRENT OCCUPANT	12342 SW 145TH ST	MIAMI, FL	33186-7414
3069120340610	MABEL CASTILLO	OR CURRENT OCCUPANT	12481 SW 203 ST	MIAMI, FL	33177
3069120510050	ROGER HERNANDEZ	OR CURRENT OCCUPANT	12501 SW 202 LN	MIAMI, FL	33177
3069120510060	ALEXANDER MILAN	OR CURRENT OCCUPANT	12502 SW 202 LN	MIAMI, FL	33177
3069010040131	CURRENT OCCUPANT		12555 QUAIL ROOST DR	Miami, FL	33177-4924
3069120510040	YIPSY PEREZ SANCHEZ	OR CURRENT OCCUPANT	12561 SW 202 LN	MIAMI, FL	33177
3069120510030	LIERNE FRANK GOMEZ	OR CURRENT OCCUPANT	12601 SW 202 LN	MIAMI, FL	33177
3069120510070	HAROLD F SILVA	OR CURRENT OCCUPANT	12602 SW 202 LN	MIAMI, FL	33177
3069120510020	JENNY L MENJIVAR	OR CURRENT OCCUPANT	12631 SW 202 LN	MIAMI, FL	33177
3069120510080	CURRENT OCCUPANT		12632 SW 202 LN	Miami, FL	33177-0000
3069120510010	YUDANIS LEDESMA	OR CURRENT OCCUPANT	12661 SW 202 LN	MIAMI, FL	33177
3069120510090	ALBERT MESA	OR CURRENT OCCUPANT	12662 SW 202 LN	MIAMI, FL	33177
3069010040230	CURRENT OCCUPANT		12685 SW 200 ST	Miami, FL	33177-4926
3069010040220	CURRENT OCCUPANT		12695 SW 200 ST	Miami, FL	33177-4926
3069020270010	CURRENT OCCUPANT		12711 QUAIL ROOST DR	Miami, FL	33177-4817
3069110200020	CURRENT OCCUPANT		12720 SW 200 ST	Miami, FL	33177-4818
3069110010011	CURRENT OCCUPANT		12740 SW 200 ST	Miami, FL	33177-4818
3069020010610	PEACE UNITED METHODIST CHURCH	OR CURRENT OCCUPANT	12755 QUAIL ROOST DR	MIAMI, FL	33177
3069110010012	PERRINE CHURCH OF CHRIST	OR CURRENT OCCUPANT	12780 QUAIL ROOST DR	Miami, FL	33177
3069020020420	KENT W VIKLUND	OR CURRENT OCCUPANT	12797 SW 197 TER	MIAMI, FL	33177-4824
3069020010601	CURRENT OCCUPANT		12825 QUAIL ROOST DR	Miami, FL	33177-4806
3069110130850	JOSE M PASCUAL	OR CURRENT OCCUPANT	12831 SW 200 TER	MIAMI, FL	33177
3069020251440	JAVIER SUAREZ	OR CURRENT OCCUPANT	12832 SW 198 TER	MIAMI, FL	33177-4016

3069110130840	MAIKEL LAZO LOPEZ	OR CURRENT OCCUPANT	12841 SW 200 TER	MIAMI, FL	33177
3069110130830	JUAN C CAVERO	OR CURRENT OCCUPANT	12851 SW 200 TER	MIAMI, FL	33177-5547
3069110130820	MIGUEL A LANDESTOY	OR CURRENT OCCUPANT	12861 SW 200 TER	MIAMI, FL	33177-5547
3069020251430	CURRENT OCCUPANT		12862 SW 198 TER	Miami, FL	33177-4016
3069110130810	LOUIS CLARINGTON	OR CURRENT OCCUPANT	12871 SW 200 TER	MIAMI, FL	33177-5547
3069110130800	GREGORY PIERRE	OR CURRENT OCCUPANT	12881 SW 200 TER	MIAMI, FL	33177
3069020251360	CURRENT OCCUPANT		12891 SW 198 TER	Miami, FL	33177-4017
3069110130790	MITCHELL MIRABAL	OR CURRENT OCCUPANT	12891 SW 200 TER	Miami, FL	33177
3069020251420	MARTHA L VALENCIA	OR CURRENT OCCUPANT	12892 SW 198 TER	MIAMI, FL	33177
3069020251010	GEORGE MONTES	OR CURRENT OCCUPANT	12901 SW 197 ST	MIAMI, FL	33177
3069110130080	CURRENT OCCUPANT		12901 SW 200 TER	Miami, FL	33177-5546
3069110130070	JULIO C NATERA JR	OR CURRENT OCCUPANT	12911 SW 200 TER	MIAMI, FL	33177
3069110130130	MAGALY ROCHER	OR CURRENT OCCUPANT	12912 SW 200 TER	MIAMI, FL	33177-5545
3069110130350	ALBA BELLO	OR CURRENT OCCUPANT	12914 SW 202 ST	MIAMI, FL	33177
3069020251020	ARELIS M RIVERA	OR CURRENT OCCUPANT	12917 SW 197 ST	MIAMI, FL	33177
3069110130060	JAMES BARETTA NELSON	OR CURRENT OCCUPANT	12921 SW 200 TER	MIAMI, FL	33177
3069110130120	WINGROVE N WARD	OR CURRENT OCCUPANT	12922 SW 200 TER	MIAMI, FL	33177-5545
3069110130230	FRANCYS S SOZA LUGO	OR CURRENT OCCUPANT	12923 SW 201 TER	MIAMI, FL	33177-5548
3069110130050	SERGIO HERNANDEZ	OR CURRENT OCCUPANT	12931 SW 200 TER	MIAMI, FL	33177-5546
3069110130110	DIANNE FERRER SINGH	OR CURRENT OCCUPANT	12932 SW 200 TER	MIAMI, FL	33177-5545
3069020251030	VALLY J BASTIEN	OR CURRENT OCCUPANT	12933 SW 197 ST	MIAMI, FL	33177
3069110130040	JOSE E ORTIZ	OR CURRENT OCCUPANT	12941 SW 200 TER	MIAMI, FL	33177-5546
3069110130250	DORIS ALMONTE	OR CURRENT OCCUPANT	12943 SW 201 TER	MIAMI, FL	33177-5548
3069120510080	ERNESTO ABREU LOPEZ	OR CURRENT OCCUPANT	12949 SW 134 TER	MIAMI, FL	33186
3069020251040	AAM TRANSPORT	OR CURRENT OCCUPANT	12949 SW 197 ST	MIAMI, FL	33177
3069110130030	ANNA CHERINGTON	OR CURRENT OCCUPANT	12951 SW 200 TER	MIAMI, FL	33177-5546
3069110130090	JUAN C GONZALEZ	OR CURRENT OCCUPANT	12952 SW 200 TER	MIAMI, FL	33177-5545
3069110130020	JORGE CAMBA JR	OR CURRENT OCCUPANT	12961 SW 200 TER	MIAMI, FL	33177-5546
3069020251050	CURRENT OCCUPANT		12965 SW 197 ST	Miami, FL	33177-4808
3069110130010	KARINA MARTY	OR CURRENT OCCUPANT	12971 SW 200 TER	MIAMI, FL	33177-5546
3069020251060	OMAR BLANCO	OR CURRENT OCCUPANT	12981 SW 197 ST	MIAMI, FL	33177
3069020250590	AIMEE MAHARAJ	OR CURRENT OCCUPANT	13007 SW 197 ST	Miami, FL	33177
3069110040600	SONYA M PORTOCARRERO	OR CURRENT OCCUPANT	13031 SW 200 TER	MIAMI, FL	33177-6125

3069110040610	OSVALDO CASTRILLO RODRIGUEZ	OR CURRENT OCCUPANT	13041 SW 200 TER	MIAMI, FL	33177
3069110040430	BARBARA E PORTOCARRERO	OR CURRENT OCCUPANT	13042 SW 200TH TER	MIAMI, FL	33177-6120
3069020250580	LUIS C CHIRINO	OR CURRENT OCCUPANT	13047 SW 197 ST	MIAMI, FL	33177-4807
3069020250670	JAIME TOJEIRO	OR CURRENT OCCUPANT	13050 SW 197 ST	MIAMI, FL	33177-4815
3069020251360	ELIZABETH FERRER MARTINEZ	OR CURRENT OCCUPANT	13081 SW 194 ST	MIAMI, FL	33177
3069020250570	JUAN J FERREIRA	OR CURRENT OCCUPANT	13087 SW 197 ST	MIAMI, FL	33177
3069110040620	YUNIER CHAVIANO	OR CURRENT OCCUPANT	13101 SW 200 TER	MIAMI, FL	33177
3069110040420	RADAMES VARGAS CARRAZANA	OR CURRENT OCCUPANT	13102 SW 200 TER	MIAMI, FL	33177
3069110040630	ORESTES REANO	OR CURRENT OCCUPANT	13111 SW 200 TER	MIAMI, FL	33177-6126
3069110040640	LUZ CORDERO	OR CURRENT OCCUPANT	13121 SW 200 TER	MIAMI, FL	33177
3069110040410	KENNETH TAYLOR JR	OR CURRENT OCCUPANT	13122 SW 200 TER	MIAMI, FL	33177-6119
3069110040650	FELICIA RUBIO	OR CURRENT OCCUPANT	13131 SW 200 TER	MIAMI, FL	33177
3069020290220	LUIS ABEL NAVARRO	OR CURRENT OCCUPANT	13135 SW 199 TER	MIAMI, FL	33177
3069110040660	CARLOS MIGUEL LIMONTE	OR CURRENT OCCUPANT	13141 SW 200 TER	MIAMI, FL	33177
3069110040190	MIGUEL ANGEL VALLE	OR CURRENT OCCUPANT	13150 SW 200 TER	MIAMI, FL	33177
3069110040670	JESUS ESPINO	OR CURRENT OCCUPANT	13151 SW 200 TER	MIAMI, FL	33177
3069110040680	FELIPE CARABALLO	OR CURRENT OCCUPANT	13161 SW 200 TER	MIAMI, FL	33177-6126
3069110040690	CURRENT OCCUPANT		13171 SW 200 TER	Miami, FL	33177-6126
3069110040700	ARAIRIS P FIGUEREDO	OR CURRENT OCCUPANT	13181 SW 200 TER	MIAMI, FL	33177
3069110040710	CURRENT OCCUPANT		13191 SW 200 TER	Miami, FL	33177-6126
3069110090130	JORGE SOSA	OR CURRENT OCCUPANT	13201 SW 200 TER	MIAMI, FL	33177
3069020290230	DONALD ANDRE MINCEY	OR CURRENT OCCUPANT	13215 SW 199 TER	MIAMI, FL	33177
3069110090120	ROSA CHAVEZ	OR CURRENT OCCUPANT	13217 SW 200 TER	MIAMI, FL	33177
3069110090260	JOSE G DOMINGUEZ	OR CURRENT OCCUPANT	13217 SW 203 ST	MIAMI, FL	33177-6153
3069110090110	CURRENT OCCUPANT		13233 SW 200 TER	Miami, FL	33177-6150
3069110090270	CURRENT OCCUPANT		13233 SW 203 ST	Miami, FL	33177-6153
3069110090170	GIRALDO CARABALLO	OR CURRENT OCCUPANT	13234 SW 200 TER	MIAMI, FL	33177
3069110090420	GRACE BAPT CHU CUTLER RDG FL	OR CURRENT OCCUPANT	13235 SW 201 TER	MIAMI, FL	33177
3069110090410	VICTORIA A SO	OR CURRENT OCCUPANT	13236 SW 201 TER	MIAMI, FL	33177-6158
3069110090340	CURRENT OCCUPANT		13237 SW 202 TER	Miami, FL	33177-6157
3069110090330	LAZARO MIGUEL GONZALEZ	OR CURRENT OCCUPANT	13238 SW 202 TER	MIAMI, FL	33177
3069110090100	CARLOS V DA GAMA	OR CURRENT OCCUPANT	13249 SW 200 TER	MIAMI, FL	33177
3069110090160	JAIRO ROJAS	OR CURRENT OCCUPANT	13250 SW 200 TER	MIAMI, FL	33177-6149

3069110090430	RUBEN D VELASQUEZ	OR CURRENT OCCUPANT	13251 SW 201 TER	MIAMI, FL	33177-6159
3069110090400	SAHARA TEJERA	OR CURRENT OCCUPANT	13252 SW 201 TER	MIAMI, FL	33177
3069110090350	MARLON GRIFFITH	OR CURRENT OCCUPANT	13253 SW 202 TER	MIAMI, FL	33177
3069110090320	FELIPA B YONG	OR CURRENT OCCUPANT	13254 SW 202 TER	MIAMI, FL	33177
3069110090090	ANTAR ALBERTO TORRES	OR CURRENT OCCUPANT	13265 SW 200 TER	MIAMI, FL	33177
3069110090290	ROLANDO F ALVAREZ LE	OR CURRENT OCCUPANT	13265 SW 203 ST	MIAMI, FL	33177
3069110090150	MIRNA ARACELY ALMENDAREZ	OR CURRENT OCCUPANT	13266 SW 200 TER	MIAMI, FL	33177
3069110090440	DANIEL RAMIREZ	OR CURRENT OCCUPANT	13267 SW 201 TER	MIAMI, FL	33177-6159
3069110090390	FERNANDO M ESTERLICH	OR CURRENT OCCUPANT	13268 SW 201 TER	MIAMI, FL	33177
3069110090360	MARIA BETANCOURT	OR CURRENT OCCUPANT	13269 SW 202 TER	MIAMI, FL	33177-6157
3069110090310	CATHRINE RODRIGUEZ	OR CURRENT OCCUPANT	13270 SW 202 TER	MIAMI, FL	33177
3069110090080	JORGE L CAMPOS	OR CURRENT OCCUPANT	13281 SW 200 TER	MIAMI, FL	33177-6150
3069110090140	LEODAN ALVAREZ	OR CURRENT OCCUPANT	13282 SW 200 TER	MIAMI, FL	33177
3069110090450	VARADERO FASHION	OR CURRENT OCCUPANT	13283 SW 201 TER	MIAMI, FL	33177
3069110090370	MARIO R AREVALO	OR CURRENT OCCUPANT	13285 SW 202 TER	MIAMI, FL	33177-6157
3069110090300	KATY GUERRA	OR CURRENT OCCUPANT	13286 SW 202 TER	Miami, FL	33177
3069020010440	MIGUEL A CARMONA	OR CURRENT OCCUPANT	13295 SW 200 ST	MIAMI, FL	33177-6105
3069020010420	ENRIQUE A LOPEZ	OR CURRENT OCCUPANT	13355 SW 200 ST	MIAMI, FL	33177-6107
3069110000050	CURRENT OCCUPANT		13390 SW 200 ST	Miami, FL	33177-6108
3069020010424	CURRENT OCCUPANT		13395 SW 200 ST	Miami, FL	33177-6107
3069110000030	CURRENT OCCUPANT		13400 SW 200 ST	Miami, FL	33177-6002
3069020160310	JOSEPH M FERGUSON	OR CURRENT OCCUPANT	13490 SW 198 ST	MIAMI, FL	33177-4139
3069110000140	CURRENT OCCUPANT		13600 SW 200 ST	Miami, FL	33177-6006
3069110000071	CURRENT OCCUPANT		13602 SW 200 ST	Miami, FL	33177-6006
3069110000141	FRANCISCO FEBLES	OR CURRENT OCCUPANT	13650 QUAIL ROOST DR	MIAMI, FL	33177-6006
3069110000071	JOLO	OR CURRENT OCCUPANT	13661 DEERING BAY	MIAMI, FL	33158
3069020160270	KENOL JOSEPH	OR CURRENT OCCUPANT	1370 NW 179 ST	MIAMI, FL	33169
3069030000250	CURRENT OCCUPANT		13701 QUAIL ROOST DR	Miami, FL	33177-4709
3069110150100	LUIS A COLLADO	OR CURRENT OCCUPANT	14190 SW 152 PL	MIAMI, FL	33196
3069020160260	ANNETTA MCEACHERN	OR CURRENT OCCUPANT	14861 SW 149 ST	MIAMI, FL	33196-2360
3069020220320	JENNIFER PATINO	OR CURRENT OCCUPANT	15103 SW 141 LN	MIAMI, FL	33196
3069020251050	ERICKA CASTILLO	OR CURRENT OCCUPANT	15395 SW 168 TER	MIAMI, FL	33187
3069110090340	MISAEL OROPESA	OR CURRENT OCCUPANT	15440 SW 171 ST	MIAMI, FL	33187

3069110090110	ROSA ENRIQUETA VERDEJO	OR CURRENT OCCUPANT	1558 FAIR OAKS CT	FAIRFIELD, CA	94534
3069020010422	LEON GROUP INVESTMENT	OR CURRENT OCCUPANT	16225 SW 117 AVE D15	MIAMI, FL	33177
3069110130520	NUBIA JIMENEZ SCALES	OR CURRENT OCCUPANT	17020 SW 107 CT	MIAMI, FL	33177
3069020220280	2018 2 IH BORROWER L P	OR CURRENT OCCUPANT	1717 MAIN ST 2000	DALLAS, TX	75201
3069110130190	THR FLORIDA LP	OR CURRENT OCCUPANT	1717 MAIN ST SUITE 2000	DALLAS, TX	75201
3069100000010	JC REAL ESTATE HOLDINGS	OR CURRENT OCCUPANT	17425 SW 172 ST	MIAMI, FL	33187
3069020290030	YOLANDA DE JESUS SILVA	OR CURRENT OCCUPANT	18455 SW 202 ST	MIAMI, FL	33187
3069110130760	CERBERUS SFR HOLDINGS	OR CURRENT OCCUPANT	1850 PARKWAY PL 900	MARIETTA, GA	30067-8261
3069110200020	SOUTH WEST 200	OR CURRENT OCCUPANT	18551 NE 29 AVE 700	AVENTURA, FL	33180
3069110040030	GLOBAL CAPITAL INVESTMENTS	OR CURRENT OCCUPANT	19365 SW 132 AVE	MIAMI, FL	33177
3069020020390	MARGARET PARKER LE	OR CURRENT OCCUPANT	19620 SW 127 CT	MIAMI, FL	33177
3069020020440	MARTIN JON IGLESIAS	OR CURRENT OCCUPANT	19625 SW 128 AVE	MIAMI, FL	33177
3069020200140	RAVINDRA D SINGH	OR CURRENT OCCUPANT	19630 SW 128 AVE	MIAMI, FL	33177-4814
3069020200110	JOSE L TORIBIO	OR CURRENT OCCUPANT	19631 SW 128 CT	MIAMI, FL	33177-4825
3069020200030	JAVIER GONZALEZ	OR CURRENT OCCUPANT	19635 SW 129 AVE	MIAMI, FL	33177-4200
3069020020400	RHONAL S TICE	OR CURRENT OCCUPANT	19640 SW 127 CT	MIAMI, FL	33177-4810
3069020020430	CARMEN M COLOME	OR CURRENT OCCUPANT	19645 SW 128 AVE	MIAMI, FL	33177
3069020250780	BENIGNO MACIAS	OR CURRENT OCCUPANT	19646 SW 130 AVE RD	MIAMI, FL	33177
3069020020340	MARIO JOEL CURTIN	OR CURRENT OCCUPANT	19650 SW 127 AVE	MIAMI, FL	33177
3069020220390	SANDRA V CARRASCO MARCONE	OR CURRENT OCCUPANT	19651 SW 132 PL	MIAMI, FL	33177
3069020220230	JULIE GIZ	OR CURRENT OCCUPANT	19652 SW 132 PL	MIAMI, FL	33177
3069020220180	IRAIDA ESCALONA	OR CURRENT OCCUPANT	19653 SW 133 CT	MIAMI, FL	33177
3069020220080	JESSICA MARBET BARRIOS	OR CURRENT OCCUPANT	19654 SW 133 CT	MIAMI, FL	33177
3069020200150	CARLOS GONZALEZ BROCHE	OR CURRENT OCCUPANT	19660 SW 128 AVE	MIAMI, FL	33177-4814
3069020290090	YULIET MONTANO	OR CURRENT OCCUPANT	19660 SW 132 CT	MIAMI, FL	33177
3069020160210	JORGE LLAURO	OR CURRENT OCCUPANT	19660 SW 134 CT	MIAMI, FL	33177
3069020180180	GINA WALLACE	OR CURRENT OCCUPANT	19660 SW 135 AVE	MIAMI, FL	33177-4128
3069020200100	MARGARET T CONDE	OR CURRENT OCCUPANT	19661 SW 128 CT	MIAMI, FL	33177-4825
3069020180130	ALAIN K NAMMUR	OR CURRENT OCCUPANT	19661 SW 136 AVE	MIAMI, FL	33177
3069020180030	LAKEISHA AXEM	OR CURRENT OCCUPANT	19661 SW 137 AVE	MIAMI, FL	33177
3069020180080	JOSHUA TAYLOR	OR CURRENT OCCUPANT	19662 SW 136 AVE	MIAMI, FL	33177
3069020200070	JAVIER O CARLOS	OR CURRENT OCCUPANT	19664 SW 128 CT	MIAMI, FL	33177
3069020200020	ROBIN R SAWH	OR CURRENT OCCUPANT	19665 SW 129 AVE	MIAMI, FL	33177-4200

3069020250770	EDDIE GRIFFIN	OR CURRENT OCCUPANT	19666 SW 130 AVE RD	SOUTH MIAMI, FL	33177
3069020290080	ALEXANDER A ROSA	OR CURRENT OCCUPANT	19680 SW 132 CT	MIAMI, FL	33177
3069020250760	RODOLFO VARELA	OR CURRENT OCCUPANT	19686 SW 130 AVE RD	MIAMI, FL	33177
3069020200160	MAXIMINO MELO	OR CURRENT OCCUPANT	19700 SW 128 AVE	MIAMI, FL	33177-4816
3069020180190	JAMES TONEY	OR CURRENT OCCUPANT	19700 SW 135 AVE	MIAMI, FL	33177
3069010040150	CURRENT OCCUPANT		19701 SW 127 AVE	Miami, FL	33177-0000
3069020020350	RICHARD GUEITS	OR CURRENT OCCUPANT	19701 SW 127 CT	MIAMI, FL	33177-4811
3069020200090	MARIA V SANTANA	OR CURRENT OCCUPANT	19701 SW 128 CT	MIAMI, FL	33177-4827
3069020180120	GREGORY A BACOURT	OR CURRENT OCCUPANT	19701 SW 136 AVE	MIAMI, FL	33177
3069020180020	REINALDO R ESPINOSA	OR CURRENT OCCUPANT	19701 SW 137 AVE	MIAMI, FL	33177
3069020180090	ELLIOT CLARO	OR CURRENT OCCUPANT	19702 SW 136 AVE	MIAMI, FL	33177
3069020251320	OSVALDO ANE IGLESIAS	OR CURRENT OCCUPANT	19703 SW 129 CT	MIAMI, FL	33177
3069020200080	KAMESHWAR SEEPERSAUD	OR CURRENT OCCUPANT	19704 SW 128 CT	MIAMI, FL	33177-4828
3069020250930	LEONARDO CASTELAR	OR CURRENT OCCUPANT	19704 SW 129 CT	MIAMI, FL	33177
3069020200010	PAVEL LUZARDO	OR CURRENT OCCUPANT	19705 SW 129 AVE	MIAMI, FL	33177
3069020250920	OTREBOGIR URQUIAGA	OR CURRENT OCCUPANT	19705 SW 130 AVE	MIAMI, FL	33177
3069020290100	OSWALDO GARCIA	OR CURRENT OCCUPANT	19705 SW 132 CT	Miami, FL	33177
3069020010422	CURRENT OCCUPANT		19705 SW 134 AVE	Miami, FL	33177-4105
3069020250660	WILKIN ALEJANDRO LEONARDO	OR CURRENT OCCUPANT	19706 SW 130 AVE	MIAMI, FL	33177
3069020250750	SAMUEL ACEVEDO	OR CURRENT OCCUPANT	19706 SW 130 AVE RD	MIAMI, FL	33177
3069020290070	ELIANA ADELA EVANS	OR CURRENT OCCUPANT	19710 SW 132 CT	MIAMI, FL	33177
3069020220380	CURRENT OCCUPANT		19711 SW 132 PL	Miami, FL	33177-2932
3069020220240	MACNELY V CERVERA	OR CURRENT OCCUPANT	19712 SW 132 PL	MIAMI, FL	33177-2925
3069020220170	CARLOS A CABRERA	OR CURRENT OCCUPANT	19713 SW 133 CT	MIAMI, FL	33177
3069020220070	CARLOS A CABRERA	OR CURRENT OCCUPANT	19714 SW 133 CT	MIAMI, FL	33177-4266
3069020250740	EDUARDO F RODRIGUEZ	OR CURRENT OCCUPANT	19736 SW 130 AVE RD	MIAMI, FL	33177
3069020020410	FREDY SANCHEZ LARA	OR CURRENT OCCUPANT	19740 SW 127 CT	MIAMI, FL	33177
3069020160160	ODALMIS BARROSO RODRIGUEZ	OR CURRENT OCCUPANT	19745 SW 135 AVE	MIAMI, FL	33177
3069020160080	LILLIE B WALKER	OR CURRENT OCCUPANT	19750 SW 134 AVE	MIAMI, FL	33177-4106
3069020160200	ANGEL J SOLANO	OR CURRENT OCCUPANT	19750 SW 134 CT	MIAMI, FL	33177
3069020180200	IDA OLIVER	OR CURRENT OCCUPANT	19750 SW 135 AVE	MIAMI, FL	33177-4128
3069020220370	LUIS A LOPEZ	OR CURRENT OCCUPANT	19751 SW 132 PL	MIAMI, FL	33177
3069020180110	JEFFREY W MAJOR	OR CURRENT OCCUPANT	19751 SW 136 AVE	MIAMI, FL	33177-4146

3069020180010	NELLY CATHERINE FLORES	OR CURRENT OCCUPANT	19751 SW 137 AVE	MIAMI, FL	33177
3069020220250	GEOSVANYS DUMAS	OR CURRENT OCCUPANT	19752 SW 132 PL	MIAMI, FL	33177-2925
3069020220160	CURRENT OCCUPANT		19753 SW 133 CT	Miami, FL	33177-4273
3069020220060	CURRENT OCCUPANT		19754 SW 133 CT	Miami, FL	33177-4266
3069020160240	RUDOLPH D GRIFFITH	OR CURRENT OCCUPANT	19755 SW 134 CT	MIAMI, FL	33177-4130
3069020160170	ANNE C WALKER	OR CURRENT OCCUPANT	19755 SW 135 AVE	MIAMI, FL	33177-4129
3069020251340	WENDELL HARRIS	OR CURRENT OCCUPANT	19762 SW 129 AVE	MIAMI, FL	33177
3069020251310	CURRENT OCCUPANT		19763 SW 129 CT	Miami, FL	33177-4219
3069020251310	MALIA THERESE RIVERA	OR CURRENT OCCUPANT	19763 SW 129th Ct	Miami, FL	33177-4219
3069020250940	NHAT VAN NGUYEN	OR CURRENT OCCUPANT	19764 SW 129 CT	MIAMI, FL	33177-4218
3069020250910	VIVIANA M LABARTA	OR CURRENT OCCUPANT	19765 SW 130 AVE	MIAMI, FL	33177
3069020250650	LE TRI	OR CURRENT OCCUPANT	19766 SW 130 AVE	MIAMI, FL	33177
3069020250730	JAIMON LUKOSE	OR CURRENT OCCUPANT	19766 SW 130 AVE RD	MIAMI, FL	33177
3069020290060	JORGE VERA ALARCON	OR CURRENT OCCUPANT	19770 SW 132 CT	MIAMI, FL	33177
3069020160070	LAMEK RAMOS	OR CURRENT OCCUPANT	19770 SW 134 AVE	MIAMI, FL	33177-4106
3069020180100	REMBERTO FUENTES	OR CURRENT OCCUPANT	19770 SW 136 AVE	MIAMI, FL	33177
3069020290110	SERGIO GONZALEZ	OR CURRENT OCCUPANT	19775 SW 131 CT	MIAMI, FL	33177
3069020160060	RAUL DELGADO	OR CURRENT OCCUPANT	19790 SW 134 AVE	MIAMI, FL	33177
3069020160190	RAMIRO HIDALGO GATO	OR CURRENT OCCUPANT	19790 SW 134 CT	MIAMI, FL	33177
3069020160250	EVANGELINA BARBAN	OR CURRENT OCCUPANT	19795 SW 134 CT	MIAMI, FL	33177-4130
3069020160180	LISA PATRICE SHEESLEY	OR CURRENT OCCUPANT	19795 SW 135 AVE	MIAMI, FL	33177
3069020250640	JOHNNY R RIVERA	OR CURRENT OCCUPANT	19800 SW 130 AVE	MIAMI, FL	33177
3069020251350	MARKS BROTHERS INVESTMENT 2	OR CURRENT OCCUPANT	19802 SW 129 AVE	MIAMI, FL	33177
3069020251300	RICARDO RODRIGUEZ	OR CURRENT OCCUPANT	19803 SW 129 CT	MIAMI, FL	33177
3069020250950	PEDRO MARTINEZ	OR CURRENT OCCUPANT	19804 SW 129 CT	MIAMI, FL	33177-4226
3069020250900	RONALD SEWDAT MASIH DAS	OR CURRENT OCCUPANT	19805 SW 130 AVE	MIAMI, FL	33177
3069020010421	BERNARD B COATS	OR CURRENT OCCUPANT	19805 SW 134 AVE	MIAMI, FL	33177-4107
3069020250720	LINO DIAZ	OR CURRENT OCCUPANT	19806 SW 130 AVE RD	MIAMI, FL	33177
3069020160050	RAMKISSOON HARRACK	OR CURRENT OCCUPANT	19810 SW 134 AVE	MIAMI, FL	33157
3069020160400	CHERYL ANDERSON	OR CURRENT OCCUPANT	19810 SW 134 CT	MIAMI, FL	33177-4158
3069020220360	RAMIRO LUNA	OR CURRENT OCCUPANT	19811 SW 132 PL	MIAMI, FL	33177
3069020220260	JESUS PEREZ	OR CURRENT OCCUPANT	19812 SW 132 PL	MIAMI, FL	33177-2926
3069020220150	ORESTES PEREZ MEDEROS	OR CURRENT OCCUPANT	19813 SW 133 CT	MIAMI, FL	33177

3069020220050	DANNY NADAL	OR CURRENT OCCUPANT	19814 SW 133 CT	MIAMI, FL	33177
3069020290120	MIRIAM PEREZ	OR CURRENT OCCUPANT	19815 SW 131 CT	Miami, FL	33177
3069020290240	YUNIET CARIDAD MOYA	OR CURRENT OCCUPANT	19815 SW 132 CT	MIAMI, FL	33177
3069020290050	KENIA E CARRILLO	OR CURRENT OCCUPANT	19820 SW 132 CT	MIAMI, FL	33177
3069020160260	CURRENT OCCUPANT		19825 SW 134 CT	Miami, FL	33177-4132
3069020010586	JOSBEL FERNANDEZ ECHEVARRIA	OR CURRENT OCCUPANT	19830 SW 129 AVE	MIAMI, FL	33177
3069020160040	WILTON D WILSON	OR CURRENT OCCUPANT	19840 SW 134 AVE	MIAMI, FL	33177-4108
3069010040140	CURRENT OCCUPANT		19850 SW 125 AVE	Miami, FL	33177-4919
3069020220350	LISSETT MARIN	OR CURRENT OCCUPANT	19851 SW 132 PL	MIAMI, FL	33177
3069020220270	IVAN CORVEA	OR CURRENT OCCUPANT	19852 SW 132 PL	MIAMI, FL	33177
3069020220140	ALIAN DIAZ	OR CURRENT OCCUPANT	19853 SW 133 CT	MIAMI, FL	33177
3069020220040	YAMIL MAJAIL	OR CURRENT OCCUPANT	19854 SW 133 CT	Miami, FL	33177
3069020290130	RAFAEL RAMON GUEVARA	OR CURRENT OCCUPANT	19855 SW 131 CT	MIAMI, FL	33177
3069020250710	LEA M NODARSE	OR CURRENT OCCUPANT	19856 SW 130 AVE RD	MIAMI, FL	33177
3069020251290	RUBEN CORNEJO	OR CURRENT OCCUPANT	19863 SW 129 CT	MIAMI, FL	33177-4243
3069020250960	MARIANO LAMADRID	OR CURRENT OCCUPANT	19864 SW 129 CT	MIAMI, FL	33177
3069020250890	RENE CASTELLANOS	OR CURRENT OCCUPANT	19865 SW 130 AVE	MIAMI, FL	33177-4283
3069020270020	CURRENT OCCUPANT		19870 SW 127 AVE	Miami, FL	33177-0000
3069020010585	CHRISTOPHER BLANC	OR CURRENT OCCUPANT	19870 SW 129 AVE	MIAMI, FL	33177
3069010040200	CURRENT OCCUPANT		19875 SW 127 AVE	Miami, FL	33177-4805
3069020290040	CHRISTOPHER ALBERT QUINTANA	OR CURRENT OCCUPANT	19880 SW 132 CT	MIAMI, FL	33177
3069020160030	CURRENT OCCUPANT		19880 SW 134 AVE	Miami, FL	33177-4108
3069020290140	SERGIO FABIAN LOVAY	OR CURRENT OCCUPANT	19885 SW 131 CT	MIAMI, FL	33177
3069020251410	ARMANDO ROPERO CARTIER	OR CURRENT OCCUPANT	19891 SW 129 AVE	MIAMI, FL	33177
3069020251280	IRMA PIEDRAHITA	OR CURRENT OCCUPANT	19893 SW 129 CT	MIAMI, FL	33177-4243
3069020250970	REYKISMET ABREU TURA	OR CURRENT OCCUPANT	19894 SW 129 CT	MIAMI, FL	33177
3069020250880	ALBERTO DIAZ	OR CURRENT OCCUPANT	19895 SW 130 AVE	MIAMI, FL	33177-4283
3069020010584	LARRY CEDRIC JONES	OR CURRENT OCCUPANT	19900 SW 129 AVE	Miami, FL	33177
3069020290030	CURRENT OCCUPANT		19900 SW 132 CT	Miami, FL	33177
3069020160020	RAMON GONZALEZ	OR CURRENT OCCUPANT	19900 SW 134 AVE	MIAMI, FL	33177-4110
3069020251400	MAXIMO L CRUZ	OR CURRENT OCCUPANT	19901 SW 129 AVE	MIAMI, FL	33177-4013
3069020010410	CALVARY PENTECOSTAL CHURCH	OR CURRENT OCCUPANT	19901 SW 137 AVE	MIAMI, FL	33177
3069020251270	JUAN PERDOMO	OR CURRENT OCCUPANT	19903 SW 129 CT	MIAMI, FL	33177-4250

3069020250980	JOSE GONGORA	OR CURRENT OCCUPANT	19904 SW 129 CT	MIAMI, FL	33177
3069020250870	CALIXTO ALFONSO JR	OR CURRENT OCCUPANT	19905 SW 130 AVE	MIAMI, FL	33177
3069020290150	ANALIZ YANY MOLINA RONDON	OR CURRENT OCCUPANT	19905 SW 131 CT	Miami, FL	33177
3069020160280	HILDA LAFONT SANCHEZ	OR CURRENT OCCUPANT	19905 SW 134 ST	MIAMI, FL	33177
3069020160330	JESSICA M BAO	OR CURRENT OCCUPANT	19905 SW 135 AVE	MIAMI, FL	33177
3069020250700	MARIELA SOSA	OR CURRENT OCCUPANT	19906 SW 130 AVE RD	MIAMI, FL	33177
3069020160390	RICHARD C SANCHEZ	OR CURRENT OCCUPANT	19910 SW 134 CT	MIAMI, FL	33177-4131
3069020220340	FLORA C CHAKMAKIS	OR CURRENT OCCUPANT	19911 SW 132 PL	MIAMI, FL	33177-2930
3069020220280	CURRENT OCCUPANT		19912 SW 132 PL	Miami, FL	33177-2929
3069020220130	CESAR A MARTINEZ	OR CURRENT OCCUPANT	19913 SW 133 CT	MIAMI, FL	33177-4271
3069020220030	DENNYS CABRERA GND FOR	OR CURRENT OCCUPANT	19914 SW 133 CT	MIAMI, FL	33177-4268
3069020010583	MIRNA RAMIREZ	OR CURRENT OCCUPANT	19930 SW 129 AVE	MIAMI, FL	33177-4020
3069020220330	IDALIA REYES	OR CURRENT OCCUPANT	19931 SW 132 PL	MIAMI, FL	33177
3069020220290	CURRENT OCCUPANT		19932 SW 132 PL	Miami, FL	33177-2929
3069020220020	DOODNAUTH KHEMERAJ	OR CURRENT OCCUPANT	19934 SW 133 CT	MIAMI, FL	33177-4268
3069020290210	RODOLFO DAVID MONTEJO	OR CURRENT OCCUPANT	19940 SW 131 CT	MIAMI, FL	33177
3069020160370	DANIEL D MOELLER	OR CURRENT OCCUPANT	19940 SW 134 CT	MIAMI, FL	33177-4131
3069020290160	STEVE LEON BONWIT	OR CURRENT OCCUPANT	19945 SW 131 CT	MIAMI, FL	33177
3069020160290	ROY SHIRLEY	OR CURRENT OCCUPANT	19945 SW 134 CT	MIAMI, FL	33177-4156
3069020160340	FRANCOISE LEON	OR CURRENT OCCUPANT	19945 SW 135 AVE	MIAMI, FL	33177-4134
3069020290020	ANA JACQUELINE MARTIN	OR CURRENT OCCUPANT	19950 SW 132 CT	MIAMI, FL	33177
3069020220320	CURRENT OCCUPANT		19951 SW 132 PL	Miami, FL	33177-2930
3069020220110	DAYLENIS BARBARA I PALACIOS	OR CURRENT OCCUPANT	19953 SW 133 CT	MIAMI, FL	33177
3069020220010	CURRENT OCCUPANT		19954 SW 133 CT	Miami, FL	33177-4268
3069020290200	YANEISY MENDEZ	OR CURRENT OCCUPANT	19955 SW 132 CT	MIAMI, FL	33177
3069020251390	LAZARO IGLESIAS	OR CURRENT OCCUPANT	19961 SW 129 AVE	MIAMI, FL	33177-4013
3069020251260	EDUARDO FUENTES BLANCO	OR CURRENT OCCUPANT	19963 SW 129 CT	MIAMI, FL	33177
3069020250990	YOEL RODRIGUEZ	OR CURRENT OCCUPANT	19964 SW 129 CT	MIAMI, FL	33177
3069020250860	CHRISTIAN SILVA	OR CURRENT OCCUPANT	19965 SW 130 AVE	MIAMI, FL	33177
3069020250690	FILIBERTO J HERDOCIA	OR CURRENT OCCUPANT	19966 SW 130 AVE	MIAMI, FL	33177-4008
3069020010580	ANTONIO M PEREZ	OR CURRENT OCCUPANT	19970 SW 129 AVE	MIAMI, FL	33177
3069020290180	ISMAEL DIAZ RODRIGUEZ	OR CURRENT OCCUPANT	19970 SW 131 CT	MIAMI, FL	33177
3069020220310	CARLOS M SAN PEDRO	OR CURRENT OCCUPANT	19971 SW 132 PL	MIAMI, FL	33177

3069020290170	CURRENT OCCUPANT		19975 SW 131 CT	Miami, FL	33177
3069020290170	A&A BUSINESS CONNEXION	OR CURRENT OCCUPANT	19975 SW 131ST CT	MIAMI, FL	33177-6253
3069020160010	MANUEL CAGIGAS	OR CURRENT OCCUPANT	19980 SW 134 AVE	MIAMI, FL	33177
3069020010630	CURRENT OCCUPANT		19990 SW 127 AVE	Miami, FL	33177-4808
3069020290010	OIREMIS A ARGOTE	OR CURRENT OCCUPANT	19990 SW 132 CT	MIAMI, FL	33177
3069020160360	LILIA D JOSLYN	OR CURRENT OCCUPANT	19990 SW 134 CT	MIAMI, FL	33177
3069020220300	CURRENT OCCUPANT		19991 SW 132 PL	Miami, FL	33177-2930
3069020220300	NESTOR J MELIAN	OR CURRENT OCCUPANT	19991 SW 132ND PL	Miami, FL	33177
3069020251250	RENE VALDES	OR CURRENT OCCUPANT	19993 SW 129 CT	MIAMI, FL	33177
3069020251000	JUAN U ARIAS	OR CURRENT OCCUPANT	19994 SW 129 CT	MIAMI, FL	33177
3069020250850	ROSILENE FIGUEROA	OR CURRENT OCCUPANT	19995 SW 130 AVE	MIAMI, FL	33177
3069020290190	RAFAEL SANTANA VALLES	OR CURRENT OCCUPANT	19995 SW 132 CT	MIAMI, FL	33177
3069020160300	YAKO HEREDIA	OR CURRENT OCCUPANT	19995 SW 134 CT	MIAMI, FL	33177
3069020160350	LARRY JAMES CARTER	OR CURRENT OCCUPANT	19995 SW 135 AVE	MIAMI, FL	33177
3069020250680	CURRENT OCCUPANT		19996 SW 130 AVE	Miami, FL	33177-4008
3069110040030	CURRENT OCCUPANT		20000 SW 130 AVE	Miami, FL	33177-6127
3069110090010	MARJORIE LEON	OR CURRENT OCCUPANT	20000 SW 133 AVE	MIAMI, FL	33177
3069100000020	CRAIG KONING & YVENIA BERRIOS	OR CURRENT OCCUPANT	20000 SW 137 AVE	MIAMI, FL	33177-5002
3069110040020	JORGE LUIS PARRA	OR CURRENT OCCUPANT	20010 SW 130 AVE	MIAMI, FL	33177
3069110040010	NIURKA M BENITEZ	OR CURRENT OCCUPANT	20020 SW 130 AVE	MIAMI, FL	33177-6127
3069110090180	NOEL RUIZ NURSERY	OR CURRENT OCCUPANT	20020 SW 132 AVE	Miami, FL	33177-6145
3069110090020	CURRENT OCCUPANT		20020 SW 133 AVE	Miami, FL	33177-6154
3069110130860	BRINDISI MOLINA	OR CURRENT OCCUPANT	20031 SW 128 CT	MIAMI, FL	33177-5536
3069110130590	CURRENT OCCUPANT		20032 SW 128 CT	Miami, FL	33177-5534
3069110130780	RODRIGO ENCALADA	OR CURRENT OCCUPANT	20033 SW 128 PL	Miami, FL	33177
3069110130390	ARIEL ARZOLA	OR CURRENT OCCUPANT	20034 SW 128 PL	MIAMI, FL	33177
3069110130260	OSCAR D ROMO	OR CURRENT OCCUPANT	20034 SW 129 PL	MIAMI, FL	33177-6197
3069110130580	ALEXANDER JORVA	OR CURRENT OCCUPANT	20035 SW 129 AVE	MIAMI, FL	33177
3069110040180	YUNIESKY LOPEZ ALOMA	OR CURRENT OCCUPANT	20035 SW 132 AVE	MIAMI, FL	33177
3069110130140	RICARDO FERNANDEZ	OR CURRENT OCCUPANT	20036 SW 129 AVE	MIAMI, FL	33177
3069110090190	JORGE G RAMOS	OR CURRENT OCCUPANT	20040 SW 132 AVE	MIAMI, FL	33177-6145
3069110090030	MIRNA CESTI	OR CURRENT OCCUPANT	20040 SW 133 AVE	MIAMI, FL	33177
3069110130270	FEDE PRUDHOMME	OR CURRENT OCCUPANT	20044 SW 129 PL	MIAMI, FL	33177-6197

3069110130870	LIBRADA CABRERA	OR CURRENT OCCUPANT	20051 SW 128 CT	MIAMI, FL	33177-5536
3069110130600	ANA C MARTINEZ	OR CURRENT OCCUPANT	20052 SW 128 CT	MIAMI, FL	33177-5534
3069110130770	HUGO PADRON JR	OR CURRENT OCCUPANT	20053 SW 128 PL	MIAMI, FL	33177
3069110130400	ARIEL HERNANDEZ DE LA CRUZ	OR CURRENT OCCUPANT	20054 SW 128 PL	MIAMI, FL	33177
3069110130280	ALEXANDER N DEL VAL	OR CURRENT OCCUPANT	20054 SW 129 PL	MIAMI, FL	33177
3069110130570	YUSIMIT SOCA MADRUGA	OR CURRENT OCCUPANT	20055 SW 129 AVE	Miami, FL	33177
3069110040170	ANTONIO RODRIGUEZ	OR CURRENT OCCUPANT	20055 SW 132 AVE	MIAMI, FL	33177-6111
3069110130150	MIRLA MARTINEZ	OR CURRENT OCCUPANT	20056 SW 129 AVE	MIAMI, FL	33177-6182
3069110130880	JESUS M ESPINOSA	OR CURRENT OCCUPANT	20071 SW 128 CT	MIAMI, FL	33177
3069110130610	EDILIA MILIAN	OR CURRENT OCCUPANT	20072 SW 128 CT	MIAMI, FL	33177
3069110130760	CURRENT OCCUPANT		20073 SW 128 PL	Miami, FL	33177-6196
3069110130410	CARLTON B BECKFORD	OR CURRENT OCCUPANT	20074 SW 128 PL	MIAMI, FL	33177-6195
3069110130560	MARIE HITCHMAN	OR CURRENT OCCUPANT	20075 SW 129 AVE	MIAMI, FL	33177-6183
3069110040160	LIURERS GUZMAN	OR CURRENT OCCUPANT	20075 SW 132 AVE	MIAMI, FL	33177-6111
3069110130160	LOIRA SIFONTES	OR CURRENT OCCUPANT	20076 SW 129 AVE	MIAMI, FL	33177-6182
3069110200010	CURRENT OCCUPANT		20090 SW 127 AVE	Miami, FL	33177-0000
3069120480010	CURRENT OCCUPANT		20099 SW 127 AVE	Miami, FL	33177-5118
3069110130290	HERMAN RODRIGUEZ	OR CURRENT OCCUPANT	20104 SW 129 PL	MIAMI, FL	33177-6190
3069110040200	YNGRID FREDRICK	OR CURRENT OCCUPANT	20104 SW 131 CT	MIAMI, FL	33177-6113
3069110040150	IVAN SOLANO	OR CURRENT OCCUPANT	20105 SW 132 AVE	MIAMI, FL	33177-6110
3069110130990	CURRENT OCCUPANT		20107 SW 129 PL	Miami, FL	33177-0000
3069110130890	YULIESKY RODRIGUEZ JAUREGUI	OR CURRENT OCCUPANT	20111 SW 128 CT	MIAMI, FL	33177
3069110130620	YAMEL JESUS MARQUEZ PEREZ	OR CURRENT OCCUPANT	20112 SW 128 CT	MIAMI, FL	33177
3069110130750	ENRIQUE TRUJILLO	OR CURRENT OCCUPANT	20113 SW 128 PL	MIAMI, FL	33177-6194
3069110130550	MARIA A D BAZO	OR CURRENT OCCUPANT	20115 SW 129 AVE	MIAMI, FL	33177-6185
3069110130170	TENISHA TANEA DANIELS	OR CURRENT OCCUPANT	20116 SW 129 AVE	MIAMI, FL	33177
3069110130220	WINSTON MCLEOD	OR CURRENT OCCUPANT	20117 SW 129 CT	MIAMI, FL	33177
3069110130310	MARTIN ATKINSON	OR CURRENT OCCUPANT	20118 SW 129 CT	MIAMI, FL	33177
3069110090200	ADOLFO SANCHEZ	OR CURRENT OCCUPANT	20120 SW 132 AVE	MIAMI, FL	33177-6147
3069110090040	DAVID ROBERT ROLLAND	OR CURRENT OCCUPANT	20120 SW 133 AVE	MIAMI, FL	33177
3069110130300	NICHOLAS A CHIN	OR CURRENT OCCUPANT	20124 SW 129 PL	Miami, FL	33177
3069110130900	FRANCISCO RAMIREZ	OR CURRENT OCCUPANT	20131 SW 128 CT	MIAMI, FL	33177
3069110130630	ANDREAS MIKOLEICZIK	OR CURRENT OCCUPANT	20132 SW 128 CT	MIAMI, FL	33177

3069110130740	OSTERMAN MATOS	OR CURRENT OCCUPANT	20133 SW 128 PL	MIAMI, FL	33177-6194
3069110040210	CARLOS RAMON	OR CURRENT OCCUPANT	20134 SW 131 CT	Miami, FL	33177
3069110130540	SUYIN ALLEN	OR CURRENT OCCUPANT	20135 SW 129 AVE	MIAMI, FL	33177
3069110040140	YUSIMARI FERRER	OR CURRENT OCCUPANT	20135 SW 132 AVE	MIAMI, FL	33177
3069110130430	RUN QUN KWOCK ZHENG	OR CURRENT OCCUPANT	20136 SW 128 PL	MIAMI, FL	33177-6193
3069110130180	YAMILSIS RIVAS	OR CURRENT OCCUPANT	20136 SW 129 AVE	MIAMI, FL	33177
3069110130210	ARABIA MALBOA SANTOS	OR CURRENT OCCUPANT	20137 SW 129 CT	MIAMI, FL	33177
3069110130320	CURRENT OCCUPANT		20138 SW 129 CT	Miami, FL	33177-6189
3069110090210	CURRENT OCCUPANT		20140 SW 132 AVE	Miami, FL	33177-6147
3069110090050	CURRENT OCCUPANT		20140 SW 133 AVE	Miami, FL	33177-6155
3069110090050	JAVIER FOLGUEIRA	OR CURRENT OCCUPANT	20140 SW 133RD AVE	Miami, FL	33177
3069110010020	CURRENT OCCUPANT		20150 SW 127 AVE	Miami, FL	33177-0000
3069110130910	FREDORA E WALKER	OR CURRENT OCCUPANT	20151 SW 128 CT	MIAMI, FL	33177-5541
3069110130640	BEENA VINOD	OR CURRENT OCCUPANT	20152 SW 128 CT	MIAMI, FL	33177-5540
3069110130730	JONATHAN GONZALEZ	OR CURRENT OCCUPANT	20153 SW 128 PL	MIAMI, FL	33177
3069110130440	CHRISTIAN RIVAS	OR CURRENT OCCUPANT	20154 SW 128 PL	MIAMI, FL	33177
3069110040220	CURRENT OCCUPANT		20154 SW 131 CT	Miami, FL	33177-6113
3069110130530	CURRENT OCCUPANT		20155 SW 129 AVE	Miami, FL	33177-6185
3069110130530	CLAUDIA TERESA CAMARENO	OR CURRENT OCCUPANT	20155 SW 129TH AVE	Miami, FL	33177
3069110040130	MARILYN TOIRAN	OR CURRENT OCCUPANT	20155 SW 132 AVE	MIAMI, FL	33177
3069110130190	CURRENT OCCUPANT		20156 SW 129 AVE	Miami, FL	33177-6184
3069110130200	VICTORIA BRUZON	OR CURRENT OCCUPANT	20157 SW 129 CT	MIAMI, FL	33177-6188
3069110130330	MOHAMED OMAR ALI	OR CURRENT OCCUPANT	20158 SW 129 CT	Miami, FL	33177
3069110090220	BETTINA LAIER	OR CURRENT OCCUPANT	20160 SW 132 AVE	MIAMI, FL	33177
3069110090060	FRANCISCO J BATRES	OR CURRENT OCCUPANT	20160 SW 133 AVE	MIAMI, FL	33177
3069110130920	JANET GULAR	OR CURRENT OCCUPANT	20171 SW 128 CT	MIAMI, FL	33177-5541
3069110130650	ALBA JEANNETTE MONTOYA	OR CURRENT OCCUPANT	20172 SW 128 CT	MIAMI, FL	33177
3069110130720	MANUEL LEON	OR CURRENT OCCUPANT	20173 SW 128 PL	MIAMI, FL	33177-6194
3069110040400	JORGE GARCIA	OR CURRENT OCCUPANT	20173 SW 131 CT	MIAMI, FL	33177-6118
3069110130450	LISA F WOODSON	OR CURRENT OCCUPANT	20174 SW 128 PL	MIAMI, FL	33177-6193
3069110040230	ANGEL SILVEIRA	OR CURRENT OCCUPANT	20174 SW 131 CT	MIAMI, FL	33177
3069110040120	MARIA C GONZALEZ	OR CURRENT OCCUPANT	20175 SW 132 AVE	MIAMI, FL	33177-6110
3069110130340	JOSE GONZALEZ	OR CURRENT OCCUPANT	20178 SW 129 CT	MIAMI, FL	33177

3069110010030	CARLOS ALBERTO GARCIA	OR CURRENT OCCUPANT	20200 SW 127 AVE	MIAMI, FL	33177
3069110000070	CURRENT OCCUPANT		20200 SW 134 AVE	Miami, FL	33177-6012
3069120480020	CURRENT OCCUPANT		20201 SW 127 AVE	Miami, FL	33177-5103
3069110010031	CARLOS RAFAEL DE NAVEA	OR CURRENT OCCUPANT	20201 SW 128 AVE	MIAMI, FL	33177
3069110040590	JAIRO RODRIGUEZ	OR CURRENT OCCUPANT	20201 SW 130 CT	MIAMI, FL	33177
3069110040440	DANIEL I MARTINEZ	OR CURRENT OCCUPANT	20202 SW 130 CT	MIAMI, FL	33177
3069110040390	JOSE ALBERTO DIEGUEZ	OR CURRENT OCCUPANT	20203 SW 131 CT	MIAMI, FL	33177
3069110040240	ROBERTO MORALES PEREZ	OR CURRENT OCCUPANT	20204 SW 131 CT	MIAMI, FL	33177
3069110040110	HERAIT REBOSO	OR CURRENT OCCUPANT	20205 SW 132 AVE	MIAMI, FL	33177
3069110130930	MARIA S HOLLIS	OR CURRENT OCCUPANT	20211 SW 128 CT	MIAMI, FL	33177-5543
3069110130660	CURRENT OCCUPANT		20212 SW 128 CT	Miami, FL	33177-5542
3069110130710	HECTOR GARCIA	OR CURRENT OCCUPANT	20213 SW 128 PL	MIAMI, FL	33177-6192
3069110130460	TERESA D BLANCO	OR CURRENT OCCUPANT	20214 SW 128 PL	MIAMI, FL	33177-6191
3069110130520	CURRENT OCCUPANT		20215 SW 129 AVE	Miami, FL	33177-6187
3069110130360	PAUL A BURGER	OR CURRENT OCCUPANT	20216 SW 129 AVE	MIAMI, FL	33177-6186
3069110090230	CURRENT OCCUPANT		20220 SW 132 AVE	Miami, FL	33177-6152
3069110090070	CURRENT OCCUPANT		20220 SW 133 AVE	Miami, FL	33177-0000
3069110130940	JULIET S SICSCI	OR CURRENT OCCUPANT	20231 SW 128 CT	MIAMI, FL	33177-5543
3069110040580	KASSANDRA ANA RAMIREZ	OR CURRENT OCCUPANT	20231 SW 130 CT	MIAMI, FL	33177
3069110130670	JANELLE ANISSA SCANTLEBURY	OR CURRENT OCCUPANT	20232 SW 128 CT	MIAMI, FL	33177
3069110040450	RAFAEL CACERES	OR CURRENT OCCUPANT	20232 SW 130 CT	MIAMI, FL	33177-6121
3069110130700	CARLOS ARMENTEROS	OR CURRENT OCCUPANT	20233 SW 128 PL	MIAMI, FL	33177-6192
3069110040380	OSVANY L CAMINAS	OR CURRENT OCCUPANT	20233 SW 131 CT	MIAMI, FL	33177-6117
3069110130470	JOSUE PEREZ	OR CURRENT OCCUPANT	20234 SW 128 PL	MIAMI, FL	33177-6191
3069110040250	PILAR ESTEVEZ	OR CURRENT OCCUPANT	20234 SW 131 CT	MIAMI, FL	33177
3069110130510	MULCHAN KELLAWAN	OR CURRENT OCCUPANT	20235 SW 129 AVE	MIAMI, FL	33177
3069110040100	MICHELLE YAQUES	OR CURRENT OCCUPANT	20235 SW 132 AVE	MIAMI, FL	33177-6109
3069110130370	EMMANUEL LACISMA	OR CURRENT OCCUPANT	20236 SW 129 AVE	MIAMI, FL	33177-6186
3069120340450	JENNIFER R BROWN	OR CURRENT OCCUPANT	20240 SW 124 PL	Miami, FL	33177
3069110010040	REBECCA HUNTER	OR CURRENT OCCUPANT	20240 SW 127 AVE	MIAMI, FL	33177-5106
3069110090240	LUIS M YAMBO	OR CURRENT OCCUPANT	20240 SW 132 AVE	MIAMI, FL	33177-6152
3069120340460	NASEEM DOUCHAND LE	OR CURRENT OCCUPANT	20244 SW 124 PL	MIAMI, FL	33177
3069110000060	CRAIG BRODKA	OR CURRENT OCCUPANT	20245 SW 134 AVE	MIAMI, FL	33177-6011

3069110130950	MARISOL MONTALVO	OR CURRENT OCCUPANT	20251 SW 128 CT	MIAMI, FL	33177
3069110040570	CURRENT OCCUPANT		20251 SW 130 CT	Miami, FL	33177-6124
3069110130680	MAYRA QUINTANA	OR CURRENT OCCUPANT	20252 SW 128 CT	MIAMI, FL	33177-5542
3069110040460	JOSE A HERNANDEZ	OR CURRENT OCCUPANT	20252 SW 130 CT	MIAMI, FL	33177-6121
3069110130690	HILTON AGUILAR JR	OR CURRENT OCCUPANT	20253 SW 128 PL	MIAMI, FL	33177-6192
3069110040370	JUAN CARLOS IRIAS MONCADA	OR CURRENT OCCUPANT	20253 SW 131 CT	MIAMI, FL	33177
3069110130480	MIGUEL A PADRON	OR CURRENT OCCUPANT	20254 SW 128 PL	MIAMI, FL	33177
3069110040260	FELIX MESA	OR CURRENT OCCUPANT	20254 SW 131 CT	Miami, FL	33177
3069110130500	GEORGE THORN	OR CURRENT OCCUPANT	20255 SW 129 AVE	MIAMI, FL	33177-6187
3069110040090	MICHAEL ESCOBAR	OR CURRENT OCCUPANT	20255 SW 132 AVE	MIAMI, FL	33177
3069110130380	MARTHA C ACERO	OR CURRENT OCCUPANT	20256 SW 129 AVE	MIAMI, FL	33177
3069110090250	MIGUEL BRITO MENDOZA	OR CURRENT OCCUPANT	20260 SW 132 AVE	MIAMI, FL	33177
3069110040560	MARTIN MORALES	OR CURRENT OCCUPANT	20271 SW 130 CT	MIAMI, FL	33177-6124
3069110040470	RICHARD VALDES	OR CURRENT OCCUPANT	20272 SW 130 CT	MIAMI, FL	33177-6121
3069110040360	GREYDER FERRO	OR CURRENT OCCUPANT	20273 SW 131 CT	MIAMI, FL	33177-6117
3069110130490	EDY E MIRANDA	OR CURRENT OCCUPANT	20275 SW 129 AVE	MIAMI, FL	33177-6187
3069110040080	ANDREW G PEART	OR CURRENT OCCUPANT	20275 SW 132 AVE	MIAMI, FL	33177-6109
3069110150080	WAYNE O JONES	OR CURRENT OCCUPANT	20300 SW 129 PL	MIAMI, FL	33177-5506
3069110130960	ADRIAN PRADO SANCHEZ	OR CURRENT OCCUPANT	20311 SW 128 CT	MIAMI, FL	33177
3069110150090	DAMARYS SANTANA ALVAREZ	OR CURRENT OCCUPANT	20313 SW 129 PL	MIAMI, FL	33177
3069110150070	LESTER HERNANDEZ	OR CURRENT OCCUPANT	20314 SW 129 PL	MIAMI, FL	33177
3069110150100	CURRENT OCCUPANT		20327 SW 129 PL	Miami, FL	33177-5508
3069110150060	ALELUIA S GODFREY JENSEN	OR CURRENT OCCUPANT	20328 SW 129 PL	MIAMI, FL	33177
3069110150160	DANIEL MORIYON	OR CURRENT OCCUPANT	20340 SW 129 CT	MIAMI, FL	33177-5506
3069110150110	LORIDIANA LIZZUL	OR CURRENT OCCUPANT	20341 SW 129 PL	MIAMI, FL	33177
3069110150050	VILLA VALER SERVICES	OR CURRENT OCCUPANT	20342 SW 129 PL	MIAMI, FL	33177
3069110040220	MILDRED CECILIA PEDRAZA	OR CURRENT OCCUPANT	20825 SW 242ND ST	HOMESTEAD, FL	33031-3634
3069020220160	BIBIANA LADINO	OR CURRENT OCCUPANT	24200 SW 142 AVE	HOMESTEAD, FL	33032
3069110040690	MIGUEL A VALLE	OR CURRENT OCCUPANT	245 NW 32 CT	MIAMI, FL	33125
3069110010020	MIAMI-DADE COUNTY	OR CURRENT OCCUPANT	275 NW 2 ST 4FL	MIAMI, FL	33128-1794
3069020220380	VICTOR E SOMNUK	OR CURRENT OCCUPANT	310 KIPUKAI PL	HONOLULU, HI	96825-2890
3069020220290	GALICIA COMMERCIAL INVEST	OR CURRENT OCCUPANT	3158 SW 23 ST	MIAMI, FL	33145
3069110130320	MELANIE RINALDI	OR CURRENT OCCUPANT	3160 MATILDA ST	COCONUT GROVE, FL	33133

3069020010424	BVK	OR CURRENT OCCUPANT	318 ALHAMBRA CIRCLE	CORAL GABLES, FL	33134
3069010040200	RICADRI GROUP	OR CURRENT OCCUPANT	3241 SW 142 CT	MIAMI, FL	33175
3069110090230	CESAR A CAMPOS	OR CURRENT OCCUPANT	3894 NW 2 TER	MIAMI, FL	33126
3069020251430	BRITNEY HOMES	OR CURRENT OCCUPANT	4166 NW 132 ST	OPA LOCKA, FL	33054
3069110200010	C HENRY AND NESTA KLAR FAMILY	OR CURRENT OCCUPANT	500 VOLVO PARKWAY	CHESAPEAKE, VA	23320
3069020010630	19990	OR CURRENT OCCUPANT	5225 COLLINS AVE	MIAMI BEACH, FL	33140
3069110000050	DAVID JOEL LEWIS	OR CURRENT OCCUPANT	5766 GOOD NEWS LANE	FERNDALE, WA	98248
3069110000030	LUIS E HERRERA	OR CURRENT OCCUPANT	6060 PINE TREE DR	MIAMI, FL	33140
3069030000250	ROBERT C MACDONELL JR	OR CURRENT OCCUPANT	6313 PERCY DR	NASHVILLE, TN	37205
3069010040130	QUAIL ROOST SCHOOL	OR CURRENT OCCUPANT	6457 SUNSET DR	MIAMI, FL	33143
3069020270010	JAREM INVESTMENTS	OR CURRENT OCCUPANT	6801 NW 111 AVE	DORAL, FL	33178
3069120480020	GRI EQY(QUAIL ROOST)	OR CURRENT OCCUPANT	7200 WISCONSIN AVE STE 600	BETHESDA, MD	20814-4830
3069020270022	VERTICAL BRIDGE SC ASSETS	OR CURRENT OCCUPANT	750 PARK OF COMMERCE DR STE 200	BOCA RATON, FL	33487
3069010040230	RICADRI GROUP	OR CURRENT OCCUPANT	7920 SW 58 ST	CORAL GABLES, FL	33143
3069020251450	GREC HOMES II	OR CURRENT OCCUPANT	8500 SW 8 ST 228	MIAMI, FL	33144-4002
3069020250680	SRP SUB	OR CURRENT OCCUPANT	8665 EAST HARTFORD DR STE 200	SCOTTSDALE, AZ	85255
3069020160030	CARMEN VASQUEZ	OR CURRENT OCCUPANT	9650 EDEN MNR	PARKLAND, FL	33076
3069110130990	MIAMI DADE COUNTY	OR CURRENT OCCUPANT	PO BOX 330316	MIAMI, FL	33233
3069030000255	POPLAND	OR CURRENT OCCUPANT	PO BOX 565483	MIAMI, FL	33256
3069110130080	MAGALY A RODRIGUEZ PADRON	OR CURRENT OCCUPANT	PO BOX 650126	MIAMI, FL	33265
3069110090070	EDUARDO C NAVARRO	OR CURRENT OCCUPANT	PO BOX 772524	MIAMI, FL	33177
3069020010601	APOSTOLIC ALLIANCE CHURCH OF	OR CURRENT OCCUPANT	PO BOX 971114	MIAMI, FL	33197

Appendix Q – Elected Official/Agency and Public Kick-Off Meeting Reports

Elected Official/Agency Meeting Report

State Road (SR) 994/Quail Roost Drive PD&E Study
From SW 137th Ave to SW 127th Ave
Elected Official Meeting
Project Identification Number: 445804-1-22-01

Thursday, January 27, 2022 | 3 p.m. - 4:30 p.m.

Table of Contents

Meeting Summary 3

Attendee Log 8

Q&A 11

Exit Survey 13

Meeting Photos..... 15

Letters 17

Presentation 20

Meeting Summary

SR 994/Quail Roost Drive PD&E Study
From SW 137 Avenue to SW 127 Avenue
Elected Official Meeting Summary

January 27, 2022 | 3 p.m. – 4:30 p.m.
Virtually: GoToWebinar
In-person: South Dade Regional Library
10750 SW 211 St,
Cutler Bay, FL 33189

Staff:

FDOT
Elsa N. Riverol, P.E.
Robert McMullen

Gannett Fleming
Alina Fernandez, P.E.
Carlos Cejas, P.E.
Amanda De Cun, M.S.
Alejandro Uribe, P.E.
Ana Sandoval, P.E.

Infinite Source Communications
Monica Diaz
Maria Alzate
Alexander Coicou
Andre Souza

Choice Engineering Consultants
Eugenio Lopez, P.E.
Jessica Garcia
Elizabeth Correal

Glass Land Acquisition Service Specialists, Inc.
Richard Glass, SR / WA

See the attached sign-in sheets for a list of attendees

Purpose of the workshop:
The Elected Official Kick-Off Meeting was held on January 27, 2022 to discuss the Project Development and Environment (PD&E) Study for SR 994/Quail Roost Drive. The purpose of this meeting was to present the study along the corridor. The meeting provided Elected Officials and agencies with an opportunity to learn about PD&E planning and development stage and purpose and need of the study. They were also able to provide comments and questions about the existing corridor conditions.

Presentation:
The presentation team discussed the following items during their presentation:

- Overview of a PD&E study
- Project location
- Adjacent projects
- Purpose and need
- Existing conditions
    - Safety
    - Traffic Operations
    - Structures and Multimodal Accommodations
    - Environmental considerations
- Public Engagement
- Project Schedule

Open Discussion – *Action items in bold*

- An attendee asked for further explanation about the expansion of the bridge. She mentioned that the bridge is located directly behind her property.
    - Ms. Alina Fernandez stated one of the study alternatives considers widening the roadway, which means that there is a possibility of replacing the bridge. She stated that it would most likely be raised by on the criteria of 4.5 feet from the water. She stated that the team did not anticipate any impacts to residents adjacent to the bridge at this time. Ms. Fernandez emphasized that most build alternatives result in replacing the bridge.
    - Mr. Carlos Cejas clarified that in some cases the replacement bridge would be wider than the existing bridge.

- Ms. Maria Alzate read a comment from the chat, which asked what plans were in mind for the intersection at 134 Avenue.
    - Ms. Fernandez stated that the intersection is very crucial to the project. She emphasized that the team has just begun the engineering component, and that evaluation regarding current conditions is being conducted. She stated that a traffic signal and adding turn lanes is being considered. Ms. Fernandez said that this would be further discussed at the alternatives workshop meeting in August 2022.
    - Mr. Cejas stated that the ultimate decision would be decided by a warrant analysis.
    - Ms. Fernandez emphasized the location's importance, noting the number of accidents that have occurred.

- An attendee stated that the entrance of the neighborhood on SW 132 Avenue is a hotspot for traffic. She noted it is difficult to make a left turn out of the neighborhood and asked what is being considered to address the issue.
    - Ms. Fernandez commented that the team recognized the heavy traffic movement in the area. She stated that the team is considering adding a turn lane.
    - Mr. Cejas stated that a raised median is also being considered, which could help with turning movements and safety issues at the intersection.

- The same attendee noted that the biggest difficulty is making a left turn onto Quail Roost Drive. She commented that a turning lane on Quail Roost Drive would not remedy the situation for people exiting the neighborhood.
    - Ms. Fernandez said that signaling improvements on SW 134 Ave would give residents exiting the neighborhood time to turn left. She stated that this would be evaluated in traffic modeling. She noted the raised median alternative and its potential safety enhancements.

- An attendee stated that her neighborhood is having a similar situation on SW 138 Avenue turning east- and west- bound. She asked if the team was planning on widening the lane between SW 127 Ave and the bridge.
    - Ms. Fernandez stated that they are looking into the possibility of widening the roadway in that section, from its current condition to two lanes.
    - Mr. Cejas walked through the differences between build alternatives, TSM&O, and no build. He stated that these will be evaluated and presented to the public in the future.

- Ms. Monica Diaz read a comment from the chat, which asked how the project would impact property at 13355 SW 200 Street.

    - Ms. Fernandez stated that the team does not know specific impacts at this stage of the project, but evaluations would be conducted and presented at the alternatives workshop.

- Ms. Diaz read an email from Mr. Richard Lyon, which asked if there was a plan to improve the road conditions on SW 134 Avenue.
    - Ms. Fernandez stated that SW 134 Avenue was one of the main intersections the team was looking into. She noted that the team was looking at improving the intersection from an operational and safety perspective. She commented that they were also looking at the possibility of a traffic signal and said that pavement restoration was considered in the build alternatives.
    - Mr. Cejas stated that improvements would be focused on Quail Roost Drive and that potential improvements could be made at the leg of the intersection at SW 134 Avenue. He clarified that the team would not be conducting improvements up and down SW 134 Avenue, as this is not a part of the state road system. He recommended contacting the Miami-Dade County Public Works Department.

- Ms. Diaz continued reading the email from Mr. Lyon, which asked when construction would begin and finish.
    - Ms. Fernandez stated that the construction phase had not been programmed, so there was not an anticipated construction date. She noted that the design phase has not started either, and that the PD&E is programmed to be finalized in 2023 and design finalized in 2025.

- Ms. Diaz thanked the attendees for participating and sharing their comments with the project team.

Action Items:
N/A

Attendee Log

GoToWebinar Attendee Log

445804-1-22-01 SR 994/SW 200 Street/Quail Roost Drive PD&E Study Elected Official/Agency Kick-off Meeting			
Last Name	**First Name**	**Email Address**	**Registration Date/Time**
Berrios	Mariano	mariano.berrios@rsandh.com	01/27/2022 11:38 AM EST
Bonwit	Cheryl	cntorchon@yahoo.com	01/27/2022 10:09 AM EST
Booth	Kristee	kristee.booth@myfw.com	01/05/2022 10:05 AM EST
Cabrera	Aimee	e12406@miamidade.gov	01/14/2022 08:58 AM EST
Cabrera	Mario	mario.cabrera@dot.state.fl.us	01/27/2022 03:21 PM EST
Cagigas	Manuel	fabiola7598@gmail.com	01/27/2022 03:13 PM EST
Camacho	Alex	alejandrocamacho@flhsmv.gov	01/27/2022 02:42 PM EST
Castillo	Shieda	Shieda.castillo@dot.state.fl.us	01/27/2022 02:57 PM EST
Cejas	Carlos	ccejas@gfnet.com	01/27/2022 02:00 PM EST
Danu	Nicholas	nicholas.danu@dot.state.fl.us	01/27/2022 03:11 PM EST
Gomez	Mauricio	mauricio.gomez@dot.state.fl.us	01/27/2022 04:07 PM EST
Hernandez	Yamille	ellimay10@yahoo.com	01/13/2022 10:14 PM EST
Huynh	Dat	dat.huynh@dot.state.fl.us	01/27/2022 02:57 PM EST
Lopez	Enrique	enriquealopez1551@aol.com	01/12/2022 12:57 PM EST
Lopez	Alisha	alopez@sfrpc.com	01/25/2022 09:53 AM EST
López-Camba	Leticia	jlcamba@comcast.net	01/26/2022 06:12 PM EST
McMullen	Robert	Robert.McMullen@dot.state.fl.us	01/27/2022 02:47 PM EST
Mykytka	James	jim.mykytka@rsandh.com	01/27/2022 11:36 AM EST
Paskiet	Darla	darla.paskiet@am.jll.com	01/20/2022 12:05 PM EST
SOUZA	ANDRE	andre@iscprgroup.com	01/27/2022 01:50 PM EST
Turcios	Cynthia	cynthia.turcios@dot.state.fl.us	01/27/2022 02:50 PM EST
Vilches-Landa	Maria	maria.vilches@miamidade.gov	01/25/2022 10:50 AM EST
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	01/18/2022 04:11 PM EST
streelman	amy	amy_streelman@janus-research.com	01/27/2022 03:01 PM EST

ZOHO Attendee Log

445804-1-22-01 SR 994/SW 200 Street/Quail Roost Drive PD&E Study Elected Official/Agency Kick-off Meeting		
Last Name	**First Name**	**Email Address**
Diaz	Monica	monica@iscprgroup.com
De Cun	Amanda Isabel	Adecun@gfnet.com
Fernandez	Alina	afernandez@gfnet.com
Cejas	Carlos	ccejas@gfnet.com
Sandoval	Ana	ansandoval@gfnet.com
Riverol	Elsa	Elsa.Riverol@dot.state.fl.us
Uribe	Alejandro	auribe@gfnet.com
Fuchs	Lorenzo	Loloman34@gmail.com
Correal	Elizabeth	ecorreal@choiceeng.com
Garcai	Jessica	Jgarcia@choiceeng.com
Lopez	Eugenio	elopez@choiceeng.com
Turcios	Cynthia	Cynthia.turcios@dot.state.fl.us

Q&A

445804-1-22-01 SR 994/SW 200 Street/Quail Roost Drive PD&E Study Elected Official/Agency Kick-off Meeting						
Last Name	First Name	Email Address	Question #	Question Asked	Answer Given	Answerer
Berrios	Mariano	mariano.berrios@rsandh.com	1	We can't hardly hear Alina.	thank you we are working on this.	Maria Alzate
Cagigas	Manuel	fabiola7598@gmail.com	1	good afternoon, if you coudl explain what plans are in mind for intersection at 134 Ave	Thank you for your question.	Maria Alzate
Cagigas	Manuel	fabiola7598@gmail.com	2	Thanks to both	No problem.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	1	we cannot hear her clearly here	thank you we are working on this	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	2	she is flying through the slides. i cannot even look at the slides before she goes on to the next one.	okay we will let her know.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	3	thank you very much	of course, no problem.,If needed, we can revisit any slide after the presentation and share a copy of the presentation with you.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	4	that would be greatly appreciated so i can share with my parents who lives 2 doors down from me and couldnt attend	Yes, we will send it to you. If you have any additional questions you can also contact the community outreach speciliast Monica Diaz at monica@iscprgroup.com.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	5	the entrance to the neighborhood on 132nd Avenue is also a hotspot for traffic. it is very hard to make a left out of the neighborhood. what has been considered to remedy this issue?	would you like me to unmute your mic?	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	6	will there be any roundabouts added to quail roost as were added on 216 Street?	You will be unmuted next. Thank you.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	7	i can.	thanks	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	8	i need to be unmuted to follow up please	no problem. will do.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	9	to leave the neighborhood is the problem	Thank you for your comment. You will be unmuted.	Maria Alzate
Hernandez	Yamille	ellimay10@yahoo.com	10	thank you very much.	No problem, thank you for participating.	Maria Alzate
McMullen	Robert	Robert.McMullen@dot.state.fl.us	1	Can I get a microphone check?		

Exit Survey

445804-1-22-01 SR 994/SW 200 Street/Quail Roost Drive PD&E Study Elected Official/Agency Kick-off Meeting											
Last Name	**First Name**	**Email Address**	**The Virtual Workshop was effective in conveying how FDOT functions.**	**I feel that I understand the concepts being presented.**	**I found the Q&A period beneficial?**	**The materials presented during this webinar were easy to understand.**	**The presenters were clear during the presentation**	**The length of the presentation was appropriate**	**Do you prefer a virtual public webinar or an in person workshop?**	**Any other comments or feedback you would like to provide to the project team?**	**I am open to attending an in-person public meeting provided social distancing restrictions and protocols are in place.**
Berrios	Mariano	mariano.berrios@rsandh.com	Strongly Agree	Strongly Agree	Strongly Agree	Somewhat Agree	Strongly Agree	Somewhat Agree	Virtual Workshop		Strongly Agree
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		Strongly Disagree
Bonwit	Cheryl	cntorchon@yahoo.com	Neutral	Neutral	Somewhat Agree	Somewhat Agree	Somewhat Agree	Somewhat Agree	Virtual Workshop		Somewhat Agree
Lopez	Enrique	enriquealopez1551@aol.com	Neutral	Somewhat Agree	Somewhat Agree	Strongly Agree	Strongly Agree	Somewhat Agree	Virtual Workshop	I would love to have liked to seen map or drawings of the proposal	Somewhat Disagree
Paskiet	Darla	darla.paskiet@am.jll.com	Strongly Agree	Strongly Agree	Somewhat Agree	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		
Cabrera	Aimee	e12406@miamidade.gov	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		Strongly Disagree
SOUZA	ANDRE	andre@iscprgroup.com	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		Neutral
McMullen	Robert	Robert.McMullen@dot.state.fl.us	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	In-Person Workshop	Virtual meeting went well, I just miss the one on one interpersonal meeting and networking at in-person meetings.	Strongly Agree
Booth	Kristee	kristee.booth@myfw.com	Strongly Agree	Strongly Agree	Somewhat Agree	Strongly Agree	Somewhat Disagree	Somewhat Agree	Virtual Workshop		Strongly Disagree

Meeting Photos

FDOT

FDOT

Letters

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111 Street
Miami, FL 33172

KEVIN J. THIBAULT, P.E.
SECRETARY

January 3, 2022

SUBJECT: Elected Official/Agencies and Public Kick-off Meetings
State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development & Environment (PD&E) Study
From SW 137 Avenue to SW 127 Avenue Miami-Dade County, Florida
Financial Management Number: 445804-1-22-01
Federal-Aid Project Number: TBD
Efficient Transportation Decision Making (ETDM) Number: 14429

Dear xxxxxxx:

The Florida Department of Transportation (FDOT), District Six, has scheduled both an Elected Officials/Agencies Kick-off Meeting and a Public Kick-off Meeting to discuss the SR 994/SW 200 Street/Quail Roost Drive PD&E Study from SW 137 Avenue to SW 127 Avenue, in Miami-Dade County, Florida. The project's primary objective is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by the Florida Highway Administration (FHWA) and FDOT.

The meetings will be held both in-person and virtually.

The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

The Elected Officials/Agencies Kick-off Meeting is scheduled for Thursday, January 27, 2022, from 3 p.m. to 4:30 p.m. Attend in person at South Dade Regional Library at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online by clicking here (link: https://survey.zohopublic.com/zs/StBU5S.) Space is limited.

To participate virtually, from your computer, tablet or smartphone please use the following link: https://attendee.gotowebinar.com/register/3382433537155283469. Participants can also use their phone by dialing **+1 (866) 952-8437;** access code **760-696-239**

A Public Kick-off Meeting will also be held for the public on Thursday, January 27, 2022, from 5:30 p.m. to 7 p.m. Attend in person at South Dade Regional Library at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online by clicking here (link: https://survey.zohopublic.com/zs/qNBULr.)

To participate virtually, from your computer, tablet or smartphone please use the following link: https://attendee.gotowebinar.com/register/6195687968448262414. Participants can also use their phone by dialing **+ 1 877 309 2074**; access code: **705-359-589**.

The same information will be presented at both meetings. These meetings are an opportunity to provide attendees with a short presentation of the proposed project, including existing conditions as well as environmental effects, followed by a question and answer session. Enclosed is a copy of the notice for the Public Kick-off Meeting.

FDOT encourages public participation without regard to race, color, national origin, age, sex, religion, disability or family status. Persons who need special assistance under the Americans with Disabilities Act of 1990 or who need translation services (free of charge) should contact Nicholas Danu, P.E. at 305-470-5219 or in writing at FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at: Nicholas.Danu@dot.state.fl.us at least seven days prior to the meeting.

If you would like further information about this project, please contact me at 305-470-5105 or by email at elsa.riverol@dot.state.fl.us. You may also visit the project website at www.fdotmiamidade.com/QuailRoostPDE.com.

Sincerely,

Elsa Riverol, P.E.
FDOT Project Manager

Enclosure: Meeting Notice

Presentation

SR 994/Quail Roost Drive PD&E Study

From SW 137th Ave to SW 127th Ave
FM 445804-1-22-01

Kick-Off Meeting

January 27, 2022

Traducción

Si usted necesita traducción durante la reunión por favor comuníquese conmigo. Usted puede presionar el botón de mano levantada, o puede pedir ayuda de traducción a través del chat y un miembro de nuestro equipo lo asistirá.

SR 994/Quail Roost Drive PD&E Study

From SW 137th Ave to SW 127th Ave
FM 445804-1-22-01

Kick-Off Meeting

January 27, 2022

Presenters / Panelists

Project Manager

Elsa N. Riverol, P.E.

FDOT

Gannett Fleming

Engineering

Carlos Cejas, P.E.

Gannett Fleming

Environmental

Amanda De Cun, M.S.

Gannett Fleming

Elected Officials

Rules of Engagement

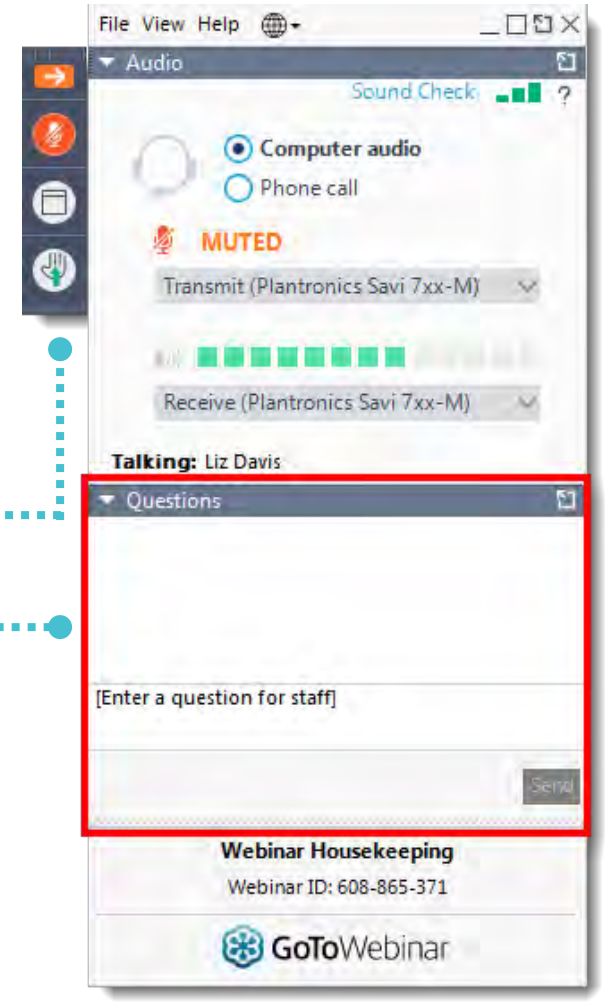
Virtual Attendees are **Automatically Muted** to Start the Meeting

Providing Comments During Open Discussion Period:

- In-person attendees form a line
- Call 1-800-418-0524
- **Raise hand during comment period, you will be unmuted in order of raising hands**
- Submit Comments via the “Questions” Box

Get Technical Assistance

- **Call 1-800-418-0524**



Title VI Non-Discrimination Compliance

Florida Department of Transportation
District Six Office
District Six Title VI Coordinator
Nicholas Danu, P.E.
1000 NW 111th Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219

Florida Department of Transportation
Central Office
State Title VI Coordinator
Jacqueline Paramore
605 Suwannee Street
Tallahassee, Florida 32399
Jacqueline.Paramore@dot.state.fl.us
(850) 414-4753

NEPA Assignment Statement

Engineering Analysis

Safety

Traffic Operations

Access Management

Right-of-Way

Structures

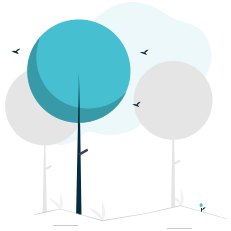
Drainage

Utilities

Lighting

Landscaping

Cost Estimates



Environmental Analysis

Sociocultural Effects

- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources

- Archaeological and Historic Resources
- Recreational

Natural Resources

- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects

- Noise
- Air Quality
- Contamination

Public Engagement Program

Public Involvement Plan

Kick-Off Meetings

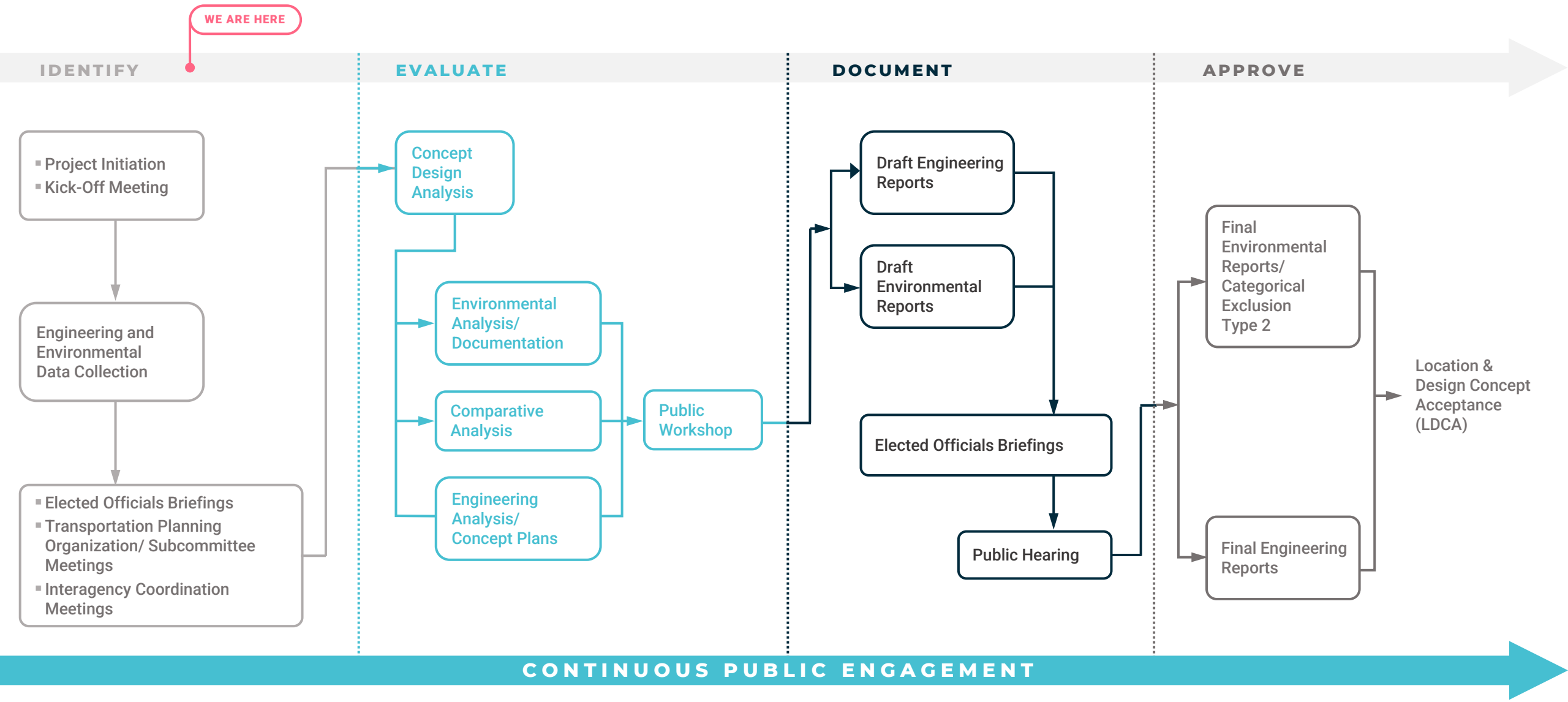
Elected Officials Briefings

Agency Meetings

Alternatives Workshop

Public Hearing

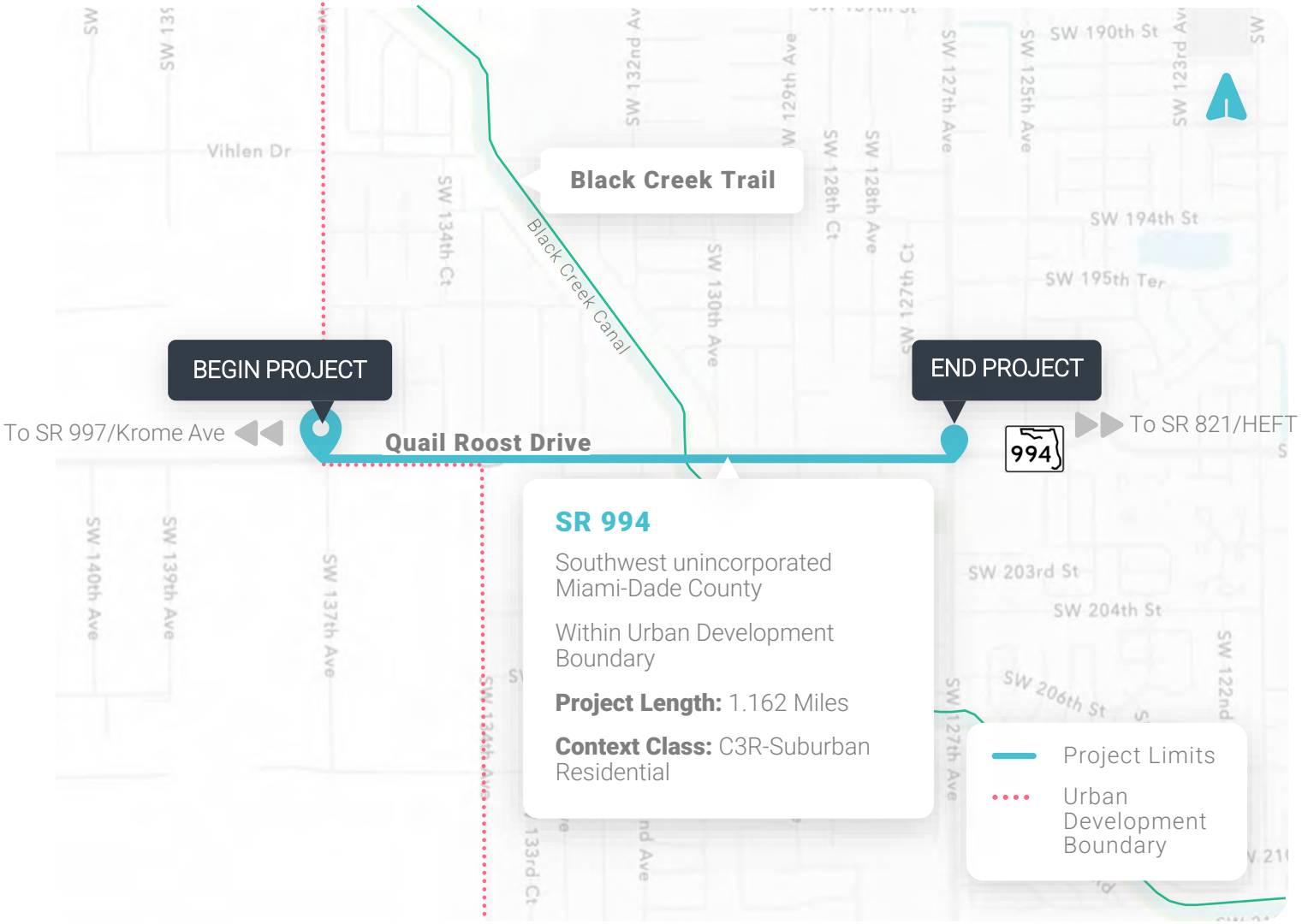
PD&E Study Process



Project Location

SR 994 • SW 200th St • Quail Roost Drive

from West of SW 137 Ave (MP 4.000) to East of SW 127 Ave (MP 5.162)



SR 994

Southwest unincorporated Miami-Dade County

Within Urban Development Boundary

Project Length: 1.162 Miles

Context Class: C3R-Suburban Residential

Land Use

Agricultural & Single-Family

Limits go beyond Urban Development Boundary Line

Key Features

Bridge over Black Creek Canal

Black Creek Trail Crossing

Historic Resources

Historic walls and homes:

- NW corner of SW 137th Ave
- SW corner of SW 137th Ave
- SE corner of SW 134th Ave

Adjacent Projects

1 **FM 443907-1**
SR 994/Quail Roost Dr Resurfacing
from Krome Ave to SW 137th Ave
Construction starts 06/2023
Completed by 03/2024

2 **MDC Project No. 20040343**
SW 137th Ave widening from
US-1 to Quail Roost Dr
Under construction
Completed by 10/2022

3 **MDC Project No. 20180004**
SW 127th Ave & SW 200th St
Intersection improvements to
add NB turn lane
Design completed 11/2020
Construction starts 07/2022

4 **FM 429341-3**
SR 994/Quail Roost Dr Resurfacing
from SW 127th Ave to SW 113th Ave
Construction started 09/2021
Completed by 09/2022

Purpose and Need

Safety

78 crashes per year (2014-2018)

Two recent fatal crashes (2016 & 2019)

Four locations in High Crash Spot List

One segment in High Crash Segment List (MP 4.075 to MP 4.961)

Capacity
(Transportation Demand)

Improve Operational Conditions and Accommodate Projected Travel Demand

Multiple segments operating at LOS F

Future conditions anticipated to worsen if no improvements implemented

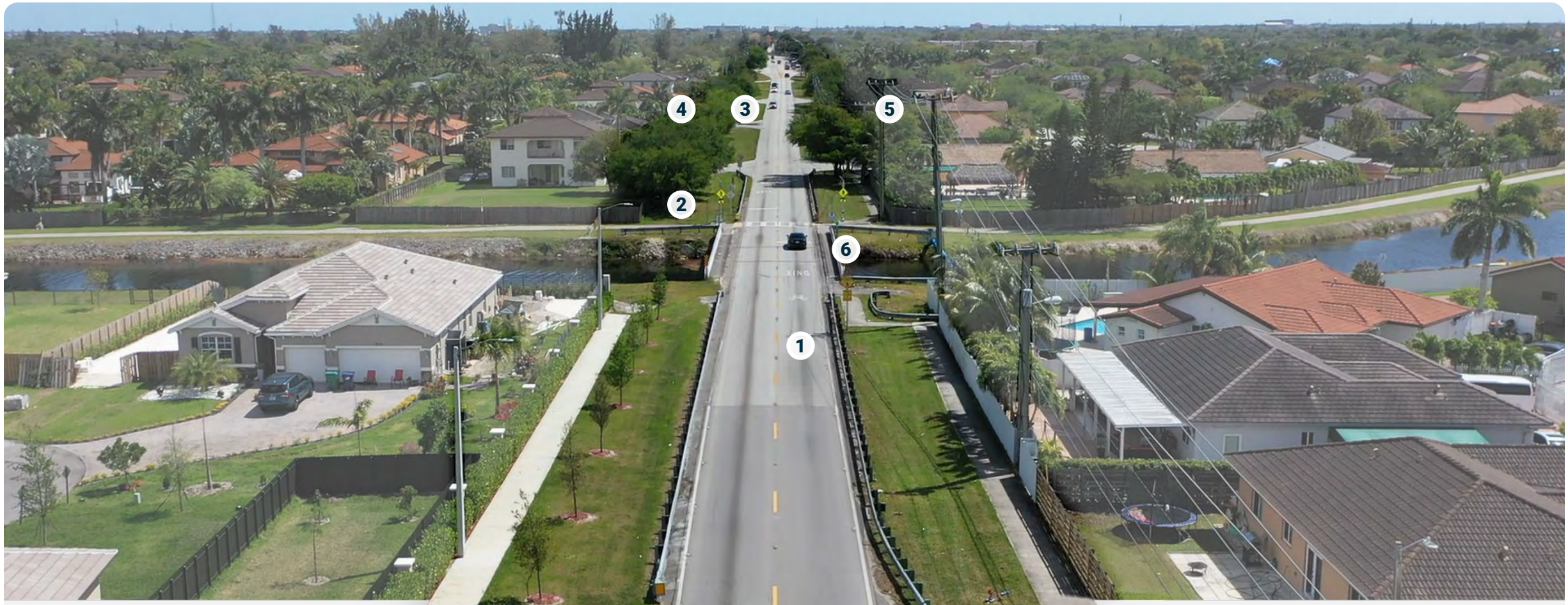
Modal
Interrelationships

Enhance Mobility Options and Multi-Modal Access

No designated bicycle lanes

Non-continuous sidewalks

Existing Roadway / Typical Section



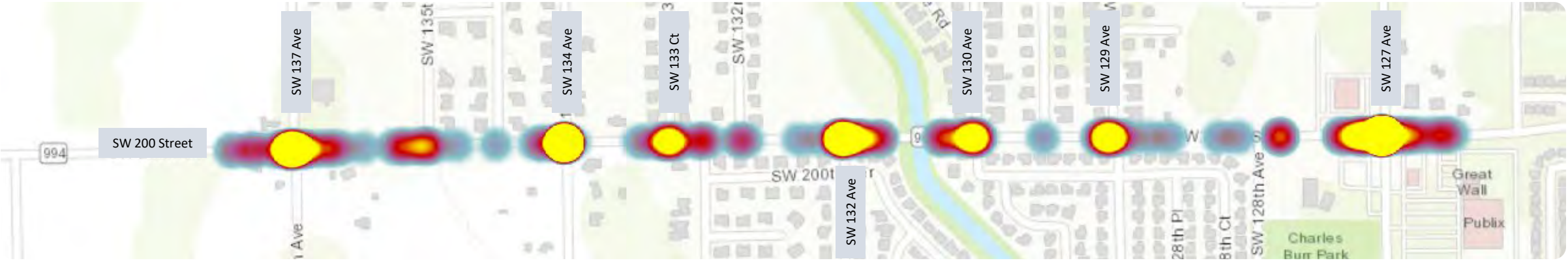
1. Two-lane undivided roadway
2. Black Creek Trail Crossing (at-grade mid-block crossing)
3. Missing Sidewalks
4. Mature Landscaping
5. Utilities (not always in back of SW)
6. Bridge over Black Creek Canal

6’	11.5’	11.5’	Varies	6’

ROW: 55’ - 100’

Posted Speed: 40MPH

Crash Data



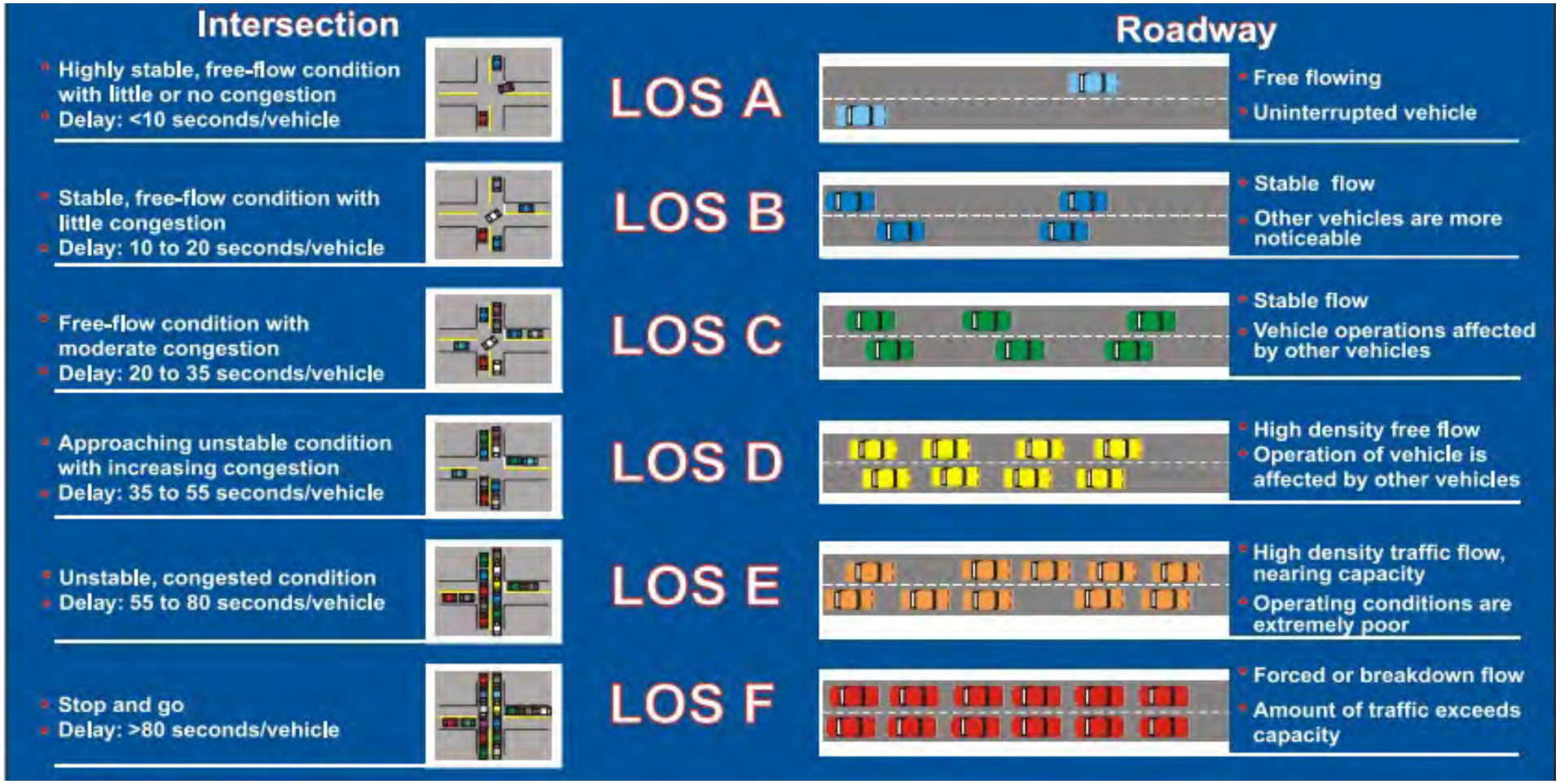
Corridor Wide Crash Summary (2014 – 2018)							
390 Crashes							
135 Injury Crashes (35%), 1 Fatal Crash (< 1%)							
2 Pedestrian/Bicyclist Crashes (< 1%)							
Leading Crash Types	**2014**	**2015**	**2016**	**2017**	**2018**	**5-Year Total**	**%**
Rear End	27	33	38	48	41	187	48%
Angle	10	9	21	22	15	77	20%
Sideswipe	6	8	7	5	17	43	11%
Left Turn	8	7	9	6	10	40	10%

Corridor Wide Crash Summary (2019 – 2020)				
170 Crashes				
46 Injury Crashes (27%), 1 Fatal Crash (< 1%)				
1 Pedestrian/Bicyclist Crashes (< 1%)				
Leading Crash Types	**2019**	**2020**	**2-Year Total**	**%**
Rear End	43	27	70	41%
Left Turn	22	15	37	22%
Sideswipe	12	8	20	12%
Angle	7	7	14	8%

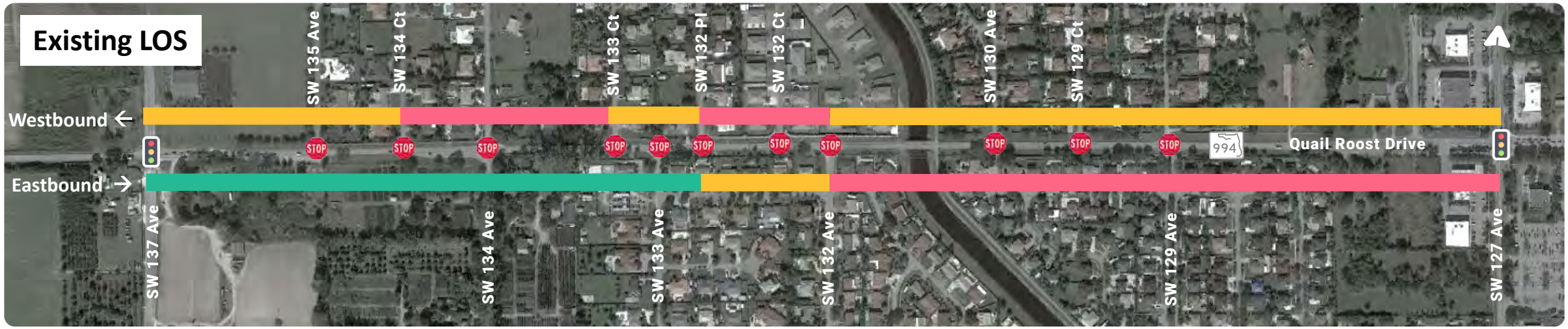
FDOT High Crash List	Total
High Crash Segments (from SW 137 Ave to east of SW 129 Ave)	1
High Crash Spots (SW 137 Ave, SW 134 Ave, SW 132 Ave & SW 127 Ave)	4

Level of Service (LOS)

Level of Service is a measure of traffic operational conditions. Six levels of service are defined for each type of roadway section and are given letter designations from A to F, with A representing the best operating conditions and F representing the worst operating conditions.

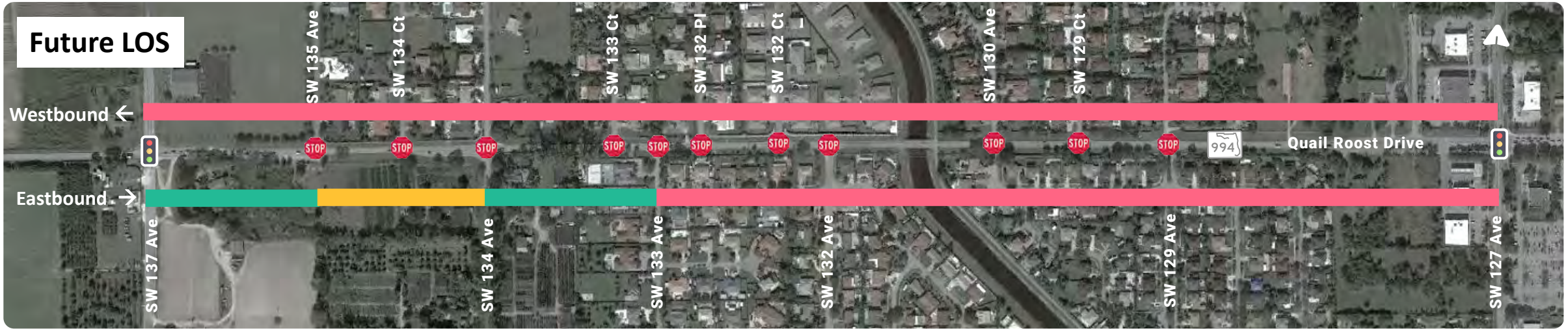


Existing Level of Service (LOS) – AM Peak Period

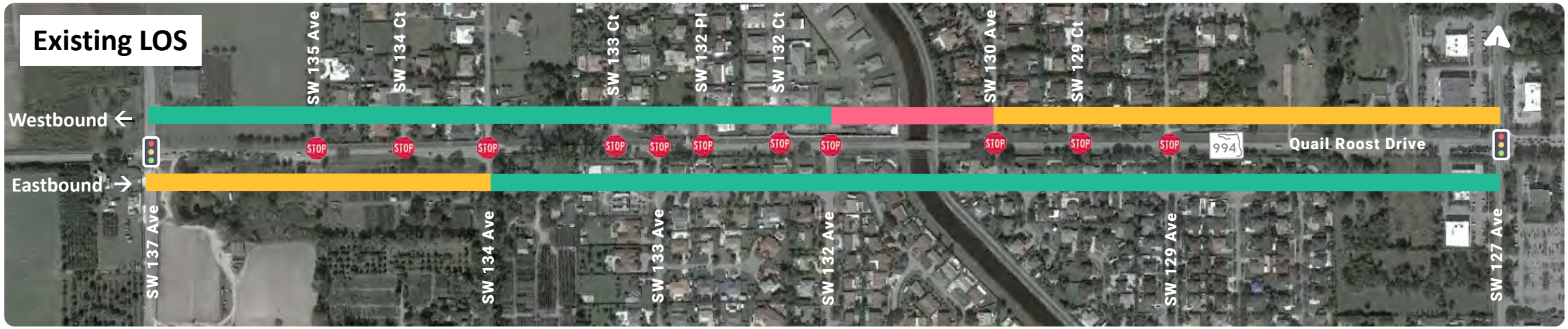


Future LOS without improvements (No Build) – AM Peak Period

Legend: ≤ LOS C | LOS D | LOS E | LOS F

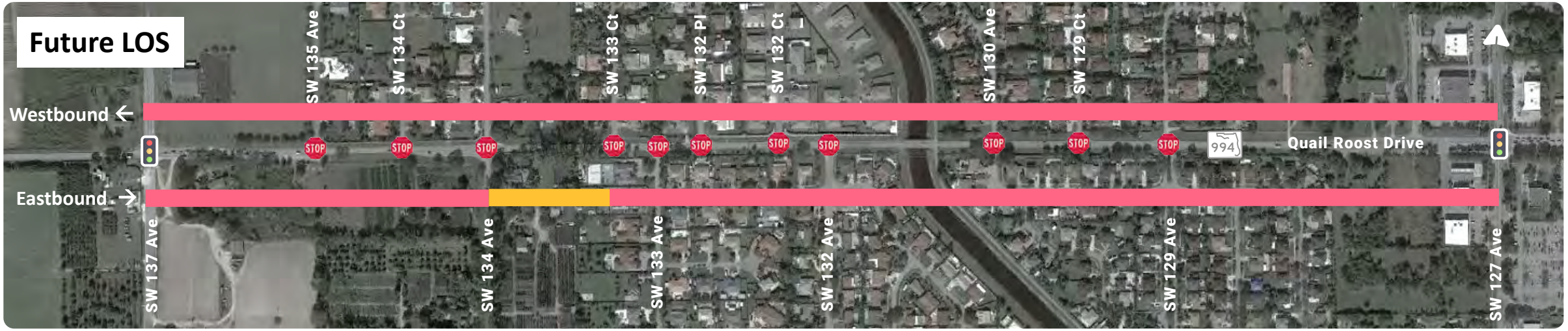


Existing Level of Service (LOS) – PM Peak Period



Future LOS without improvements (No Build) – PM Peak Period

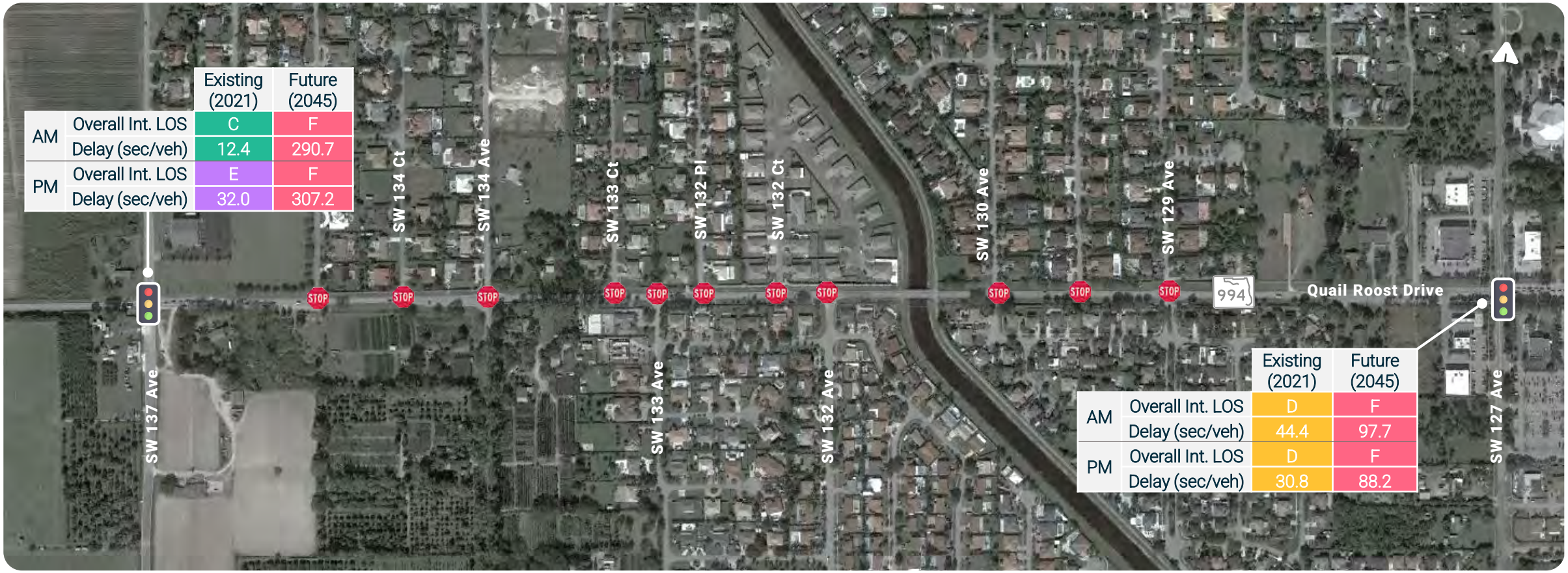
Legend: ≤ LOS C | LOS D | LOS E | LOS F



Existing LOS vs Future LOS without improvements (No Build)

Legend

- Signalized Intersection
- Minor Street Under Stop Control
- ≤ LOS C
- LOS D
- LOS E
- LOS F



		Existing (2021)	Future (2045)
AM	Overall Int. LOS	C	F
	Delay (sec/veh)	12.4	290.7
PM	Overall Int. LOS	E	F
	Delay (sec/veh)	32.0	307.2

		Existing (2021)	Future (2045)
AM	Overall Int. LOS	D	F
	Delay (sec/veh)	44.4	97.7
PM	Overall Int. LOS	D	F
	Delay (sec/veh)	30.8	88.2

Existing LOS vs Future LOS without improvements (No Build)

Legend

Signalized Intersection

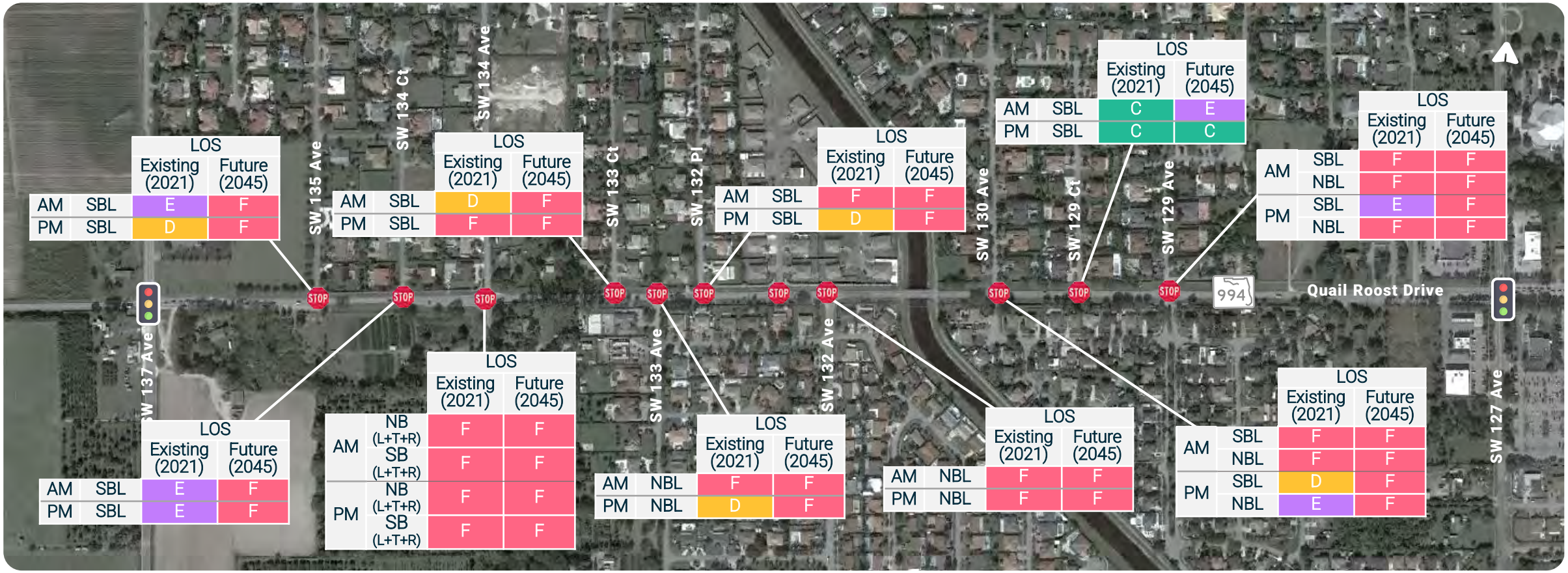
Minor Street Under Stop Control

≤ LOS C

LOS D

LOS E

LOS F



		LOS Existing (2021)	LOS Future (2045)
AM	SBL	E	F
PM	SBL	D	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	D	F
PM	SBL	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	F	F
PM	SBL	D	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	C	E
PM	SBL	C	C

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	F	F
	NBL	F	F
PM	SBL	E	F
	NBL	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	E	F
PM	SBL	E	F

		LOS Existing (2021)	LOS Future (2045)
AM	NB (L+T+R)	F	F
	SB (L+T+R)	F	F
PM	NB (L+T+R)	F	F
	SB (L+T+R)	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	NBL	F	F
PM	NBL	D	F

		LOS Existing (2021)	LOS Future (2045)
AM	NBL	F	F
PM	NBL	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	F	F
	NBL	F	F
PM	SBL	D	F
	NBL	E	F

Existing Bridge (870633) Over Black Creek Canal

- 3-span structure built in 1962 - State Historic Preservation Office Coordination Required
- Functionally Obsolete
- Overhead electric and water line on south side
- Trail crossing on east end
- Substandard Vertical Clearance:
  Existing VC = 4.2 ft < 4.5 ft Required

Existing Deficiencies

Missing sidewalks

No bicycle facilities

Sociocultural Effects

- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources

- Archaeological and Historic Resources
- Recreational

Natural Resources

- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects

- Noise
- Air Quality
- Contamination

Degree of Effect

- Not Applicable/ No Involvement
- Minimal
- Enhanced
- Moderate

Social and Economic							Cultural			Natural					Physical					
Land Use Changes	Social	Relocation Potential	Famlands	Aesthetic Effects	Economic	Mobility	Section 4(f) Potential	Historic and Archaeological Sites	Recreation Areas	Wetlands and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
2	2	2	N/A	2	2	1	3	3	2	2	2	2	2	2	2	2	3	3	N/A	N/A

Efficient Transportation Decision Making (ETDM) Screening: No Substantial Issues

Cultural Resources

1

2

3

Wetlands

C-1W Canal – Bridge widening with impacts to surface waters

Possible isolated wet swales or wetlands (dependent upon pond locations and ROW acquisition)

Wetland involvement anticipated as **Minimal**

Protected Species

Florida Bonneted Bat (FBB) – Within the South Florida Urban Bat Area

Manatee (C-1W) exclusion devices at outfalls; In-Water Work Construction Conditions

Construction Conditions for the **Eastern Indigo Snake**

Wood Stork CFA (dependent on wetland impacts)

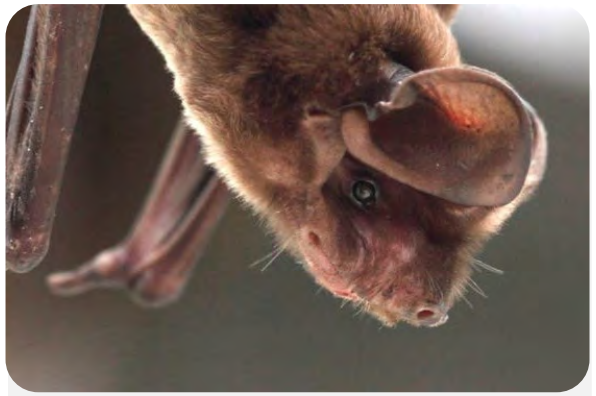
American Crocodile (no suitable habitat)

Miami-Dade Keys Plants field surveys

Burrow observed at C-1W Bank

Biscayne Sole Source Aquifer – EPA coordination

Burrow
Observed at C-1W Bank



Florida Bonneted Bat (FBB)
Protected Species

Manatee
Protected Species

C-1W Canal
Bridge Widening Impacts

South Florida Water Management District

Environmental Resource Permit

- Stormwater Quantity and Quantity Control
- C-1 Canal Dredge & Fill
- Canal Turbidity Control
- Manatee Protection

Right Of Way Occupancy Permit Modification

- Bridge Replacement
- Canal Access for Maintenance and Operations

Water Use Permit

- Dewatering Construction Activities

US Army Corps of Engineers

Section 408 Review for the C-1W Canal/Bridge

USACE/FDEP Section 404 Dredge & Fill Permit

- Possible delegation to FDEP as Assumed Waters
- USACE Nationwide permit for Maintenance may apply
- Coordination with USFWS

Florida Department of Environmental Protection (FDEP)

NPDES Construction Generic Permit

EPA Coordination required for Biscayne Sole Source Aquifer

Miami-Dade County Coordination on tree impacts

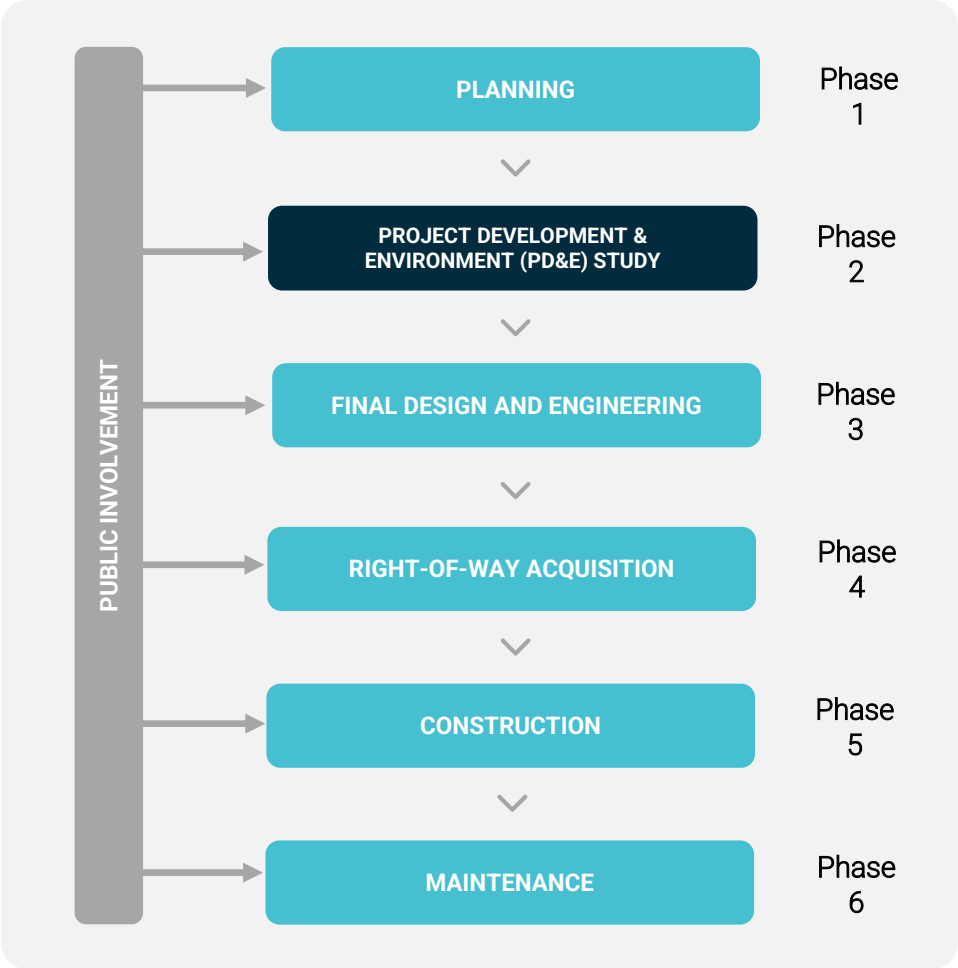
Coordination

Miami-Dade County
- Mayor Levine Cava (former Area Commissioner)
- District 8 - Commissioner Danielle Cohen Higgins (new District Commissioner)
- Miami-Dade DTPW
- Emergency Responders
  - MDFR #52
- District 9 – Kionne McGhee (West of SW 127th Ave)
- Community Council 14

South Florida Water Management District (SFWMD)

Public Engagement Meetings

- Elected Official/Agency Kick-Off Meeting (January 27, 2022)
- Public Kick-Off Meeting (January 27, 2022)
- Alternatives Workshop (August 2022)
- Public Hearing (May 2023)



Project Milestone	Date
Begin PD&E Study	June 2021
Kick-Off Meeting	January 2022
Alternatives Workshop	August 2022
Public Hearing	May 2023
End PD&E Study (Location Design Concept Acceptance)	November 2023
Design Complete	November 2025
Construction	Not Programmed

Elsa N. Riverol, P.E.
Florida Department of Transportation, District Six
1000 NW 111th Avenue, Room 6251
Miami, FL 33172
(305) 470-5105
Elsa.Riverol@dot.state.fl.us

Monica Diaz
Community Outreach Specialist
(305) 573-0089
monica@iscprgroup.com

www.fdotmiamidade.com/QuailRoostPDE

- **Comment Box**
- **Email: Elsa.Riverol@dot.state.fl.us**
- **Project Website: www.fdotmiamidade.com/QuailRoostPDE**
- **Customer Survey**
- **Mail:**

  Florida Department of Transportation, District Six
  Attn: Elsa N. Riverol, P.E.
  1000 NW 111th Avenue, Room 6251
  Miami, FL 33172

Rules of Engagement

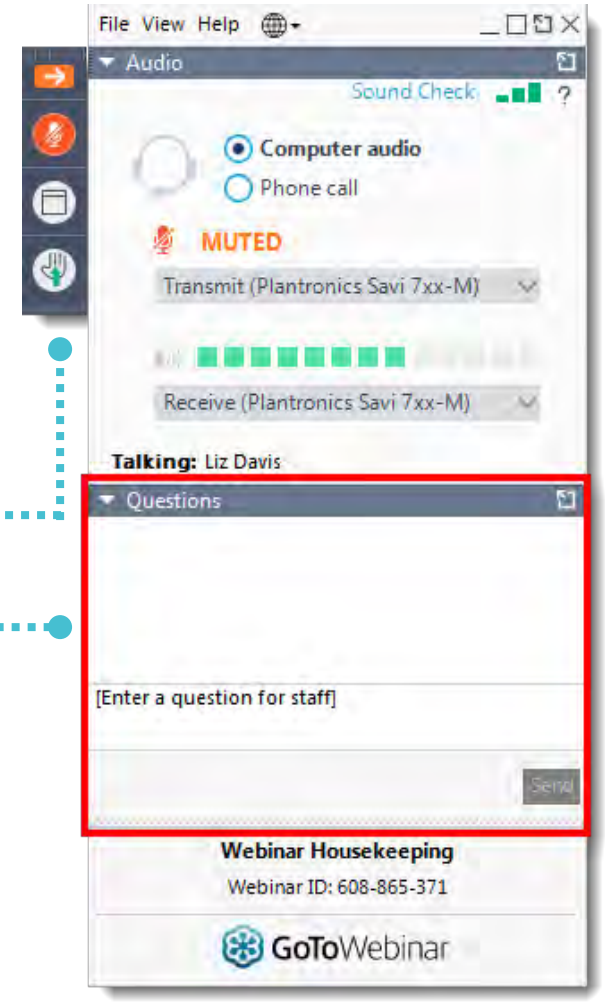
Virtual Attendees are **Automatically Muted** to Start the Meeting

Providing Comments During Open Discussion Period:

- In-person attendees form a line
- Call 1-800-418-0524
- **Raise hand during comment period, you will be unmuted in order of raising hands**
- Submit Comments via the “Questions” Box

Get Technical Assistance

- **Call 1-800-418-0524**



In-person attendees please form a line.

Online attendees submit your comments in the “Questions” box.
If you would like to speak, please press the raise your hand button.

Participants will have **three minutes** to provide comments.

Please clearly state your **name** and **address**.

TARGET

ZERO

FATALITIES & SERIOUS INJURIES

Thank You.

Public Kick-Off Meeting Report

State Road (SR) 994/Quail Roost Drive PD&E Study
From SW 137th Ave to SW 127th Ave
Project Identification Number: 445804-1-22-01

Thursday, January 27, 2022 | 5:30 p.m. - 7 p.m.

Table of Contents

Meeting Summary 3

Attendee Log 7

Exit Survey 10

Meeting Photos 13

Ads 16

Letters 20

Presentation 25

Meeting Summary

SR 994/Quail Roost Drive PD&E Study
From SW 137 Avenue to SW 127 Avenue
Public Meeting Summary

January 27, 2022 | 5:30 p.m. – 7 p.m.
Virtually: GoToWebinar
In-person: South Dade Regional Library
10750 SW 211 St,
Cutler Bay, FL 33189

Staff:

FDOT
Elsa N. Riverol, P.E.
Diego Rivadeneira

Gannett Fleming
Alina Fernandez, P.E.
Carlos Cejas, P.E.
Amanda De Cun, M.S.
Alejandro Uribe, P.E.
Ana Sandoval, P.E.

Infinite Source Communications
Monica Diaz
Maria Alzate
Andre Souza
Alexander Coicou
Veronica Fernandez

Choice Engineering Consultants
Eugenio Lopez, P.E.
Jessica Garcia
Elizabeth Correal

Glass Land Acquisition Service Specialists, Inc.
Richard Glass, SR / WA
See the attached sign-in sheets for a list of attendees

Purpose of the workshop:

The Public Kick-Off Meeting was held on January 27, 2022 to discuss the Project Development and Environment (PD&E) Study for SR 994/Quail Roost Drive. The purpose of this meeting was to present the study along the corridor. The meeting provided the public with an opportunity to learn about PD&E planning and development stage and purpose and need of the study. They were also able to provide comments and questions about the existing corridor conditions.

Presentation:
The presentation team discussed the following items during their presentation:

- Overview of a PD&E study
- Project location
- Adjacent projects
- Purpose and need
- Existing conditions
    - Safety
    - Traffic Operations
    - Structures and Multimodal Accommodations
    - Environmental considerations
- Public Engagement
- Project Schedule

Open Discussion – *Action items in bold*

- Ms. Mayra Febles commented that she lives on the corner of Quail Roost Drive and SW 137 Avenue. She asked whether the county line was going to be moved from SW 127 Avenue to SW 137 Avenue.
    - Mr. Carlos Cejas stated that the Department was not responsible for that consideration, and that the question would be best answered by Miami-Dade County. He noted that moving the county line has nothing to do with the project.

- A resident stated that there are several accidents in the area, especially at SW 132 Avenue in the morning. He also mentioned the need for street lighting between SW 132 Avenue and SW 122 Avenue.
    - Ms. Alina Fernandez commented that lighting is a critical improvement for the project.

- Ms. Mary Waters asked if the study was looking at whether to keep the section between SW 127 Avenue and SW 137 Avenue as a two-lane road, or to include a third lane for turning.
    - Mr. Cejas stated that the team is considering different alternatives, and that adding a third lane is one of the proposed improvements. He also mentioned the possibility of widening to four lanes.

- Ms. Waters stated that three lanes would be good, but four would be even better. She addressed the previous comment regarding street lighting, noting that the Redlands area had been opposed to such improvements in the past for aesthetic reasons.

- Mr. George Ciamba mentioned the lack of street lighting between SW 127 Avenue and SW 137 Avenue. He stated he was concerned about expanding the road to four lanes due to an increase in traffic speeds, which he believes are already out of control.
    - Ms. Fernandez stated that the team was looking at speed control strategies, including adding a traffic signal on SW 134 Avenue. She noted that speed would be analyzed in the future in more detail.

- Ms. Waters stated that the County is placing a traffic light at the intersection of SW 137 Avenue and Quail Roost Drive. She commented that she hopes that a traffic light is not placed in both locations.
    - Mr. Cejas explained the warrant process for traffic lighting, highlighting the formal warrant analysis requirements and access management criteria.

- Ms. Maria Alzate read a comment from a resident, which asked when the road will be ready for the public. The resident also stated that she believes a traffic signal at SW 134 Avenue will be a great idea if the four-lane alternative is selected.
    - Ms. Fernandez stated that based on the team's coordination with the County, the IT project is scheduled to be completed in October 2022.
    - Mr. Cejas stated that this was based on the latest information that the team had.

- Ms. Alzate read an email from Ms. Iarva Fernandez, which stated that her house is located behind two directional arrow signs at the end of SW 132 Avenue. She asked if there should be a metal barrier beneath the signal, and whether this was in the scope of the project.
    - Ms. Fernandez stated that a guard rail was not needed in this location based on the picture. She noted that this would be further analyzed in the future.

- Ms. Monica Diaz thanked the attendees for participating and proving their comments.

Action Items:
N/A

Attendee Log

445804-1-22-01 SR 994/SW 200 Street/Quail Roost Drive PD&E Study Public Kick-off Meeting			
Bradley	Catherine	catherine.bradley@dot.state.fl.us	01/27/2022 05:31 PM EST
Camba	Jorge Jr	cambaj@bellsouth.net	01/26/2022 05:59 PM EST
Campos	Erika	jloans@hotmail.com	01/27/2022 06:14 PM EST
Cejas	Carlos	ccejas@gfnet.com	01/27/2022 05:09 PM EST
Garcia	Ozzie	oige@att.net	01/15/2022 04:31 PM EST
Gaslonde	Jeannine	Jeannine.gaslonde@mdtpo.org	01/27/2022 05:33 PM EST
McMullen	Robert	robert.mcmullen@dot.state.fl.us	01/27/2022 12:52 PM EST
Mykytka	Jim	jim.mykytka@rsandh.com	01/27/2022 01:22 PM EST
Nammur	Michelle	mnammur@comcast.net	01/27/2022 05:48 PM EST
Rivadeneiravy	Diego	diego.rivadeneira@dot.state.fl.us	01/27/2022 06:04 PM EST
Rojas	Otto	OTTO.ROJAS@HWYSTUDIO.COM	01/27/2022 05:40 PM EST
SOUZA	ANDRE	andre@iscprgroup.com	01/27/2022 05:02 PM EST
Stone	Lisa	lisa.stone@kimley-horn.com	01/10/2022 12:02 PM EST
Waters	Mary	1fatcat@bellsouth.net	01/27/2022 05:58 PM EST
de la Rua Fernandez	Aymara	aymara7620@gmail.com	01/20/2022 05:30 PM EST
Actual Start Date/Time	**Duration**	**# Registered**	**# Attended**
01/27/2022 05:01 PM EST	1 hour 59 minutes	20	15

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

Kick-off Meeting/Reunión de lanzamiento

January 27, 2022/27 de Enero de 2022

State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development and Environment (PD&E) Study from SW 137 Avenue to SW 127 Avenue
Miami-Dade County
Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Ramon Soria

REPRESENTING/REPRESENTANDO:

ADDRESS/DIRECCIÓN:

PHONE NUMBER/NÚMERO DE TELÉFONO:

EMAIL/CORREO ELECTRÓNICO: Rsoria@Marlinengineering.com

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

Kick-off Meeting/Reunión de lanzamiento

January 27, 2022/27 de Enero de 2022

State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development and Environment (PD&E) Study from SW 137 Avenue to SW 127 Avenue
Miami-Dade County
Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

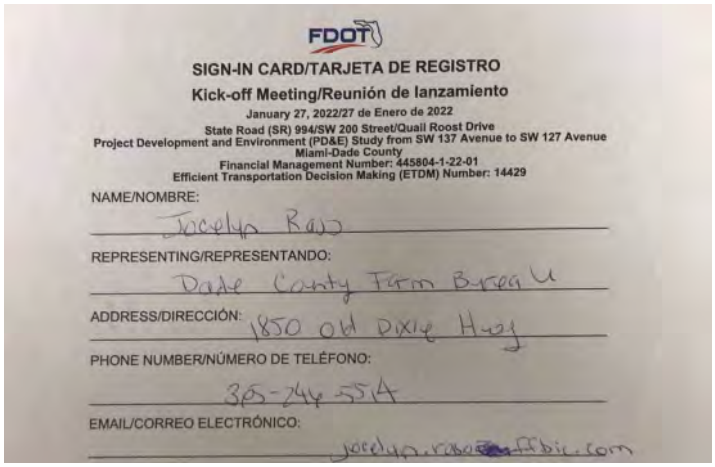
NAME/NOMBRE: Lucia Soria

REPRESENTING/REPRESENTANDO:

ADDRESS/DIRECCIÓN:

PHONE NUMBER/NÚMERO DE TELÉFONO:

EMAIL/CORREO ELECTRÓNICO: LSoria@Pantechconstruction.com



FDOT

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Kick-off Meeting/Reunión de lanzamiento

January 27, 2022/27 de Enero de 2022

State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development and Environment (PD&E) Study from SW 137 Avenue to SW 127 Avenue
Miami-Dade County
Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Jocelyn Rojo

REPRESENTING/REPRESENTANDO: Dade County Farm Bureau

ADDRESS/DIRECCIÓN: 1850 Old Dixie Hwy

PHONE NUMBER/NÚMERO DE TELÉFONO: 305-244-5514

EMAIL/CORREO ELECTRÓNICO: jocelyn.rojo@ffbic.com

Exit Survey

445804-1-22-01 SR 994/SW 200 Street/Quail Roost Drive PD&E Study Public Kick-off Meeting												
Last Name	**First Name**	**Email Address**	**Submitted Date/Time**	**The Virtual Workshop was effective in conveying how FDOT functions.**	**I feel that I understand the concepts being presented.**	**I found the Q&A period beneficial?**	**The materials presented during this webinar were easy to understand.**	**The presenters were clear during the presentation**	**The length of the presentation was appropriate**	**Do you prefer a virtual public webinar or an in person workshop?**	**Any other comments or feedback you would like to provide to the project team?**	**I am open to attending an in-person public meeting provided social distancing restrictions and protocols are in place.**
Garcia	Ozzie	oige@att.net	01/27/2022 06:46 PM EST	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		Strongly Agree
SOUZA	ANDRE	andre@iscprgroup.com	01/27/2022 07:00 PM EST	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		Neutral
Camba	Jorge Jr	cambaj@bellsouth.net	01/27/2022 06:41 PM EST	Strongly Agree	Somewhat Agree	Strongly Agree	Somewhat Agree	Strongly Agree	Strongly Agree	Virtual Workshop	Thank you for your time and for explaining the process of this expansion. Traffic has dramatically increased in this area due to new construction of homes and schools. Please take into account that lighting has to improve on this stretch of road. Many accidents occur near the bridge at the Black Creek Canal due in part to poor lighting and extremely high rates of speed when it is dark out. Please take into account the residents directly on Quail Roost are the most impacted by	Somewhat Agree
de la Rua Fernandez	Aymara	aymara7620@gmail.com	01/27/2022 06:29 PM EST	Somewhat Agree	Neutral	Somewhat Agree	Neutral	Somewhat Agree	Somewhat Agree	Virtual Workshop		Neutral

SURVEY FORM

Project Development and Environment (PD&E) Study
State Road (SR) 994/SW 200 Street/Quail Roost Drive
From SW 137 Avenue to SW 127 Avenue
Financial Management Number: 445804-1-22-01
Miami-Dade County, Florida

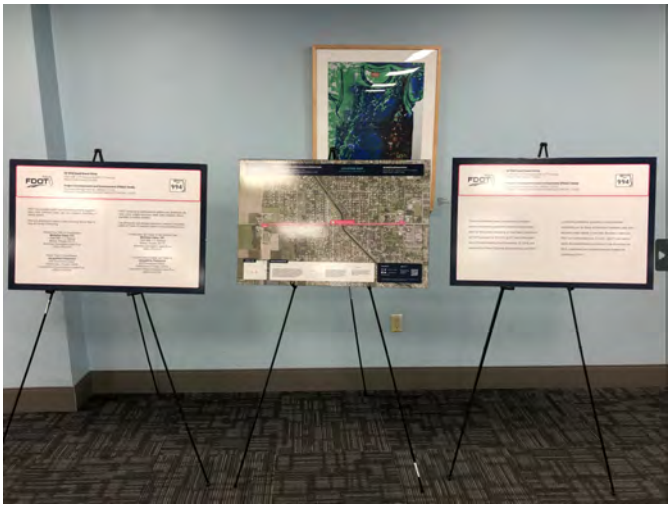
Kick-off Meetings
South Dade Regional Library
10750 SW 211 Street
Cutler Bay, FL 33189
Thursday, January 27, 2022
3 p.m. to 4:30 p.m. 5:30 p.m. to 7 p.m.

1. The Public Meeting was effective in conveying the project updates.
   a. Strongly Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree
2. I feel that I understand the concepts being presented tonight.
   a. Strongly Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree
3. I found the Q&A period beneficial.
   a. Strongly Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree
4. The materials presented during this presentation were easy to understand.
   a. Strongly Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree
5. The presenters were clear during the presentation.
   a. Strongly Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree
6. The length of the presentation was appropriate.
   a. Strongly Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree
7. Do you prefer a virtual public webinar or an in person public meeting?
   a. Virtual Public Meeting
   b. In-Person Workshop
8. Any other comments or feedback you would like to provide to the project team?

Meeting was Great.

Name: Luis A Lopez
Address: 19751 SW 132 Pl Mia Fl 33177
Phone Number:
Email: Lopez1432@hotmail.com

Meeting Photos

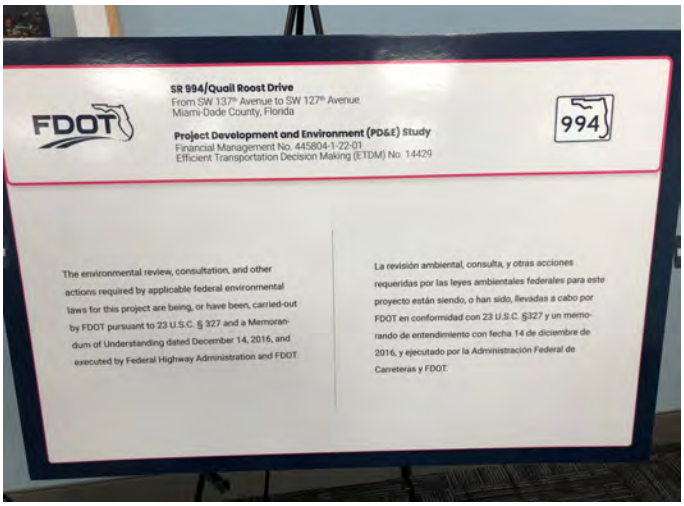


FDOT

FDOT

FDOT

FDOT
LOCATION MAP
MAPA DEL PROYECTO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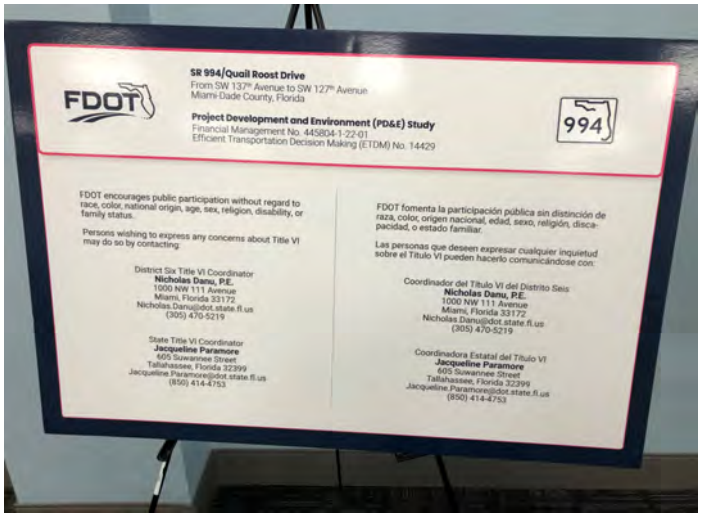
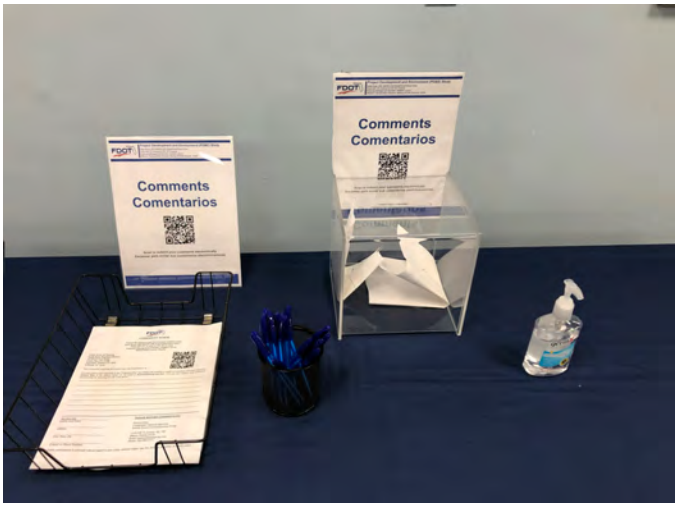
SR 994/Quail Roost Drive
From SW 137th Avenue to SW 127th Avenue
Miami-Dade County, Florida
Project Development and Environment (PD&E) Study
Financial Management No. 445804-1-22-01
Efficient Transportation Decision Making (ETDM) No. 14429
994
The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by Federal Highway Administration and FDOT.
La revisión ambiental, consulta, y otras acciones requeridas por las leyes ambientales federales para este proyecto están siendo, o han sido, llevadas a cabo por FDOT en conformidad con 23 U.S.C. §327 y un memorando de entendimiento con fecha 14 de diciembre de 2016, y ejecutado por la Administración Federal de Carreteras y FDOT.


FDOT
SR 994/Quail Roost Drive
From SW 137th Avenue to SW 127th Avenue
Miami-Dade County, Florida
Project Development and Environment (PD&E) Study
Financial Management No. 445804-1-22-01
Efficient Transportation Decision Making (ETDM) No. 14429
994
FDOT encourages public participation without regard to race, color, national origin, age, sex, religion, disability, or family status.
Persons wishing to express any concerns about Title VI may do so by contacting:
District Six Title VI Coordinator
Nicholas Danu, P.E.
1000 NW 111 Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219
State Title VI Coordinator
Jacqueline Paramore
605 Suwannee Street
Tallahassee, Florida 32399
Jacqueline.Paramore@dot.state.fl.us
(850) 414-4753
FDOT fomenta la participación pública sin distinción de raza, color, origen nacional, edad, sexo, religión, discapacidad, o estado familiar.
Las personas que deseen expresar cualquier inquietud sobre el Título VI pueden hacerlo comunicándose con:
Coordinador del Título VI del Distrito Seis
Nicholas Danu, P.E.
1000 NW 111 Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219
Coordinadora Estatal del Título VI
Jacqueline Paramore
605 Suwannee Street
Tallahassee, Florida 32399
Jacqueline.Paramore@dot.state.fl.us
(850) 414-4753


Comments
Comentarios
Comments
Comentarios

Sign-in
Firmar

ADS

Public Kick-off Meeting Notice
State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development and Environment (PD&E) Study
Study Identification Number: 445804-1-22-01

The Florida Department of Transportation (FDOT) will host a Public Kick-off Meeting for the SR 994/SW 200 Street/Quail Roost Drive PD&E Study from SW 137 Avenue to SW 127 Avenue, in Miami-Dade County, Florida.

The meeting will be held both in-person and virtually on Thursday, January 27, 2022 from 5:30 p.m. to 7 p.m.

Attend In-Person:

South Dade Regional Library, 10750 SW 211 Street, Cutler Bay FL, 33189
The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines. Space is limited.

Attend Virtually:

https://attendee.gotowebinar.com/register/6195687968448262414
Participants can also call in by dialing
+1 877 309 2074; access code: 705-359-589

To RSVP, visit: www.fdotmiamidade.com/QuailRoostPDE.com.
or scan the QR Code:

The meeting will consist of a formal presentation followed by an open discussion. Questions will be responded to as time permits, in the order received. If your question is not responded to during the meeting, a response will be provided in writing. Persons wishing to submit statements, in place of or in addition to oral statements, may do so at the meeting or by sending them to the Community Outreach Specialist, Monica Diaz at 305-573-0089 or via email at monica@iscprgroup.com. All statements postmarked on or before February 7, 2022 will become part of the meeting record.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Florida Highway Administration (FHWA) and FDOT.

Public participation at this meeting is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop is asked to advise the agency at least seven days before the meeting by contacting: Nicholas Danu, P.E. at 305-470-5219 or in writing: FDOT, 1000 N.W. 111 Avenue, Miami, FL 33172, email: Nicholas.Danu@dot.state.fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1 800-955-8770 (Voice).

Anuncio de Reunión Pública de Lanzamiento
Estudio Ambiental y de Desarrollo del Proyecto (PD&E)
Carretera Estatal (SR) 994/Calle 200 del suroeste/Quail Roost Drive
Número de gestión financiera: 445804-1-22-01

El Departamento de Transporte de Florida (FDOT) llevará a cabo una reunión pública de lanzamiento para el PD&E de la SR 994/Calle 200 del suroeste/Quail Roost Drive desde la Avenida 137 del suroeste hasta la Avenida 127 del suroeste, en el condado de Miami-Dade, Florida.

La reunión se llevará acabo tanto en persona como virtualmente, el jueves 27 de enero de 2022 desde las 5:30 p.m. hasta las 7 p.m.

Participe en persona:

South Dade Regional Library, 10750 SW 211 Street, Cutler Bay FL, 33189
La reunión en persona cumplirá con todas las pautas actuales de los Centros para el Control y la Prevención de Enfermedades (CDC).
El espacio es limitado

Participe virtualmente:

https://attendee.gotowebinar.com/register/6195687968448262414
Los participantes también pueden llamar al
+1 (877) 309-2074
código de acceso: 707-359-589
Para registrarse, visite: www.fdotmiamidade.com/QuailRoostPDE O escanee el código QR:

La reunión consistirá en una presentación formal seguida de un foro abierto. Se responderán las preguntas, si el tiempo lo permite y en el orden en que se reciban. Si su pregunta no se responde durante la reunión, se le enviará una respuesta por escrito. Las personas que deseen enviar comentarios escritos, en lugar o además de comentarios orales, podrán hacerlo en la reunión o enviarlos a la Especialista de Alcance Comunitario Monica Diaz al teléfono 305-573-0089 o por correo electrónico a monica@iscprgroup.com. Todos los comentarios que se envíen con fecha postal de matasellos del 7 de febrero de 2022 o anterior formarán parte del registro de la reunión.

La revisión, consulta ambiental y otras acciones que exigen las leyes ambientales federales correspondientes a este proyecto están siendo, o han sido, llevadas a cabo por el FDOT conforme al artículo 23 U.S.C. 327 y al Memorando de Entendimiento con fecha del 14 de diciembre de 2016, y ejecutado por la Administración Federal de Autopistas (FHWA) y el FDOT.

Se solicita la participación del público en esta reunión sin importar su raza, color, origen nacional, edad, sexo, religión, discapacidad o estado familiar. Conforme a las disposiciones de la Ley para Estadounidenses con Discapacidades, las personas que requieran adaptaciones especiales para participar en esta reunión deben notificarlo a la agencia, al menos siete días antes de la misma, comunicándose con: Nicholas Danu, P.E. at 305-470-5219 o por escrito: FDOT, 1000 N.W. 111 Avenue, Miami, FL 33172, o por correo electrónico: Nicholas.Danu@dot.state.fl.us. Si tiene impedimentos auditivos o para hablar, comuníquese con la agencia mediante el servicio de Florida Relay Service, 1-800-955-8771 (teléfono de texto) o 1 800-955-8770 (voz).

Florida Administrative Weekly Notice of Hybrid Kick-off Meetings

The Florida Department of Transportation District Six announces two Hybrid Kick-off Meetings to which all persons are invited.

DATE AND TIME: Thursday, January 27, 2022, from 3 p.m. to 4:30 p.m. and from 5:30 p.m. to 7 p.m.

The meetings will be held both in-person and virtually.

Attend in person South Dade Regional Library located at 10750 SW 211 Street, Cutler Bay, FL 33189. The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

Attend virtually via GoToWebinar. More event details below.

GENERAL SUBJECT MATTER TO BE CONSIDERED:

The Florida Department of Transportation (FDOT), District Six, has scheduled both an Elected Officials/Agencies Kick-off Meeting and a Public Kick-off Meeting for the SR 994/SW 200 Street/Quail Roost Drive Project Development & Environment (PD&E) Study from SW 137 Avenue to SW 127 Avenue, in Miami-Dade County, Florida. The project identification number is 445804-1-22-01. The project's primary objective is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community.

The meetings will be held both in-person and virtually.

The Elected Officials/Agencies Kick-off Meeting is scheduled for Thursday, January 27, 2022, from 3 p.m. to 4:30 p.m. Attend in person at South Dade Regional Library located at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online at www.fdotmiamidade.com/QuailRoostPDE.com. Space is limited.

To participate virtually, from your **computer, tablet or smartphone** please click on the link below: https://attendee.gotowebinar.com/register/3382433537155283469. Participants can also use their phone by dialing **+1 (866) 952-8437;** access code: **760-696-239**

A Public Kick-off Meeting will also be held for the public on Thursday, January 27, 2022, from 5:30 p.m. to 7 p.m. Attend in person at South Dade Regional Library located at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online at www.fdotmiamidade.com/QuailRoostPDE.com. Space is limited.

To participate virtually, from your computer, tablet or smartphone please click on the link below: https://attendee.gotowebinar.com/register/6195687968448262414. Participants can also use their phone by dialing +**1 (877) 309-2074**; access code: **705-359-589**.

The same information will be presented at both meetings. These meetings are an opportunity to provide attendees with a short presentation of the proposed project, including existing conditions as well as environmental effects, followed by a question and answer session. Questions will be responded to as time permits, in the order received. If your question is not responded to during the meeting, a response will be

provided in writing. Persons wishing to submit statements, in place of or in addition to oral statements, may do so at the meeting or by sending them to the Community Outreach Specialist. All statements postmarked on or before February 7, 2022, will become part of the meeting record.

A copy of the agenda may be obtained by contacting: Community Outreach Specialist Monica Diaz at 305-573-0089, email: monica@iscprgroup.com

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by the Florida Highway Administration (FHWA) and FDOT.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability, or family status.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting is asked to advise the agency at least seven days before the meeting by contacting: Nicholas Danu, P.E. at 305-470-5219 or in writing at FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at Nicholas.Danu@dot.state.fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice).

Letters

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111th Avenue
Miami, Florida 33172-5800

KEVIN J. THIBAULT, P.E.
SECRETARY

January 7, 2022

INCLUYE CARTA EN ESPAÑOL

SUBJECT: Public Kick-off Meeting
State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development & Environment (PD&E) Study
From SW 137 Avenue to SW 127 Avenue
Miami-Dade County, Florida
Financial Management Number: 445804-1-22-01
Federal-Aid Project Number: TBD
Efficient Transportation Decision Making (ETDM) Number: 14429

Dear Property Owner(s) or Current Resident:

The Florida Department of Transportation (FDOT) District Six will host a Kick-off Meeting for the State Road (SR) 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue, in Miami-Dade County, Florida. The project's primary objective is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community.

The meeting will be held both in-person and virtually, on Thursday, January 27, 2022, from 5:30 p.m. to 7 p.m. A location map of this meeting site is provided at the end of this letter.

Attend In Person
Attend in person at South Dade Regional Library located at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online at www.fdotmiamidade.com/QuailRoostPDE.com or scan the QR code. Space is limited. The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

Attend Virtually
To participate virtually from your computer, tablet or smartphone please register using the following link: **https://attendee.gotowebinar.com/register/6195687968448262414**, or scan the QR code. Participants can also call in by dialing **+1 877 309 2074**; access code: **705-359-589.**

The meeting will consist of a formal presentation starting at 5:45 p.m. followed by an open discussion. Questions will be responded to as time permits, in the order received. If your question is not responded to during the meeting, a response will be provided in writing. Persons wishing

to submit statements, in place of or in addition to oral statements, may do so at the meeting or by sending them to the Community Outreach Specialist, Monica Diaz, at 305-573-0089 or via email at monica@iscprgroup.com. All statements postmarked on or before February 7, 2022, will become part of the meeting record. This letter is being sent to all property owners and tenants within at least 500 feet of either side of the proposed project and the other public officials, regulatory agencies, organizations and individuals interested in the project.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Florida Highway Administration (FHWA) and FDOT.

FDOT encourages public participation without regard to race, color, national origin, age, sex, religion, disability or family status. Persons who need special assistance under the Americans with Disabilities Act of 1990 or who need translation services (free of charge) should contact Nicholas Danu, P.E. at (305) 470-5219 or in writing to FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at: Nicholas.Danu@dot.state.fl.us at least seven days prior to the meeting.

If you would like further information about this project, please contact me at 305-470-5105 or by email at elsa.riverol@dot.state.fl.us. You may also visit the project website at www.fdotmiamidade.com/QuailRoostPDE.com.

Sincerely,

Elsa Riverol, P.E.
FDOT Project Manager

Enclosure

Departamento de Transporte de Florida

RON DESANTIS
GOBERNADOR

1000 NW 111th Avenue
Miami, Florida 33172-5800

KEVIN J. THIBAULT, P.E.
SECRETARIO

7 de enero de 2022

ENGLISH LETTER ENCLOSED

ASUNTO: Anuncio de reunión pública de lanzamiento
Estudio ambiental y de desarrollo del proyecto (PD&E)
Carretera Estatal (SR) 994/Calle 200 del suroeste/Quail Roost Drive desde la Avenida 137 del suroeste hasta la Avenida 127 del suroeste, en el condado de Miami-Dade, Florida
Número de gestión financiera: 445804-1-22-01
Número del proyecto de ayuda federal: A determinar
Número de toma de decisiones sobre transporte eficiente (ETDM): 14429

Estimado propietario o residente actual:

El Distrito Seis del Departamento de Transporte de la Florida (FDOT) organizará una reunión de lanzamiento para el PD&E de la SR 994/Calle 200 del suroeste/Quail Roost Drive desde la Avenida 137 del suroeste hasta la Avenida 127 del suroeste, en el condado de Miami-Dade, Florida. El objetivo principal del proyecto es proporcionar capacidad adicional para satisfacer la demanda de viajes en el futuro mientras se mejora la seguridad general a lo largo del corredor del proyecto y se mejora la movilidad de la comunidad.

La reunión se llevará acabo tanto en persona como virtualmente, el jueves 27 de enero de 2022 desde las 5:30 p.m. hasta las 7 p.m. El boletín informativo incluido junto a esta notificación contiene el mapa de ubicación del lugar de la reunión.

Participe en persona
Asista en persona a South Dade Regional Library at 10750 SW 211 Street, Cutler Bay, FL 33189. Regístrese en www.fdotmiamidade.com/QuailRoostPDE o escanee el código QR. El espacio es limitado.

La reunión en persona cumplirá con todas las pautas actuales de los Centros para el Control y la Prevención de Enfermedades (CDC).

Participe virtualmente
Para participar en forma virtual desde su computadora, tableta o teléfono inteligente, regístrese en el siguiente enlace: https://attendee.gotowebinar.com/register/6195687968448262414 o escanee el código QR. Los participantes también pueden llamar al **+ 1 877 309 2074**; código de acceso: **705-359-589**

Improve Safety, Enhance Mobility, Inspire Innovation
www.fdot.gov

La reunión consistirá en una presentación formal a partir de las 5:45 p.m. seguida de un foro abierto. Las preguntas se responderán, si el tiempo lo permite y en el orden en que se reciban. Si su pregunta no se responde durante la reunión, se le enviará una respuesta por escrito. Las personas que deseen enviar comentarios escritos, en lugar o además de comentarios orales, podrán hacerlo en la reunión o enviarlos a la Especialista de Alcance Comunitario Monica Diaz al teléfono 305-573-0089 o por correo electrónico a monica@iscprgroup.com. Todos los comentarios que se envíen con fecha postal de matasellos del 7 de enero de 2022 o anterior formarán parte del registro de la reunión. Avisos similares a este fueron enviados a todos los propietarios e inquilinos ubicados a una distancia de 500 pies a cada lado del proyecto propuesto y a los funcionarios públicos, agencias reguladoras, organizaciones y partes interesadas.

La revisión, consulta ambiental y otras acciones que exigen las leyes federales ambientales correspondientes a este proyecto están siendo o han sido llevadas a cabo por el FDOT de conformidad con el artículo 23 USC327 y un Memorando de Entendimiento con fecha 14 de diciembre de 2016 firmado por la Administración Federal de Carreteras (FHWA) y el FDOT.

El FDOT solicita la participación del público independientemente de la raza, el color, la nacionalidad de origen, la edad, el sexo, la religión, discapacidad o estado familiar. Las personas que necesitan asistencia especial de conformidad con la Ley para Estadounidenses con Discapacidades de 1990 o que necesitan servicios de traducción (sin cargo) deben comunicarse con Nicholas Danu, P.E., al teléfono (305) 470-5219, o por escrito al FDOT, 1000 NW 111 Avenue, Miami, FL 33172 o por correo electrónico a Nicholas.Danu@dot.state.fl.us al menos siete días antes de la reunión.

Si desea obtener más información sobre este proyecto, comuníquese conmigo al teléfono 305-470-5105 o por correo electrónico a elsa.riverol@dot.state.fl.us. También puede visitar el sitio web del proyecto en www.fdotmiamidade.com/QuailRoostPDE.com.

Sinceramente,

Elsa Riverol, P.E.
Gerente del Proyecto

Anexos

Presentation

SR 994/Quail Roost Drive PD&E Study

From SW 137th Ave to SW 127th Ave
FM 445804-1-22-01

Kick-Off Meeting

January 27, 2022

Traducción

Si usted necesita traducción durante la reunión por favor comuníquese conmigo. Usted puede presionar el botón de mano levantada, o puede pedir ayuda de traducción a través del chat y un miembro de nuestro equipo lo asistirá.

SR 994/Quail Roost Drive PD&E Study

From SW 137th Ave to SW 127th Ave
FM 445804-1-22-01

Kick-Off Meeting

January 27, 2022

Presenters / Panelists

Project Manager

Elsa N. Riverol, P.E.

FDOT

Project Manager

Alina Fernandez, P.E.

Gannett Fleming

Engineering

Carlos Cejas, P.E.

Gannett Fleming

Environmental

Amanda De Cun, M.S.

Gannett Fleming

29

Elected Officials

We would like to recognize any federal, state, county, or city officials who may be present.

Please stand or select the raise hand feature on the control panel.

30

Rules of Engagement

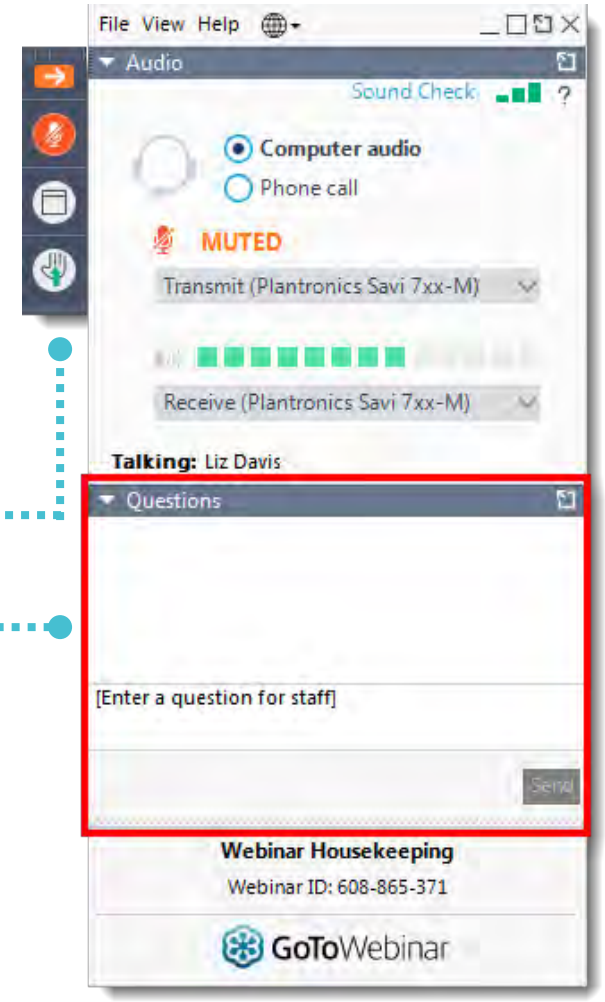
Virtual Attendees are **Automatically Muted** to Start the Meeting

Providing Comments During Open Discussion Period:

- In-person attendees form a line
- Call 1-800-418-0524
- **Raise hand during comment period, you will be unmuted in order of raising hands**
- Submit Comments via the “Questions” Box

Get Technical Assistance

- **Call 1-800-418-0524**



Title VI Non-Discrimination Compliance

Public participation at this Public Meeting is encouraged and solicited without regard to race, color, national origin, age, sex, religion, disability, or family status.

Persons wishing to express any concerns about Title VI may do so by contacting either:

Florida Department of Transportation
District Six Office
District Six Title VI Coordinator
Nicholas Danu, P.E.
1000 NW 111th Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219

Florida Department of Transportation
Central Office
State Title VI Coordinator
Jacqueline Paramore
605 Suwannee Street
Tallahassee, Florida 32399
Jacqueline.Paramore@dot.state.fl.us
(850) 414-4753

NEPA Assignment Statement

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Federal Highway Administration (FHWA) and the FDOT.

What is a PD&E Study?

Engineering Analysis

Safety

Traffic Operations

Access Management

Right-of-Way

Structures

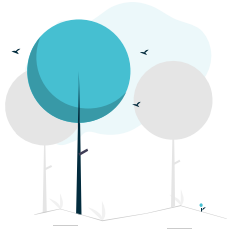
Drainage

Utilities

Lighting

Landscaping

Cost Estimates



Environmental Analysis

Sociocultural Effects

- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources

- Archaeological and Historic Resources
- Recreational

Natural Resources

- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects

- Noise
- Air Quality
- Contamination

Public Engagement Program

Public Involvement Plan

Kick-Off Meetings

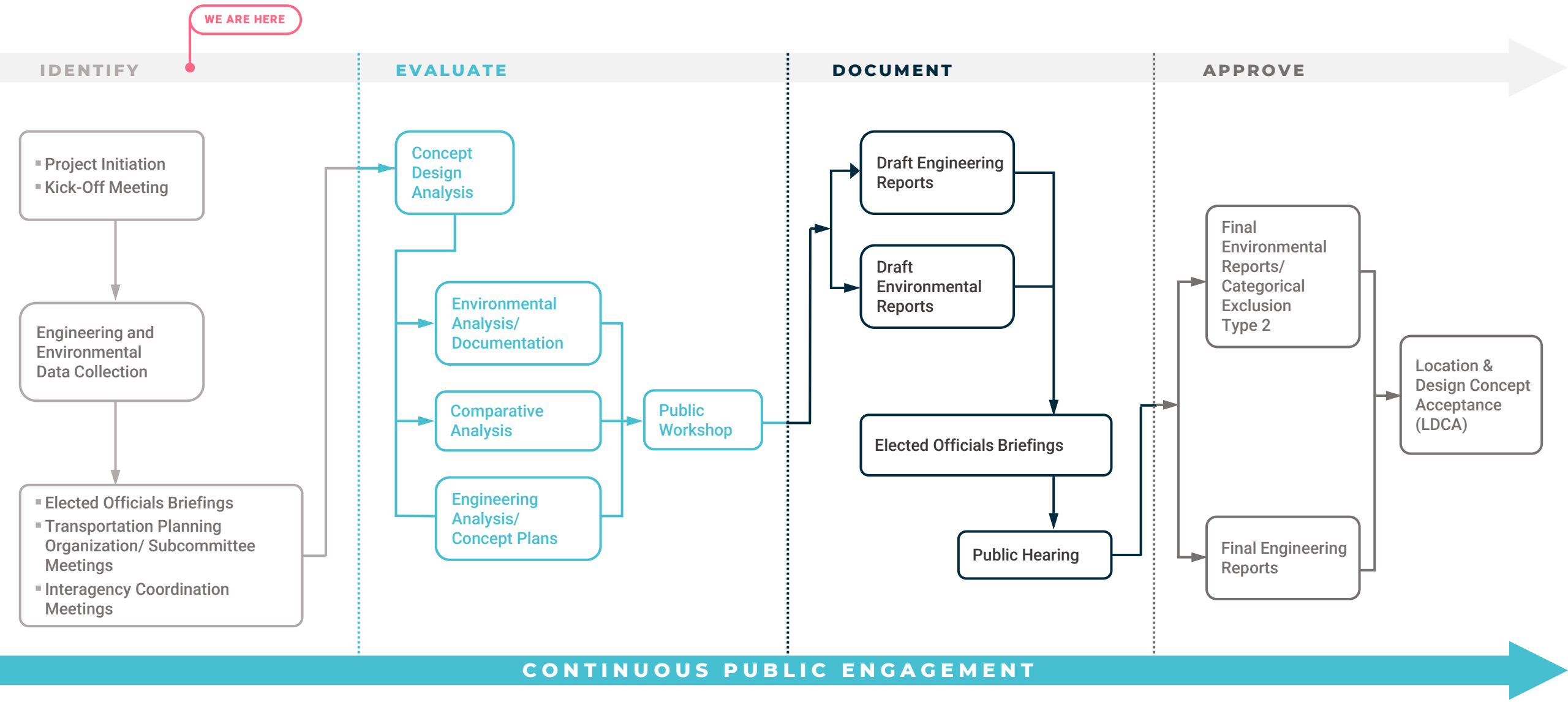
Elected Officials Briefings

Agency Meetings

Alternatives Workshop

Public Hearing

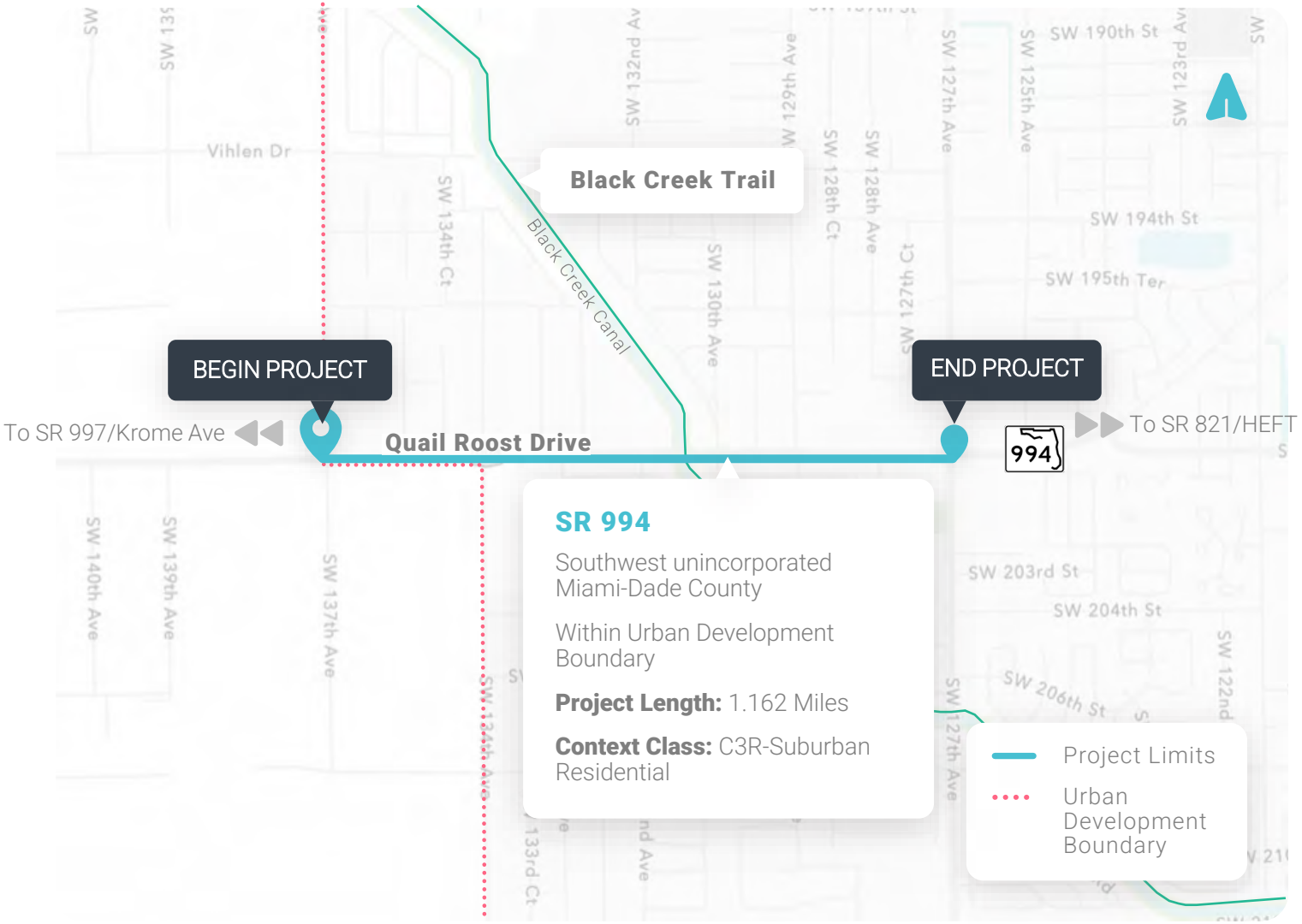
PD&E Study Process



Project Location

SR 994 • SW 200th St • Quail Roost Drive

from West of SW 137 Ave (MP 4.000) to East of SW 127 Ave (MP 5.162)



SR 994

Southwest unincorporated Miami-Dade County

Within Urban Development Boundary

Project Length: 1.162 Miles

Context Class: C3R-Suburban Residential

Land Use

Agricultural & Single-Family

Limits go beyond Urban Development Boundary Line

Key Features

Bridge over Black Creek Canal

Black Creek Trail Crossing

Historic Resources

Historic walls and homes:

- NW corner of SW 137th Ave
- SW corner of SW 137th Ave
- SE corner of SW 134th Ave

Adjacent Projects

1 **FM 443907-1**
SR 994/Quail Roost Dr Resurfacing from Krome Ave to SW 137th Ave
Construction starts 06/2023
Completed by 03/2024

2 **MDC Project No. 20040343**
SW 137th Ave widening from US-1 to Quail Roost Dr
Under construction
Completed by 10/2022

3 **MDC Project No. 20180004**
SW 127th Ave & SW 200th St
Intersection improvements to add NB turn lane
Design completed 11/2020
Construction starts 07/2022

4 **FM 429341-3**
SR 994/Quail Roost Dr Resurfacing from SW 127th Ave to SW 113th Ave
Construction started 09/2021
Completed by 09/2022

Purpose and Need

Safety

Improve Safety Conditions and Emergency Evacuation and Response Times

78 crashes per year (2014-2018)

Two recent fatal crashes (2016 & 2019)

Four locations in High Crash Spot List

One segment in High Crash Segment List (MP 4.075 to MP 4.961)

Capacity

(Transportation Demand)

Improve Operational Conditions and Accommodate Projected Travel Demand

Multiple segments operating at LOS F

Future conditions anticipated to worsen if no improvements implemented

Modal

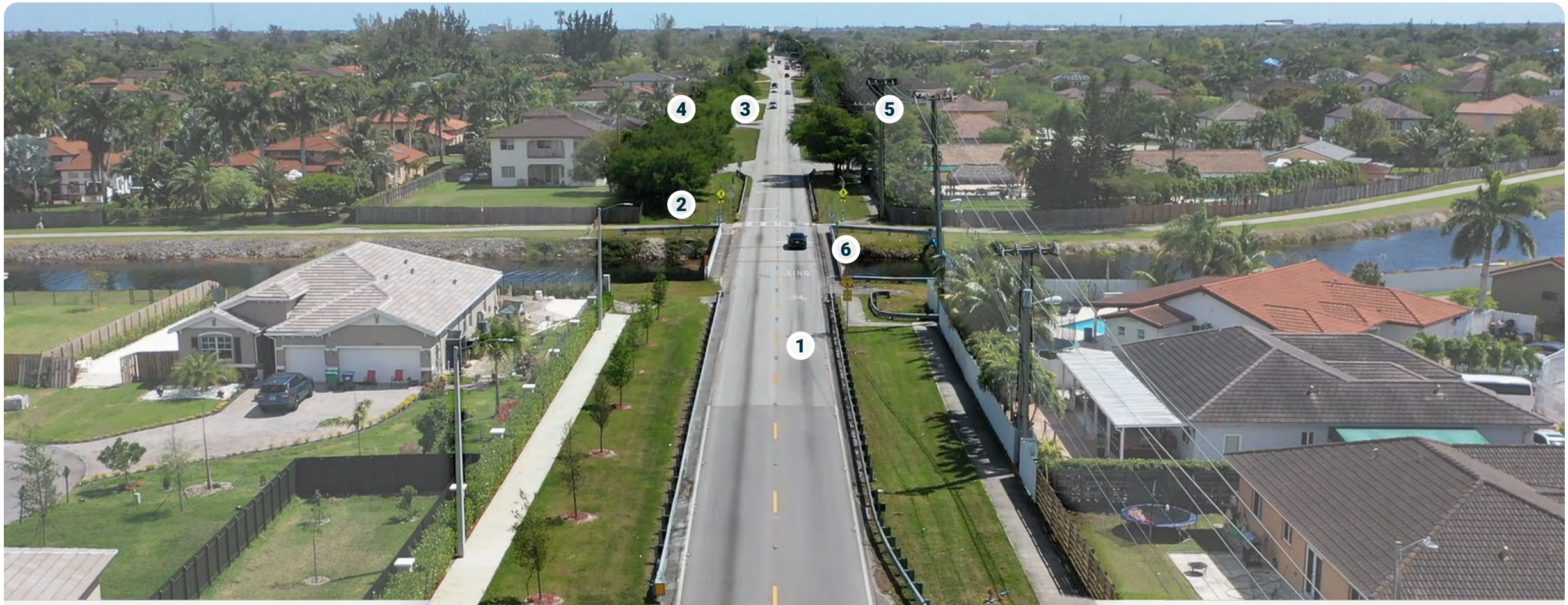
Interrelationships

Enhance Mobility Options and Multi-Modal Access

No designated bicycle lanes

Non-continuous sidewalks

Existing Roadway / Typical Section



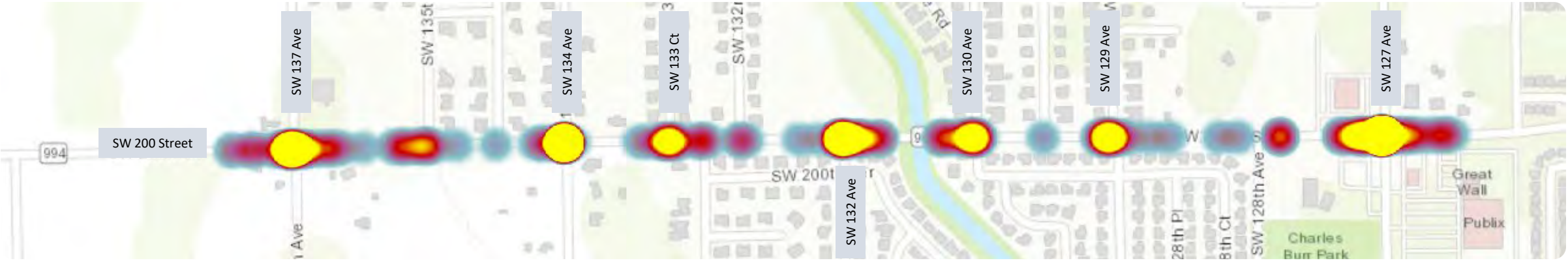
1. Two-lane undivided roadway
2. Black Creek Trail Crossing (at-grade mid-block crossing)
3. Missing Sidewalks
4. Mature Landscaping
5. Utilities (not always in back of SW)
6. Bridge over Black Creek Canal

6’	Varies	11.5’	11.5’	Varies	6’

ROW: 55’ - 100’

Posted Speed: 40MPH

Crash Data



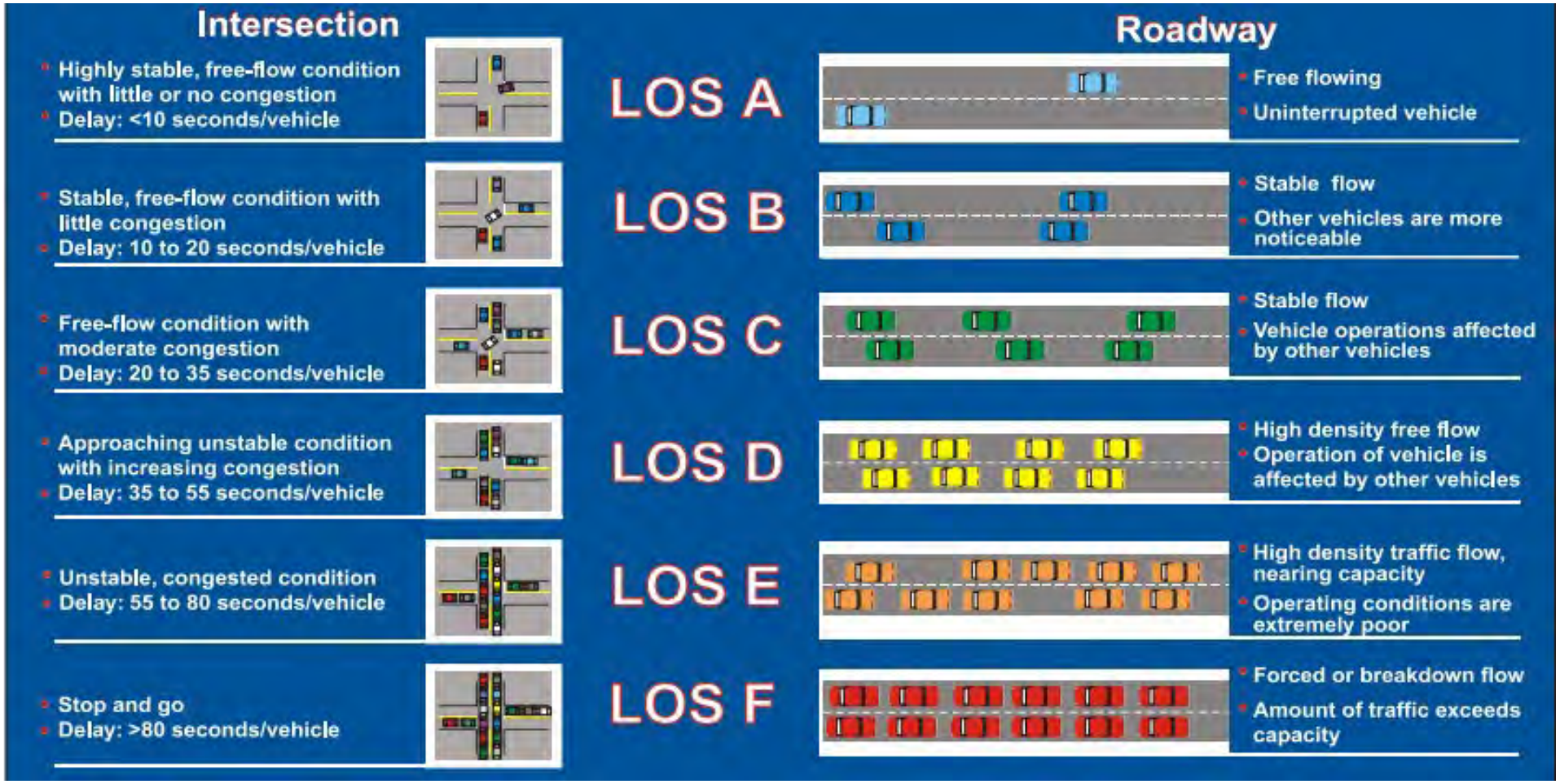
Corridor Wide Crash Summary (2014 – 2018)							
390 Crashes							
135 Injury Crashes (35%), 1 Fatal Crash (< 1%)							
2 Pedestrian/Bicyclist Crashes (< 1%)							
Leading Crash Types	**2014**	**2015**	**2016**	**2017**	**2018**	**5-Year Total**	**%**
Rear End	27	33	38	48	41	187	48%
Angle	10	9	21	22	15	77	20%
Sideswipe	6	8	7	5	17	43	11%
Left Turn	8	7	9	6	10	40	10%

Corridor Wide Crash Summary (2019 – 2020)				
170 Crashes				
46 Injury Crashes (27%), 1 Fatal Crash (< 1%)				
1 Pedestrian/Bicyclist Crashes (< 1%)				
Leading Crash Types	**2019**	**2020**	**2-Year Total**	**%**
Rear End	43	27	70	41%
Left Turn	22	15	37	22%
Sideswipe	12	8	20	12%
Angle	7	7	14	8%

FDOT High Crash List	Total
High Crash Segments (from SW 137 Ave to east of SW 129 Ave)	1
High Crash Spots (SW 137 Ave, SW 134 Ave, SW 132 Ave & SW 127 Ave)	4

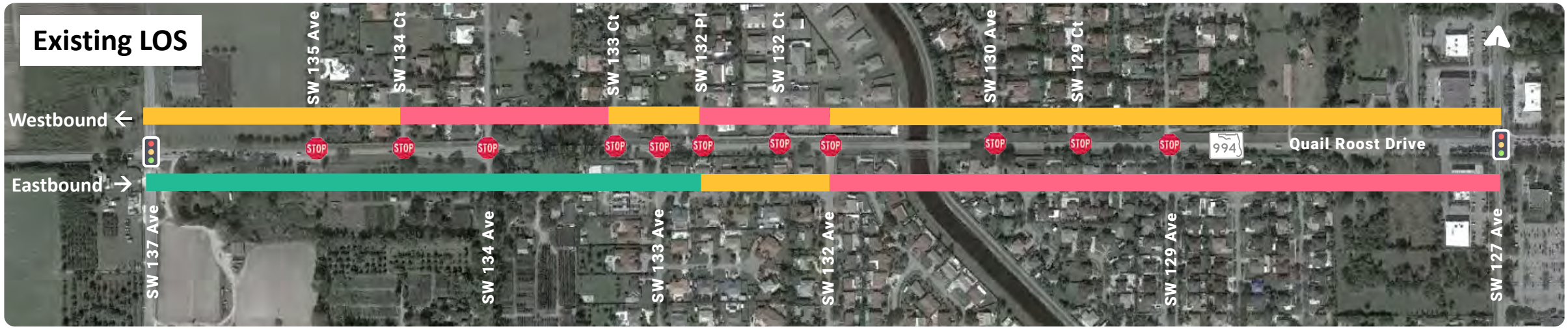
Level of Service (LOS)

Level of Service is a measure of traffic operational conditions. Six levels of service are defined for each type of roadway section and are given letter designations from A to F, with A representing the best operating conditions and F representing the worst operating conditions.



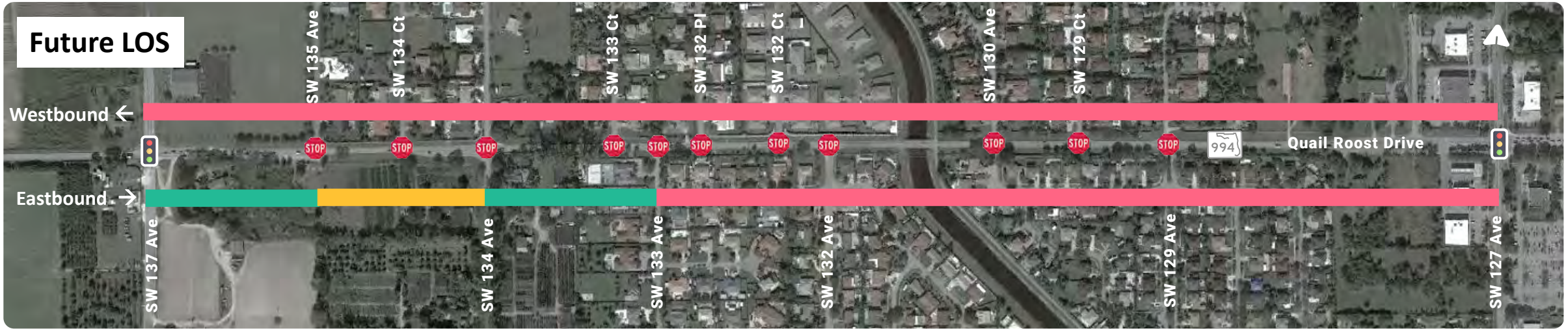
Traffic Operations – Corridor

Existing Level of Service (LOS) – AM Peak Period



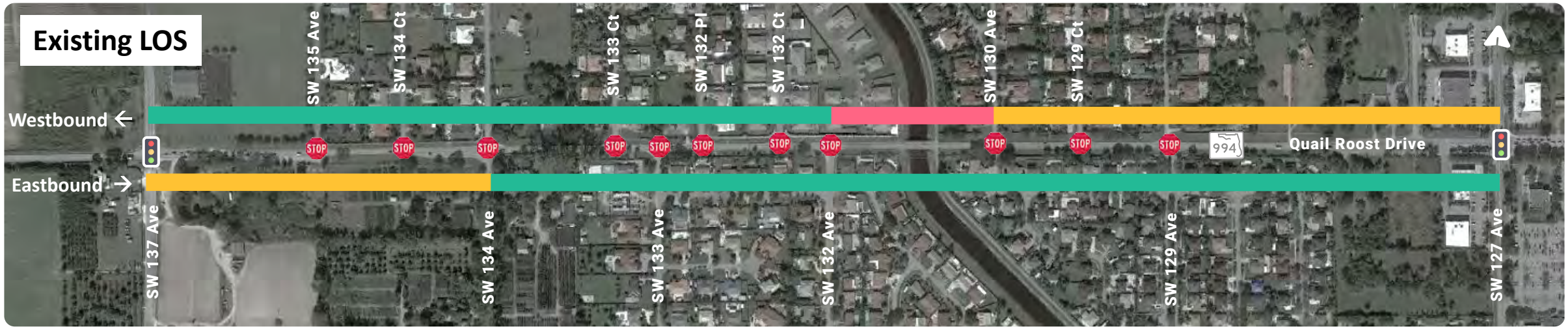
Future LOS without improvements (No Build) – AM Peak Period

Legend: ≤ LOS C | LOS D | LOS E | LOS F



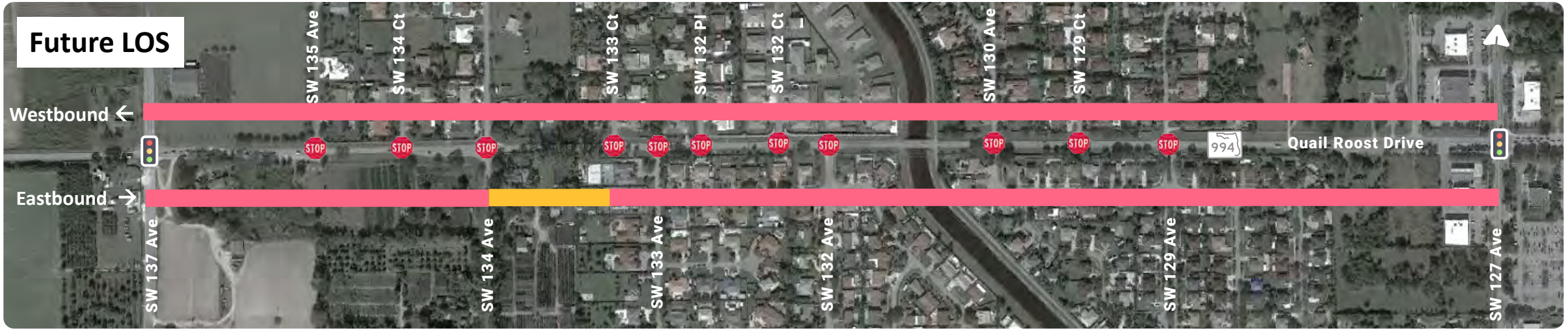
Traffic Operations – Corridor

Existing Level of Service (LOS) – PM Peak Period



Future LOS without improvements (No Build) – PM Peak Period

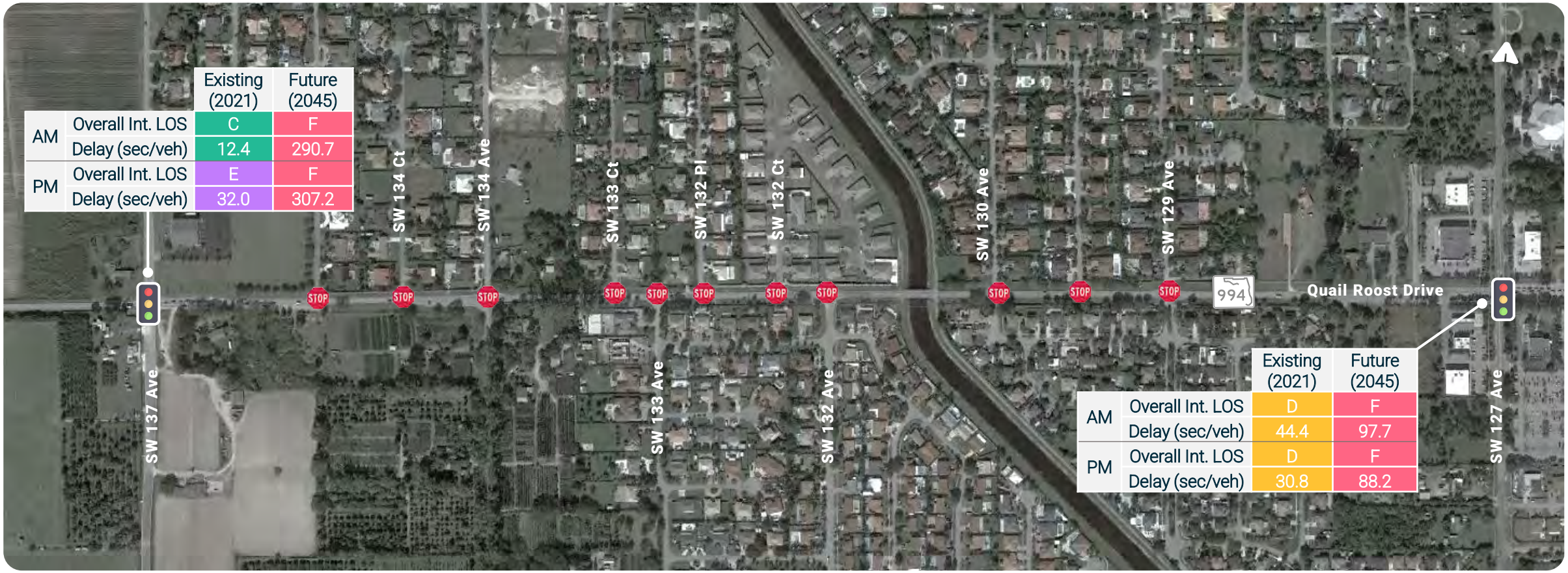
Legend: ≤ LOS C | LOS D | LOS E | LOS F



Existing LOS vs Future LOS without improvements (No Build)

Legend

- Signalized Intersection
- Minor Street Under Stop Control
- ≤ LOS C
- LOS D
- LOS E
- LOS F



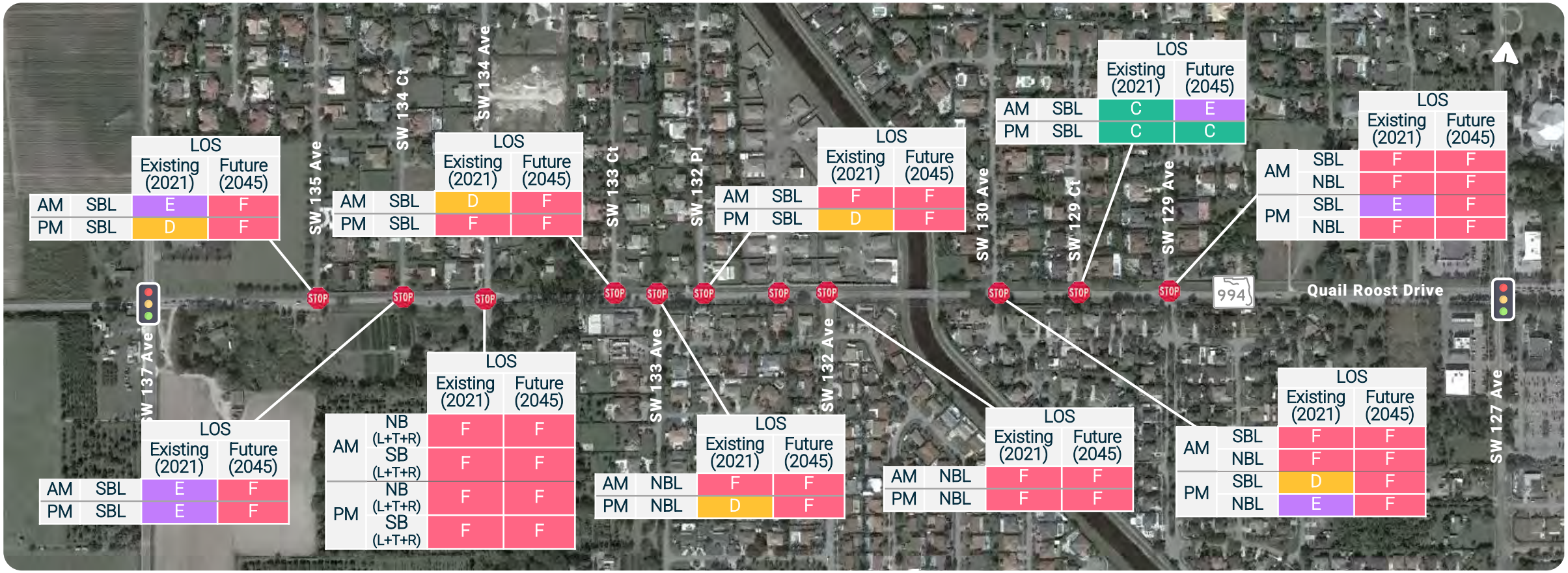
		Existing (2021)	Future (2045)
AM	Overall Int. LOS	C	F
	Delay (sec/veh)	12.4	290.7
PM	Overall Int. LOS	E	F
	Delay (sec/veh)	32.0	307.2

		Existing (2021)	Future (2045)
AM	Overall Int. LOS	D	F
	Delay (sec/veh)	44.4	97.7
PM	Overall Int. LOS	D	F
	Delay (sec/veh)	30.8	88.2

Existing LOS vs Future LOS without improvements (No Build)

Legend

- Signalized Intersection
- Minor Street Under Stop Control
- ≤ LOS C
- LOS D
- LOS E
- LOS F



		LOS Existing (2021)	LOS Future (2045)
AM	SBL	E	F
PM	SBL	D	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	D	F
PM	SBL	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	F	F
PM	SBL	D	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	C	E
PM	SBL	C	C

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	F	F
	NBL	F	F
PM	SBL	E	F
	NBL	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	E	F
PM	SBL	E	F

		LOS Existing (2021)	LOS Future (2045)
AM	NB (L+T+R)	F	F
	SB (L+T+R)	F	F
PM	NB (L+T+R)	F	F
	SB (L+T+R)	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	NBL	F	F
PM	NBL	D	F

		LOS Existing (2021)	LOS Future (2045)
AM	NBL	F	F
PM	NBL	F	F

		LOS Existing (2021)	LOS Future (2045)
AM	SBL	F	F
	NBL	F	F
PM	SBL	D	F
	NBL	E	F

Existing Bridge (870633) Over Black Creek Canal

- 3-span structure built in 1962 - State Historic Preservation Office Coordination Required
- Functionally Obsolete
- Overhead electric and water line on south side
- Trail crossing on east end
- Substandard Vertical Clearance:
  Existing VC = 4.2 ft < 4.5 ft Required

Multimodal Accommodations

Existing Deficiencies

Missing sidewalks

No bicycle facilities

Environmental Considerations

Sociocultural Effects
- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources
- Archaeological and Historic Resources
- Recreational

Natural Resources
- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects
- Noise
- Air Quality
- Contamination

Degree of Effect

- Not Applicable/ No Involvement
- Minimal
- Enhanced
- Moderate

Social and Economic							Cultural			Natural					Physical					
Land Use Changes	Social	Relocation Potential	Famlands	Aesthetic Effects	Economic	Mobility	Section 4(f) Potential	Historic and Archaeological Sites	Recreation Areas	Wetlands and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
2	2	2	N/A	2	2	1	3	3	2	2	2	2	2	2	2	2	3	3	N/A	N/A

Efficient Transportation Decision Making (ETDM) Screening: No Substantial Issues

Cultural Resources

Three historic resources potentially eligible for inclusion in National Register (NRHP)

1. Talbott Estate – southeast corner of Quail Roost Drive & SW 134th Avenue intersection *(County designated)*
2. MacDonell House and Walls – northwest corner of Quail Roost Drive & SW 137th Avenue intersection *(County designated)*
3. Southwest corner of Quail Roost Drive & SW 137th Avenue intersection – potentially significant

Natural Resources

Wetlands

C-1W Canal – Bridge widening with impacts to surface waters

Possible isolated wet swales or wetlands (dependent upon pond locations and ROW acquisition)

Wetland involvement anticipated as **Minimal**

Protected Species

Florida Bonneted Bat (FBB) – Within the South Florida Urban Bat Area

Manatee (C-1W) exclusion devices at outfalls; In-Water Work Construction Conditions

Construction Conditions for the **Eastern Indigo Snake**

Wood Stork CFA (dependent on wetland impacts)

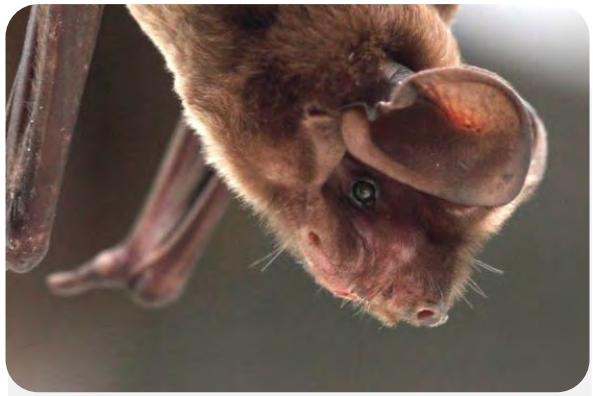
American Crocodile (no suitable habitat)

Miami-Dade Keys Plants field surveys

Burrow observed at C-1W Bank

Biscayne Sole Source Aquifer – EPA coordination

Burrow
Observed at C-1W Bank



Florida Bonneted Bat (FBB)
Protected Species

Manatee
Protected Species

C-1W Canal
Bridge Widening Impacts

Anticipated Permits

South Florida Water Management District

Environmental Resource Permit

- Stormwater Quantity and Quantity Control
- C-1 Canal Dredge & Fill
- Canal Turbidity Control
- Manatee Protection

Right Of Way Occupancy Permit Modification

- Bridge Replacement
- Canal Access for Maintenance and Operations

Water Use Permit

- Dewatering Construction Activities

US Army Corps of Engineers

Section 408 Review for the C-1W Canal/Bridge

USACE/FDEP Section 404 Dredge & Fill Permit

- Possible delegation to FDEP as Assumed Waters
- USACE Nationwide permit for Maintenance may apply
- Coordination with USFWS

Florida Department of Environmental Protection (FDEP)

NPDES Construction Generic Permit

EPA Coordination required for Biscayne Sole Source Aquifer

Miami-Dade County Coordination on tree impacts

Public Engagement

Coordination

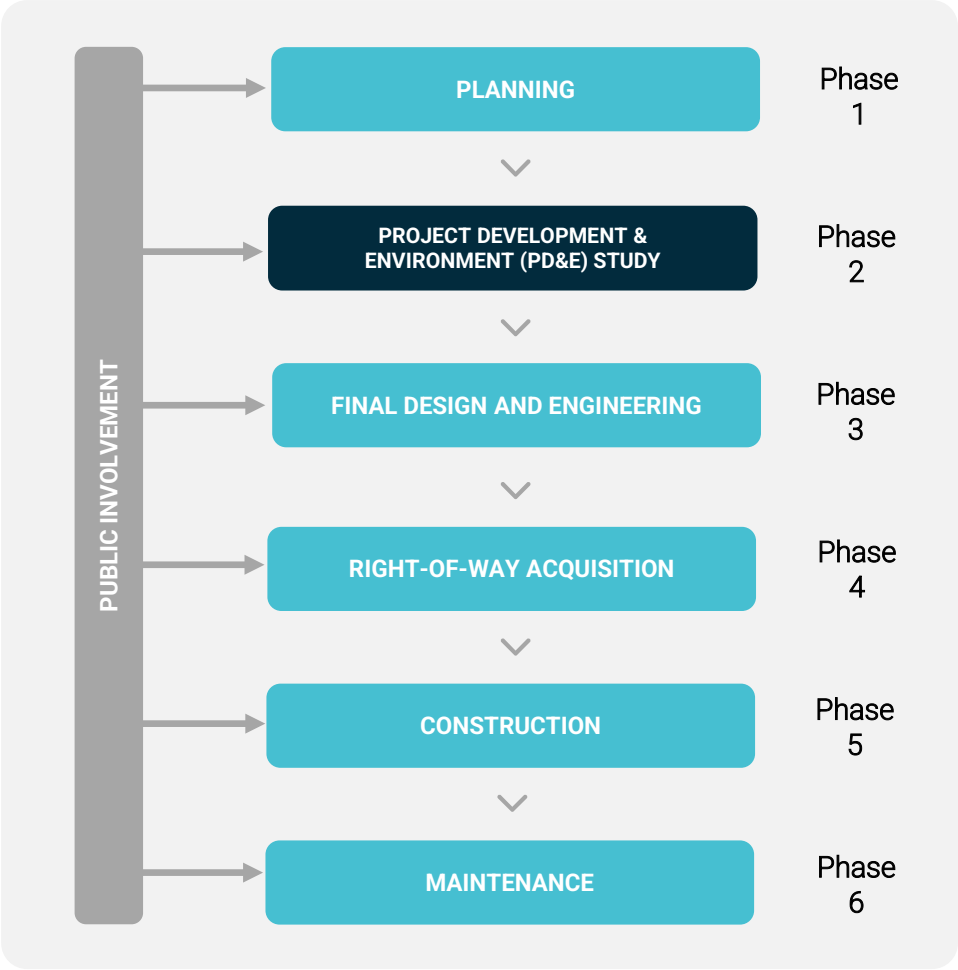
Miami-Dade County
- Mayor Levine Cava (former Area Commissioner)
- District 8 - Commissioner Danielle Cohen Higgins (new District Commissioner)
- Miami-Dade DTPW
- Emergency Responders
  - MDFR #52
- District 9 – Kionne McGhee (West of SW 127th Ave)
- Community Council 14

South Florida Water Management District (SFWMD)

Public Engagement Meetings

- Elected Official/Agency Kick-Off Meeting (January 27, 2022)
- Public Kick-Off Meeting (January 27, 2022)
- Alternatives Workshop (August 2022)
- Public Hearing (May 2023)

Project Schedule



Project Milestone	Date
Begin PD&E Study	June 2021
Kick-Off Meeting	January 2022
Alternatives Workshop	August 2022
Public Hearing	May 2023
End PD&E Study (Location Design Concept Acceptance)	November 2023
Design Complete	November 2025
Construction	Not Programmed

Contact Information

Elsa N. Riverol, P.E.
Florida Department of Transportation, District Six
1000 NW 111th Avenue, Room 6251
Miami, FL 33172
(305) 470-5105
Elsa.Riverol@dot.state.fl.us

Monica Diaz
Community Outreach Specialist
(305) 573-0089
monica@iscprgroup.com

www.fdotmiamidade.com/QuailRoostPDE

Comments

- **Comment Box**
- **Email: Elsa.Riverol@dot.state.fl.us**
- **Project Website: www.fdotmiamidade.com/QuailRoostPDE**
- **Customer Survey**
- **Mail:**

  Florida Department of Transportation, District Six
  Attn: Elsa N. Riverol, P.E.
  1000 NW 111th Avenue, Room 6251
  Miami, FL 33172

Rules of Engagement

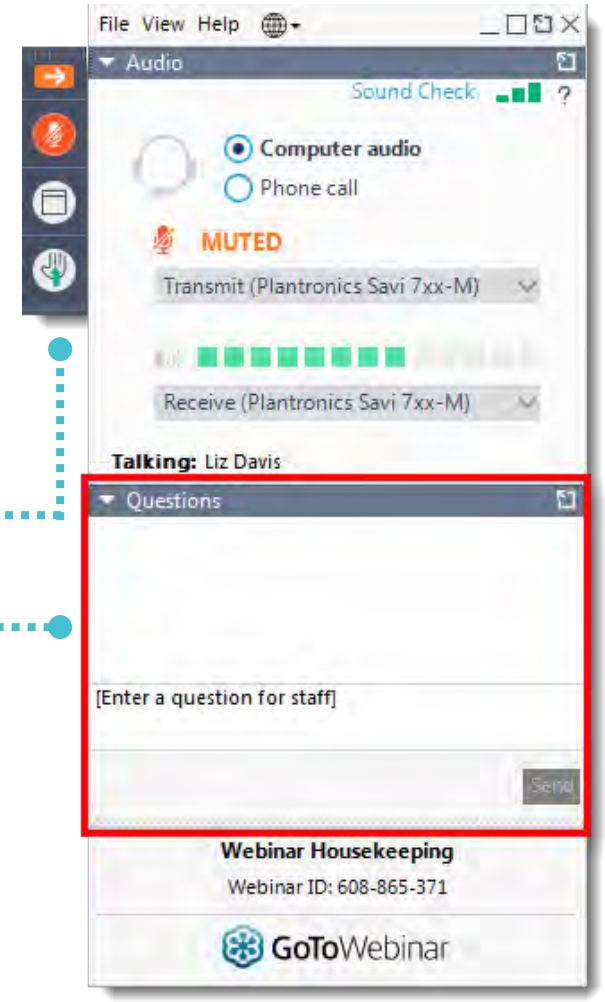
Virtual Attendees are **Automatically Muted** to Start the Meeting

Providing Comments During Open Discussion Period:

- In-person attendees form a line
- Call 1-800-418-0524
- **Raise hand during comment period, you will be unmuted in order of raising hands**
- Submit Comments via the “Questions” Box

Get Technical Assistance

- **Call 1-800-418-0524**



Open Discussion

In-person attendees please form a line.

Online attendees submit your comments in the “Questions” box.
If you would like to speak, please press the raise your hand button.

Participants will have **three minutes** to provide comments.

Please clearly state your **name** and **address**.

Thank You

TARGET ZERO

FATALITIES & SERIOUS INJURIES

Thank You.

Appendix R – Affected Parties Consultation Meetings

Affected Parties Meeting #1

Affected Parties Meeting Report

State Road (SR) 994/SW 200 Street/Quail Roost Drive
from West of SW 137 Avenue to East of SW 127 Avenue
Project Identification Numbers: 445804-1-22-01

Wednesday, October 12, 2022 | 10:30 a.m.

Table of Contents

Meeting Summary 3

Attendee Log 6

Question Box Report 9

Exit Survey 11

Meeting Photos..... 13

Map 15

Presentation 17

Meeting Summary

State Road (SR) 994/Quail Roost Drive PD&E Study
from West of SW 137 Avenue to East of SW 127 Avenue
Affected Parties Consultation
FM 445804-1-22-01

October 12, 2022
GoToWebinar

Staff:

FDOT
Elsa N. Riverol, P.E.
Kimberly Taveras
Steven James
Robert McMullen
Victoria Vogt

Gannett Fleming
Alina Fernandez, P.E.
Carlos Cejas, P.E.
Courtney Arena
Norelys Nodal

FDOS
Kelly Chase
Alyssa McManus
Marsha Welch

Janus Research
Amy Streelman

Miami-Dade County
Sarah Cody

RS&H
Jim Mykytka

See the attached sign-in sheets for a list of attendees

Purpose of the workshop:
The Affected Parties Consultation was held on October 12, 2022 to discuss the State Road (SR) 994/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue. The purpose of this workshop was to present the upcoming project. The meeting provided directly affected property owners with an overview of alternatives and opportunity to, provide comment and questions about the anticipated impacts to these historic properties located at: 13390 SW 200 Street, 20000 SW 137 Avenue, and 13701 Quail Roost Drive.

Presentation:
Community Outreach Specialist, Monica Diaz, of Infinite Source Communications, welcomed the attendees, stated the rules of engagement, and NEPA Assignment Statement.

Project team members introduced themselves and welcomed the attendees.

- FDOT Project Manager, Elsa N. Riverol, P.E.
- Gannett Fleming Project Manager, Alina Fernandez, P.E.
- PD&E Engineer, Carlos Cejas, P.E.
- Cultural Resources, Amy Streelman

Open Discussion – *Action items in bold*

- Ms. Monica Diaz welcomed the meeting participants to asks questions and provide comments.
- Ms. Monica Diaz read a comment from Ms. Courtney Pritchard, which said she enjoyed the presentation topic.
- Ms. Monica Diaz read a comment from Ms. Marsha Welsh, which said she looked forward to receiving further updates on the project.
- Ms. Lindsay Rothrock asked if there is any opportunity to minimize impact beforehand, or whether the scope has already been narrowed. She noted the historical walls at the three properties that could potentially be impacted.
    - Mr. Carlos Cejas said that as the team moves through the process, they will be looking at minimization and avoidance. He said that one challenge at SW 137 Avenue is that there are resources to the north and south, meaning that narrowing is possible but shifting alignment is difficult. He said it would be hard to narrow to the point where they would be no impact to the ways, but that the design could narrow by a few feet. He noted that this would be a tradeoff, as several homes on the north side would be impacted as a result of narrowing on the southern side. He said that a tradeoff analysis would be conducted, and that 100% avoidance is unlikely unless a no-build option is pursued.
- Ms. Lauren McDonnell stated she has an interest in making the intersection at the corner of Quail Roost Drive and 137 Avenue as safe as possible. She asked how she could get support for moving the historic wall on her property.
    - Mr. Cejas said that, from an engineering point of view, that it would not be difficult.
    - Mr. McDonnell asked if the Department would be able to provide support.
    - Mr. Kenneth Hardin said that there is precedent for moving historic walls, and that depending on the alternative selected, relocation could be a mitigating option that the Department would pay for.
    - Ms. Amy Streelman agreed with Mr. Hardin, and thanked Ms. McDonnell for bring it to the team's attention.
    - Attendee 1 said that this could be something the Department could consider, as the project is in its early stages. He said that the final decision would be made by management at the Department, and a memorandum of agreement (MOA) would be produced. He said that if relocation was pursued, could be included in the design phase and would be followed through with in construction.
- Mr. Cejas asked if other property owners would prefer moving the wall.
    - Mr. Craig Coning described a frustrating experience he had with property acquisition in the past. He said that if the Department choose to go with the plan which needed a 22 foot median on the right-of-way, his house could be affected.
    - Mr. Cejas said that full acquisition was on the table, but that the Department is seeking to avoid and minimize that alternative. He stated that the Department has a different process than the County.
- Attendee 1 thanked everyone for participating and providing feedback. He invited everyone to attend the alternatives workshop the following week.

Action Items:
N/A

Attendee Log

Online Attendee Log

445804-1-22-01 SR 994/SW 200 St/Quail Roost Dr PD&E Study Affected Parties Consultation					
Last Name	**First Name**	**Email Address**	**Registration Date/Time**	**Join Time - Leave Time (Time in Session)**	**Time in Session**
Arena	Courtney	carena@gfnet.com	10/12/2022 09:01 AM EDT	10/12/2022 10:29 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 4 minutes)	1 hour 4 minutes
Chase	Kelly	kelly.chase@dos.myflorida.com	10/12/2022 10:25 AM EDT	10/12/2022 10:26 AM EDT - 10/12/2022 11:32 AM EDT (1 hour 7 minutes)	1 hour 7 minutes
Cody	Sarah	scody@miamidade.gov	10/12/2022 11:04 AM EDT	10/12/2022 11:04 AM EDT - 10/12/2022 11:33 AM EDT (29 minutes)	29 minutes
Fernandez	Alina	afernandez@gfnet.com	10/12/2022 10:20 AM EDT	10/12/2022 10:21 AM EDT - 10/12/2022 11:32 AM EDT (1 hour 12 minutes)	1 hour 12 minutes
Grinberg	Tom	tomgrinberg89@gmail.com	10/12/2022 10:29 AM EDT	10/12/2022 10:30 AM EDT - 10/12/2022 11:25 AM EDT (56 minutes)	56 minutes
Koning	Craig	koning01@gmail.com	10/12/2022 10:25 AM EDT	10/12/2022 10:25 AM EDT - 10/12/2022 11:32 AM EDT (1 hour 8 minutes)	1 hour 8 minutes
McManus	Alyssa	alyssa.mcmanus@dos.myflorida.com	10/12/2022 10:27 AM EDT	10/12/2022 10:27 AM EDT - 10/12/2022 11:32 AM EDT (1 hour 6 minutes)	1 hour 6 minutes
Meeting	Public	andre@iscprgroup.com	10/12/2022 10:15 AM EDT	10/12/2022 10:15 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 18 minutes)	1 hour 18 minutes
Mykytka	Jim	jim.mykytka@rsandh.com	10/10/2022 04:12 PM EDT	10/12/2022 10:32 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 1 minute)	1 hour 1 minute
Nodal	Norelys	nnodal@gfnet.com	10/12/2022 10:21 AM EDT	10/12/2022 10:28 AM EDT - 10/12/2022 11:31 AM EDT (1 hour 3 minutes)	1 hour 3 minutes
Pritchard	Christine	cfprun@aol.com	10/12/2022 08:08 AM EDT	10/12/2022 10:26 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 7 minutes)	1 hour 7 minutes
Rothrock	Lindsay	lindsay.rothrock@dot.state.fl.us	10/12/2022 10:30 AM EDT	10/12/2022 10:32 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 1 minute)	1 hour 1 minute
Taveras	Kimberly	kimberly.taveras@dot.state.fl.us	10/12/2022 10:29 AM EDT	10/12/2022 10:30 AM EDT - 10/12/2022 10:37 AM EDT (8 minutes)	8 minutes
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	10/12/2022 10:08 AM EDT	10/12/2022 10:10 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 23 minutes)	1 hour 23 minutes
streelman	amy	amy_streelman@janus-research.com	10/12/2022 10:13 AM EDT	10/12/2022 10:14 AM EDT - 10/12/2022 11:33 AM EDT (1 hour 19 minutes)	1 hour 19 minutes
James	Steven	steven.james@dot.state.fl.us	10/10/2022 04:34 PM EDT	--	--
McMullen	Robert	Robert.McMullen@dot.state.fl.us	10/12/2022 08:00 AM EDT	--	--
Vogt	Victoria	victoria.vogt@dot.state.fl.us	10/12/2022 08:26 AM EDT	--	--

In-Person Attendee Log

Affected Parties Consultation Sign-in Sheet

Florida Department of Transportation District Six

NOTICE: The information provided below is a matter of public record subject to examination by the general public upon request.

PROJECT
State Road (SR) 994/SW 200 Street/Quail Roost Drive
from SW 137 Avenue to SW 127 Avenue

Project Identification Number: 445804-1-22-01

MEETING VENUE
South Dade Regional Library
10750 SW 211 Street
Cutler Bay, FL 33189

MEETING DATE AND TIME
10:30 a.m. to 12 p.m.
Wednesday, October 12, 2022

Name	Representing (Name of business or group)	Address	Phone Number	E-mail address
CARLOS CEJAS	GANNETT FLEMING		305 213-1474	ccejas@gfnet.com
Elsa Riverol	FDOT		305 470 5105	elsa.riverol@dot.state.fl.us
Ken Hardin	Janus Research		(727) 460-4669	Ken_hardin@janus-research.com
Max Abril Inberman	Janus Research		(813) 330-9111	max_inberman@janus-research.com
STEVEN CRAIG JAMES	FDOT		305 470 5221	STEVEN.JAMES@DOT.STATE.FL.US
Victoria Vogt	FDOT		305-470-5420	victoria.vogt@dot.state.fl.us
Alina Fernandez	Gannett Fleming		305.519.2987	afernandez@gfnet.com
Carlos Cejas	"		—	ccejas@gfnet.com
Elsa Riverol	FDOT		—	elsa.riverol@dot.state.fl.us

Affected Parties Consultation Sign-in Sheet

Florida Department of Transportation District Six

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PROJECT
State Road (SR) 994/SW 200 Street/Quail Roost Drive
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South Dade Regional Library
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Cutler Bay, FL 33189

MEETING DATE AND TIME
10:30 a.m. to 12 p.m.
Wednesday, October 12, 2022

Name	Representing (Name of business or group)	Address	Phone Number	E-mail address
Lauren MacDonell	MacDonell family	13701 SW 200th St	949.533.8157	Lmacd13@my.wgu.edu

Question Box Report

445804-1-22-01 SR 994/SW 200 St/Quail Roost Dr PD&E Study Affected Parties Consultation						
Last Name	**First Name**	**Email Address**	**Question # (Per Person)**	**Question Asked Date/Time**	**Question Asked**	**Answer Given**
Grinberg	Tom	tomgrinberg89@gmail.com	1	11:17:12 AM EDT	can you repeat	
Pritchard	Christine	cfprun@aol.com	1	11:18:04 AM EDT	Great presentation from the team - thanks!	
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	1	11:18:49 AM EDT	No questions from Me, great presentation. I look forward to recieving the upcoming studies.	

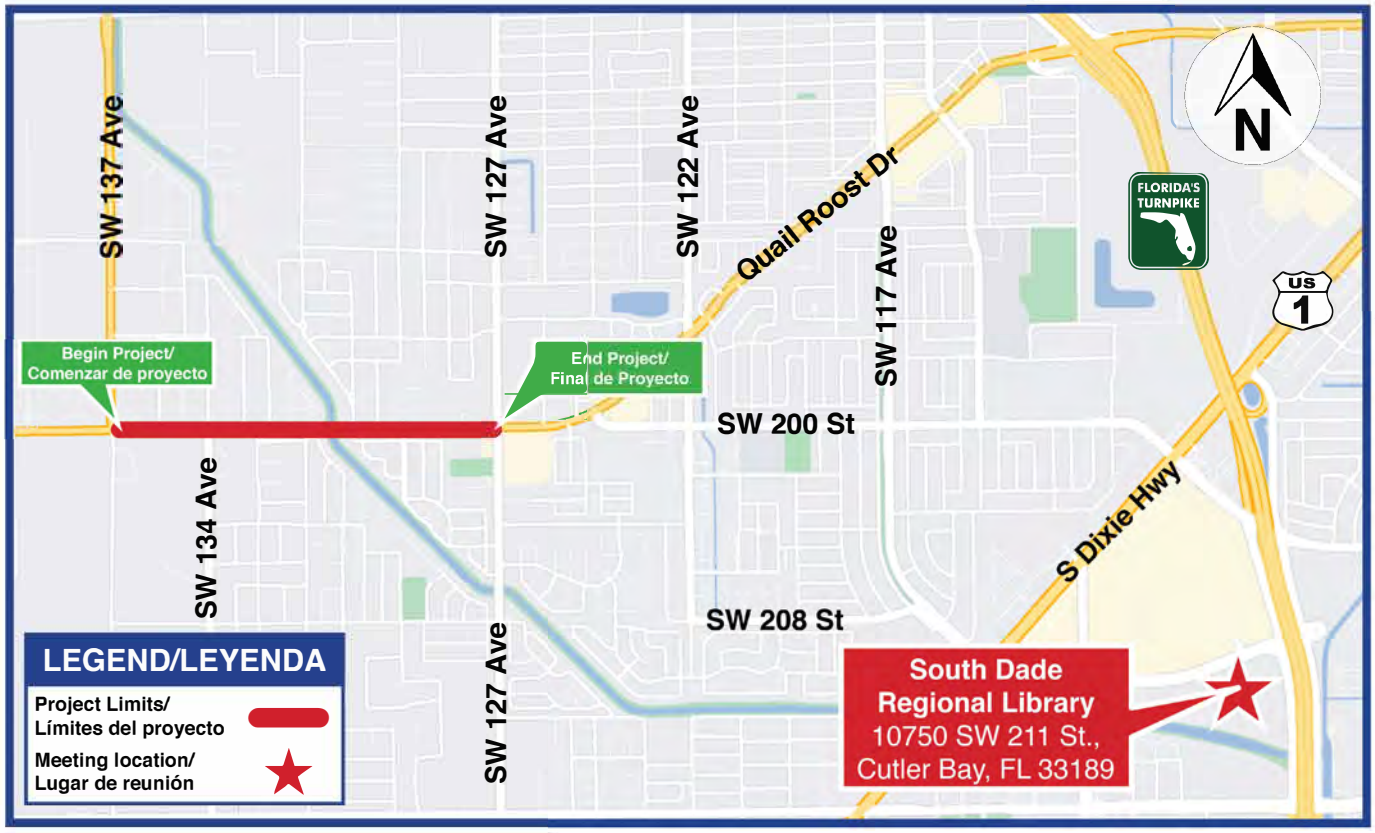
Exit Survey

445804-1-22-01 SR 994/SW 200 St/Quail Roost Dr PD&E Study Affected Parties Consultation												
Last Name	**First Name**	**Email Address**	**Submitted Date/Time**	**The Virtual Workshop was effective in conveying how FDOT functions.**	**I feel that I understand the concepts being presented.**	**I found the Q&A period beneficial ?**	**The materials presented during this webinar were easy to understand.**	**The presenters were clear during the presentation**	**The length of the presentation was appropriate.**	**Do you prefer a virtual public webinar or an in person workshop?**	**Any other comments or feedback you would like to provide to the project team?**	**I am open to attending an in-person public meeting provided social distancing restrictions and protocols are in place.**
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	10/12/2022 11:40 AM EDT	Strongly Agree	Strongly Agree	Neutral	Strongly Agree	Somewhat Agree	Strongly Agree	Virtual Workshop	I think the only reason the presenters weren't clear was because I didn't have my volume turned up enough.	Somewhat Disagree

Meeting Photos

FDOT

Map


SW 137 Ave
SW 127 Ave
SW 122 Ave
Quail Roost Dr
SW 117 Ave
N
FLORIDA'S TURNPIKE
US 1
Begin Project/
Comenzar de proyecto
End Project/
Final de Proyecto
SW 200 St
SW 134 Ave
S Dixie Hwy
SW 208 St
SW 127 Ave
LEGEND/LEYENDA
Project Limits/
Límites del proyecto
Meeting location/
Lugar de reunión
South Dade
Regional Library
10750 SW 211 St.,
Cutler Bay, FL 33189

Presentation

SR 994/Quail Roost Drive PD&E Study

from West of SW 137th Ave to East of SW 127th Ave
FM 445804-1-22-01
ETDM No. 14429

Affected Parties Consultation Meeting

October 12, 2022

Virtual Meeting Format

THIS MEETING IS BEING RECORDED.

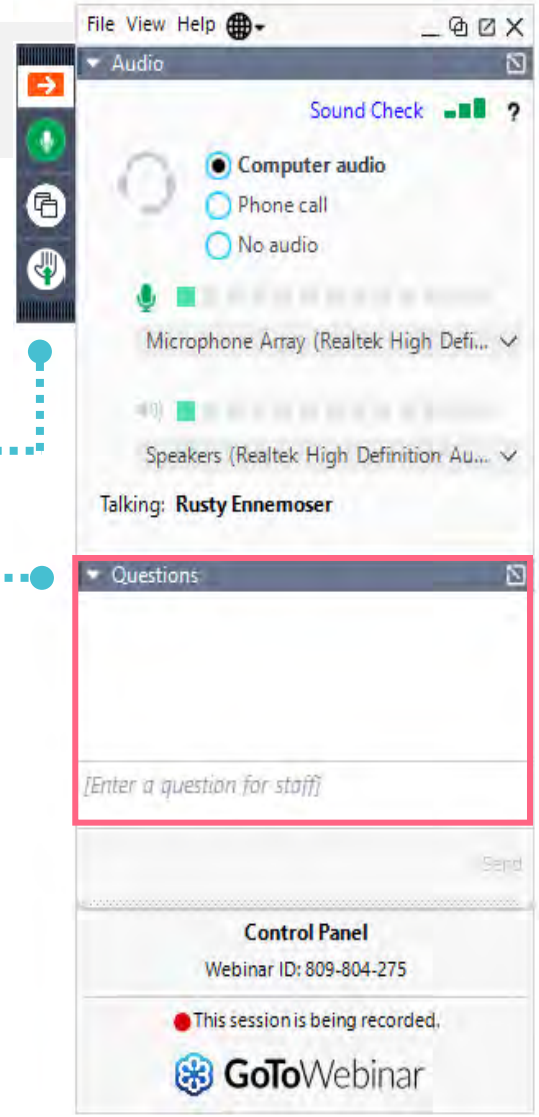
GoToWebinar Online Meeting Platform

Providing Comments During Open Discussion Period:

- **Raise hand during comment period to speak on control panel or comment in the chat**
- Submit Comments via the "Questions" Box
- Questions will be responded to **after** the presentation

Technical Issues?

- **Type your issue in the questions pane on the control panel.**



NEPA Assignment Statement

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

Title VI Non-Discrimination Compliance

Public participation at this meeting is solicited without regard to race, color, national origin, age, sex, religion, disability, or family status.

Persons wishing to express their concerns relative to FDOT compliance with Title VI may do so by contacting:

Florida Department of Transportation
District Six Office
District Six Title VI Coordinator
Nicholas Danu, P.E.
1000 NW 111th Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219

Florida Department of Transportation
Central Office
State Title VI Coordinator
Aldrin T. Sanders
605 Suwannee Street
Tallahassee, Florida 32399
Aldrin.Sanders@dot.state.fl.us
(850) 414-4764

All inquiries or concerns will be handled according to FDOT procedure and in a prompt and courteous manner.

Agenda

1. **Member Introductions**
2. **Project Introduction & Background**
3. **Existing Conditions**
4. **Purpose and Need**
5. **Cultural Resources**
   - Historic Significance
   - Section 106 Process
6. **Proposed Alternatives**
7. **Next Steps**

Presentation Team

Project Manager

Elsa N. Riverol, P.E.

FDOT

Project Manager

Alina Fernandez, P.E.

GANNETT FLEMING

PD&E Engineer

Carlos Cejas, P.E.

GANNETT FLEMING

Cultural Resources

Amy Streelman

JANUS RESEARCH

What is a PD&E Study?

Engineering Analysis

Safety

Traffic Operations

Access Management

Right-of-Way

Structures

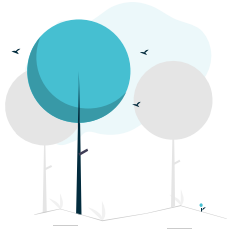
Drainage

Utilities

Lighting

Landscaping

Cost Estimates



Environmental Analysis

Sociocultural Effects

- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources

- Archaeological and Historic Resources
- Recreational

Natural Resources

- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects

- Noise
- Air Quality
- Contamination

Public Engagement Program

Public Involvement Plan

Kick-Off Meetings

Elected Officials Briefings

Agency Meetings

Alternatives Workshop

Public Hearing

PD&E Study Process

Begin Study

PUBLIC ENGAGEMENT

Study Approval

Project Location

SR 994 • SW 200th St • Quail Roost Drive

from West of SW 137 Ave (MP 3.750) to East of SW 127 Ave (MP 5.430)

Adjacent Projects

1 FDOT Project FM 443907-1
SR 994/Quail Roost Dr from Krome Ave to SW 137th Ave
Resurfacing
Construction starts 06/2023
Completion by by 03/2024

2 MDC Project 20040343
SW 137th Ave from US-1 to Quail Roost Dr
Widening/new construction of 2 lane road
Completed in 2022

3 MDC Project LRTP PW168
SW 137th Ave from US-1 to SW 184th St
Widening to 4 lanes
Planning Phase

4 MDC Project 20180004
SW 127th Ave & SW 200th St
Intersection improvements to add NB right turn lane
Design completed 11/2020
Construction starts 07/2022

5 FDOT Project FM 429341-3
SR 994/Quail Roost Dr from SW 127th Ave to SW 113th Ave
Resurfacing
Completed in 2022

6 MDC Project 20200285
SW 200th Street from US-1 to Quail Roost Dr.
Widening to 4 lanes and New Shared Use Path
Construction starts 2026

Purpose and Need

Safety

Improve Safety Conditions and Emergency Evacuation and Response Times

84 crashes per year (2015-2019)

Three recent fatal crashes (2016, 2019 and 2021)

Five locations in High Crash Spot List

High Crash Segments in years 2015 through 2019

Capacity

Improve Operational Conditions and Accommodate Projected Travel Demand

Multiple segments operating at LOS F

Future conditions anticipated to worsen if no improvements implemented

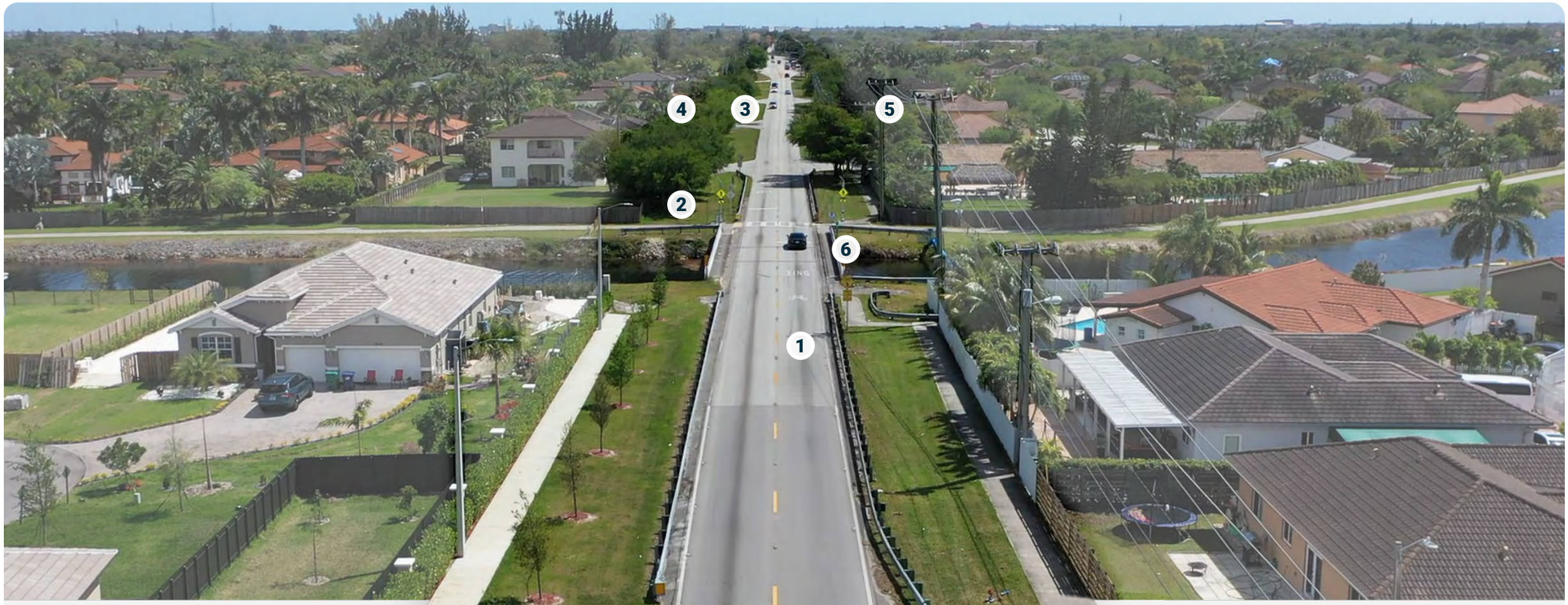
Multi-Modal

Enhance Mobility Options and Multi-Modal Access

No designated bicycle lanes

Non-continuous sidewalks

Existing Roadway / Typical Section



1. Two-lane undivided roadway
2. Black Creek Trail Crossing (at-grade mid-block crossing)
3. Discontinuous Sidewalks
4. Mature Landscaping
5. Utilities (not always in back of SW)
6. Bridge over Black Creek Canal

6’	Varies	11.5’	11.5’	Varies	6’

ROW: 30’ - 100’

Posted Speed: 40MPH

Safety Analysis (Crash Data)

Corridor Wide Crash Summary (2015 – 2019)
422 Crashes
139 Injury Crashes (33%), 2 Pedestrian/Bicyclist Crashes (< 1%)
2 Fatal Crashes (< 1%)

Leading Crash Types	2015	2016	2017	2018	2019	5-Year Total	%
Rear End	33	37	47	42	42	201	48%
Angle	13	22	24	18	20	97	23%
Left Turn	6	10	5	9	10	40	10%
Sideswipe	5	3	4	11	9	32	8%

FDOT High Crash List
High Crash Segment (All five years)
5 High Crash Spots (SW 137 Ave, SW 134 Ave, SW 133 Ave, SW 132 Ave, SW 127 Ave)

Corridor Wide Crash Summary (2020 – 2021)
156 Crashes
39 Injury Crashes (25%), No Pedestrian/Bicyclist Crashes
1 Fatal Crash (< 1%)

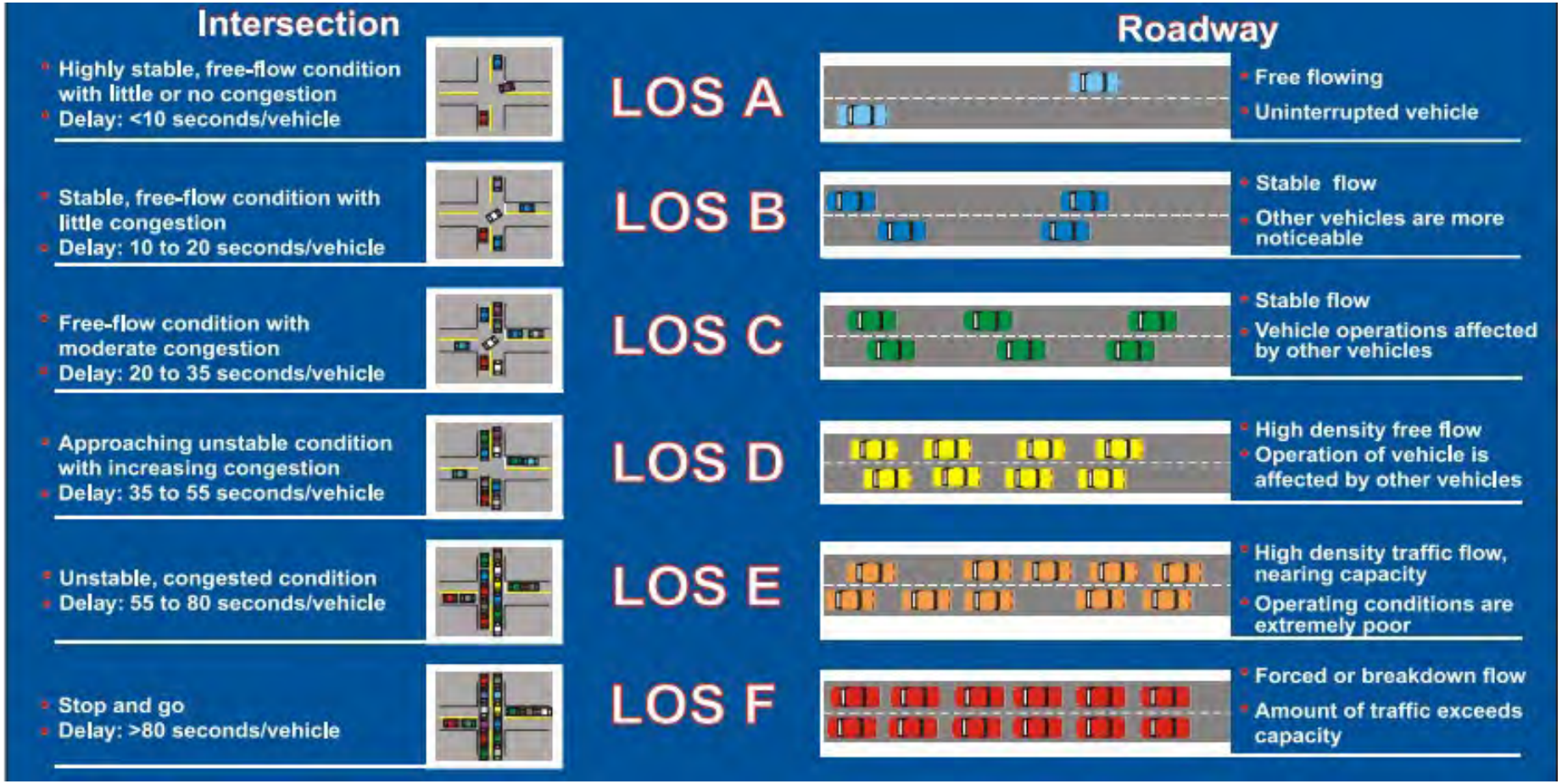
Leading Crash Types	2020	2021	2-Year Total	%
Rear End	37	31	68	41%
Left Turn	22	14	36	22%
Sideswipe	9	6	15	9%
Angle	6	9	15	9%

Fatal Crashes (2015 – 2021)
2016 – 1 Left Turn crash at SW 132 Ave
2019 – 1 Angle crash at SW 134 Ave
2021 – 1 Left Turn crash at SW 134 Ave

Level of Service (LOS)

Level of Service is a measure of traffic operational conditions. Six levels of service are defined for each type of roadway section and are given letter designations from A to F, with A representing the best operating conditions and F representing the worst operating conditions.

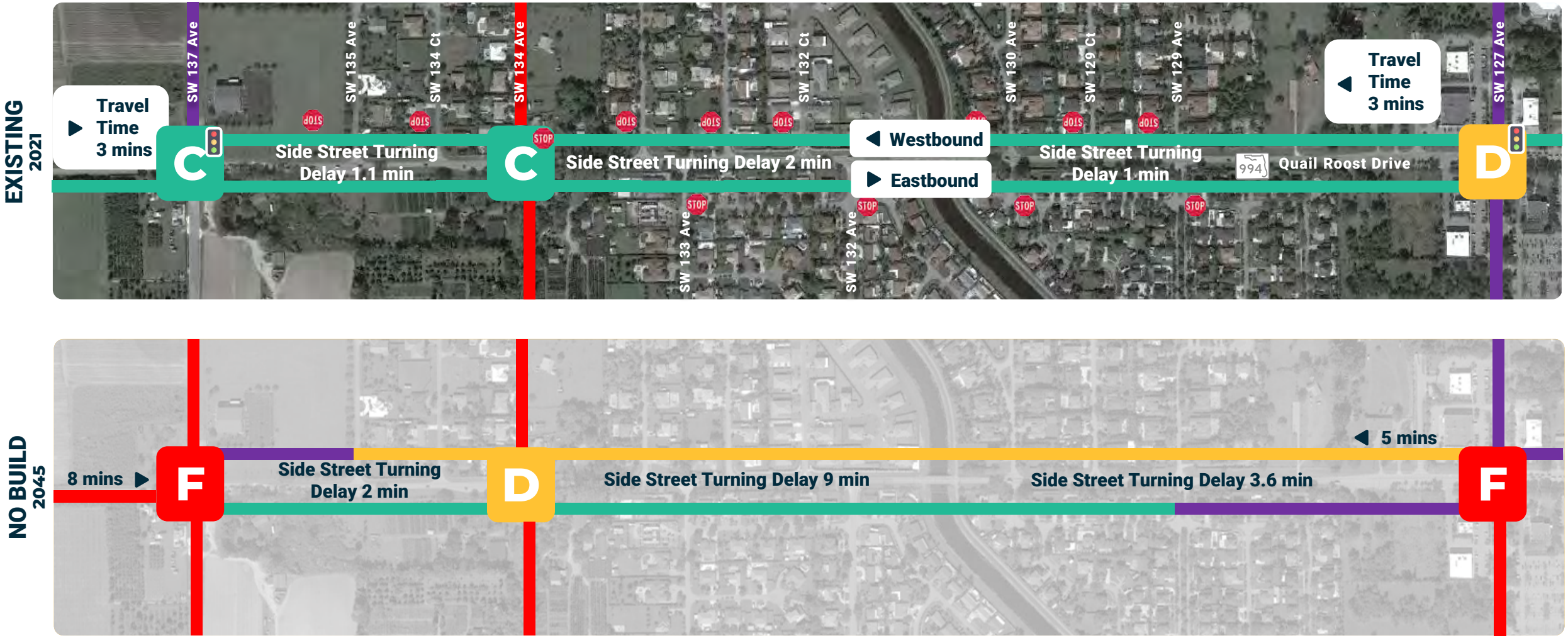
A Level of Service D or better is required for a new design



Level of Service / Travel Time / Delay – AM Peak Period

Legend: ≤ LOS C | LOS D | LOS E | LOS F

Level of Service / Travel Time / Delay – PM Peak Period



Legend: ≤ LOS C | LOS D | LOS E | LOS F

Cultural Resources - Historical

- Cultural Resources Assessment Survey (CRAS) in progress.
- CRAS will be submitted to SHPO for review and concurrence on findings.
- Overall, 18 historic resources identified in the Area of Potential Effect (APE).
- Three historic resources potentially eligible for inclusion in National Register (NRHP):

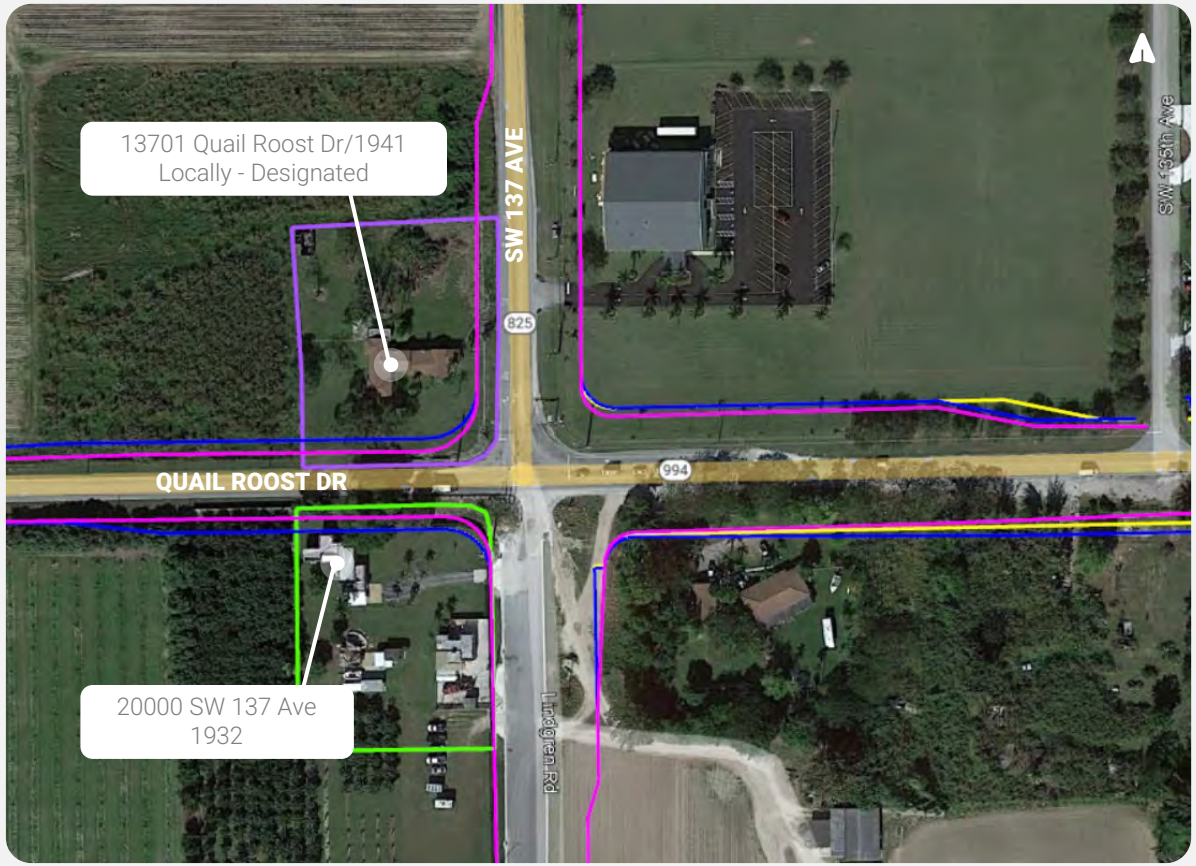
1. Talbott Estate – southeast corner of Quail Roost Drive & SW 134th Avenue intersection *(County designated)*
   Property Address: 13390 SW 200th Street

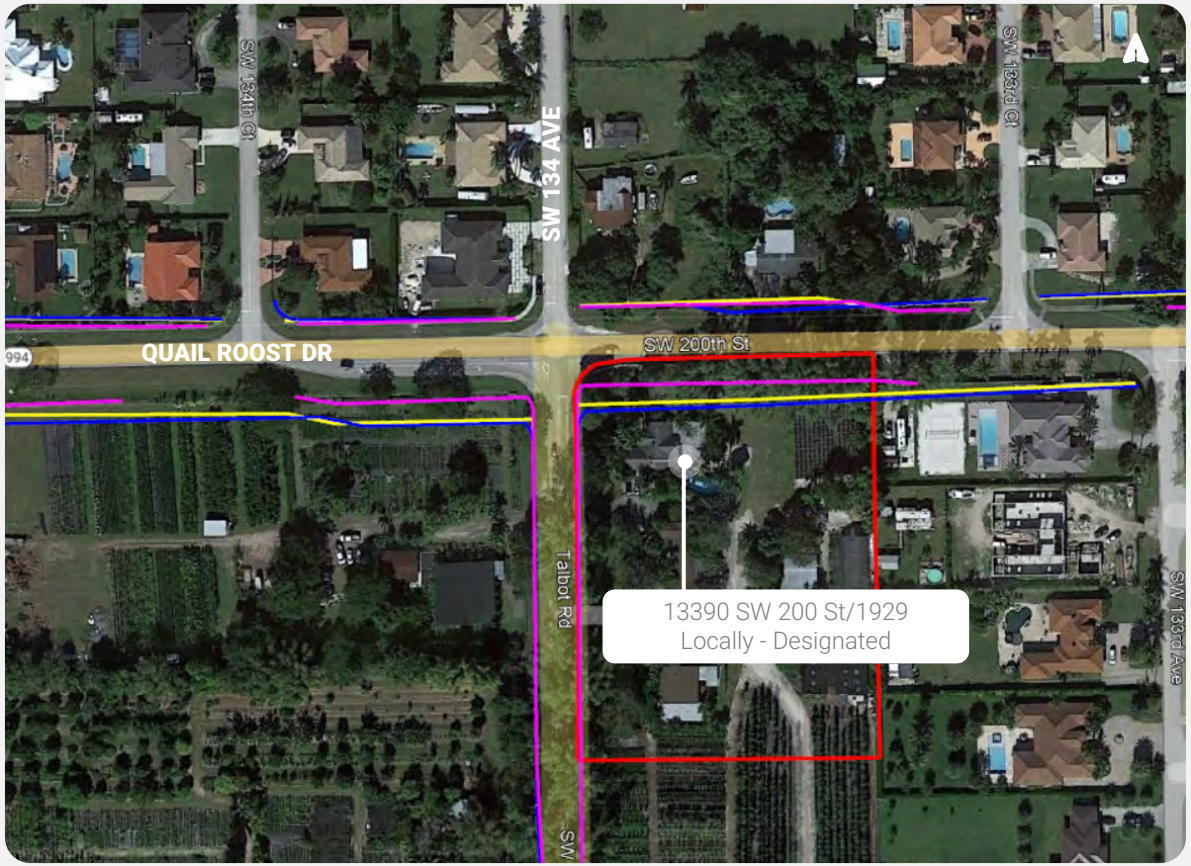
2. MacDonell House and Walls – northwest corner of Quail Roost Drive & SW 137th Avenue intersection *(County designated)*
   Property Address: 13701 SW 200th Street

3. Southwest corner of Quail Roost Drive & SW 137th Avenue intersection – potentially significant
   Property Address: 20000 SW 137th Avenue

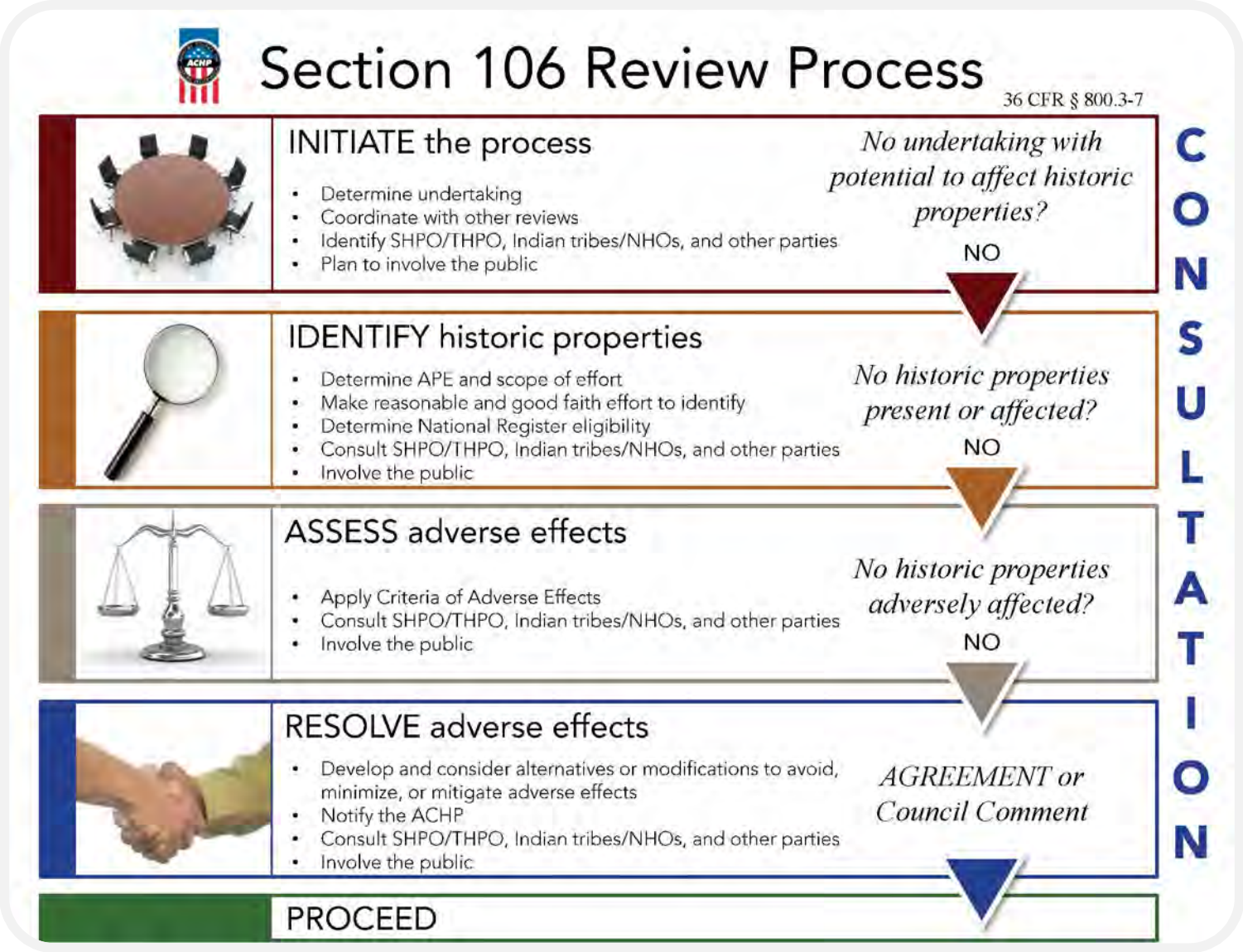
Proposed Boundaries

Proposed ROW	Proposed Boundaries
Build Alternative 1	MacDonell House
Build Alternative 2	20000 SW 137 Ave
Build Alternative 3	Talbott Estate





Section 106 Review Process



Objectives of Affected Party Consultation Meetings

1. Present Project Purpose and Need and Alternatives Considered
2. Discuss the Section 106 Process
3. Outline how the Section 106 Process is being carried out during course of this project
4. Present findings of cultural resources studies and consultation participants provide input regarding resources and eligibility
5. Define next steps in the Section 106 process: effects and resolution of effects
6. Input on future consultation related to potential effects and minimization and mitigation measures

Alternatives Considered

ALT A **No-Action Alternative**

2-Lane Undivided

ALT B **Build Alternative 1**

2-Lane with 16.5-ft raised median/turn lanes and Signal at SW 134th Ave

ALT C **Build Alternative 2**

4-Lane with 16.5-ft raised median/turn lanes and Signal at SW 134th Ave

ALT D **Build Alternative 3**

4-Lane with 22-ft raised median/turn lanes and Signal at SW 134th Ave

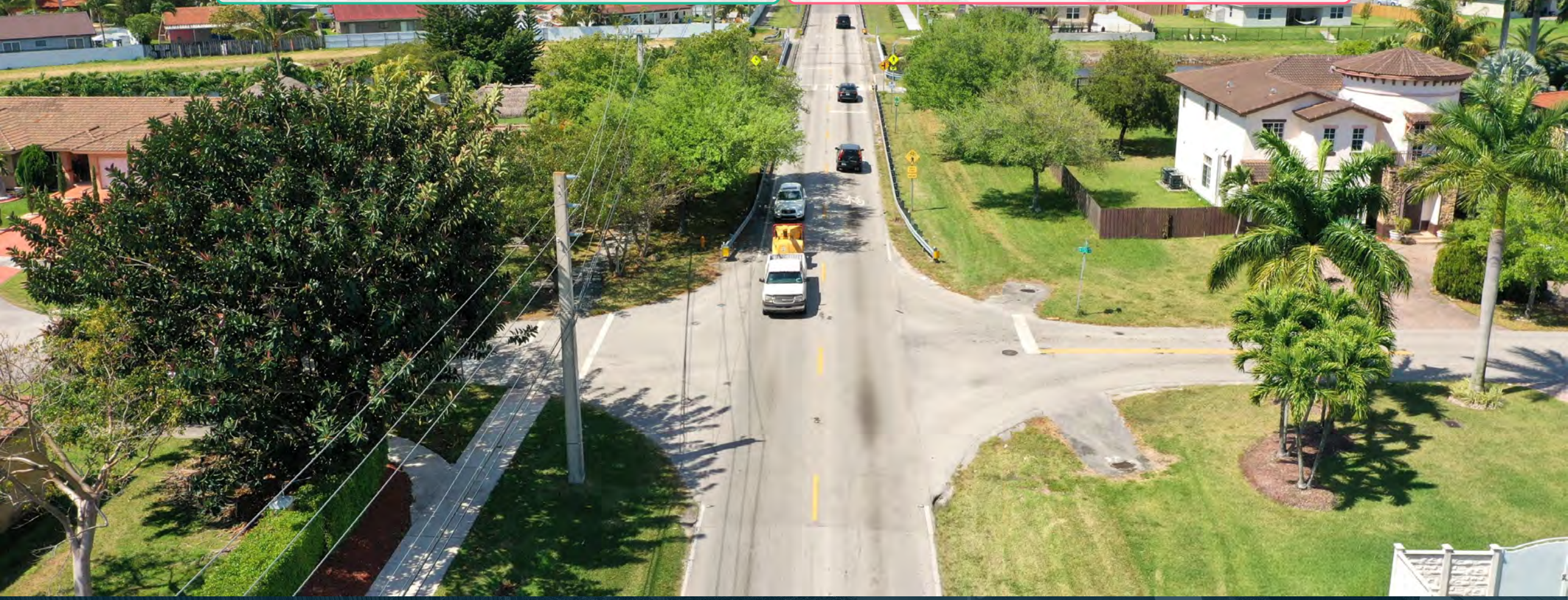
No-Action Alternative

Advantages

- No Construction Effects
- No Construction Costs
- No Disruption to Community or Travel Patterns

Disadvantages

- Does NOT Meet Project Purpose & Need
- Increased number of crashes
- Poor Traffic Operations
- Lack of bicycle facilities
- Non-continuous sidewalks



Build Alternative 1

Advantages

- Meets Project Purpose & Need
- Expected to reduce 18 crashes per year
- Improves Traffic Operations compared to No-Build Option
- Provides Continuous Shared-Use Path on both sides

Disadvantages

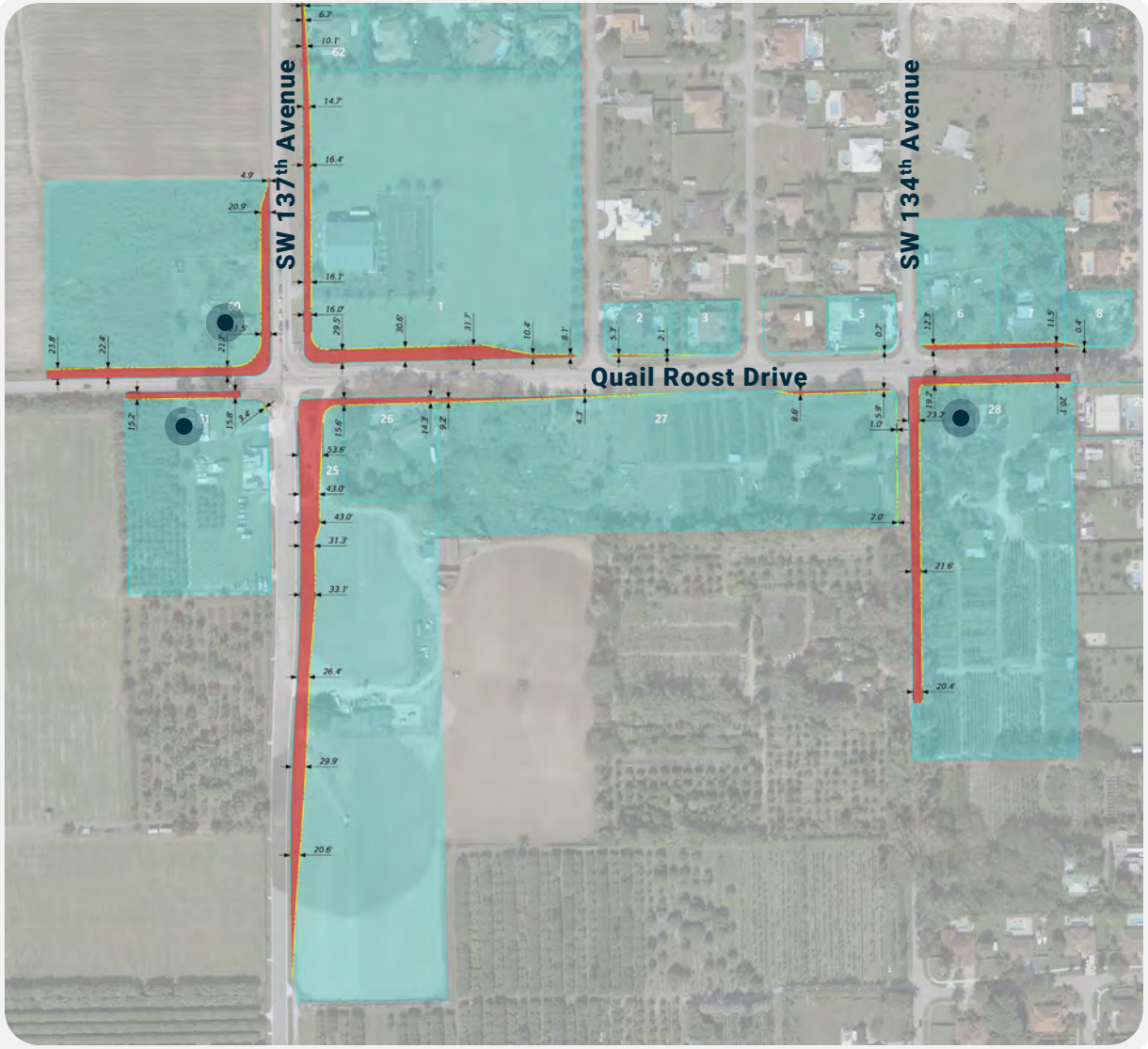
- Construction Effects (utility and drainage impacts)
- Temporary Disruption to Community or Travel Patterns
- Moderate Right of Way Impacts
- Construction Cost = $25.4M
- Impacts to three significant historic properties

Build Alternative 1

Plan View – 137th Ave to 134th Ave

Build Alternative 1

Right-of-Way Impacts



LEGEND

- Impacted ROW
- Impacted Parcels
- Historic Resource

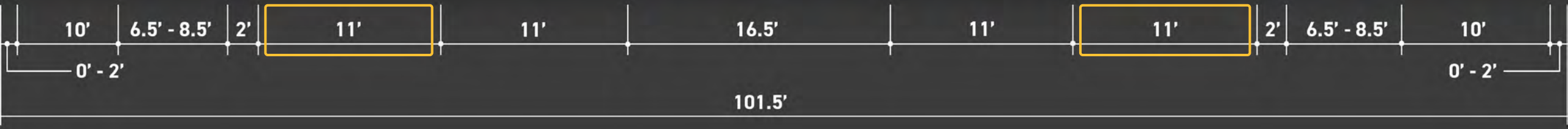
Build Alternative 2

Advantages

- Meets Project Purpose & Need
- Expected to reduce 21 crashes per year
- Improves Traffic Operations compared to Build Alternative 1
- Provides Continuous Shared-Use Path on both sides

Disadvantages

- Construction Effects (utility and drainage impacts)
- Temporary Disruption to Community or Travel Patterns
- Right of Way Impacts (higher than Build Alternative 1)
- Construction Costs = $27.8M
- Impacts to three significant historic properties

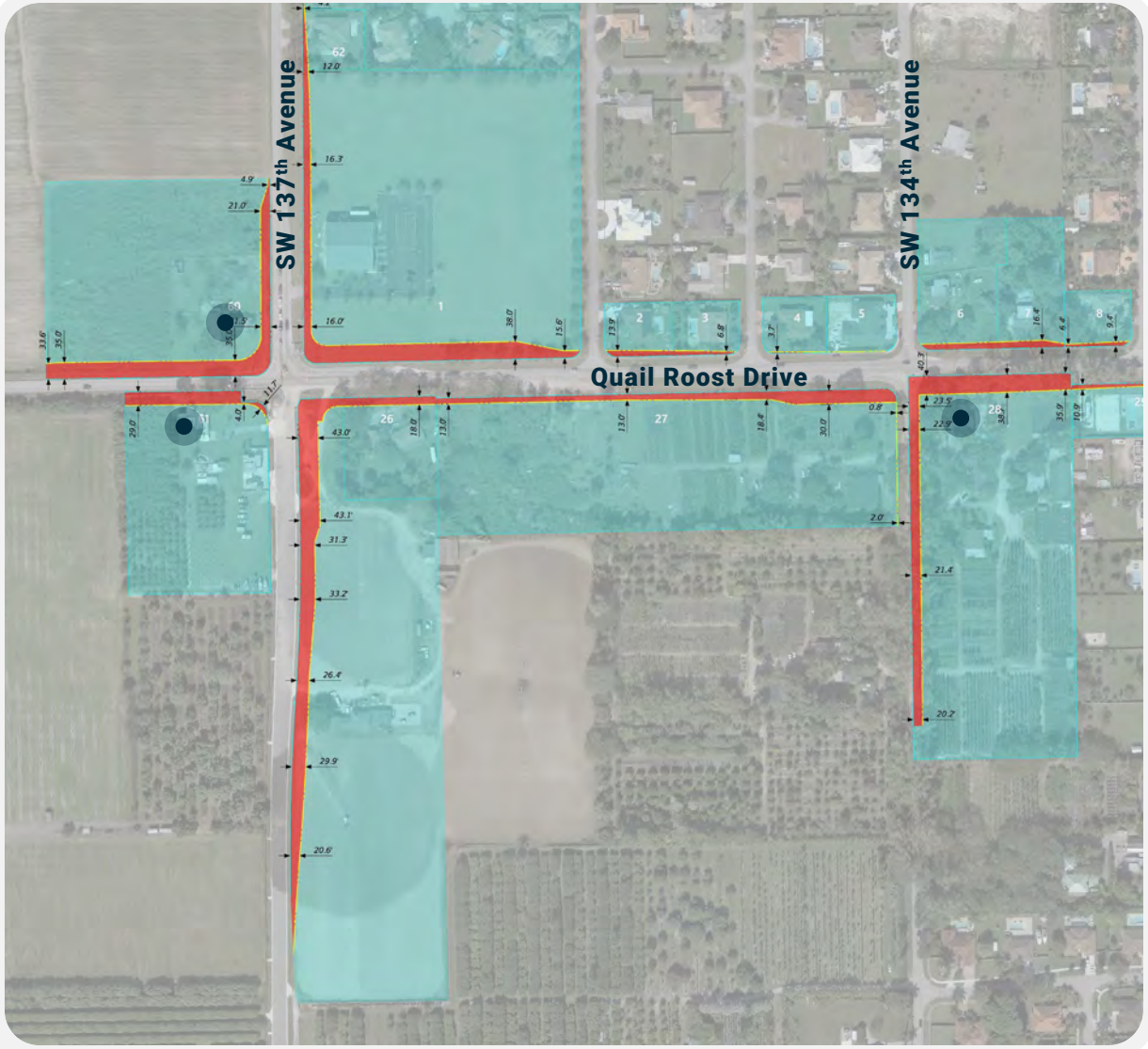


Build Alternative 2

Plan View – 137th Ave to 134th Ave

Build Alternative 2

Right-of-Way Impacts



LEGEND

- Impacted ROW
- Impacted Parcels
- Historic Resource

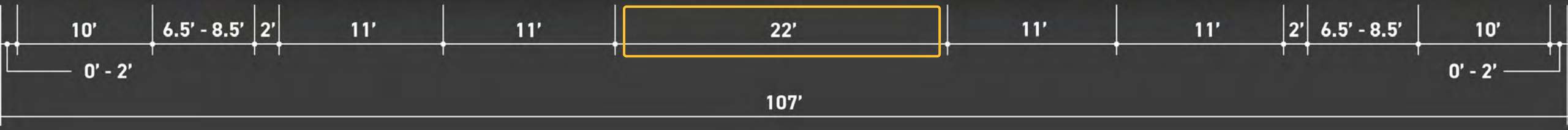
Build Alternative 3

Advantages

- Meets Project Purpose & Need
- Expected to reduce 23 crashes per year
- Improves Traffic Operations compared to Build Alternative 2
- Provides Continuous Shared-Use Path on both sides

Disadvantages

- Construction Effects (utility and drainage impacts)
- Temporary Disruption to Community or Travel Patterns
- Right of Way Impacts (higher than Alternative 2)
- Construction Costs = $29M
- Impacts to three significant historic properties

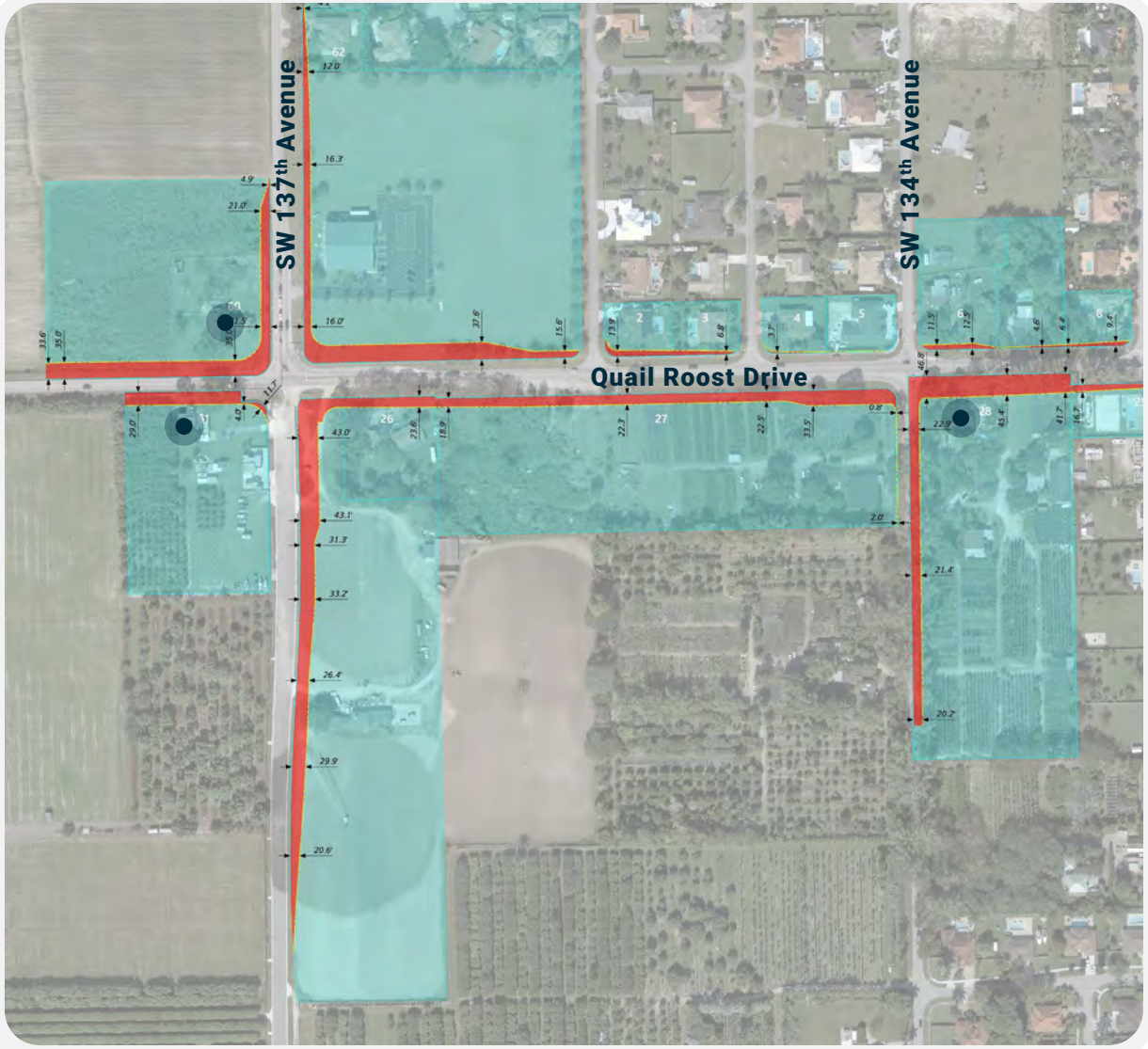


Build Alternative 3

Plan View – 137th Ave to 134th Ave

Build Alternative 3

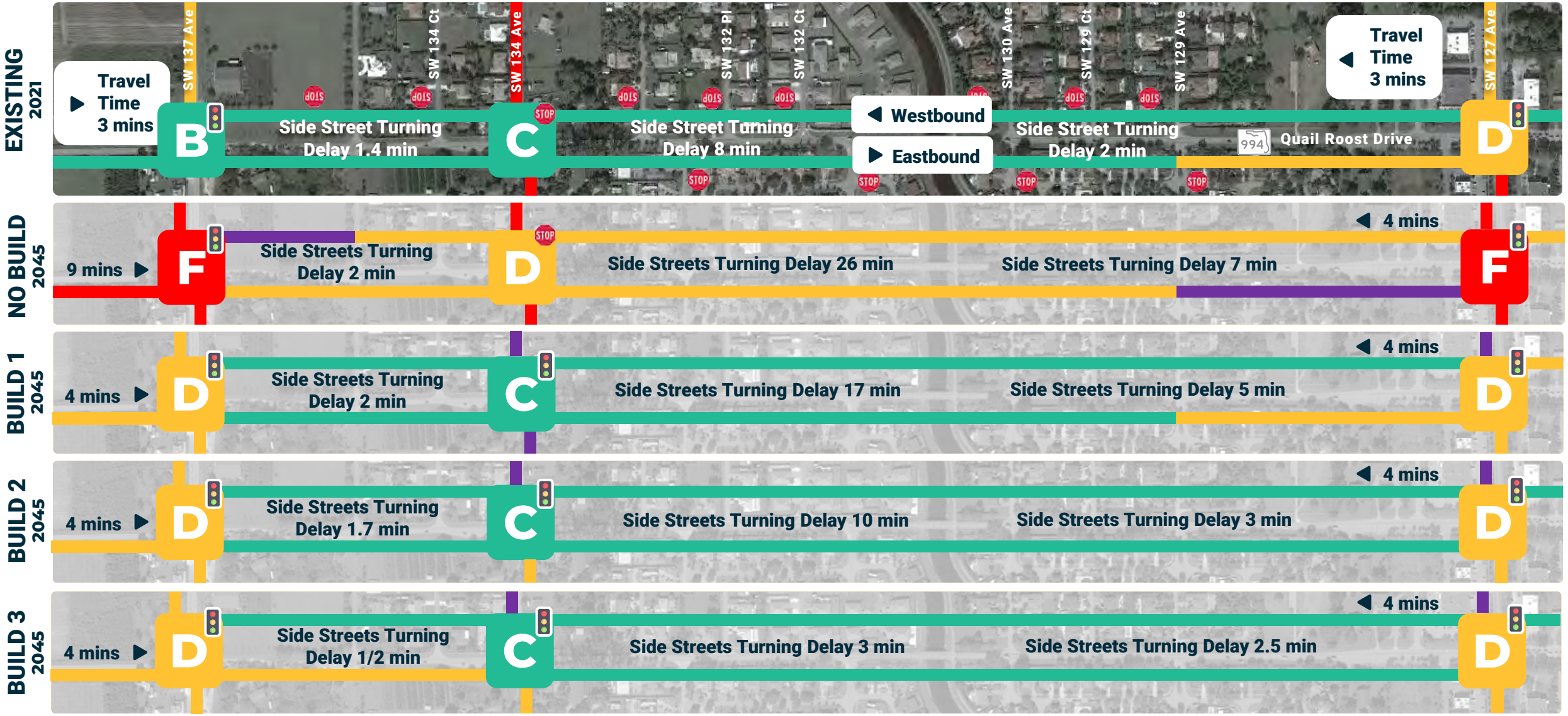
Right-of-Way Impacts



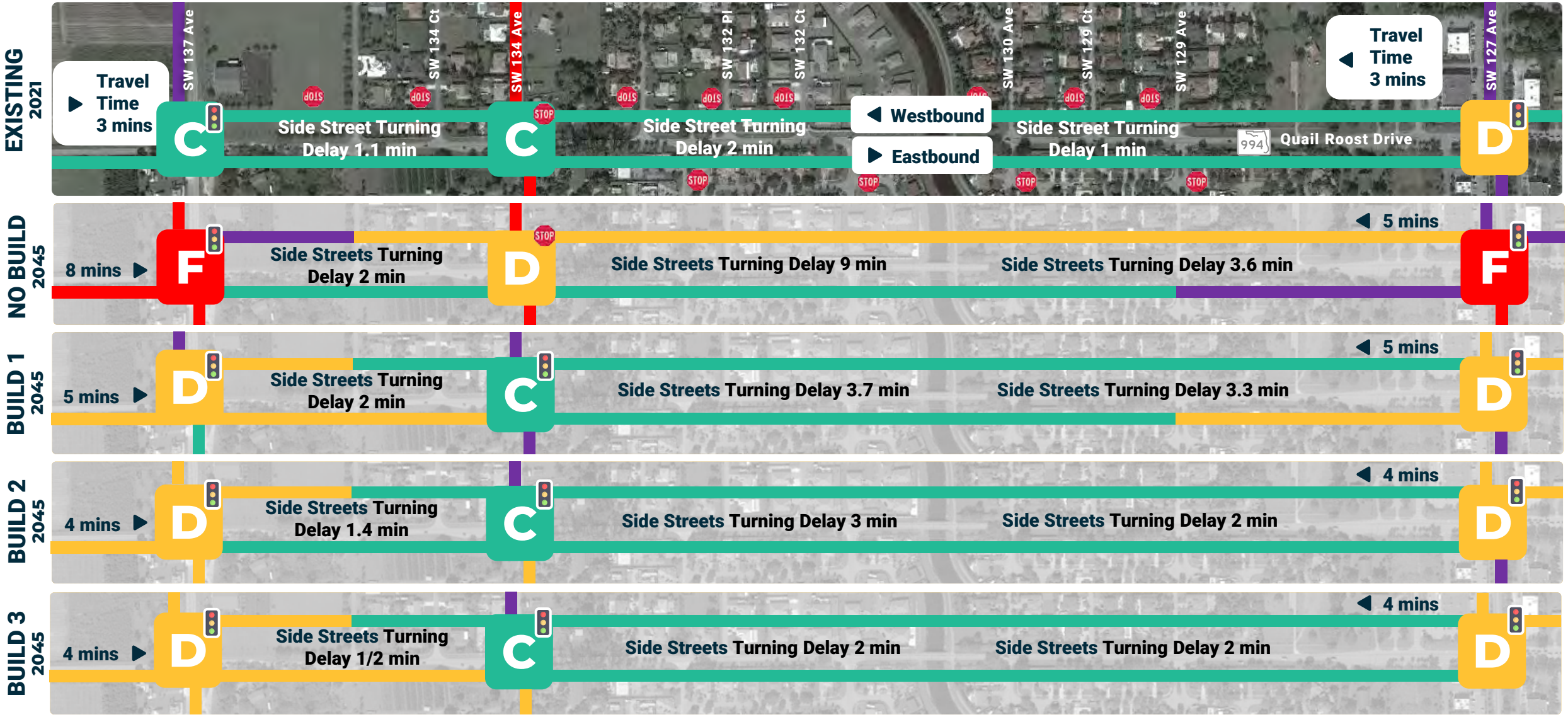
LEGEND

- Impacted ROW
- Impacted Parcels
- Historic Resource

Level of Service / Travel Time / Delay – AM Peak Period



Level of Service / Travel Time / Delay – PM Peak Period



Alternatives Evaluation Matrix

QUALITATIVE ALTERNATIVE COMPARISON MATRIX

Evaluation Criteria	No-Build (2-Lane Undivided)	Build Alternative 1 (2-Lane with Turn Lanes / Raised Islands and Signal at SW 134 Ave)	Build Alternative 2 (4-Lane with Turn Lanes / Raised Islands and Signal at SW 134 Ave)	Build Alternative 3 (4-Lane with Turn Lanes / Raised Median and Signal at SW 134 Ave)
Meets Purpose & Need	No	Yes	Yes	Yes
Traffic Operations	Increased Congestion and Delay	Added turning lanes at intersections	Added capacity and Turn lanes at intersections	Added capacity and Turn lanes at intersections
Safety	Increased number of accidents anticipated due to increase in future traffic volumes	Decreased number of accidents due to safety enhancements	Decreased number of accidents due to safety enhancements	Decreased number of accidents due to safety enhancements
Multimodal Accommodations	No improvement	Added pedestrian and bicycle facilities	Added pedestrian and bicycle facilities	Added pedestrian and bicycle facilities
Right of Way Impacts	None	Moderate Impacts	Significant Impacts	Significant Impacts
Historic Resources Impacts	None	Moderate Impacts	Significant Impacts	Significant Impacts
Recreational Resources	No Change	Black Creek Trail connected to other trail facilities	Black Creek Trail connected to other trail facilities	Black Creek Trail connected to other trail facilities
Noise	No Change	Slight increase in noise level related to alignment shift	Slight increase in noise level related to added capacity	Slight increase in noise level related to added capacity

- Positive Outcome
- No Change to Moderate Impact
- Negative Outcome

Next Steps and Meeting Logistics

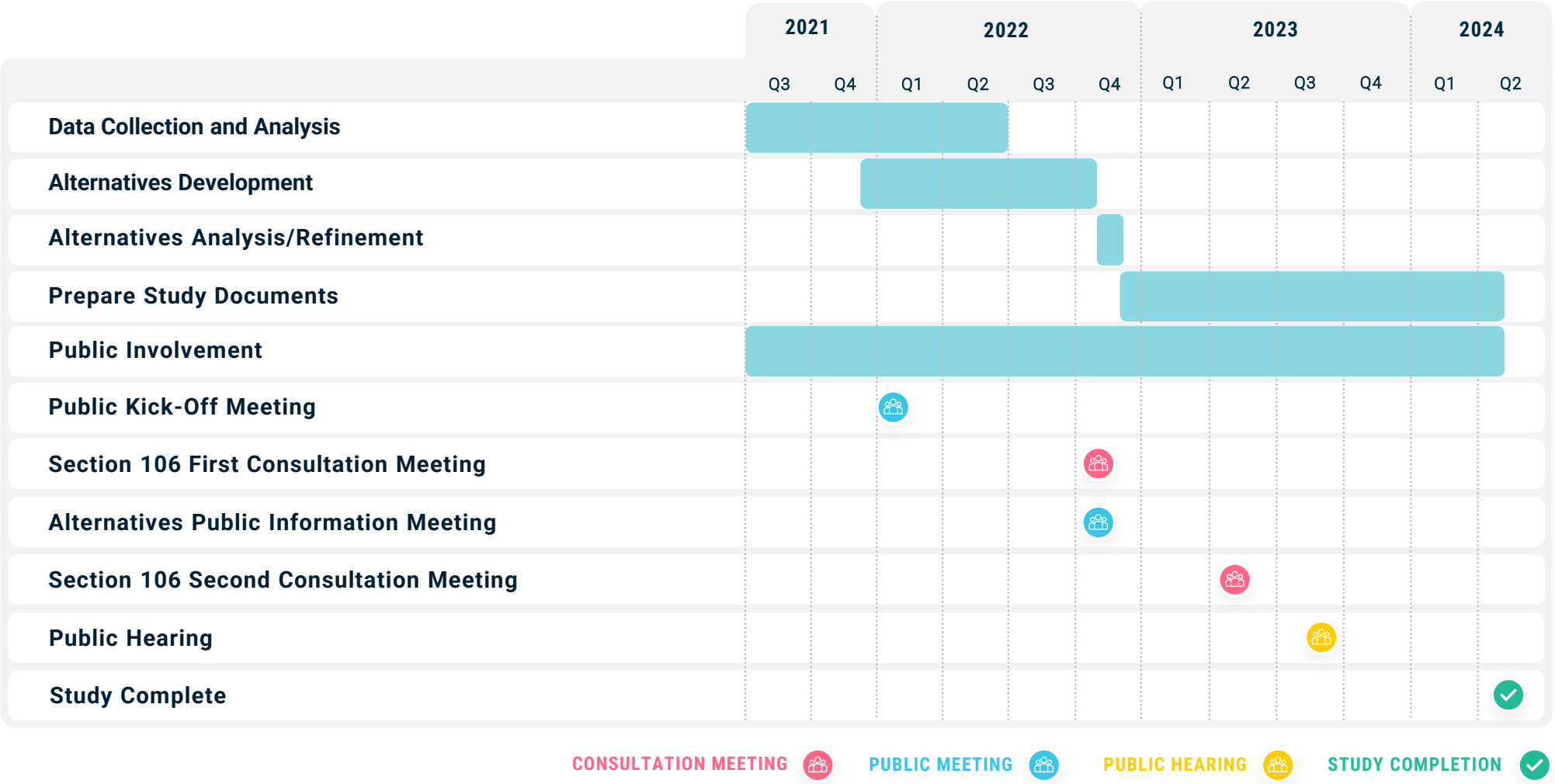
Future Meeting(s) or Outreach:

Alternatives Workshop:
October 18, 2022
5:30 pm to 7:30 pm

What Happens Next?

- Once Recommended Alternative selected – Section 106 Case Study (Effects to Significant Historic Resources) will be prepared. Recommended alternative will be presented to the Affected Parties prior to the Public Hearing
- Section 106 Case Study documentation will be prepared and submitted to SHPO for concurrence
- Consultation continues
- MOA prepared with minimization and mitigation measures
- Section 4(f) documentation prepared - Individual Statement anticipated

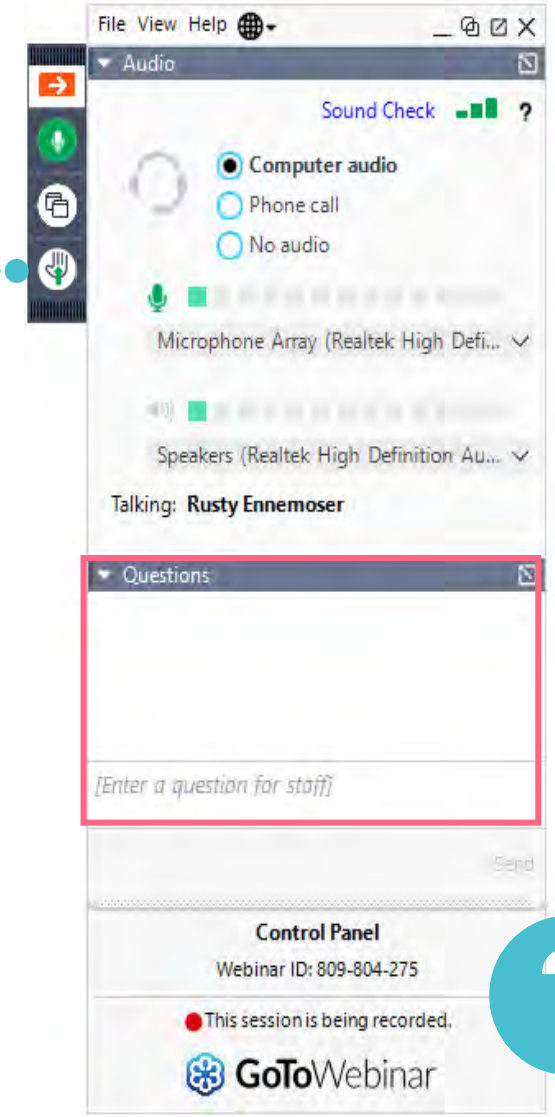
Project Schedule



Questions and Answers Session

To Provide Questions/Comments:

- Please type your comment in the chat.
- **Select the raised hand feature on the control panel to voice your question or comment.**



Any additional comments should be submitted to **Elsa Riverol** following the meeting. Please see the following slide for contact information.

We would appreciate all comments by **October 28th**

Contact Information

Elsa N. Riverol, P.E.
Florida Department of Transportation, District Six
1000 NW 111th Avenue, Room 6251
Miami, FL 33172
(305) 470-5105
Elsa.Riverol@dot.state.fl.us

Monica Diaz
Community Outreach Specialist
(305) 573-0089
monica@iscprgroup.com

SCAN QR CODE TO VISIT OUR PROJECT WEBSITE!

www.fdotmiamidade.com/QuailRoostPDE

Target Zero

TARGET ZERO

FATALITIES & SERIOUS INJURIES

Thank You.

Affected Parties Meeting #2

State Road (SR) 994/Quail Roost Drive PD&E Study
from West of SW 137 Avenue to East of SW 127 Avenue
Affected Parties Consultation
FM 445804-1-22-01

May 15, 2023
GoToWebinar

Staff:

FDOT
Elsa N. Riverol, P.E.
Robert McMullen
Victoria Vogt
Mathew Marino
Lindsay Rothrock

Dade Heritage Trust
Christina Rupp

Florida Division of Historical Resources (FDHR)
Marsha Welch

Gannett Fleming
Alina Fernandez, P.E.
Carlos Cejas, P.E.

Janus Research
Amy Streelman
Max Adriel Imberman

Purpose of the Workshop:
The Affected Parties Consultation was held on May 15, 2023, to discuss the State Road (SR) 994/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue. The purpose of this workshop was to update plans and progress on the project from the last meeting. The meeting provided directly affected property owners with an overview of alternatives and opportunity to provide comment and questions about the anticipated impacts to these historic properties located at: 13390 SW 200 Street, 20000 SW 137 Avenue, and 13701 SW 200 Street.

Presentation:
Community Outreach Specialist, Monica Diaz, of Infinite Source Communications, welcomed the attendees, stated the rules of engagement, and NEPA Assignment Statement.

Project team members introduced themselves and welcomed the attendees. Below are a list of project team members and attendees.

- Elsa N. Riverol, P.E., FDOT Project Manager
- Mathew Marino, FDOT Project Delivery Coordinator
- Alina Fernandez, P.E., Gannett Fleming Project Manager
- Carlos Cejas, P.E., PD&E Engineer,
- Amy Streelman, Cultural Resources
- Robert McMullen, Environmental Scientist III
- Victoria Vogt, FDOT - District 6 Cultural Resources Coordinator
- Max Adriel Imberman, Architectural Historian
- Lindsay Rothrock, State Cultural Resources Coordinator
- Marsha Welch, Historic Preservation
- Christina Rupp, Executive Director Dade Heritage Trust
- Tom Grinberg, Property Owner – 13390 SW 200 Street
- Lauren MacDonell, Property Owner – 13701 SW 200 Street
- Craig Coney, Property Owner – 20000 SW 137 Avenue

Open Discussion – *Action items in bold*

1. The resident of 20000 SW 137 Avenue inquired whether the distance from her home and the street would be 8-feet.
   - In response it was stated from the proposed right of way line to the back of sidewalk with the initial alternative presented, but additional alternatives will be presented to reduce that amount.
   - She expressed the concern that in the event of an accident, the possibility of a car crashing into her home.
   - Ms. Fernandez explained what is being shown as the proposed right of way, will have a shoulder 8 feet from the initial pavement, in addition to 8 feet to the house.

2. Mr. Tom Grinberg inquired about the affected area being proposed and whether it would be the 27,000 square feet.
   - Mr. Ceja's responded that is with alternative two, but the Department is looking at refining that alternative to avoid, minimize and reduce the impacts.

3. Ms. Rupp with Dade Heritage Trust inquired on what kicks off a review of a roadway by FDOT.
   - Ms. Riverol responded that the project was presented by the FDOT Safety Office due to the number of accidents and fatalities that have occurred at the intersections which triggered the study of the segment from 137 Avenue to 127 Avenue. Ms. Riverol continued and explained the process.
   - In addition, Ms. Rupp inquired if the Department ever takes a proactive approach to when there's an abundance of development planned and there is up zoning done in an area that was traditionally not heavily populated with subdivisions, and whether the studies are ever required and road improvements prior to development.
   - In response, Ms. Riverol stated permits are obtained, but for development, FDOT would not have a say, but that would be through Miami Dade County.
   - Mr. Cejas explained, the long-range planning of the transportation system is handled by the Transportation Planning Organization (TPO) every five years and it is the blueprint of all the future improvements to the transportation system and FDOT is involved.

4. Ms. Lindsay Rothrock commented when looking at mitigation ideas that they include local preservation boards that have context or an idea to help show the historical significance of these structures.
   - Ms. Streelman responded and stated that is something that has been discussed at FDOT and it is another measure being reviewed.
   - Ms. Rothrock's further inquired if landscaping was a potential mitigation to help with the noise given the proposed improvements and whether it is a consideration. She continued and stated it will maintain the character and scene of the properties.
   - In response, Mr. Cejas stated that was a specific question for the homeowners and asked whether they would be interested in landscaping and whether it appeals to them as mitigation.

5. A property owner inquired on how the noise would impact their coral rock house.
    - Mr. Cejas responded from a roadway perspective and stated they may experience minor vibration during construction. Ms. Streelman stated based on the experiences on other similar projects, the department would use methods that are sensitive to these resources, and they would monitor vibrations to ensure the structures are not impacted. In addition, Mr. Rob McCullen, the district's noise specialist, responded and explained the noise study conducted and expressed the concerns of residents have been considered for the project.

6. Ms. Lauren MacDonell responded to the inquiry made by Ms. Rothrock pertaining to documenting and preserving the building techniques, and the historical information and offered her and her family's assistance as they were instrumental in rebuilding of the McDonald wall and the Talbot house.
7. Mr. Jeff Ransom with Miami-Dade County commented that a certificate of appropriateness will be required for any landscaping or impacts to the designated historic resource.

8. Ms. Streelman and Mr. McMullen concluded the meeting and thanked everyone for participating and encouraged attendees to submit their comments and questions through the open comment period date of June 2, 2023, and advised of future meetings to continue the discussion.

Action Items:
N/A

SR 994/Quail Roost Drive PD&E Study

from West of SW 137th Ave to East of SW 127th Ave
FM 445804-1-22-01
ETDM No. 14429

Affected Parties Second Consultation Meeting

May 15, 2023

Virtual Meeting Format

THIS MEETING IS BEING RECORDED.

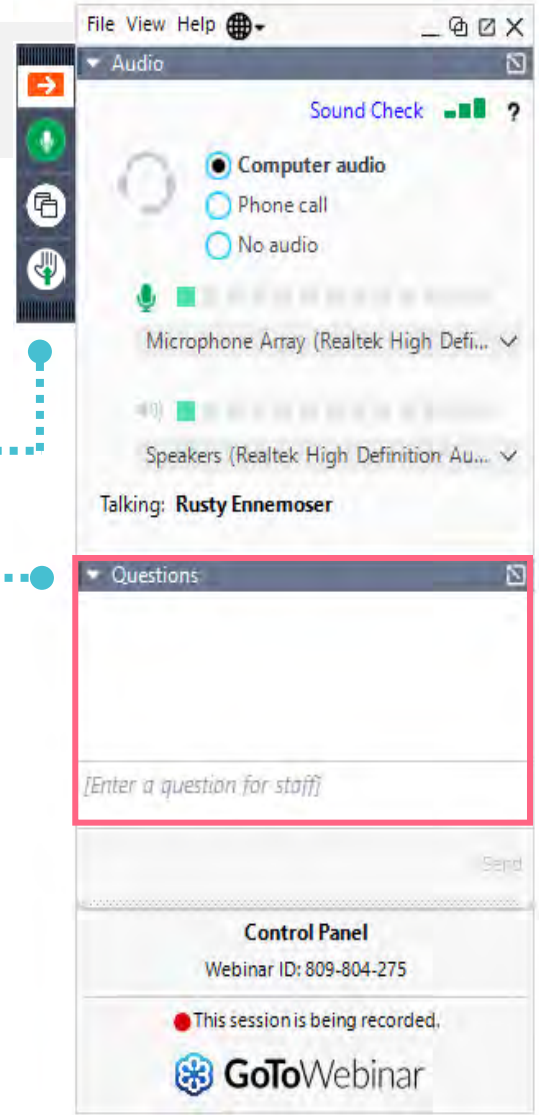
GoToWebinar Online Meeting Platform

Providing Comments During Open Discussion Period:

- **Raise hand during comment period to speak on control panel or comment in the chat**
- Submit Comments via the "Questions" Box
- Questions will be responded to **after** the presentation

Technical Issues?

- **Type your issue in the questions pane on the control panel.**



NEPA Assignment Statement

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

Title VI Non-Discrimination Compliance

Public participation at this meeting is solicited without regard to race, color, national origin, age, sex, religion, disability, or family status.

Persons wishing to express their concerns relative to FDOT compliance with Title VI may do so by contacting:

Florida Department of Transportation
District Six Office
District Six Title VI Coordinator
Nicholas Danu, P.E.
1000 NW 111th Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219

Florida Department of Transportation
Central Office
State Title VI Coordinator
Stefan Kulakowski
605 Suwannee Street, MS 65
Tallahassee, Florida 32399
Stefan.Kulakowski@dot.state.fl.us
(850) 414-4702

All inquiries or concerns will be handled according to FDOT procedure and in a prompt and courteous manner.

Agenda

1. **Member Introductions**
2. **Project Introduction & Background**
3. **Purpose and Need**
4. **Existing Conditions**
5. **Cultural Resources**
   - Historic Significance
   - Section 106 Process
6. **Alternatives Considered**
7. **Preferred Alternative**
8. **Next Steps**

Presentation Team

Project Manager

Elsa N. Riverol, P.E.

FDOT

Project Manager

Alina Fernandez, P.E.

GANNETT FLEMING

PD&E Engineer

Carlos Cejas, P.E.

GANNETT FLEMING

Cultural Resources

Amy Streelman

JANUS RESEARCH

Project Location

SR 994 • SW 200th St • Quail Roost Drive

from West of SW 137 Ave (MP 3.750) to East of SW 127 Ave (MP 5.430)

Purpose and Need

Safety

Improve Safety Conditions and Emergency Evacuation and Response Times

84 crashes per year (2015-2019)

Three recent fatal crashes (2016, 2019 and 2021)

Five locations in High Crash Spot List

High Crash Segments in years 2015 through 2019

Capacity

Improve Operational Conditions and Accommodate Projected Travel Demand

Multiple segments operating at LOS F

Future conditions anticipated to worsen if no improvements implemented

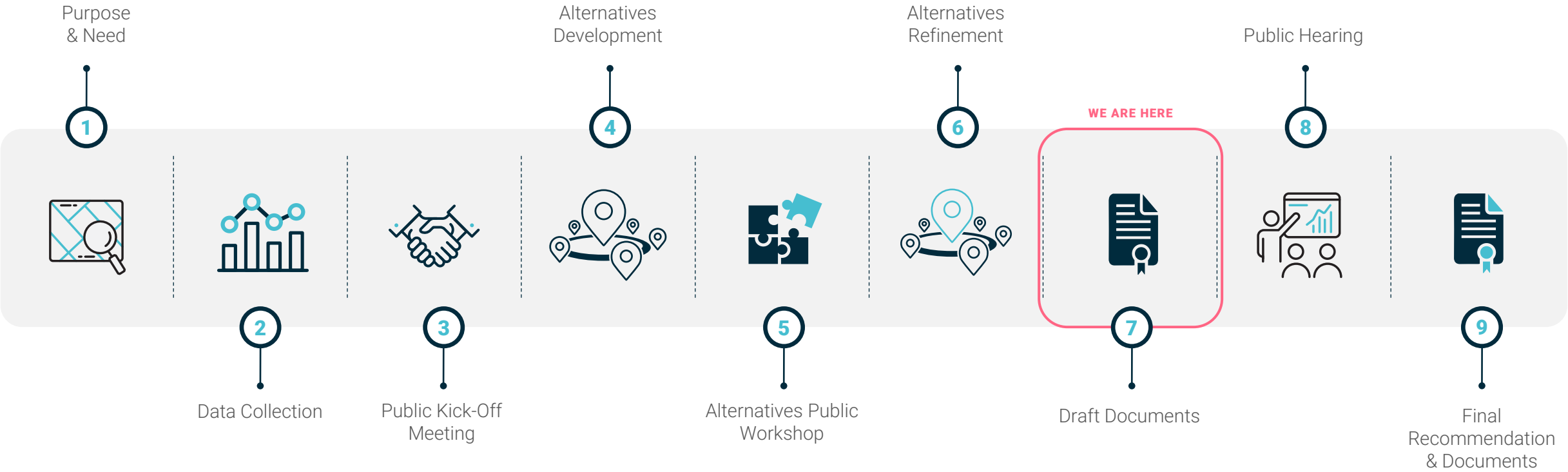
Multi-Modal

Enhance Mobility Options and Multi-Modal Access

No designated bicycle lanes

Non-continuous sidewalks

PD&E Study Process

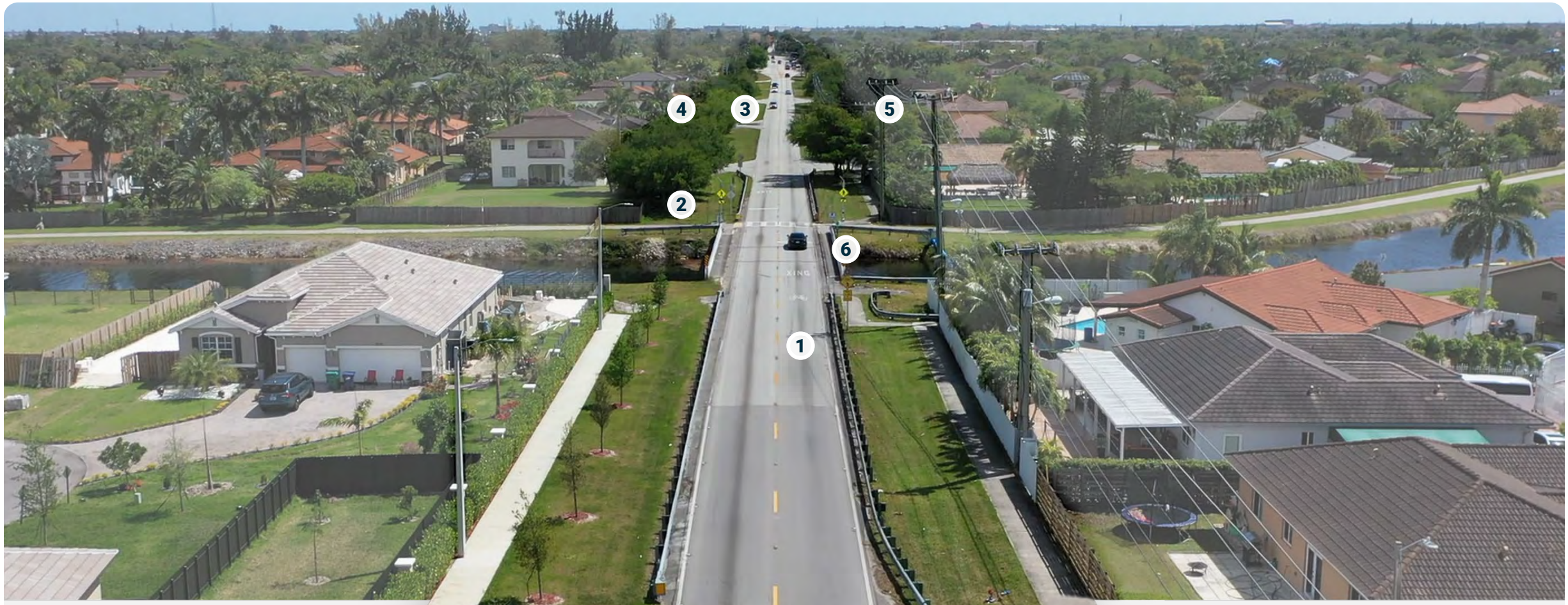


Begin Study

PUBLIC ENGAGEMENT

Study Approval

Existing Roadway / Typical Section



1. Two-lane undivided roadway
2. Black Creek Trail Crossing (at-grade mid-block crossing)
3. Discontinuous Sidewalks
4. Mature Landscaping
5. Utilities (not always in back of SW)
6. Bridge over Black Creek Canal

6’	Varies	11.5’	11.5’	Varies	6’

ROW: 30’ - 100’

Posted Speed: 40MPH

Safety Analysis (Crash Data)

Corridor Wide Crash Summary (2015 – 2019)
422 Crashes
139 Injury Crashes (33%), 2 Pedestrian/Bicyclist Crashes (< 1%)
2 Fatal Crashes (< 1%)

Leading Crash Types	2015	2016	2017	2018	2019	5-Year Total	%
Rear End	33	37	47	42	42	201	48%
Angle	13	22	24	18	20	97	23%
Left Turn	6	10	5	9	10	40	10%
Sideswipe	5	3	4	11	9	32	8%

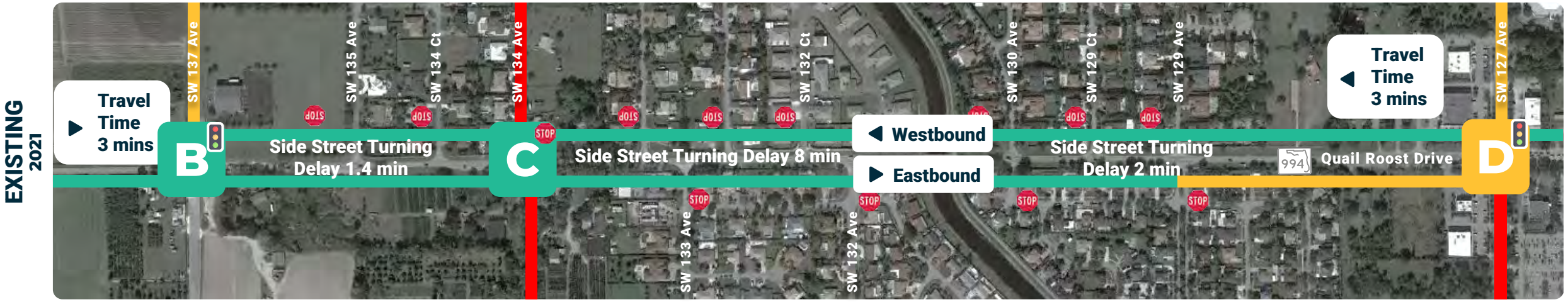
FDOT High Crash List
High Crash Segment (All five years)
5 High Crash Spots (SW 137 Ave, SW 134 Ave, SW 133 Ave, SW 132 Ave, SW 127 Ave)

Corridor Wide Crash Summary (2020 – 2021)
156 Crashes
39 Injury Crashes (25%), No Pedestrian/Bicyclist Crashes
1 Fatal Crash (< 1%)

Leading Crash Types	2020	2021	2-Year Total	%
Rear End	37	31	68	41%
Left Turn	22	14	36	22%
Sideswipe	9	6	15	9%
Angle	6	9	15	9%

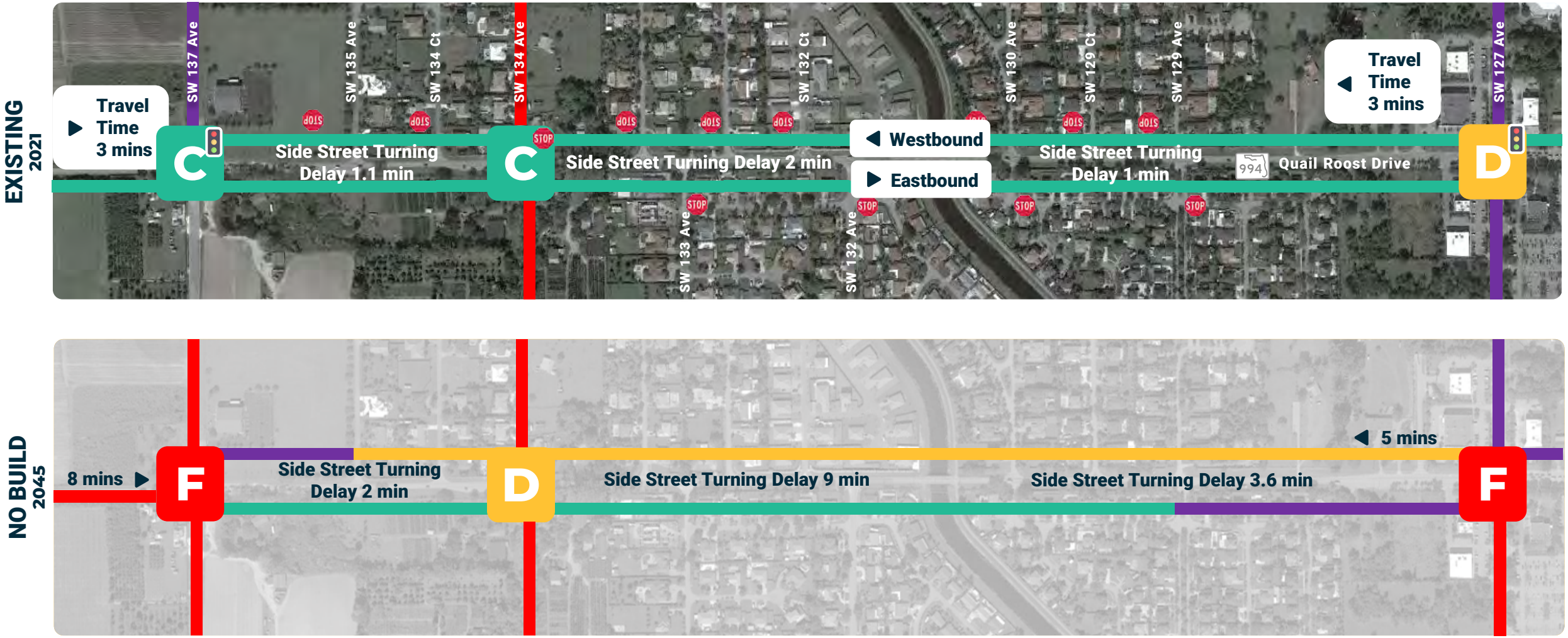
Fatal Crashes (2015 – 2021)
2016 – 1 Left Turn crash at SW 132 Ave
2019 – 1 Angle crash at SW 134 Ave
2021 – 1 Left Turn crash at SW 134 Ave

Level of Service / Travel Time / Delay – AM Peak Period



Legend: ≤ LOS C | LOS D | LOS E | LOS F

Level of Service / Travel Time / Delay – PM Peak Period



Legend: ≤ LOS C | LOS D | LOS E | LOS F

Cultural Resources - Historical

- Cultural Resources Assessment Survey (CRAS) completed.
- CRAS submitted to SHPO for review and received concurrence on findings January 2023.
- Overall, 18 historic resources identified in the Area of Potential Effect (APE).
- Three historic resources determined eligible for inclusion in National Register (NRHP):

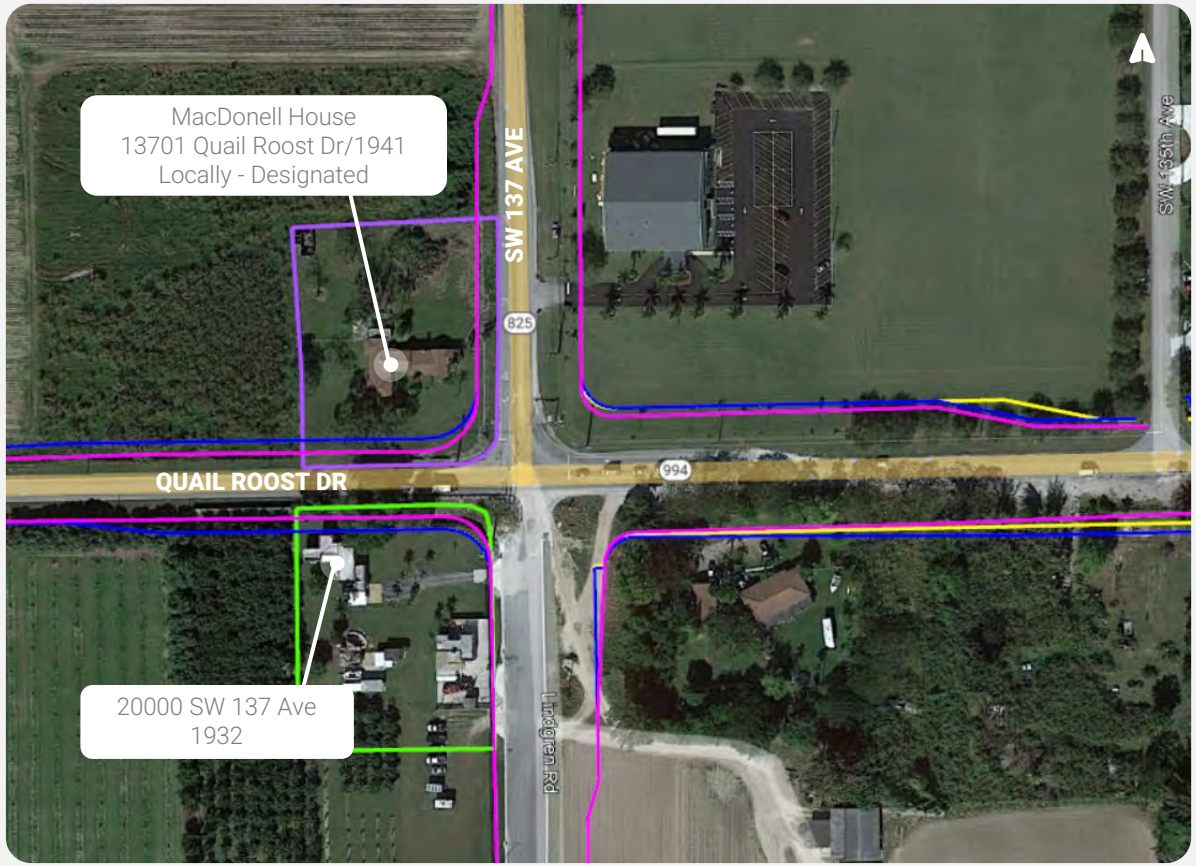
1. Talbott Estate – southeast corner of Quail Roost Drive & SW 134th Avenue intersection *(County designated)*
   Property Address: 13390 SW 200th Street

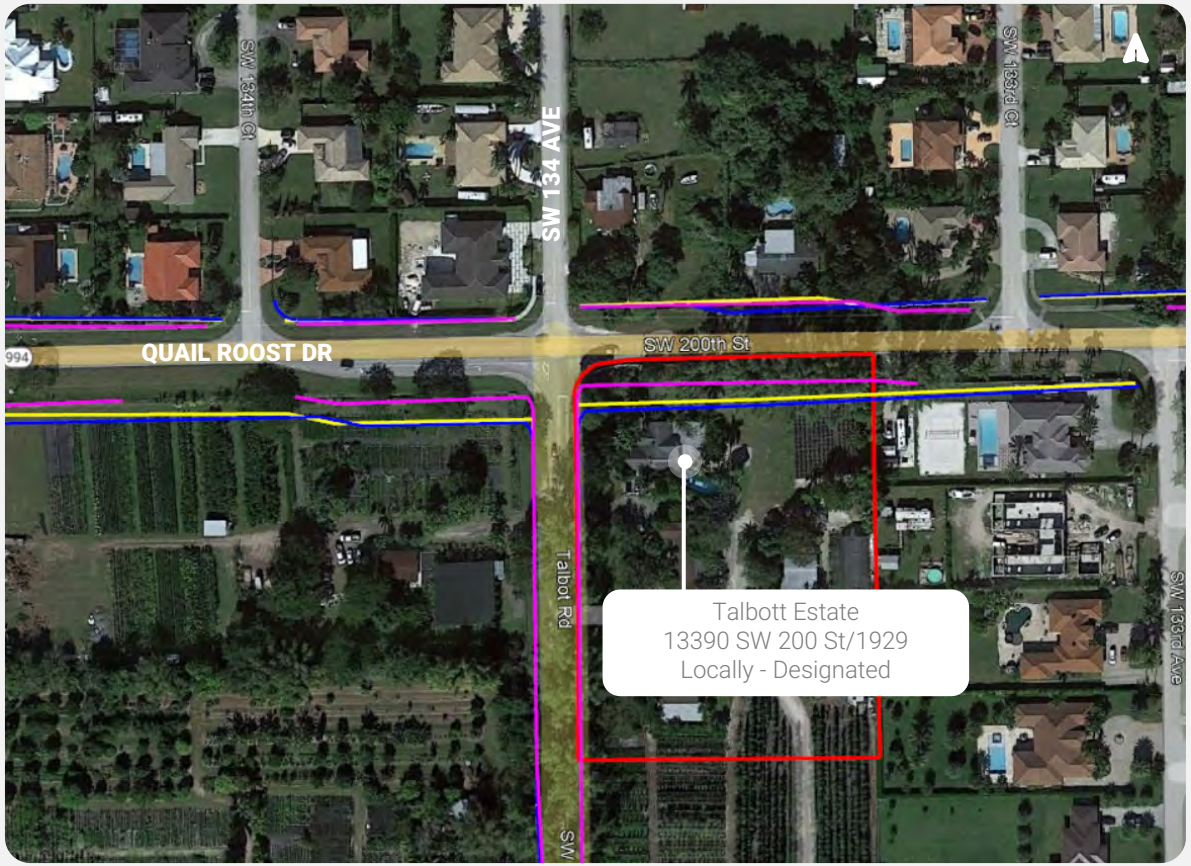
2. MacDonell House and Walls – northwest corner of Quail Roost Drive & SW 137th Avenue intersection *(County designated)*
   Property Address: 13701 SW 200th Street

3. Southwest corner of Quail Roost Drive & SW 137th Avenue intersection – potentially significant
   Property Address: 20000 SW 137th Avenue

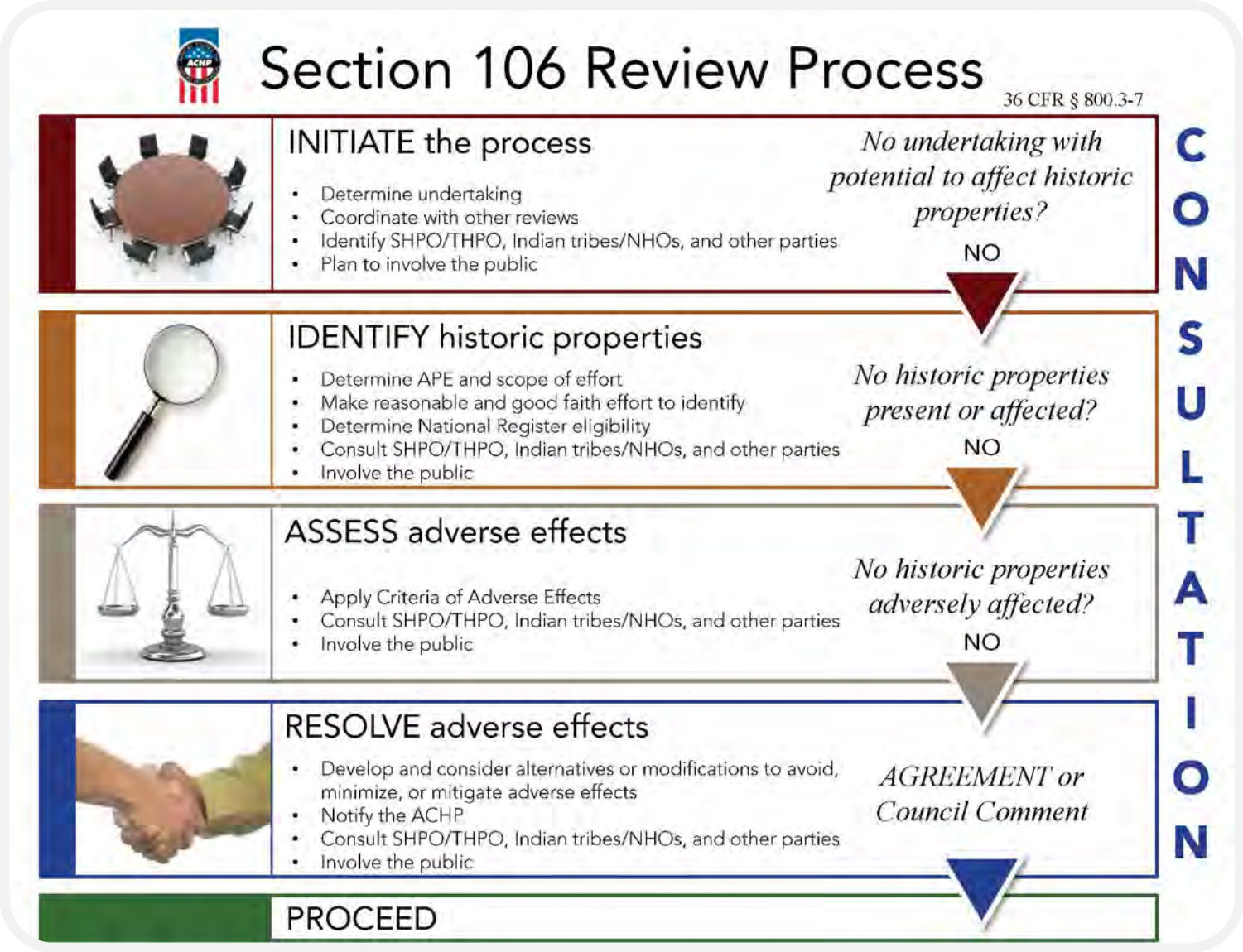
Proposed Boundaries

Proposed ROW	Proposed Boundaries
Build Alternative 1	MacDonell House
Build Alternative 2	20000 SW 137 Ave
Build Alternative 3	Talbott Estate





Section 106 Review Process



Objectives of Affected Party Consultation Meetings

1. Present Project Purpose and Need and Alternatives Considered
2. Discuss the Section 106 Process
3. Outline how the Section 106 Process is being carried out during course of this project
4. Present findings of cultural resources studies and consultation participants provide input regarding resources and eligibility
5. Define next steps in the Section 106 process: effects and resolution of effects
6. Input on future consultation related to potential effects and minimization and mitigation measures

Alternatives Considered

- [ ] **No-Action Alternative**
  2-Lane Undivided

- [ ] **Build Alternative 1**
  2-Lane with 16.5-ft raised median/turn lanes and Signal at SW 134th Ave

- [ ] **Build Alternative 2**
  4-Lane with 16.5-ft raised median/turn lanes and Signal at SW 134th Ave

- [ ] **Build Alternative 3**
  4-Lane with 22-ft raised median/turn lanes and Signal at SW 134th Ave

No-Action Alternative

Advantages

- No Construction Cost
- No Right-of-Way acquisition
- No Adverse Effects to historic resources
- No temporary construction impacts
- No disruption to travel patterns

Disadvantages

- Does NOT Meet Project Purpose & Need
- Congestion will worsen as population and traffic volumes increase
- No bicycle and pedestrian connectivity
- Safety will not be improved. Additional crashes are anticipated as traffic volumes increase.
- Rehabilitation (RRR, Safety, etc.) will be needed soon at different locations along the corridor.

Build Alternative 1

Advantages

- Reduces delay by adding auxiliary lanes at the signalized intersections
- Improves safety when compared to the No-Build and TSM&O alternatives
- Less construction time than other build alternatives
- Less Right-Of-Way acquisition compared to the other Build alternatives
- Adverse Effects to historic resources are less compared to Build Alternatives 2 and 3.
- Provides bicycle and pedestrian facilities

Disadvantages

- Adverse Effects to historic resources (least severe of all three build alternatives)
- No continuous capacity improvement – maintains current condition of one lane of traffic in each direction
- Increased traffic congestion (more than with other build alternatives)
- Fewer safety improvements when compared to other Build Alternatives (related to congestion)

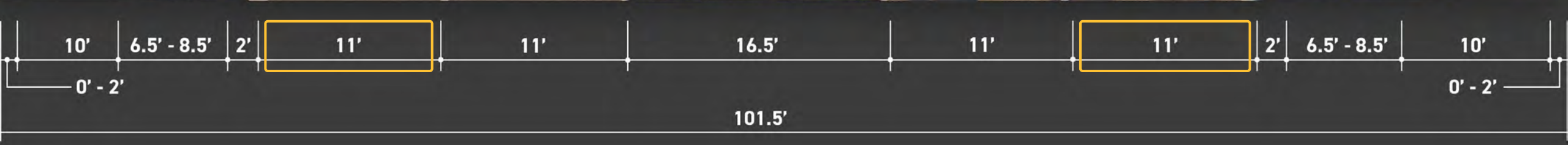
Build Alternative 2

Advantages

- Meets Project Purpose & Need
- Reduces delay by adding an additional through lane and auxiliary lanes in each direction
- Improves safety (compared to Build Alternative 1)
- Provides additional capacity (additional through lanes)
- Access management improvements
- Provides bicycle and pedestrian facilities
- Less Right-of-Way acquisition than Build Alternative 3
- Adverse Effects to historic resources less than Build Alternative 3

Disadvantages

- Adverse Effects to historic resources greater than Build Alternative 1
- Greater ROW impacts than Build Alternative 1
- Higher construction cost than Build Alternative 1



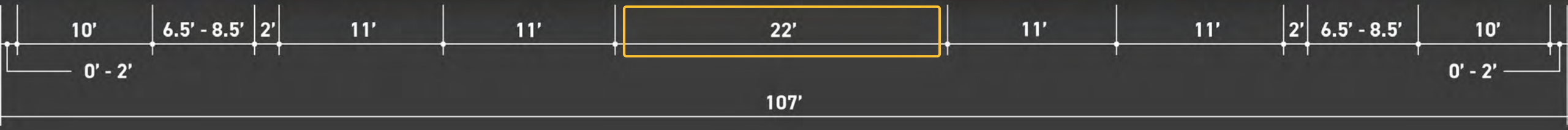
Build Alternative 3

Advantages

- Meets Project Purpose & Need
- Reduces delay by adding an additional through lane and auxiliary lanes in each direction
- Improves safety (more than all other alternatives)
- Meets access management standards for median openings
- Standard Median Width
- Provides additional capacity when compared to Build 1 and Build 2 Alternatives
- Provides bicycle and pedestrian facilities

Disadvantages

- Adverse Effects to historic resources greater than Build Alternative 1 for all three resources and Build Alternative 2 for the resource located at SW 134th Avenue.
- Significant ROW acquisition (most severe of all three build alternatives)
- Higher construction cost than all other alternatives



Build Alternative 2
(4-Lane with 16.5 ft Median)

Continue to Refine & Evaluate Against No-Action Alternative Throughout Study

Evaluation Criteria			Alternatives			
			No-Action (2-Lane Undivided)	Build Alternative 1 (2-Lane with 16.5-ft median)	Build Alternative 2 (4-Lane with 16.5-ft median)	Build Alternative 3 (4-Lane with 22-ft median)
Meets Purpose & Need			-	+	++	++
Community Support			-	+	++	0
ENGINEERING	Traffic Operations	Corridor-Wide	--	+	++	++
		Main Intersections	--	+	++	++
		Stop-Controlled Intersections	--	--	++	++
	Safety		--	+	++	++
	Utility Impacts		0	-	-	-
	Access Management		0	--	-	--
	Multimodal Accommodations		--	++	++	++
	Maintenance of Traffic		+	--	-	-
	Drainage		0	-	-	-
	Right of Way Impacts		0	-	--	--
ENVIRONMENT	Socio-Cultural Effects/ Relocation Potential		0	-	-	-
	Historic Resources		0	-	-	-
	Recreational Resources		0	+	+	+
	Wetlands		0	0	0	0
	Wildlife and Habitat		0	0	0	0
	Noise		0	-	-	-
	Air Quality		0	+	+	+
	Contamination		0	0	0	0
Cost (Construction, Relocation and ROW)			+	-	-	-
TOTAL SCORE			**-10**	**-4**	**6**	**3**

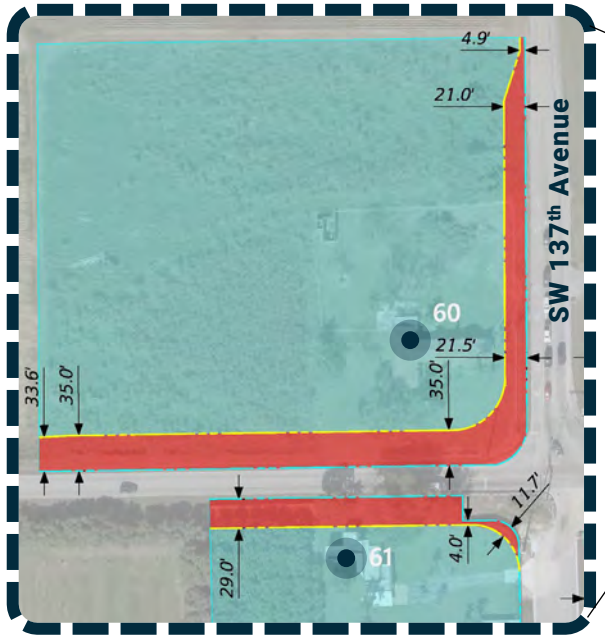
Score	Description
+	Alternative meets or has a positive response to the Evaluation Criteria
0	Alternative has no effect or provides some benefit to the Evaluation Criteria
-	Alternative has a poor or negative response to the Evaluation Criteria
Note:	++ or ++ denote greater impact positively or negatively

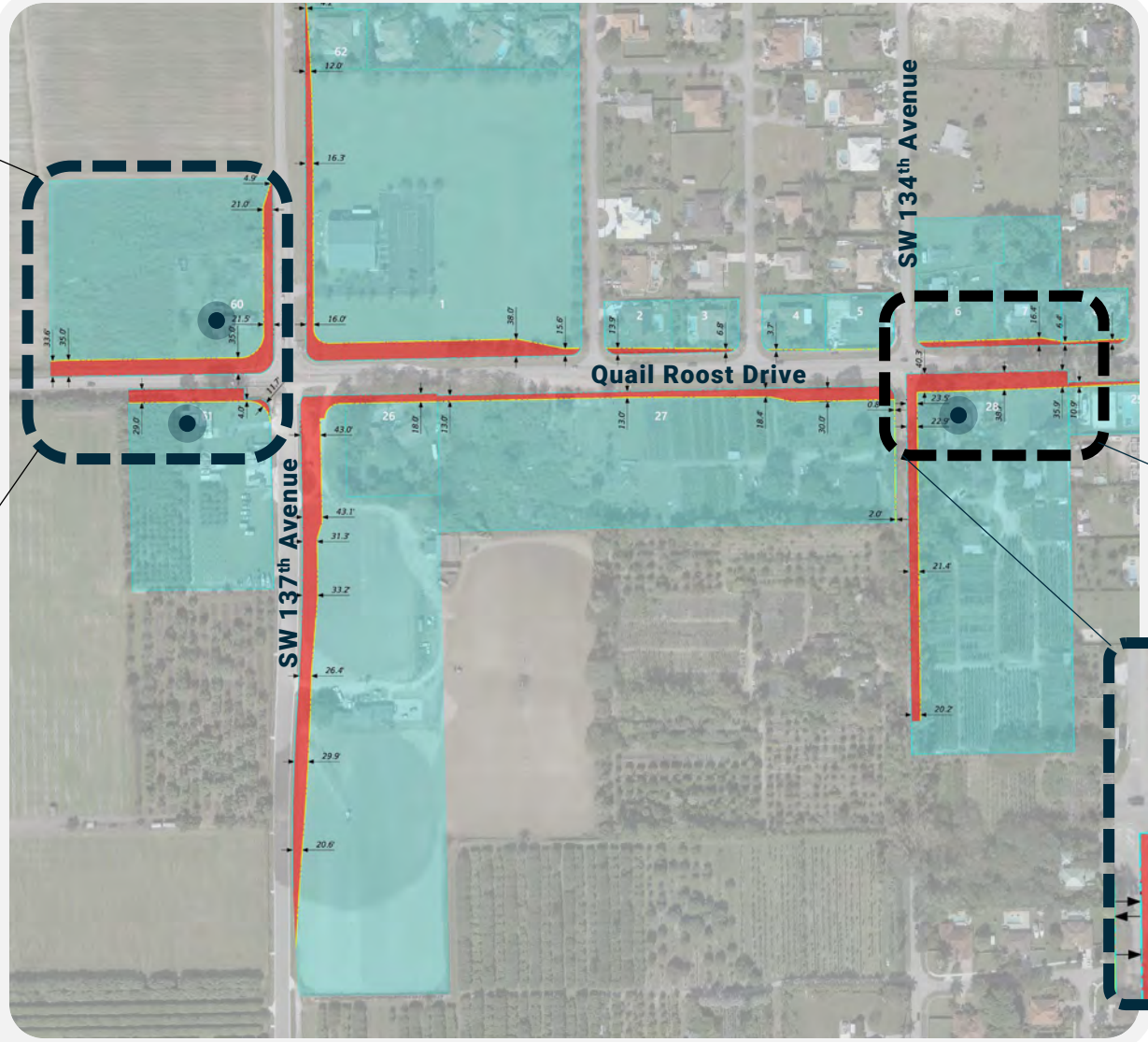
Preferred Alternative - Build 2

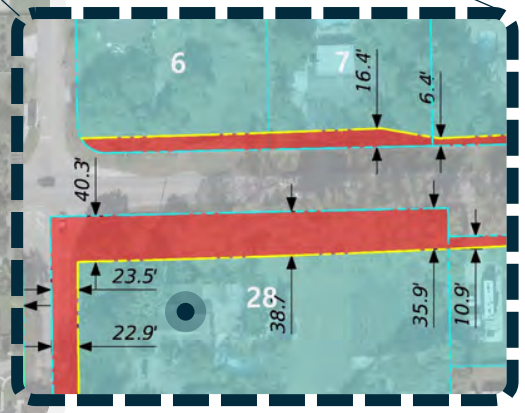
Plan View – 137th Ave to 134th Ave

Preferred Alternative - Build 2

Right-of-Way Impacts







LEGEND

- Impacted ROW
- Impacted Parcels
- Historic Resource

Section 106 Effects Analysis - Preferred Alternative

- The Section 106 Effects Case Study Report is currently in progress and will be submitted for review and concurrence.
- This alternative will have an adverse effect on the Talbott Estate (8DA2789), the MacDonnell Residence (8DA20712), and 20000 SW 137th Avenue (8DA20713).
- This alternative will require property acquisition from each of the parcels, and the widened facility will encroach onto the historic properties, affecting the historic buildings, their historic walls, and overall setting and other aspects of their historic integrity.
- In addition to direct impacts, as the ROW and improvements encroach onto the historic parcels, there may be visual effects, increases in noise and vibration, as well as changes to access.

Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection)

- Property Address: 13390 SW 200 Street
- Parcel impact area = 27,039 SF
- Distance from Resource to Proposed ROW = 28-ft on the north and 58-ft on the west sides of the parcel

MacDonell Residence (8DA20712) (NW corner of SW 137 Ave intersection)

- Property Address: 13701 SW 200th Street
- Parcel impact area = 23,079 SF
- Distance from Resource to Proposed ROW = 46-ft on the south and 14-ft on the east sides of the parcel

20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection)

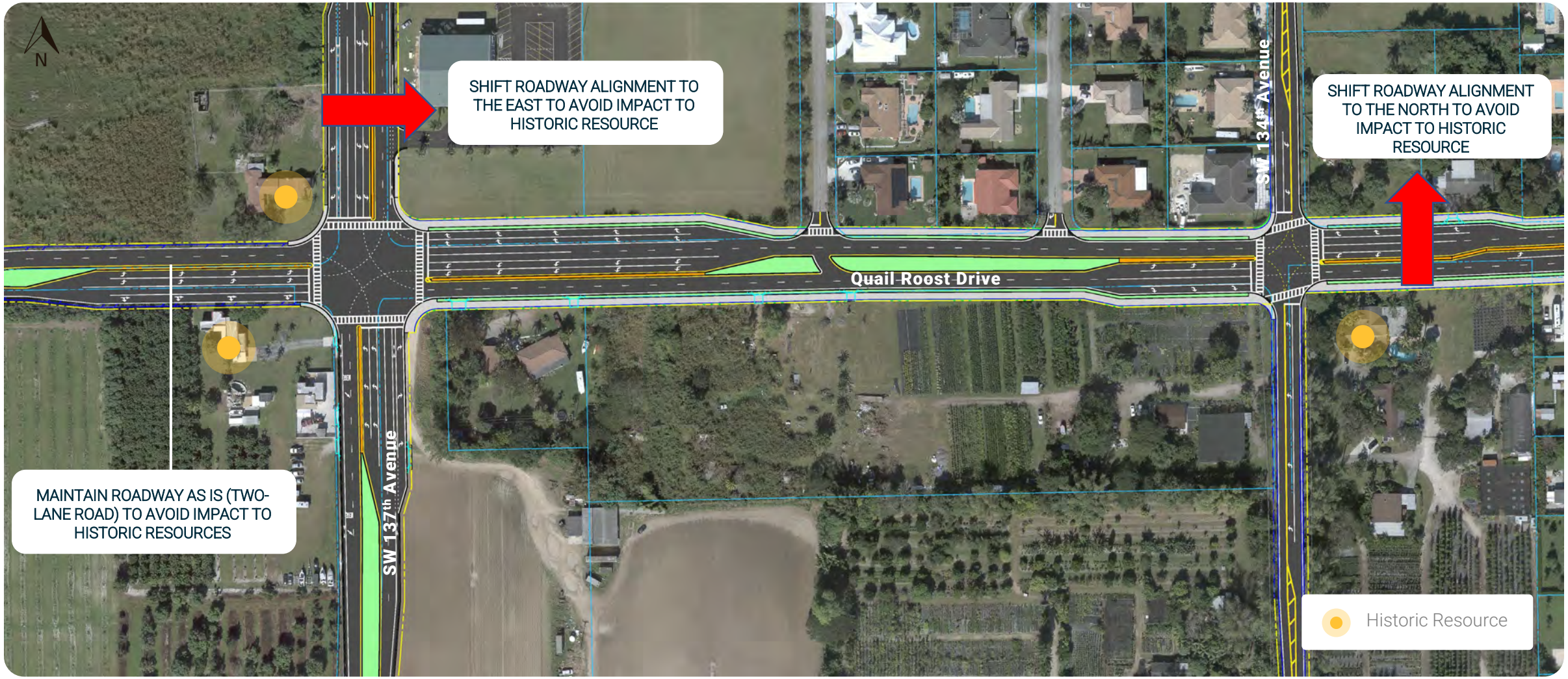
- Property Address: 20000 SW 137th Avenue
- Parcel impact area = 6,778 SF
- Distance from Resource to Proposed ROW = 8-ft on the north side of the parcel

Avoidance and Minimization Evaluation

Avoidance - Alterations to the project so that an adverse effect does not occur (e.g., alignment shifts or reduced cross-sections to avoid a community resource)

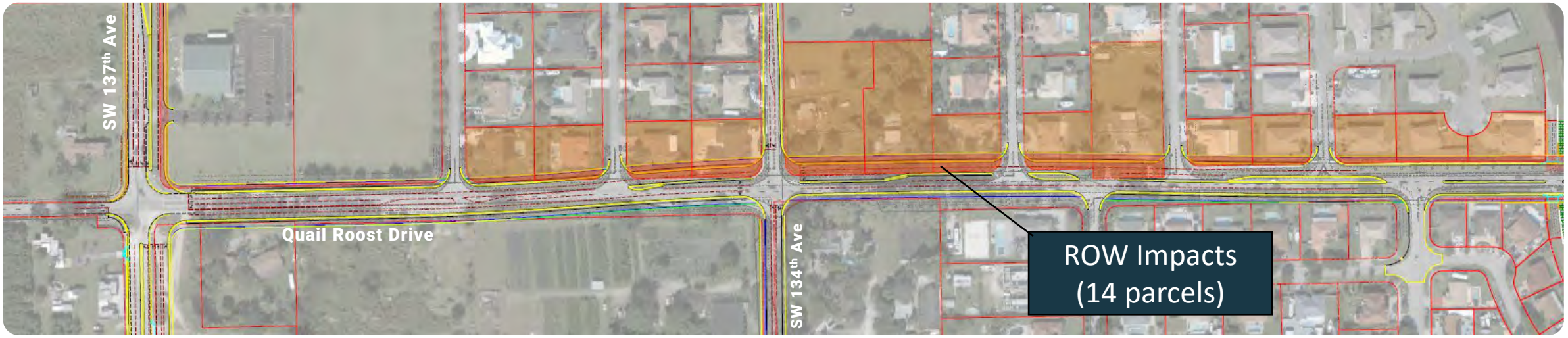
Minimization - Modifications to the project to reduce the severity of the effect (e.g., reduce turn lane storage length, remove turn lanes, etc.)

Plan View – 137th Ave to 134th Ave



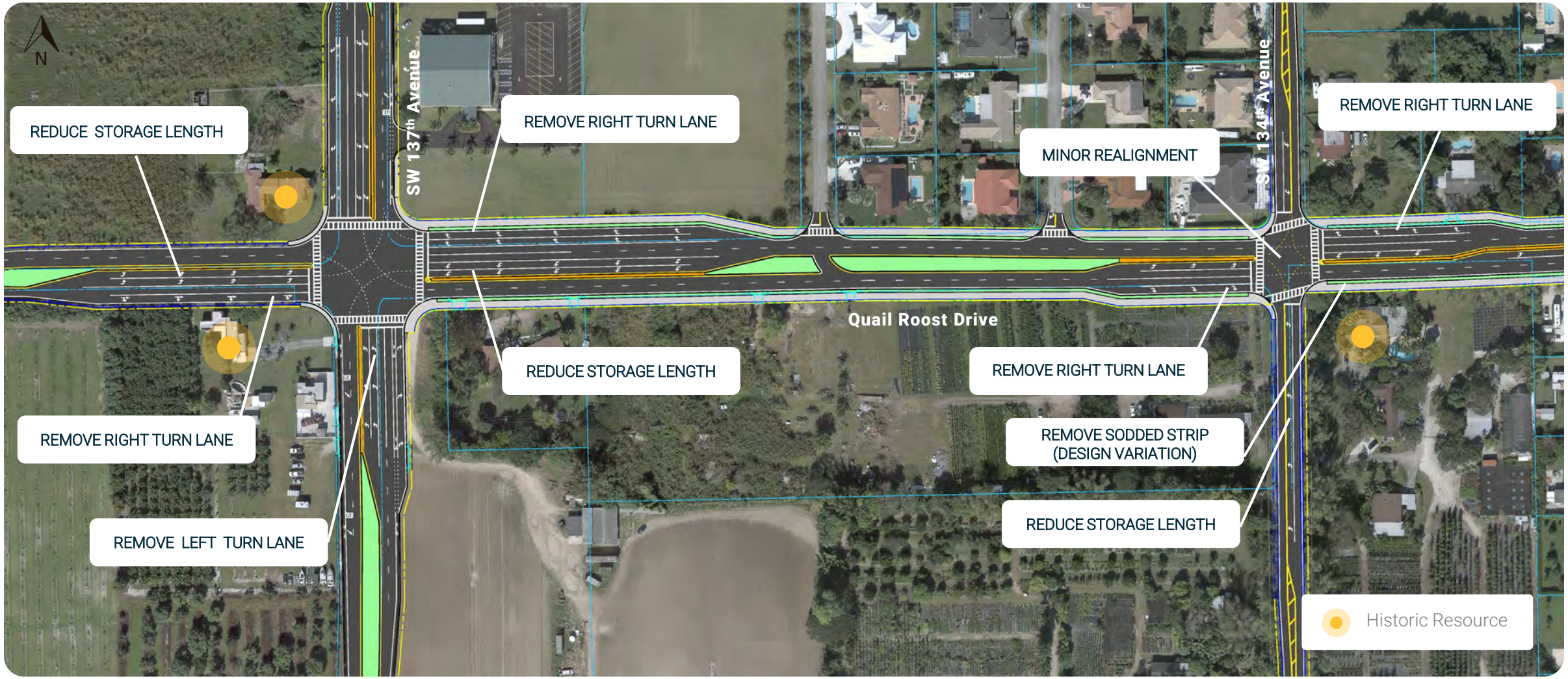
Avoidance Alternative

Right-of-Way and Traffic Impacts



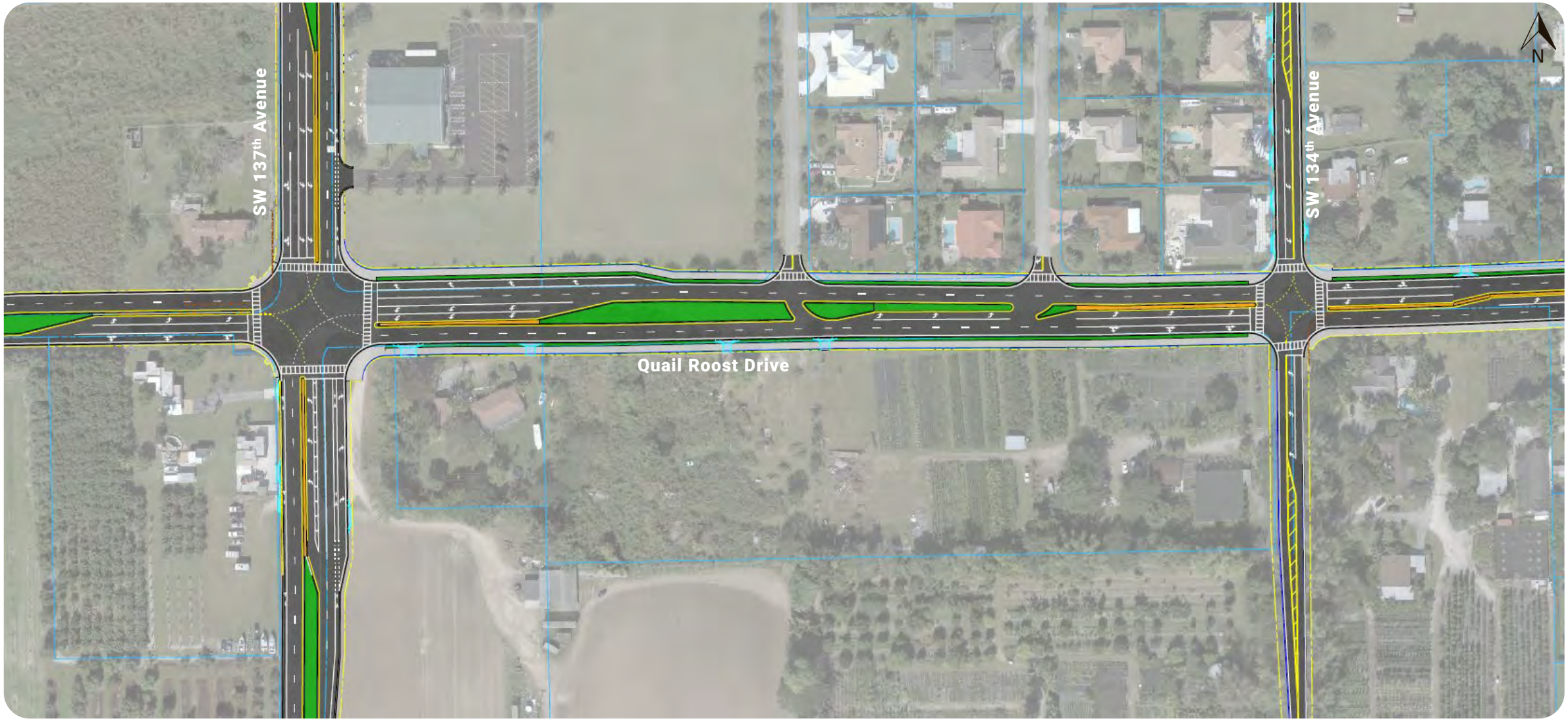
Traffic Impacts at SW 137th Avenue													
Peak Period	Scenario	Eastbound SR 994		Westbound SR 994			Northbound SW 137 Ave			Southbound SW 137 Ave		Avg Delay per Vehicle (sec)	Intersection Level of Service
		EBL	EBT+RT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT+RT		
AM Peak	Avoidance	F	F	D	C	A	C	D	C	E	D	53 sec	D
PM Peak	Avoidance	F	F	F	C	A	C	C	C	E	F	2 min	F

Plan View – 137th Ave to 134th Ave



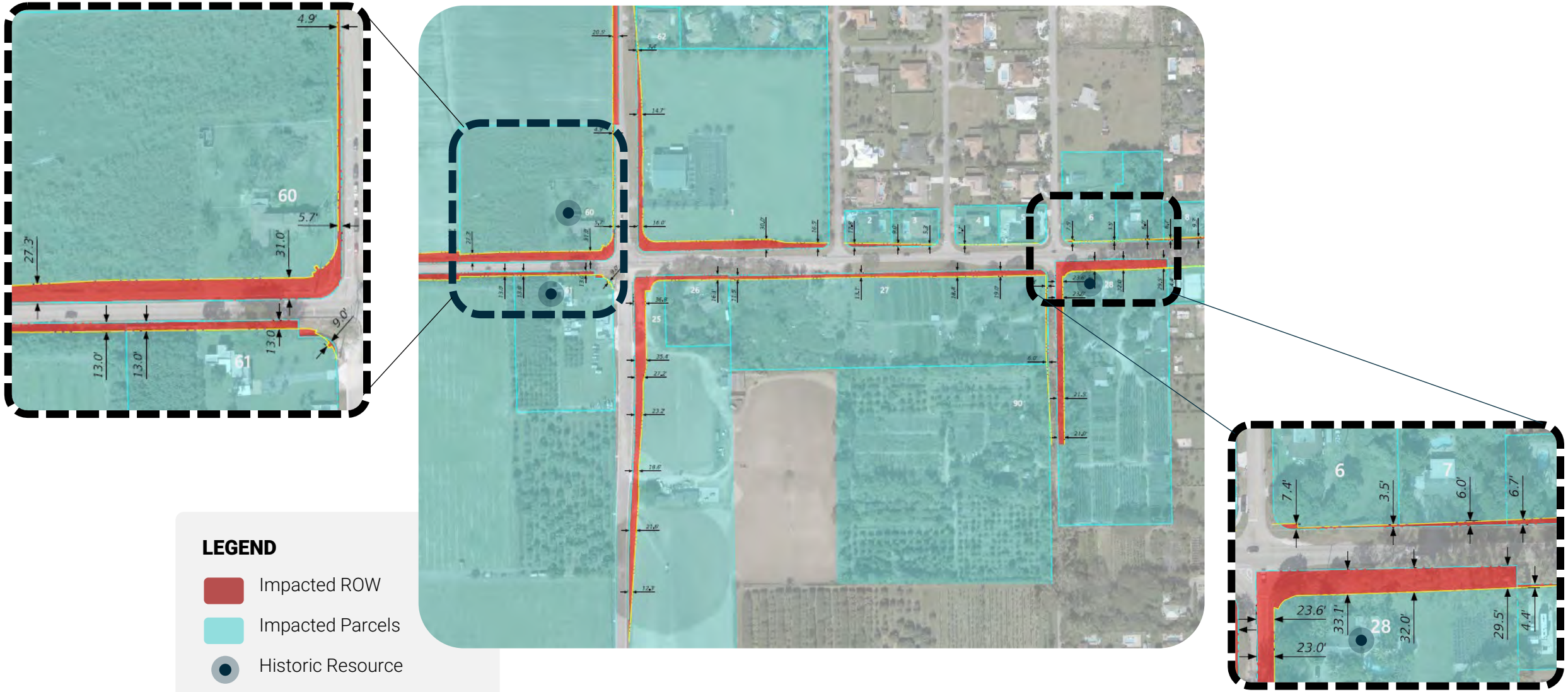
Minimization Alternative

Refined Alternative 2

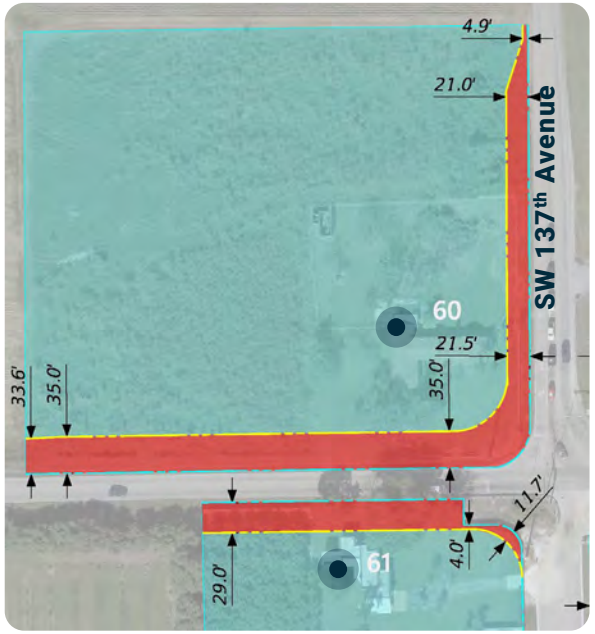
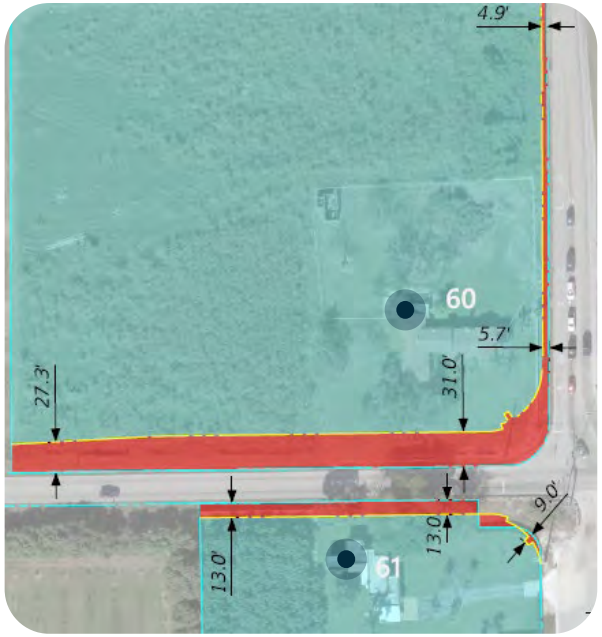
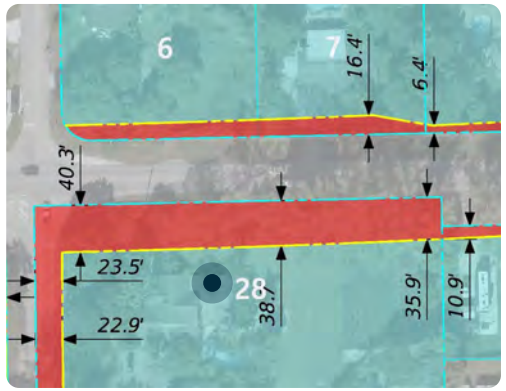
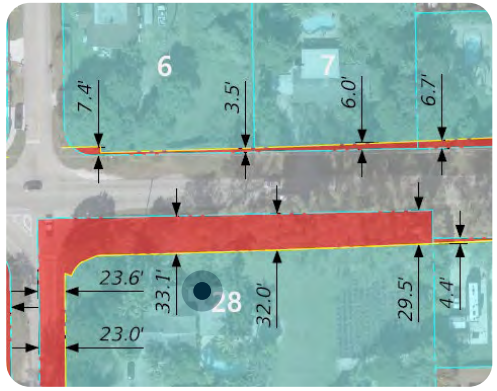


Minimization Alternative

Right of Way Impacts for Refined Alternative



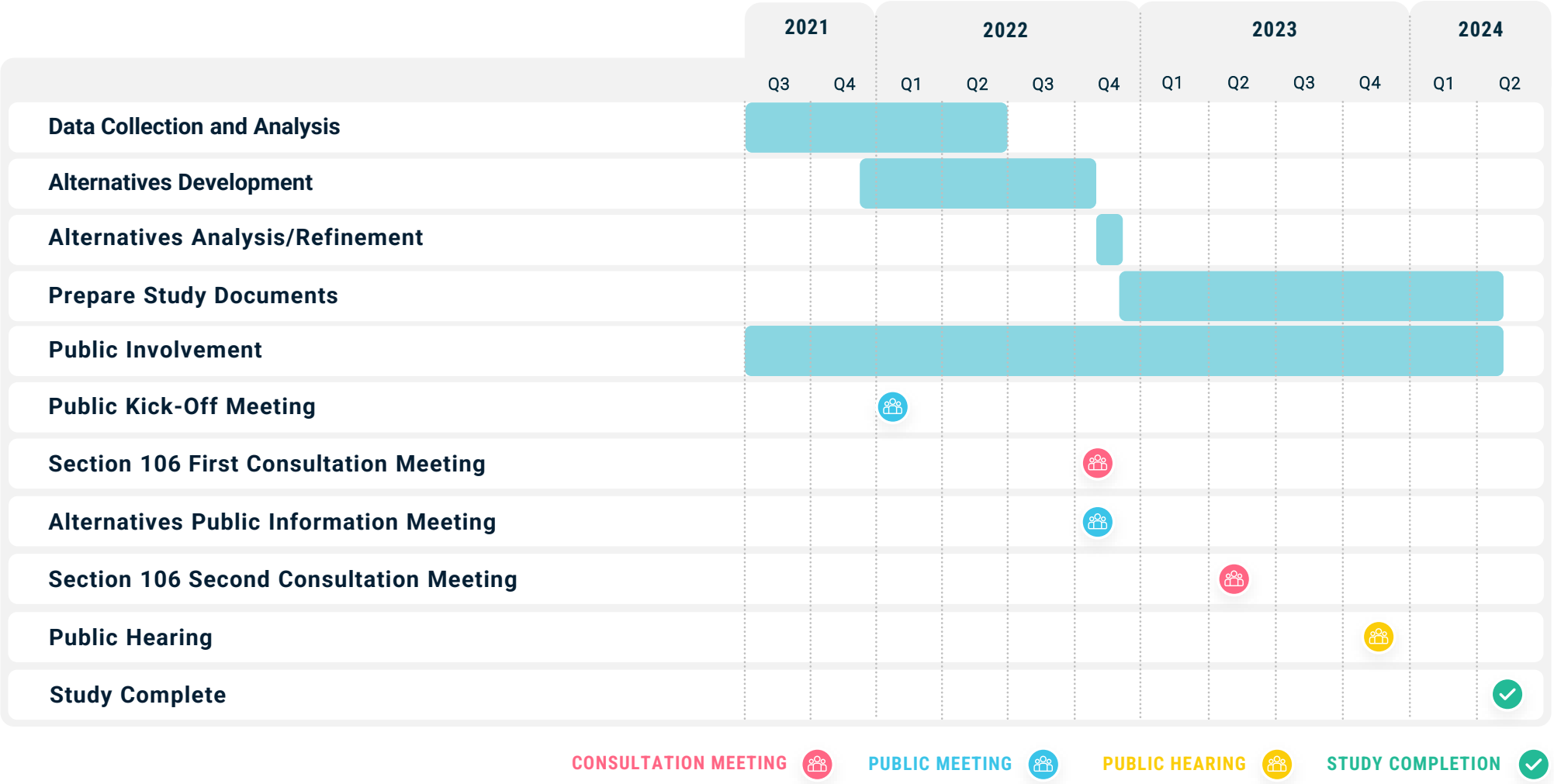
Right of Way Impacts – Before and After Minimization

	BEFORE (Alternative 2)	AFTER (Refined Alternative 2)
SW 137th Avenue Intersection		
SW 134th Avenue Intersection		

Next Steps

- ✓ Preparation of Memorandum of Agreement (MOA) including minimization and mitigation measures
  - Potential measures may include the following:
  - Design elements may include realigning the roadway to minimize or avoid impacts to the resources; reducing number of turn lanes; narrowing typical section features such as the median, traffic separator, bicycle and pedestrian features, etc., which will require design variations or exceptions.
  - Relocating and restoring the historic walls.
  - Historic American Building Survey (HABS) documentation
  - State Historic Markers
- ✓ Preparation of Section 4(f) Individual Statement
- ✓ Continued Consultation throughout the processes

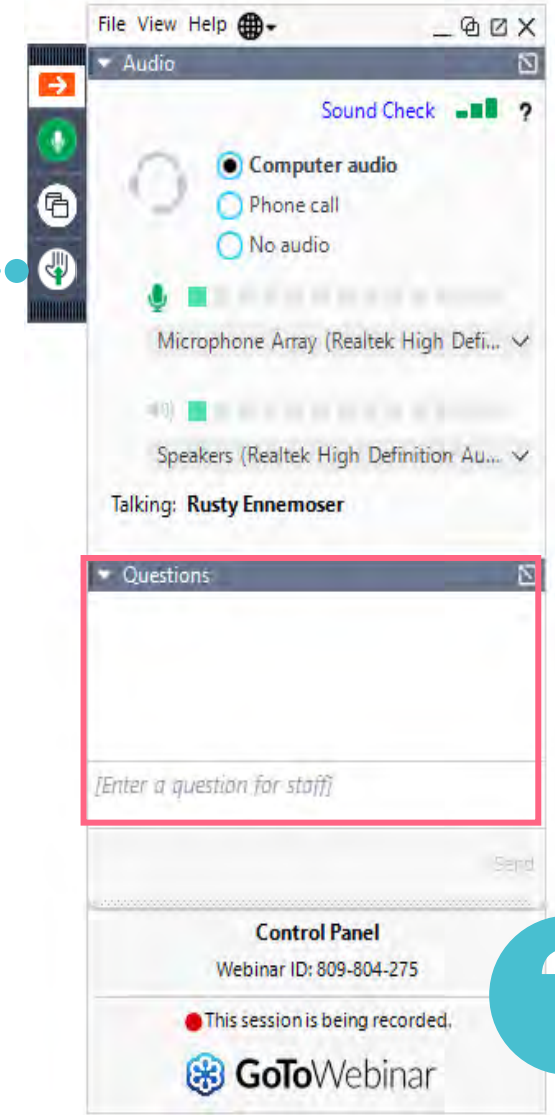
Project Schedule



Questions and Answers Session

To Provide Questions/Comments:

- Please type your comment in the chat.
- **Select the raised hand feature on the control panel to voice your question or comment.**



Any additional comments should be submitted to **Elsa Riverol** following the meeting. Please see the following slide for contact information.

We would appreciate all comments by **June 2nd**

Contact Information

Elsa N. Riverol, P.E.
Florida Department of Transportation, District Six
1000 NW 111th Avenue, Room 6251
Miami, FL 33172
(305) 470-5105
Elsa.Riverol@dot.state.fl.us

Monica Diaz
Community Outreach Specialist
(305) 573-0089
monica@iscprgroup.com

SCAN QR CODE TO VISIT OUR PROJECT WEBSITE!

www.fdotmiamidade.com/QuailRoostPDE

TARGET ZERO

FATALITIES & SERIOUS INJURIES

Thank You.

Affected Parties Meeting #3

State Road (SR) 994/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue

Affected Parties Consultation

FM: 445804-1-22-01

September 11, 2023 10:30am – 11:00am

Attendees:

FDOT	Gannet Fleming	Property Owners
Elsa N. Riverol, P.E.	Alina Fernandez, P.E.	Craig Koning
Victoria Vogt		Yvenia Berrios
Iden Nazario		

Purpose:

The Affected Parties Consultation was held on September 11, 2023, to discuss the State Road (SR) 994/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue. The purpose of this meeting was to follow-up with the property owners located at 20000 SW 137 Avenue after the Affected Parties Consultation workshop which took place on May 15, 2023. The meeting allowed for the project team to exemplify the proposed ROW acquisition on the property and to consult with the owners regarding potential impacts to their historic property, as well as to receive input from the property owners regarding potential mitigation strategies.

Open Discussion:

1. Elsa Riverol (FDOT Project Manager) began the discussion by introducing herself and the rest of the team and stated the reason for the meeting, which was to consult with the property owners on the project and the project's potential impacts to the historic property located at 20000 SW 137 Avenue. Elsa also discussed an general overview of the PD&E schedule, stating that FDOT is now in the Project Development phase and that the Design phase will come next and will take approximately 2 years.
2. Iden Nazario (FDOT Right of Way Agent) provided an informational pamphlet which outlined the FDOT Right of Way process and provided a general timeline of when the process will likely begin.

3. Craig Koning explained to the project team that during the future Right-of-Way phase of the project, that he will be providing legal representation for his property. Craig continued to explain that the reason for doing so was because Miami-Dade County had a project a few years ago which greatly impacted the east side of their property along SW 137 Avenue and at the corner of SW 200 Street and SW 137 Avenue. Various code compliance issues resulted from the project.
4. Victoria Vogt (FDOT Cultural Resources Coordinator) briefly recapped the Section 106 Consultation process and informed the property owners that FDOT would like to get their input and feedback on the project, as well as what the property owners were interested in seeing as far as mitigation from potential impacts from the PD&E Study.
5. Craig stated that they wish their property did not have to be impacted, however, they understand the safety improvements being proposed as part of the project are necessary for the well-being of the community, and therefore, are in support of the project. He also mentioned that they would like to see the property be restored as close to current conditions as possible. This will likely entail replacement of hedge landscaping, moving/replacement of privacy fences and shed currently on the property. Craig was going to think more about the crumbled oolitic limestone left behind on the property for potential re-use or move around the property.
6. The Team concluded the meeting by sharing their business cards with the property owners.

Affected Parties Meeting #4

State Road (SR) 994/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue

Affected Parties Consultation

FM: 445804-1-22-01

September 12, 2023 1:00pm – 1:30pm

Attendees:

FDOT	Gannet Fleming	Property Owners
Elsa N. Riverol, P.E.	Alina Fernandez, P.E.	Tom Grinberg
Victoria Vogt		
Iden Nazario		

Purpose:

The Affected Parties Consultation was held on September 12, 2023, to discuss the State Road (SR) 994/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue. The purpose of this meeting was to follow-up with the property owner located at 13390 SW 200 Street (Talbott Estate) after the Affected Parties Consultation workshop which took place on May 15, 2023. The meeting allowed for the project team to exemplify the proposed ROW acquisition on the property and to consult with the owner regarding potential impacts to their historic property, as well as to receive input from the property owner regarding potential mitigation strategies.

Open Discussion:

1. Elsa Riverol (FDOT Project Manager) began the discussion by introducing herself and the rest of the team and stated the reason for the meeting, which was to consult with the property owners on the project and the project's potential impacts to the historic property located at 13390 SW 200 Street. Elsa also discussed an general overview of the PD&E schedule, stating that FDOT is now in the Project Development phase and that the Design phase will come next and will take approximately 2 years.
2. Iden Nazario (FDOT Right of Way Agent) provided an informational pamphlet which outlined the FDOT Right of Way process and provided a general timeline of when the process will likely begin.

3. The property owner (Tom) expressed concerns that the proposed ROW line will touch their house, however, Alina Fernandez (Consultant Project Manager) explained that the proposed ROW line will not impact the structure.
4. The property owner informed the project team of future plans for the property, which included building 91 villas which will serve as timeshare properties with construction expected to begin in 1 ½ to 2 years. Tom thanked the team for coming out to the property and exemplifying what the potential right-of-way impacts will look like. The owner will take into account the proposed ROW lines and will build the villas around the proposed lines to avoid future impacts.
5. Victoria Vogt (FDOT Cultural Resources Coordinator) briefly recapped the Section 106 Consultation process and informed the property owner that FDOT would like to get their input and feedback on the project, as well as what the property owners were interested in seeing as far as mitigation from potential impacts from the PD&E Study.
6. The property owner expressed interest in wanting any landscaping that may be impacted by the PD&E Study to be replaced and interest in moving the oolitic limestone wall currently situated along SW 200th Street to avoid impacts from the project and may be interested in moving the limestone wall to another location on the property. Tom expressed a desire to have their architect be involved in the re-design of the limestone wall. Last, Tom requested a tree survey to be conducted on his property to take inventory of the foliage that will potentially be impacted by the PD&E Study. Victoria Vogt explained that a tree survey will likely take place between 60% and 90% plans.
7. In conclusion, the property owner expressed support for the PD&E Study and the bicycle and pedestrian connectivity it would provide for the community.
8. The Team concluded the meeting by sharing their business cards with the property owners.

Appendix S – Alternatives Public Workshop Report

Alternatives Workshop Meeting Report

State Road (SR) 994/SW 200 Street/Quail Roost Drive

from West of SW 137 Avenue to East of SW 127 Avenue

Project Identification Numbers: 445804-1-22-01

Tuesday, October 18, 2022 | 5:30 p.m.

Table of Contents

Meeting Summary 3

Attendee Log 8

Question Box Report 12

Exit Survey 14

Meeting Photos 16

Promotions 19

Letters 22

Map 28

Ads 30

Mailer 34

Slido 44

Presentation 55

Meeting Summary

State Road (SR) 994/Quail Roost Drive PD&E Study
from West of SW 137 Avenue to East of SW 127 Avenue
Alternatives Workshop
FM 445804-1-22-01
October 20, 2022
GoToWebinar

Staff:

FDOT
Catherine Bradley
Elsa N. Riverol, P.E.
Kimberly Taveras
Steven James
Robert McMullen
Victoria Vogt
Nicholas Danu
Mauricio Gomez
Stacy Miller
Marsha Welsh

Gannett Fleming
Alina Fernandez, P.E.
Carlos Cejas, P.E.
Courtney Arena
Vinicics Pranckevicios

JLL
Maria Munera

PLG
Truett Hall

ISC
Maria Alzate

Stantec
Veronica Paredes

Miami-Dade County
Jeannie Gaslonde
Samir Amado
Lt. MuHammadi

FDOS
Kelly Chase
Alyssa McManus
Marsha Welch

Janus Research
Amy Streelman

Miami-Dade County
Sarah Cody

RS&H
Jim Mykytka
Mariano Berrios

See the attached sign-in sheets for a list of attendees

Purpose of the workshop:
The Florida Department of Transportation (FDOT) held an Alternatives Workshop for the SR 994/Quail Roost Drive PD&E Study. Project alternatives were presented and feedback about the concepts was received. Polling questions were conducted throughout the presentation.

Presentation:
Community Outreach Specialist, Monica Diaz, of Infinite Source Communications, welcomed the attendees, stated the rules of engagement, and NEPA Assignment Statement.

Project team members introduced themselves and welcomed the attendees.

- FDOT Project Manager, Elsa N. Riverol, P.E.
- Gannett Fleming Project Manager, Alina Fernandez, P.E.
- PD&E Engineer, Carlos Cejas, P.E.
- Cultural Resources, Amy Streelman

Open Discussion – *Action items in bold*

- Ms. Monica Diaz read a comment, which asked whether there would be less opportunities to turn between alternatives two and three.
    - Ms. Alina Fernandez said that the alternative with the wider median has more restrictions on turning movements.
- Ms. Diaz invited attendees to ask questions and provide comments on the presentation.
- Mr. Harold Ford, representing the South Dade NAACP, said he would have liked for the cost of the alternatives to be presented. He said he has safety concerns about the bridge underpass, asking whether pedestrians are protected on the underpass. He also asked whether there was a barrier between the path and the waterway, mentioning alligators.
    - Ms. Fernandez said that the cost information is available on the presentation, but that she missed presenting it. She said that pedestrians would be protected on the underpass by a barrier wall and noted there will be a pedestrian railing along the canal.
    - Mr. Cejas said that the pedestrian railing is not alligator proof, but that the Department could look into options.
- Ms. Gamba said that she property is very close to Quail Roost Drive, and that the only alternative that makes sense to her household is alternative one. She said that noise levels are already high, and that the other alternatives would only increase noise. She mentioned that she was concerned about the underpass being used to provide cover for illicit activities.
    - Mr. Cejas said that there is not a significant difference in traffic levels between the alternatives. He noted concerns about criminal activity and stated the team would try its best to ensure the area was safe by providing lighting.
- Ms. Hernandez asked how long temporary traffic control would last for the project.
    - Mr. Cejas said that the controlling element is the bridge, as it is the element that takes the most amount of time. He said that those who live near the bridge will experience the most significant roadway impacts. He said that traffic control would likely ensue for a couple years and depends how the contractor approaches construction activities.
    - Ms. Fernandez said that there is not an estimated construction duration yet, but two years is about right. She agreed that the main constraint will be the bridge.
- Ms. Hernandez asked the team would be taking elements of the different alternatives, mixing and matching the different options.
    - Mr. Cejas said that this was not the intend, but that this may occur due to minimization and avoidance. He stated that the Department attempts to maintain uniformity throughout the project.
- Ms. Hernandez asked about the utility and drainage impact associated with alternative two and three.
    - Ms. Fernandez said that these impacts are going to happen with either of the alternatives selected, but that it will be more significant with build two and three. She said that as the roadway is widened, utilities will be impacted, thus necessitating their relocation. She noted there should not be power disruptions to the community.
- Ms. Hernandez asked how the underpass would impact adjacent properties to the bridge.
    - Ms. Fernandez said it with build one, there would be no impact to houses. She said that with alternatives two and three, there may be a slight impact. She said that when an alternative is selected, the team will have to refine their analysis and seek to minimize impacts.
    - Ms. Hernandez asked if the property line would decrease.
    - Mr. Cejas said no, and that the difference would be made up by some type of wall.

- Ms. Hernandez asked if there will be lighting for the underpass.
    - Mr. Cejas said yes, there will be lighting.
- Louis asked about data collection and mentioned controlling traffic lights along 137 Street towards US-1.
    - Mr. Cejas said that the Department does not operate traffic lights, Miami-Dade County operates them.
- Louis reiterated the heavy traffic issues he is experiencing around 133 and 132 Place.
    - Mr. Cejas said that 137 Avenue is a state roadway and may be widened in the future. He said that he does not believe Quail Roost Drive will not be widened in the near future. He said that an advantage of a raised median is making turning movements easier.
- Ms. Diaz read a comment from Ms. Michelle Nammur, who asked whether the analysis for the signal at 134 Avenue would be reassessed, given that the 137 Avenue project is completed. Ms. Nammur said that the concern is drivers cutting through residential streets on the north side of Kristina Estates.
    - Ms. Fernandez said that the analysis for the signal at 134 Avenue did consider the completion of the 137 Avenue project, as well as a future project for widening the road to four lanes.
- Ms. Diaz thanked the participants for attending and closed the meeting.

Action Items:
N/A

Interactive Slido Poll Questions – Summary of Results

1. Who do you represent?
    a. Transportation Agency: 40%
    b. Elected Official: 0%
    c. Municipality: 0%
    d. Permitting Agency: 0%
    e. Resident: 35%
    f. Business: 5%
    g. Community Association: 0%
    h. Other: 20%

2. What are your primary modes of transportation? Select all that apply
    a. Car: 100%
    b. Walk: 0%
    c. Bike: 0%
    d. Bus: 0%
    e. Rail: 0%
    f. On Demand/Ride Share: 0%

3. Select your top priority for this project
    a. Safety: 50%
    b. Congestion relief: 31%
    c. Bicycle/Pedestrian facilities: 6%
    d. Other: 13%

4. Select your Preferred Alternative
    a. No-Action Alternative: 0%
    b. Alternative 1 (2 Lanes with 16.5-ft raised median, turn lanes and signal at SW 134 Ave): 36%
    c. Alternative 2 (4 Lanes with 16.5-ft raised median, turn lanes and signal at SW 134 Ave): 64%
    d. Alternative 3 (4 Lanes with 22-ft raised median, turn lanes and signal at SW 134 Ave): 0%

5. Which alternative do you prefer for the canal trail crossing?
    a. At grade: 25%
    b. Underpass: 75%

Attendee Log

Online Attendee Log

445804-1-22-01 SR 994/SW 200 St/Quail Roost Dr PD&E Study Alternatives Workshop				
Last Name	**First Name**	**Email Address**	**Registration Date/Time**	**Join Time - Leave Time (Time in Session)**
Alzate	Maria	maria@iscprgroup.com	10/18/2022 04:38 PM EDT	10/18/2022 04:45 PM EDT - 10/18/2022 07:00 PM EDT (2 hours 16 minutes)
Berrios	Mariano	mariano.berrios@rsandh.com	10/18/2022 05:32 PM EDT	10/18/2022 05:33 PM EDT - 10/18/2022 06:14 PM EDT (42 minutes)
Bradley	Catherine	catherine.bradley@dot.state.fl.us	10/05/2022 12:07 PM EDT	10/18/2022 05:41 PM EDT - 10/18/2022 06:46 PM EDT (1 hour 5 minutes)
Camba	Jorge	cambaj@bellsouth.net	10/18/2022 05:22 PM EDT	10/18/2022 05:22 PM EDT - 10/18/2022 06:51 PM EDT (1 hour 29 minutes)
Cherington	Anna	athena1267@att.net	10/18/2022 05:27 PM EDT	10/18/2022 05:27 PM EDT - 10/18/2022 06:24 PM EDT (58 minutes)
Danu	Nicholas	nicholas.danu@dot.state.fl.us	10/18/2022 05:33 PM EDT	10/18/2022 05:33 PM EDT - 10/18/2022 07:00 PM EDT (1 hour 28 minutes)
De La Rua Fernandez	Aymara	aymara7620@gmail.com	10/05/2022 03:24 PM EDT	10/18/2022 05:33 PM EDT - 10/18/2022 06:47 PM EDT (1 hour 14 minutes)
Fernandez	Alina	afernandez@gfnet.com	10/18/2022 05:14 PM EDT	10/18/2022 05:14 PM EDT - 10/18/2022 07:00 PM EDT (1 hour 46 minutes)
Gaslonde	Jeannine	jeannine.gaslonde@miamidade.gov	10/18/2022 06:33 PM EDT	10/18/2022 06:34 PM EDT - 10/18/2022 06:46 PM EDT (12 minutes)
Gomez	Mauricio	mauricio.gomez@dot.state.fl.us	10/18/2022 05:15 PM EDT	10/18/2022 05:15 PM EDT - 10/18/2022 06:55 PM EDT (1 hour 40 minutes)
Hernandez	Yamille	ellimay10@yahoo.com	10/04/2022 09:34 AM EDT	10/18/2022 05:15 PM EDT - 10/18/2022 06:46 PM EDT (1 hour 32 minutes)
Lopez	Enrique	enriquealopez1551@aol.com	10/05/2022 12:09 PM EDT	10/18/2022 05:13 PM EDT - 10/18/2022 06:44 PM EDT (1 hour 31 minutes)
Meeting	Public	andre@iscprgroup.com	10/18/2022 04:44 PM EDT	10/18/2022 04:45 PM EDT - 10/18/2022 07:00 PM EDT (2 hours 16 minutes)
Miller	Stacy	stacy.miller@dot.state.fl.us	10/18/2022 05:32 PM EDT	10/18/2022 05:32 PM EDT - 10/18/2022 06:43 PM EDT (1 hour 11 minutes)
Munera	Maria	maria.munera@am.jll.com	10/05/2022 01:22 PM EDT	10/18/2022 05:32 PM EDT - 10/18/2022 07:00 PM EDT (1 hour 29 minutes)
Mykytka	Jim	jim.mykytka@rsandh.com	10/17/2022 11:07 AM EDT	10/18/2022 05:30 PM EDT - 10/18/2022 07:00 PM EDT (1 hour 31 minutes)
Nammur	Michelle	amnammur@comcast.net	10/04/2022 05:42 PM EDT	10/18/2022 05:16 PM EDT - 10/18/2022 06:50 PM EDT (1 hour 35 minutes)
Paredes	Veronica	veronica.paredes@stantec.com	10/11/2022 05:35 PM EDT	10/18/2022 05:23 PM EDT - 10/18/2022 05:27 PM EDT - (1 hour 28 minutes)
Paskiet	Darla	Darla.Paskiet@am.jll.com	10/09/2022 03:57 PM EDT	10/18/2022 05:39 PM EDT - 10/18/2022 06:42 PM EDT (1 hour 3 minutes)
Rojas	Otto	OTTO.ROJAS@HWYSTUDIO.COM	10/18/2022 05:34 PM EDT	10/18/2022 05:34 PM EDT - 10/18/2022 06:46 PM EDT (1 hour 13 minutes)
Taveras	Kimberly	kimberly.taveras@dot.state.fl.us	10/18/2022 05:42 PM EDT	10/18/2022 05:43 PM EDT - 10/18/2022 07:00 PM EDT (1 hour 18 minutes)
Vogt	Victoria	victoria.vogt@dot.state.fl.us	10/18/2022 05:28 PM EDT	10/18/2022 05:28 PM EDT - 10/18/2022 07:00 PM EDT (1 hour 33 minutes)
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	10/05/2022 12:08 PM EDT	10/18/2022 05:21 PM EDT - 10/18/2022 06:44 PM EDT (1 hour 24 minutes)
streelman	amy	amy_streelman@janus-research.com	10/18/2022 05:29 PM EDT	10/18/2022 05:29 PM EDT - 10/18/2022 06:46 PM EDT (1 hour 17 minutes)
Amado	Samir	samado@mdpd.com	10/18/2022 05:31 PM EDT	--
Arena	Courtney	carena@gfnet.com	10/17/2022 12:16 PM EDT	--
Hall	Truett	truetthall@policastrolaw.com	09/26/2022 12:08 PM EDT	--
James	Steven	steven.james@dot.state.fl.us	10/18/2022 06:49 PM EDT	--
Lyons	Richard	lyonsrichard.lyons@gmail.com	10/06/2022 12:04 PM EDT	--
MuHammadi	Lt.	u303145@mdpd.com	10/18/2022 03:36 PM EDT	--
lyons	richard	richard@richardlyonsnursery.com	09/30/2022 01:24 PM EDT	--

Webinar ID	**Actual Start Date/Time**	**Duration**	**# Registered**	**# Attended**
867-402-291	10/18/2022 16:41	2 hours 20 minutes	31	24

In-Person Attendee Log

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

Alternatives Workshop/Taller De Alternativas

Tuesday, October 18, 2022/Martes 18 de Octubre de 2022

Project Development and Environment (PD&E) Study
State Road (SR) 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue
Miami-Dade County
Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Craig Brodka

REPRESENTING/REPRESENTANDO:

ADDRESS/DIRECCIÓN: 20245 SW 134 Ave

PHONE NUMBER/NÚMERO DE TELÉFONO: 786 205 4111

EMAIL/CORREO ELECTRÓNICO:

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

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Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Vinicius Franckevicius

REPRESENTING/REPRESENTANDO: Gannett Fleming

ADDRESS/DIRECCIÓN:

PHONE NUMBER/NÚMERO DE TELÉFONO: 786-657-8942

EMAIL/CORREO ELECTRÓNICO: vfranckevicius@gfnet.com

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

Alternatives Workshop/Taller De Alternativas

Tuesday, October 18, 2022/Martes 18 de Octubre de 2022

Project Development and Environment (PD&E) Study
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Miami-Dade County
Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Jeannine Gastonde

REPRESENTING/REPRESENTANDO: Miami-Dade TPO.

ADDRESS/DIRECCIÓN: 150 W Flagler Street, Miami

PHONE NUMBER/NÚMERO DE TELÉFONO: 786-2299254

EMAIL/CORREO ELECTRÓNICO: Jeannine.Gastonde@miamidade.gov.

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

Alternatives Workshop/Taller De Alternativas

Tuesday, October 18, 2022/Martes 18 de Octubre de 2022

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State Road (SR) 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue
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Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Luis Morgado

REPRESENTING/REPRESENTANDO: 10070 SW 4th St Miami FL 33174

ADDRESS/DIRECCIÓN: (786) 294-3065

PHONE NUMBER/NÚMERO DE TELÉFONO: lmorgado@gfnet.com

EMAIL/CORREO ELECTRÓNICO:

FDOT

SIGN-IN CARD/TARJETA DE REGISTRO

Alternatives Workshop/Taller De Alternativas

Tuesday, October 18, 2022/Martes 18 de Octubre de 2022

Project Development and Environment (PD&E) Study
State Road (SR) 994/SW 200 Street/Quail Roost Drive from SW 137 Avenue to SW 127 Avenue
Miami-Dade County
Financial Management Number: 445804-1-22-01
Efficient Transportation Decision Making (ETDM) Number: 14429

NAME/NOMBRE: Luis Alberto Lopez

REPRESENTING/REPRESENTANDO:

ADDRESS/DIRECCIÓN: 19751 SW 132 Pl MIA 33177

PHONE NUMBER/NÚMERO DE TELÉFONO: 305-467-6396

EMAIL/CORREO ELECTRÓNICO: Lopez2L432@hotmail.com

ZOHO In-Person Attendee Log

Field label	Response
First Name/Primer nombre	JEANNINE
Last Name/Apellido	GASLONDE
Address1/Dirección 1	22638 SW 94 PATH
City/Ciudad	CUTLER BAY
Zip Code/ Código postal	33190
State/Expresar	Florida
Phone/Teléfono	7862461987
Email/Correo electrónico	jeannine.gaslonde@miamidade.gov

Field label	Response
First Name/Primer nombre	Jessica
Last Name/Apellido	Garcia
Address1/Dirección 1	4596 SW 139 Ct Apt C
City/Ciudad	Miami
Zip Code/ Código postal	33175
State/Expresar	FL
Phone/Teléfono	
Email/Correo electrónico	jgarcia@choiceeng.com

Field label	Response
First Name/Primer nombre	Lorenzo
Last Name/Apellido	Fuchs
Address1/Dirección 1	9719 hammocks blvd
City/Ciudad	Miami
Zip Code/ Código postal	33196
State/Expresar	Fl
Phone/Teléfono	
Email/Correo electrónico	Loloman34@gmail.com

Field label	Response
First Name/Primer nombre	Harold
Last Name/Apellido	Ford
Address1/Dirección 1	22225 SW 112th Place
City/Ciudad	Miami
Zip Code/ Código postal	33170
State/Expresar	Florida
Phone/Teléfono	7862539400
Email/Correo electrónico	trueque01@gmail.com

Field label	Response
First Name/Primer nombre	Robert
Last Name/Apellido	McMullen
Address1/Dirección 1	1000 NW 111th Avenue, Room 6109
City/Ciudad	Miami
Zip Code/ Código postal	33172
State/Expresar	Florida
Phone/Teléfono	(305) 470-5149
Email/Correo electrónico	Robert.McMullen@dot.state.fl.us

Question Box Report

445804-1-22-01 SR 994/SW 200 St/Quail Roost Dr PD&E Study Alternatives Workshop						
Last Name	**First Name**	**Email Address**	**Question #**	**Question Asked Date/Time**	**Question Asked**	**Answer Given**
Hernandez	Yamille	ellimay10@yahoo.com	1	05:55:15 PM EDT	the 1st 4 handouts are blank.	Hi Yamille, the handouts are large. I tried downloading now and they work.
Hernandez	Yamille	ellimay10@yahoo.com	2	05:55:27 PM EDT	the only working one is the pdestudy factsheet	I can send them to your email directly but it does take a while to download as the files are large.
Hernandez	Yamille	ellimay10@yahoo.com	3	05:59:22 PM EDT	thank you.	No problem
Hernandez	Yamille	ellimay10@yahoo.com	4	05:59:30 PM EDT	ellimay10@yahoo.com	thank you, the handouts were sent.
Hernandez	Yamille	ellimay10@yahoo.com	5	06:44:30 PM EDT	code not working to get to website	
Nammur	Michelle	amnammur@comcast.ne	1	06:46:44 PM EDT	Would the analysis for the signal at 134th Ave be reassesed now that the 137th Ave project has been completed. The concern is the people cutting through the residential streets on	We will read this shortly.
Nammur	Michelle	amnammur@comcast.ne	2	06:49:15 PM EDT	Thank you	tahnk you for participating

Exit Survey

445804-1-22-01 SR 994/SW 200 St/Quail Roost Dr PD&E Study Alternatives Workshop												
Last Name	**First Name**	**Email Address**	**Submitted Date/Time**	**The Virtual Workshop was effective in conveying how FDOT functions.**	**I feel that I understand the concepts being presented.**	**I found the Q&A period beneficial?**	**The materials presented during this webinar were easy to understand.**	**The presenters were clear during the presentation**	**The length of the presentation was appropriate.**	**Do you prefer a virtual public webinar or an in person workshop?**	**Any other comments or feedback you would like to provide to the project team?**	**I am open to attending an in-person public meeting provided social distancing restrictions and protocols are in place.**
Welch	Marsha	Marsha.Welch@DOS.MyFlorida.com	10/18/2022 06:45 PM EDT	Strongly Agree	Strongly Agree	Neutral	Strongly Agree	Strongly Agree	Strongly Agree	Virtual Workshop		Strongly Disagree
Berrios	Mariano	mariano.berrios@rsandh.com	10/18/2022 06:15 PM EDT	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	In-Person Workshop		Strongly Agree
Hernandez	Yamille	ellimay10@yahoo.com	10/18/2022 06:51 PM EDT	Strongly Agree	Strongly Agree	Strongly Agree	Somewhat Disagree	Somewhat Agree	Strongly Agree	In-Person Workshop, Virtual Workshop		Strongly Agree
De La Rua Fe	Aymara	aymara7620@gmail.com	10/18/2022 06:48 PM EDT	Somewhat Agree	Neutral	Somewhat Agree	Somewhat Agree	Somewhat Agree	Strongly Agree	Virtual Workshop		Strongly Agree
Camba	Jorge	cambaj@bellsouth.net	10/18/2022 07:01 PM EDT	Somewhat Agree	Strongly Agree	Somewhat Agree	Neutral	Strongly Agree	Strongly Agree	Virtual Workshop	We are very concerned that all 3 alternatives provided for the expansion of Quail Roost, fail to help improve the ability to make a left or right turn at SW 130th Ave at Quail Roost. In addition, all 3 alternatives expose the residents with properties directly on Quail Roost, to pollution both environmental and noise in addition to the hazzards of vehicles losing control and landing inside our properties. The speed and noise particularly at night, are already a problem. We don't want a highway in our yards.	Strongly Agree
lyons	richard	richard@richardlyonsnursery.com	10/21/2022 01:09 PM EDT	Somewhat Agree	Somewhat Agree	Strongly Agree	Somewhat Agree	Strongly Agree	Somewhat Agree	Virtual Workshop	I'm concerned with the timing of the improvement at 134 Ave. It is so dangerous at present. I order to turn left onto 200 st facing north, it requires taking chances with your life. there is no safe visibility to traffic going west on 200st.	Strongly Disagree

Meeting Photos

FDOT

FDOT

EXIT

Promotions

Press Release

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111 Avenue
Miami, Florida 33172

JARED W. PERDUE, P.E.
SECRETARY

For Immediate Release
October 7, 2022

Contact: Tish Burgher
(305) 470-5277 | Tish.Burgher@dot.state.fl.us

FDOT to Host an Alternatives Workshop State Road (SR) 994/SW 200 Street/Quail Roost Drive Project Development and Environment (PD&E) Study
October 18, 2022

MIAMI, Fla. – The Florida Department of Transportation (FDOT) District Six will host an Alternatives Workshop for the SR 994/SW 200 Street/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue, in Miami-Dade County, Florida. The meeting will be held both in-person and virtually on Tuesday, October 18 at 5:30 p.m.

Attend In Person
Attend in person at **South Dade Regional Library at 10750 SW 211 Street, Cutler Bay, FL 33189.** Register online at www.fdotmiamidade.com/QuailRoostPDE.html.

The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

Attend Virtually
To participate virtually from your computer, tablet or smartphone please register using the following link: https://attendee.gotowebinar.com/register/2851047270248519440. Participants can also call in by dialing **+1 877 568 4108;** access code **200-763-644.**

The workshop will consist of a formal presentation of the proposed alternatives for the project, including existing as well as social, environmental and economic effects, followed by a question and answer session. Staff will be available to answer questions in the order they are received and as time permits. If your question is not responded to during the workshop, a response will be provided in writing afterwards. Persons wishing to submit statements, in place of or in addition to oral statements, may do so at the meeting or by sending them to the Community Outreach Specialist. All statements postmarked on or before October 28, 2022, will become part of the meeting record

The project's primary objective is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community. This meeting is an opportunity for the public to learn about the purpose and need of this study and how to provide feedback.

For more information about the meeting or project, please contact Community Outreach Specialist Monica Diaz at (305) 573-0089 or via email at monica@iscprgroup.com.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Florida Highway Administration (FHWA) and FDOT.

FDOT encourages public participation without regard to race, color, national origin, age, sex, religion, disability or family status. Persons who need special assistance under the Americans with Disabilities Act of 1990 or who need translation services (free of charge) should contact Nicholas Danu, P.E. at 305-470-5219 or in writing at FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at: Nicholas.Danu@dot.state.fl.us at least seven days prior to the workshop.

Improve Safety, Enhance Mobility, Inspire Innovation

FDOTMiamiDade.com | @MyFDOT_Miami | Facebook.com/MyFDOTMiami

The Florida Department of Transportation's mission is to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of the state's environment and communities. The department is committed to building a transportation system that not only fits the current needs of Florida's residents and visitors, but also enhances mobility throughout the state to accommodate its consistent and rapid growth. The unique nature of the Sunshine State and its year-round warm climate provides numerous opportunities to achieve the department's mission through multiple transportation modes including highways/streets, air, rail, sea, spaceports, transit, and the ever-expanding deployment of bicycle & pedestrian facilities

Letters

Agency Letter

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111 Street
Miami, FL 33172

JARED W. PERDUE, P.E.
SECRETARY

September 23, 2022

SUBJECT: Alternatives Workshop Notification
State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development & Environment (PD&E) Study
From West of SW 137 Ave to East of SW 127 Ave, Miami-Dade County, Florida
Financial Management Number: 445804-1-22-01
Federal-Aid Project Number: TBD
Efficient Transportation Decision Making (ETDM) Number: 14429

Dear xxxxxxx:

The Florida Department of Transportation (FDOT), District Six, will host an Alternatives Workshop to discuss the SR 994/SW 200 Street/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue in Miami-Dade County, Florida. The project's primary objective is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Florida Highway Administration (FHWA) and FDOT.

The meeting will be held both in-person and virtually starting at **5:30 p.m. on Tuesday, October 18, 2022**. The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

Attend In Person
Attend in person at South Dade Regional Library at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online by clicking here (link: https://survey.zohopublic.com/zs/whB3Qw)

Attend Virtually

To participate virtually, from your computer, tablet or smartphone please use the following link: https://attendee.gotowebinar.com/register/2851047270248519440. Participants can also use their phone by dialing **+1 877 568 4108;** access code **200-763-644**.

The workshop will consist of proposed alternatives for the project, including existing as well as social, environmental and economic effects, followed by a question and answer session. Staff will be available to answer questions and provide assistance. Questions will be responded to as time permits, in the order received. If your question is not responded to during the event, a

Improve Safety, Enhance Mobility, Inspire Innovation
www.fdot.gov

response will be provided in writing following the workshop. Enclosed is a copy of the notice for the Alternatives Workshop.

FDOT encourages public participation without regard to race, color, national origin, age, sex, religion, disability or family status. Persons who need special assistance under the Americans with Disabilities Act of 1990 or who need translation services (free of charge) should contact Nicholas Danu, P.E. at 305-470-5219 or in writing at FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at: Nicholas.Danu@dot.state.fl.us at least seven days prior to the workshop.

If you would like further information about this project, please contact Project Manager Elsa Riverol, P.E. at 305-470-5105 or by email at elsa.riverol@dot.state.fl.us. You may also visit the project website at www.fdotmiamidade.com/QuailRoostPDE.html.

Sincerely,

Elsa Riverol, P.E.
FDOT Project Manager

Enclosure

Elected Official Letter

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111 Street
Miami, FL 33172

JARED W. PERDUE, P.E.
SECRETARY

September 23, 2022

SUBJECT: Alternatives Workshop Notification
State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development & Environment (PD&E) Study
From West of SW 137 Ave to East of SW 127 Ave, Miami-Dade County, Florida
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The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Florida Highway Administration (FHWA) and FDOT.

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Attend In Person
Attend in person at South Dade Regional Library at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online by clicking here (link: https://survey.zohopublic.com/zs/whB3Qw)

Attend Virtually
To participate virtually, from your computer, tablet or smartphone please use the following link: https://attendee.gotowebinar.com/register/2851047270248519440. Participants can also use their phone by dialing **+1 877 568 4108;** access code **200-763-644**.

The workshop will consist of proposed alternatives for the project, including existing as well as social, environmental and economic effects, followed by a question and answer session. Staff will be available to answer questions and provide assistance. Questions will be responded to as

time permits, in the order received. If your question is not responded to during the event, a response will be provided in writing following the workshop. Enclosed is a copy of the notice for the Alternatives Workshop.

FDOT encourages public participation without regard to race, color, national origin, age, sex, religion, disability or family status. Persons who need special assistance under the Americans with Disabilities Act of 1990 or who need translation services (free of charge) should contact Nicholas Danu, P.E. at 305-470-5219 or in writing at FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at: Nicholas.Danu@dot.state.fl.us at least seven days prior to the workshop.

If you would like further information about this project, please contact Project Manager Elsa Riverol, P.E. at 305-470-5105 or by email at elsa.riverol@dot.state.fl.us. You may also visit the project website at www.fdotmiamidade.com/QuailRoostPDE.html.

Sincerely,

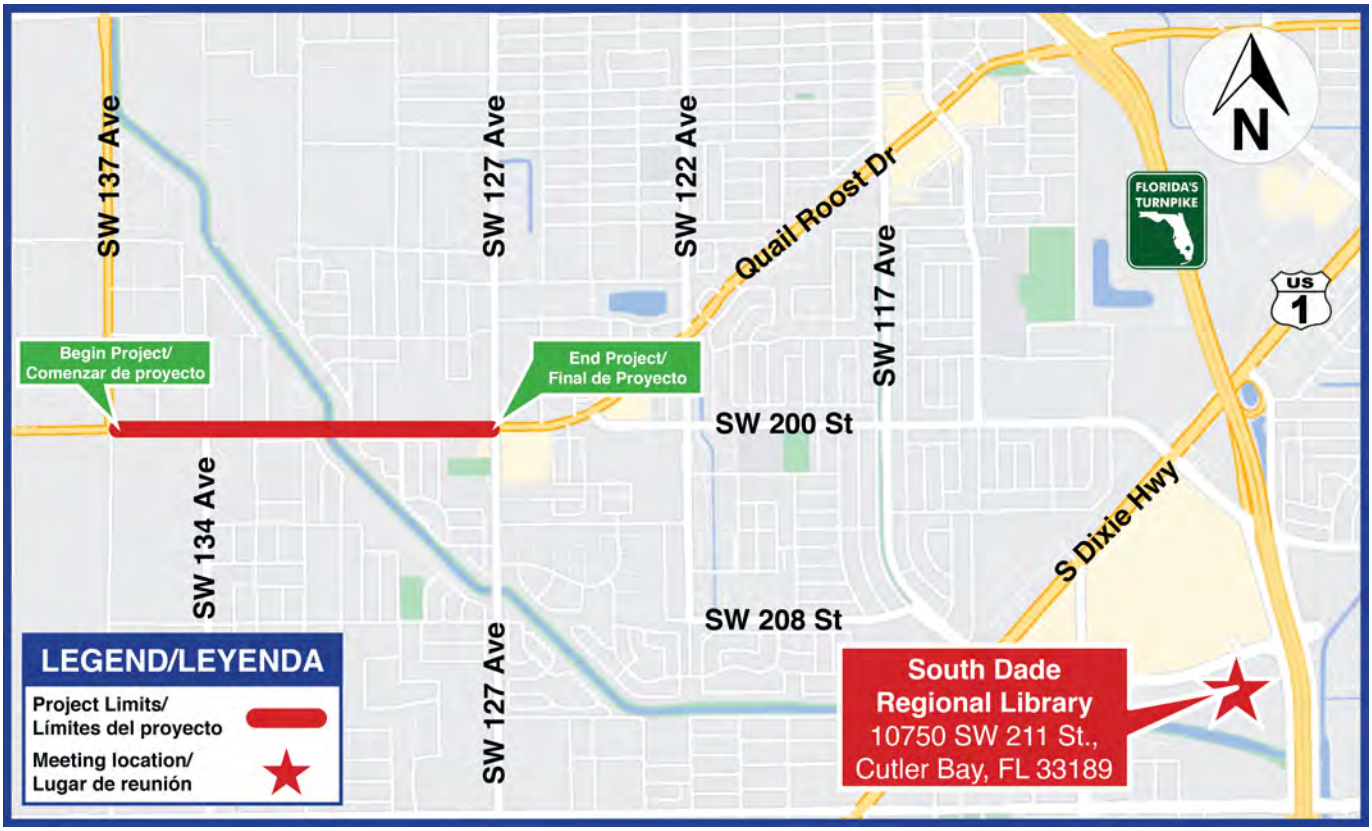
Stacy L. Miller, P.E.
District Six Secretary

Enclosure

Elected Official List

Email	Name
monica@iscprgroup.com	Ms. Diaz
jim.mooney@myfloridahouse.gov	Representative Mooney
cag@mail.house.gov	Congressman Gimenez
lea_padron@rubio.senate.gov	Senator Rubio
help@rickscott.senate.gov	Senator Scott
taddeo.annette.web@flsenate.gov	Senator Taddeo
rodriguez.anamaria.web@flsenate.gov	Senator Rodriguez
district8@miamidade.gov	Commissioner Cohen Higgins
mayor@miamidade.gov	Mayor Levine Cava
district12@miamidade.gov	Chairman Diaz
harvey@miamidade.gov	Harvey Ruvin
directorsoffice@mdpd.com	Mr. Ramirez
aramireziii@mdpd.com	Mr. Ramirez
firechief@miamidade.gov	Mr. Jadallah
aileen.boucle@miamidade.gov	Ms. Boucle
eulois.cleckley@miamidade.gov	Mr. Cleckley
sgallon3@dadeschools.net	Mr. Gallon
superintendentsoffice@dadeschools.net	Dr. Dotres
district7@dadeschools.net	Ms. Navarro

Map


SW 137 Ave
SW 127 Ave
SW 122 Ave
Quail Roost Dr
SW 117 Ave
N
FLORIDA'S TURNPIKE
US 1
Begin Project/ Comenzar de proyecto
End Project/ Final de Proyecto
SW 200 St
SW 134 Ave
S Dixie Hwy
SW 208 St
SW 127 Ave
LEGEND/LEYENDA
Project Limits/ Límites del proyecto
Meeting location/ Lugar de reunión
South Dade Regional Library
10750 SW 211 St., Cutler Bay, FL 33189

ADs

FAR AD

The Florida Department of Transportation District Six announces Alternatives Workshop to which all persons are invited.

DATE AND TIME: Tuesday, October 18, 2022 at 5:30 p.m.

The meetings will be held both in-person and virtually.

Attend in person South Dade Regional Library located at 10750 SW 211 Street, Cutler Bay, FL 33189. The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

Attend virtually via GoToWebinar. More event details below.

GENERAL SUBJECT MATTER TO BE CONSIDERED:

The Florida Department of Transportation (FDOT), District Six, has scheduled both an Alternatives Workshop for the SR 994/SW 200 Street/Quail Roost Drive Project Development & Environment (PD&E) Study from West of SW 137 Avenue to East of SW 127 Avenue, in Miami-Dade County, Florida. The project identification number is 445804-1-22-01. The project's primary objective is to provide additional capacity to accommodate future travel demand while improving overall safety along the project corridor and enhancing mobility for the surrounding community.

The meetings will be held both in-person and virtually.

The Workshop is scheduled for Tuesday, October 18, 2022, at 5:30 p.m. Attend in person at South Dade Regional Library located at 10750 SW 211 Street, Cutler Bay, FL 33189. Register online at www.fdotmiamidade.com/QuailRoostPDE.html.

To participate virtually, from your **computer, tablet or smartphone** please click on the link below: https://attendee.gotowebinar.com/register/2851047270248519440. Participants can also use their phone by dialing **+1 877 568 4108;** access code **200-763-644.**

Attendees will be provided with a presentation of proposed alternatives for the project, including existing as well as social, environmental and economic effects, followed by a question and answer session. Questions will be responded to as time permits, in the order received. If your question is not responded to during the meeting, a response will be provided in writing. Persons wishing to submit statements, in place of or in addition to oral statements, may do so at the meeting or by sending them to the Community Outreach Specialist. All statements postmarked on or before October 28, 2022, will become part of the meeting record.

A copy of the agenda may be obtained by contacting: Community Outreach Specialist Monica Diaz at 305-573-0089, email: monica@iscprgroup.com

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Florida Highway Administration (FHWA) and FDOT.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability, or family status.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting is asked to advise the agency at least seven days before the meeting by contacting: Nicholas Danu, P.E. at 305-470-5219 or in writing at FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or by email at Nicholas.Danu@dot.state.fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice).

Miami Herald

Alternatives Workshop Notice
State Road (SR) 994/SW 200 Street/Quail Roost Drive
Project Development and Environment (PD&E) Study
Study Identification Number: 445804-1-22-01

The Florida Department of Transportation (FDOT) will host an Alternatives Workshop for the SR 994/SW 200 Street/Quail Roost Drive PD&E Study from West of SW 137 Avenue to East of SW 127 Avenue, in Miami-Dade County, Florida.

The meeting will be held both in-person and virtually on Tuesday, October 18, 2022 at 5:30 p.m.

Attend In-Person:

South Dade Regional Library, 10750 SW 211 Street, Cutler Bay FL, 33189 The in-person meeting will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

Attend Virtually:

https://attendee.gotowebinar.com/register/2851047270248519440
Participants can also call in by dialing
+1 877 568 4108; access code: 200-763-644

To RSVP, visit: www.fdotmiamidade.com/QuailRoostPDE.html.
or scan the QR Code:

The meeting will consist of a formal presentation followed by an open discussion. Questions will be responded to as time permits, in the order received. If your question is not responded to during the meeting, a response will be provided in writing. Persons wishing to submit statements, in place of or in addition to oral statements, may do so at the meeting or by sending them to the Community Outreach Specialist, Monica Diaz at 305-573-0089 or via email at monica@iscprgroup.com. All statements postmarked on or before October 28, 2022 will become part of the meeting record.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Florida Highway Administration (FHWA) and FDOT.

Public participation at this meeting is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop is asked to advise the agency at least seven days before the workshby contacting: Nicholas Danu, P.E. at 305-470-5219 or in writing: FDOT, 1000 N.W. 111 Avenue, Miami, FL 33172, email: Nicholas.Danu@dot.state.fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1 800-955-8770 (Voice).

ANUNCIO DE TALLER DE ALTERNATIVAS
Estudio Ambiental y de Desarrollo del Proyecto (PD&E)
Carretera Estatal (SR) 994/Calle 200 del suroeste/Quail Roost Drive
Número de gestión financiera: 445804-1-22-01

El Distrito Seis del Departamento de Transporte de la Florida (FDOT) organizará un taller de alternativas para el PD&E de la SR 994/Calle 200 del suroeste/Quail Roost Drive desde el oeste de la Avenida 137 del suroeste hasta el este de la Avenida 127 del suroeste, en el condado de Miami-Dade, Florida.

La reunión se llevará acabo tanto en persona como virtualmente, el martes 18 de octubre de 2022 desde las 5:30 p.m.

Participe en persona:

South Dade Regional Library, 10750 SW 211 Street, Cutler Bay FL, 33189
La reunión en persona cumplirá con todas las pautas actuales de los Centros para el Control y la Prevención de Enfermedades (CDC).

El espacio es limitado

Participe virtualmente:

https://attendee.gotowebinar.com/register/2851047270248519440
Los participantes también pueden llamar al
+1 877 568 4108
código de acceso: 200-763-644
Para registrarse, visite: www.fdotmiamidade.com/QuailRoostPDE.html
O escanee el código QR:

La reunión consistirá en una presentación formal seguida de un foro abierto. Se responderán las preguntas, si el tiempo lo permite y en el orden en que se reciban. Si su pregunta no se responde durante la reunión, se le enviará una respuesta por escrito. Las personas que deseen enviar comentarios escritos, en lugar o además de comentarios orales, podrán hacerlo en la reunión o enviarlos a la Especialista de Alcance Comunitario Monica Diaz al teléfono 305-573-0089 o por correo electrónico a monica@iscprgroup.com. Todos los comentarios que se envíen con fecha postal de matasellos del 28 de octubre de 2022 o anterior formarán parte del registro de la reunión.

La revisión, consulta ambiental y otras acciones que exigen las leyes ambientales federales correspondientes a este proyecto están siendo, o han sido, llevadas a cabo por el FDOT conforme al artículo 23 U.S.C. 327 y al Memorando de Entendimiento con fecha del 26 de mayo de 2022, y ejecutado por la Administración Federal de Autopistas (FHWA) y el FDOT.

Se solicita la participación del público en esta reunión sin importar su raza, color, origen nacional, edad, sexo, religión, discapacidad o estado familiar. Conforme a las disposiciones de la Ley para Estadounidenses con Discapacidades, las personas que requieran adaptaciones especiales para participar en esta reunión deben notificarlo a la agencia, al menos siete días antes de la misma, comunicándose con: Nicholas Danu, P.E. at 305-470-5219 o por escrito: FDOT, 1000 N.W. 111 Avenue, Miami, FL 33172, o por correo electrónico: Nicholas.Danu@dot.state.fl.us. Si tiene impedimentos auditivos o para hablar, comuníquese con la agencia mediante el servicio de Florida Relay Service, 1-800-955-8771 (teléfono de texto) o 1 800-955-8770 (voz).

Mailer

You're Invited/Está Invitado

Alternatives Workshop for a Project Development & Environment (PD&E) Study in your area

Taller de Alternativas para un Estudio Ambiental y de Desarrollo del Proyecto (PD&E) en su area

State Road (SR) 994/SW 200 Street/Quail Roost Drive, from West of SW 137 Avenue to East of SW 127 Avenue, Miami-Dade County, Florida

Project Number: 445804-1-22-01

Carretera Estatal (SR) 994/Calle 200 del suroeste/Quail Roost Drive desde el oeste de la Avenida 137 del suroeste hasta el este de la Avenida 127 del suroeste, en el condado de Miami-Dade County, Florida

Número de Proyecto: 445804-1-22-01

Florida Department of Transportation
1000 NW 111 Avenue
Miami, FL 33172

ALTERNATIVES WORKSHOP NOTICE

FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT SIX

NOTIFICACIÓN DE TALLER DE ALTERNATIVAS

DEPARTAMENTO DE TRANSPORTE DE LA FLORIDA DISTRITO SEIS

The Florida Department of Transportation (FDOT) District Six will host an Alternatives Workshop both in-person and virtually, for the SR 994/SW 200 Street/Quail Roost Drive PD&E Study, in Miami-Dade County. The workshop will provide the community an opportunity to evaluate the proposed alternatives.

The workshop will consist of a formal presentation followed by a question and answer session. Staff will be available to answer questions as time permits, in the order received. If your question is not responded to during the event, a response will be provided in writing after the workshop. The in-person workshop will be in compliance with all current Centers for Disease Control and Prevention (CDC) guidelines.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Florida Highway Administration (FHWA) and FDOT.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations is asked to advise the agency at least seven days before the workshop by contacting: Nicholas Danu at 305-470-5219 or in writing to FDOT, 1000 NW 111 Avenue, Miami, FL 33172 or via email at Nicholas.Danu@dot.state. fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice).

El Departamento de Transporte de la Florida (FDOT) Distrito Seis tendrá un Taller de Alternativas para el Estudio de PD&E de la Carretera Estatal (SR) 994/Calle 200 del suroeste/Quail Roost Drive, en el condado de Miami-Dade. El taller ofrecerá la oportunidad de evaluar las alternativas propuestas.

El taller tendrá una presentación formal seguida por una sesión de preguntas y respuestas. El equipo del FDOT estará disponible para responder preguntas del público, si el tiempo permite y en el orden que se reciban. Si su pregunta no es contestada durante el evento, sera contestada por escrito despues del taller. El taller en persona seguirá los protocolos de acuerdo con el Control y la Prevención de Enfermedades (CDC).

La revisión, consulta ambiental y otras acciones que exigen las leyes federales ambientales correspondientes a este proyecto están siendo o han sido llevadas a cabo por el FDOT de conformidad con el artículo 23 USC 327 y un Memorando de Entendimiento con fecha 26 de mayo de 2022 firmado por la Administración Federal de Carreteras (FHWA) y el FDOT.

Se solicita la participación del público sin importar la raza, el color, origen nacional, edad, sexo, religión, discapacidad o estado familiar. Las personas que requieran de acomodaciónes especiales bajo el Acta de 1990 de la Ley para estadounidenses con Discapacidades, o personas que requieran de servicios de traducción (gratuitamente) deben comunicarse, por lo menos siete días antes del taller, con Nicholas Danu al 305-470-5219 o por escrito al FDOT, 1000 N.W. 111 Avenue, Miami, FL 33172 o por correo electrónico a Nicholas.Danu@dot.state.fl.us. Personas con impedimento auditivos o de hablar, por favor póngase en contacto con la agencia que utiliza el Servicio de Retransmisión de la Florida, 1-800-955-8771 (TDD) o 1-800-955-8770 (Voz).

Tuesday/martes
October/octubre 18, 2022
5:30 p.m.

To Attend In-Person/Para asistir en persona:

South Dade Regional Library
10750 SW 211 Street
Cutler Bay, FL 33189

To Attend Virtually/Para asistir virtualmente:

Registration Link/Enlace al Sitio Web:
https://attendee.gotowebinar.com/register/2851047270248519440

Telephone/Telefono: +1 877 568 4108

Access Code/Codigo de Aceso: 200-763-644

To RSVP, visit/Para registrarse, visite:
www.fdotmiamidade.com/QuailRoostPDE.html

Or scan the QR Code/O escanee el codigo:

Contact/Contacto: Monica Diaz at (305) 984-2715 or monica@iscprgroup.com
www.fdotmiamidade.com

FOLLOW US/SÍGANOS:
MyFDOT_Miami MyFDOTMiami

FOLIO	Property Owner Name	Or Current Occupant	Mailing Street Address	Mailing City and State	Mailing Zip Code
3069120480010	BANK OF AMERICA NA	OR CURRENT OCCUPANT	101 N TRYON ST	CHARLOTTE, NC	28255
3069020270020	19870 SW 127TH AVE	OR CURRENT OCCUPANT	107 S BRUNSWICK AVE	MARGATE, NJ	8402
3069100000025	MIAMI DADE COUNTY	OR CURRENT OCCUPANT	111 NW 1 ST STE 1610	MIAMI, FL	33128
3069110010011	POINTE QUAIL INVESTMENTS	OR CURRENT OCCUPANT	1132 KANE CONCOURSE 2FL	BAY HARBOR ISLAND, FL	33154
3069110130590	ULISES RAUDEZ	OR CURRENT OCCUPANT	1213 GLYNN R ARCHER JR DR LOT 201	KEY WEST, FL	33040-4157
3069010040220	AUTOZONE STORES	OR CURRENT OCCUPANT	123 SOUTH ST 8700	MEMPHIS, TN	38103
3069110000070	LYONS	OR CURRENT OCCUPANT	1230 NW 7 ST	MIAMI, FL	33125-3702
3069110090020	MIGUEL DE ARMAS	OR CURRENT OCCUPANT	12305 SW 255 TER	HOMESTEAD, FL	33032
3069110090210	LARRY LAZ GARCIA	OR CURRENT OCCUPANT	12342 SW 145TH ST	MIAMI, FL	33186-7414
3069120340610	MABEL CASTILLO	OR CURRENT OCCUPANT	12481 SW 203 ST	MIAMI, FL	33177
3069120510050	ROGER HERNANDEZ	OR CURRENT OCCUPANT	12501 SW 202 LN	MIAMI, FL	33177
3069120510060	ALEXANDER MILAN	OR CURRENT OCCUPANT	12502 SW 202 LN	MIAMI, FL	33177
3069010040131	CURRENT OCCUPANT		12555 QUAIL ROOST DR	Miami, FL	33177-4924
3069120510040	YIPSY PEREZ SANCHEZ	OR CURRENT OCCUPANT	12561 SW 202 LN	MIAMI, FL	33177
3069120510030	LIERNE FRANK GOMEZ	OR CURRENT OCCUPANT	12601 SW 202 LN	MIAMI, FL	33177
3069120510070	HAROLD F SILVA	OR CURRENT OCCUPANT	12602 SW 202 LN	MIAMI, FL	33177
3069120510020	JENNY L MENJIVAR	OR CURRENT OCCUPANT	12631 SW 202 LN	MIAMI, FL	33177
3069120510080	CURRENT OCCUPANT		12632 SW 202 LN	Miami, FL	33177-0000
3069120510010	YUDANIS LEDESMA	OR CURRENT OCCUPANT	12661 SW 202 LN	MIAMI, FL	33177
3069120510090	ALBERT MESA	OR CURRENT OCCUPANT	12662 SW 202 LN	MIAMI, FL	33177
3069010040230	CURRENT OCCUPANT		12685 SW 200 ST	Miami, FL	33177-4926
3069010040220	CURRENT OCCUPANT		12695 SW 200 ST	Miami, FL	33177-4926
3069020270010	CURRENT OCCUPANT		12711 QUAIL ROOST DR	Miami, FL	33177-4817
3069110200020	CURRENT OCCUPANT		12720 SW 200 ST	Miami, FL	33177-4818
3069110010011	CURRENT OCCUPANT		12740 SW 200 ST	Miami, FL	33177-4818
3069020010610	PEACE UNITED METHODIST CHURCH	OR CURRENT OCCUPANT	12755 QUAIL ROOST DR	MIAMI, FL	33177
3069110010012	PERRINE CHURCH OF CHRIST	OR CURRENT OCCUPANT	12780 QUAIL ROOST DR	Miami, FL	33177
3069020020420	KENT W VIKLUND	OR CURRENT OCCUPANT	12797 SW 197 TER	MIAMI, FL	33177-4824
3069020010601	CURRENT OCCUPANT		12825 QUAIL ROOST DR	Miami, FL	33177-4806
3069110130850	JOSE M PASCUAL	OR CURRENT OCCUPANT	12831 SW 200 TER	MIAMI, FL	33177
3069020251440	JAVIER SUAREZ	OR CURRENT OCCUPANT	12832 SW 198 TER	MIAMI, FL	33177-4016
3069110130840	MAIKEL LAZO LOPEZ	OR CURRENT OCCUPANT	12841 SW 200 TER	MIAMI, FL	33177
3069110130830	JUAN C CAVERO	OR CURRENT OCCUPANT	12851 SW 200 TER	MIAMI, FL	33177-5547
3069110130820	MIGUEL A LANDESTOY	OR CURRENT OCCUPANT	12861 SW 200 TER	MIAMI, FL	33177-5547
3069020251430	CURRENT OCCUPANT		12862 SW 198 TER	Miami, FL	33177-4016
3069110130810	LOUIS CLARINGTON	OR CURRENT OCCUPANT	12871 SW 200 TER	MIAMI, FL	33177-5547
3069110130800	GREGORY PIERRE	OR CURRENT OCCUPANT	12881 SW 200 TER	MIAMI, FL	33177
3069020251360	CURRENT OCCUPANT		12891 SW 198 TER	Miami, FL	33177-4017
3069110130790	MITCHELL MIRABAL	OR CURRENT OCCUPANT	12891 SW 200 TER	Miami, FL	33177
3069020251420	MARTHA L VALENCIA	OR CURRENT OCCUPANT	12892 SW 198 TER	MIAMI, FL	33177
3069020251010	GEORGE MONTES	OR CURRENT OCCUPANT	12901 SW 197 ST	MIAMI, FL	33177
3069110130080	CURRENT OCCUPANT		12901 SW 200 TER	Miami, FL	33177-5546
3069110130070	JULIO C NATERA JR	OR CURRENT OCCUPANT	12911 SW 200 TER	MIAMI, FL	33177
3069110130130	MAGALY ROCHER	OR CURRENT OCCUPANT	12912 SW 200 TER	MIAMI, FL	33177-5545
3069110130350	ALBA BELLO	OR CURRENT OCCUPANT	12914 SW 202 ST	MIAMI, FL	33177
3069020251020	ARELIS M RIVERA	OR CURRENT OCCUPANT	12917 SW 197 ST	MIAMI, FL	33177
3069110130060	JAMES BARETTA NELSON	OR CURRENT OCCUPANT	12921 SW 200 TER	MIAMI, FL	33177
3069110130120	WINGROVE N WARD	OR CURRENT OCCUPANT	12922 SW 200 TER	MIAMI, FL	33177-5545
3069110130230	FRANCYS S SOZA LUGO	OR CURRENT OCCUPANT	12923 SW 201 TER	MIAMI, FL	33177-5548
3069110130050	SERGIO HERNANDEZ	OR CURRENT OCCUPANT	12931 SW 200 TER	MIAMI, FL	33177-5546
3069110130110	DIANNE FERRER SINGH	OR CURRENT OCCUPANT	12932 SW 200 TER	MIAMI, FL	33177-5545
3069020251030	VALLY J BASTIEN	OR CURRENT OCCUPANT	12933 SW 197 ST	MIAMI, FL	33177
3069110130040	JOSE E ORTIZ	OR CURRENT OCCUPANT	12941 SW 200 TER	MIAMI, FL	33177-5546
3069110130250	DORIS ALMONTE	OR CURRENT OCCUPANT	12943 SW 201 TER	MIAMI, FL	33177-5548
3069120510080	ERNESTO ABREU LOPEZ	OR CURRENT OCCUPANT	12949 SW 134 TER	MIAMI, FL	33186
3069020251040	AAM TRANSPORT	OR CURRENT OCCUPANT	12949 SW 197 ST	MIAMI, FL	33177
3069110130030	ANNA CHERINGTON	OR CURRENT OCCUPANT	12951 SW 200 TER	MIAMI, FL	33177-5546
3069110130090	JUAN C GONZALEZ	OR CURRENT OCCUPANT	12952 SW 200 TER	MIAMI, FL	33177-5545
3069110130020	JORGE CAMBA JR	OR CURRENT OCCUPANT	12961 SW 200 TER	MIAMI, FL	33177-5546
3069020251050	CURRENT OCCUPANT		12965 SW 197 ST	Miami, FL	33177-4808
3069110130010	KARINA MARTY	OR CURRENT OCCUPANT	12971 SW 200 TER	MIAMI, FL	33177-5546
3069020251060	OMAR BLANCO	OR CURRENT OCCUPANT	12981 SW 197 ST	MIAMI, FL	33177
3069020250590	AIMEE MAHARAJ	OR CURRENT OCCUPANT	13007 SW 197 ST	Miami, FL	33177
3069110040600	SONYA M PORTOCARRERO	OR CURRENT OCCUPANT	13031 SW 200 TER	MIAMI, FL	33177-6125
3069110040610	OSVALDO CASTRILLO RODRIGUEZ	OR CURRENT OCCUPANT	13041 SW 200 TER	MIAMI, FL	33177
3069110040430	BARBARA E PORTOCARRERO	OR CURRENT OCCUPANT	13042 SW 200TH TER	MIAMI, FL	33177-6120
3069020250580	LUIS C CHIRINO	OR CURRENT OCCUPANT	13047 SW 197 ST	MIAMI, FL	33177-4807
3069020250670	JAIME TOJEIRO	OR CURRENT OCCUPANT	13050 SW 197 ST	MIAMI, FL	33177-4815
3069020251360	ELIZABETH FERRER MARTINEZ	OR CURRENT OCCUPANT	13081 SW 194 ST	MIAMI, FL	33177
3069020250570	JUAN J FERREIRA	OR CURRENT OCCUPANT	13087 SW 197 ST	MIAMI, FL	33177
3069110040620	YUNIER CHAVIANO	OR CURRENT OCCUPANT	13101 SW 200 TER	MIAMI, FL	33177
3069110040420	RADAMES VARGAS CARRAZANA	OR CURRENT OCCUPANT	13102 SW 200 TER	MIAMI, FL	33177
3069110040630	ORESTES REANO	OR CURRENT OCCUPANT	13111 SW 200 TER	MIAMI, FL	33177-6126

3069110040640	LUZ CORDERO	OR CURRENT OCCUPANT	13121 SW 200 TER	MIAMI, FL	33177
3069110040410	KENNETH TAYLOR JR	OR CURRENT OCCUPANT	13122 SW 200 TER	MIAMI, FL	33177-6119
3069110040650	FELICIA RUBIO	OR CURRENT OCCUPANT	13131 SW 200 TER	MIAMI, FL	33177
3069020290220	LUIS ABEL NAVARRO	OR CURRENT OCCUPANT	13135 SW 199 TER	MIAMI, FL	33177
3069110040660	CARLOS MIGUEL LIMONTE	OR CURRENT OCCUPANT	13141 SW 200 TER	MIAMI, FL	33177
3069110040190	MIGUEL ANGEL VALLE	OR CURRENT OCCUPANT	13150 SW 200 TER	MIAMI, FL	33177
3069110040670	JESUS ESPINO	OR CURRENT OCCUPANT	13151 SW 200 TER	MIAMI, FL	33177
3069110040680	FELIPE CARABALLO	OR CURRENT OCCUPANT	13161 SW 200 TER	MIAMI, FL	33177-6126
3069110040690	CURRENT OCCUPANT		13171 SW 200 TER	Miami, FL	33177-6126
3069110040700	ARAIRIS P FIGUEREDO	OR CURRENT OCCUPANT	13181 SW 200 TER	MIAMI, FL	33177
3069110040710	CURRENT OCCUPANT		13191 SW 200 TER	Miami, FL	33177-6126
3069110090130	JORGE SOSA	OR CURRENT OCCUPANT	13201 SW 200 TER	MIAMI, FL	33177
3069020290230	DONALD ANDRE MINCEY	OR CURRENT OCCUPANT	13215 SW 199 TER	MIAMI, FL	33177
3069110090120	ROSA CHAVEZ	OR CURRENT OCCUPANT	13217 SW 200 TER	MIAMI, FL	33177
3069110090260	JOSE G DOMINGUEZ	OR CURRENT OCCUPANT	13217 SW 203 ST	MIAMI, FL	33177-6153
3069110090110	CURRENT OCCUPANT		13233 SW 200 TER	Miami, FL	33177-6150
3069110090270	CURRENT OCCUPANT		13233 SW 203 ST	Miami, FL	33177-6153
3069110090170	GIRALDO CARABALLO	OR CURRENT OCCUPANT	13234 SW 200 TER	MIAMI, FL	33177
3069110090420	GRACE BAPT CHU CUTLER RDG FL	OR CURRENT OCCUPANT	13235 SW 201 TER	MIAMI, FL	33177
3069110090410	VICTORIA A SO	OR CURRENT OCCUPANT	13236 SW 201 TER	MIAMI, FL	33177-6158
3069110090340	CURRENT OCCUPANT		13237 SW 202 TER	Miami, FL	33177-6157
3069110090330	LAZARO MIGUEL GONZALEZ	OR CURRENT OCCUPANT	13238 SW 202 TER	MIAMI, FL	33177
3069110090100	CARLOS V DA GAMA	OR CURRENT OCCUPANT	13249 SW 200 TER	MIAMI, FL	33177
3069110090160	JAIRO ROJAS	OR CURRENT OCCUPANT	13250 SW 200 TER	MIAMI, FL	33177-6149
3069110090430	RUBEN D VELASQUEZ	OR CURRENT OCCUPANT	13251 SW 201 TER	MIAMI, FL	33177-6159
3069110090400	SAHARA TEJERA	OR CURRENT OCCUPANT	13252 SW 201 TER	MIAMI, FL	33177
3069110090350	MARLON GRIFFITH	OR CURRENT OCCUPANT	13253 SW 202 TER	MIAMI, FL	33177
3069110090320	FELIPA B YONG	OR CURRENT OCCUPANT	13254 SW 202 TER	MIAMI, FL	33177
3069110090090	ANTAR ALBERTO TORRES	OR CURRENT OCCUPANT	13265 SW 200 TER	MIAMI, FL	33177
3069110090290	ROLANDO F ALVAREZ LE	OR CURRENT OCCUPANT	13265 SW 203 ST	MIAMI, FL	33177
3069110090150	MIRNA ARACELY ALMENDAREZ	OR CURRENT OCCUPANT	13266 SW 200 TER	MIAMI, FL	33177
3069110090440	DANIEL RAMIREZ	OR CURRENT OCCUPANT	13267 SW 201 TER	MIAMI, FL	33177-6159
3069110090390	FERNANDO M ESTERLICH	OR CURRENT OCCUPANT	13268 SW 201 TER	MIAMI, FL	33177
3069110090360	MARIA BETANCOURT	OR CURRENT OCCUPANT	13269 SW 202 TER	MIAMI, FL	33177-6157
3069110090310	CATHRINE RODRIGUEZ	OR CURRENT OCCUPANT	13270 SW 202 TER	MIAMI, FL	33177
3069110090080	JORGE L CAMPOS	OR CURRENT OCCUPANT	13281 SW 200 TER	MIAMI, FL	33177-6150
3069110090140	LEODAN ALVAREZ	OR CURRENT OCCUPANT	13282 SW 200 TER	MIAMI, FL	33177
3069110090450	VARADERO FASHION	OR CURRENT OCCUPANT	13283 SW 201 TER	MIAMI, FL	33177
3069110090370	MARIO R AREVALO	OR CURRENT OCCUPANT	13285 SW 202 TER	MIAMI, FL	33177-6157
3069110090300	KATY GUERRA	OR CURRENT OCCUPANT	13286 SW 202 TER	Miami, FL	33177
3069020010440	MIGUEL A CARMONA	OR CURRENT OCCUPANT	13295 SW 200 ST	MIAMI, FL	33177-6105
3069020010420	ENRIQUE A LOPEZ	OR CURRENT OCCUPANT	13355 SW 200 ST	MIAMI, FL	33177-6107
3069110000050	CURRENT OCCUPANT		13390 SW 200 ST	Miami, FL	33177-6108
3069020010424	CURRENT OCCUPANT		13395 SW 200 ST	Miami, FL	33177-6107
3069110000030	CURRENT OCCUPANT		13400 SW 200 ST	Miami, FL	33177-6002
3069020160310	JOSEPH M FERGUSON	OR CURRENT OCCUPANT	13490 SW 198 ST	MIAMI, FL	33177-4139
3069110000140	CURRENT OCCUPANT		13600 SW 200 ST	Miami, FL	33177-6006
3069110000071	CURRENT OCCUPANT		13602 SW 200 ST	Miami, FL	33177-6006
3069110000141	FRANCISCO FEBLES	OR CURRENT OCCUPANT	13650 QUAIL ROOST DR	MIAMI, FL	33177-6006
3069110000071	JOLO	OR CURRENT OCCUPANT	13661 DEERING BAY	MIAMI, FL	33158
3069020160270	KENOL JOSEPH	OR CURRENT OCCUPANT	1370 NW 179 ST	MIAMI, FL	33169
3069030000250	CURRENT OCCUPANT		13701 QUAIL ROOST DR	Miami, FL	33177-4709
3069110150100	LUIS A COLLADO	OR CURRENT OCCUPANT	14190 SW 152 PL	MIAMI, FL	33196
3069020160260	ANNETTA MCEACHERN	OR CURRENT OCCUPANT	14861 SW 149 ST	MIAMI, FL	33196-2360
3069020220320	JENNIFER PATINO	OR CURRENT OCCUPANT	15103 SW 141 LN	MIAMI, FL	33196
3069020251050	ERICKA CASTILLO	OR CURRENT OCCUPANT	15395 SW 168 TER	MIAMI, FL	33187
3069110090340	MISAEL OROPESA	OR CURRENT OCCUPANT	15440 SW 171 ST	MIAMI, FL	33187
3069110090110	ROSA ENRIQUETA VERDEJO	OR CURRENT OCCUPANT	1558 FAIR OAKS CT	FAIRFIELD, CA	94534
3069020010422	LEON GROUP INVESTMENT	OR CURRENT OCCUPANT	16225 SW 117 AVE D15	MIAMI, FL	33177
3069110130520	NUBIA JIMENEZ SCALES	OR CURRENT OCCUPANT	17020 SW 107 CT	MIAMI, FL	33177
3069020220280	2018 2 IH BORROWER L P	OR CURRENT OCCUPANT	1717 MAIN ST 2000	DALLAS, TX	75201
3069110130190	THR FLORIDA LP	OR CURRENT OCCUPANT	1717 MAIN ST SUITE 2000	DALLAS, TX	75201
3069100000010	JC REAL ESTATE HOLDINGS	OR CURRENT OCCUPANT	17425 SW 172 ST	MIAMI, FL	33187
3069020290030	YOLANDA DE JESUS SILVA	OR CURRENT OCCUPANT	18455 SW 202 ST	MIAMI, FL	33187
3069110130760	CERBERUS SFR HOLDINGS	OR CURRENT OCCUPANT	1850 PARKWAY PL 900	MARIETTA, GA	30067-8261
3069110200020	SOUTH WEST 200	OR CURRENT OCCUPANT	18551 NE 29 AVE 700	AVENTURA, FL	33180
3069110040030	GLOBAL CAPITAL INVESTMENTS	OR CURRENT OCCUPANT	19365 SW 132 AVE	MIAMI, FL	33177
3069020020390	MARGARET PARKER LE	OR CURRENT OCCUPANT	19620 SW 127 CT	MIAMI, FL	33177
3069020020440	MARTIN JON IGLESIAS	OR CURRENT OCCUPANT	19625 SW 128 AVE	MIAMI, FL	33177
3069020200140	RAVINDRA D SINGH	OR CURRENT OCCUPANT	19630 SW 128 AVE	MIAMI, FL	33177-4814
3069020200110	JOSE L TORIBIO	OR CURRENT OCCUPANT	19631 SW 128 CT	MIAMI, FL	33177-4825
3069020200030	JAVIER GONZALEZ	OR CURRENT OCCUPANT	19635 SW 129 AVE	MIAMI, FL	33177-4200
3069020020400	RHONAL S TICE	OR CURRENT OCCUPANT	19640 SW 127 CT	MIAMI, FL	33177-4810
3069020020430	CARMEN M COLOME	OR CURRENT OCCUPANT	19645 SW 128 AVE	MIAMI, FL	33177

3069020250780	BENIGNO MACIAS	OR CURRENT OCCUPANT	19646 SW 130 AVE RD	MIAMI, FL	33177
3069020020340	MARIO JOEL CURTIN	OR CURRENT OCCUPANT	19650 SW 127 AVE	MIAMI, FL	33177
3069020220390	SANDRA V CARRASCO MARCONE	OR CURRENT OCCUPANT	19651 SW 132 PL	MIAMI, FL	33177
3069020220230	JULIE GIZ	OR CURRENT OCCUPANT	19652 SW 132 PL	MIAMI, FL	33177
3069020220180	IRAIDA ESCALONA	OR CURRENT OCCUPANT	19653 SW 133 CT	MIAMI, FL	33177
3069020220080	JESSICA MARBET BARRIOS	OR CURRENT OCCUPANT	19654 SW 133 CT	MIAMI, FL	33177
3069020200150	CARLOS GONZALEZ BROCHE	OR CURRENT OCCUPANT	19660 SW 128 AVE	MIAMI, FL	33177-4814
3069020290090	YULIET MONTANO	OR CURRENT OCCUPANT	19660 SW 132 CT	MIAMI, FL	33177
3069020160210	JORGE LLAURO	OR CURRENT OCCUPANT	19660 SW 134 CT	MIAMI, FL	33177
3069020180180	GINA WALLACE	OR CURRENT OCCUPANT	19660 SW 135 AVE	MIAMI, FL	33177-4128
3069020200100	MARGARET T CONDE	OR CURRENT OCCUPANT	19661 SW 128 CT	MIAMI, FL	33177-4825
3069020180130	ALAIN K NAMMUR	OR CURRENT OCCUPANT	19661 SW 136 AVE	MIAMI, FL	33177
3069020180030	LAKEISHA AXEM	OR CURRENT OCCUPANT	19661 SW 137 AVE	MIAMI, FL	33177
3069020180080	JOSHUA TAYLOR	OR CURRENT OCCUPANT	19662 SW 136 AVE	MIAMI, FL	33177
3069020200070	JAVIER O CARLOS	OR CURRENT OCCUPANT	19664 SW 128 CT	MIAMI, FL	33177
3069020200020	ROBIN R SAWH	OR CURRENT OCCUPANT	19665 SW 129 AVE	MIAMI, FL	33177-4200
3069020250770	EDDIE GRIFFIN	OR CURRENT OCCUPANT	19666 SW 130 AVE RD	SOUTH MIAMI, FL	33177
3069020290080	ALEXANDER A ROSA	OR CURRENT OCCUPANT	19680 SW 132 CT	MIAMI, FL	33177
3069020250760	RODOLFO VARELA	OR CURRENT OCCUPANT	19686 SW 130 AVE RD	MIAMI, FL	33177
3069020200160	MAXIMINO MELO	OR CURRENT OCCUPANT	19700 SW 128 AVE	MIAMI, FL	33177-4816
3069020180190	JAMES TONEY	OR CURRENT OCCUPANT	19700 SW 135 AVE	MIAMI, FL	33177
3069010040150	CURRENT OCCUPANT		19701 SW 127 AVE	Miami, FL	33177-0000
3069020020350	RICHARD GUEITS	OR CURRENT OCCUPANT	19701 SW 127 CT	MIAMI, FL	33177-4811
3069020200090	MARIA V SANTANA	OR CURRENT OCCUPANT	19701 SW 128 CT	MIAMI, FL	33177-4827
3069020180120	GREGORY A BACOURT	OR CURRENT OCCUPANT	19701 SW 136 AVE	MIAMI, FL	33177
3069020180020	REINALDO R ESPINOSA	OR CURRENT OCCUPANT	19701 SW 137 AVE	MIAMI, FL	33177
3069020180090	ELLIOT CLARO	OR CURRENT OCCUPANT	19702 SW 136 AVE	MIAMI, FL	33177
3069020251320	OSVALDO ANE IGLESIAS	OR CURRENT OCCUPANT	19703 SW 129 CT	MIAMI, FL	33177
3069020200080	KAMESHWAR SEEPERSAUD	OR CURRENT OCCUPANT	19704 SW 128 CT	MIAMI, FL	33177-4828
3069020250930	LEONARDO CASTELAR	OR CURRENT OCCUPANT	19704 SW 129 CT	MIAMI, FL	33177
3069020200010	PAVEL LUZARDO	OR CURRENT OCCUPANT	19705 SW 129 AVE	MIAMI, FL	33177
3069020250920	OTREBOGIR URQUIAGA	OR CURRENT OCCUPANT	19705 SW 130 AVE	MIAMI, FL	33177
3069020290100	OSWALDO GARCIA	OR CURRENT OCCUPANT	19705 SW 132 CT	Miami, FL	33177
3069020010422	CURRENT OCCUPANT		19705 SW 134 AVE	Miami, FL	33177-4105
3069020250660	WILKIN ALEJANDRO LEONARDO	OR CURRENT OCCUPANT	19706 SW 130 AVE	MIAMI, FL	33177
3069020250750	SAMUEL ACEVEDO	OR CURRENT OCCUPANT	19706 SW 130 AVE RD	MIAMI, FL	33177
3069020290070	ELIANA ADELA EVANS	OR CURRENT OCCUPANT	19710 SW 132 CT	MIAMI, FL	33177
3069020220380	CURRENT OCCUPANT		19711 SW 132 PL	Miami, FL	33177-2932
3069020220240	MACNELY V CERVERA	OR CURRENT OCCUPANT	19712 SW 132 PL	MIAMI, FL	33177-2925
3069020220170	CARLOS A CABRERA	OR CURRENT OCCUPANT	19713 SW 133 CT	MIAMI, FL	33177
3069020220070	CARLOS A CABRERA	OR CURRENT OCCUPANT	19714 SW 133 CT	MIAMI, FL	33177-4266
3069020250740	EDUARDO F RODRIGUEZ	OR CURRENT OCCUPANT	19736 SW 130 AVE RD	MIAMI, FL	33177
3069020020410	FREDY SANCHEZ LARA	OR CURRENT OCCUPANT	19740 SW 127 CT	MIAMI, FL	33177
3069020160160	ODALMIS BARROSO RODRIGUEZ	OR CURRENT OCCUPANT	19745 SW 135 AVE	MIAMI, FL	33177
3069020160080	LILLIE B WALKER	OR CURRENT OCCUPANT	19750 SW 134 AVE	MIAMI, FL	33177-4106
3069020160200	ANGEL J SOLANO	OR CURRENT OCCUPANT	19750 SW 134 CT	MIAMI, FL	33177
3069020180200	IDA OLIVER	OR CURRENT OCCUPANT	19750 SW 135 AVE	MIAMI, FL	33177-4128
3069020220370	LUIS A LOPEZ	OR CURRENT OCCUPANT	19751 SW 132 PL	MIAMI, FL	33177
3069020180110	JEFFREY W MAJOR	OR CURRENT OCCUPANT	19751 SW 136 AVE	MIAMI, FL	33177-4146
3069020180010	NELLY CATHERINE FLORES	OR CURRENT OCCUPANT	19751 SW 137 AVE	MIAMI, FL	33177
3069020220250	GEOSVANYS DUMAS	OR CURRENT OCCUPANT	19752 SW 132 PL	MIAMI, FL	33177-2925
3069020220160	CURRENT OCCUPANT		19753 SW 133 CT	Miami, FL	33177-4273
3069020220060	CURRENT OCCUPANT		19754 SW 133 CT	Miami, FL	33177-4266
3069020160240	RUDOLPH D GRIFFITH	OR CURRENT OCCUPANT	19755 SW 134 CT	MIAMI, FL	33177-4130
3069020160170	ANNE C WALKER	OR CURRENT OCCUPANT	19755 SW 135 AVE	MIAMI, FL	33177-4129
3069020251340	WENDELL HARRIS	OR CURRENT OCCUPANT	19762 SW 129 AVE	MIAMI, FL	33177
3069020251310	CURRENT OCCUPANT		19763 SW 129 CT	Miami, FL	33177-4219
3069020251310	MALIA THERESE RIVERA	OR CURRENT OCCUPANT	19763 SW 129th Ct	Miami, FL	33177-4219
3069020250940	NHAT VAN NGUYEN	OR CURRENT OCCUPANT	19764 SW 129 CT	MIAMI, FL	33177-4218
3069020250910	VIVIANA M LABARTA	OR CURRENT OCCUPANT	19765 SW 130 AVE	MIAMI, FL	33177
3069020250650	LE TRI	OR CURRENT OCCUPANT	19766 SW 130 AVE	MIAMI, FL	33177
3069020250730	JAIMON LUKOSE	OR CURRENT OCCUPANT	19766 SW 130 AVE RD	MIAMI, FL	33177
3069020290060	JORGE VERA ALARCON	OR CURRENT OCCUPANT	19770 SW 132 CT	MIAMI, FL	33177
3069020160070	LAMEK RAMOS	OR CURRENT OCCUPANT	19770 SW 134 AVE	MIAMI, FL	33177-4106
3069020180100	REMBERTO FUENTES	OR CURRENT OCCUPANT	19770 SW 136 AVE	MIAMI, FL	33177
3069020290110	SERGIO GONZALEZ	OR CURRENT OCCUPANT	19775 SW 131 CT	MIAMI, FL	33177
3069020160060	RAUL DELGADO	OR CURRENT OCCUPANT	19790 SW 134 AVE	MIAMI, FL	33177
3069020160190	RAMIRO HIDALGO GATO	OR CURRENT OCCUPANT	19790 SW 134 CT	MIAMI, FL	33177
3069020160250	EVANGELINA BARBAN	OR CURRENT OCCUPANT	19795 SW 134 CT	MIAMI, FL	33177-4130
3069020160180	LISA PATRICE SHEESLEY	OR CURRENT OCCUPANT	19795 SW 135 AVE	MIAMI, FL	33177
3069020250640	JOHNNY R RIVERA	OR CURRENT OCCUPANT	19800 SW 130 AVE	MIAMI, FL	33177
3069020251350	MARKS BROTHERS INVESTMENT 2	OR CURRENT OCCUPANT	19802 SW 129 AVE	MIAMI, FL	33177
3069020251300	RICARDO RODRIGUEZ	OR CURRENT OCCUPANT	19803 SW 129 CT	MIAMI, FL	33177
3069020250950	PEDRO MARTINEZ	OR CURRENT OCCUPANT	19804 SW 129 CT	MIAMI, FL	33177-4226

3069020250900	RONALD SEWDAT MASIH DAS	OR CURRENT OCCUPANT	19805 SW 130 AVE	MIAMI, FL	33177
3069020010421	BERNARD B COATS	OR CURRENT OCCUPANT	19805 SW 134 AVE	MIAMI, FL	33177-4107
3069020250720	LINO DIAZ	OR CURRENT OCCUPANT	19806 SW 130 AVE RD	MIAMI, FL	33177
3069020160050	RAMKISSOON HARRACK	OR CURRENT OCCUPANT	19810 SW 134 AVE	MIAMI, FL	33157
3069020160400	CHERYL ANDERSON	OR CURRENT OCCUPANT	19810 SW 134 CT	MIAMI, FL	33177-4158
3069020220360	RAMIRO LUNA	OR CURRENT OCCUPANT	19811 SW 132 PL	MIAMI, FL	33177
3069020220260	JESUS PEREZ	OR CURRENT OCCUPANT	19812 SW 132 PL	MIAMI, FL	33177-2926
3069020220150	ORESTES PEREZ MEDEROS	OR CURRENT OCCUPANT	19813 SW 133 CT	MIAMI, FL	33177
3069020220050	DANNY NADAL	OR CURRENT OCCUPANT	19814 SW 133 CT	MIAMI, FL	33177
3069020290120	MIRIAM PEREZ	OR CURRENT OCCUPANT	19815 SW 131 CT	Miami, FL	33177
3069020290240	YUNIET CARIDAD MOYA	OR CURRENT OCCUPANT	19815 SW 132 CT	MIAMI, FL	33177
3069020290050	KENIA E CARRILLO	OR CURRENT OCCUPANT	19820 SW 132 CT	MIAMI, FL	33177
3069020160260	CURRENT OCCUPANT		19825 SW 134 CT	Miami, FL	33177-4132
3069020010586	JOSBEL FERNANDEZ ECHEVARRIA	OR CURRENT OCCUPANT	19830 SW 129 AVE	MIAMI, FL	33177
3069020160040	WILTON D WILSON	OR CURRENT OCCUPANT	19840 SW 134 AVE	MIAMI, FL	33177-4108
3069010040140	CURRENT OCCUPANT		19850 SW 125 AVE	Miami, FL	33177-4919
3069020220350	LISSETT MARIN	OR CURRENT OCCUPANT	19851 SW 132 PL	MIAMI, FL	33177
3069020220270	IVAN CORVEA	OR CURRENT OCCUPANT	19852 SW 132 PL	MIAMI, FL	33177
3069020220140	ALIAN DIAZ	OR CURRENT OCCUPANT	19853 SW 133 CT	MIAMI, FL	33177
3069020220040	YAMIL MAJAIL	OR CURRENT OCCUPANT	19854 SW 133 CT	Miami, FL	33177
3069020290130	RAFAEL RAMON GUEVARA	OR CURRENT OCCUPANT	19855 SW 131 CT	MIAMI, FL	33177
3069020250710	LEA M NODARSE	OR CURRENT OCCUPANT	19856 SW 130 AVE RD	MIAMI, FL	33177
3069020251290	RUBEN CORNEJO	OR CURRENT OCCUPANT	19863 SW 129 CT	MIAMI, FL	33177-4243
3069020250960	MARIANO LAMADRID	OR CURRENT OCCUPANT	19864 SW 129 CT	MIAMI, FL	33177
3069020250890	RENE CASTELLANOS	OR CURRENT OCCUPANT	19865 SW 130 AVE	MIAMI, FL	33177-4283
3069020270020	CURRENT OCCUPANT		19870 SW 127 AVE	Miami, FL	33177-0000
3069020010585	CHRISTOPHER BLANC	OR CURRENT OCCUPANT	19870 SW 129 AVE	MIAMI, FL	33177
3069010040200	CURRENT OCCUPANT		19875 SW 127 AVE	Miami, FL	33177-4805
3069020290040	CHRISTOPHER ALBERT QUINTANA	OR CURRENT OCCUPANT	19880 SW 132 CT	MIAMI, FL	33177
3069020160030	CURRENT OCCUPANT		19880 SW 134 AVE	Miami, FL	33177-4108
3069020290140	SERGIO FABIAN LOVAY	OR CURRENT OCCUPANT	19885 SW 131 CT	MIAMI, FL	33177
3069020251410	ARMANDO ROPERO CARTIER	OR CURRENT OCCUPANT	19891 SW 129 AVE	MIAMI, FL	33177
3069020251280	IRMA PIEDRAHITA	OR CURRENT OCCUPANT	19893 SW 129 CT	MIAMI, FL	33177-4243
3069020250970	REYKISMET ABREU TURA	OR CURRENT OCCUPANT	19894 SW 129 CT	MIAMI, FL	33177
3069020250880	ALBERTO DIAZ	OR CURRENT OCCUPANT	19895 SW 130 AVE	MIAMI, FL	33177-4283
3069020010584	LARRY CEDRIC JONES	OR CURRENT OCCUPANT	19900 SW 129 AVE	Miami, FL	33177
3069020290030	CURRENT OCCUPANT		19900 SW 132 CT	Miami, FL	33177
3069020160020	RAMON GONZALEZ	OR CURRENT OCCUPANT	19900 SW 134 AVE	MIAMI, FL	33177-4110
3069020251400	MAXIMO L CRUZ	OR CURRENT OCCUPANT	19901 SW 129 AVE	MIAMI, FL	33177-4013
3069020010410	CALVARY PENTECOSTAL CHURCH	OR CURRENT OCCUPANT	19901 SW 137 AVE	MIAMI, FL	33177
3069020251270	JUAN PERDOMO	OR CURRENT OCCUPANT	19903 SW 129 CT	MIAMI, FL	33177-4250
3069020250980	JOSE GONGORA	OR CURRENT OCCUPANT	19904 SW 129 CT	MIAMI, FL	33177
3069020250870	CALIXTO ALFONSO JR	OR CURRENT OCCUPANT	19905 SW 130 AVE	MIAMI, FL	33177
3069020290150	ANALIZ YANY MOLINA RONDON	OR CURRENT OCCUPANT	19905 SW 131 CT	Miami, FL	33177
3069020160280	HILDA LAFONT SANCHEZ	OR CURRENT OCCUPANT	19905 SW 134 ST	MIAMI, FL	33177
3069020160330	JESSICA M BAO	OR CURRENT OCCUPANT	19905 SW 135 AVE	MIAMI, FL	33177
3069020250700	MARIELA SOSA	OR CURRENT OCCUPANT	19906 SW 130 AVE RD	MIAMI, FL	33177
3069020160390	RICHARD C SANCHEZ	OR CURRENT OCCUPANT	19910 SW 134 CT	MIAMI, FL	33177-4131
3069020220340	FLORA C CHAKMAKIS	OR CURRENT OCCUPANT	19911 SW 132 PL	MIAMI, FL	33177-2930
3069020220280	CURRENT OCCUPANT		19912 SW 132 PL	Miami, FL	33177-2929
3069020220130	CESAR A MARTINEZ	OR CURRENT OCCUPANT	19913 SW 133 CT	MIAMI, FL	33177-4271
3069020220030	DENNYS CABRERA GND FOR	OR CURRENT OCCUPANT	19914 SW 133 CT	MIAMI, FL	33177-4268
3069020010583	MIRNA RAMIREZ	OR CURRENT OCCUPANT	19930 SW 129 AVE	MIAMI, FL	33177-4020
3069020220330	IDALIA REYES	OR CURRENT OCCUPANT	19931 SW 132 PL	MIAMI, FL	33177
3069020220290	CURRENT OCCUPANT		19932 SW 132 PL	Miami, FL	33177-2929
3069020220020	DOODNAUTH KHEMERAJ	OR CURRENT OCCUPANT	19934 SW 133 CT	MIAMI, FL	33177-4268
3069020290210	RODOLFO DAVID MONTEJO	OR CURRENT OCCUPANT	19940 SW 131 CT	MIAMI, FL	33177
3069020160370	DANIEL D MOELLER	OR CURRENT OCCUPANT	19940 SW 134 CT	MIAMI, FL	33177-4131
3069020290160	STEVE LEON BONWIT	OR CURRENT OCCUPANT	19945 SW 131 CT	MIAMI, FL	33177
3069020160290	ROY SHIRLEY	OR CURRENT OCCUPANT	19945 SW 134 CT	MIAMI, FL	33177-4156
3069020160340	FRANCOISE LEON	OR CURRENT OCCUPANT	19945 SW 135 AVE	MIAMI, FL	33177-4134
3069020290020	ANA JACQUELINE MARTIN	OR CURRENT OCCUPANT	19950 SW 132 CT	MIAMI, FL	33177
3069020220320	CURRENT OCCUPANT		19951 SW 132 PL	Miami, FL	33177-2930
3069020220110	DAYLENIS BARBARA I PALACIOS	OR CURRENT OCCUPANT	19953 SW 133 CT	MIAMI, FL	33177
3069020220010	CURRENT OCCUPANT		19954 SW 133 CT	Miami, FL	33177-4268
3069020290200	YANEISY MENDEZ	OR CURRENT OCCUPANT	19955 SW 132 CT	MIAMI, FL	33177
3069020251390	LAZARO IGLESIAS	OR CURRENT OCCUPANT	19961 SW 129 AVE	MIAMI, FL	33177-4013
3069020251260	EDUARDO FUENTES BLANCO	OR CURRENT OCCUPANT	19963 SW 129 CT	MIAMI, FL	33177
3069020250990	YOEL RODRIGUEZ	OR CURRENT OCCUPANT	19964 SW 129 CT	MIAMI, FL	33177
3069020250860	CHRISTIAN SILVA	OR CURRENT OCCUPANT	19965 SW 130 AVE	MIAMI, FL	33177
3069020250690	FILIBERTO J HERDOCIA	OR CURRENT OCCUPANT	19966 SW 130 AVE	MIAMI, FL	33177-4008
3069020010580	ANTONIO M PEREZ	OR CURRENT OCCUPANT	19970 SW 129 AVE	MIAMI, FL	33177
3069020290180	ISMAEL DIAZ RODRIGUEZ	OR CURRENT OCCUPANT	19970 SW 131 CT	MIAMI, FL	33177
3069020220310	CARLOS M SAN PEDRO	OR CURRENT OCCUPANT	19971 SW 132 PL	MIAMI, FL	33177

3069020290170	CURRENT OCCUPANT		19975 SW 131 CT	Miami, FL	33177
3069020290170	A&A BUSINESS CONNEXION	OR CURRENT OCCUPANT	19975 SW 131ST CT	MIAMI, FL	33177-6253
3069020160010	MANUEL CAGIGAS	OR CURRENT OCCUPANT	19980 SW 134 AVE	MIAMI, FL	33177
3069020010630	CURRENT OCCUPANT		19990 SW 127 AVE	Miami, FL	33177-4808
3069020290010	OIREMIS A ARGOTE	OR CURRENT OCCUPANT	19990 SW 132 CT	MIAMI, FL	33177
3069020160360	LILIA D JOSLYN	OR CURRENT OCCUPANT	19990 SW 134 CT	MIAMI, FL	33177
3069020220300	CURRENT OCCUPANT		19991 SW 132 PL	Miami, FL	33177-2930
3069020220300	NESTOR J MELIAN	OR CURRENT OCCUPANT	19991 SW 132ND PL	Miami, FL	33177
3069020251250	RENE VALDES	OR CURRENT OCCUPANT	19993 SW 129 CT	MIAMI, FL	33177
3069020251000	JUAN U ARIAS	OR CURRENT OCCUPANT	19994 SW 129 CT	MIAMI, FL	33177
3069020250850	ROSILENE FIGUEROA	OR CURRENT OCCUPANT	19995 SW 130 AVE	MIAMI, FL	33177
3069020290190	RAFAEL SANTANA VALLES	OR CURRENT OCCUPANT	19995 SW 132 CT	MIAMI, FL	33177
3069020160300	YAKO HEREDIA	OR CURRENT OCCUPANT	19995 SW 134 CT	MIAMI, FL	33177
3069020160350	LARRY JAMES CARTER	OR CURRENT OCCUPANT	19995 SW 135 AVE	MIAMI, FL	33177
3069020250680	CURRENT OCCUPANT		19996 SW 130 AVE	Miami, FL	33177-4008
3069110040030	CURRENT OCCUPANT		20000 SW 130 AVE	Miami, FL	33177-6127
3069110090010	MARJORIE LEON	OR CURRENT OCCUPANT	20000 SW 133 AVE	MIAMI, FL	33177
3069100000020	CRAIG KONING & YVENIA BERRIOS	OR CURRENT OCCUPANT	20000 SW 137 AVE	MIAMI, FL	33177-5002
3069110040020	JORGE LUIS PARRA	OR CURRENT OCCUPANT	20010 SW 130 AVE	MIAMI, FL	33177
3069110040010	NIURKA M BENITEZ	OR CURRENT OCCUPANT	20020 SW 130 AVE	MIAMI, FL	33177-6127
3069110090180	NOEL RUIZ NURSERY	OR CURRENT OCCUPANT	20020 SW 132 AVE	Miami, FL	33177-6145
3069110090020	CURRENT OCCUPANT		20020 SW 133 AVE	Miami, FL	33177-6154
3069110130860	BRINDISI MOLINA	OR CURRENT OCCUPANT	20031 SW 128 CT	MIAMI, FL	33177-5536
3069110130590	CURRENT OCCUPANT		20032 SW 128 CT	Miami, FL	33177-5534
3069110130780	RODRIGO ENCALADA	OR CURRENT OCCUPANT	20033 SW 128 PL	Miami, FL	33177
3069110130390	ARIEL ARZOLA	OR CURRENT OCCUPANT	20034 SW 128 PL	MIAMI, FL	33177
3069110130260	OSCAR D ROMO	OR CURRENT OCCUPANT	20034 SW 129 PL	MIAMI, FL	33177-6197
3069110130580	ALEXANDER JORVA	OR CURRENT OCCUPANT	20035 SW 129 AVE	MIAMI, FL	33177
3069110040180	YUNIESKY LOPEZ ALOMA	OR CURRENT OCCUPANT	20035 SW 132 AVE	MIAMI, FL	33177
3069110130140	RICARDO FERNANDEZ	OR CURRENT OCCUPANT	20036 SW 129 AVE	MIAMI, FL	33177
3069110090190	JORGE G RAMOS	OR CURRENT OCCUPANT	20040 SW 132 AVE	MIAMI, FL	33177-6145
3069110090030	MIRNA CESTI	OR CURRENT OCCUPANT	20040 SW 133 AVE	MIAMI, FL	33177
3069110130270	FEDE PRUDHOMME	OR CURRENT OCCUPANT	20044 SW 129 PL	MIAMI, FL	33177-6197
3069110130870	LIBRADA CABRERA	OR CURRENT OCCUPANT	20051 SW 128 CT	MIAMI, FL	33177-5536
3069110130600	ANA C MARTINEZ	OR CURRENT OCCUPANT	20052 SW 128 CT	MIAMI, FL	33177-5534
3069110130770	HUGO PADRON JR	OR CURRENT OCCUPANT	20053 SW 128 PL	MIAMI, FL	33177
3069110130400	ARIEL HERNANDEZ DE LA CRUZ	OR CURRENT OCCUPANT	20054 SW 128 PL	MIAMI, FL	33177
3069110130280	ALEXANDER N DEL VAL	OR CURRENT OCCUPANT	20054 SW 129 PL	MIAMI, FL	33177
3069110130570	YUSIMIT SOCA MADRUGA	OR CURRENT OCCUPANT	20055 SW 129 AVE	Miami, FL	33177
3069110040170	ANTONIO RODRIGUEZ	OR CURRENT OCCUPANT	20055 SW 132 AVE	MIAMI, FL	33177-6111
3069110130150	MIRLA MARTINEZ	OR CURRENT OCCUPANT	20056 SW 129 AVE	MIAMI, FL	33177-6182
3069110130880	JESUS M ESPINOSA	OR CURRENT OCCUPANT	20071 SW 128 CT	MIAMI, FL	33177
3069110130610	EDILIA MILIAN	OR CURRENT OCCUPANT	20072 SW 128 CT	MIAMI, FL	33177
3069110130760	CURRENT OCCUPANT		20073 SW 128 PL	Miami, FL	33177-6196
3069110130410	CARLTON B BECKFORD	OR CURRENT OCCUPANT	20074 SW 128 PL	MIAMI, FL	33177-6195
3069110130560	MARIE HITCHMAN	OR CURRENT OCCUPANT	20075 SW 129 AVE	MIAMI, FL	33177-6183
3069110040160	LIURERS GUZMAN	OR CURRENT OCCUPANT	20075 SW 132 AVE	MIAMI, FL	33177-6111
3069110130160	LOIRA SIFONTES	OR CURRENT OCCUPANT	20076 SW 129 AVE	MIAMI, FL	33177-6182
3069110200010	CURRENT OCCUPANT		20090 SW 127 AVE	Miami, FL	33177-0000
3069120480010	CURRENT OCCUPANT		20099 SW 127 AVE	Miami, FL	33177-5118
3069110130290	HERMAN RODRIGUEZ	OR CURRENT OCCUPANT	20104 SW 129 PL	MIAMI, FL	33177-6190
3069110040200	YNGRID FREDRICK	OR CURRENT OCCUPANT	20104 SW 131 CT	MIAMI, FL	33177-6113
3069110040150	IVAN SOLANO	OR CURRENT OCCUPANT	20105 SW 132 AVE	MIAMI, FL	33177-6110
3069110130990	CURRENT OCCUPANT		20107 SW 129 PL	Miami, FL	33177-0000
3069110130890	YULIESKY RODRIGUEZ JAUREGUI	OR CURRENT OCCUPANT	20111 SW 128 CT	MIAMI, FL	33177
3069110130620	YAMEL JESUS MARQUEZ PEREZ	OR CURRENT OCCUPANT	20112 SW 128 CT	MIAMI, FL	33177
3069110130750	ENRIQUE TRUJILLO	OR CURRENT OCCUPANT	20113 SW 128 PL	MIAMI, FL	33177-6194
3069110130550	MARIA A D BAZO	OR CURRENT OCCUPANT	20115 SW 129 AVE	MIAMI, FL	33177-6185
3069110130170	TENISHA TANEA DANIELS	OR CURRENT OCCUPANT	20116 SW 129 AVE	MIAMI, FL	33177
3069110130220	WINSTON MCLEOD	OR CURRENT OCCUPANT	20117 SW 129 CT	MIAMI, FL	33177
3069110130310	MARTIN ATKINSON	OR CURRENT OCCUPANT	20118 SW 129 CT	MIAMI, FL	33177
3069110090200	ADOLFO SANCHEZ	OR CURRENT OCCUPANT	20120 SW 132 AVE	MIAMI, FL	33177-6147
3069110090040	DAVID ROBERT ROLLAND	OR CURRENT OCCUPANT	20120 SW 133 AVE	MIAMI, FL	33177
3069110130300	NICHOLAS A CHIN	OR CURRENT OCCUPANT	20124 SW 129 PL	Miami, FL	33177
3069110130900	FRANCISCO RAMIREZ	OR CURRENT OCCUPANT	20131 SW 128 CT	MIAMI, FL	33177
3069110130630	ANDREAS MIKOLEICZIK	OR CURRENT OCCUPANT	20132 SW 128 CT	MIAMI, FL	33177
3069110130740	OSTERMAN MATOS	OR CURRENT OCCUPANT	20133 SW 128 PL	MIAMI, FL	33177-6194
3069110040210	CARLOS RAMON	OR CURRENT OCCUPANT	20134 SW 131 CT	Miami, FL	33177
3069110130540	SUYIN ALLEN	OR CURRENT OCCUPANT	20135 SW 129 AVE	MIAMI, FL	33177
3069110040140	YUSIMARI FERRER	OR CURRENT OCCUPANT	20135 SW 132 AVE	MIAMI, FL	33177
3069110130430	RUN QUN KWOCK ZHENG	OR CURRENT OCCUPANT	20136 SW 128 PL	MIAMI, FL	33177-6193
3069110130180	YAMILSIS RIVAS	OR CURRENT OCCUPANT	20136 SW 129 AVE	MIAMI, FL	33177
3069110130210	ARABIA MALBOA SANTOS	OR CURRENT OCCUPANT	20137 SW 129 CT	MIAMI, FL	33177
3069110130320	CURRENT OCCUPANT		20138 SW 129 CT	Miami, FL	33177-6189

3069110090210	CURRENT OCCUPANT		20140 SW 132 AVE	Miami, FL	33177-6147
3069110090050	CURRENT OCCUPANT		20140 SW 133 AVE	Miami, FL	33177-6155
3069110090050	JAVIER FOLGUEIRA	OR CURRENT OCCUPANT	20140 SW 133RD AVE	Miami, FL	33177
3069110010020	CURRENT OCCUPANT		20150 SW 127 AVE	Miami, FL	33177-0000
3069110130910	FREDORA E WALKER	OR CURRENT OCCUPANT	20151 SW 128 CT	MIAMI, FL	33177-5541
3069110130640	BEENA VINOD	OR CURRENT OCCUPANT	20152 SW 128 CT	MIAMI, FL	33177-5540
3069110130730	JONATHAN GONZALEZ	OR CURRENT OCCUPANT	20153 SW 128 PL	MIAMI, FL	33177
3069110130440	CHRISTIAN RIVAS	OR CURRENT OCCUPANT	20154 SW 128 PL	MIAMI, FL	33177
3069110040220	CURRENT OCCUPANT		20154 SW 131 CT	Miami, FL	33177-6113
3069110130530	CURRENT OCCUPANT		20155 SW 129 AVE	Miami, FL	33177-6185
3069110130530	CLAUDIA TERESA CAMARENO	OR CURRENT OCCUPANT	20155 SW 129TH AVE	Miami, FL	33177
3069110040130	MARILYN TOIRAN	OR CURRENT OCCUPANT	20155 SW 132 AVE	MIAMI, FL	33177
3069110130190	CURRENT OCCUPANT		20156 SW 129 AVE	Miami, FL	33177-6184
3069110130200	VICTORIA BRUZON	OR CURRENT OCCUPANT	20157 SW 129 CT	MIAMI, FL	33177-6188
3069110130330	MOHAMED OMAR ALI	OR CURRENT OCCUPANT	20158 SW 129 CT	Miami, FL	33177
3069110090220	BETTINA LAIER	OR CURRENT OCCUPANT	20160 SW 132 AVE	MIAMI, FL	33177
3069110090060	FRANCISCO J BATRES	OR CURRENT OCCUPANT	20160 SW 133 AVE	MIAMI, FL	33177
3069110130920	JANET GULAR	OR CURRENT OCCUPANT	20171 SW 128 CT	MIAMI, FL	33177-5541
3069110130650	ALBA JEANNETTE MONTOYA	OR CURRENT OCCUPANT	20172 SW 128 CT	MIAMI, FL	33177
3069110130720	MANUEL LEON	OR CURRENT OCCUPANT	20173 SW 128 PL	MIAMI, FL	33177-6194
3069110040400	JORGE GARCIA	OR CURRENT OCCUPANT	20173 SW 131 CT	MIAMI, FL	33177-6118
3069110130450	LISA F WOODSON	OR CURRENT OCCUPANT	20174 SW 128 PL	MIAMI, FL	33177-6193
3069110040230	ANGEL SILVEIRA	OR CURRENT OCCUPANT	20174 SW 131 CT	MIAMI, FL	33177
3069110040120	MARIA C GONZALEZ	OR CURRENT OCCUPANT	20175 SW 132 AVE	MIAMI, FL	33177-6110
3069110130340	JOSE GONZALEZ	OR CURRENT OCCUPANT	20178 SW 129 CT	MIAMI, FL	33177
3069110010030	CARLOS ALBERTO GARCIA	OR CURRENT OCCUPANT	20200 SW 127 AVE	MIAMI, FL	33177
3069110000070	CURRENT OCCUPANT		20200 SW 134 AVE	Miami, FL	33177-6012
3069120480020	CURRENT OCCUPANT		20201 SW 127 AVE	Miami, FL	33177-5103
3069110010031	CARLOS RAFAEL DE NAVEA	OR CURRENT OCCUPANT	20201 SW 128 AVE	MIAMI, FL	33177
3069110040590	JAIRO RODRIGUEZ	OR CURRENT OCCUPANT	20201 SW 130 CT	MIAMI, FL	33177
3069110040440	DANIEL I MARTINEZ	OR CURRENT OCCUPANT	20202 SW 130 CT	MIAMI, FL	33177
3069110040390	JOSE ALBERTO DIEGUEZ	OR CURRENT OCCUPANT	20203 SW 131 CT	MIAMI, FL	33177
3069110040240	ROBERTO MORALES PEREZ	OR CURRENT OCCUPANT	20204 SW 131 CT	MIAMI, FL	33177
3069110040110	HERAIT REBOSO	OR CURRENT OCCUPANT	20205 SW 132 AVE	MIAMI, FL	33177
3069110130930	MARIA S HOLLIS	OR CURRENT OCCUPANT	20211 SW 128 CT	MIAMI, FL	33177-5543
3069110130660	CURRENT OCCUPANT		20212 SW 128 CT	Miami, FL	33177-5542
3069110130710	HECTOR GARCIA	OR CURRENT OCCUPANT	20213 SW 128 PL	MIAMI, FL	33177-6192
3069110130460	TERESA D BLANCO	OR CURRENT OCCUPANT	20214 SW 128 PL	MIAMI, FL	33177-6191
3069110130520	CURRENT OCCUPANT		20215 SW 129 AVE	Miami, FL	33177-6187
3069110130360	PAUL A BURGER	OR CURRENT OCCUPANT	20216 SW 129 AVE	MIAMI, FL	33177-6186
3069110090230	CURRENT OCCUPANT		20220 SW 132 AVE	Miami, FL	33177-6152
3069110090070	CURRENT OCCUPANT		20220 SW 133 AVE	Miami, FL	33177-0000
3069110130940	JULIET S SICSCI	OR CURRENT OCCUPANT	20231 SW 128 CT	MIAMI, FL	33177-5543
3069110040580	KASSANDRA ANA RAMIREZ	OR CURRENT OCCUPANT	20231 SW 130 CT	MIAMI, FL	33177
3069110130670	JANELLE ANISSA SCANTLEBURY	OR CURRENT OCCUPANT	20232 SW 128 CT	MIAMI, FL	33177
3069110040450	RAFAEL CACERES	OR CURRENT OCCUPANT	20232 SW 130 CT	MIAMI, FL	33177-6121
3069110130700	CARLOS ARMENTEROS	OR CURRENT OCCUPANT	20233 SW 128 PL	MIAMI, FL	33177-6192
3069110040380	OSVANY L CAMINAS	OR CURRENT OCCUPANT	20233 SW 131 CT	MIAMI, FL	33177-6117
3069110130470	JOSUE PEREZ	OR CURRENT OCCUPANT	20234 SW 128 PL	MIAMI, FL	33177-6191
3069110040250	PILAR ESTEVEZ	OR CURRENT OCCUPANT	20234 SW 131 CT	MIAMI, FL	33177
3069110130510	MULCHAN KELLAWAN	OR CURRENT OCCUPANT	20235 SW 129 AVE	MIAMI, FL	33177
3069110040100	MICHELLE YAQUES	OR CURRENT OCCUPANT	20235 SW 132 AVE	MIAMI, FL	33177-6109
3069110130370	EMMANUEL LACISMA	OR CURRENT OCCUPANT	20236 SW 129 AVE	MIAMI, FL	33177-6186
3069120340450	JENNIFER R BROWN	OR CURRENT OCCUPANT	20240 SW 124 PL	Miami, FL	33177
3069110010040	REBECCA HUNTER	OR CURRENT OCCUPANT	20240 SW 127 AVE	MIAMI, FL	33177-5106
3069110090240	LUIS M YAMBO	OR CURRENT OCCUPANT	20240 SW 132 AVE	MIAMI, FL	33177-6152
3069120340460	NASEEM DOUCHAND LE	OR CURRENT OCCUPANT	20244 SW 124 PL	MIAMI, FL	33177
3069110000060	CRAIG BRODKA	OR CURRENT OCCUPANT	20245 SW 134 AVE	MIAMI, FL	33177-6011
3069110130950	MARISOL MONTALVO	OR CURRENT OCCUPANT	20251 SW 128 CT	MIAMI, FL	33177
3069110040570	CURRENT OCCUPANT		20251 SW 130 CT	Miami, FL	33177-6124
3069110130680	MAYRA QUINTANA	OR CURRENT OCCUPANT	20252 SW 128 CT	MIAMI, FL	33177-5542
3069110040460	JOSE A HERNANDEZ	OR CURRENT OCCUPANT	20252 SW 130 CT	MIAMI, FL	33177-6121
3069110130690	HILTON AGUILAR JR	OR CURRENT OCCUPANT	20253 SW 128 PL	MIAMI, FL	33177-6192
3069110040370	JUAN CARLOS IRIAS MONCADA	OR CURRENT OCCUPANT	20253 SW 131 CT	MIAMI, FL	33177
3069110130480	MIGUEL A PADRON	OR CURRENT OCCUPANT	20254 SW 128 PL	MIAMI, FL	33177
3069110040260	FELIX MESA	OR CURRENT OCCUPANT	20254 SW 131 CT	Miami, FL	33177
3069110130500	GEORGE THORN	OR CURRENT OCCUPANT	20255 SW 129 AVE	MIAMI, FL	33177-6187
3069110040090	MICHAEL ESCOBAR	OR CURRENT OCCUPANT	20255 SW 132 AVE	MIAMI, FL	33177
3069110130380	MARTHA C ACERO	OR CURRENT OCCUPANT	20256 SW 129 AVE	MIAMI, FL	33177
3069110090250	MIGUEL BRITO MENDOZA	OR CURRENT OCCUPANT	20260 SW 132 AVE	MIAMI, FL	33177
3069110040560	MARTIN MORALES	OR CURRENT OCCUPANT	20271 SW 130 CT	MIAMI, FL	33177-6124
3069110040470	RICHARD VALDES	OR CURRENT OCCUPANT	20272 SW 130 CT	MIAMI, FL	33177-6121
3069110040360	GREYDER FERRO	OR CURRENT OCCUPANT	20273 SW 131 CT	MIAMI, FL	33177-6117
3069110130490	EDY E MIRANDA	OR CURRENT OCCUPANT	20275 SW 129 AVE	MIAMI, FL	33177-6187

3069110040080	ANDREW G PEART	OR CURRENT OCCUPANT	20275 SW 132 AVE	MIAMI, FL	33177-6109
3069110150080	WAYNE O JONES	OR CURRENT OCCUPANT	20300 SW 129 PL	MIAMI, FL	33177-5506
3069110130960	ADRIAN PRADO SANCHEZ	OR CURRENT OCCUPANT	20311 SW 128 CT	MIAMI, FL	33177
3069110150090	DAMARYS SANTANA ALVAREZ	OR CURRENT OCCUPANT	20313 SW 129 PL	MIAMI, FL	33177
3069110150070	LESTER HERNANDEZ	OR CURRENT OCCUPANT	20314 SW 129 PL	MIAMI, FL	33177
3069110150100	CURRENT OCCUPANT		20327 SW 129 PL	Miami, FL	33177-5508
3069110150060	ALELUIA S GODFREY JENSEN	OR CURRENT OCCUPANT	20328 SW 129 PL	MIAMI, FL	33177
3069110150160	DANIEL MORIYON	OR CURRENT OCCUPANT	20340 SW 129 CT	MIAMI, FL	33177-5506
3069110150110	LORIDIANA LIZZUL	OR CURRENT OCCUPANT	20341 SW 129 PL	MIAMI, FL	33177
3069110150050	VILLA VALER SERVICES	OR CURRENT OCCUPANT	20342 SW 129 PL	MIAMI, FL	33177
3069110040220	MILDRED CECILIA PEDRAZA	OR CURRENT OCCUPANT	20825 SW 242ND ST	HOMESTEAD, FL	33031-3634
3069020220160	BIBIANA LADINO	OR CURRENT OCCUPANT	24200 SW 142 AVE	HOMESTEAD, FL	33032
3069110040690	MIGUEL A VALLE	OR CURRENT OCCUPANT	245 NW 32 CT	MIAMI, FL	33125
3069110010020	MIAMI-DADE COUNTY	OR CURRENT OCCUPANT	275 NW 2 ST 4FL	MIAMI, FL	33128-1794
3069020220380	VICTOR E SOMNUK	OR CURRENT OCCUPANT	310 KIPUKAI PL	HONOLULU, HI	96825-2890
3069020220290	GALICIA COMMERCIAL INVEST	OR CURRENT OCCUPANT	3158 SW 23 ST	MIAMI, FL	33145
3069110130320	MELANIE RINALDI	OR CURRENT OCCUPANT	3160 MATILDA ST	COCONUT GROVE, FL	33133
3069020010424	BVK	OR CURRENT OCCUPANT	318 ALHAMBRA CIRCLE	CORAL GABLES, FL	33134
3069010040200	RICADRI GROUP	OR CURRENT OCCUPANT	3241 SW 142 CT	MIAMI, FL	33175
3069110090230	CESAR A CAMPOS	OR CURRENT OCCUPANT	3894 NW 2 TER	MIAMI, FL	33126
3069020251430	BRITNEY HOMES	OR CURRENT OCCUPANT	4166 NW 132 ST	OPA LOCKA, FL	33054
3069110200010	C HENRY AND NESTA KLAR FAMILY	OR CURRENT OCCUPANT	500 VOLVO PARKWAY	CHESAPEAKE, VA	23320
3069020010630	19990	OR CURRENT OCCUPANT	5225 COLLINS AVE	MIAMI BEACH, FL	33140
3069110000050	DAVID JOEL LEWIS	OR CURRENT OCCUPANT	5766 GOOD NEWS LANE	FERNDALE, WA	98248
3069110000030	LUIS E HERRERA	OR CURRENT OCCUPANT	6060 PINE TREE DR	MIAMI, FL	33140
3069030000250	ROBERT C MACDONELL JR	OR CURRENT OCCUPANT	6313 PERCY DR	NASHVILLE, TN	37205
3069010040130	QUAIL ROOST SCHOOL	OR CURRENT OCCUPANT	6457 SUNSET DR	MIAMI, FL	33143
3069020270010	JAREM INVESTMENTS	OR CURRENT OCCUPANT	6801 NW 111 AVE	DORAL, FL	33178
3069120480020	GRI EQY(QUAIL ROOST)	OR CURRENT OCCUPANT	7200 WISCONSIN AVE STE 600	BETHESDA, MD	20814-4830
3069020270022	VERTICAL BRIDGE SC ASSETS	OR CURRENT OCCUPANT	750 PARK OF COMMERCE DR STE 200	BOCA RATON, FL	33487
3069010040230	RICADRI GROUP	OR CURRENT OCCUPANT	7920 SW 58 ST	CORAL GABLES, FL	33143
3069020251450	GREC HOMES II	OR CURRENT OCCUPANT	8500 SW 8 ST 228	MIAMI, FL	33144-4002
3069020250680	SRP SUB	OR CURRENT OCCUPANT	8665 EAST HARTFORD DR STE 200	SCOTTSDALE, AZ	85255
3069020160030	CARMEN VASQUEZ	OR CURRENT OCCUPANT	9650 EDEN MNR	PARKLAND, FL	33076
3069110130990	MIAMI DADE COUNTY	OR CURRENT OCCUPANT	PO BOX 330316	MIAMI, FL	33233
3069030000255	POPLAND	OR CURRENT OCCUPANT	PO BOX 565483	MIAMI, FL	33256
3069110130080	MAGALY A RODRIGUEZ PADRON	OR CURRENT OCCUPANT	PO BOX 650126	MIAMI, FL	33265
3069110090070	EDUARDO C NAVARRO	OR CURRENT OCCUPANT	PO BOX 772524	MIAMI, FL	33177
3069020010601	APOSTOLIC ALLIANCE CHURCH OF	OR CURRENT OCCUPANT	PO BOX 971114	MIAMI, FL	33197
	JACKSON HURST	OR CURRENT OCCUPANT	4216 CORNELL CROSSING	KENNESAW, GA	30144

Slido Polling

Quail Roost PD&E Workshop 10.18.22

12 - 18 Oct 2022

Poll results

slido

Table of contents

- Who do you represent?
- What are your primary modes of transportation? Select all that apply
- Select your top priority for this project.
- Which alternative do you prefer for the canal trail crossing:
- Select your Preferred Alternative.
- In a few words, do you have any additional thoughts about this project?

slido

Multiple-choice poll

Who do you represent?
(1/2)

0 2 0

Transportation Agency

40 %

Elected Official

0 %

Municipality

0 %

Permitting Agency

0 %

Resident

35 %

Business

5 %

slido

Who do you represent?
(2/2)

0 2 0

Community Association

0 %

Other

20 %

slido

What are your primary modes of transportation? Select all that apply
(1/2)

0 1 5

Car

100 %

Walk

0 %

Bike

0 %

Bus

0 %

Rail

0 %

slido

What are your primary modes of transportation? Select all that apply
(2/2)

0 1 5

On Demand/Ride Share

0 %

slido

Multiple-choice poll

Select your top priority for this project.

0 1 6

Safety

Congestion relief

Bicycle/Pedestrian facilities

Other

slido

Multiple-choice poll

Which alternative do you prefer for the canal trail crossing:

0 1 2

At grade

25 %

Underpass

75 %

slido

Multiple-choice poll

Select your Preferred Alternative.

0 1 1

No-Action Alternative

0 %

Alternative 1 (2 Lanes with 16.5-ft raised median, turn lanes and signal at SW 134 Ave)

36 %

Alternative 2 (4 Lanes with 16.5-ft raised median, turn lanes and signal at SW 134 Ave)

64 %

Alternative 3 (4 Lanes with 22-ft raised median, turn lanes and signal at SW 134 Ave)

0 %

slido

In a few words, do you have any additional thoughts about this project?

006

No underpass please

Trying to make turns with

We need faster relief.

No comments

You are creating a

Good job!

What a safety precaution

The 2nd & 3rd alternative

Options don't make

Presentation

SR 994/Quail Roost Drive PD&E Study

From West of SW 137th Ave to East of SW 127th Ave
FM 445804-1-22-01
ETDM No. 14429

Alternatives Public Workshop

October 18, 2022

Traducción

Si usted necesita traducción durante la reunión por favor comuníquese conmigo. Usted puede presionar el botón de mano levantada, o puede pedir ayuda de traducción a través del chat y un miembro de nuestro equipo lo asistirá.

Rules of Engagement

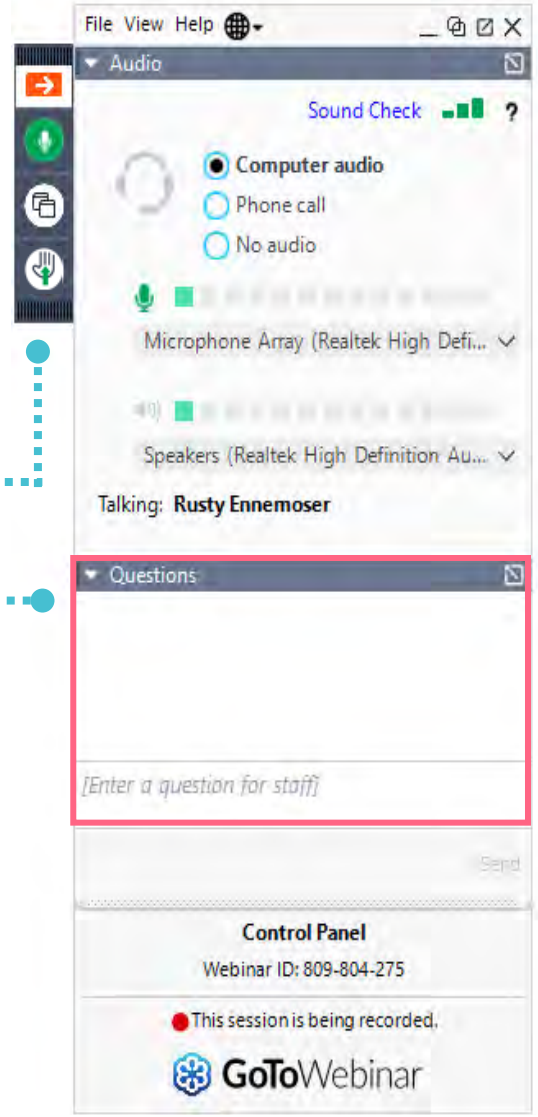
Virtual Attendees are **Automatically Muted** to Start the Meeting

Providing Comments During Open Discussion Period:

- In-person attendees form a line
- Call 1-800-418-0524
- **Raise hand during comment period, you will be unmuted in order of raising hands**
- Submit Comments via the "Questions" Box

Get Technical Assistance

- **Call 1-800-418-0524**



Title VI Non-Discrimination Compliance

Public participation at this meeting is solicited without regard to race, color, national origin, age, sex, religion, disability, or family status.

Persons wishing to express their concerns relative to FDOT compliance with Title VI may do so by contacting:

Florida Department of Transportation
District Six Office
District Six Title VI Coordinator
Nicholas Danu, P.E.
1000 NW 111th Avenue
Miami, Florida 33172
Nicholas.Danu@dot.state.fl.us
(305) 470-5219

Florida Department of Transportation
Central Office
State Title VI Coordinator
Aldrin T. Sanders
605 Suwannee Street
Tallahassee, Florida 32399
Aldrin.Sanders@dot.state.fl.us
(850) 414-4764

All inquiries or concerns will be handled according to FDOT procedure and in a prompt and courteous manner.

NEPA Assignment Statement

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

Elected Officials

We would like to recognize any federal, state, county, or city officials who may be present.

Please stand or select the raise hand feature on the control panel.

Agenda

1

Project Presentation

Interactive Polling Sessions

2

Group Q&A Session (with Panelists)

3

Optional: Individual Mapping

Presenters / Panelists

Project Manager

Elsa N. Riverol, P.E.

FDOT

Project Manager

Alina Fernandez, P.E.

GANNETT FLEMING

Engineering

Carlos Cejas, P.E.

GANNETT FLEMING

Environmental

Courtney Arena

GANNETT FLEMING

Purpose of Alternatives Workshop

01.

Share information about the proposed improvements

02.

Provide an opportunity for public input

03.

All public comments will become part of the project's public record

Polling – Slido Poll Participation Instructions

Smart Phone
Scan QR Code

Note: Today's polling results will help provide preliminary input to the team but are not the only factor used in developing potential alternatives. Engineering, environment, cost, and other factors will also help the study team develop potential alternatives that may or may not advance to the next phase of the project.

What is a PD&E Study?

Engineering Analysis

Safety

Traffic Operations

Access Management

Right-of-Way

Structures

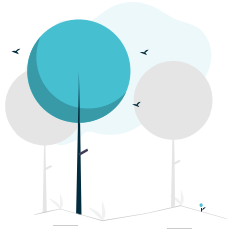
Drainage

Utilities

Lighting

Landscaping

Cost Estimates



Environmental Analysis

Sociocultural Effects

- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources

- Archaeological and Historic Resources
- Recreational

Natural Resources

- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects

- Noise
- Air Quality
- Contamination

Public Engagement Program

Public Involvement Plan

Kick-Off Meetings

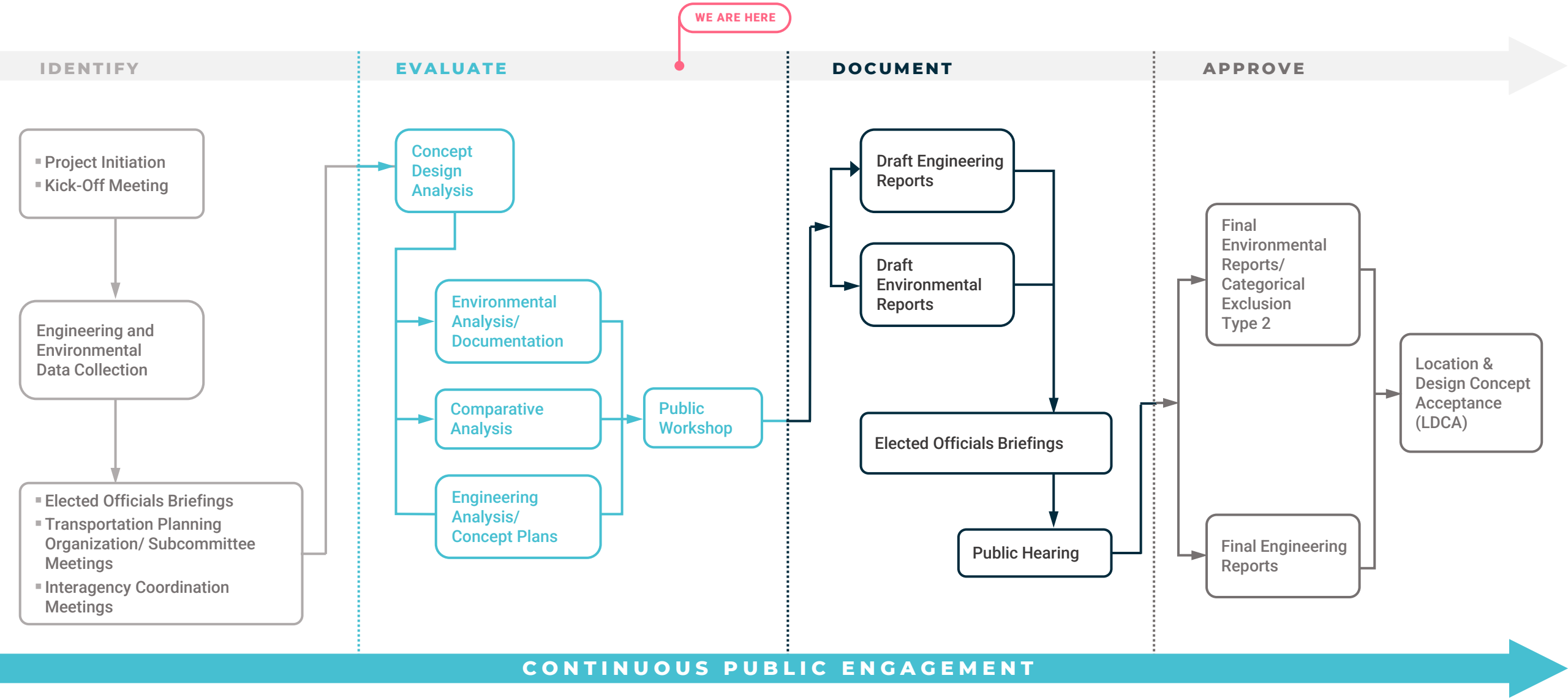
Elected Officials Briefings

Agency Meetings

Alternatives Workshop

Public Hearing

PD&E Study Process



Project Location

SR 994 • SW 200th St • Quail Roost Drive

from West of SW 137 Ave (MP 3.750) to East of SW 127 Ave (MP 5.430)

Adjacent Projects

1 FDOT Project FM 443907-1
SR 994/Quail Roost Dr from Krome Ave to SW 137th Ave
Resurfacing
Construction starts 06/2023
Completion by by 03/2024

2 MDC Project 20040343
SW 137th Ave from US-1 to Quail Roost Dr
Widening/new construction of 2 lane road
Completed in 2022

3 MDC Project LRTP PW168
SW 137th Ave from US-1 to SW 184th St
Widening to 4 lanes
Planning Phase

4 MDC Project 20180004
SW 127th Ave & SW 200th St
Intersection improvements to add NB right turn lane
Design completed 11/2020
Construction starts 07/2022

5 FDOT Project FM 429341-3
SR 994/Quail Roost Dr from SW 127th Ave to SW 113th Ave
Resurfacing
Completed in 2022

6 MDC Project 20200285
SW 200th Street from US-1 to Quail Roost Dr.
Widening to 4 lanes and New Shared Use Path
Construction starts 2026

Purpose and Need

Safety

Improve Safety Conditions and Emergency Evacuation and Response Times

84 crashes per year (2015-2019)

Three recent fatal crashes (2016, 2019, 2021)

Five locations in High Crash Spot List

One segment in High Crash Segment List (MP 4.075 to MP 4.961)

Capacity

(Transportation Demand)

Improve Operational Conditions and Accommodate Projected Travel Demand

Multiple segments operating at LOS F

Future conditions anticipated to worsen if no improvements implemented

Modal

Interrelationships

Enhance Mobility Options and Multi-Modal Access

No designated bicycle lanes

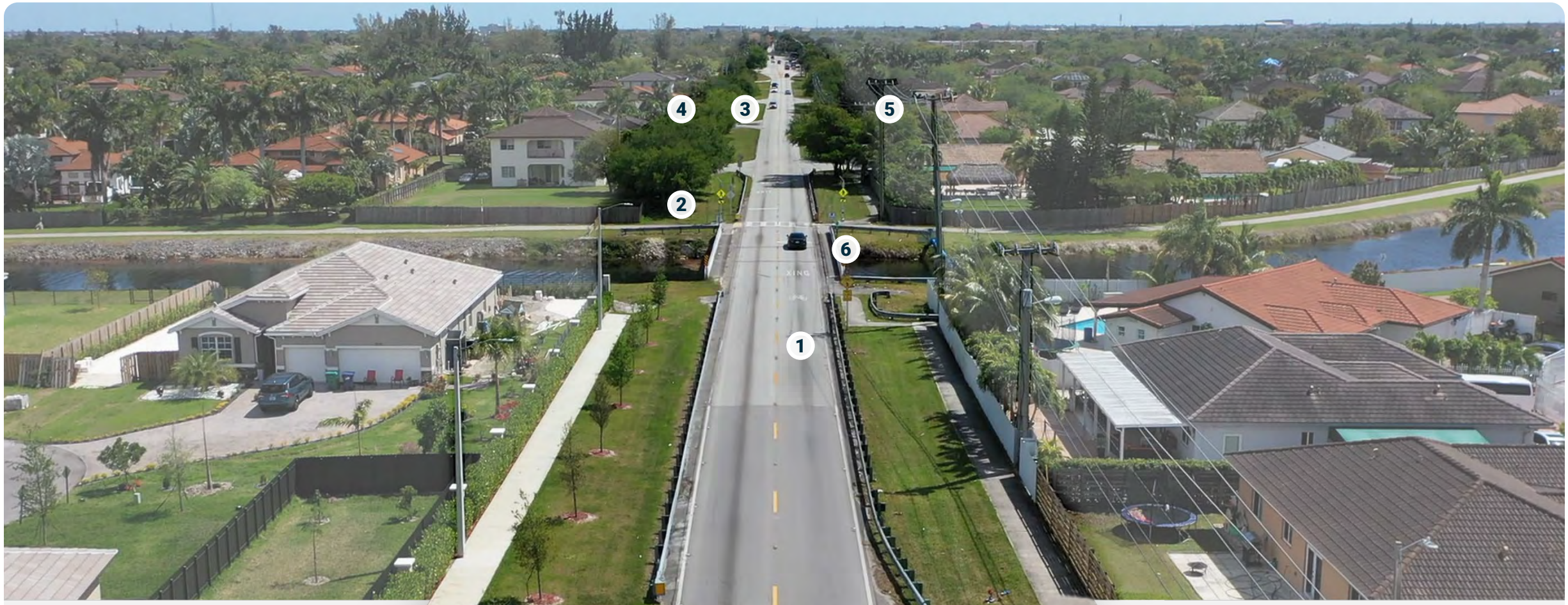
Non-continuous sidewalks

Polling – Slido Poll Participation Instructions

Smart Phone
Scan QR Code

Note: Today's polling results will help provide preliminary input to the team but are not the only factor used in developing potential alternatives. Engineering, environment, cost, and other factors will also help the study team develop potential alternatives that may or may not advance to the next phase of the project.

Existing Roadway/Typical Section



1. Two-lane undivided roadway
2. Black Creek Trail Crossing (at-grade mid-block crossing)
3. Missing Sidewalks
4. Mature Landscaping
5. Utilities (not always in back of SW)
6. Bridge over Black Creek Canal

6’	Varies	11.5’	11.5’	Varies	6’

ROW: 30’ - 100’

Posted Speed: 40MPH

Safety Analysis (Crash Data)

Corridor Wide Crash Summary (2015 – 2019)
422 Crashes
139 Injury Crashes (33%), 2 Pedestrian/Bicyclist Crashes (< 1%)
2 Fatal Crashes (< 1%)

Leading Crash Types	2015	2016	2017	2018	2019	5-Year Total	%
Rear End	33	37	47	42	42	201	48%
Angle	13	22	24	18	20	97	23%
Left Turn	6	10	5	9	10	40	10%
Sideswipe	5	3	4	11	9	32	8%

FDOT High Crash List
High Crash Segment (All five years)
5 High Crash Spots (SW 137 Ave, SW 134 Ave, SW 133 Ave, SW 132 Ave, SW 127 Ave)

Corridor Wide Crash Summary (2020 – 2021)
156 Crashes
39 Injury Crashes (25%), No Pedestrian/Bicyclist Crashes
1 Fatal Crash (< 1%)

Leading Crash Types	2020	2021	2-Year Total	%
Rear End	37	31	68	41%
Left Turn	22	14	36	22%
Sideswipe	9	6	15	9%
Angle	6	9	15	9%

Fatal Crashes (2015 – 2021)
2016 – 1 Left Turn crash at SW 132 Ave
2019 – 1 Angle crash at SW 134 Ave
2021 – 1 Left Turn crash at SW 134 Ave

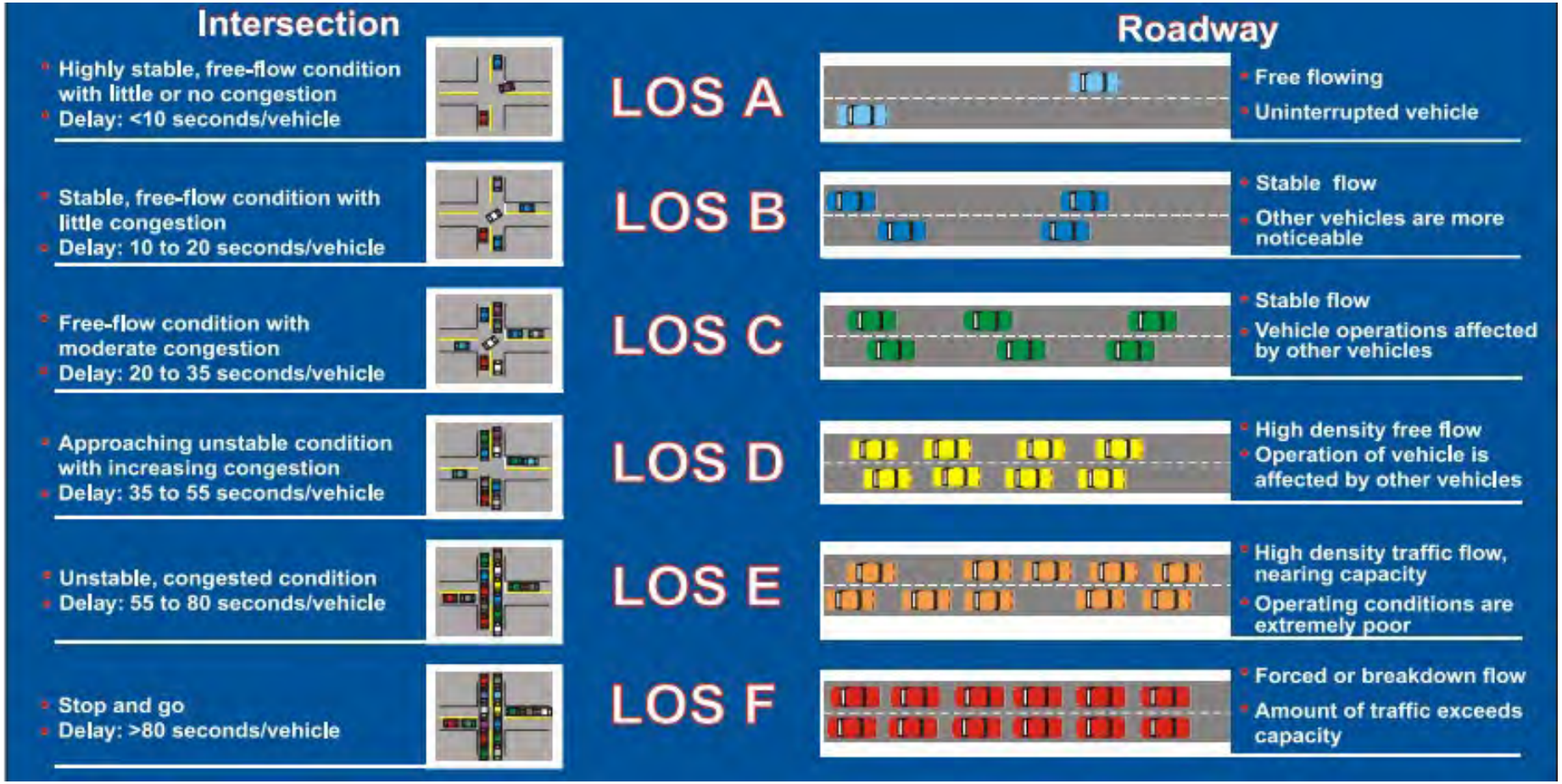
Crash Data per Intersection (High Crash Locations)

High Crash Intersection		2015 – 2019 Crash Data (FDOT CAR)		2020 – 2021 Crash Data (Signal 4)	
Intersection / Segment Location	**Mile Posts (MP)**	**Number of Crashes**	**Leading Crash Types**	**Number of Crashes**	**Leading Crash Types**
SW 137 Avenue	4.050 to 4.100	52	Rear End (65%) Angle (11%)	23	Rear End (57%) Angle (17%)
SW 134 Avenue	4.300 to 4.360	76	Angle (58%) Rear End (15%) Left Turn (12%)	38	Angle (61%) Rear End (16%) Other (11%) Left Turn (8%)
SW 133 Avenue	4.430 to 4.490	9	Rear End (67%) Angle (11%) Left Turn (11%)	6	Angle (50%) Rear End (33%) Other (17%)
SW 132 Avenue	4.560 to 4.610	36	Rear End (69%) Fixed Object (14%) Angle (6%)	18	Rear End (50%) Angle (17%) Sideswipe (11%)
SW 127 Avenue	5.070 to 5.120	130	Rear End (37%) Angle (25%) Left Turn (16%) Sideswipe (15%)	42	Rear End (41%) Angle (31%) Sideswipe (12%)

Level of Service (LOS)

Level of Service is a measure of traffic operational conditions. Six levels of service are defined for each type of roadway section and are given letter designations from A to F, with A representing the best operating conditions and F representing the worst operating conditions.

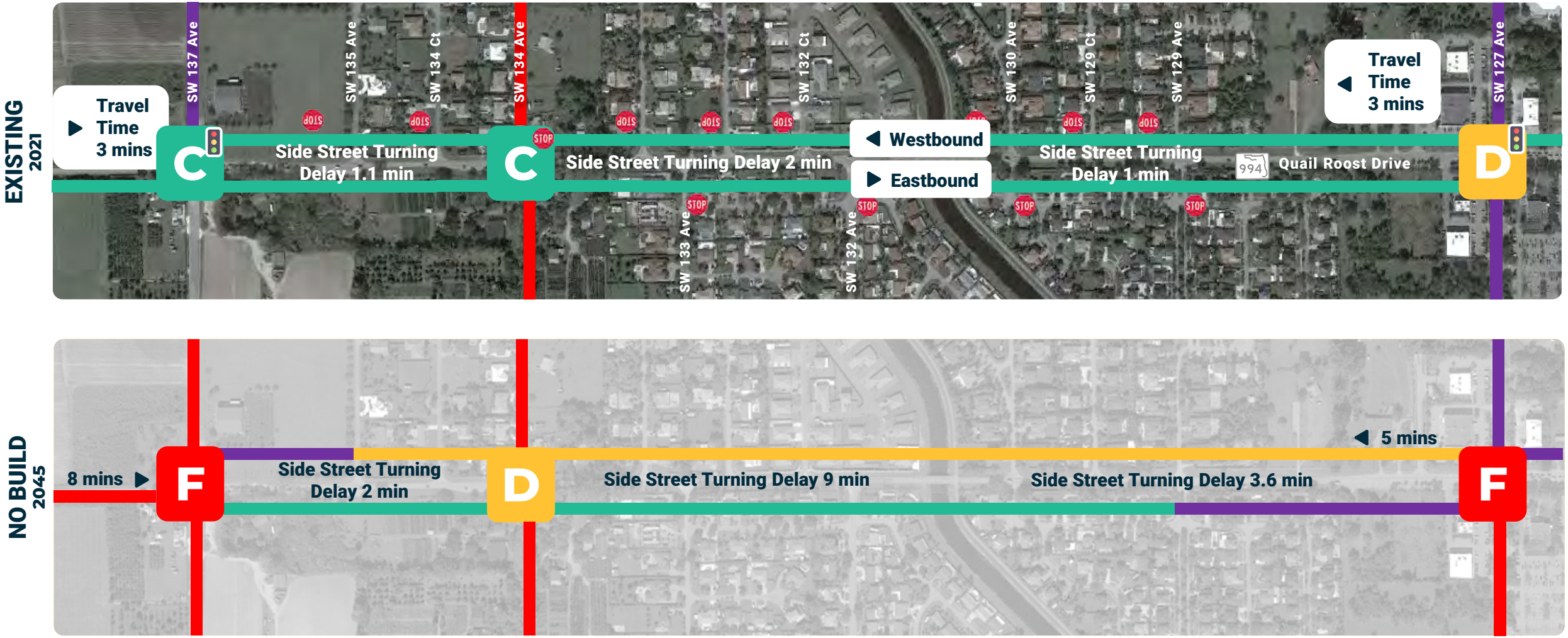
A Level of Service D or better is required for a new design



Level of Service / Travel Time / Delay – AM Peak Period

Legend: ≤ LOS C | LOS D | LOS E | LOS F

Level of Service / Travel Time / Delay – PM Peak Period



Legend: ≤ LOS C | LOS D | LOS E | LOS F

Existing Bridge (870633) Over Black Creek Canal

- 3-span structure built in 1962 - State Historic Preservation Office Coordination Required
- Functionally Obsolete
- Overhead electric and water line on south side
- Trail crossing on east end
- Substandard Vertical Clearance:
  - Existing VC = 4.2 ft < 4.5 ft Required

All alternatives (except for No-Build) propose bridge replacement.

Existing Deficiencies

Alternatives Considered

✓ **No-Action Alternative**

2-Lane Undivided

✗ **Transportation Systems Management and Operations (TSM&O) Alternative**

Turn lanes at intersections, signal at SW 134th Ave, signal optimization.

Not viable – transitioned to Build Alternative 1

✓ **Build Alternative 1**

2-Lane with 16.5-ft raised median/turn lanes and Signal at SW 134th Ave

✓ **Build Alternative 2**

4-Lane with 16.5-ft raised median/turn lanes and Signal at SW 134th Ave

✓ **Build Alternative 3**

4-Lane with 22-ft raised median/turn lanes and Signal at SW 134th Ave

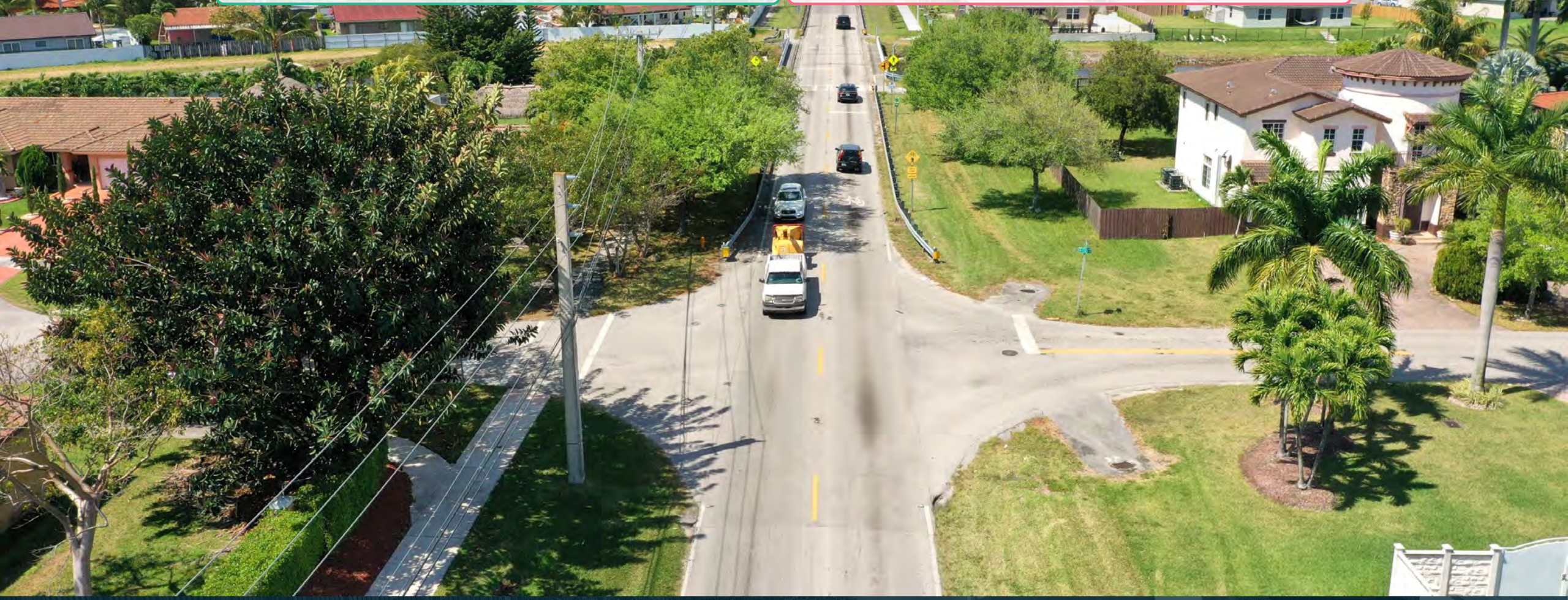
No-Action Alternative

Advantages

- No Construction Effects
- No Construction Costs
- No Disruption to Community or Travel Patterns

Disadvantages

- Does NOT Meet Project Purpose & Need
- Increased number of crashes
- Poor Traffic Operations
- Lack of bicycle facilities
- Non-continuous sidewalks



TSM&O Alternative

Project Goals	Location	Proposed Improvement	Impacts
Safety and Operations	SW 137th Avenue	Add EB Left Turn Lane Signal Optimization	Creates **RW impacts** on Quail Roost Drive, west of the intersection. Causes **environmental impacts** to historic resources on NW and SW corners
	SW 134th Avenue	New Signal. Add Left Turn Lane on 4 approaches	Creates **RW impacts** along SW 134th Avenue Causes **environmental impacts** to historic resource on SE corner
	SW 13 2nd Avenue	Add WB Left Turn Lane	Requires **bridge widening/replacement** over Black Creek Canal to add the turn lane
	SW 127th Avenue	Signal Optimization	None
Multimodal	Corridor-wide	Add missing sidewalk links Provide 5 ft outside paved shoulder	Requires **bridge widening/replacement** to allow for continuity Minor impacts to utilities and landscaping

*****NOT A LOW COST – LOW IMPACT ALTERNATIVE; DOES NOT SUFFICIENTLY ADDRESS PURPOSE AND NEED**

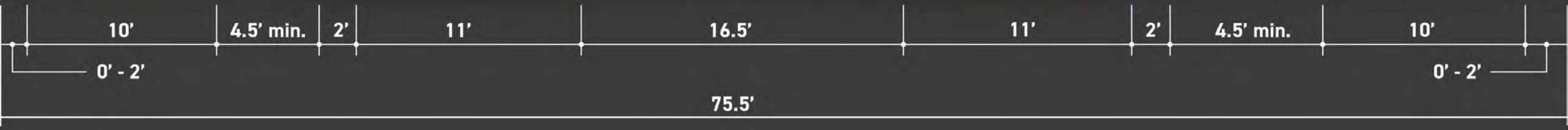
Build Alternative 1

Advantages

- Meets Project Purpose & Need
- Expected to reduce 18 crashes per year
- Improves Traffic Operations compared to No-Build Option
- Provides Continuous Shared-Use Path on both sides

Disadvantages

- Construction Effects (utility and drainage impacts)
- Temporary Disruption to Community or Travel Patterns
- Moderate Right of Way Impacts
- Construction Cost = $25.4M
- Impacts to three significant historic properties



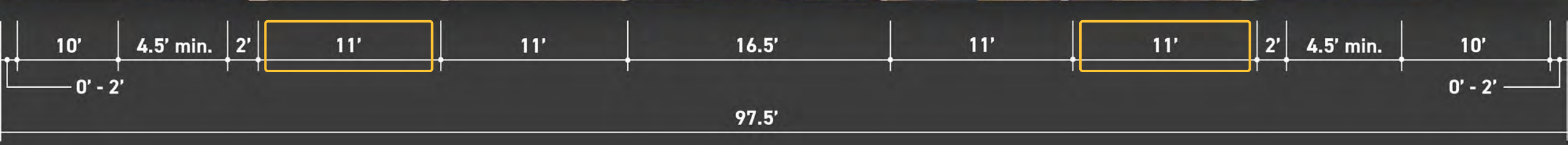
Build Alternative 2

Advantages

- Meets Project Purpose & Need
- Expected to reduce 21 crashes per year
- Improves Traffic Operations compared to Build Alternative 1
- Provides Continuous Shared-Use Path on both sides

Disadvantages

- Construction Effects (utility and drainage impacts)
- Temporary Disruption to Community or Travel Patterns
- Right of Way Impacts (higher than Build Alternative 1)
- Construction Costs = $27.8M
- Impacts to three significant historic properties



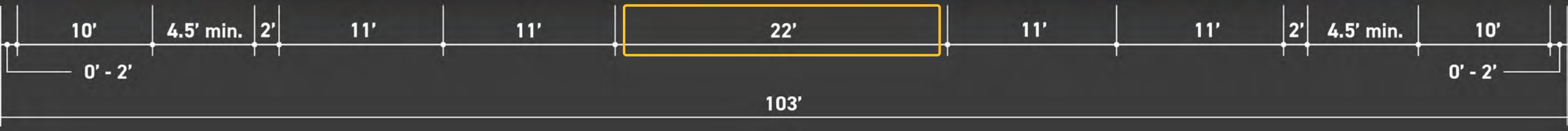
Build Alternative 3

Advantages

- Meets Project Purpose & Need
- Expected to reduce 23 crashes per year
- Improves Traffic Operations compared to Build Alternative 2
- Provides Continuous Shared-Use Path on both sides

Disadvantages

- Construction Effects (utility and drainage impacts)
- Temporary Disruption to Community or Travel Patterns
- Right of Way Impacts (higher than Alternative 2)
- Construction Costs = $29M
- Impacts to three significant historic properties



Safety Improvements

Corridor-Wide Improvements

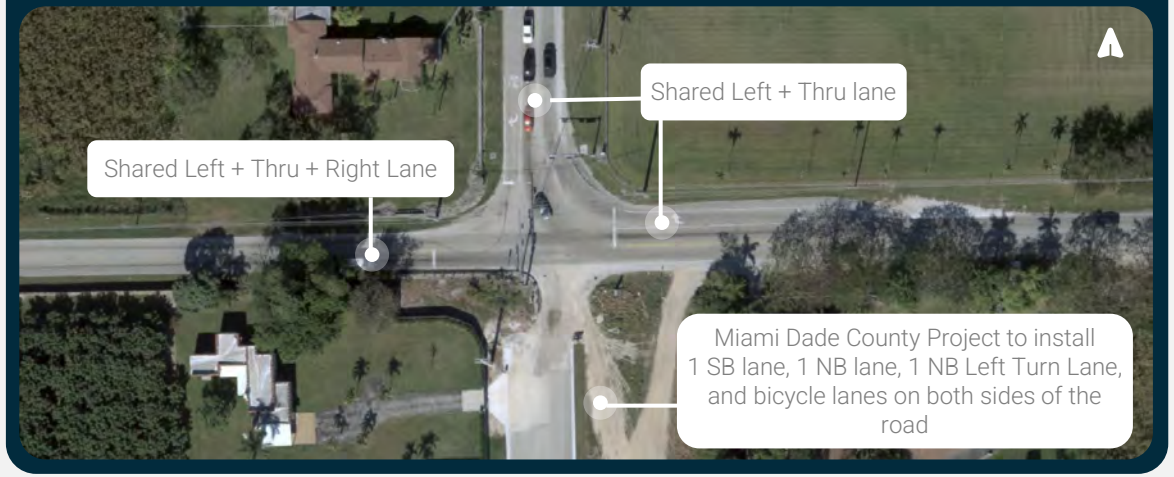
1. Addition of turn lanes (left and right)
2. New lighting
3. Shared-Use Path on both sides of the road
4. Raised median/islands
5. Emphasized pedestrian crossings

Other Improvements

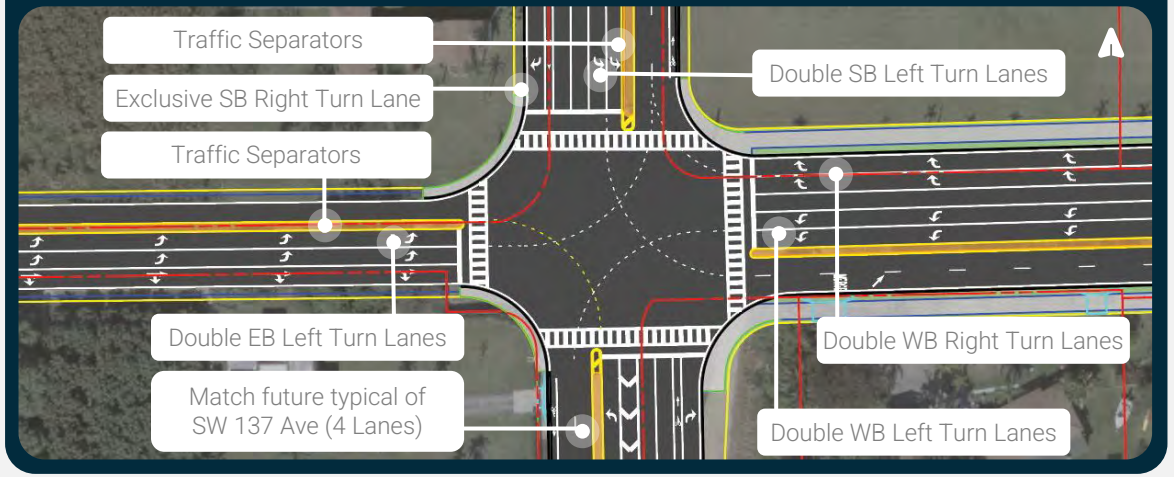
+ New signalized intersection at SW 134th Ave

Intersection Improvements – SW 137th Avenue

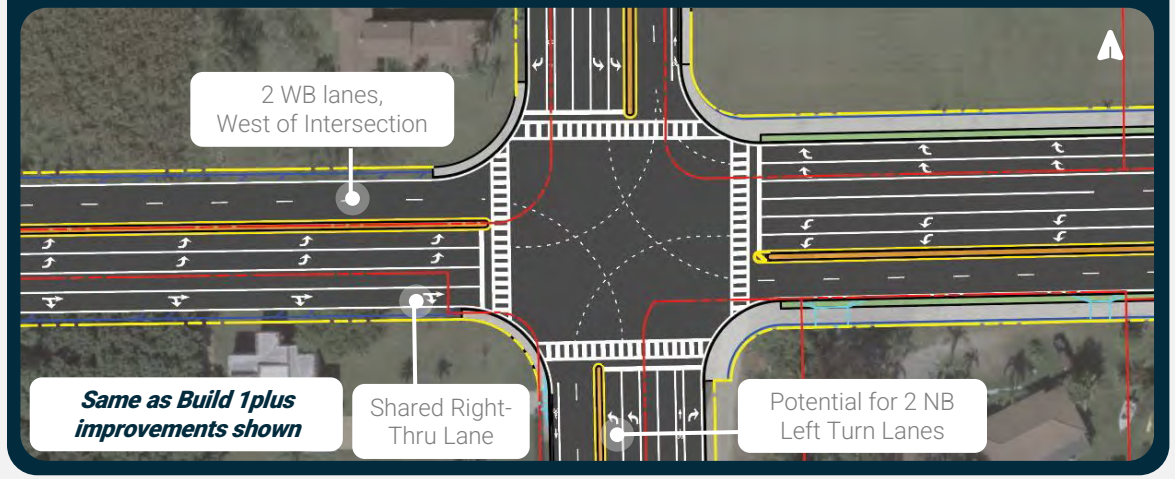
Existing Conditions



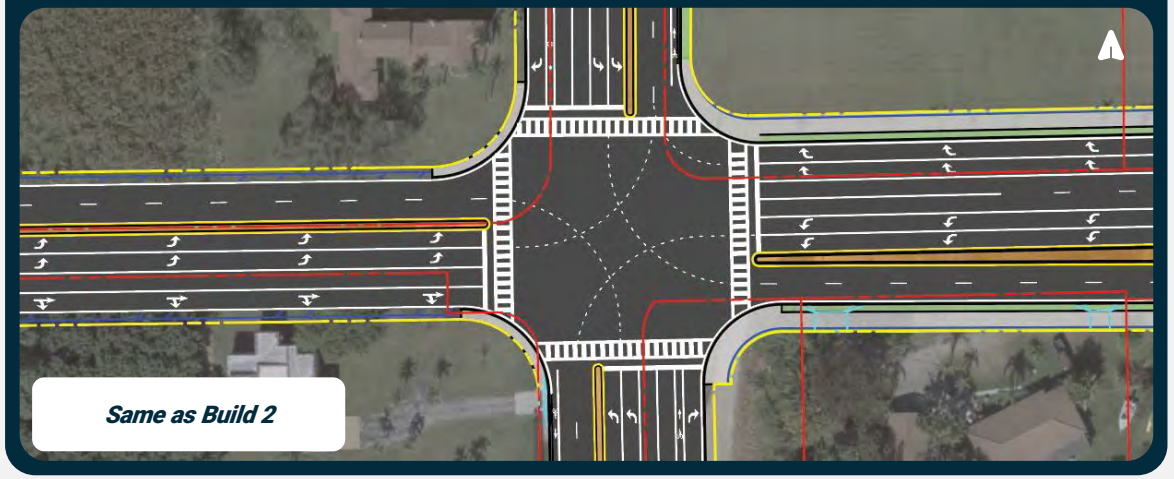
Build 1



Build 2

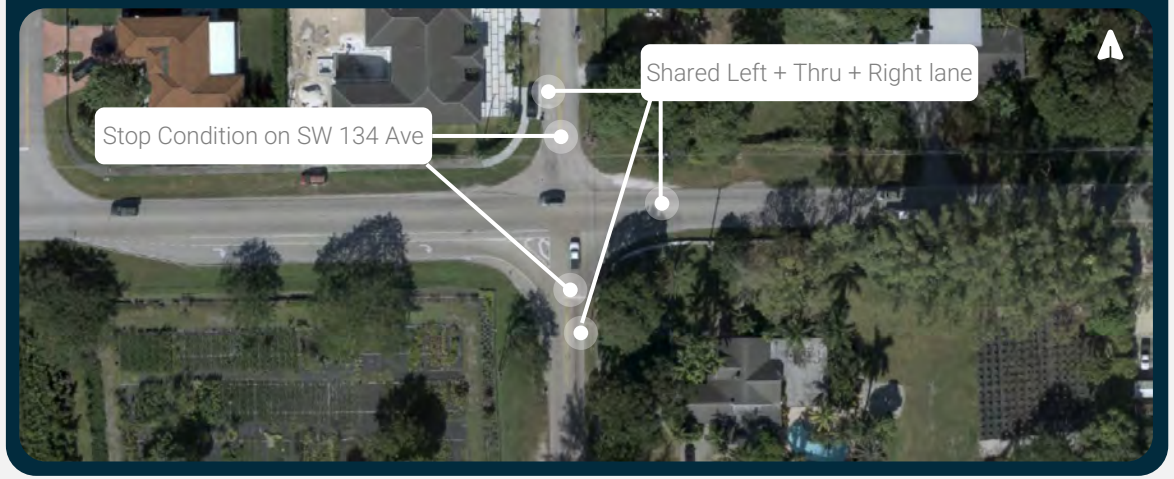


Build 3

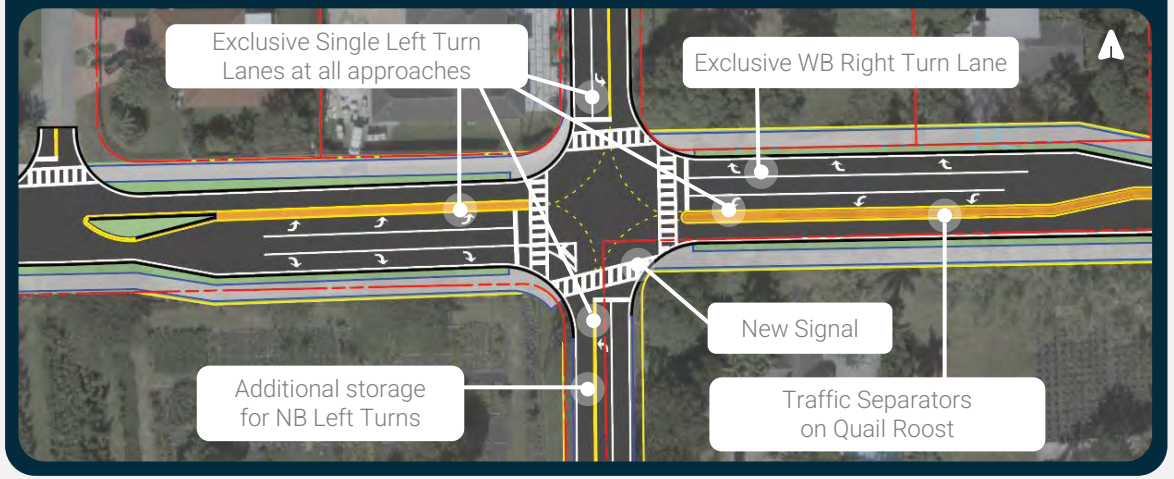


Intersection Improvements – SW 134th Avenue

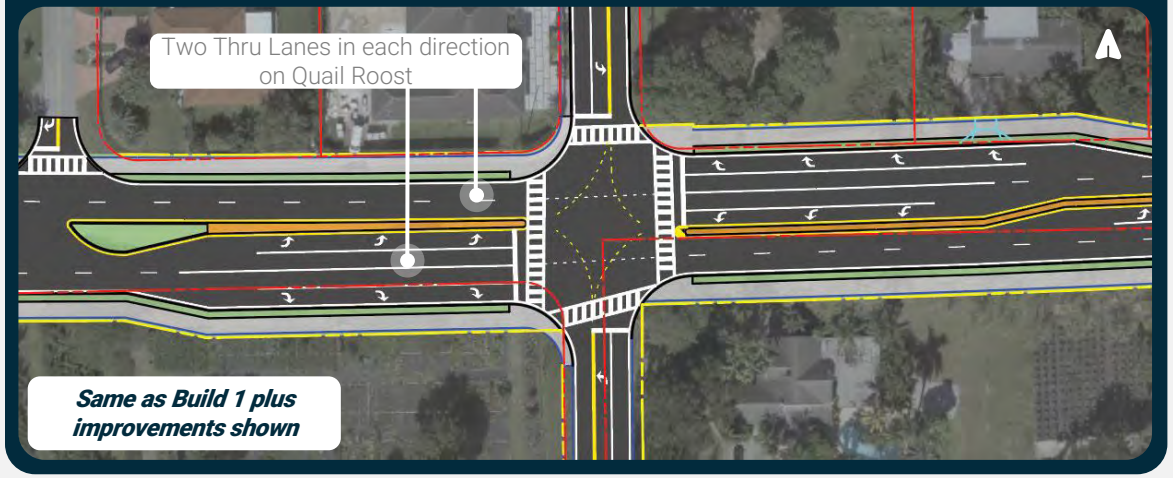
Existing Conditions



Build 1



Build 2



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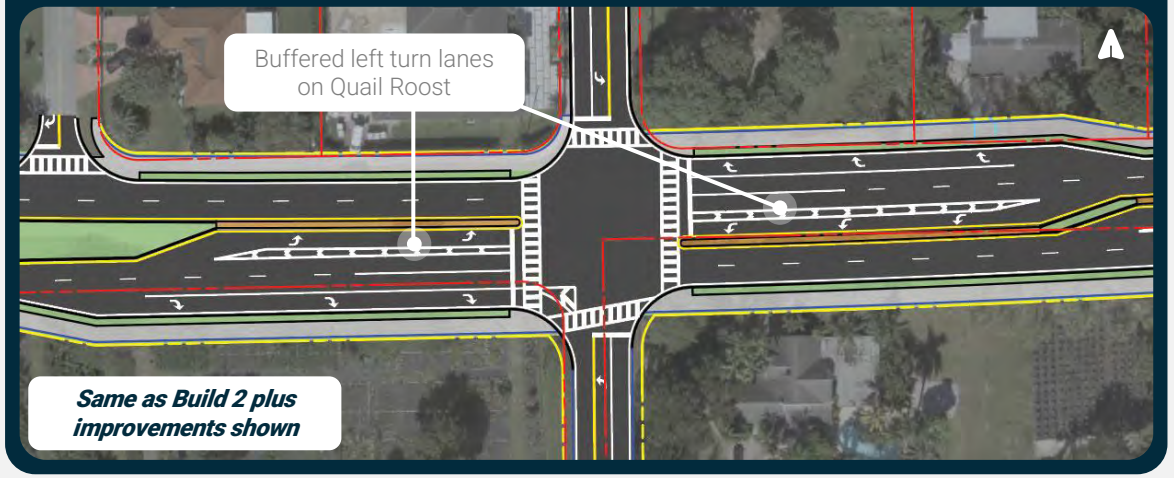
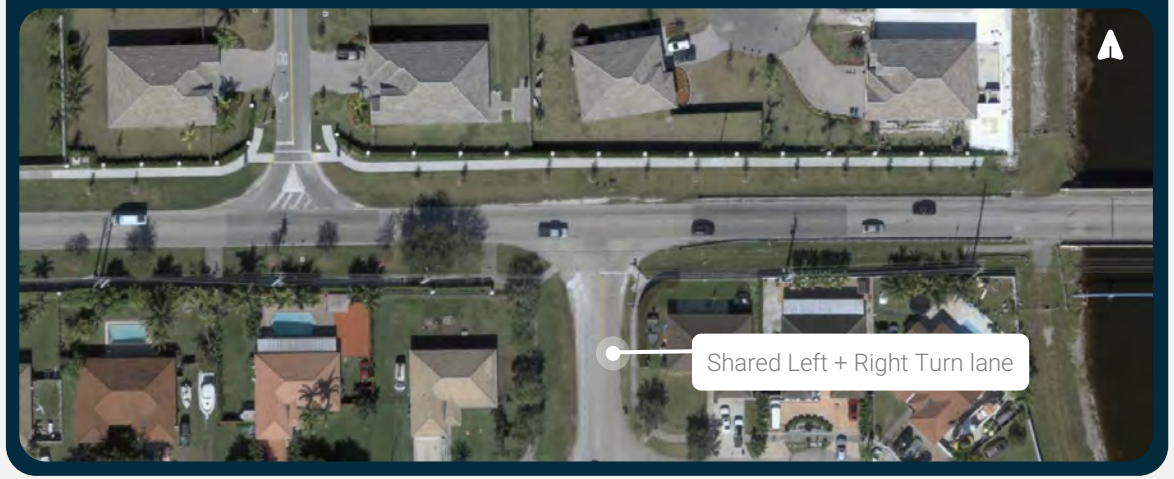


Intersection Improvements – SW 132nd Ct

Existing Conditions



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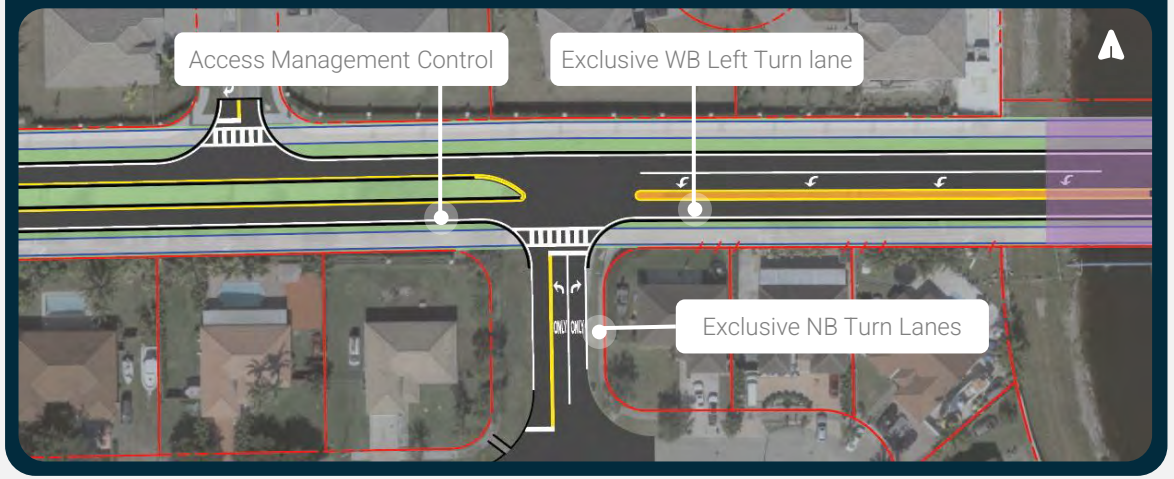

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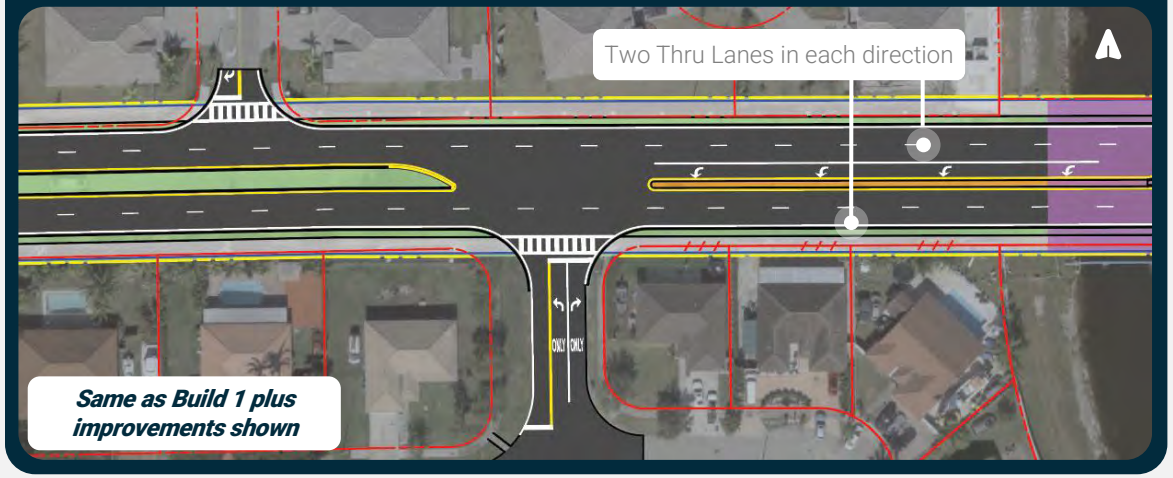

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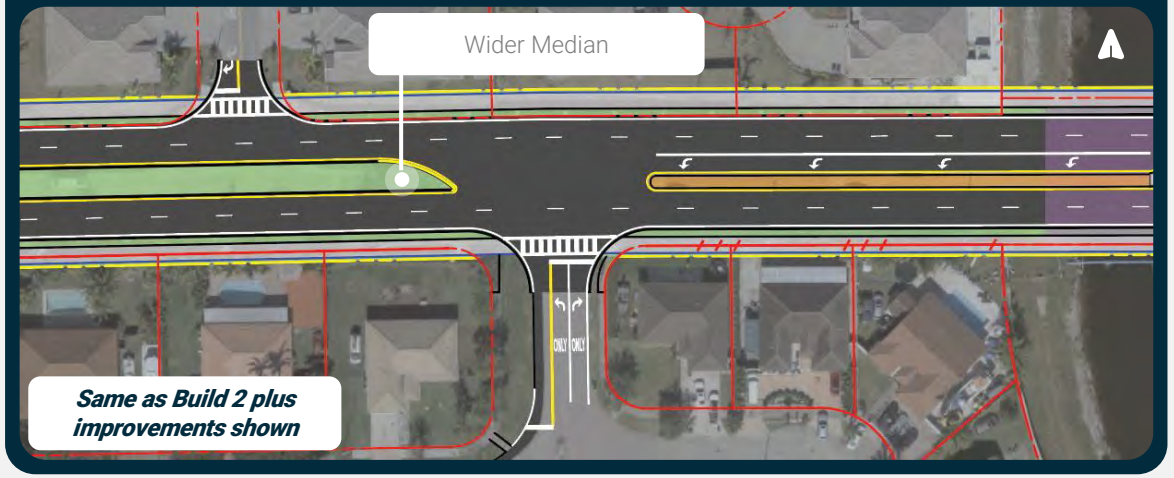
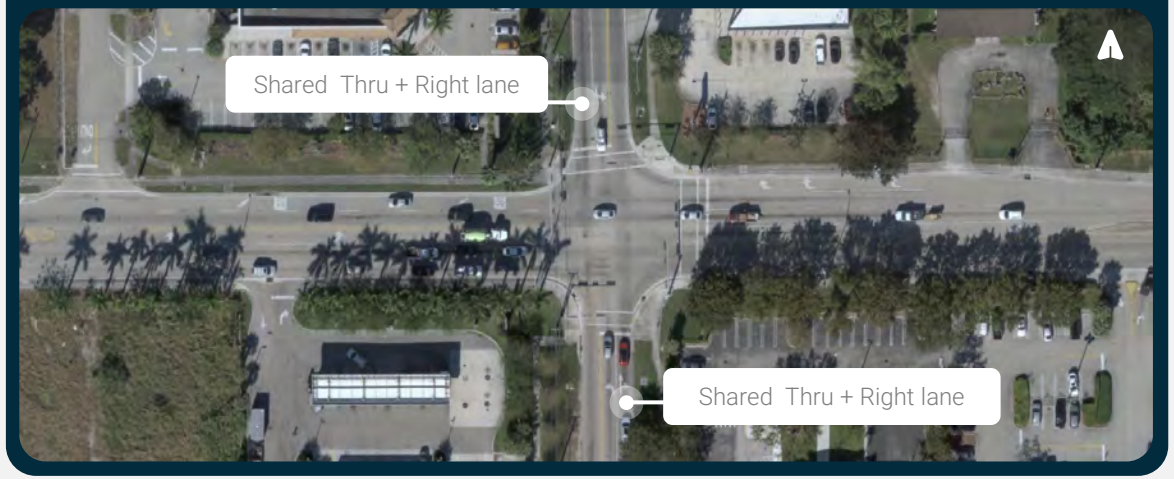


Intersection Improvements – SW 127th Avenue

Existing Conditions



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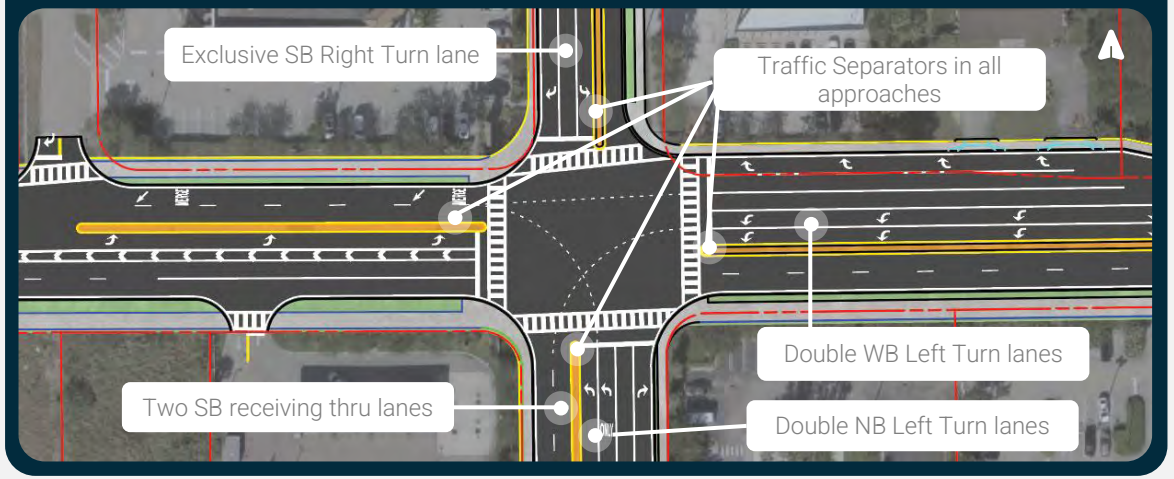

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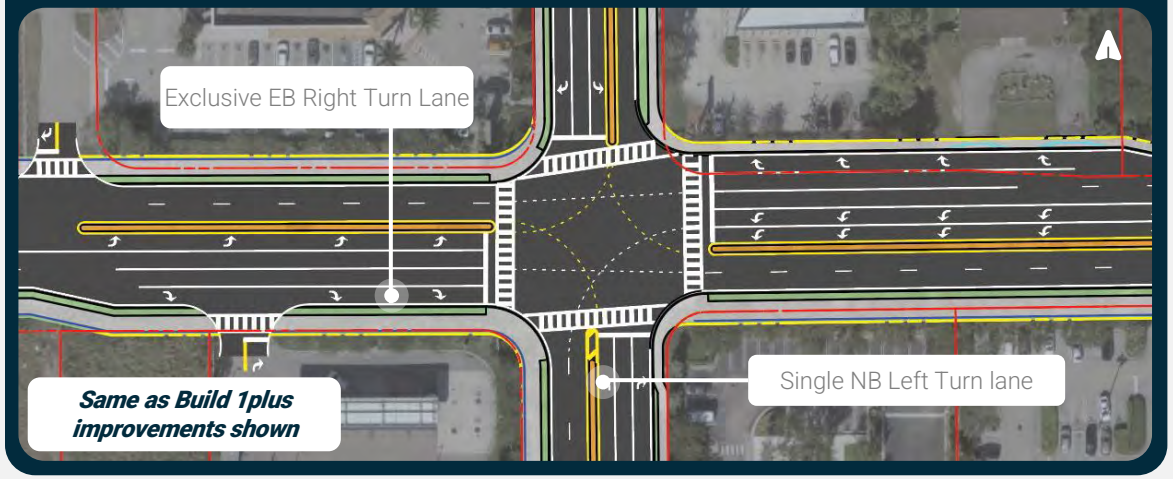

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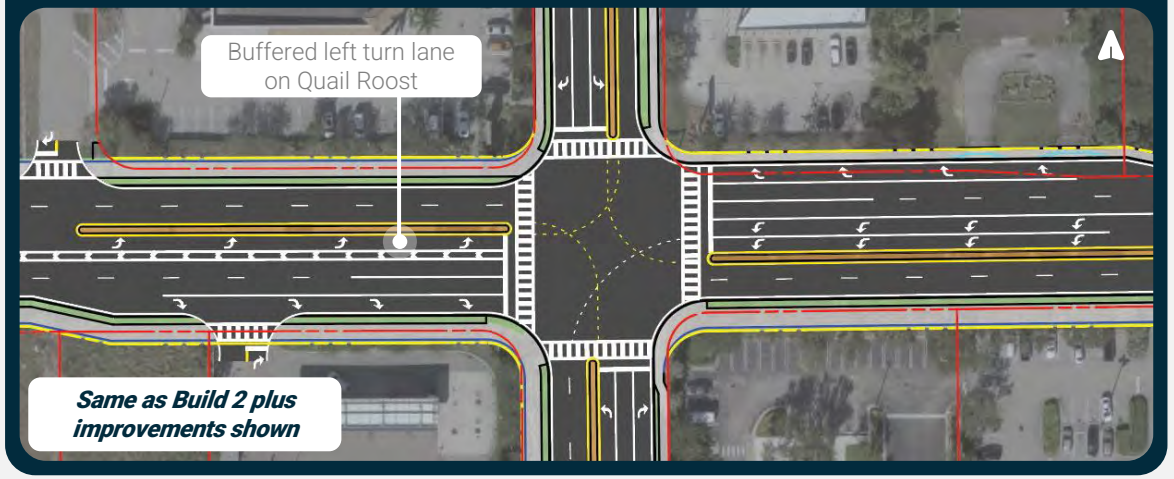


Multimodal Accommodations

Option 1

Maintain at-grade crossing

Pros

Lower profile

Minimizes impacts

- SFWMD access
- Adjacent Properties
- TCP

Cons

Conflicts with peds and bikes

Increases delay on Quail Roost (Vehicles stopped for peds/bikes)

Option 2

Relocate trail under proposed bridge

Pros

No bike ped conflicts – **Improves Safety!**

Eliminates delays for vehicles due to potential signalized crossing – **Improves Operations!**

Improved Overall Bridge Vertical Clearance

Cons

Higher profile

Potential impacts to Adjacent properties, utilities, SFWMD access driveways

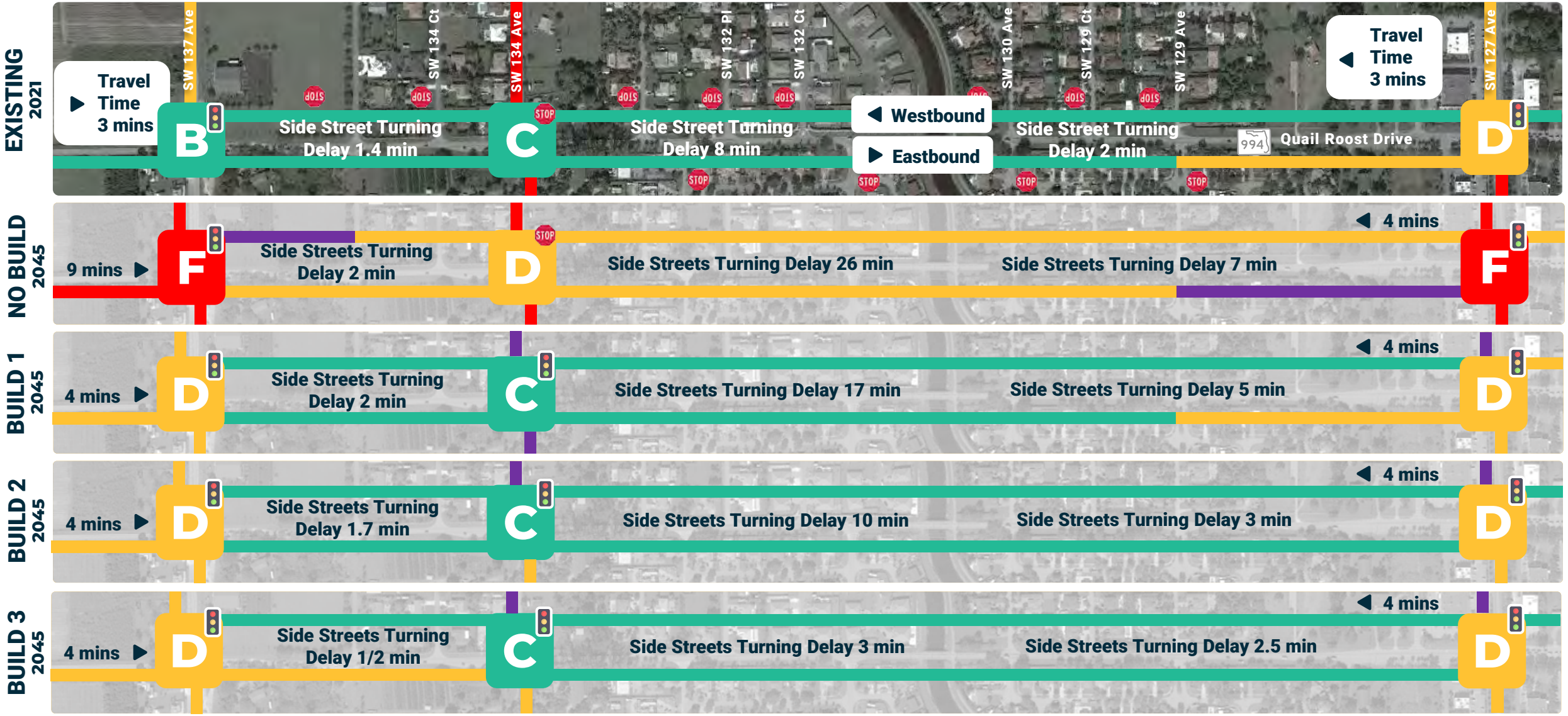
More complex TCP

Polling – Slido Poll Participation Instructions

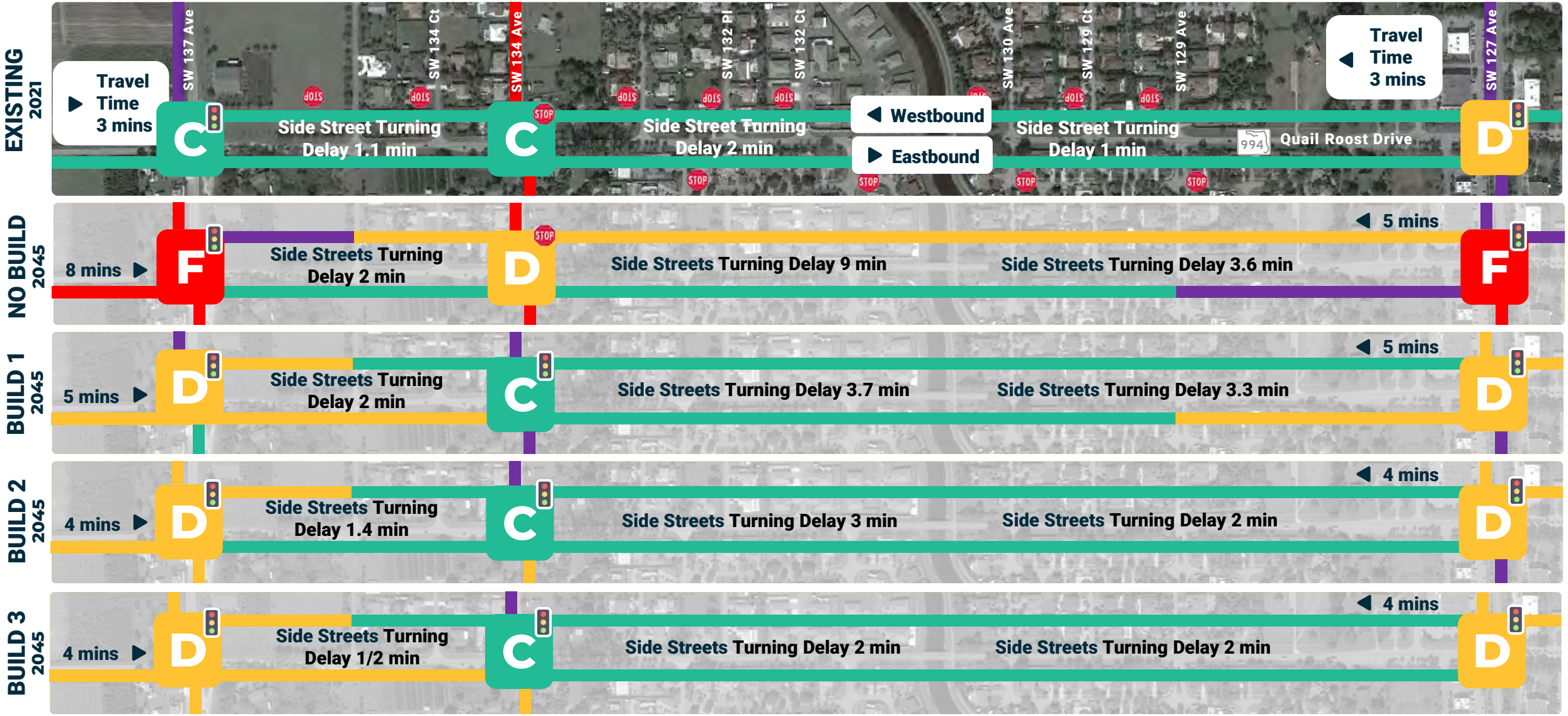
Smart Phone
Scan QR Code

Note: Today's polling results will help provide preliminary input to the team but are not the only factor used in developing potential alternatives. Engineering, environment, cost, and other factors will also help the study team develop potential alternatives that may or may not advance to the next phase of the project.

Level of Service / Travel Time / Delay – AM Peak Period



Level of Service / Travel Time / Delay – PM Peak Period



Landscaping

The existing Landscape within the FDOT ROW will most likely be impacted by the proposed widening.

Once a preferred alternative is selected, we will:

- Perform a preliminary landscaping analysis to identify impacts
- Provide initial disposition, i.e., should the vegetation remain, be removed or be relocated
- Identify Landscape Opportunities.

Temporary Traffic Control

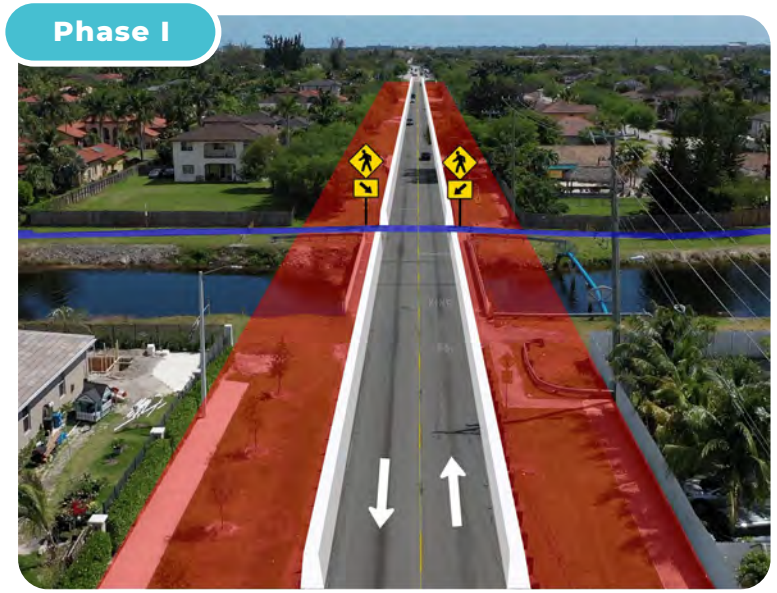
Approach to TTCP

- Minimize impacts to existing traffic
- Maintain a safe work zone
- Maintain access for residences and commercial/agricultural properties
- Accommodate Black Creek Trail Crossing during all phases of construction
- Maintain positive drainage
- Reduce construction time

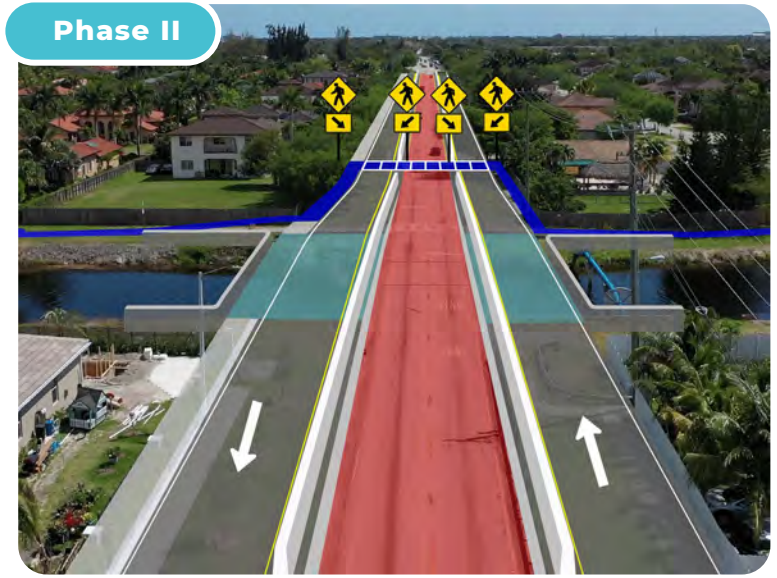
Bridge Over Black Creek Canal

- Phased construction will be considered for Build Alternatives 2 and 3 (wider footprint). This will require longer construction duration but minimizes road closures and detours
- Detour options will be needed for Build Alternative 1, through SW 184 St and SW 216 ST.

Phase I



Phase II



Potential Detour Routes

Environmental Considerations

Sociocultural Effects
- Mobility
- Land Use (schools, churches, businesses, etc.)
- Relocation Potential

Cultural Resources
- Archaeological and Historic Resources
- Recreational

Natural Resources
- Wetlands
- Wildlife and Habitat
- Permits

Physical Effects
- Noise
- Air Quality
- Contamination

Efficient Transportation Decision Making (ETDM) Screening: No Substantial Issues

Social and Economic							Cultural			Natural					Physical					
Land Use Changes	Social	Relocation Potential	Famlands	Aesthetic Effects	Economic	Mobility	Section 4(f) Potential	Historic and Archaeological Sites	Recreation Areas	Wetlands and Surface Waters	Water Quality and Quantity	Floodplains	Wildlife and Habitat	Coastal and Marine	Noise	Air Quality	Contamination	Infrastructure	Navigation	Special Designations
2	2	2	N/A	2	2	1	3	3	2	2	2	2	2	2	2	2	3	3	N/A	N/A

Degree of Effect: Not Applicable/ No Involvement; Enhanced; Moderate; Minimal

Cultural Resources - Historical

- Cultural Resources Assessment Survey (CRAS) in progress.
- CRAS will be submitted to SHPO for review and concurrence on findings.
- Overall, 18 historic resources identified in the Area of Potential Effect (APE).
- Three historic resources potentially eligible for inclusion in National Register (NRHP):

1. Talbott Estate – southeast corner of Quail Roost Drive & SW 134th Avenue intersection *(County designated)*
   Property Address: 13390 SW 200th Street

2. MacDonell House and Walls – northwest corner of Quail Roost Drive & SW 137th Avenue intersection *(County designated)*
   Property Address: 13701 SW 200th Street

3. Southwest corner of Quail Roost Drive & SW 137th Avenue intersection – potentially significant
   Property Address: 20000 SW 137th Avenue

Natural Resources

Wetlands

C-1W Canal – Bridge widening with impacts to limited to surface waters

No Wetland involvement is anticipated

Protected Species (no impacts anticipated)

Florida Bonneted Bat (FBB) – Within the South Florida Urban Bat Area *
Manatee (C-1W) exclusion devices at outfalls; In-Water Work Construction Conditions

Construction Conditions for the **Eastern Indigo Snake**

Miami-Dade Keys Plants field surveys *

* Two field reviews have been conducted and no listed species were observed. Tree surveys were conducted and trees along the project corridor are not suitable habitat for the FBB. No evidence of bat roosting was observed.

Biscayne Sole Source Aquifer (SSA) – EPA coordination

WQIE/SSA letter will be sent to the EPA in March 2023.

C-1W Canal
Bridge Widening Impacts

Manatee
Protected Species

Noise Analysis

Noise barriers are considered for projects that:

- Add capacity (additional travel lanes)
- Significantly shift the roadway alignment (horizontally or vertically)
- New roadways
- Sound level equals or exceeds 66 dB(A)

Noise evaluation will consider:

Feasibility :

- Land Use (residentials, parks, schools, churches, trails)
- Noise reduction of at least 5 decibels dB(A) (for at least 50% of impacted)
- Safety factors (i.e., safe sight distance at driveways and side streets)
- Accessibility factors (i.e., street connections and driveway access)
- Drainage and utility factors (i.e., conflict with overhead power lines)
- ROW and maintenance factors (i.e., accessibility for graffiti removal)

Reasonability:

- Achieving noise reduction design goals (i.e., 7 dB(A) noise reduction at one benefited receptor)
- Cost effectiveness of noise abatement (i.e., $42,000 /benefited receptor)

Next Steps:

- Select preferred alternative alignment
- Model Existing, future No-Build and Future Build Scenarios
- Evaluate noise abatement options based on feasibility and reasonability criteria
- Prepare a noise study report summarizing the analysis.
- Public Involvement regarding desire of noise abatement as well as color and texture
- Noise impacts will be re-evaluated during the Final Design phase to confirm no significant changes since PD&E study

Noise Measurement Summary and Potential Noise Analysis Sites

Noise Measurement Summary

Site ID	Sound Level dB(A)
M-1	61.5
M-2	61.2
M-3	61.7
M-4	63.0
M-5	61.0
M-6	63.7
M-7	63.3

Field Noise Measurement Location

Future Model Analysis

Anticipated Permits

South Florida Water Management District

Environmental Resource Permit

- Stormwater Quantity and Quantity Control
- C-1 Canal Dredge & Fill
- Canal Turbidity Control
- Manatee Protection

Right Of Way Occupancy Permit Modification

- Bridge Replacement
- Canal Access for Maintenance and Operations

Water Use Permit

- Dewatering Construction Activities

US Army Corps of Engineers

Section 408 Review for the C-1W Canal/Bridge

USACE/FDEP Section 404 Dredge & Fill Permit

- Possible delegation to FDEP as Assumed Waters
- USACE Nationwide permit for Maintenance may apply
- Coordination with USFWS

Florida Department of Environmental Protection (FDEP)

NPDES Construction Generic Permit

EPA Coordination required for Biscayne Sole Source Aquifer

Miami-Dade County Coordination on tree impacts

Alternatives Evaluation Matrix

QUALITATIVE ALTERNATIVE COMPARISON MATRIX

Evaluation Criteria	No-Build (2-Lane Undivided)	Build Alternative 1 (2-Lane with Turn Lanes / Raised Islands and Signal at SW 134 Ave)	Build Alternative 2 (4-Lane with Turn Lanes / Raised Islands and Signal at SW 134 Ave)	Build Alternative 3 (4-Lane with Turn Lanes / Raised Median and Signal at SW 134 Ave)
Meets Purpose & Need	No	Yes	Yes	Yes
Traffic Operations	Increased Congestion and Delay	Added turning lanes at intersections	Added capacity and Turn lanes at intersections	Added capacity and Turn lanes at intersections
Safety	Increased number of accidents anticipated due to increase in future traffic volumes	Decreased number of accidents due to safety enhancements	Decreased number of accidents due to safety enhancements	Decreased number of accidents due to safety enhancements
Multimodal Accommodations	No improvement	Added pedestrian and bicycle facilities	Added pedestrian and bicycle facilities	Added pedestrian and bicycle facilities
Right of Way Impacts	None	Moderate Impacts	Significant Impacts	Significant Impacts
Historic Resources Impacts	None	Moderate Impacts	Significant Impacts	Significant Impacts
Recreational Resources	No Change	Black Creek Trail connected to other trail facilities	Black Creek Trail connected to other trail facilities	Black Creek Trail connected to other trail facilities
Noise	No Change	Slight increase in noise level related to alignment shift	Slight increase in noise level related to added capacity	Slight increase in noise level related to added capacity

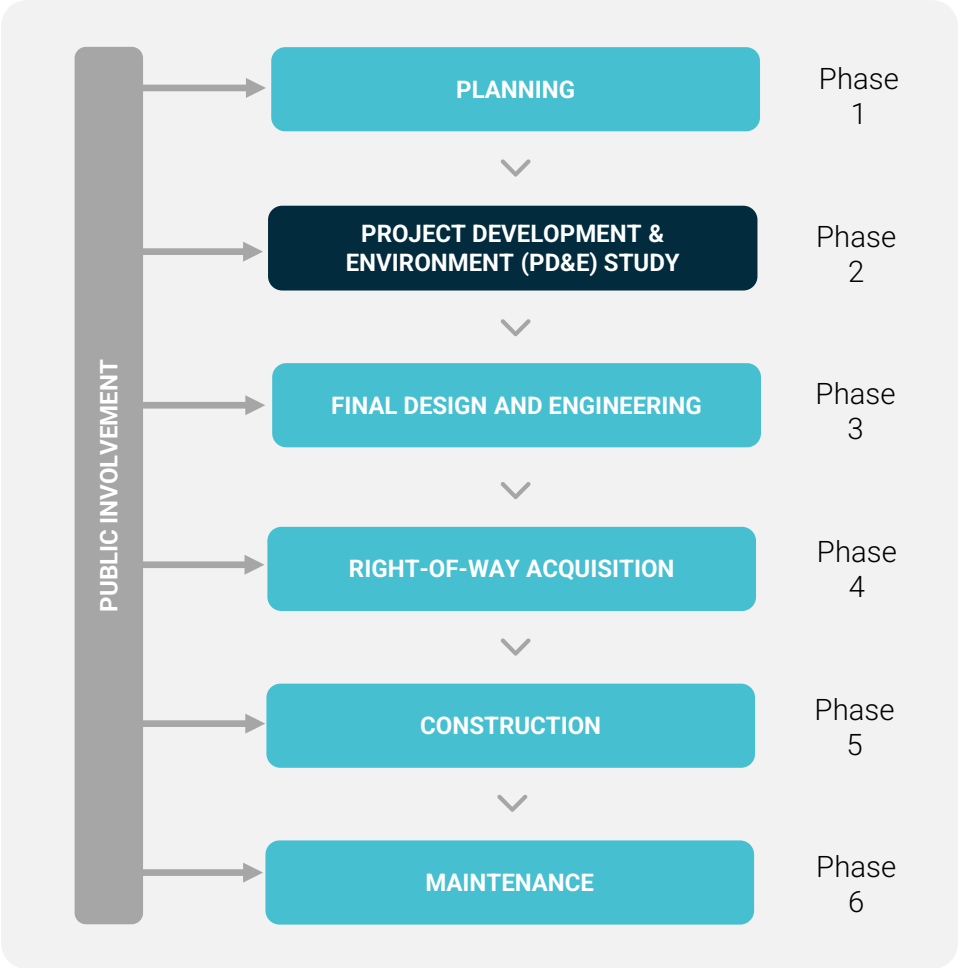
- Positive Outcome
- No Change to Moderate Impact
- Negative Outcome

Polling – Slido Poll Participation Instructions

Smart Phone
Scan QR Code

Note: Today's polling results will help provide preliminary input to the team but are not the only factor used in developing potential alternatives. Engineering, environment, cost, and other factors will also help the study team develop potential alternatives that may or may not advance to the next phase of the project.

Project Schedule



Project Milestone	Date
Begin PD&E Study	June 2021
Kick-Off Meeting	January 2022
Affected Parties Consultation Meeting	October 2022
Alternatives Workshop	October 2022
Public Hearing	October 2023
End PD&E Study (Location Design Concept Acceptance)	April 2024
Design Complete	November 2025
Right of Way Acquisition	July 2027
Construction	2028

Open Discussion

In-person attendees please form a line.

Online attendees submit your comments in the "Questions" box. If you would like to speak, please press the raise your hand button.

Participants will have **three minutes** to provide comments.

Please clearly state your **name** and **address**.

Polling – Slido Poll Participation Instructions

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Note: Today's polling results will help provide preliminary input to the team but are not the only factor used in developing potential alternatives. Engineering, environment, cost, and other factors will also help the study team develop potential alternatives that may or may not advance to the next phase of the project.

Rules of Engagement

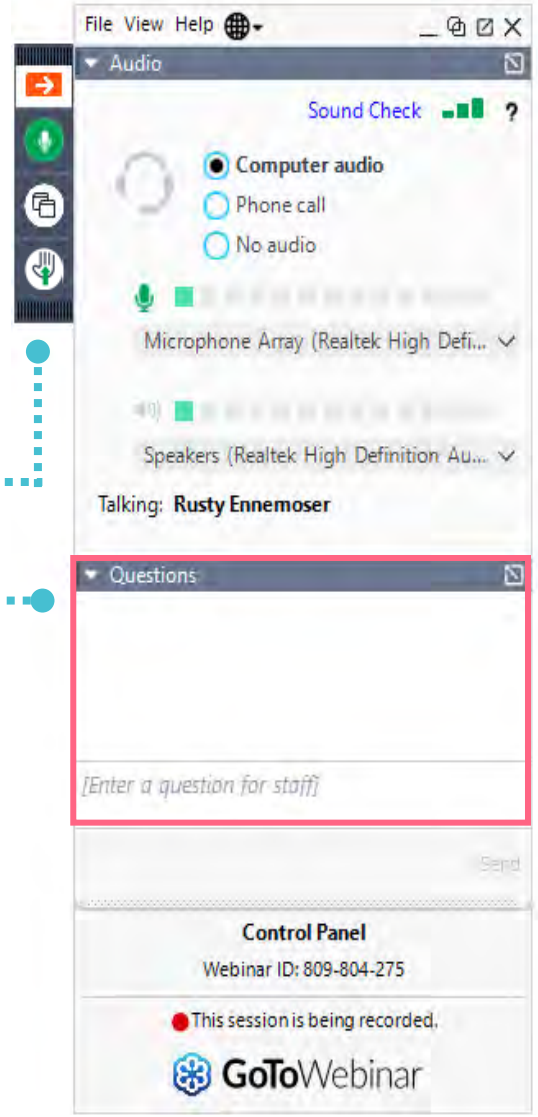
Virtual Attendees are **Automatically Muted** to Start the Meeting

Providing Comments During Open Discussion Period:

- In-person attendees form a line
- Call 1-800-418-0524
- **Raise hand during comment period, you will be unmuted in order of raising hands**
- Submit Comments via the “Questions” Box

Get Technical Assistance

- **Call 1-800-418-0524**



Comments

- **Comment Box**
- **Email:** Elsa.Riverol@dot.state.fl.us
- **Project Website:** www.fdotmiamidade.com/QuailRoostPDE
- **Customer Survey**
- **Mail:** Florida Department of Transportation, District Six
  Attn: Elsa N. Riverol, P.E.
  1000 NW 111th Avenue, Room 6251
  Miami, FL 33172

SCAN QR CODE TO VISIT OUR PROJECT WEBSITE!

Contact Information

Elsa N. Riverol, P.E.
Florida Department of Transportation, District Six
1000 NW 111th Avenue, Room 6251
Miami, FL 33172
(305) 470-5105
Elsa.Riverol@dot.state.fl.us

Monica Diaz
Community Outreach Specialist
(305) 573-0089
monica@iscprgroup.com

SCAN QR CODE TO VISIT OUR PROJECT WEBSITE!

www.fdotmiamidade.com/QuailRoostPDE

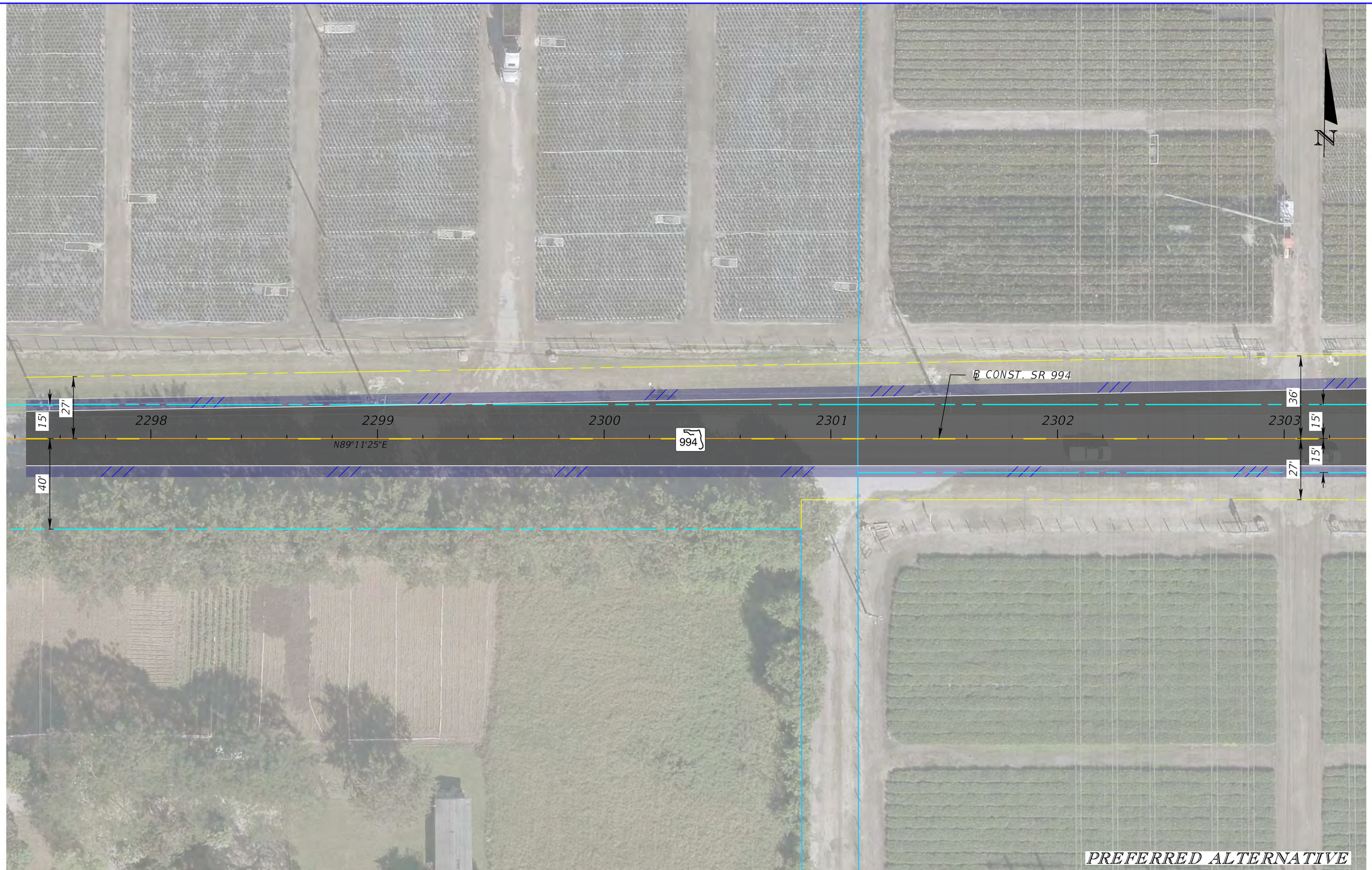
Target Zero

TARGET ZERO

FATALITIES & SERIOUS INJURIES

Thank You.

Appendix T – Preferred Alternative Preliminary Conceptual Design Plans



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SHARED USE PATH	TRAFFIC SEPARATOR	HISTORIC SITES				01
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING				
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY				
	PARCEL LINE		DATE OF AERIAL: 2021			

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PREFERRED ALTERNATIVE

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				02
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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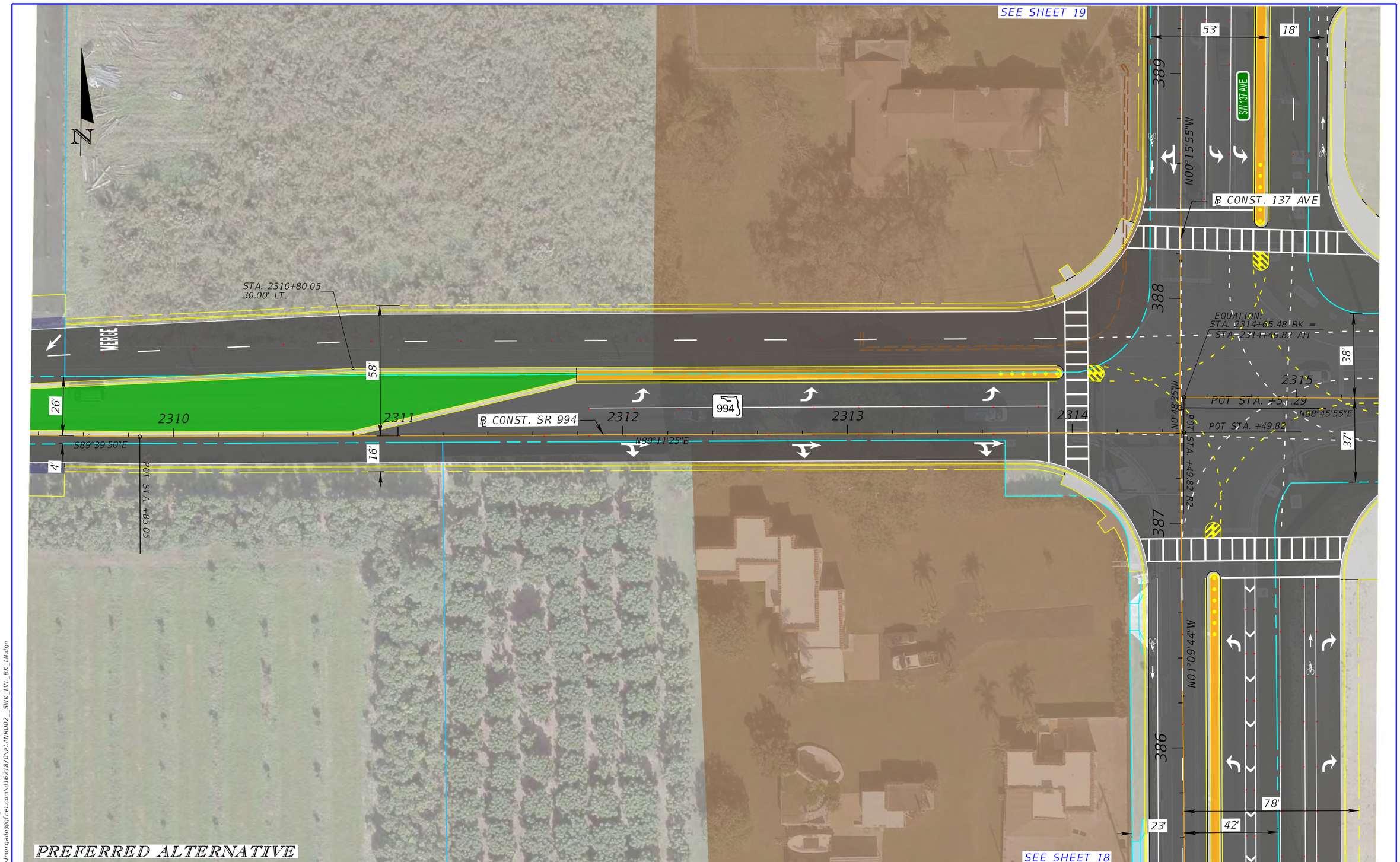

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SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY			
BIKE LANE PATH	PARCEL LINE				

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DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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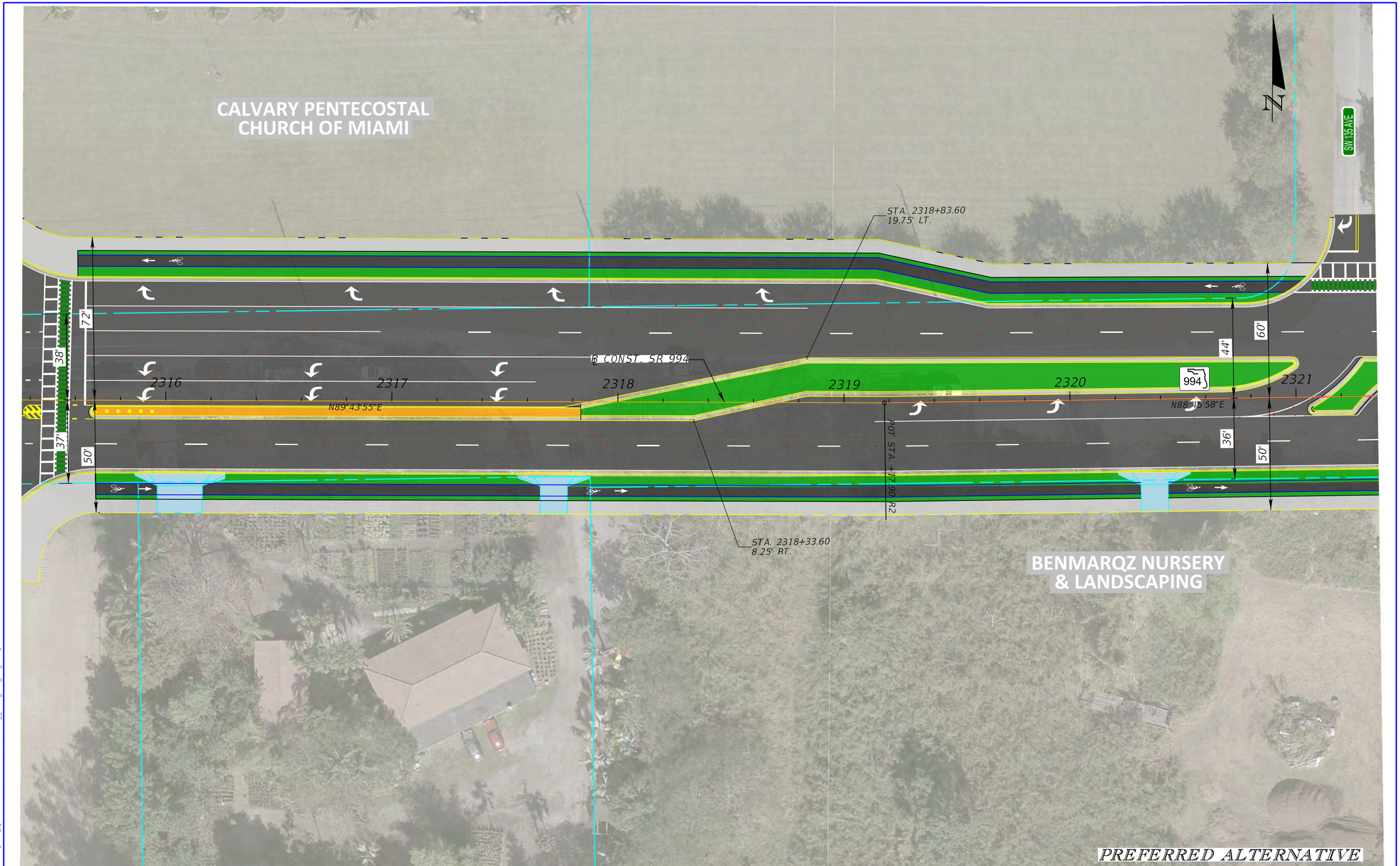

PREFERRED ALTERNATIVE

LEGEND			
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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

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DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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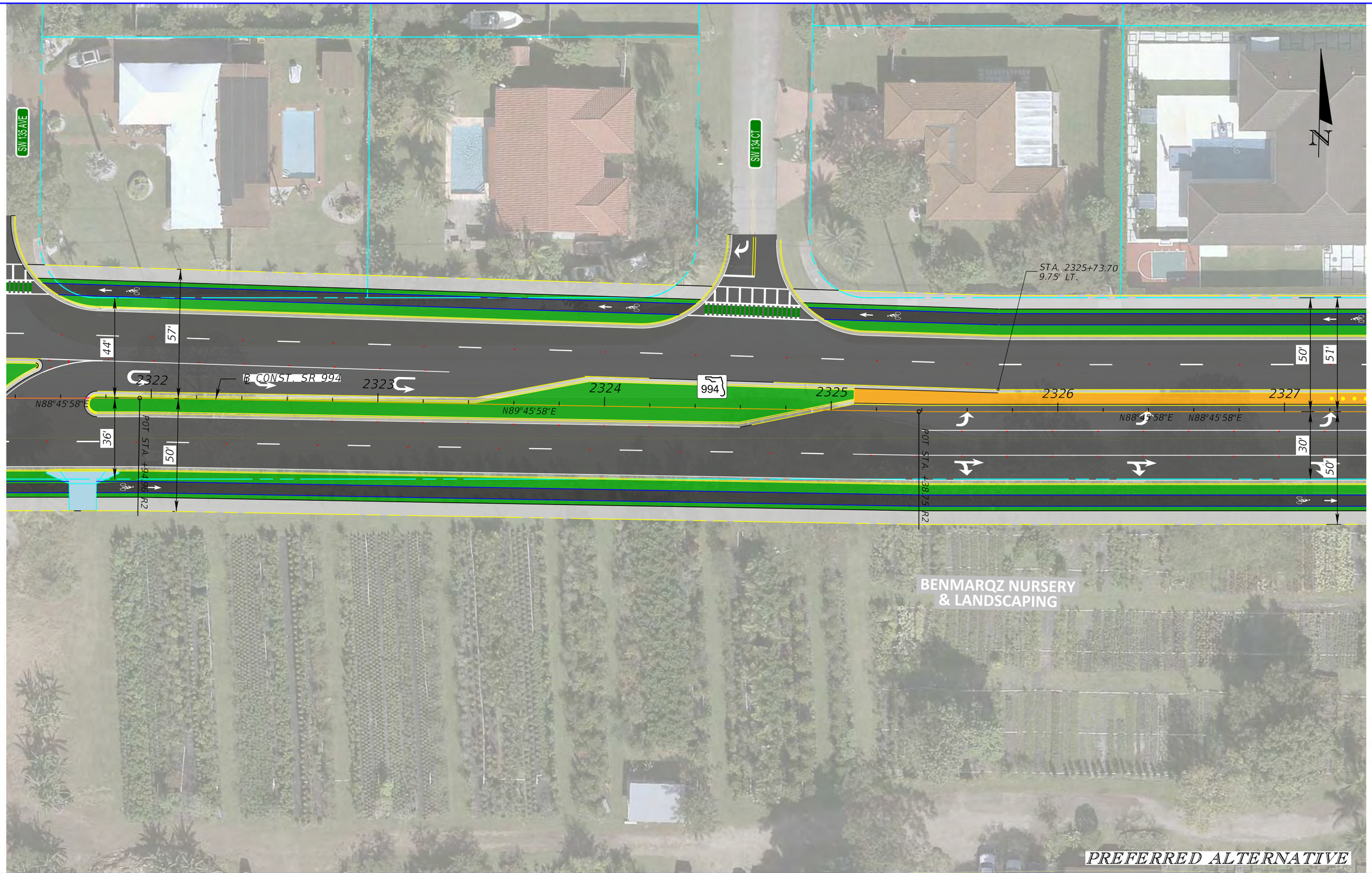

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SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES		
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING		
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY		
		PARCEL LINE				

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Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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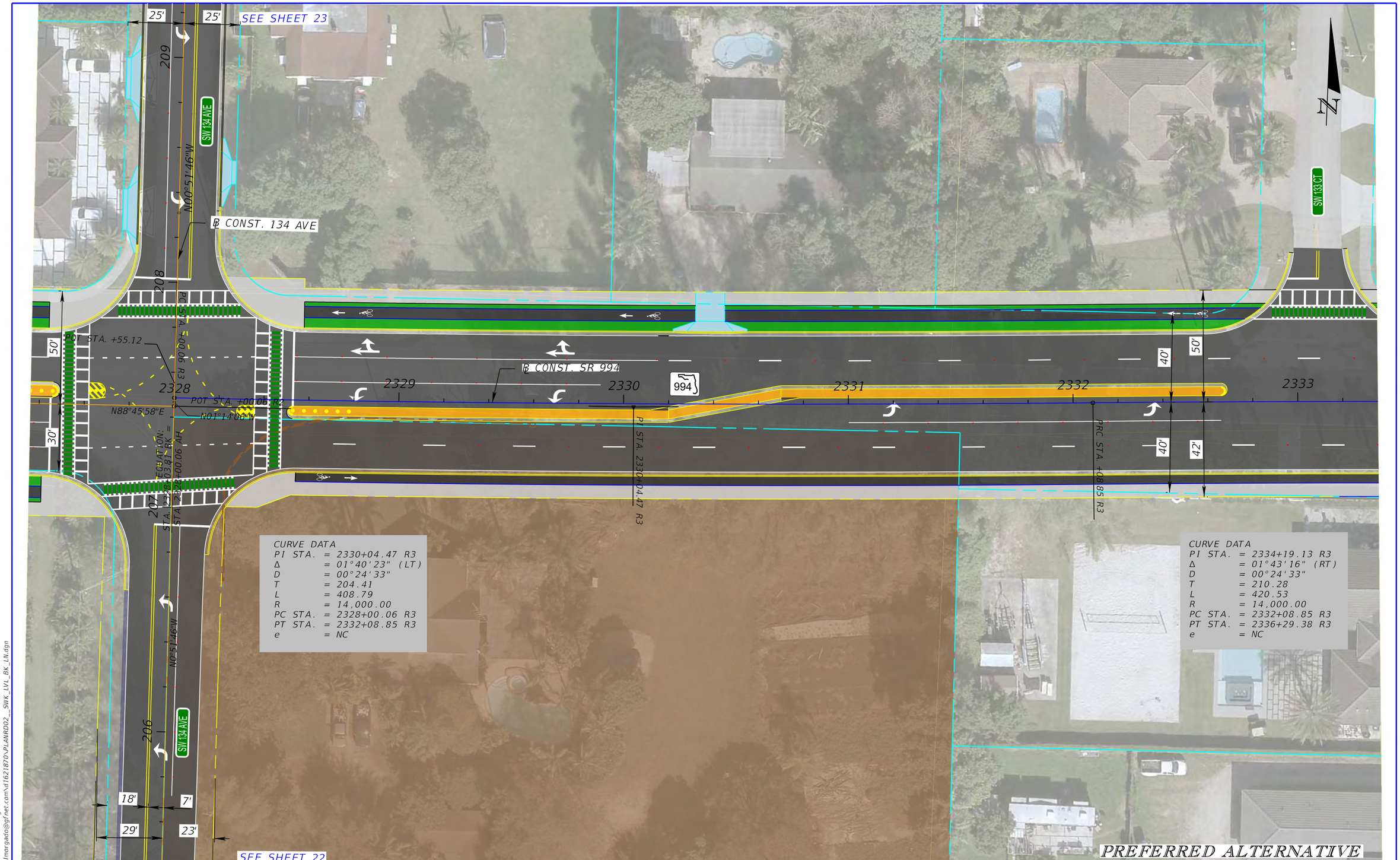

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

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Feet

DATE OF AERIAL: 2021

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SR 994 PD&E STUDY
Preliminary Conceptual Design Plans

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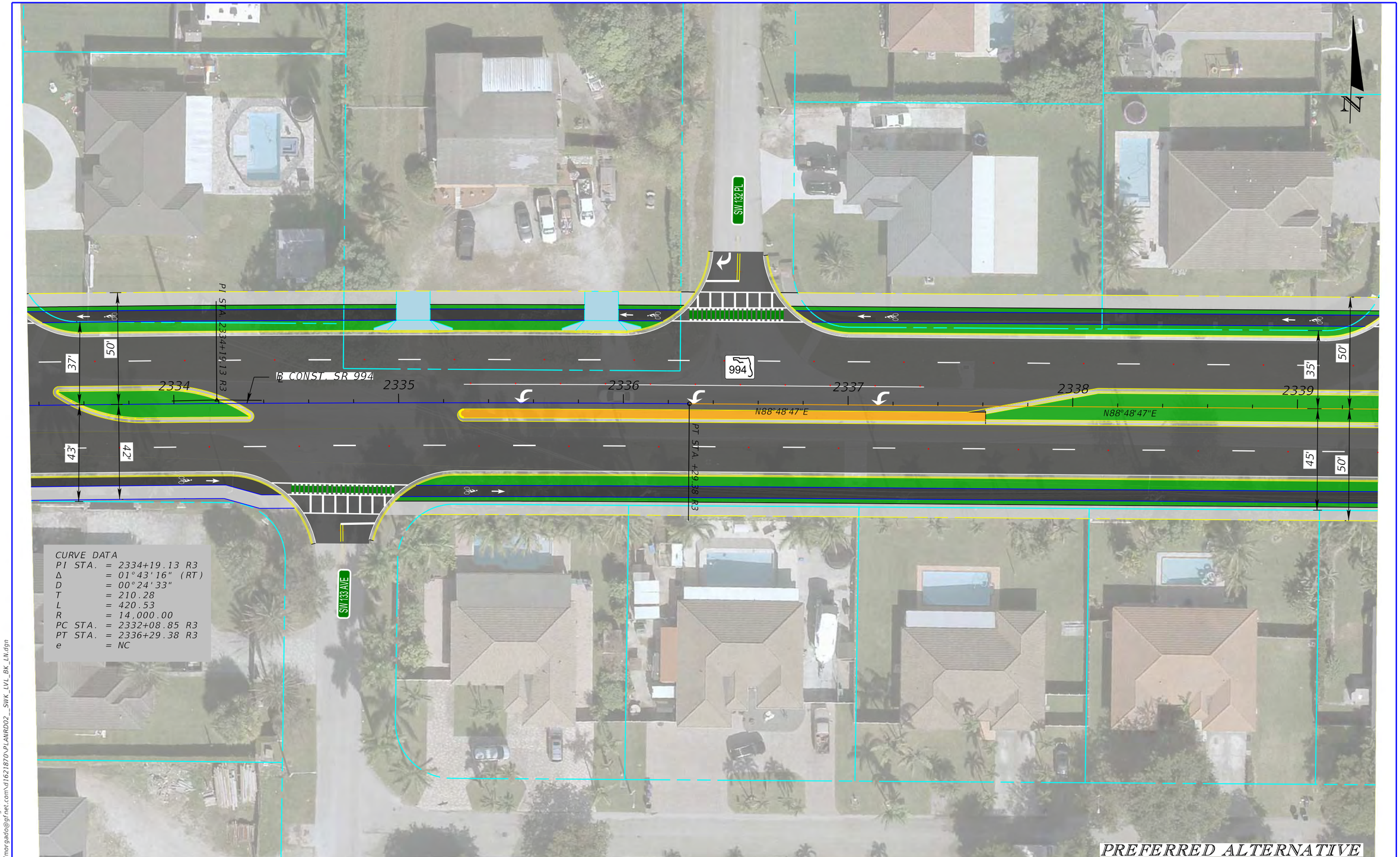

LEGEND			
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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

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Feet

DATE OF AERIAL: 2021

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MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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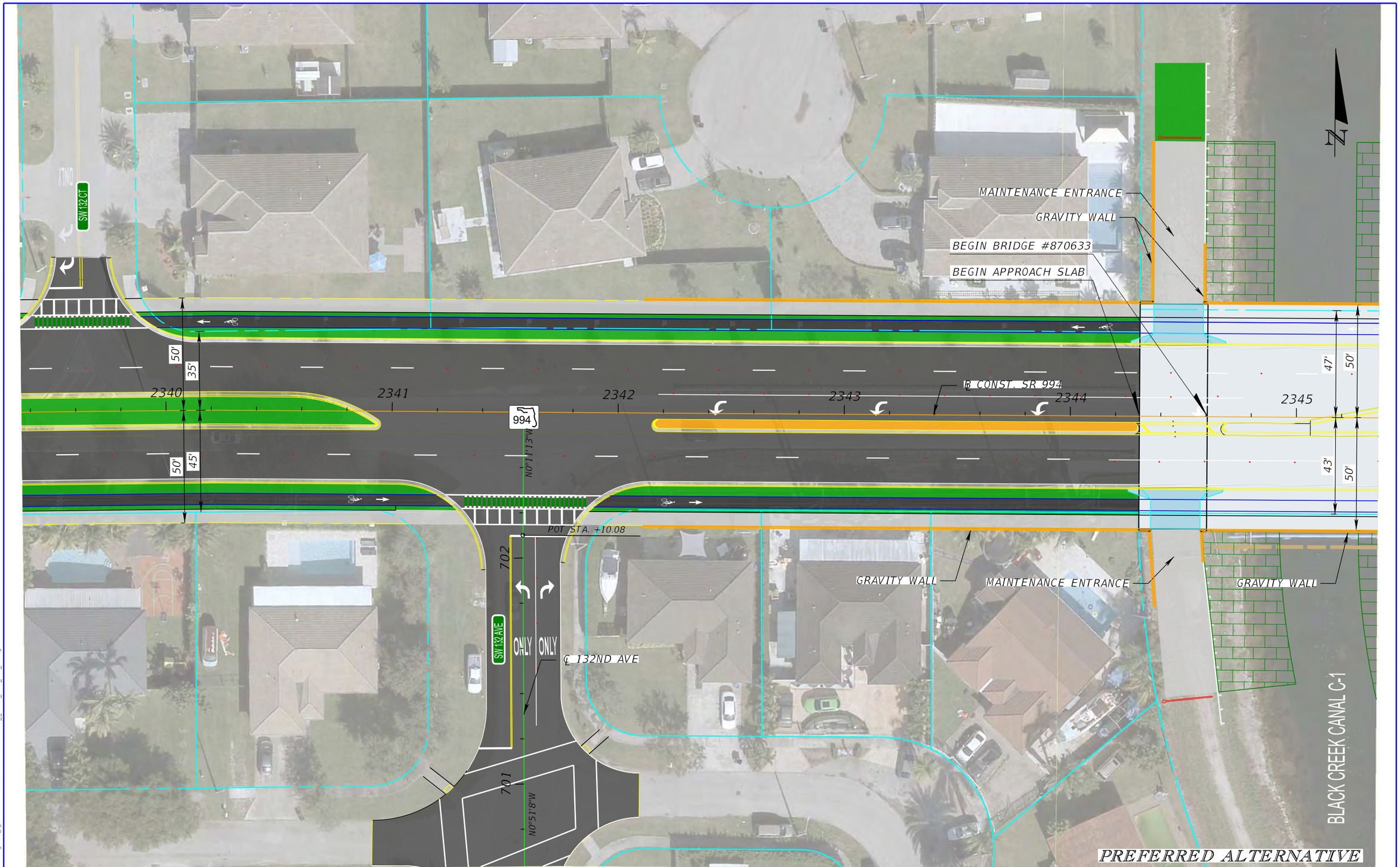

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				08
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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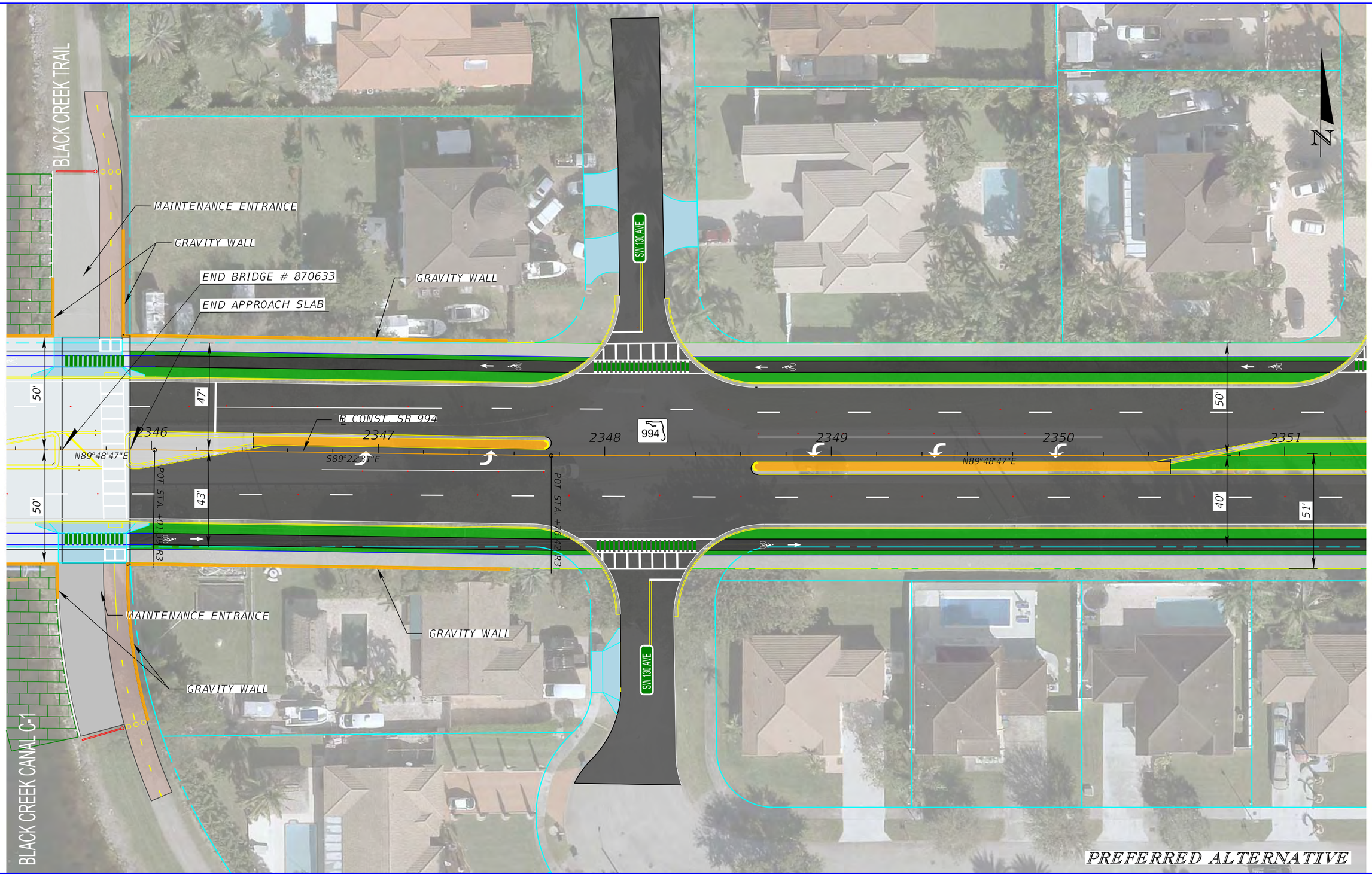

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
09

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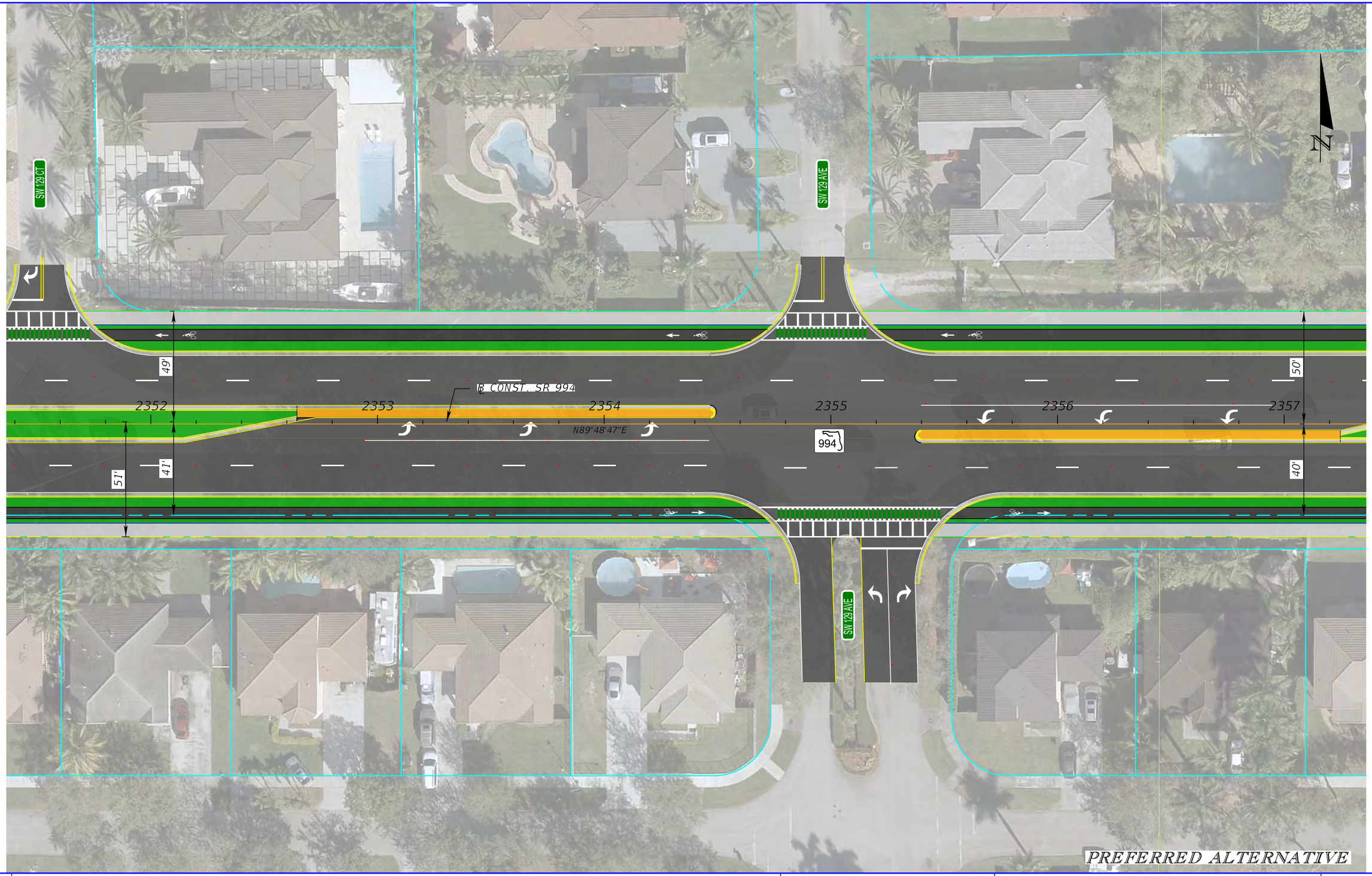

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ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			10
BIKE LANE PATH	PARCEL LINE					

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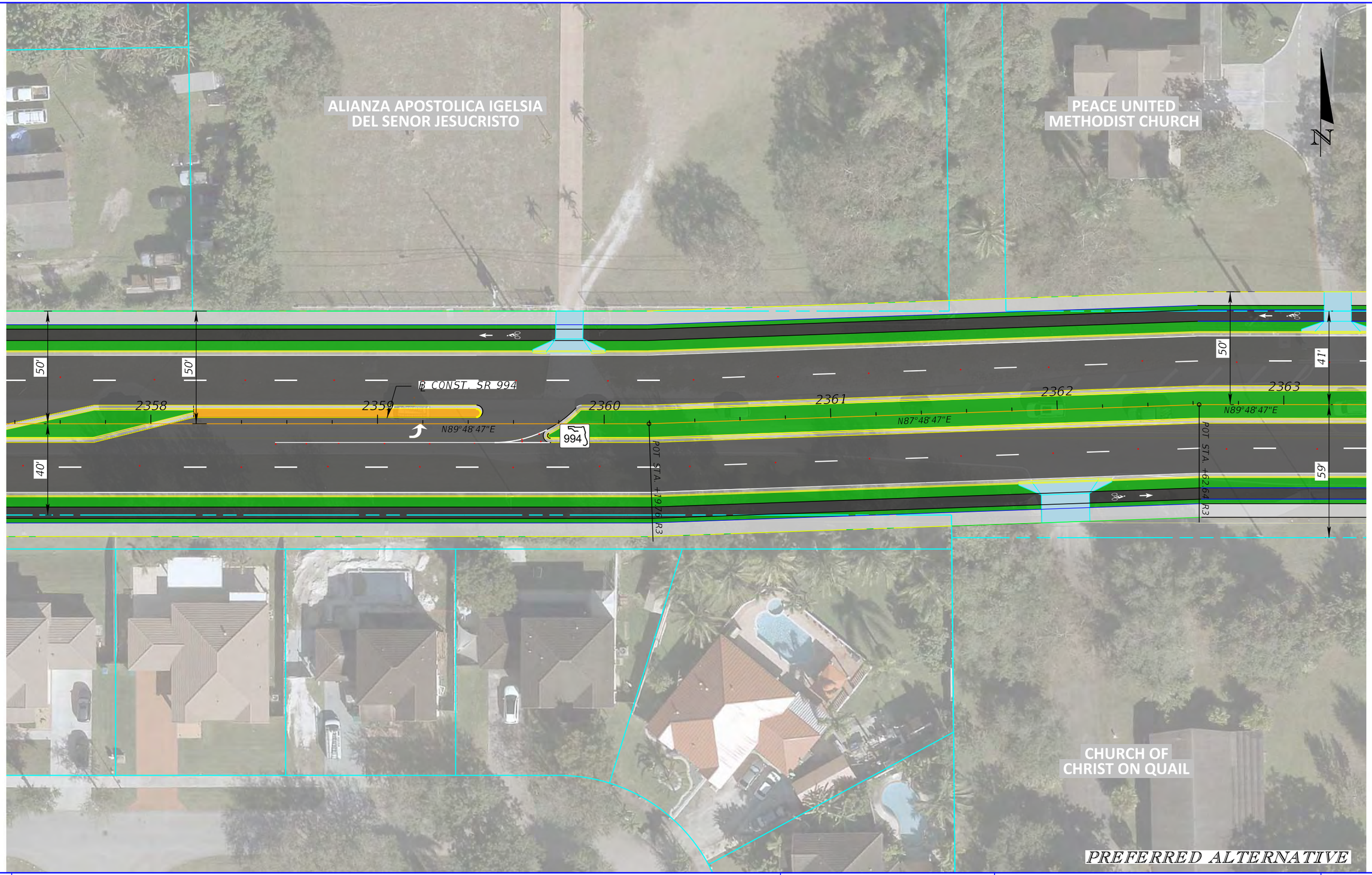

LEGEND

ROADWAY		BRIDGE		REGRADING/SOD		
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
11

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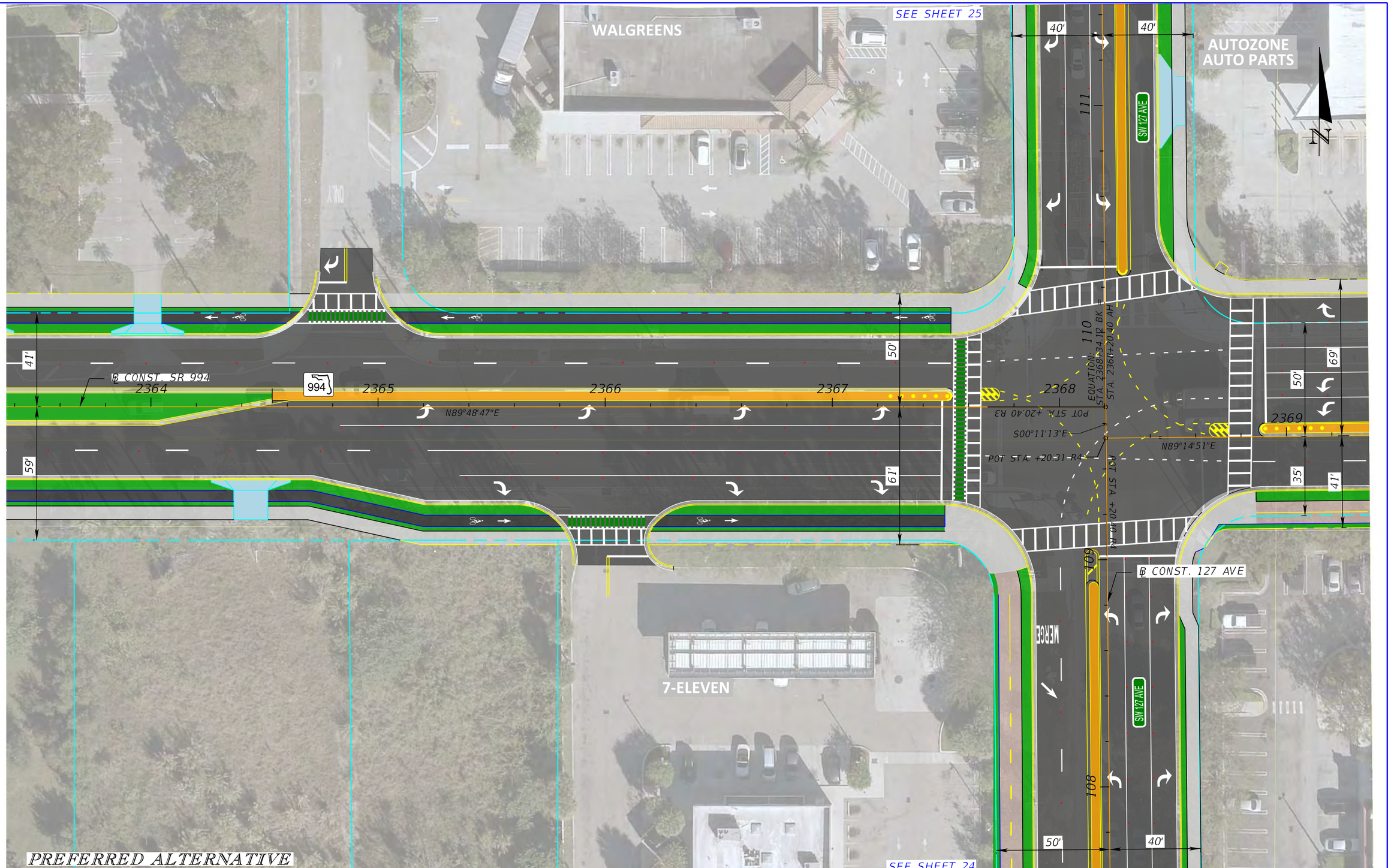

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			12
BIKE LANE PATH	PARCEL LINE					

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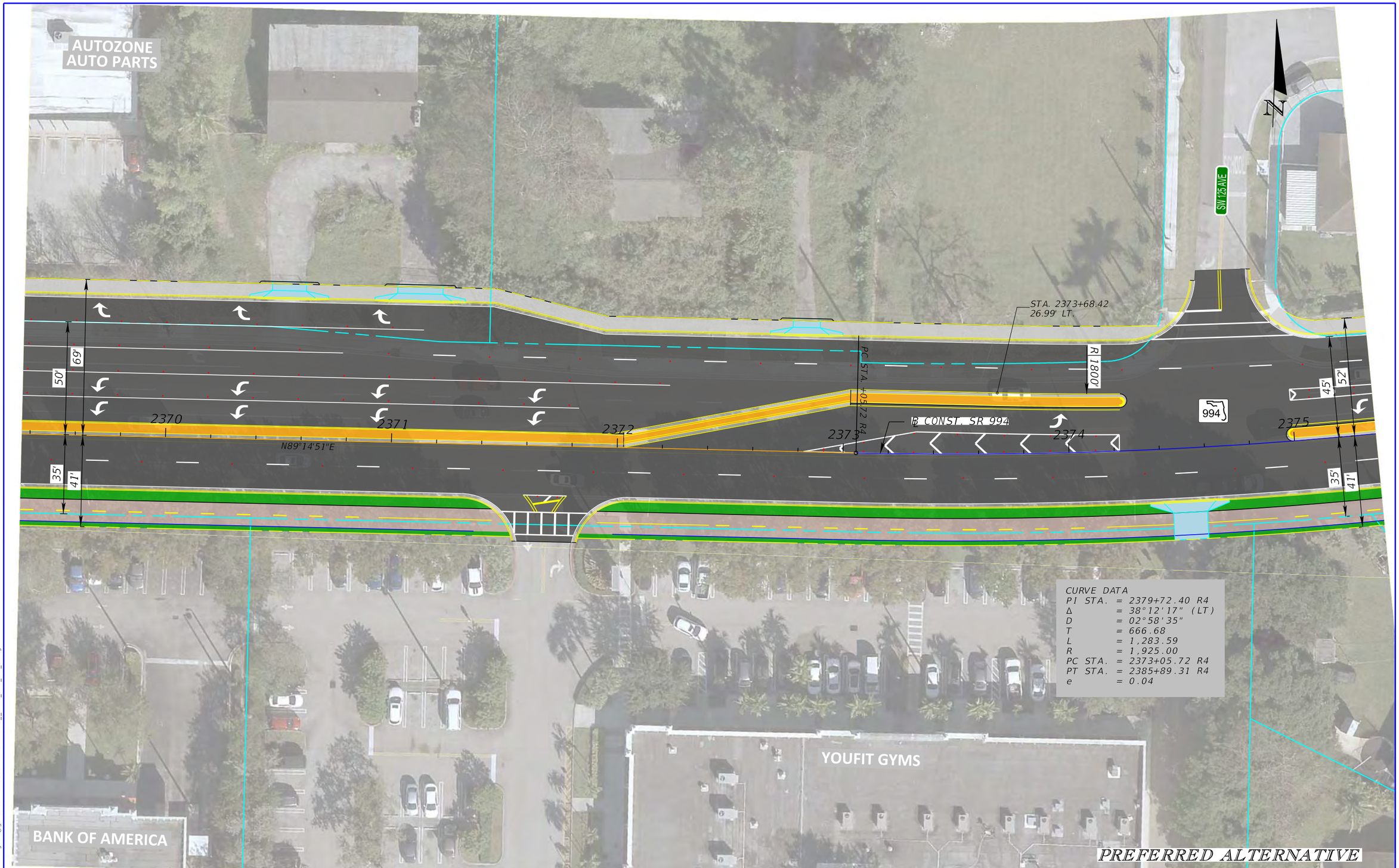

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
13

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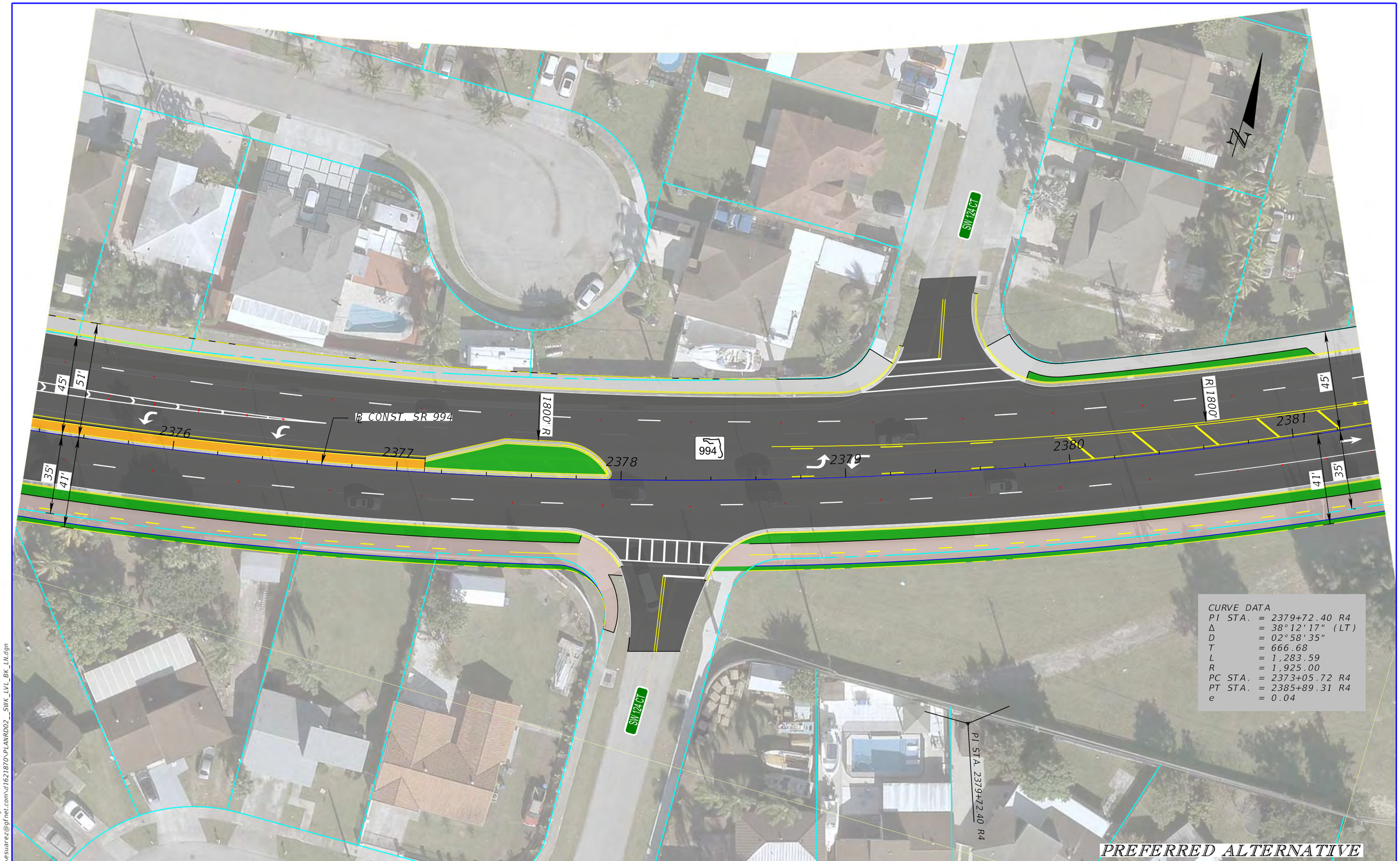

LEGEND					
ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
14

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LEGEND

ROADWAY	BRIDGE	REGRADING/SOD
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
15

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
16

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PREFERRED ALTERNATIVE

LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND			
ROADWAY	BRIDGE	REGRADING/SOD	
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES	
PATH	EXISITNG ROW	SHOULDER WIDENING	
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	
BIKE LANE PATH	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE PATH		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
19

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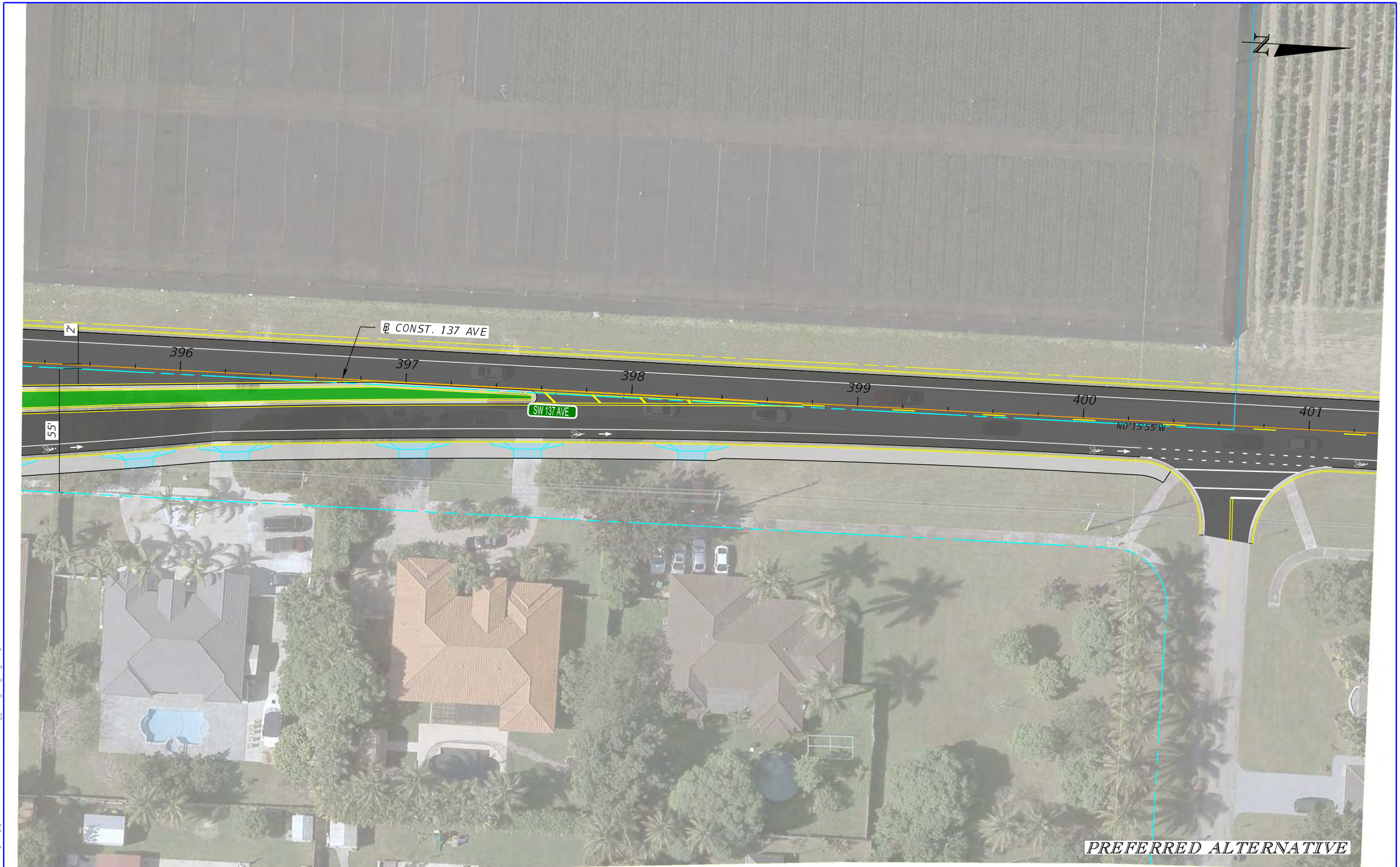

LEGEND							
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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		DATE OF AERIAL: 2021	
PATH		EXISITNG ROW		SHOULDER WIDENING			
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY			
BIKE LANE PATH		PARCEL LINE					

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY				21
BIKE LANE PATH	PARCEL LINE		DATE OF AERIAL: 2021			

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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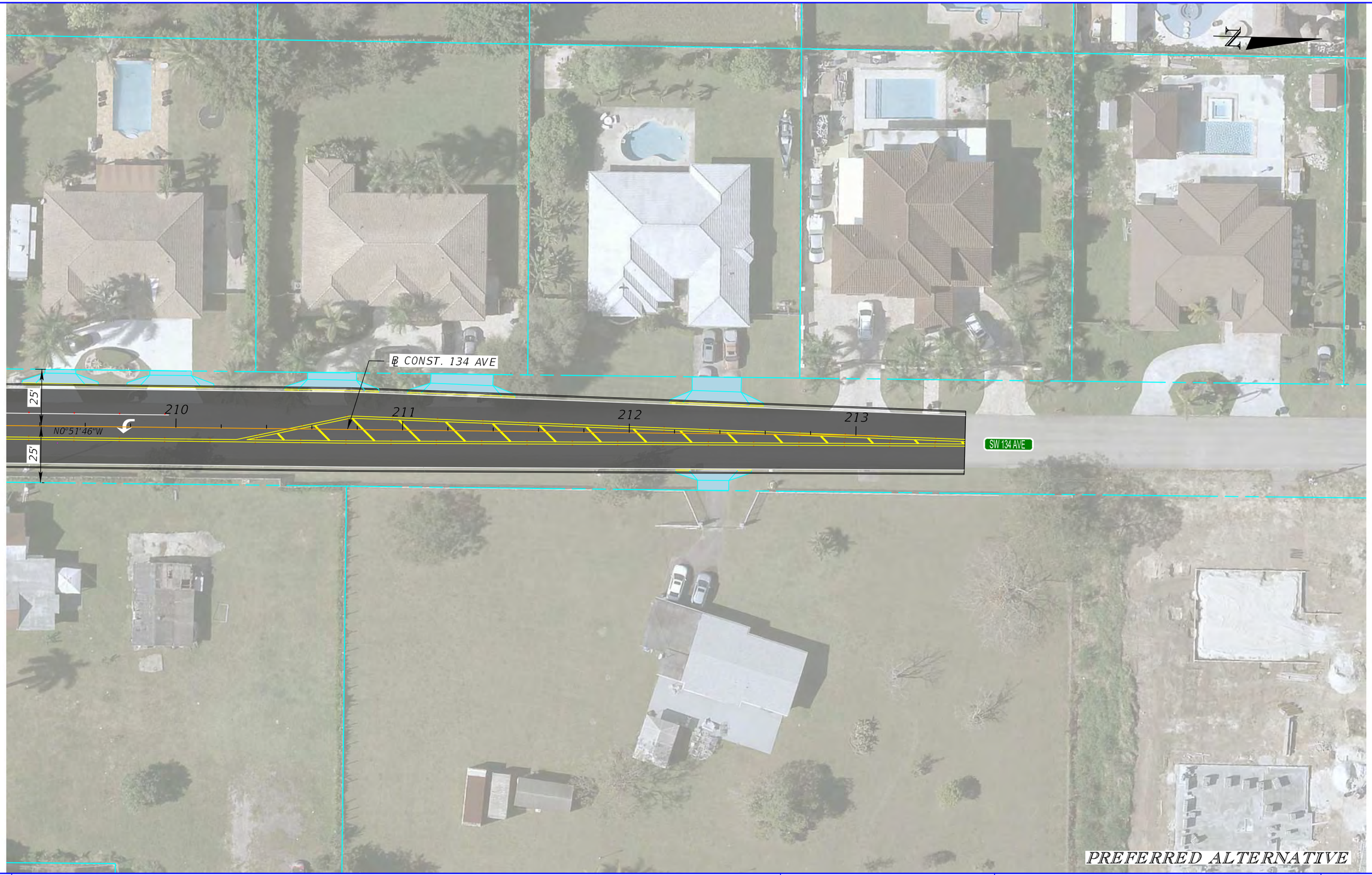

LEGEND							
ROADWAY	BRIDGE	REGRADING/SOD	0 10 40 Feet	GANNETT FLEMING, INC. 800 NW 62ND AVE MIAMI, FL 33126	SR 994 PD&E STUDY PRELIMINARY CONCEPTUAL DESIGN PLANS	SHEET NO.
SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES				
PATH	EXISITNG ROW	SHOULDER WIDENING				
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY	DATE OF AERIAL: 2021			23
BIKE LANE PATH	PARCEL LINE					

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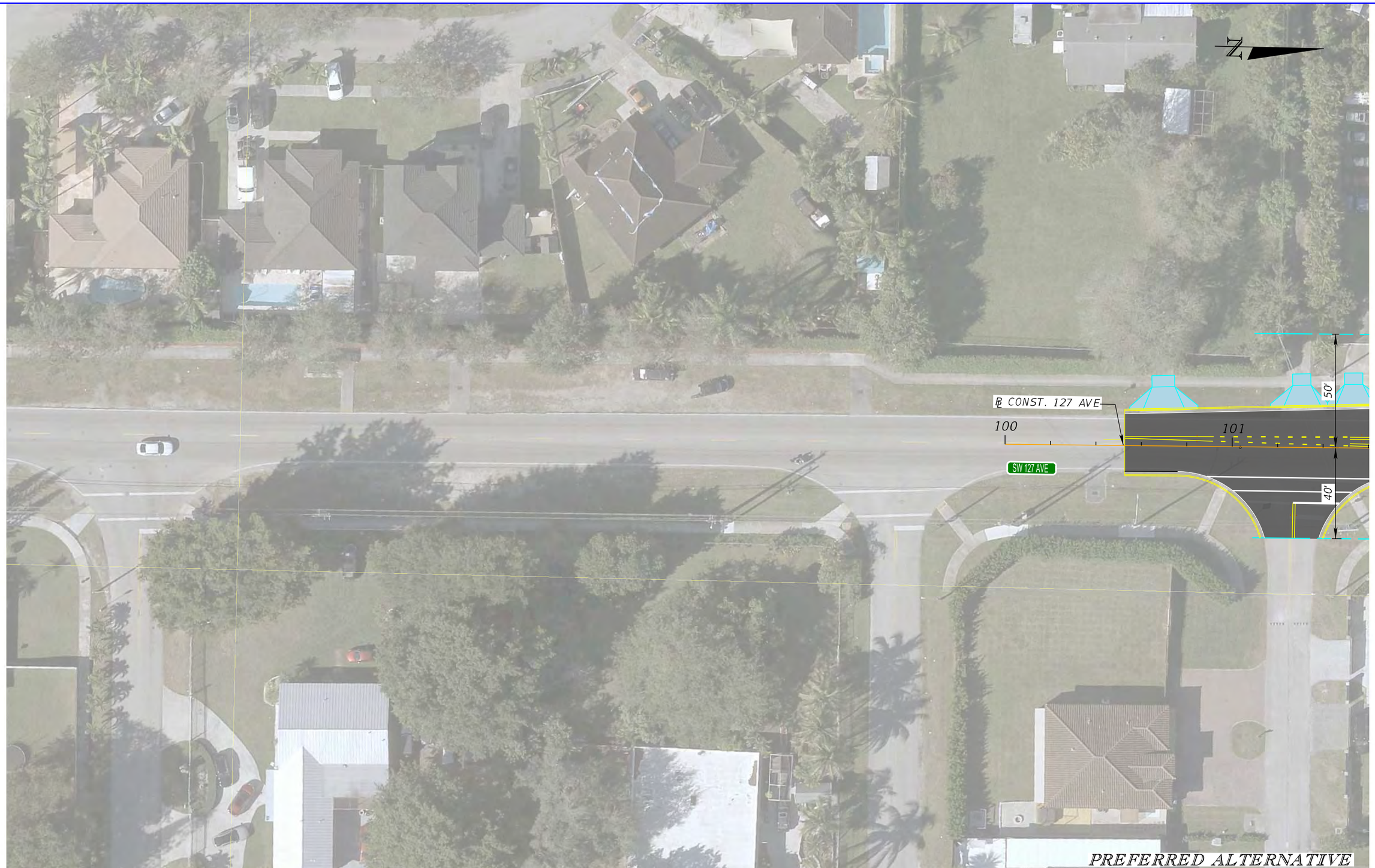

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SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES		
PATH		EXISITNG ROW		SHOULDER WIDENING		
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY		
BIKE LANE PATH		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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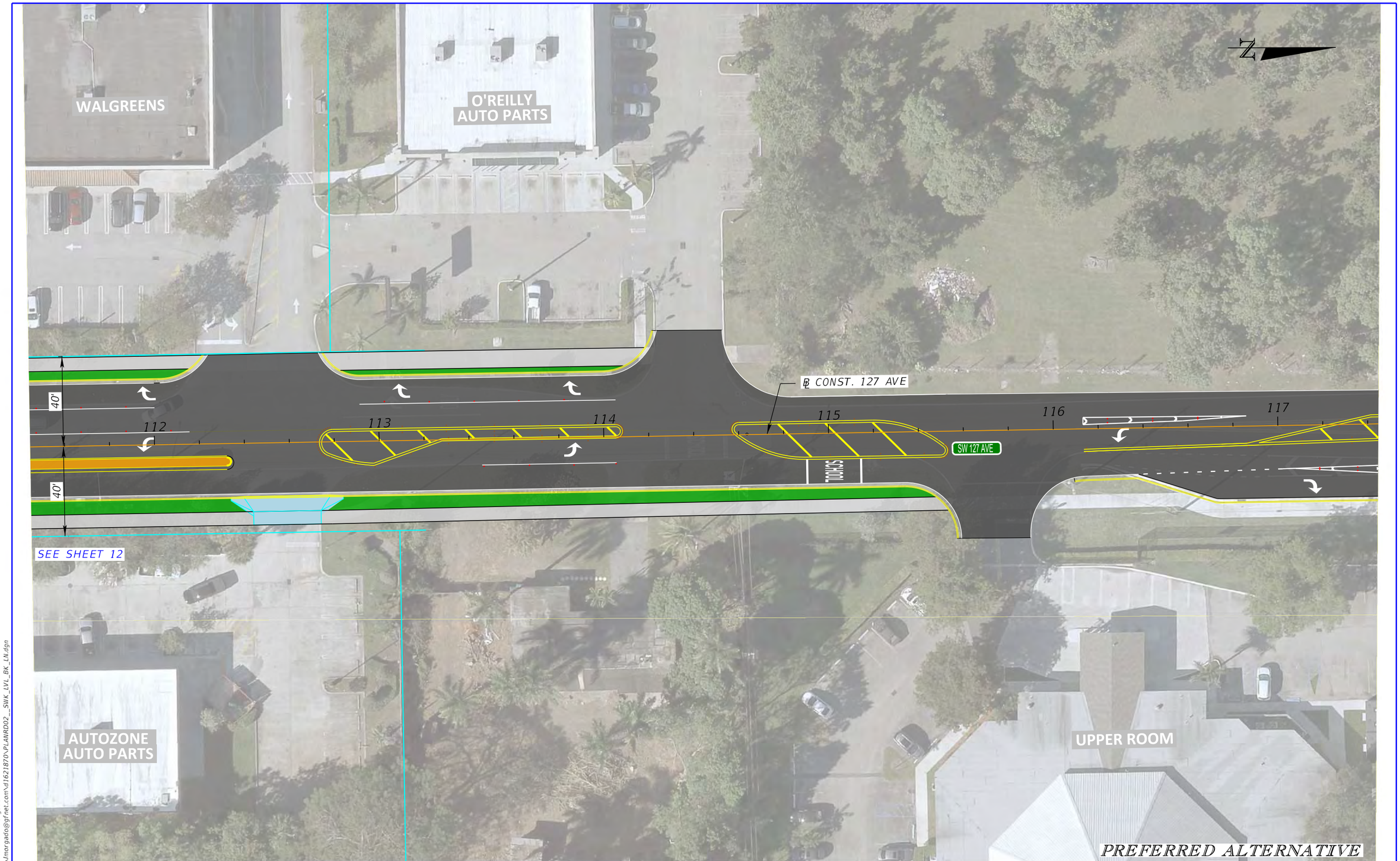

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SHARED USE	TRAFFIC SEPARATOR	HISTORIC SITES
PATH	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

ROADWAY		BRIDGE		REGRADING/SOD	
SHARED USE		TRAFFIC SEPARATOR		HISTORIC SITES	
PATH		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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Appendix U – Typical Section Package

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 445804-1-22-01

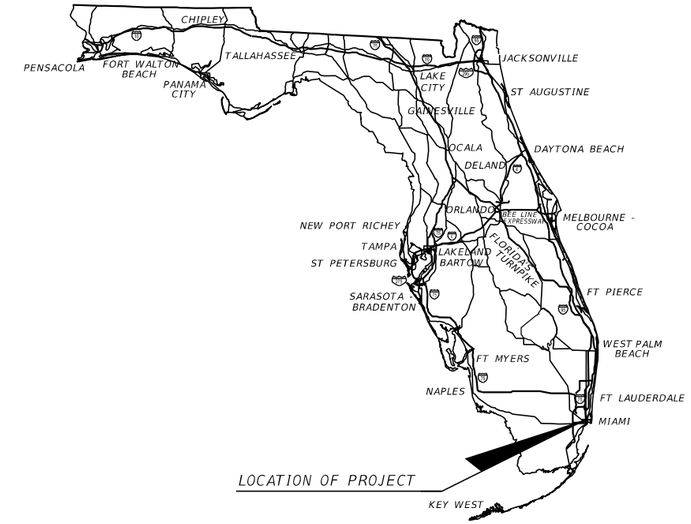
(FEDERAL FUNDS)

MIAMI-DADE COUNTY (87091)

STATE ROAD NO. 994

SW 200 ST/ QUAIL ROOST DRIVE

FROM W OF SW 137 AVE TO E. OF SW 127 AVE



FDOT DISTRICT DESIGN ENGINEER	FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER
CONCURRING WITH: TYPICAL SECTION ELEMENTS TARGET SPEED DESIGN & POSTED SPEEDS	CONCURRING WITH: TARGET SPEED DESIGN & POSTED SPEEDS
FDOT DISTRICT PLANNING AND ENVIRONMENTAL ADMINISTRATOR	FDOT DISTRICT STRUCTURES DESIGN ENGINEER
CONCURRING WITH: CONTEXT CLASSIFICATION TARGET SPEED	CONCURRING WITH: TYPICAL SECTION ELEMENTS
FHWA TRANSPORTATION ENGINEER	LOCAL TRANSPORTATION ENGINEER
CONCURRING WITH: TYPICAL SECTION ELEMENTS	CONCURRING WITH: TYPICAL SECTION ELEMENTS
NOT USED	NOT USED
CONCURRING WITH:	CONCURRING WITH:

PROJECT LOCATION URL: https://tinyurl.com/yw897yvk	
PROJECT LIMITS:	MP 3.740 TO MP 5.430
EXCEPTIONS:	NONE
BRIDGE LIMITS:	MP 4.63 TO MP 4.65
RAILROAD CROSSING:	NONE

APPROVED BY:

ALEJANDRO URIBE
LICENSE
No 75596
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
ALEJANDRO URIBE, P.E. NO. 75596

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1
3	TYPICAL SECTION NO. 2
4	TYPICAL SECTION NO. 3
5	TYPICAL SECTION NO. 4
6	TYPICAL SECTION NO. 5
7	TYPICAL SECTION NO. 6

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(x) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

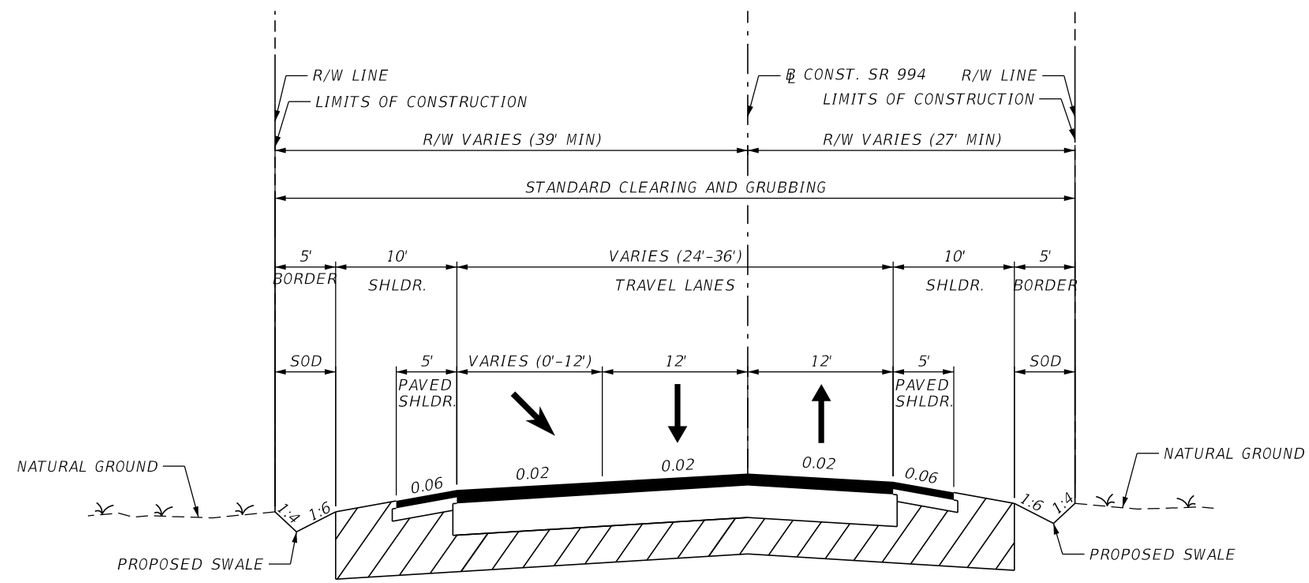
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BORDER WIDTH
CLEAR ZONE

TYPICAL SECTION No. 1



SR 994 (QUAIL ROOST DR.)

MP 3.740 TO MP 3.901

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 9300
ESTIMATED OPENING YEAR = 2025 AADT = 9900
ESTIMATED DESIGN YEAR = 2045 AADT = 11600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 50 MPH
TARGET SPEED = 50 MPH
POSTED SPEED = 50 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	2

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(X) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
(x) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

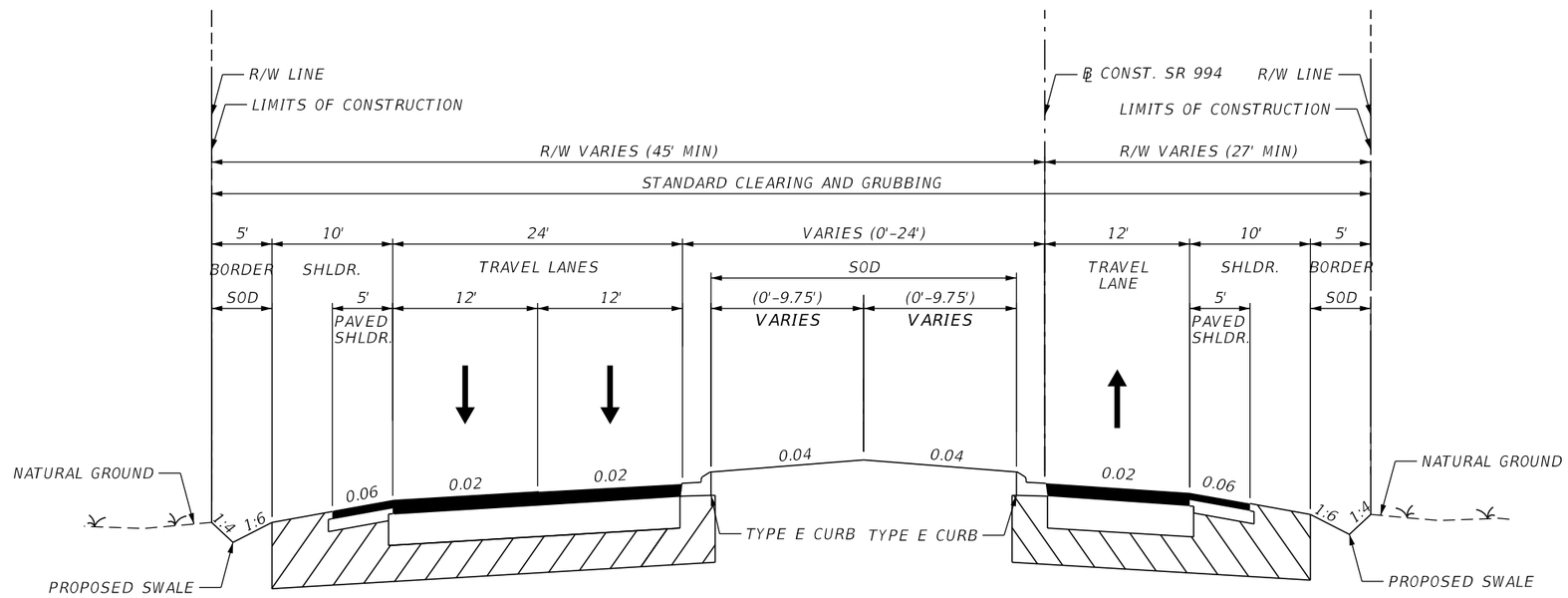
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BORDER WIDTH

TYPICAL SECTION No. 2



SR 994 (QUAIL ROOST DR.)

MP 3.901 TO MP 3.975

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 9300
ESTIMATED OPENING YEAR = 2025 AADT = 9900
ESTIMATED DESIGN YEAR = 2045 AADT = 11600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 50 MPH
TARGET SPEED = 50 MPH
POSTED SPEED = 50 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	3

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(X) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
(x) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

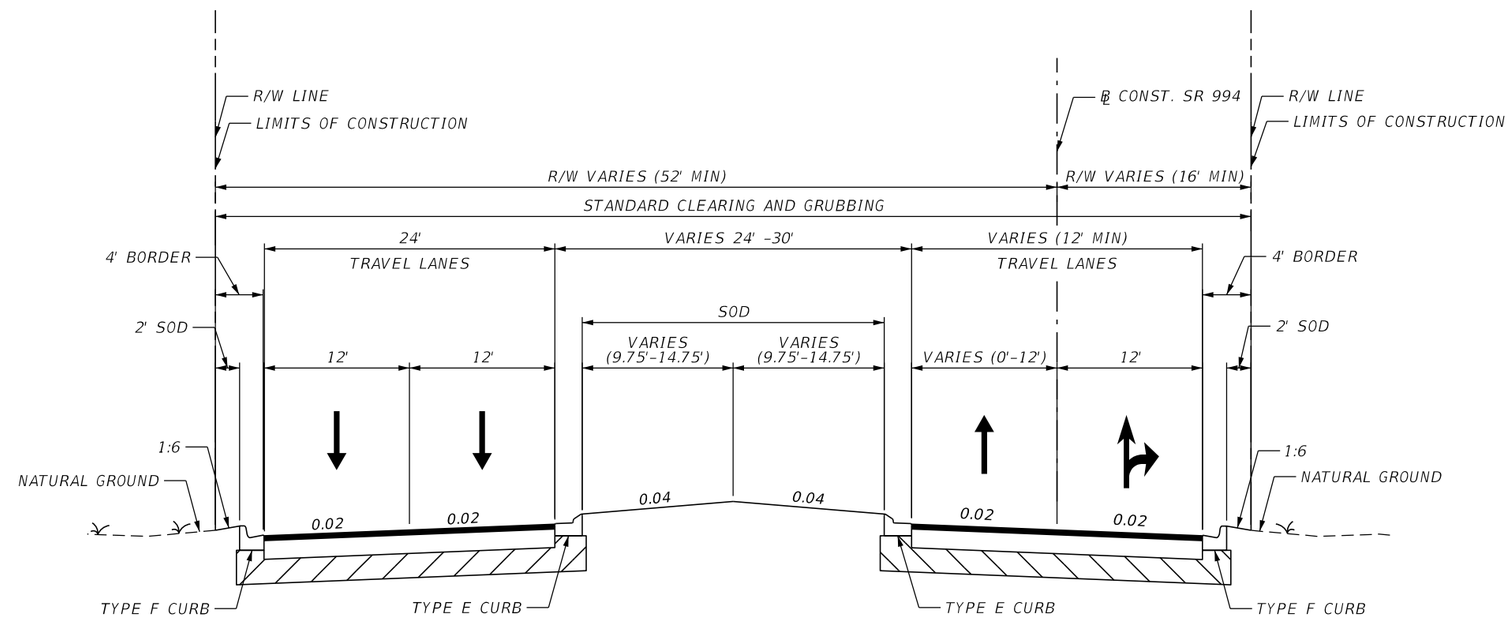
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BORDER WIDTH
BICYCLE FACILITIES

TYPICAL SECTION No. 3



SR 994 (QUAIL ROOST DR.)

MP 3.975 TO MP 4.052

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 9300
ESTIMATED OPENING YEAR = 2025 AADT = 9900
ESTIMATED DESIGN YEAR = 2045 AADT = 11600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 45 MPH
TARGET SPEED = 45 MPH
POSTED SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	4

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
(x) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
(x) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
(x) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

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( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

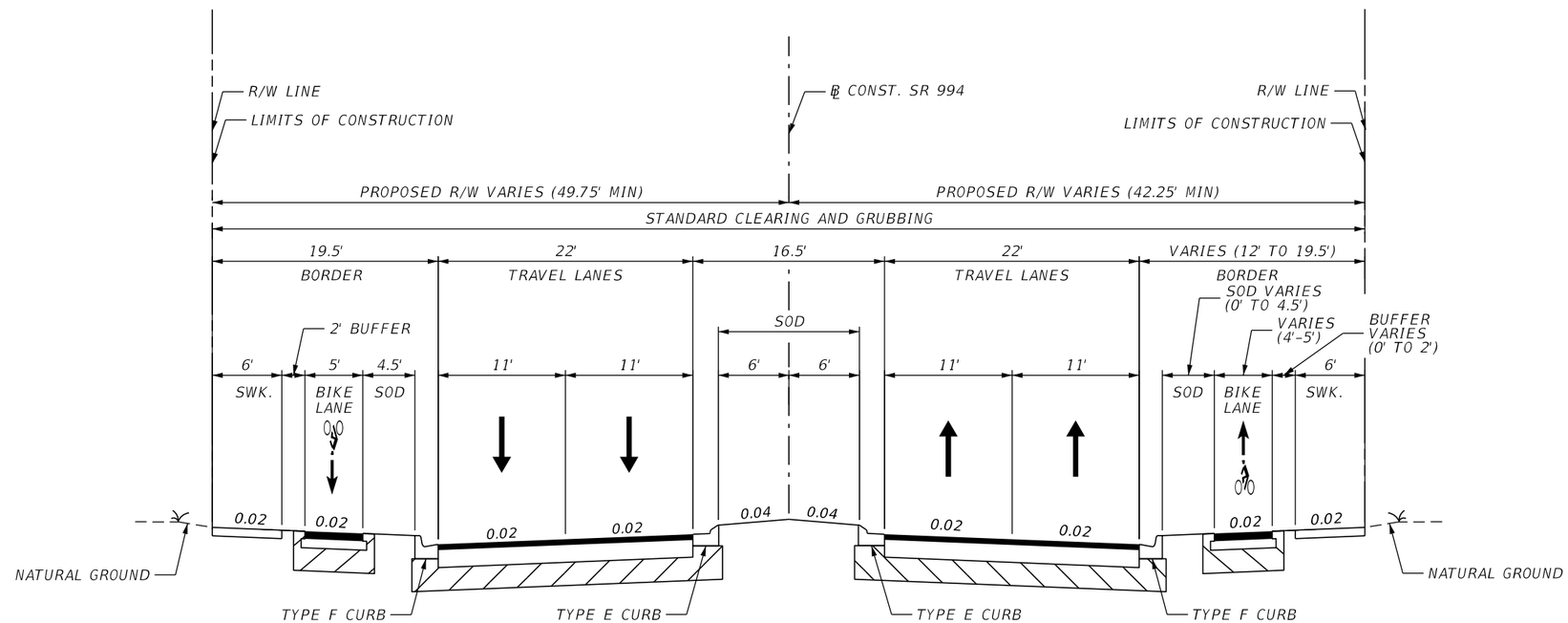
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

MEDIAN WIDTH
BICYCLE LANE HORIZONTAL CLEARANCE

TYPICAL SECTION No. 4



SR 994 (QUAIL ROOST DR.)

MP 4.052 TO MP 4.63
MP 4.65 TO MP 5.06

TRAFFIC DATA

CURRENT YEAR = 2020 AADT = 18200
ESTIMATED OPENING YEAR = 2025 AADT = 18900
ESTIMATED DESIGN YEAR = 2045 AADT = 21600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 40 MPH
TARGET SPEED= 40 MPH
POSTED SPEED= 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	5

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
(x) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
(x) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
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( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

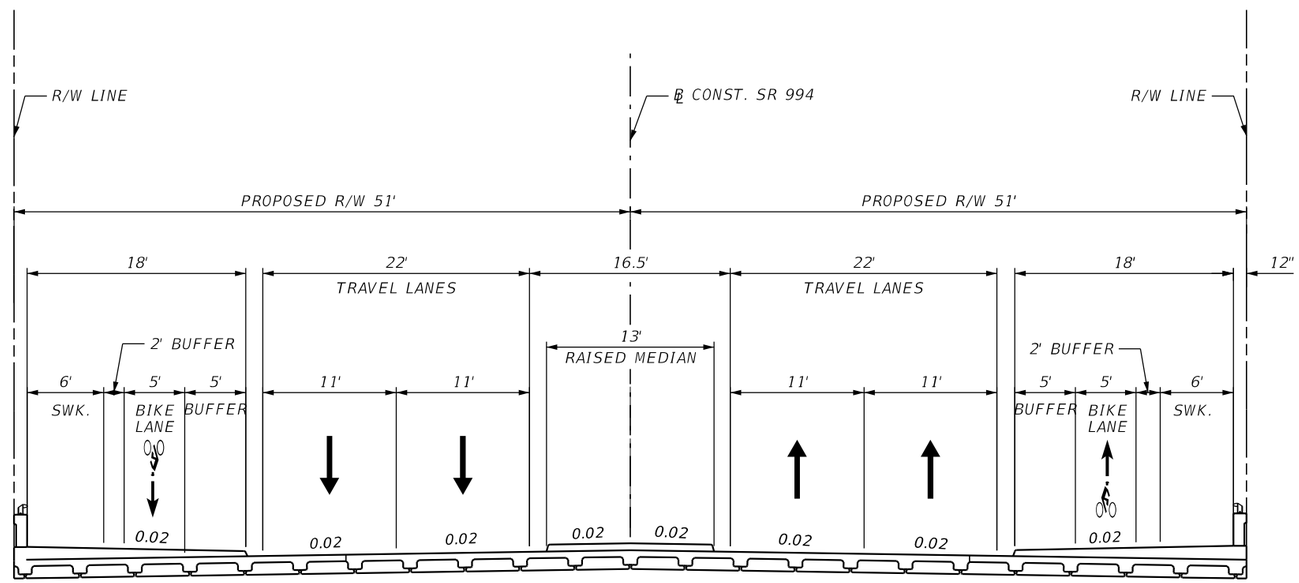
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

MEDIAN WIDTH

TYPICAL SECTION No. 5



SR 994 (QUAIL ROOST DR.)

MP 4.63 TO MP 4.65

TRAFFIC DATA

CURRENT YEAR = 2020 AADT = 18200
ESTIMATED OPENING YEAR = 2025 AADT = 18900
ESTIMATED DESIGN YEAR = 2045 AADT = 21600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 40 MPH
TARGET SPEED = 40 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	6

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
(x) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
(x) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
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( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

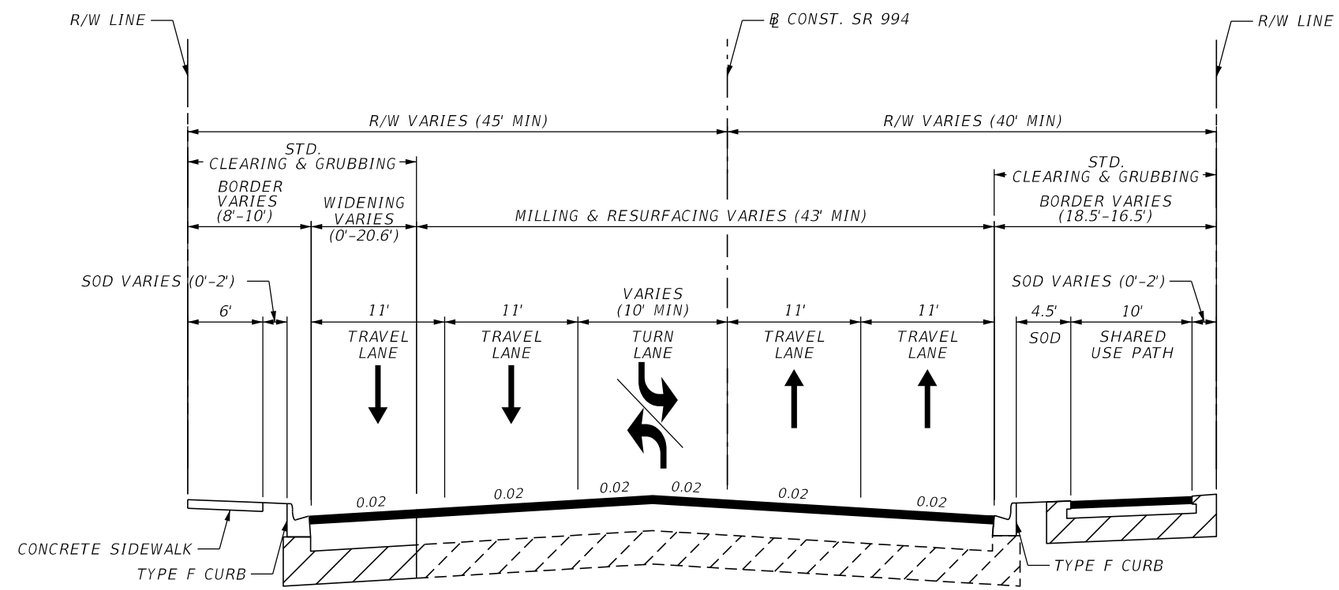
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

LANE WIDTH

TYPICAL SECTION No. 6



SR 994 (QUAIL ROOST DR.)

MP 5.06 TO MP 5.430

TRAFFIC DATA

CURRENT YEAR = 2020 AADT = 18200
ESTIMATED OPENING YEAR = 2025 AADT = 18900
ESTIMATED DESIGN YEAR = 2045 AADT = 21600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 40 MPH
TARGET SPEED = 40 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	7

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Appendix V – Design Variation Memorandum

Project Design Variation Memorandum

To: Karina Fuentes, P.E. Date: 3/18/2024
District Design Engineer

Financial Project ID: 445804-1-22-0 New Construction (☒) RRR (☐)

Federal Aid Number: N/A

Project Name: SR 994/SW 200 ST/ QUAIL ROOST DRIVE FROM W OF SW 137 AVE TO E. OF 127 AVE.

State Road Number: 994 Co./Sec./Sub.: 87/091/000

Begin Project MP: 3.740 End Project MP: 5.430

Requested for: Border Width, Bicycle Facility, Bicycle Lane Horizontal Clearance, Median Width, Lane Width

The principal purpose of this project is to improve traffic operations along SR 994 by increasing the capacity to meet projected travel demand because of Miami-Dade County population and employment growth. The scope includes reconstruction of the corridor to convert the existing two-lane undivided road into a four-lane divided road with curb and gutter, separated bike lanes, and concrete sidewalks on both sides. The reconstruction includes replacement of bridge over the Black Creek Canal. The project is located in southwest Miami-Dade County at SR 994/SW 200th Street/Quail Roost Drive, from west of SW 137th Avenue to east of SW 127th Avenue. The project corridor is approximately 1.67 miles in length. Within the project limits, SR 994 is classified as a rural major collector to the west of SW 137th Avenue and an urban minor arterial to the east of SW 137th Avenue. The corridor primarily has a C3R Suburban Residential Context Classification and a design and posted speed of 40 miles per hour. West of 137th Avenue SR 994 transitions to a C2 with posted speed of 45 miles per hour and a design speed of 50 miles per hour.

	Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
1.	Border Width	3.740 - 4.052	See below	See below	See below	☐	☐	☐	☐

Justification: According to 2024 FDOT Design Manual Part 2 Chapter 210 “Arterials and Collectors”, Table 210.7.1 Minimum Border Width, for a C2 Rural context classification of a design speed of 50 mph Curbed and High-Speed Curbed the minimum border width is 29-ft. On Flush Shoulder Design for a C2 Rural context classification of a design speed ≥ 50 mph the minimum border width is 40. According to The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets 2018 edition, Section 7.3.3.8 “The minimum border should typically be 8 ft [2.4 m] wide and often 12 ft [3.6 m] or more, depending on context and nonmotorized user needs. Every effort should be made to provide wide borders not only to serve functional needs but also as a matter of aesthetics, reducing crash frequencies for all users, and reducing the nuisance of traffic to adjacent development.” There is one segment in SR 994 with substandard border width ranging from 4-ft to 7.9-ft as shown on **Appendix B**. This is the segment west of 137th avenue. This is a rural arterial and it will require substantial right of way acquisition to meet standard criteria. The acquisition of additional Right-of-Way will create negative impacts on adjacent parcels, that currently use the needed land for agriculture. Furthermore, two of the impacted parcels on the NW and SW corners of SR 994 and SW 137 Ave are historic and the project considerations include minimizing potential impacts to historic resources. Additionally, the project extends west to transition and connect to existing, marking the beginning of our project. Border width is to provide an area for roadside features, maintenance, and construction operations, and permitted utilities. Traffic data has been extracted from Signal 4 Analytics for the years 2019 to 2023. After analyzing all crashes in this area, there are no crash types that are directly associated with substandard border width in the area

	Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
2.	Bicycle Facility	3.975 - 4.052	See below	N/A	See below	☐	☐	☐	☐

Justification: 2023 FDOT Design Manual Part 2 Chapter 223 "Bicycle Facilities" Section 223.1 states" Provide a bicycle facility on all roadways on the SHS, except where its establishment would be contrary to public safety, e.g., limited access facilities as defined by FDM 211. The proposed design does not provide a continuous bicycle lane west of 137th avenue. 5-ft paved shoulders are being provided from the west end of the project to 400-ft west of SW 137 Ave, while separated bike lanes are provided to the east of SW 137 Ave. A 400-ft gap exists to the west of SW 137 Ave, due to the limited space in this area, where SR 994 is constrained by historic properties on both sides of the road. Currently, the segment of SR 994, west of SW 137 Ave does not have bicycle lane continuity (paved shoulder, bicycle lanes or sidewalks) as it is a C2 rural context class with mainly agricultural land and constrained right of way. Based on the crash data analysis on **Appendix C** there are no crashes directly related to bicyclist activity in the area. The cost associated with the addition of bicycle lanes in that segment and the presence of historic properties outweighs the need for bicycle lanes. As a result, a bicycle lane is not recommended to be added at these locations.

	Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
3.	Bicycle Lane Horizontal Clearance	See below	See below	N/A	See below	☐	☐	☐	☐

Justification: As a safety and mobility enhancement, the proposed typical section shown in **appendix A,** shows a sidewalk level bicycle lane being constructed from east of SW 137th Avenue to SW 127th Avenue. This sidewalk level bicycle lane can be evaluated with the same criteria as a shared use path due to their similarities in configuration. According to 2023 FDOT Design Manual Part 2 Chapter 210 "Arterials and Collectors", Section 224.12, On curbed roadways, the edge of the path is to be at least 5 feet from the face of curb, with consideration of other roadside obstructions (e.g., signs and light poles). According to Section 5.2.2 of the 2012 AASHTO Guide for the Development of Bicycle Facilities, "A wide separation should be provided between a two-way side path and the adjacent roadway to demonstrate to both the bicyclist and the motorist that the path functions as an independent facility for bicyclists and other users. The minimum recommended distance between a path and the roadway curb (i.e., face of curb) or edge of traveled way (where there is no curb) is 5 ft (1.5 m) Where the separation is less than 5 ft (1.5 m), a physical barrier or railing should be provided between the path and the roadway." As shown on **Appendix B** there is one area east of 134th avenue and west of 133rd avenue where there is no buffer separating the sidewalk level bike lane from the travel lane. This is due to the presence of a historic property on the South leg of the road. Including a buffer represented further impact on the historic properties and its vicinity. A design variation is requested to remove the buffer at that portion on the road.

DRAFT

	Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
4.	Median Width	4.052-5.06	See below	16.5’	See below	☐	☐	☐	☐

Justification: According to 2024 FDOT Design Manual Part 2 Chapter 210 “Arterials and Collectors”, Table 210.3.1 Median Widths, for a C3 Suburban context classification of a design speed of 40-45 mph on Curb Roadways and Flush Shoulder Roadways the median width is 22 ft. On reconstruction projects where existing curb locations are fixed due to severe right of way constraints, the minimum median width may be reduced to 19.5 feet for design speeds = 45 mph, and to 15.5 feet for design speeds ≤ 40 mph. According to The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets 2018 edition, Section 7.3.3.5 “To accommodate left-turn movements, the median should be at least 10 ft [3.0 m] wide. A minimum 4-ft [1.2-m] medial separator between the turning lane and the opposing traffic lane is desirable. SR 944 is currently an undivided corridor. The crash data indicates there were two head on crashes that are associated with the lack of protection from vehicles traveling in opposite direction. For SR 994 a 16.5’ median is being proposed from east of 137th avenue to west of 127th avenue as shown in **Appendix E**. **Appendix E** shows the right of way acquisition area for Alternatives two and three. Alternative three reflects the area of acquisition if a median with standard dimensions would be in place as opposed to the proposed alternative two, which shows a 16.5’ median. With alternative 3 a higher number of parcels would have to be relocated, significantly increasing the impacts, and disturbing the community. The addition of a median will reduce the number of conflicts at stop-controlled intersections by restricting or eliminating some of the existing turn movements. A design variation is requested to provide the addition of a 16.5’ median, increase safety and provide a space for landscape placement.

	Design Element	MP: Beg-End	Existing	Proposed	Required	Attr. Crashes	Approved	Denied	Addl. Docum.
5.	Lane width	5.29-5.430	See below	N/A	See below	☐	☐	☐	☐

According to the FDOT Design Manual, Table 210.2.1, the lane widths for C3 (Suburban) with a Design Speed of 40 mph is 11-ft for the Auxiliary Lanes, and Two-Way Left Turn Lane According to page 7-29 of the AASHTO Geometric Design of Highways and Streets (2011). “A 3.3-m [11-ft] lane width is adequate for through lanes, continuous two-way left-turn lanes, and lanes adjacent to a painted median.” The proposed criteria shown in Typical section 6 of **Appendix A,** is to provide a 10-ft wide Two-Way Left Turn lane along SR 994 from east of SW 124th Ct until the end of the project just east of SW 132nd PL, and connect to an existing typical section that provides a 10-ft Two-Way Left Turn Lane. After reviewing the latest 5-year crash history (2019 to 2023), it was determined that one sideswipe crash (# 24891919) in that segment might be attributed violation of the minimum required width of the Two-Way Left Turn Lane and right turn lanes. There were no fatalities within the project limits associated to sideswipes. A design variation is requested to leave the existing 10’ Two-Way Left Turn Lane.

DRAFT

Recommended by:
THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND
SEALED BY Alejandro Uribe, P.E ON THE DATE INDICATED HERE:

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AND THE SIGNATURE MUST BE VERIFIED
ON THE ELECTRONIC COPIES

Gannett Fleming, Inc.
800 NW 62nd Ave.
Miami, FL 33126
Alejandro Uribe, P.E.
State of Florida, Professional Engineer, License No. 75596

Approvals:

District Design Engineer

District Structures Design Engineer

List of appendixes:

APPENDIX A: TYPICAL SECTION PACKAGE
APPENDIX B: PRELIMINARY PD&E PLANS
APPENDIX C: SIGNAL 4 ANALYTICS
APPENDIX D: LONG RANGE ESTIMATE
APPENDIX E: R/W AQUISITON COST
APPENDIX F: EVALUATION MATRIX

DRAFT

APPENDIX A: TYPICAL SECTION PACKAGE

DRAFT

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 445804-1-22-01

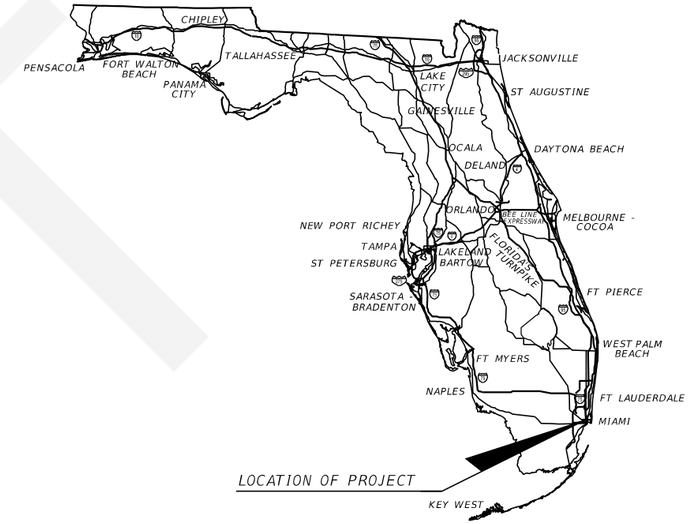
(FEDERAL FUNDS)

MIAMI-DADE COUNTY (091000)

STATE ROAD NO. 994

SW 200 ST/ QUAIL ROOST DRIVE

FROM W OF SW 137 AVE TO E. OF SW 127 AVE



PROJECT LOCATION URL: https://tinyurl.com/yw897yvk	
PROJECT LIMITS:	MP 3.740 TO MP 5.430
EXCEPTIONS:	NONE
BRIDGE LIMITS:	MP 4.63 TO MP 4.65
RAILROAD CROSSING:	NONE

FDOT DISTRICT DESIGN ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER

CONCURRING WITH:
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT PLANNING AND ENVIRONMENTAL ADMINISTRATOR

CONCURRING WITH:
CONTEXT CLASSIFICATION
TARGET SPEED

FDOT DISTRICT STRUCTURES DESIGN ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

FHWA TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

LOCAL TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

NOT USED

CONCURRING WITH:

NOT USED

CONCURRING WITH:

APPROVED BY:

ALEJANDRO URIBE
LICENSE
No 75596
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

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GANNETT FLEMING, INC.
800 NW 62ND AVE, SUITE 490
MIAMI, FL 33126
ALEJANDRO URIBE, P.E. NO. 75596

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1
3	TYPICAL SECTION NO. 2
4	TYPICAL SECTION NO. 3
5	TYPICAL SECTION NO. 4
6	TYPICAL SECTION NO. 5
7	TYPICAL SECTION NO. 6

DRAFT

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(x) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

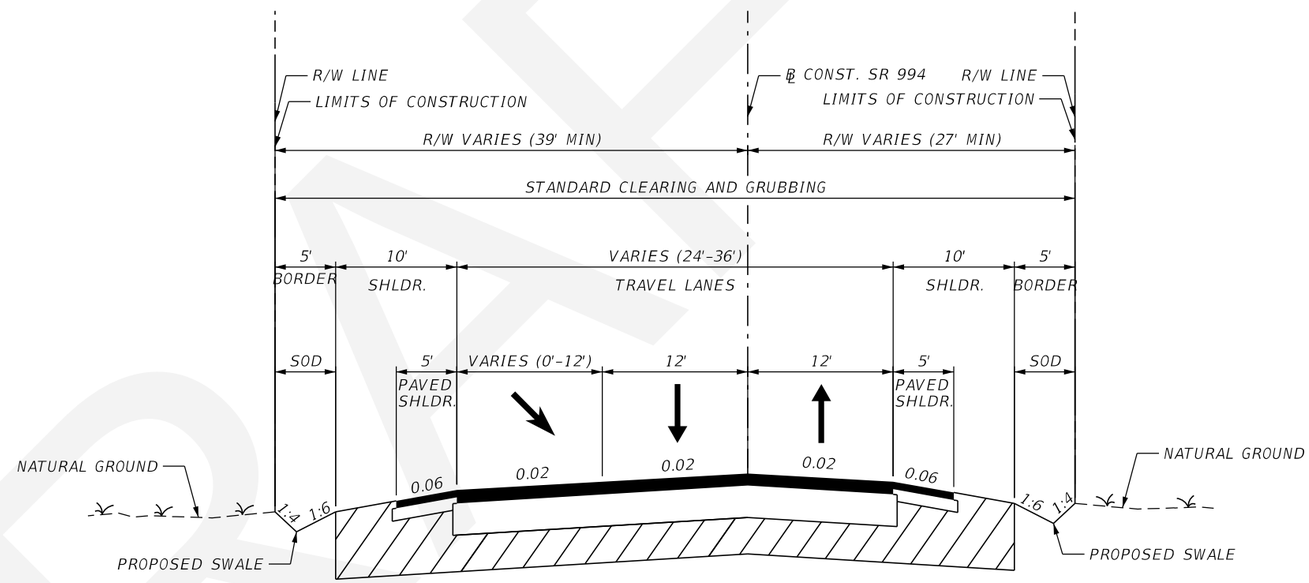
CRITERIA

( ) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
(x) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BORDER WIDTH

TYPICAL SECTION No. 1



SR 994 (QUAIL ROOST DR.)

MP 3.740 TO MP 3.901

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 9300
ESTIMATED OPENING YEAR = 2025 AADT = 9900
ESTIMATED DESIGN YEAR = 2045 AADT = 11600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 50 MPH
TARGET SPEED = 50 MPH
POSTED SPEED = 50 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	2

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(X) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

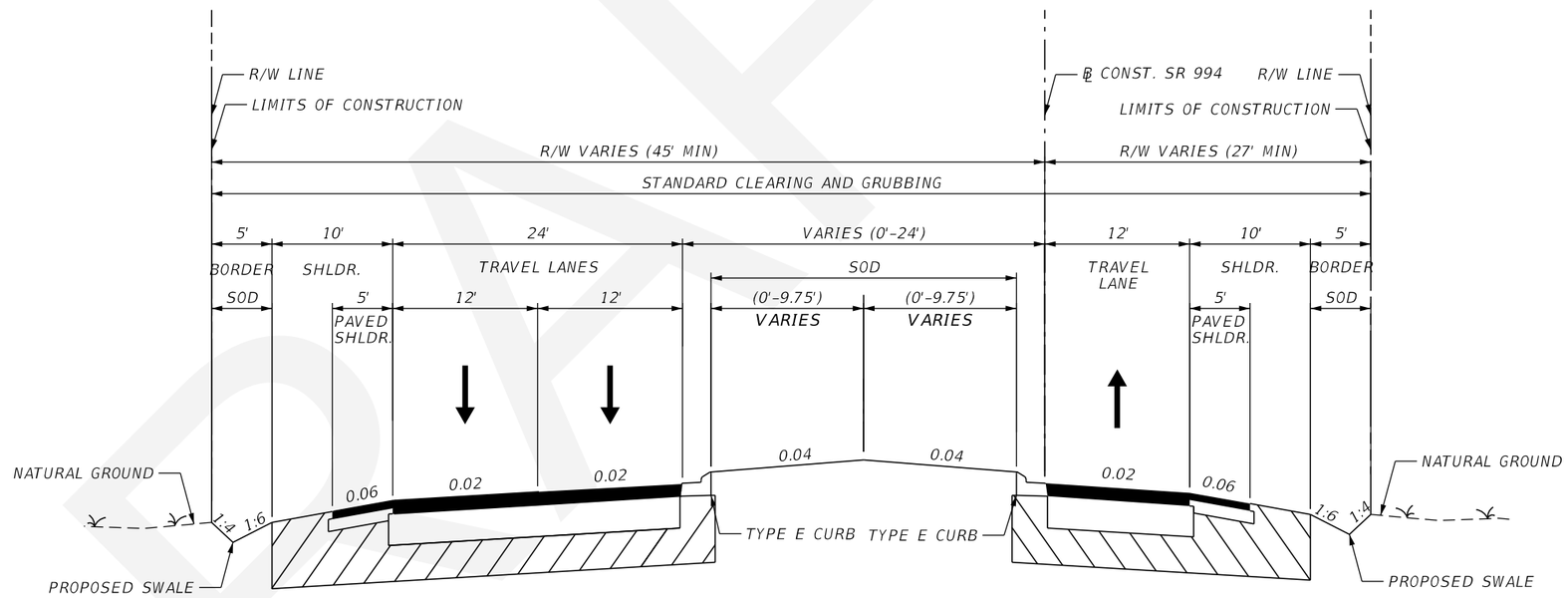
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BORDER WIDTH

TYPICAL SECTION No. 2



SR 994 (QUAIL ROOST DR.)

MP 3.901 TO MP 3.975

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 9300
ESTIMATED OPENING YEAR = 2025 AADT = 9900
ESTIMATED DESIGN YEAR = 2045 AADT = 11600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 50 MPH
TARGET SPEED = 50 MPH
POSTED SPEED = 50 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	3

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(X) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

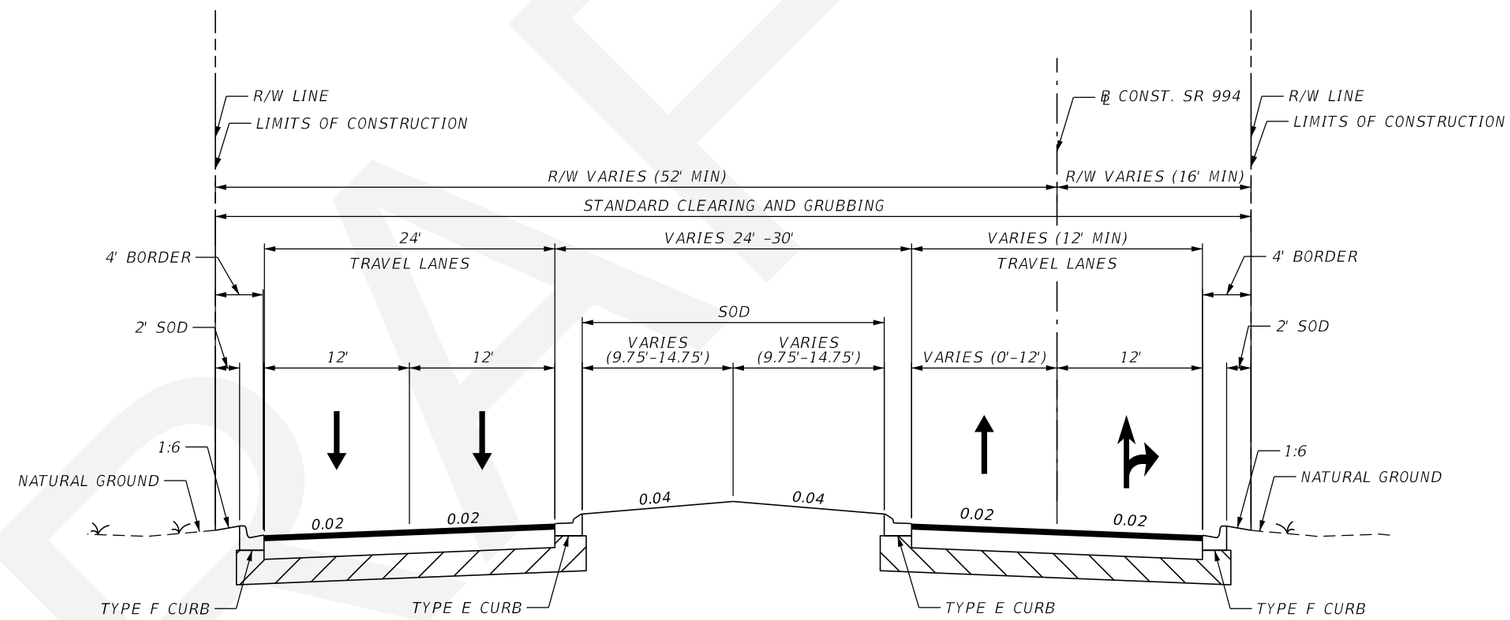
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

BORDER WIDTH
BICYCLE FACILITIES

TYPICAL SECTION No. 3



SR 994 (QUAIL ROOST DR.)

MP 3.975 TO MP 4.052

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 9300
ESTIMATED OPENING YEAR = 2025 AADT = 9900
ESTIMATED DESIGN YEAR = 2045 AADT = 11600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 50 MPH
TARGET SPEED = 50 MPH
POSTED SPEED = 50 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	4

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
(x) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
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( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

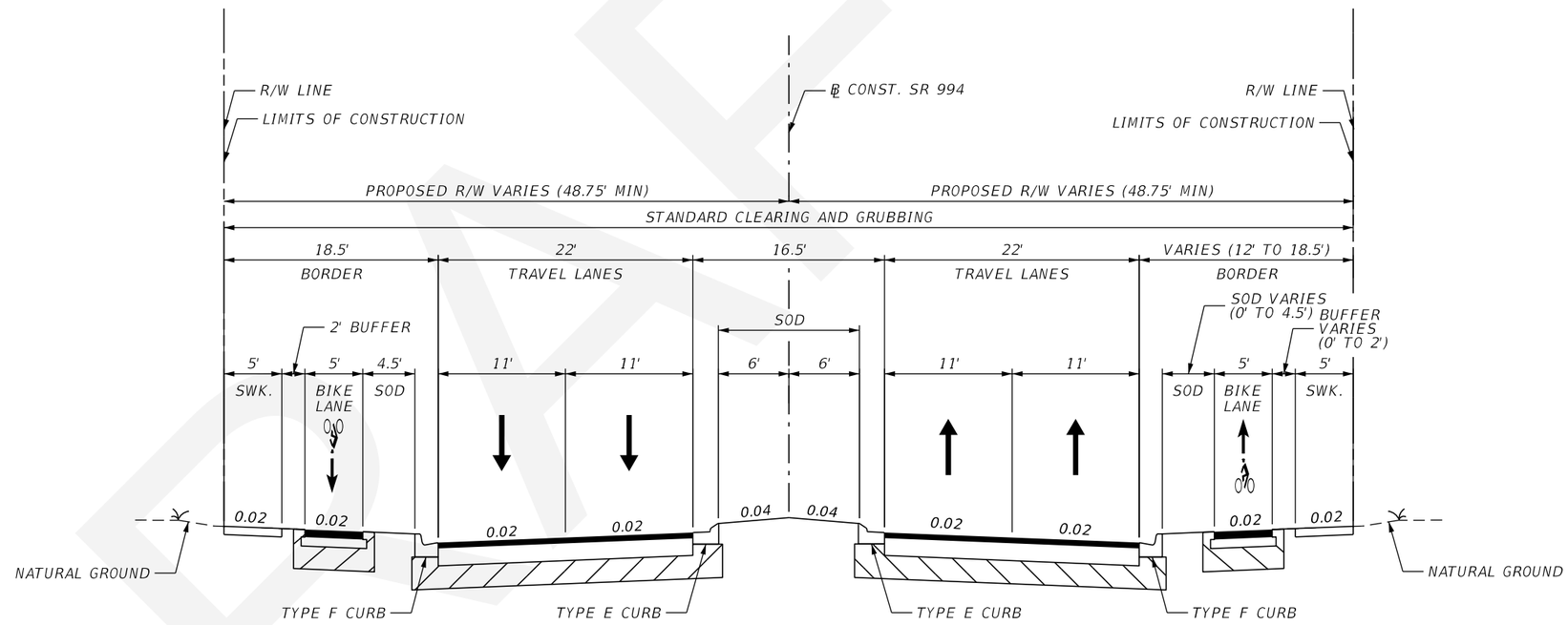
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

MEDIAN WIDTH
BICYCLE LANE HORIZONTAL CLEARANCE

TYPICAL SECTION No. 4



SR 994 (QUAIL ROOST DR.)

MP 4.052 TO MP 4.63
MP 4.65 TO MP 5.06

TRAFFIC DATA

CURRENT YEAR = 2020 AADT = 18200
ESTIMATED OPENING YEAR = 2025 AADT = 18900
ESTIMATED DESIGN YEAR = 2045 AADT = 21600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 40 MPH
TARGET SPEED= 40 MPH
POSTED SPEED= 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	5

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
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( ) C2T : RURAL TOWN
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( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

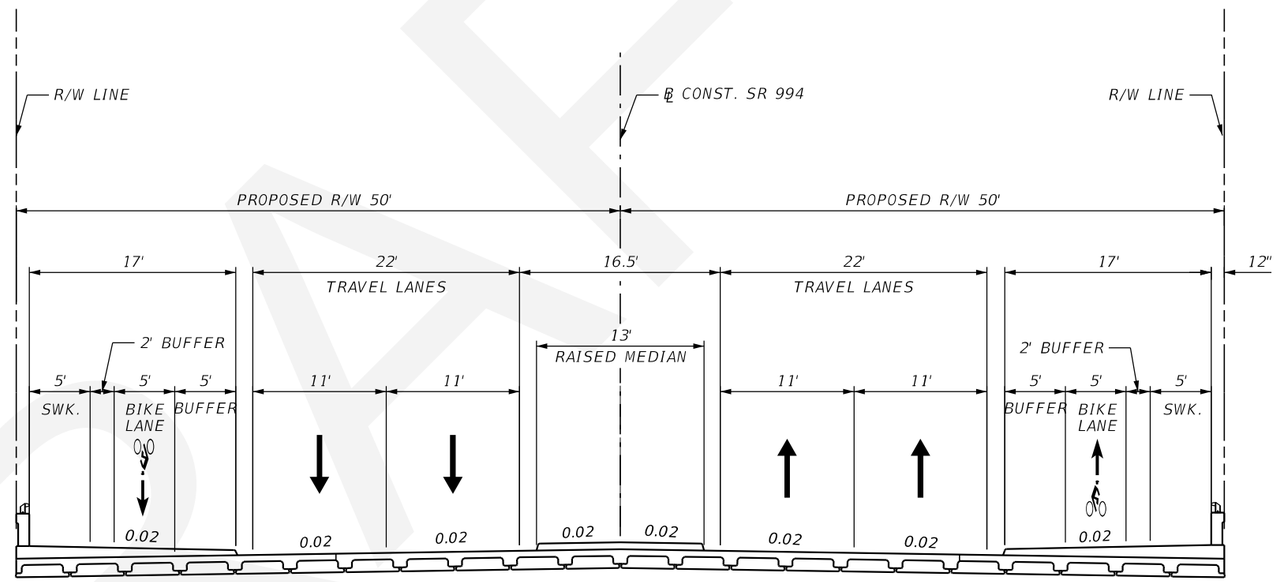
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

MEDIAN WIDTH

TYPICAL SECTION No. 5



SR 994 (QUAIL ROOST DR.)

MP 4.63 TO MP 4.65

TRAFFIC DATA

CURRENT YEAR = 2020 AADT = 18200
ESTIMATED OPENING YEAR = 2025 AADT = 18900
ESTIMATED DESIGN YEAR = 2045 AADT = 21600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 40 MPH
TARGET SPEED = 40 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	6

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
(x) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
( ) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
(x) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
( ) STRATEGIC INTERMODAL SYSTEM
(x) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
( ) 3 - RESTRICTIVE w/660 ft. Connection Spacing
(x) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

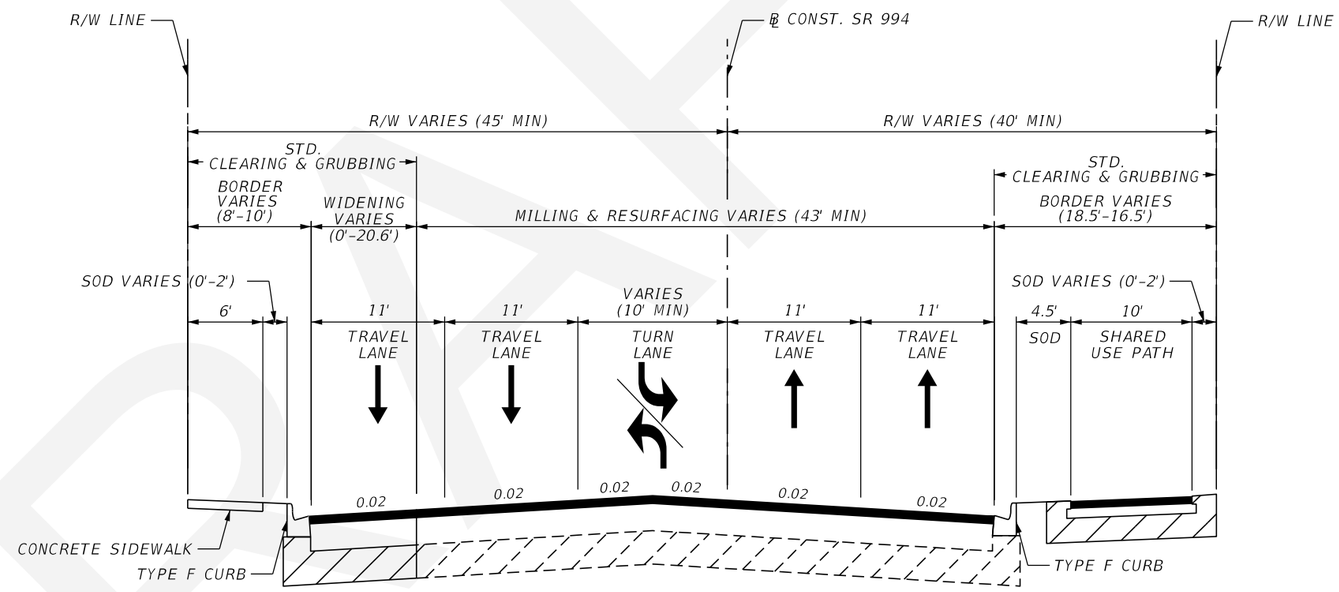
CRITERIA

(x) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

LANE WIDTH

TYPICAL SECTION No. 6



SR 994 (QUAIL ROOST DR.)

MP 5.06 TO MP 5.430

TRAFFIC DATA

CURRENT YEAR = 2020 AADT = 18200
ESTIMATED OPENING YEAR = 2025 AADT = 18900
ESTIMATED DESIGN YEAR = 2045 AADT = 21600
K = 9 % D = 56% T = 6.22% (24 HOUR)
DESIGN HOUR T = 3.11%
DESIGN SPEED = 40 MPH
TARGET SPEED = 40 MPH
POSTED SPEED = 40 MPH

FINANCIAL PROJECT ID	SHEET NO.
44580412201	7

DRAFT

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APPENDIX B: PRELIMINARY PD&E PLANS

DRAFT

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
01

3/11/2024 11:45:49 AM lmorgado
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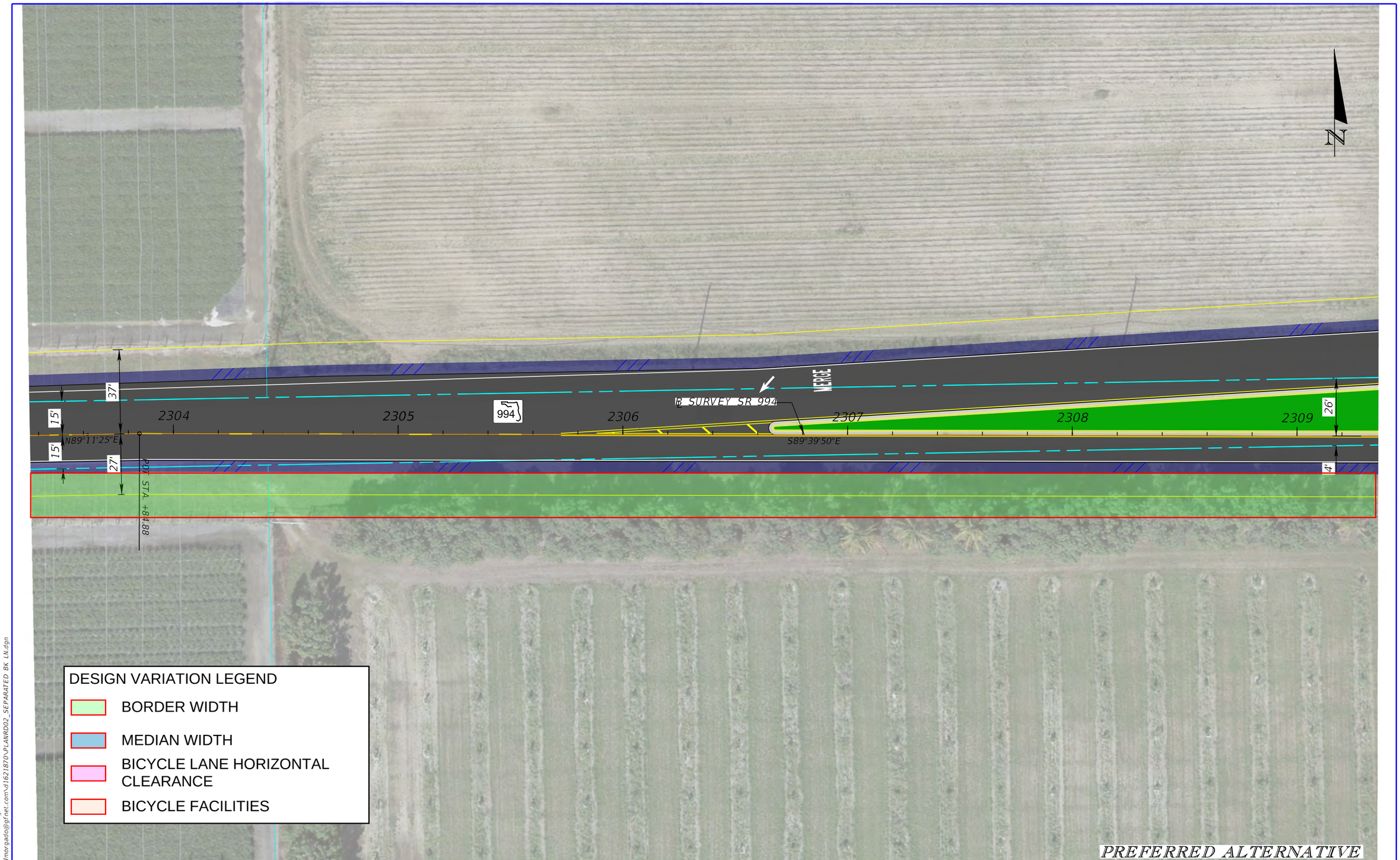

LEGEND

WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
02

3/11/2024 11:45:52 AM lmorgado
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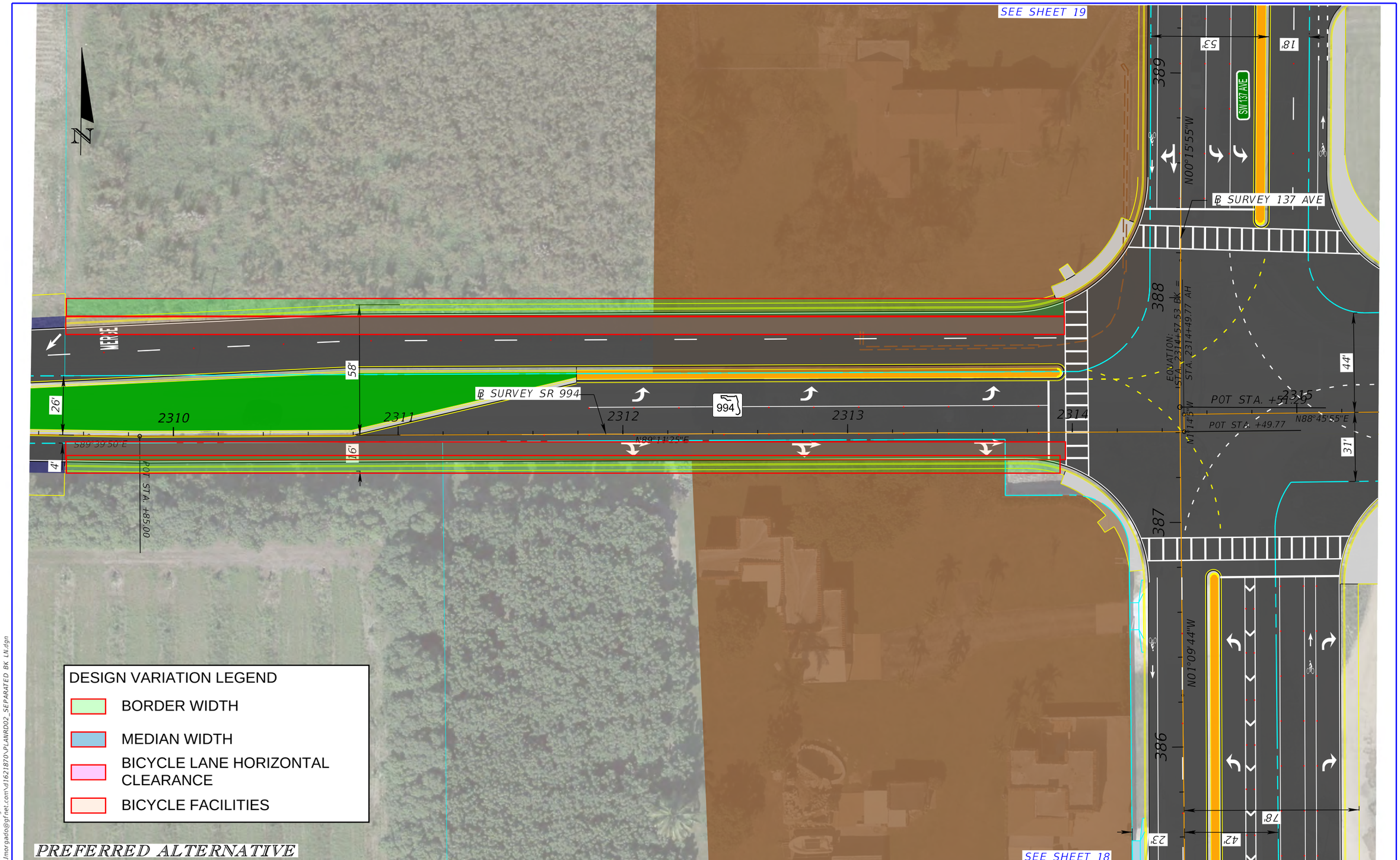

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
03

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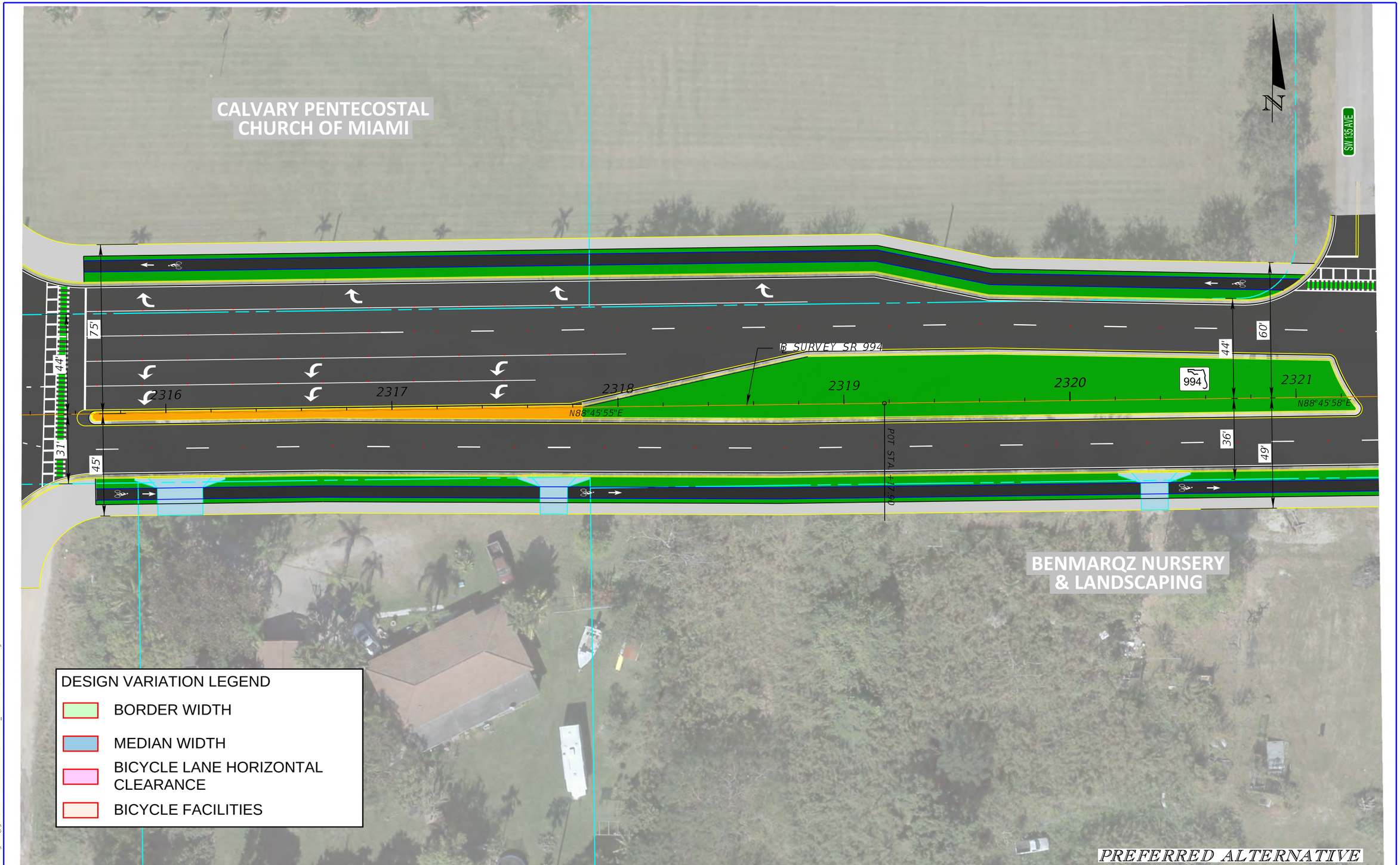

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
04

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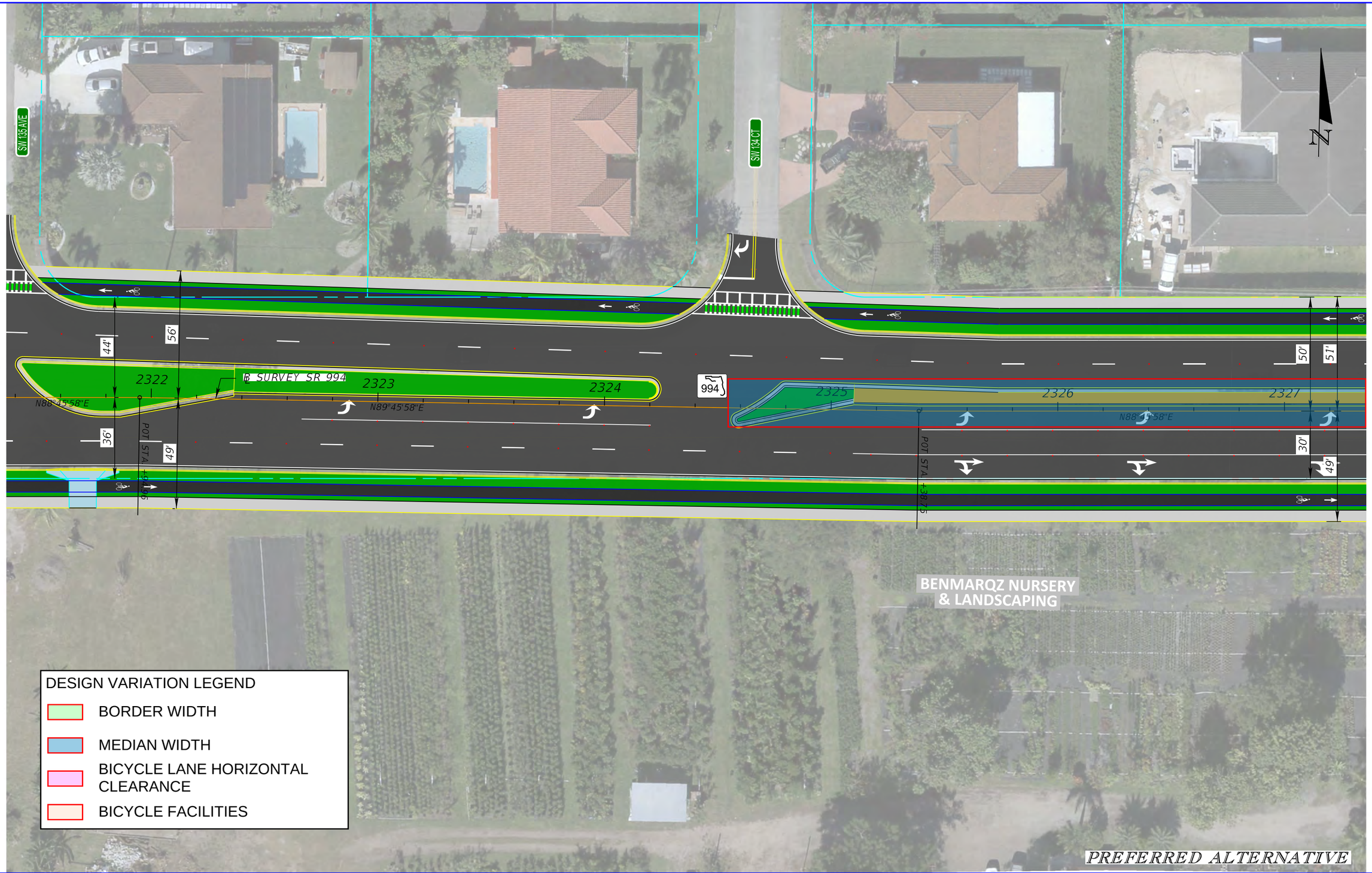

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
05

3/11/2024 11:46:03 AM lmorgado
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SEE SHEET 23

24' 25' 209 SW 134 AVE N00°51'46"W

℄ SURVEY 134 AVE

208 207 206

50' 30' 18' 7' 29' 23' 40' 49' 40' 42'

POT STA. 2328+00.06 R3

N88°45'58"E

EQUATION:
STA. 2328+00.06 AH = STA. 2328+00.06 BK
N1°14'6"W

℄ SURVEY SR 994

994

2328 2329 2330 2331 2332 2333

PI STA. 2330+04.47 R3

PC STA. 2328+35 R3

CURVE DATA
PI STA. = 2330+04.47 R3
Δ = 01°40'23" (LT)
D = 00°24'33"
T = 204.41
L = 408.79
R = 14,000.00
PC STA. = 2328+00.06 R3
PT STA. = 2332+08.85 R3
e = NC

CURVE DATA
PI STA. = 2334+19.13 R3
Δ = 01°43'16" (RT)
D = 00°24'33"
T = 210.28
L = 420.53
R = 14,000.00
PC STA. = 2332+08.85 R3
PT STA. = 2336+29.38 R3
e = NC

N00°51'46"W SW 134 AVE

SW 133 CT

N

DESIGN VARIATION LEGEND

- BORDER WIDTH
- MEDIAN WIDTH
- BICYCLE LANE HORIZONTAL CLEARANCE
- BICYCLE FACILITIES

SEE SHEET 22

PREFERRED ALTERNATIVE

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
06

3/11/2024 11:46:06 AM lmorgado
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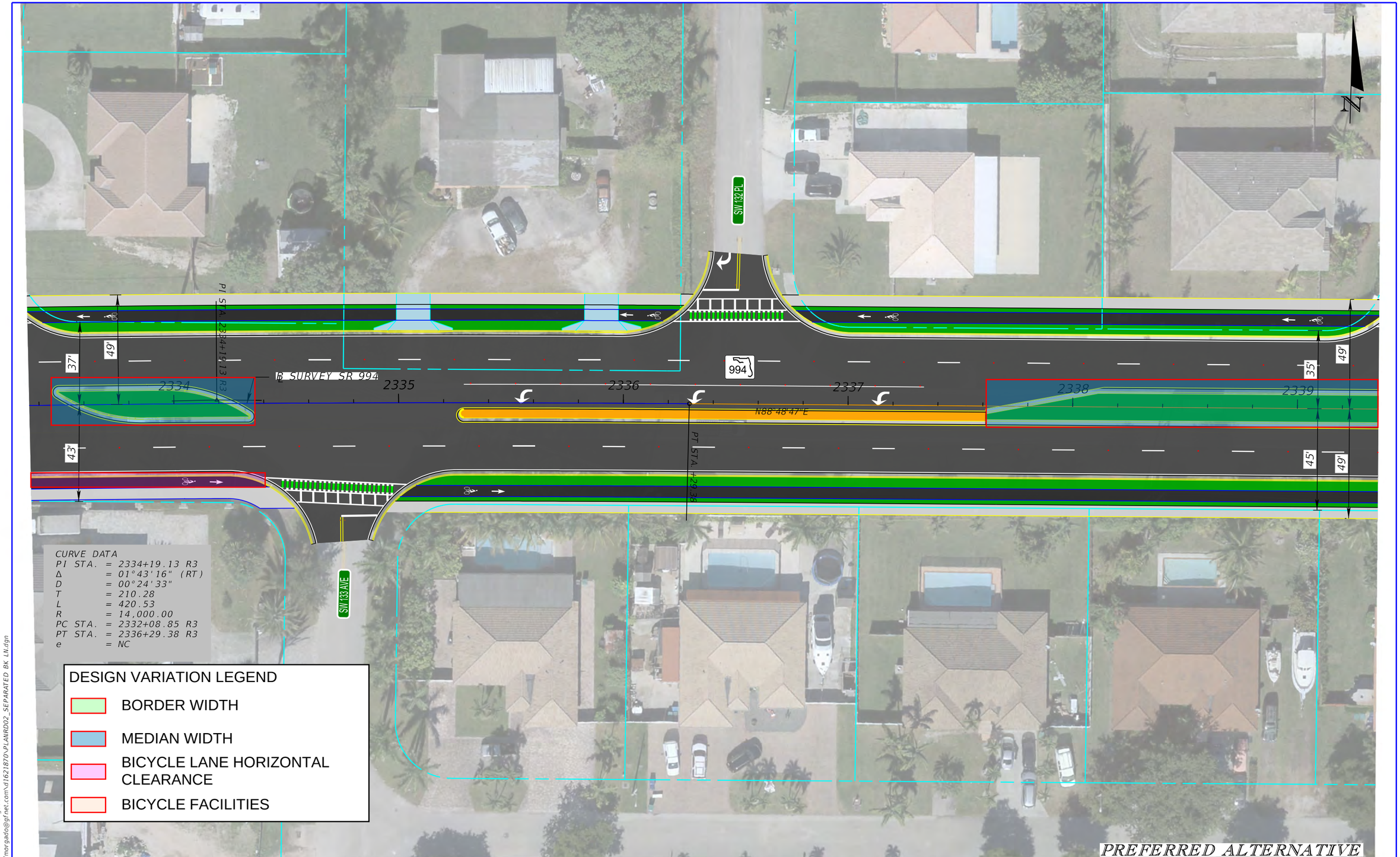

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
07

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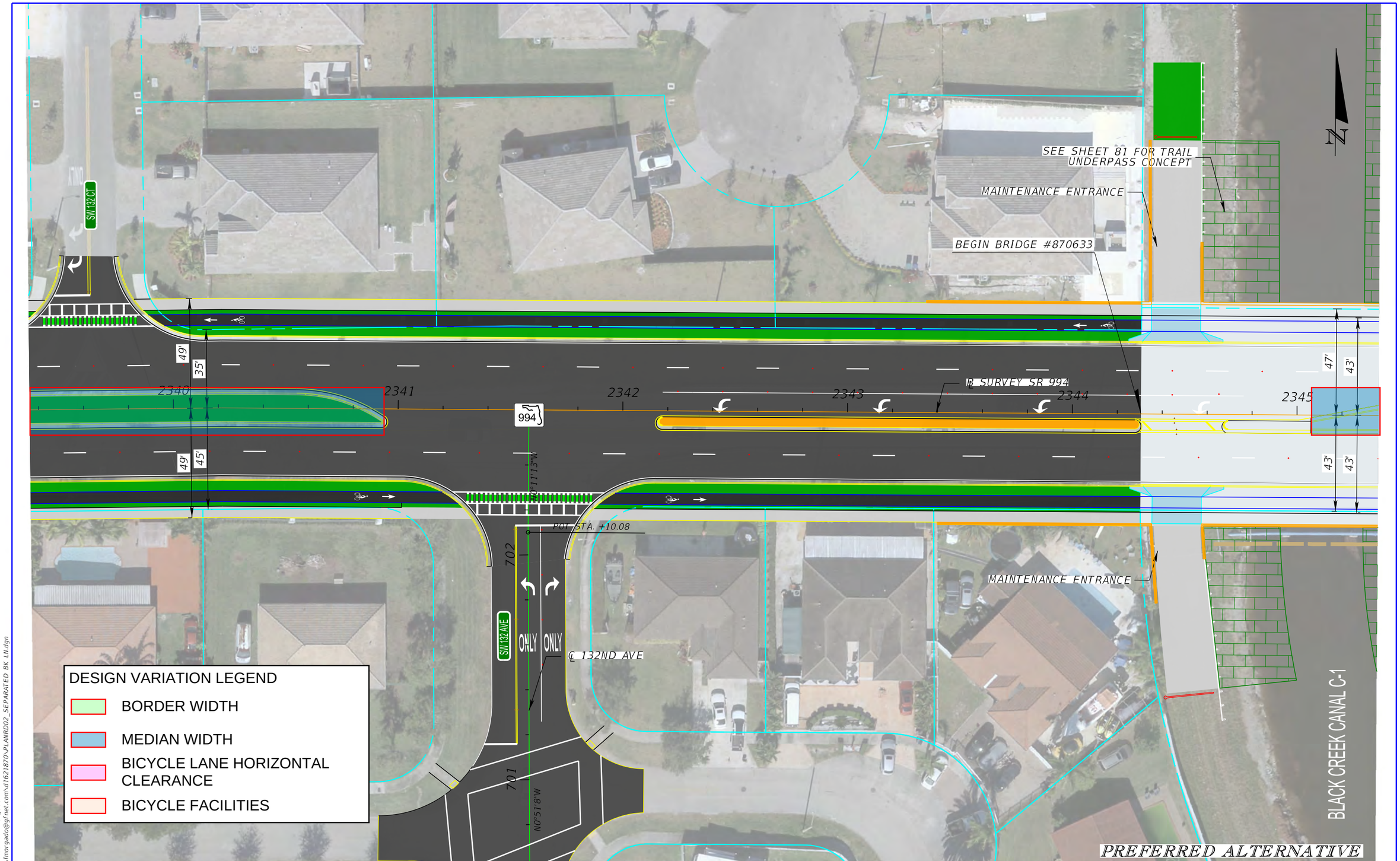

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WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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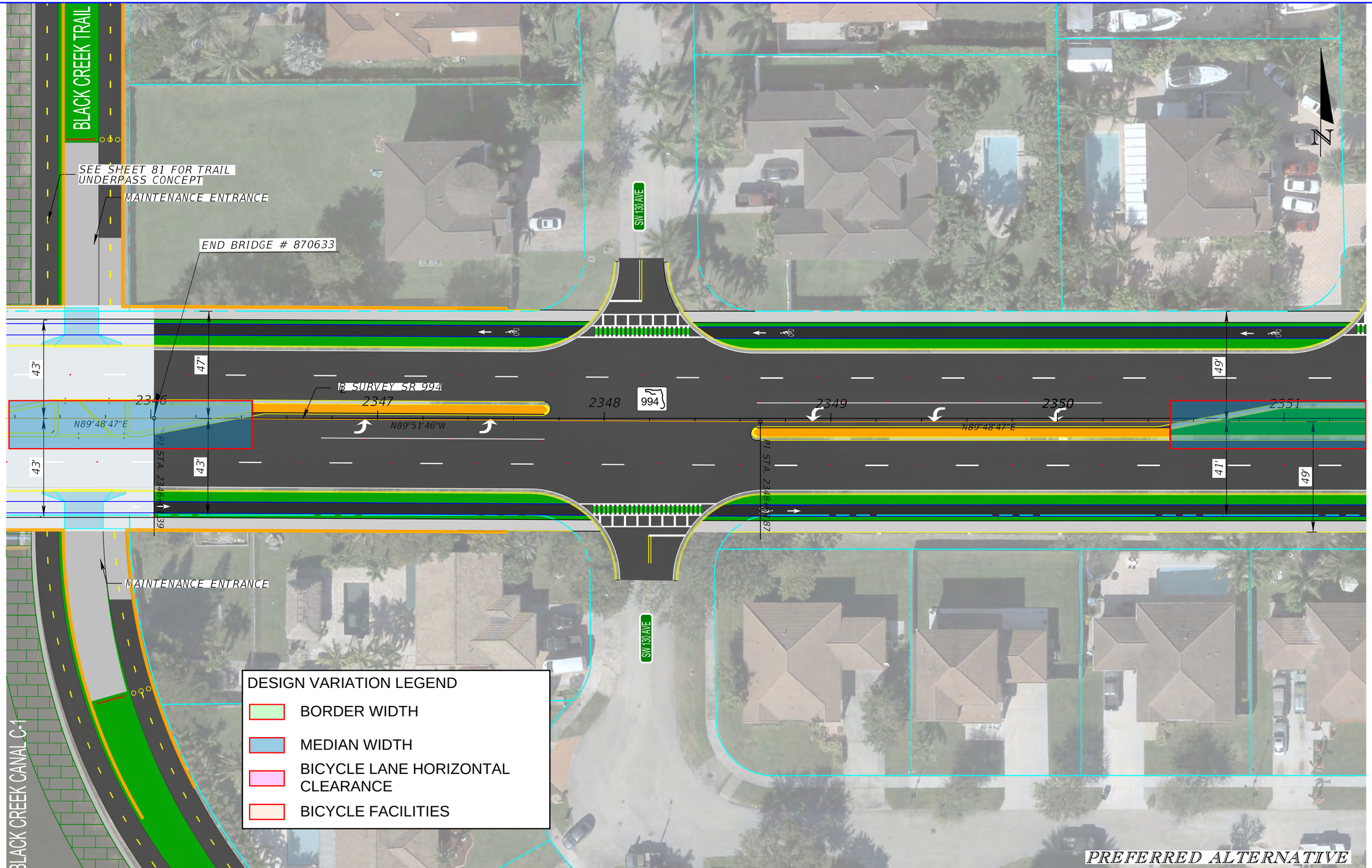

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WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

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PRELIMINARY CONCEPTUAL DESIGN PLANS

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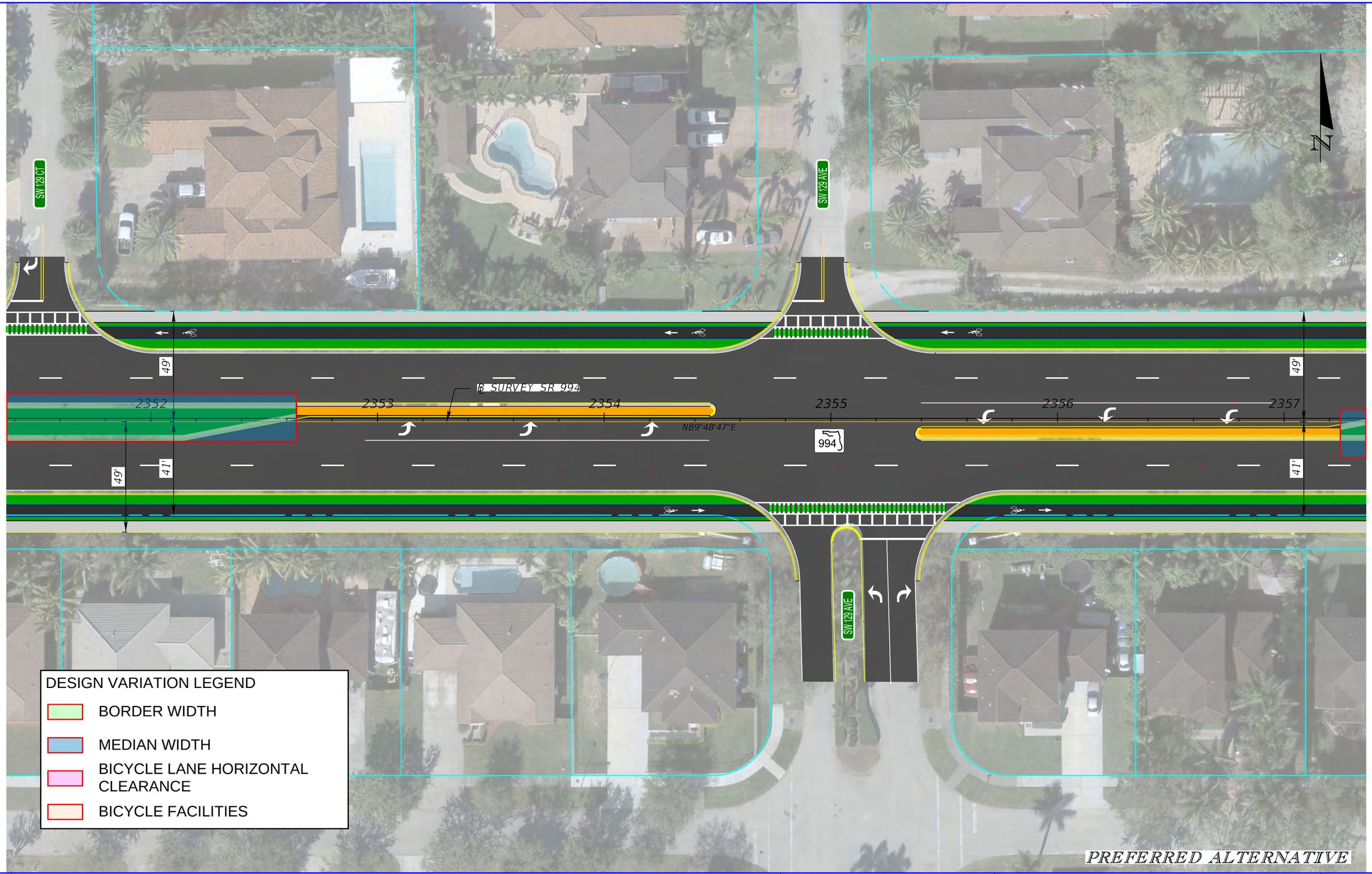

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WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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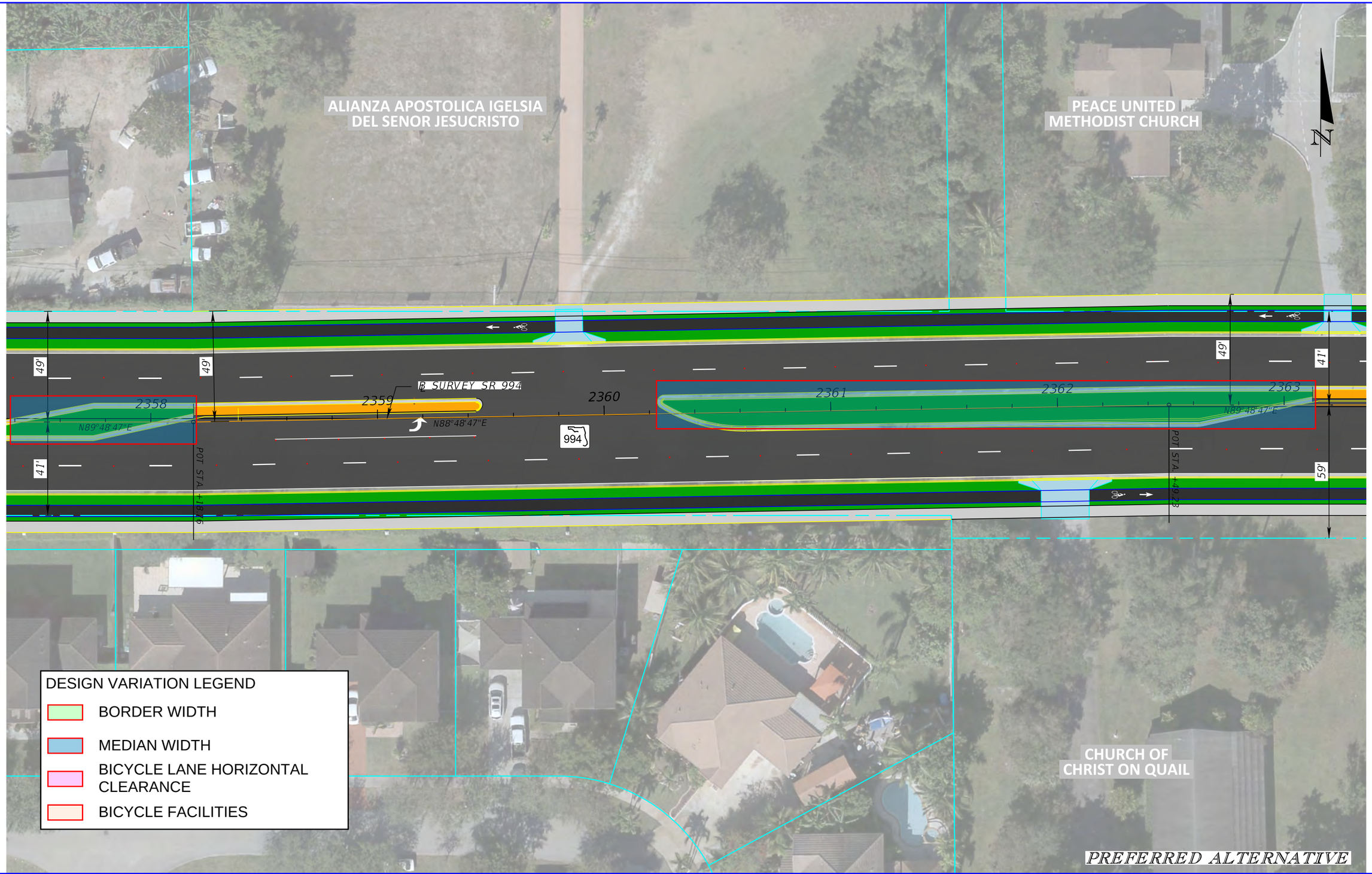

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WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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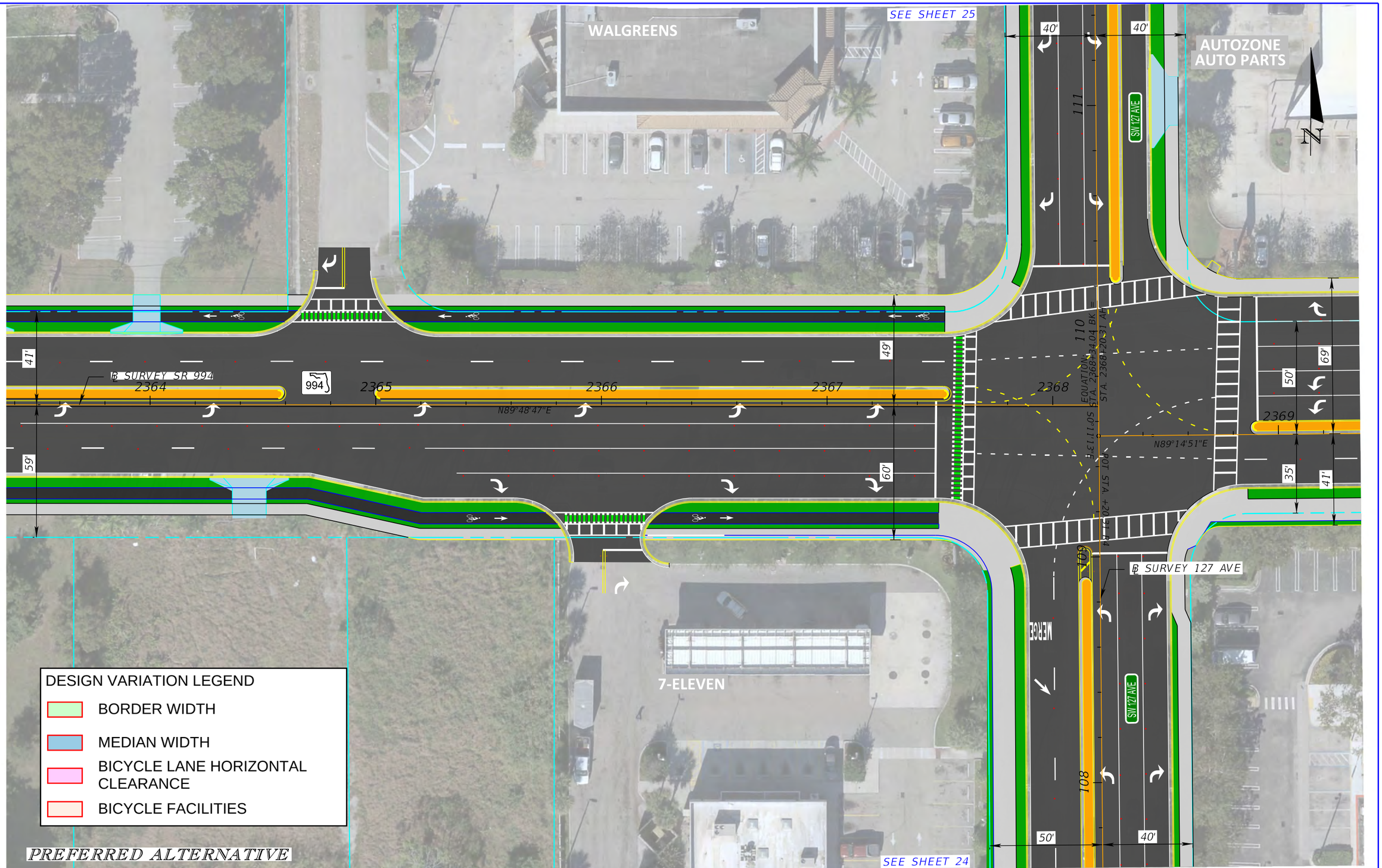

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
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SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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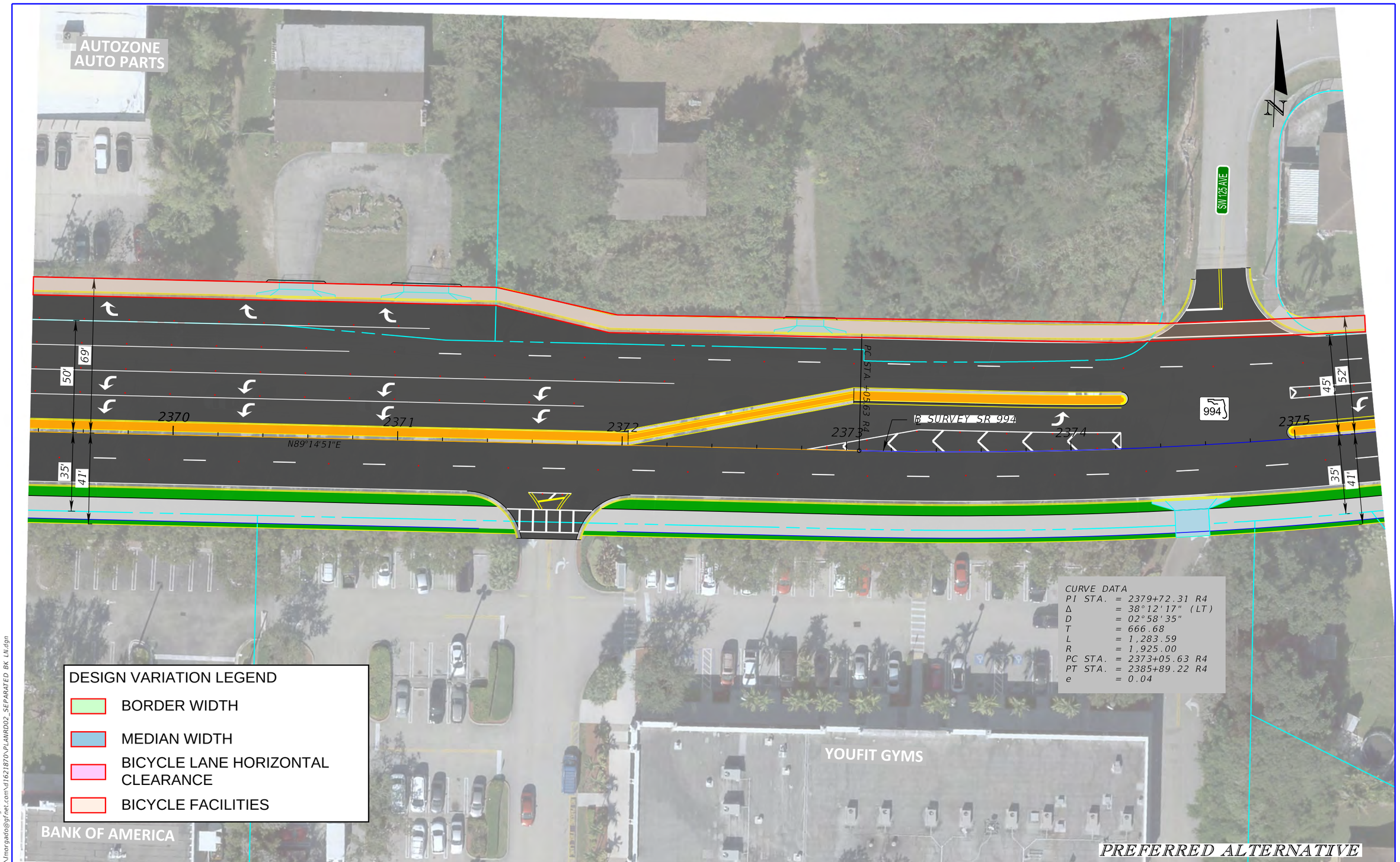

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PC STA. = 2373+05.63 R4
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e = 0.04

DESIGN VARIATION LEGEND

- BORDER WIDTH
- MEDIAN WIDTH
- BICYCLE LANE HORIZONTAL CLEARANCE
- BICYCLE FACILITIES

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
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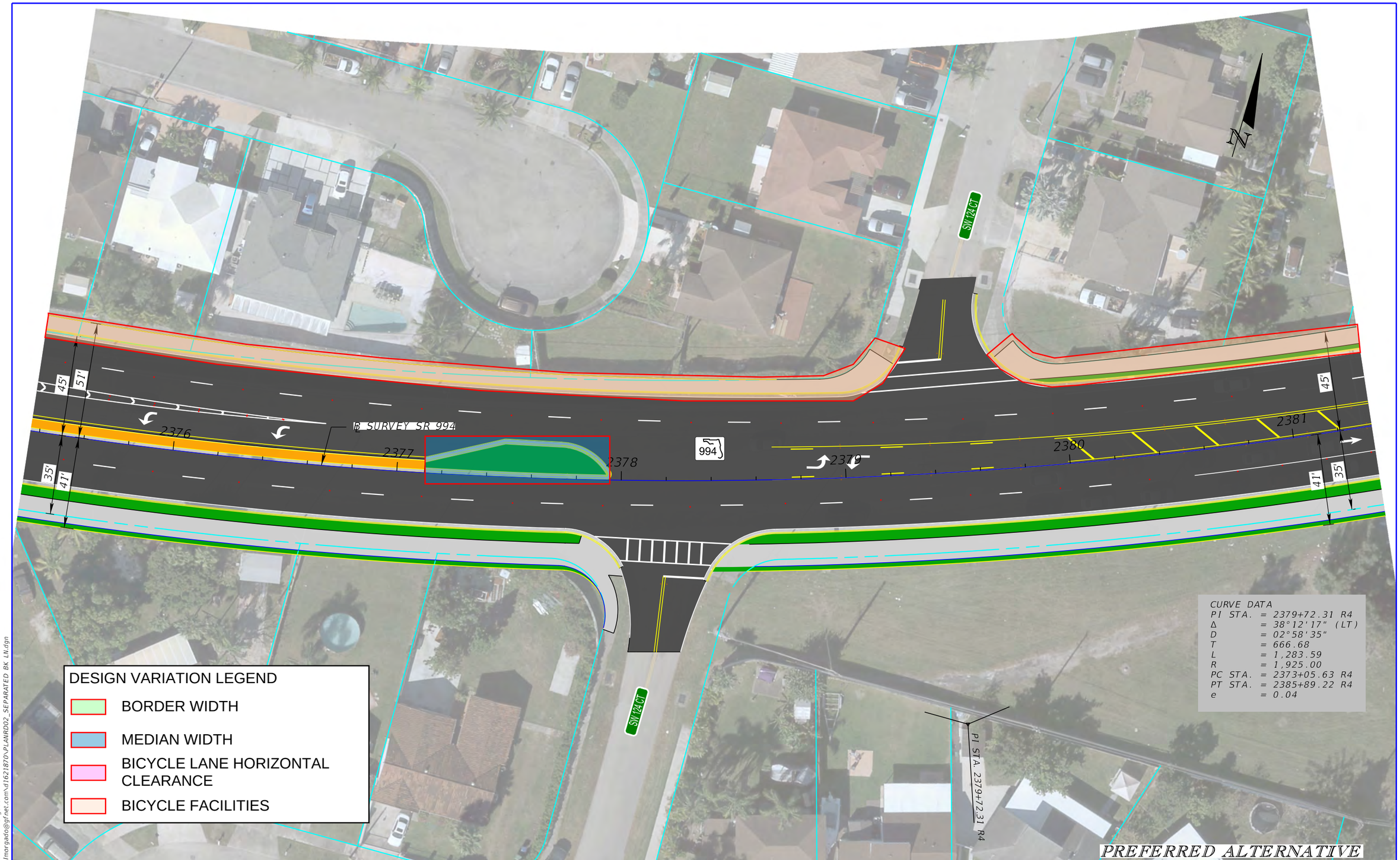

LEGEND

WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
14

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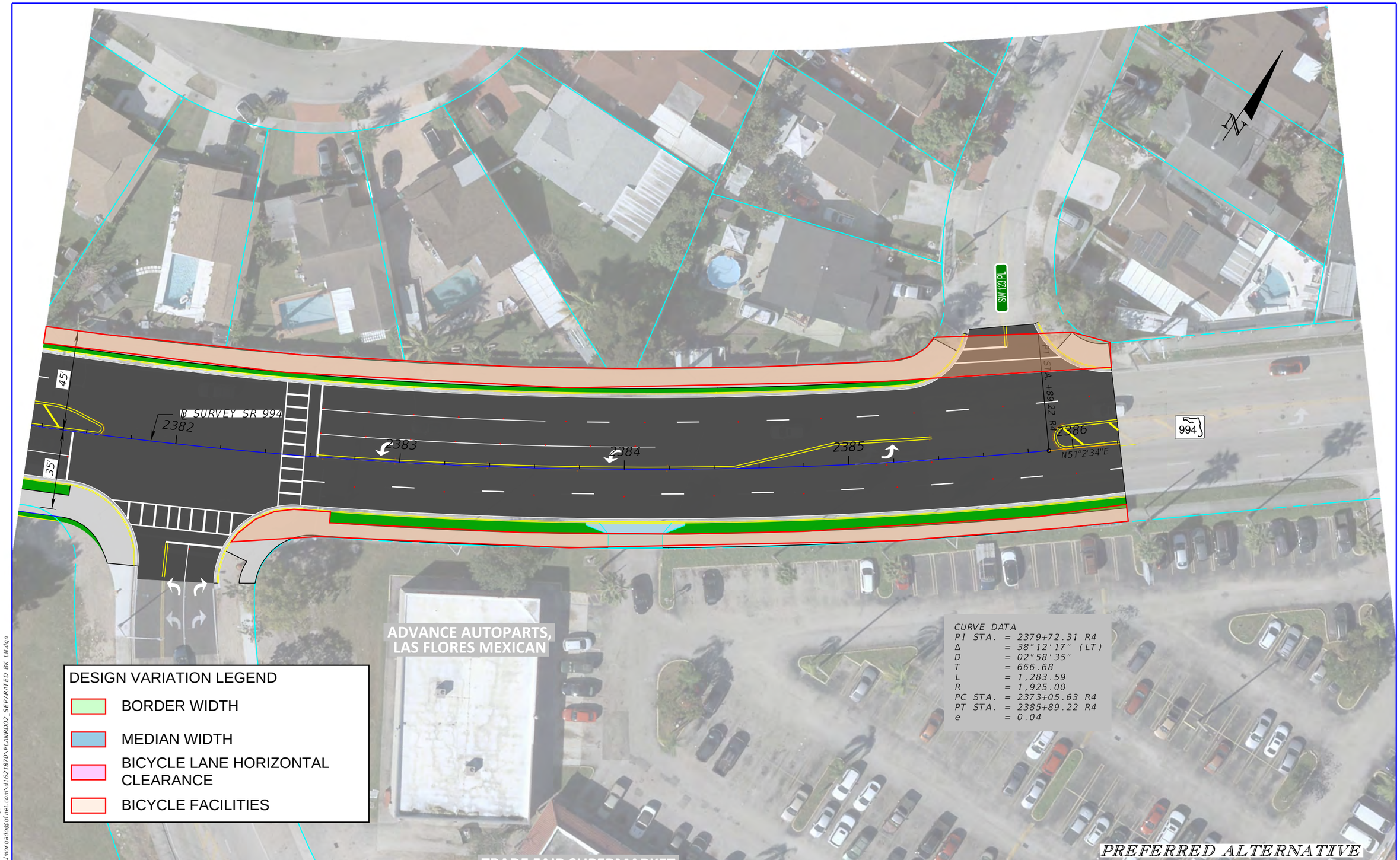

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LEGEND			
WIDENING	BRIDGE	REGRADRING/SOD	
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES	
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING	
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY	
	PARCEL LINE		

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
15

LEGEND

WIDENING		BRIDGE		REGRADRING/SOD		0 10 40	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES		Feet	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING		DATE OF AERIAL: 2021	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY			
		PARCEL LINE					

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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16

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LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

SHEET NO.
17

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LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
	EXISITNG ROW	SHOULDER WIDENING
SIDEWALK	PROPOSED ROW	PROP. CONC. DRIVEWAY
BIKE LANE PATH	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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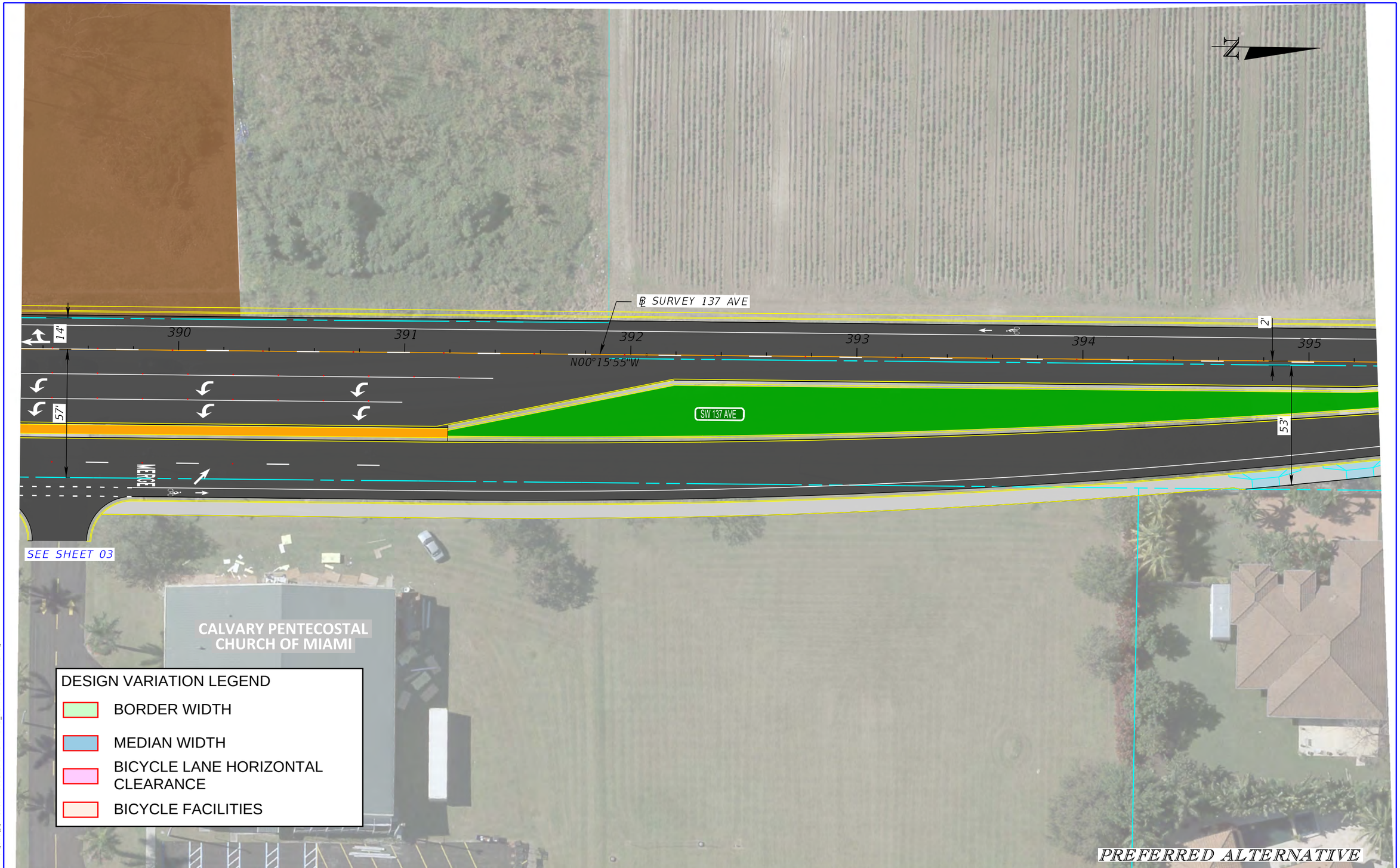

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WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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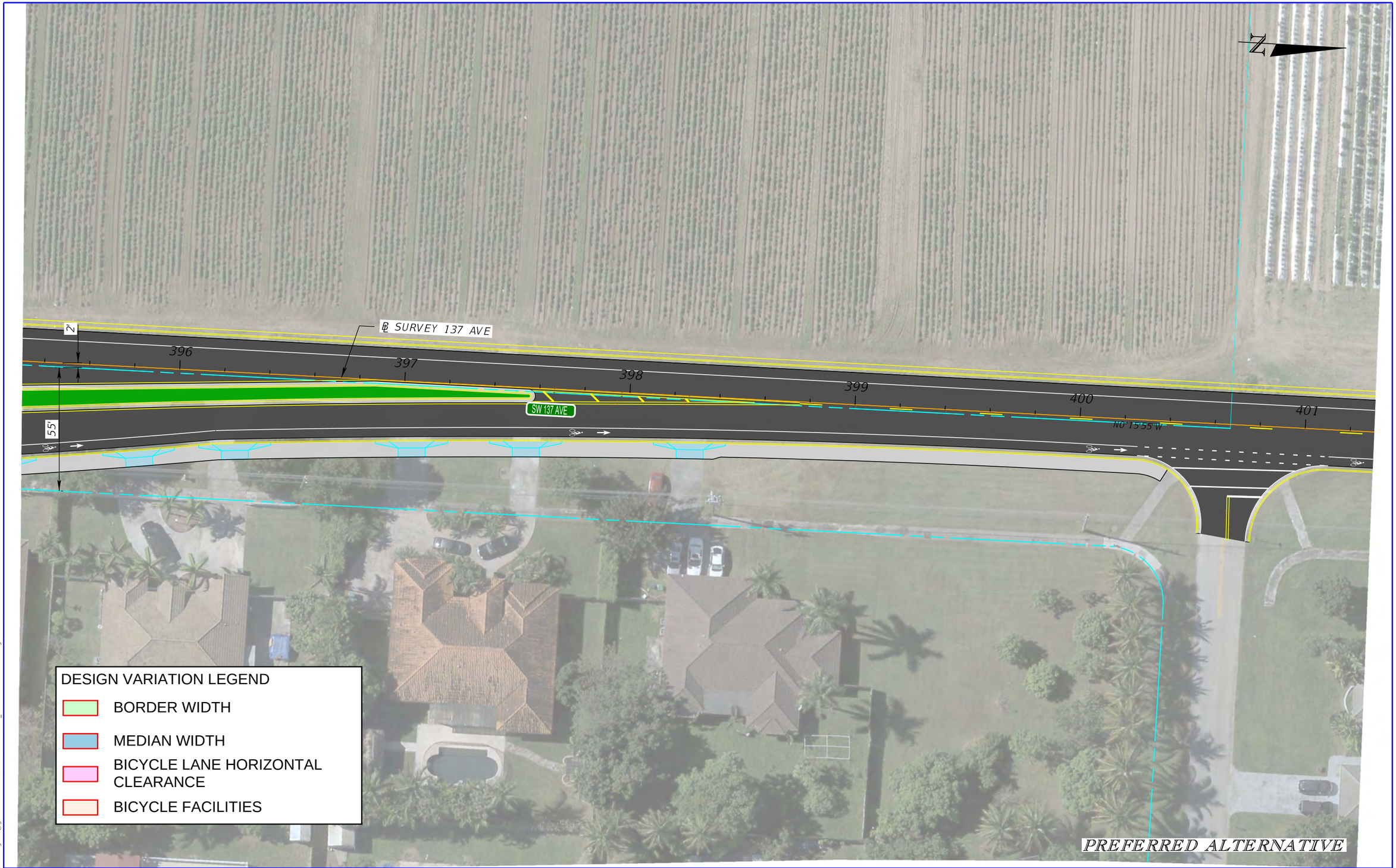

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WIDENING		BRIDGE		REGRADRING/SOD		
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES		
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING		
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY		
		PARCEL LINE				

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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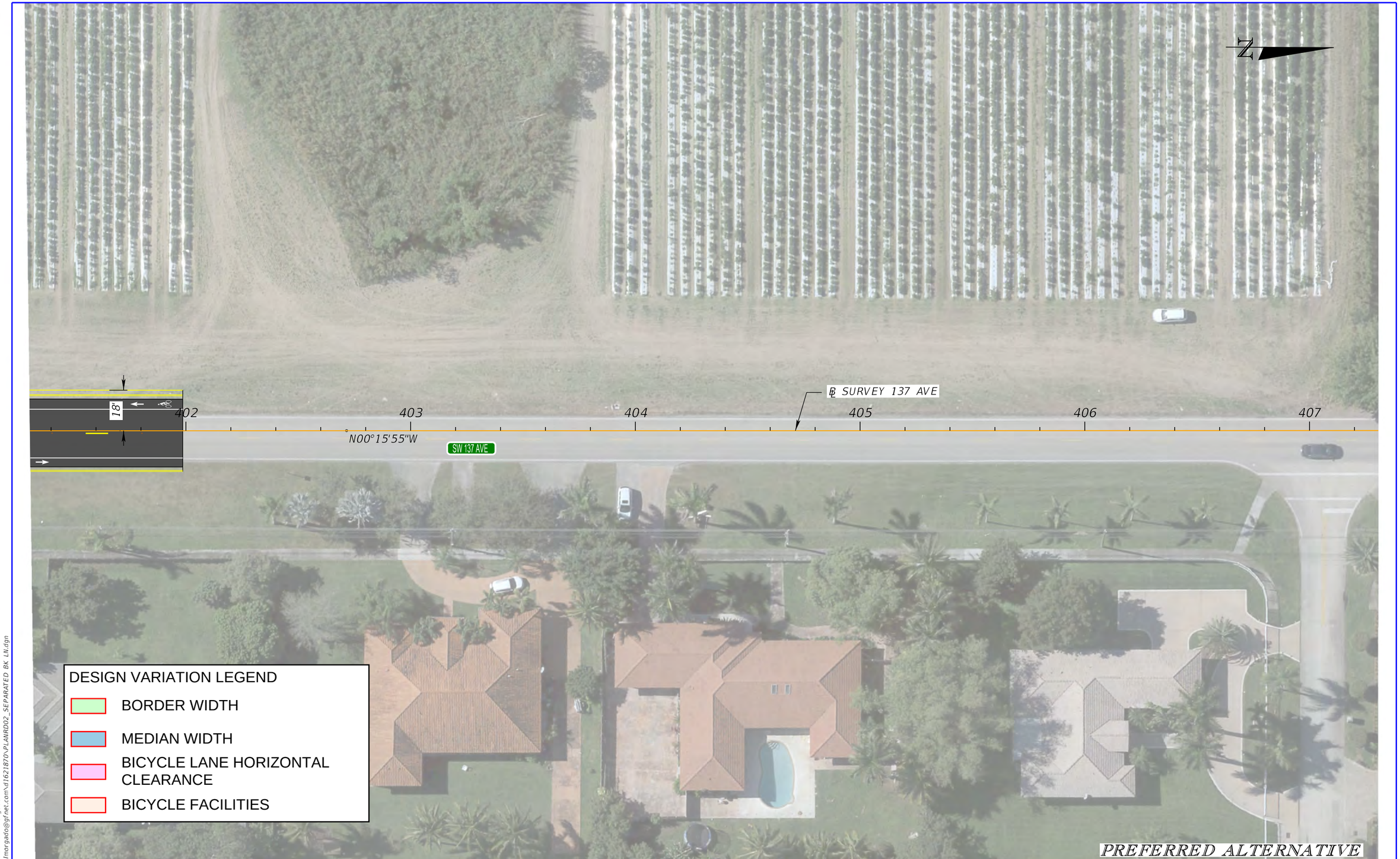

LEGEND

WIDENING	BRIDGE	REGRADRING/SOD
MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY	
		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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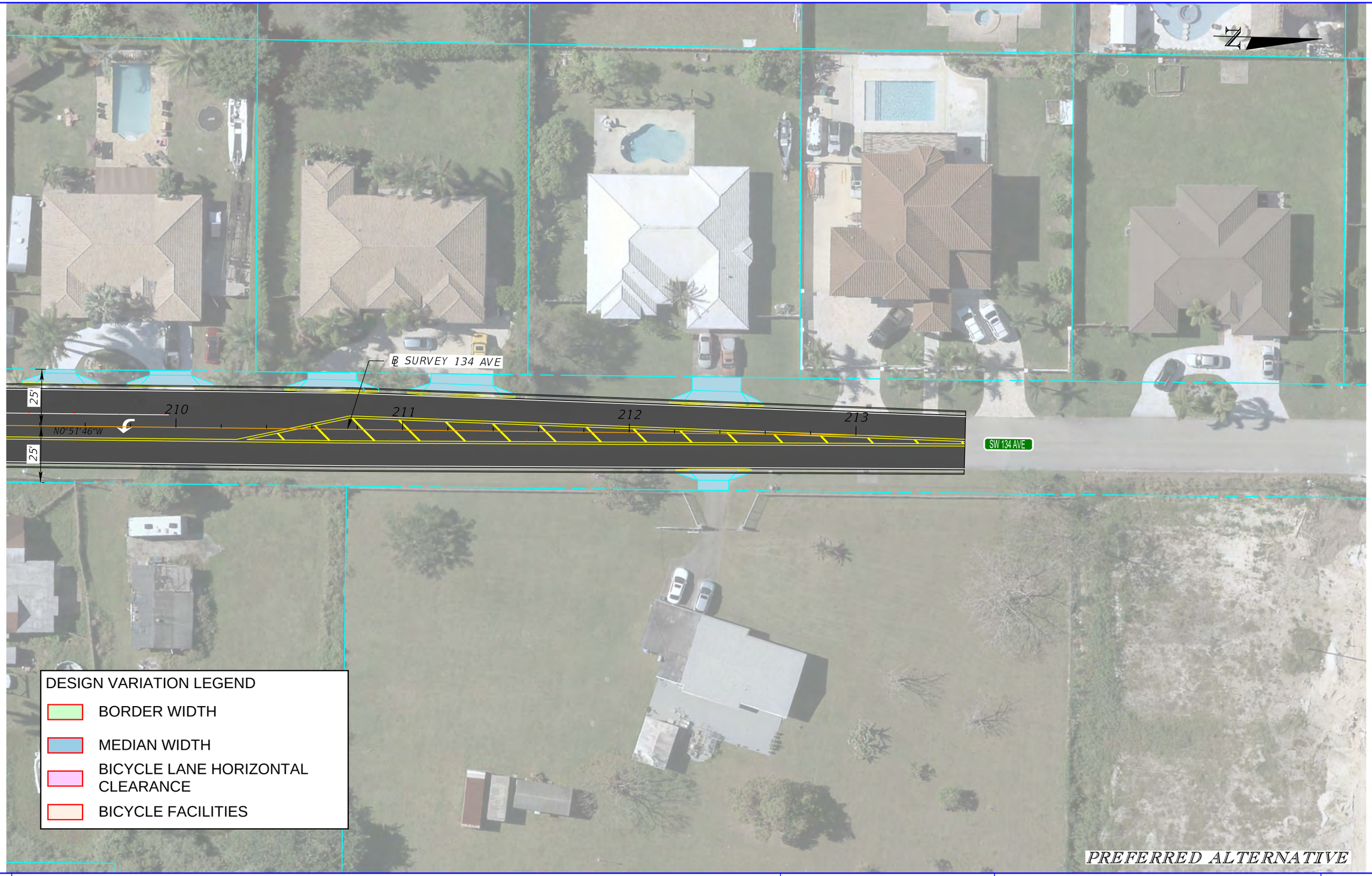

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WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

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PRELIMINARY CONCEPTUAL DESIGN PLANS

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MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES		DATE OF AERIAL: 2021	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING			
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY			
		PARCEL LINE					

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PRELIMINARY CONCEPTUAL DESIGN PLANS

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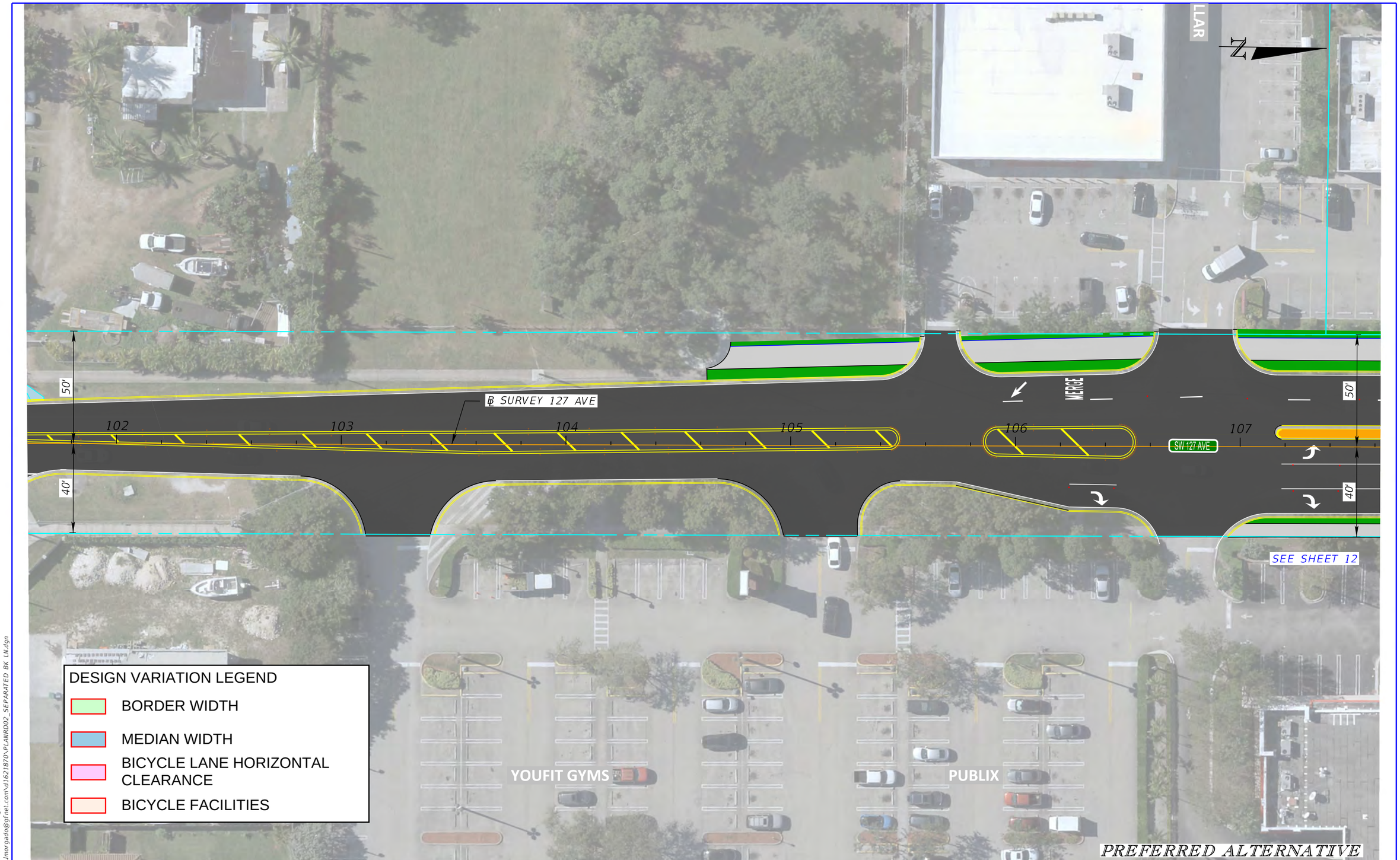

LEGEND

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MILLING & RESURFACING	TRAFFIC SEPARATOR	HISTORIC SITES
SIDEWALK	EXISITNG ROW	SHOULDER WIDENING
BIKE LANE PATH	PROPOSED ROW	PROP. CONC. DRIVEWAY
	PARCEL LINE	

0 10 40
Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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WALGREENS

O'REILLY AUTO PARTS

40'

40'

112

113

114

115

℄ SURVEY 127 AVE

SW 127 AVE

SEE SHEET 12

UPPER ROOM

PREFERRED ALTERNATIVE

DESIGN VARIATION LEGEND

- BORDER WIDTH
- MEDIAN WIDTH
- BICYCLE LANE HORIZONTAL CLEARANCE
- BICYCLE FACILITIES

LEGEND

WIDENING		BRIDGE		REGRADRING/SOD	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES	
		EXISITNG ROW		SHOULDER WIDENING	
SIDEWALK		PROPOSED ROW		PROP. CONC. DRIVEWAY	
BIKE LANE PATH		PARCEL LINE			

0 10 40

Feet

DATE OF AERIAL: 2021

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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LEGEND

WIDENING		BRIDGE		REGRADRING/SOD		0 10 40	
MILLING & RESURFACING		TRAFFIC SEPARATOR		HISTORIC SITES		Feet	
SIDEWALK		EXISITNG ROW		SHOULDER WIDENING		DATE OF AERIAL: 2021	
BIKE LANE PATH		PROPOSED ROW		PROP. CONC. DRIVEWAY			
		PARCEL LINE					

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PRELIMINARY CONCEPTUAL DESIGN PLANS

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APPENDIX C: SIGNAL 4 ANALYTICS

DRAFT

SIGNAL 4 DATA CRASH SUMMARY (FDPID 445804-1-22-01) SECTION: 87091000												
REPORT NUMBER	CRASH YEAR	TOTAL # OF VEHICLES	TOTAL # OF PERSONS	FROM INTERSECTION OF	LIGHT CONDITION	WEATHER CONDITION	ROAD SURFACE CONDITION	TYPE OF IMPACT	CRASH TYPE	CRASH SEVERITY	DAY/ NIGHT	VEHICLE TYPE
88140492	2019	2	2	SW 137 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88871361	2019	3	3	KILLIAN PKWY	Daylight	Clear	Dry	Angle	Left Turn	Injury	DAY	Passenger Car
88028207	2019	2	2	SW 127 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Other Light Trucks
88051863	2019	2	2	SW 125 AV	Daylight	Rain	Wet	Angle	Left Turn	No Injury	DAY	Bus
88100099	2019	2	2	SW 200TH STREET	Daylight	Clear	Dry	Angle	Left Turn	No Injury	DAY	Passenger Car
88110398	2019	2	3	SW 134 AVE	Dark - Not Lighted	Cloudy	Wet	Angle	Angle	Injury	NIGHT	Pickup
88026994	2019	2	2	CARIBBEAN BLVD	Dark - Lighted	Clear	Dry	Angle	Left Turn	Injury	NIGHT	Passenger Car
88026580	2019	2	4	SW 127TH AVE	Daylight	Cloudy	Dry	Other	Angle	No Injury	DAY	(Sport) Utility Vehicle
88078695	2019	2	3	SOUTHWEST 129TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88858035	2019	2	3	QUAIL ROOST DR	Daylight	Cloudy	Dry	Angle	Left Turn	Injury	DAY	Passenger Car
88096936	2019	2	5	SW 132 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88096938	2019	2	2	SW 132 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88082763	2019	3	4	SW 134 AVE	Daylight	Cloudy	Dry	Angle	Left Turn	Injury	DAY	Passenger Van
88096843	2019	2	2	SOUTHWEST 127TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88059241	2019	2	2	SW 134 AVENUE	Daylight	Clear	Dry	Angle	Left Turn	No Injury	DAY	Passenger Car
88094391	2019	2	2	SOUTHWEST 137TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Sideswipe	No Injury	DAY	Passenger Car
88022743	2019	4	3	SOUTHWEST 200 STREET	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
88881601	2019	2	3		Daylight	Clear	Dry	Angle	Other	No Injury	DAY	Pickup
88867467	2019	2	2		Daylight	Clear	Dry	Front to Rear	Other	No Injury	DAY	Passenger Car
88094397	2019	2	2	SOUTHWEST 134TH AVENUE	Daylight	Clear	Dry	Angle	Angle	No Injury	DAY	Passenger Car
88058172	2019	2	1	SW 122ND AVENUE	Dark - Lighted	Clear	Dry	Angle	Unknown	No Injury	NIGHT	
88101649	2019	2	2	SW 130 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88147519	2019	2	2	SOUTHWEST 200 STREET	Daylight	Rain	Wet	Angle	Left Turn	No Injury	DAY	Pickup
88095828	2019	2	2	SW 132 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88111638	2019	2	1	SW 127TH AVENUE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Pickup
88081119	2019	2	3	SW 127 AVE	Daylight	Cloudy	Dry	Sideswipe, Same Direction	Sideswipe	No Injury	DAY	Passenger Car
88095800	2019	2	2	SW 132 AVENUE	Dusk	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88076496	2019	2	2	SW-123 PL	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
88864552	2019	2	6		Daylight	Clear	Dry	Front to Rear	Other	No Injury	DAY	Pickup
88865247	2019	2	2	SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88085927	2019	2	2	SOUTHWEST 134 AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Left Turn	Injury	NIGHT	(Sport) Utility Vehicle
88085930	2019	2	3	SOUTHWEST 134 AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Other	Serious Injury	NIGHT	Motorcycle
88085952	2019	2	2	SOUTHWEST 123 PLACE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88085916	2019	2	2	SOUTHWEST 125 AVENUE	Dark - Lighted	Clear	Dry	Angle	Left Turn	No Injury	NIGHT	(Sport) Utility Vehicle
88085905	2019	2	2	SOUTHWEST 134 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88022739	2019	2	3	SOUTHWEST 137 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88022728	2019	2	5	SOUTHWEST 125 AVENUE	Dark - Lighted	Clear	Dry	Angle	Left Turn	No Injury	NIGHT	Passenger Car
88115000	2019	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88062584	2019	2	2	SOUTHWEST 132 AVE	Daylight	Clear	Dry	Angle	Left Turn	No Injury	DAY	Passenger Car
88062598	2019	2	3	SOUTHWEST 137 AVE	Daylight	Rain	Wet	Sideswipe, Opposite Directio	Sideswipe	No Injury	DAY	Cargo Van
88077197	2019	2	2	SW 134 AVE	Daylight	Clear	Dry	Angle	Left Turn	No Injury	DAY	Other Light Trucks
88076475	2019	2	2	SW-127 AVE	Daylight	Rain	Wet	Unknown	Left Turn	Injury	DAY	Passenger Car
88114457	2019	2	4	SOUTHWEST 134TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Left Turn	No Injury	DAY	(Sport) Utility Vehicle
88121975	2019	2	3	SW 134 AVE	Daylight	Cloudy	Dry	Angle	Left Turn	Injury	DAY	(Sport) Utility Vehicle
88114477	2019	2	3	SOUTHWEST 200TH STREET	Daylight	Cloudy	Wet	Angle	Left Turn	Injury	DAY	Passenger Car
88093903	2019	3	3	SOUTHWEST 130TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88121303	2019	2	7	SW 134TH AVENUE	Daylight	Cloudy	Dry	Angle	Angle	Injury	DAY	Passenger Car
88057053	2019	2	4	SW 124 CT	Dark - Lighted	Clear	Dry	Angle	Left Turn	Injury	NIGHT	Passenger Car
88877925	2019	2	4	SW 200TH ST	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88091928	2019	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Angle	Left Turn	Injury	DAY	Passenger Car
88091930	2019	2	2	SW 132 AVE	Daylight	Cloudy	Dry	Angle	Left Turn	Injury	DAY	Passenger Car
88871261	2019	2	2		Daylight	Clear	Dry	Sideswipe, Same Direction	Sideswipe	No Injury	DAY	Passenger Car
88866657	2019	2	2	SW 200TH STREET	Daylight	Clear	Dry	Angle	Angle	No Injury	DAY	Other Light Trucks
88866663	2019	2	3	SW 127TH AVE	Daylight	Clear	Dry	Sideswipe, Same Direction	Sideswipe	No Injury	DAY	Pickup
88873771	2019	2	2	KILLIAN PKWY	Daylight	Clear	Dry	Sideswipe, Same Direction	Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
88881028	2019	1	5		Dusk	Clear	Wet	Other	Off Road	No Injury	NIGHT	Passenger Car
88038987	2019	2	2	SW 137 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88058777	2019	2	3	SW 132 PL	Daylight	Cloudy	Dry	Angle	Left Turn	No Injury	DAY	Passenger Car
88006842	2019	2	3	SW 127TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Rear End	No Injury	NIGHT	Passenger Car
88896591	2019	2	2	SW 123RD PLACE	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
88140492	2019	2	2	SW 137 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88871361	2019	3	3	KILLIAN PKWY	Daylight	Clear	Dry	Angle	Left Entering	Injury	DAY	Passenger Car
88899134	2019	2	2		Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
88161627	2019	3	7	SOUTHWEST 132ND PLACE	Dusk	Clear	Dry	Other	Opposing Sideswipe	Serious Injury	NIGHT	Pickup
88161638	2019	2	4	SOUTHWEST 132ND AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88897088	2019	2	2		Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88190627	2019	2	1	SW 127 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	
88182367	2019	2	3	SW 127 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88028207	2019	2	2	SW 127 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Other Light Trucks
88051863	2019	2	2	SW 125 AV	Daylight	Rain	Wet	Angle	Left Leaving	No Injury	DAY	Bus
88100099	2019	2	2	SW 200TH STREET	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Passenger Car
88135760	2019	2	2	SW 124TH CT	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	Passenger Car
88157433	2019	2	3	SW 137 AVENUE	Dusk	Clear	Dry	Front to Rear	Rear End	Injury	NIGHT	Passenger Car
88885469	2019	3	4	SW 132ND AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88150754	2019	2	2	E OF SW 132 CT	Daylight	Cloudy	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89510540	2019	3	5	SW 200TH ST	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Cargo Van
88110398	2019	2	3	SW 134 AVE	Dark - Not Lighted	Cloudy	Wet	Angle	Right Angle	Injury	NIGHT	Pickup
88893179	2019	2	2	SW 127TH AVE	Dusk	Rain	Wet	Angle	Left Leaving	No Injury	NIGHT	Pickup
88153606	2019	1	1	SR-994	Dark - Not Lighted	Clear	Dry	Other	Single Vehicle	Injury	NIGHT	Passenger Car
88201486	2019	3	3	SW 127TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88026994	2019	2	2	CARIBBEAN BLVD	Dark - Lighted	Clear	Dry	Angle	Left Leaving	Injury	NIGHT	Passenger Car
88891414	2019	3	3	SW 200TH ST	Dark - Not Lighted	Clear	Dry	Other	Right Angle	Fatality	NIGHT	Passenger Car
88026580	2019	2	4	SW 127TH AVE	Daylight	Cloudy	Dry	Other	Right Angle	No Injury	DAY	(Sport) Utility Vehicle
88118170	2019	1	1	SW 132 AVE	Dark - Not Lighted	Clear	Dry	Other	Off Road	Injury	NIGHT	Passenger Car
88078695	2019	2	3	SOUTHWEST 129TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88858035	2019	2	3	QUAIL ROOST DR	Daylight	Cloudy	Dry	Angle	Left Entering	Injury	DAY	Passenger Car
88096936	2019	2	5	SW 132 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88096938	2019	2	2	SW 132 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88193651	2019	2	3	SW 127 AVENUE	Daylight	Cloudy	Dry	Other	Right/Through	Serious Injury	DAY	Passenger Car
88082763	2019	3	4	SW 134 AVE	Daylight	Cloudy	Dry	Angle	Left Rear	Injury	DAY	Passenger Van
88096843	2019	2	2	SOUTHWEST 127TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88204526	2019	2	2	SOUTHWEST 132 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88059241	2019	2	2	SW 134 AVENUE	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
88094391	2019	2	2	SOUTHWEST 137TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Passenger Car
88022743	2019	4	3	SOUTHWEST 200 STREET	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
88196127	2019	2	2	SW 126 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88881601	2019	2	3		Daylight	Clear	Dry	Angle	Parked Vehicle	No Injury	DAY	Pickup
88867467	2019	2	2		Daylight	Clear	Dry	Front to Rear	Backed Into	No Injury	DAY	Passenger Car
88094397	2019	2	2	SOUTHWEST 134TH AVENUE	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	Passenger Car
88058172	2019	2	1	SW 122ND AVENUE	Dark - Lighted	Clear	Dry	Angle	Unknown	No Injury	NIGHT	

88889564	2019	1	2		Daylight	Clear	Dry	Other	Pedestrian	Injury	DAY	Passenger Car
88101649	2019	2	2	SW 130 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88101625	2019	2	3	SW 132ND AVENUE	Daylight	Cloudy	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88147519	2019	2	2	SOUTHWEST 200 STREET	Daylight	Rain	Wet	Angle	Left Leaving	No Injury	DAY	Pickup
88185600	2019	2	2	SW 200 ST	Daylight	Clear	Dry	Angle	Left Leaving	Serious Injury	DAY	Passenger Car
88185612	2019	2	3	SR 994	Daylight	Clear	Dry	Angle	Left Leaving	Injury	DAY	Passenger Car
88095828	2019	2	2	SW 132 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88231721	2019	2	2	SOUTHWEST 127 AVENUE	Daylight	Cloudy	Wet	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
88111638	2019	2	1	SW 127TH AVENUE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Pickup
88118443	2019	2	4	SW-135 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88081119	2019	2	3	SW 127 AVE	Daylight	Cloudy	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Passenger Car
88095800	2019	2	2	SW 132 AVENUE	Dusk	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88231730	2019	2	2	SOUTHWEST 127 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88231725	2019	2	2	SOUTHWEST 200 STREET	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Pickup
88231627	2019	2	2	SW 130 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Van
88231747	2019	2	2	SOUTHWEST 200 STREET	Dark - Lighted	Clear	Dry	Angle	Left Leaving	Injury	NIGHT	(Sport) Utility Vehicle
88231710	2019	2	2	SOUTHWEST 133 COURT	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88231716	2019	2	7	SOUTHWEST 132 AVENUE	Daylight	Cloudy	Wet	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88235827	2019	2	4	SW 134TH AVENUE	Daylight	Clear	Dry	Front to Front	Left Leaving	Injury	DAY	(Sport) Utility Vehicle
88241940	2019	2	3	SW 200 ST	Dark - Lighted	Clear	Dry	Angle	Left Leaving	No Injury	NIGHT	Passenger Car
88145640	2019	4	8	SW 132ND CT	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88249794	2019	2	2	SW 200TH STREET	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Passenger Car
88183684	2019	4	4	SW 132 PL	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Van
88076496	2019	2	2	SW-123 PL	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
88864552	2019	2	6		Daylight	Clear	Dry	Front to Rear	Backed Into	No Injury	DAY	Pickup
88865247	2019	2	2	SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88140084	2019	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Angle	Right Angle	Injury	DAY	Passenger Car
88085927	2019	2	2	SOUTHWEST 134 AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Left Entering	Injury	NIGHT	(Sport) Utility Vehicle
88085930	2019	2	3	SOUTHWEST 134 AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Other	Serious Injury	NIGHT	Motorcycle
88085952	2019	2	2	SOUTHWEST 123 PLACE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88085916	2019	2	2	SOUTHWEST 125 AVENUE	Dark - Lighted	Clear	Dry	Angle	Left Leaving	No Injury	NIGHT	(Sport) Utility Vehicle
88085905	2019	2	2	SOUTHWEST 134 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88022739	2019	2	3	SOUTHWEST 137 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88022728	2019	2	5	SOUTHWEST 125 AVENUE	Dark - Lighted	Clear	Dry	Angle	Left Entering	No Injury	NIGHT	Passenger Car
88140424	2019	2	2	SW 137TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88895060	2019	2	5	SW 134TH AVE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	(Sport) Utility Vehicle
88115000	2019	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88062584	2019	2	2	SOUTHWEST 132 AVE	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Passenger Car
88062598	2019	2	3	SOUTHWEST 137 AVE	Daylight	Rain	Wet	Sideswipe, Opposite Directio	Opposing Sideswipe	No Injury	DAY	Cargo Van
88077197	2019	2	2	SW 134 AVE	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Other Light Trucks
88076475	2019	2	2	SW-127 AVE	Daylight	Rain	Wet	Unknown	Left Entering	Injury	DAY	Passenger Car
88134338	2019	2	4	SOUTHWEST 127TH AVENUE	Dusk	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
88114457	2019	2	4	SOUTHWEST 134TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Left Rear	No Injury	DAY	(Sport) Utility Vehicle
88121975	2019	2	3	SW 134 AVE	Daylight	Cloudy	Dry	Angle	Left Leaving	Injury	DAY	(Sport) Utility Vehicle
88114477	2019	2	3	SOUTHWEST 200TH STREET	Daylight	Cloudy	Wet	Angle	Left Leaving	Injury	DAY	Passenger Car
88129611	2019	2	2	SOUTHWEST 123 AVE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	Passenger Car
88093903	2019	3	3	SOUTHWEST 130TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
88121303	2019	2	7	SW 134TH AVENUE	Daylight	Cloudy	Dry	Angle	Right Angle	Injury	DAY	Passenger Car
88248571	2019	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Angle	Same Direction Sideswipe	Injury	DAY	Pickup
88057053	2019	2	4	SW 124 CT	Dark - Lighted	Clear	Dry	Angle	Left Leaving	Injury	NIGHT	Passenger Car
88234822	2019	2	4	SW 200 STREET	Daylight	Clear	Dry	Angle	Left Leaving	Injury	DAY	Pickup
88877925	2019	2	4	SW 200TH ST	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88091928	2019	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Angle	Left Entering	Injury	DAY	Passenger Car
88091930	2019	2	2	SW 132 AVE	Daylight	Cloudy	Dry	Angle	Left Entering	Injury	DAY	Passenger Car
88871261	2019	2	2		Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Passenger Car
88866657	2019	2	2	SW 200TH STREET	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	Other Light Trucks
88866663	2019	2	3	SW 127TH AVE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Pickup
88195317	2019	2	2	SW 137TH AVE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88873771	2019	2	2	KILLIAN PKWY	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
88889011	2019	2	2	SW 134TH AVENUE	Dark - Lighted	Clear	Dry	Angle	Left Rear	No Injury	NIGHT	Passenger Car
88881028	2019	1	5		Dusk	Clear	Wet	Other	Off Road	No Injury	NIGHT	Passenger Car
88905786	2019	1	2	QUAIL ROOST DRIVE	Dark - Lighted	Rain	Wet	Other	Off Road	No Injury	NIGHT	(Sport) Utility Vehicle
88896458	2019	2	3	SW 130TH AVE	Daylight	Clear	Dry	Front to Front	Left Entering	Injury	DAY	Passenger Car
88901714	2019	2	3	SW 200TH STREET	Daylight	Clear	Dry	Angle	Right/Through	Injury	DAY	Passenger Car
88190368	2019	2	2	SW 127TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
88190373	2019	1	2	SW 137TH AVENUE	Dark - Not Lighted	Rain	Wet	Front to Rear	Bicycle	Serious Injury	NIGHT	Passenger Car
88038987	2019	2	2	SW 137 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88237178	2019	2	2	SOUTHWEST 127TH AVENUE	Dusk	Clear	Dry	Sideswipe, Same Direction	Left Entering	No Injury	NIGHT	Passenger Car
88228317	2019	2	4	SW 200 STREET	Dusk	Clear	Dry	Angle	Right Angle	Injury	DAY	Passenger Car
88058777	2019	2	3	SW 132 PL	Daylight	Cloudy	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
88129917	2019	2	2	SW 137 AVE	Dark - Not Lighted	Clear	Dry	Other	Head On	No Injury	NIGHT	Passenger Car
88148860	2019	2	2	SW 127 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88006842	2019	2	3	SW 127TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Rear End	No Injury	NIGHT	Passenger Car
88186435	2019	2	3	SOUTHWEST 125TH AVENUE	Daylight	Clear	Dry	Front to Front	Left Entering	Serious Injury	DAY	(Sport) Utility Vehicle
88186437	2019	2	2	SOUTHWEST 132ND AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Pickup
88155235	2019	2	2	SW 134 AVENUE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	Passenger Car
89519844	2020	2	2	QUAIL ROOST DR	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Passenger Car
88250161	2020	3	4	STATE ROAD-994	Daylight	Clear	Dry	Angle	Left Leaving	Injury	NIGHT	(Sport) Utility Vehicle
88332746	2020	2	2	SOUTHWEST 127TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89531181	2020	2	3	SW 123RD PL	Dark - Lighted	Cloudy	Wet	Angle	Other	No Injury	NIGHT	Passenger Car
89545980	2020	2	2	QUAIL ROOST DR	Dark - Lighted	Clear	Dry	Sideswipe, Same Direction	Rear End	Injury	NIGHT	Pickup
89513691	2020	2	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	(Sport) Utility Vehicle
89530221	2020	2	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	(Sport) Utility Vehicle
88409146	2020	2	2	SW 127 AVE	Daylight	Rain	Wet	Front to Rear	Rear End	Injury	NIGHT	Passenger Van
89542433	2020	2	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Other	No Injury	DAY	(Sport) Utility Vehicle
88369761	2020	2	2	SW 127TH AVE	Dark - Lighted	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	NIGHT	Passenger Car
89529028	2020	2	2		Daylight	Clear	Dry	Angle	Parked Vehicle	No Injury	DAY	Pickup
88278684	2020	2	1	SW 130TH AVENUE	Daylight	Clear	Dry	Front to Front	Head On	No Injury	DAY	
88344406	2020	2	2	SW 132ND AVE	Dark - Lighted	Rain	Wet	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Pickup
88254550	2020	2	2	SW 125 AVENUE	Daylight	Clear	Dry	Angle	Right Angle	Injury	DAY	(Sport) Utility Vehicle
88393885	2020	3	4	SW 137 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	Injury	NIGHT	Pickup
88248264	2020	2	2	SW 133 AV	Daylight	Clear	Dry	Angle	Left Leaving	Injury	DAY	Passenger Car
88287798	2020	2	3	SOUTHWEST 127 AVENUE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	Injury	NIGHT	Passenger Car
88344443	2020	2	2	SW 137TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88344445	2020	2	2	SW 127TH AVE	Dark - Lighted	Clear	Dry	Front to Front	Left Entering	No Injury	NIGHT	Passenger Car
88278701	2020	2	2	SW 134TH AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Left Leaving	Injury	NIGHT	(Sport) Utility Vehicle
88278722	2020	2	2	SW 200TH STREET	Dark - Lighted	Clear	Dry	Front to Front	Left Leaving	No Injury	NIGHT	Passenger Car
89519109	2020	2	4	SW 200TH ST	Dark - Lighted	Rain	Wet	Angle	Right Angle	Injury	NIGHT	Passenger Car
89542500	2020	2	3	SW 200TH ST	Dark - Not Lighted	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	NIGHT	Pickup
89548929	2020	2	3	SW 134TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89537653	2020	2	3		Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88328189	2020	2	2	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88281816	2020	2	2	SW 130 AVE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Pickup
88259092	2020	3	2	SW 134 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88352453	2020	2	2	SW 200 ST	Daylight	Cloudy	Dry	Angle	Left Leaving	Injury	DAY	Passenger Car

89527210	2020	2	2		Daylight	Clear	Dry	Front to Rear	Backed Into	No Injury	DAY	Passenger Car
88298697	2020	2	4	SW 127 AVE	Dark - Lighted	Clear	Dry	Other	Right Angle	Injury	NIGHT	Pickup
89539803	2020	2	2		Daylight	Clear	Wet	Angle	Right Angle	No Injury	DAY	Passenger Car
88263488	2020	1	1	SW 132 AVE	Dark - Lighted	Clear	Dry	Other	Rollover	No Injury	NIGHT	Other Light Trucks
89512468	2020	2	2	SW 127TH AVE	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	(Sport) Utility Vehicle
89537450	2020	2	2	SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88398866	2020	2	2	SOUTHWEST 132ND AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88328214	2020	2	1	SW 129TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89543469	2020	2	2	SW 200TH ST	Dark - Lighted	Rain	Wet	Front to Rear	Backed Into	No Injury	NIGHT	Passenger Car
88250203	2020	2	2	SOUTHWEST 200 ST	Daylight	Clear	Dry	Angle	Left Entering	Injury	DAY	Passenger Car
88250212	2020	2	3	SOUTHWEST 200 ST.	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Pickup
89519609	2020	2	1		Daylight	Clear	Dry	Unknown	Parked Vehicle	No Injury	DAY	Other
88330036	2020	1	1	SOUTHWEST 124 COURT	Daylight	Clear	Dry	Other	Off Road	No Injury	DAY	Passenger Car
89534203	2020	2	2	SW 137TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89518519	2020	2	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Passenger Car
89518539	2020	2	2	SW 125TH AVE	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Pickup
89529587	2020	2	2		Daylight	Clear	Dry	Angle	Other	Injury	DAY	Medium/Heavy Trucks
89528513	2020	2	2	127TH AVENUE	Daylight	Cloudy	Wet	Angle	Unknown	No Injury	DAY	(Sport) Utility Vehicle
88272910	2020	2	2	SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88272998	2020	2	2	SW 129TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Van
88331451	2020	2	2	SW 132ND AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89520113	2020	2	2	SW 127TH AVE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Medium/Heavy Trucks
88330518	2020	2	2	SW 127 AVE	Dark - Lighted	Rain	Wet	Angle	Left Entering	No Injury	NIGHT	Passenger Car
88295142	2020	1	2	SOUTHWEST 132ND AVENUE	Dark - Not Lighted	Clear	Dry	Other	Off Road	No Injury	NIGHT	(Sport) Utility Vehicle
88287828	2020	2	3	SOUTHWEST 127 AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Pickup
88287829	2020	2	2	SOUTHWEST 135 AVENUE	Daylight	Cloudy	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88429761	2020	2	2	SW 137 AVE	Dark - Not Lighted	Clear	Dry	Front to Front	Left Leaving	No Injury	NIGHT	Passenger Car
89521883	2020	1	1	SW 125TH AVE	Dark - Lighted	Clear	Dry	Other	Off Road	Injury	NIGHT	Passenger Car
89515524	2020	3	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Left Leaving	Injury	NIGHT	Passenger Car
88289967	2020	2	3	SW 127TH AVENUE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	Serious Injury	NIGHT	Pickup
89540507	2020	2	1	QUAIL ROOST DR	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	Passenger Car
89518734	2020	2	1		Daylight	Clear	Dry	Angle	Parked Vehicle	No Injury	DAY	Pickup
88409157	2020	2	2	SW 132 AVE	Daylight	Cloudy	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
89546804	2020	2	2	SW 137TH AVE	ark - Unknown Lighti	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
88429749	2020	2	2	SW 137 AVE	Dark - Not Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
88387928	2020	2	2	SW 127TH AVENUE	Dark - Lighted	Clear	Dry	Front to Front	Left Leaving	No Injury	NIGHT	Passenger Car
88300622	2020	1	1	SW 137 AVE	Dark - Not Lighted	Rain	Wet	Other	Off Road	Serious Injury	NIGHT	(Sport) Utility Vehicle
88300641	2020	2	2	SW 132 AVE	Daylight	Cloudy	Dry	Angle	Left Entering	Serious Injury	DAY	(Sport) Utility Vehicle
88466691	2021	2	2	SW 139TH AVE	Daylight	Clear	Dry	Other	Other	No Injury	DAY	Pickup
88432595	2021	2	2	SW 137TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
24367074	2021	1	1		Dark - Lighted	Clear	Dry	Other	Off Road	No Injury	NIGHT	Passenger Car
24374583	2021	2	1	SW 200TH ST	Daylight	Clear	Dry	Angle	Left Leaving	No Injury	DAY	(Sport) Utility Vehicle
24379265	2021	2	3	SW 200TH ST	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88484979	2021	2	2	SW 134 AVE	Dark - Lighted	Cloudy	Dry	Angle	Left Entering	No Injury	NIGHT	Pickup
88495053	2021	2	2	SW 130TH AVENUE RD	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
88396224	2021	2	2	SW 135 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88530754	2021	2	3	SW 127TH AVENUE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	NIGHT	Other Light Trucks
24377978	2021	2	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Unknown	No Injury	DAY	(Sport) Utility Vehicle
88445934	2021	4	8	SW 134TH AVENUE	Daylight	Clear	Dry	Angle	Left Leaving	Injury	DAY	Passenger Car
88502019	2021	3	3	SW 132 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
88419801	2021	2	2	SW 127 AVE	Daylight	Cloudy	Wet	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Pickup
88495059	2021	2	5	SW 132ND CT	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88544591	2021	2	2	SW 137TH AVENUE	Dark - Lighted	Clear	Dry	Other	Left Leaving	No Injury	NIGHT	Passenger Car
24357661	2021	2	3	SW 137TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Medium/Heavy Trucks
88468734	2021	2	4	SW 127TH AVE (BURR RD)	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	(Sport) Utility Vehicle
24369090	2021	2	2		Daylight	Rain	Wet	Other	Backed Into	No Injury	DAY	Pickup
88570458	2021	2	2	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24358802	2021	2	3		Daylight	Clear	Dry	Rear to Side	Backed Into	No Injury	DAY	Passenger Car
88569345	2021	3	3	SW 137TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Pickup
88579616	2021	4	4	SW 133 COURT	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
24351953	2021	2	2		Daylight	Clear	Dry	Sideswipe, Same Direction	Parked Vehicle	No Injury	DAY	(Sport) Utility Vehicle
24375113	2021	2	4		Daylight	Clear	Dry	Angle	Parked Vehicle	No Injury	DAY	Passenger Car
24382877	2021	2	2	SW 200TH ST	Dark - Lighted	Clear	Dry	Angle	Right Angle	No Injury	DAY	Passenger Car
24371782	2021	2	2		Daylight	Clear	Dry	Other	Parked Vehicle	No Injury	DAY	Passenger Car
88436441	2021	2	2	SW 214TH CT	Daylight	Clear	Dry	Front to Front	Left Rear	No Injury	DAY	Passenger Car
24366547	2021	2	1		Daylight	Clear	Dry	Front to Rear	Parked Vehicle	No Injury	DAY	Pickup
24384021	2021	1	1	SW 129TH AVE	Daylight	Clear	Mud	Other	Off Road	No Injury	DAY	Other Light Trucks
24368308	2021	2	2		Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89555472	2021	2	1		Dark - Lighted	Clear	Dry	Angle	Parked Vehicle	Injury	NIGHT	Unknown
88546364	2021	2	2	SW 134 DRIVE	Daylight	Clear	Dry	Angle	Right Angle	Injury	DAY	Medium/Heavy Trucks
89550990	2021	2	2	QUAIL ROOST DR	Daylight	Clear	Dry	Rear to Rear	Parked Vehicle	No Injury	DAY	(Sport) Utility Vehicle
88480449	2021	2	2	SOUTHWEST 134 AVENUE	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
88480485	2021	2	2	SOUTHWEST 127 AVENUE	Dark - Lighted	Clear	Dry	Angle	Other	No Injury	NIGHT	Passenger Car
24367268	2021	2	2		Daylight	Clear	Dry	Front to Rear	Parked Vehicle	No Injury	DAY	Pickup
88501996	2021	2	2	SW 127TH AVE	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	(Sport) Utility Vehicle
89569202	2021	2	2	SW 132ND CT	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24375261	2021	2	2		Daylight	Rain	Wet	Angle	Right Angle	No Injury	DAY	Passenger Car
88461661	2021	1	1	SOUTHWEST 129 COURT	Dark - Not Lighted	Rain	Wet	Other	Off Road	No Injury	NIGHT	Passenger Car
88536793	2021	2	2	SW 130TH AVE RD	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	(Sport) Utility Vehicle
88425620	2021	4	6	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
88587562	2021	3	3	SW 134TH AVE	Dark - Not Lighted	Clear	Dry	Front to Front	Left Entering	Fatality	DAY	Passenger Car
88546386	2021	2	3	SW 133 COURT	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Van
88556328	2021	2	2	SOUTHWEST 133 AVENUE	Dark - Lighted	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88586926	2021	2	2	SOUTHWEST 133 AVENUE	Daylight	Clear	Dry	Angle	Left Leaving	Injury	DAY	Pickup
88586930	2021	2	2	SOUTHWEST 127 AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
24350167	2021	1	1	SW 200TH ST	Dark - Not Lighted	Clear	Dry	Angle	Off Road	Injury	NIGHT	(Sport) Utility Vehicle
88512694	2021	2	2	SOUTHWEST 132ND AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	
24355157	2021	2	2		Daylight	Clear	Dry	Angle	Backed Into	No Injury	DAY	Passenger Car
88509057	2021	2	2	SOUTHWEST 133 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
88512635	2021	2	2	SOUTHWEST 134TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Other Light Trucks
88512684	2021	2	2	SOUTHWEST 133RD AVENUE	Daylight	Cloudy	Wet	Other	Head On	No Injury	DAY	Pickup
24353597	2021	2	4	SW 129TH COURT	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24356446	2021	2	2	SW 132ND PL	Dark - Lighted	Rain	Wet	ideswipe, Opposite Directio	Opposing Sideswipe	No Injury	NIGHT	Unknown
24368620	2021	2	4	SW 132ND AVE	Dawn	Cloudy	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	NIGHT	Passenger Car
88536820	2021	2	2	SW 132ND AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
88573515	2022	3	4	SW 130TH AVE	Dark - Not Lighted	Clear	Dry	Front to Rear	Bicycle	Serious Injury	NIGHT	Pickup
24916026	2022	2	2	SW 122ND AVENUE	Daylight	Clear	Dry	Angle	Rear End	No Injury	DAY	Passenger Car
24918116	2022	2	2	SW 127TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24883310	2022	2	3	SR-825 (SW 137TH AVE)	Daylight	Clear	Dry	Front to Rear	Right Angle	No Injury	DAY	(Sport) Utility Vehicle
24883321	2022	2	2	SW 129TH AVE	Daylight	Rain	Wet	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Other Light Trucks
24882656	2022	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25211734	2022	2	2		Daylight	Clear	Dry	Angle	Unknown	No Injury	DAY	Passenger Car
24891919	2022	2	1	SW 124TH CT	Dark - Lighted	Clear	Dry	ideswipe, Opposite Directio	Opposing Sideswipe	No Injury	NIGHT	
24389846	2022	2	2	QUAIL ROOST DR	Dark - Lighted	Clear	Dry	Angle	Left Entering	No Injury	NIGHT	Passenger Car
24914719	2022	2	3	SW 127 AVE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Other Light Trucks

24386837	2022	2	2	SW 133RD CT	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
24939808	2022	3	3	SW 129TH AVE	Daylight	Clear	Dry	Other	Rear End	No Injury	DAY	Passenger Car
24394690	2022	2	3	SW 200TH ST	Daylight	Clear	Dry	Unknown	Rear End	No Injury	DAY	Unknown
25220869	2022	2	2	SW 137TH AVE	Dark - Lighted	Clear	Dry	Angle	Left Rear	No Injury	NIGHT	(Sport) Utility Vehicle
24387796	2022	2	2	SW 200TH ST	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	Passenger Car
24931954	2022	3	4	SW 127 AVE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
25207142	2022	2	2	QUAIL ROOST DR	Daylight	Cloudy	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
88411069	2022	2	2	SW 123 PLACE	Dark - Lighted	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Passenger Car
24935380	2022	2	1	SW 133RD CT	Dusk	Clear	Dry	Other	Left Leaving	No Injury	DAY	Passenger Car
24935386	2022	2	2	SW 137TH AVE	Daylight	Rain	Wet	Angle	Other	Injury	DAY	(Sport) Utility Vehicle
24935393	2022	2	1	SW 124TH CT	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
24963187	2022	2	2	SW 127 AVE	Daylight	Cloudy	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
24970161	2022	2	2	SW 137 AVE	Dark - Lighted	Clear	Dry	Angle	Right Angle	Injury	NIGHT	Passenger Car
24985962	2022	2	1	SW 127TH AVE	Dawn	Clear	Wet	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
24972211	2022	2	2	SW 137 AVE	Daylight	Clear	Dry	Front to Front	Left Entering	Injury	DAY	(Sport) Utility Vehicle
24972220	2022	2	2	SW 127 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
24963656	2022	2	2	SW 127TH AVE	Daylight	Clear	Dry	Other	Right Angle	No Injury	DAY	Passenger Car
24382431	2022	3	4		Dawn	Clear	Dry	Other	Right Angle	No Injury	NIGHT	(Sport) Utility Vehicle
25209918	2022	2	1		Daylight	Clear	Dry	ideswipe, Opposite Directio	Parked Vehicle	No Injury	DAY	(Sport) Utility Vehicle
24966461	2022	2	2	SW 135TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Van
24968036	2022	2	5	SOUTHWEST 132ND PLACE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	(Sport) Utility Vehicle
24913959	2022	4	4	SW 127 AVENUE	Dawn	Rain	Wet	Other	Right Angle	Injury	NIGHT	Passenger Car
24913962	2022	2	2	SW 127 AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
24913967	2022	3	3	SW 127 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
25212104	2022	1	2		Daylight	Clear	Dry	Other	Single Vehicle	Injury	DAY	Passenger Car
25218556	2022	2	3	SW 129TH AVE	Dark - Not Lighted	Cloudy	Wet	Angle	Right/Through	No Injury	NIGHT	Passenger Car
24989468	2022	2	2	SW 134 AVE	Dark - Not Lighted	Rain	Wet	Angle	Right Angle	No Injury	NIGHT	Passenger Car
25004697	2022	2	2	SOUTHWEST 137 AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Left Entering	Injury	NIGHT	Pickup
25222923	2022	2	2		Daylight	Clear	Dry	Front to Front	Head On	No Injury	DAY	Passenger Car
24395452	2022	2	2		Daylight	Clear	Dry	Angle	Other	No Injury	DAY	Passenger Van
25213938	2022	2	2	SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25214040	2022	2	3		Daylight	Clear	Dry	Rear to Side	Parked Vehicle	No Injury	DAY	Passenger Car
89590817	2022	2	2	SW 132ND AVENUE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	(Sport) Utility Vehicle
24999606	2022	2	2	SR-825 (LINDGREN RD)	Dark - Not Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
89590840	2022	2	3	SW 132ND AVENUE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	Passenger Car
25228724	2022	2	4		Daylight	Clear	Dry	Rear to Rear	Parked Vehicle	No Injury	DAY	Passenger Car
25220888	2022	2	2	SW 127TH AVE	Daylight	Clear	Dry	Sideswipe, Same Direction	Rear End	No Injury	DAY	Passenger Car
24999695	2022	1	0	SOUTHWEST 139 AVENUE	Dark - Not Lighted	Clear	Dry	Other	Off Road	No Injury	NIGHT	Pickup
24388403	2022	2	5	SW 137TH AVE	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Pickup
24939802	2022	2	3	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24939796	2022	2	3	SW 132ND AVE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
24891902	2022	2	1	SW 127TH AVENUE	Dark - Lighted	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Passenger Car
24891914	2022	2	2	SW 127TH AVENUE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
24391341	2022	3	4	SW 200TH ST	ark - Unknown Lighti	Clear	Dry	Angle	Same Direction Sideswipe	Injury	NIGHT	Motorcycle
24392380	2022	2	2	SW 200TH ST	Dark - Lighted	Clear	Dry	ideswipe, Opposite Directio	Left Entering	No Injury	DAY	Cargo Van
24391154	2022	2	2	SW 200TH ST	Daylight	Clear	Dry	Rear to Rear	Other	No Injury	NIGHT	Passenger Car
24926820	2022	2	2	SOUTHWEST 127TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Passenger Van
24941801	2022	2	6	SW 127TH AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
24895895	2022	2	3	SW 137 AVE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	NIGHT	(Sport) Utility Vehicle
24895873	2022	1	1	SW 129 AVE	Daylight	Clear	Dry	Other	Off Road	No Injury	DAY	Medium/Heavy Trucks
24880596	2022	2	2	SW 137 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24880598	2022	2	3	SW 124 COURT	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	(Sport) Utility Vehicle
24880605	2022	2	3	SW 130 AVENUE	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Passenger Car
24881551	2022	2	2	SW 128 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24950023	2022	2	2	SW 137 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24984413	2022	2	2	SW 137 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25200720	2022	2	2	SW 200TH ST	Daylight	Cloudy	Wet	Angle	Right/Through	No Injury	NIGHT	Passenger Car
25000696	2022	2	4	SOUTHWEST 115 AVE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	(Sport) Utility Vehicle
25000706	2022	3	6	SOUTHWEST 130 AVE	Daylight	Clear	Dry	Angle	Right Angle	Injury	NIGHT	(Sport) Utility Vehicle
25000715	2022	2	2	SOUTHWEST 137 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24950107	2022	2	3	SW 134 AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Left Rear	No Injury	NIGHT	Pickup
25016385	2022	2	2	SW 133 AVE	Daylight	Cloudy	Dry	Angle	Left Leaving	No Injury	DAY	(Sport) Utility Vehicle
25020928	2022	2	2	SW 127TH AVE	Dark - Not Lighted	Clear	Dry	Angle	Right Angle	No Injury	NIGHT	Passenger Car
24960812	2022	3	3	SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
25038337	2022	2	2	SW 132 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Cargo Van
25202258	2022	2	2	SW 200TH ST	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle
25202707	2022	3	3	SW 127TH AVE	Daylight	Rain	Wet	Angle	Other	No Injury	DAY	Passenger Car
25043326	2022	2	2	SW 137 AVE	Dawn	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Other Light Trucks
25009182	2022	2	2	SW 133 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Medium/Heavy Trucks
25009204	2022	2	2	SW 127 AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	NIGHT	(Sport) Utility Vehicle
25204807	2022	2	2		Daylight	Clear	Dry	Rear to Side	Other	No Injury	DAY	Pickup
25204912	2022	2	2	SW 200TH ST	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Cargo Van
25203723	2022	2	2	SW 200TH ST	Daylight	Clear	Dry	Other	Left Leaving	Injury	DAY	(Sport) Utility Vehicle
25204002	2022	2	2	SW 137TH AVE	Daylight	Clear	Dry	ideswipe, Opposite Directio	Opposing Sideswipe	Injury	DAY	
25217850	2022	2	2	SW 129TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25205619	2022	2	3	QUAIL ROOST DR	Daylight	Cloudy	Wet	Front to Front	Right Angle	No Injury	DAY	Pickup
88338681	2022	1	1	SW 157 AVE	Dark - Not Lighted	Clear	Dry	Other	Off Road	Serious Injury	NIGHT	Passenger Car
24966413	2022	1	2	SW 132ND AVE	Daylight	Clear	Dry	Other	Single Vehicle	No Injury	DAY	(Sport) Utility Vehicle
24993735	2022	2	3	SW 124TH AVE	Dark - Lighted	Clear	Dry	Angle	Left Entering	Injury	NIGHT	Passenger Car
24930463	2022	2	3	SW 127TH AVE	Daylight	Rain	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
24996615	2022	2	2	SW 120TH	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25233894	2023	2	1		Dark - Lighted	Clear	Dry	Rear to Side	Backed Into	No Injury	NIGHT	Pickup
25053845	2023	3	3	SW 130TH AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
25228669	2023	2	2	TALBOT RD	Daylight	Clear	Dry	Front to Rear	Right Angle	Injury	DAY	Passenger Car
25065282	2023	4	6	SW 134TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Pickup
25065300	2023	2	2	SW 127TH AVE (BURR RD)	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Pickup
25052551	2023	2	2	SW 124 AVENUE	Daylight	Clear	Wet	Front to Rear	Same Direction Sideswipe	No Injury	DAY	Passenger Car
25053807	2023	2	1	SW 127TH AVE	Daylight	Clear	Dry	Unknown	Other	No Injury	DAY	Passenger Car
25053827	2023	2	2	SW 137TH AVE	Dusk	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25043354	2023	2	2	SW 130 AVE RD	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
25021514	2023	2	4	SOUTHWEST 137TH AVENUE	Dark - Not Lighted	Clear	Dry	Angle	Right Angle	No Injury	NIGHT	Passenger Car
25009232	2023	2	2	SW 137 AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
25079760	2023	3	3	SW 134TH AVE	Daylight	Clear	Dry	Angle	Left Leaving	Injury	DAY	Passenger Van
25234681	2023	3	3	SW 129TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
25234648	2023	2	4		Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89620259	2023	2	2	SOUTHWEST 124 CT	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Passenger Car
25041155	2023	3	4	SW 132 AVE	Daylight	Cloudy	Dry	Front to Rear	Rear End	Injury	DAY	Pickup
89611326	2023	2	2	SW 134 AVENUE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	(Sport) Utility Vehicle
25233749	2023	2	2		Dark - Lighted	Clear	Dry	Other	Backed Into	No Injury	NIGHT	Passenger Car
89597404	2023	2	5	SW 127TH AVE	Dark - Lighted	Clear	Dry	Angle	Left Entering	Injury	DAY	(Sport) Utility Vehicle
89620570	2023	2	5	SW 134TH ST	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	(Sport) Utility Vehicle
25065184	2023	2	2	SOUTHWEST 123RD PLACE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	Injury	DAY	Pickup
89620577	2023	2	2	SW 135TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89610064	2023	2	3	SW 137TH AVE	Dark - Not Lighted	Clear	Dry	Other	Right Angle	No Injury	NIGHT	Passenger Van
89613897	2023	3	3	JEO SW 127TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car

89623782	2023	2	2	SOUTHWEST 125 AVENUE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	Passenger Car
25873242	2023	2	2	SW 127TH AVE	Daylight	Rain	Wet	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Unknown
89607593	2023	2	2	SW 137TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89593653	2023	2	2	SW 127TH AVE	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Passenger Car
89611859	2023	2	2	SW 137 AVE	Dark - Not Lighted	Clear	Dry	Angle	Left Entering	No Injury	NIGHT	Pickup
89613898	2023	2	2	SW 133RD AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89601800	2023	3	3	SW 137 AVE	Dark - Lighted	Clear	Dry	Angle	Left Entering	Injury	NIGHT	(Sport) Utility Vehicle
25236186	2023	2	2	SW 127TH STREET	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Pickup
89620578	2023	2	2	SW 137TH AVE	Dark - Lighted	Clear	Dry	Angle	Right/Through	No Injury	DAY	Passenger Car
89613933	2023	2	2	SW 134TH CT	Daylight	Cloudy	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25245654	2023	2	3	SW 127TH AVENUE	Daylight	Clear	Dry	Front to Front	Head On	No Injury	DAY	Passenger Car
89631644	2023	2	3	SW 137TH AVE	Dark - Lighted	Clear	Dry	Angle	Left Entering	No Injury	NIGHT	(Sport) Utility Vehicle
89607627	2023	2	2	SW 122ND AE	Daylight	Clear	Dry	Other	Rear End	No Injury	DAY	Passenger Car
25245809	2023	2	3	SW 127TH AVE	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Other
25246337	2023	2	2		Daylight	Clear	Dry	Unknown	Parked Vehicle	No Injury	DAY	Unknown
25242886	2023	1	1	SW QUAIL ROOST DRIVE	Dark - Not Lighted	Clear	Dry	Other	Single Vehicle	Fatality	NIGHT	Passenger Car
89611883	2023	2	2	SW 137 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
25239512	2023	2	2	QUAIL ROOST DR	Daylight	Clear	Dry	Angle	Backed Into	No Injury	DAY	Passenger Van
25851817	2023	2	2	SW 134TH AVE	Dusk	Clear	Dry	Front to Rear	Right Angle	No Injury	DAY	(Sport) Utility Vehicle
89656538	2023	2	2	SOUTHWEST 129TH AVENUE	Daylight	Clear	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89656541	2023	2	2	SOUTHWEST 127TH AVENUE	Daylight	Clear	Dry	Sideswipe, Opposite Directio	Opposing Sideswipe	No Injury	DAY	Passenger Car
89625984	2023	2	3	SW 122ND AVENUE	Daylight	Rain	Wet	Front to Front	Head On	Serious Injury	DAY	Passenger Car
89611898	2023	2	2	SW 129 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89641258	2023	2	6	SW 125TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89611390	2023	2	4	SW 137 AVENUE	Dark - Lighted	Clear	Dry	Angle	Right Angle	Injury	NIGHT	(Sport) Utility Vehicle
89622894	2023	2	2	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89622895	2023	2	2	SW 127TH AVE	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Passenger Car
89629010	2023	2	1	SW 132 AVE	Dark - Lighted	Clear	Dry	Angle	Other	No Injury	NIGHT	Unknown
89678486	2023	2	2	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	(Sport) Utility Vehicle
89678695	2023	2	6	SW 137 AVENUE	Daylight	Clear	Dry	Front to Front	Left Entering	No Injury	NIGHT	Passenger Car
89678490	2023	2	2	SW 127TH AVE (BURR RD)	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	Pickup
88338690	2023	2	3	SW 132 PL	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Cargo Van
89629005	2023	3	3	SW 137 AVE	Dark - Lighted	Clear	Dry	Angle	Right Angle	No Injury	NIGHT	Passenger Car
89667225	2023	3	4	SW 134TH AVENUE	Daylight	Cloudy	Dry	Angle	Right Angle	Injury	DAY	Pickup
25856272	2023	2	2		Daylight	Clear	Dry	Angle	Backed Into	No Injury	DAY	Passenger Van
89702537	2023	2	2	SW 134TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89678528	2023	3	3	SW 130TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89678532	2023	3	2	SW 129TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89678721	2023	2	2	SW 134 AVENUE	Daylight	Clear	Dry	Angle	Left Rear	No Injury	DAY	Passenger Car
89620330	2023	2	2	SOUTHWEST 137 AVE.	Daylight	Clear	Dry	Sideswipe, Same Direction	Opposing Sideswipe	No Injury	DAY	Passenger Car
25860364	2023	1	1		Daylight	Clear	Dry	Other	Off Road	Injury	DAY	Passenger Car
89620327	2023	2	3	SOUTHWEST 134 AVE	Daylight	Clear	Dry	Angle	Left Rear	Injury	DAY	Passenger Car
25862926	2023	2	2		Daylight	Clear	Dry	Sideswipe, Same Direction	Right/Left	No Injury	NIGHT	Pickup
89664232	2023	2	2	SW 127 AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89668617	2023	2	1	SW 129TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	Injury	DAY	Passenger Car
89715919	2023	2	2	SOUTHWEST 134 AVE.	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	Passenger Car
89702557	2023	2	2	SW 134TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Cargo Van
89702562	2023	2	2	SW 130TH AVENUE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89707727	2023	2	5	SW 134TH AVE	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	Passenger Car
89715930	2023	2	4	SOUTHWEST 137 AVE	Dawn	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	NIGHT	Passenger Car
89707734	2023	2	2	SW 134TH AVE	Dark - Not Lighted	Clear	Dry	Sideswipe, Opposite Directio	Left Leaving	No Injury	NIGHT	Passenger Car
89715127	2023	2	2	SW 132ND PL	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89678739	2023	2	2	SW 134 AVENUE	Daylight	Clear	Dry	Angle	Right Angle	No Injury	DAY	Passenger Car
89726791	2023	2	2	SW 133 AVENUE	Daylight	Rain	Wet	Angle	Left Rear	Injury	DAY	(Sport) Utility Vehicle
89754692	2023	2	3	SW 134TH AVE	Dark - Lighted	Clear	Dry	Angle	Right Angle	No Injury	NIGHT	(Sport) Utility Vehicle
26281343	2023	2	2	SW 134TH AVE	Dark - Not Lighted	Clear	Dry	Angle	Right Angle	No Injury	DAY	Pickup
25871942	2023	2	2		Daylight	Clear	Dry	Sideswipe, Opposite Directio	Parked Vehicle	No Injury	DAY	Pickup
89682795	2023	2	2	SW 127 AVE	Daylight	Cloudy	Wet	Angle	Animal	No Injury	NIGHT	(Sport) Utility Vehicle
89739500	2023	2	2	SW 134 AVENUE	Daylight	Clear	Wet	Angle	Right Angle	No Injury	DAY	Pickup
89754681	2023	2	2	SW 134TH CT	Dark - Lighted	Cloudy	Wet	Front to Rear	Rear End	No Injury	DAY	Passenger Car
89703260	2023	3	3	SW 127TH AVENUE	Daylight	Clear	Dry	Angle	Right/Through	No Injury	DAY	Passenger Car
89747794	2023	2	2	SW 137 AVE	Dark - Not Lighted	Rain	Wet	Sideswipe, Opposite Directio	Opposing Sideswipe	No Injury	NIGHT	Medium/Heavy Trucks
25865420	2023	2	4		Daylight	Clear	Dry	Rear to Side	Backed Into	No Injury	DAY	Passenger Car
89703095	2023	2	4	SW 127TH AVE	Dark - Lighted	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	(Sport) Utility Vehicle
89707762	2023	3	6	SW 129TH AVE	Daylight	Clear	Dry	Front to Rear	Rear End	No Injury	NIGHT	(Sport) Utility Vehicle
25858316	2023	2	2	SW 127TH AVE	Daylight	Clear	Dry	Angle	Left Entering	No Injury	DAY	Pickup
89732429	2023	2	2	SW 134TH AVENUE	Daylight	Clear	Dry	Sideswipe, Same Direction	Same Direction Sideswipe	No Injury	DAY	(Sport) Utility Vehicle

APPENDIX D: LONG RANGE ESTIMATE

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Date: 3/11/2024 3:19:17 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.360 MI

Project Manager: RIVEROL, ELSA

Version 5 Project Grand Total **$29,536,610.64**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE WITH ELEVATED BIKE LANE.

Sequence: 1 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.163 MI 861 LF

Description: SR 994/ QUAIL ROOST DR. CONNECTION TO WEST.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.163
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.99 AC	$77,124.93	$76,353.68

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	450.00 CY	$20.68	$9,306.00
	Comment: Swales on each side of 1200' approximate length.			
	Earthwork Component Total			$85,659.68

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	6.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,105.08	SY	$9.24	$19,450.94
285-709	OPTIONAL BASE,BASE GROUP 09	605.69	SY	$37.25	$22,561.95
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	2,105.08	SY	$2.76	$5,810.02
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	231.56	TN	$143.06	$33,126.97
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	63.15	TN	$143.06	$9,034.24
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	173.67	TN	$192.38	$33,410.63
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	47.36	TN	$192.38	$9,111.12

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	22.00	EA	$3.78	$83.16
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.65	GM	$920.95	$598.62
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.33	GM	$382.85	$126.34
	Roadway Component Total				$133,313.99

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	10.00 / 10.00
New Total Outside Shoulder Width L/R	8.00 / 8.00
Total Outside Shoulder Perf. Turf Width L/R	3.00 / 3.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T

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Rumble Strips ï¿½No. of Sides 0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,020.01	SY	$14.59	$14,881.95
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	78.94	TN	$143.06	$11,293.16
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.94	TN	$192.38	$15,186.48
570-1-1	PERFORMANCE TURF	574.11	SY	$2.39	$1,372.12

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,980.69	LF	$2.07	$4,100.03
104-11	FLOATING TURBIDITY BARRIER	16.31	LF	$14.79	$241.22
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	16.31	LF	$13.91	$226.87
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	1.00	EA	$117.43	$117.43
107-1	LITTER REMOVAL	0.39	AC	$18.94	$7.39
107-2	MOWING	0.39	AC	$27.70	$10.80
	Shoulder Component Total				$50,263.74

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	32.00	LF	$185.68	$5,941.76
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$237.63	$3,802.08
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,947.99	$3,895.98
570-1-1	PERFORMANCE TURF	65.89	SY	$2.39	$157.48
	Drainage Component Total				$13,797.30

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$359.59	$359.59
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,114.91	$4,459.64
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$287.77	$287.77
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$23.22	$92.88
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,672.57	$4,672.57
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$653.31	$653.31

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Signing Component Total	$10,525.76

Sequence 1 Total	$293,560.47

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Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 0.158 MI 833 LF

Description: QUAIL ROOST WEST OF SW 137 AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	55.00 / 55.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.174
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.11	AC	$77,124.93	$162,733.60
120-6	EMBANKMENT	14,955.40	CY	$26.70	$399,309.18
	Earthwork Component Total				$562,042.78

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,295.17	SY	$9.24	$58,167.37
285-709	OPTIONAL BASE,BASE GROUP 09	4,565.85	SY	$37.25	$170,077.91
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	488.80	TN	$143.06	$69,927.73
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	366.60	TN	$192.38	$70,526.51

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1

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Skip Stripe No. of Stripes 2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	64.00 EA	$3.78	$241.92
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.63 GM	$920.95	$580.20
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.32 GM	$373.96	$119.67
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.63 GM	$5,486.64	$3,456.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.32 GM	$1,807.76	$578.48
	Roadway Component Total			$373,676.37

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	986.86 SY	$14.59	$14,398.29
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	76.38 TN	$143.06	$10,926.92
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	76.38 TN	$192.38	$14,693.98
570-1-1	PERFORMANCE TURF	494.36 SY	$2.39	$1,181.52

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,166.28 LF	$2.07	$4,484.20
104-11	FLOATING TURBIDITY BARRIER	39.45 LF	$14.79	$583.47
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	39.45 LF	$13.91	$548.75
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	1.00 EA	$117.43	$117.43
107-1	LITTER REMOVAL	3.83 AC	$18.94	$72.54
107-2	MOWING	3.83 AC	$27.70	$106.09
	Shoulder Component Total			$49,939.48

MEDIAN COMPONENT

DRAFT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	18.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	500.00	LF	$63.72	$31,860.00
570-1-1	PERFORMANCE TURF	1,666.37	SY	$2.39	$3,982.62

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	868.00	LF	$23.64	$20,519.52
	Median Component Total				$56,362.14

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	144.00	LF	$185.68	$26,737.92
570-1-1	PERFORMANCE TURF	122.28	SY	$2.39	$292.25

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$5,664.97	$11,329.94
	Drainage Component Total				$38,360.11

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$359.59	$359.59
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,114.91	$5,574.55
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,512.64	$5,512.64
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$7,584.95	$15,169.90
	Signing Component Total				$26,616.68

DRAFT

Sequence 2 Total $1,106,997.56

DRAFT

Sequence: 3 NDU - New Construction, Divided, Urban **Net Length:** 0.322 MI 1,700 LF

Description: SW 137TH AVE NORTH AND SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.322
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.34 AC	$77,124.93	$180,472.34
120-6	EMBANKMENT	29,868.66 CY	$26.70	$797,493.22
	Earthwork Component Total			$977,965.56

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,616.72 SY	$9.24	$70,378.49
285-709	OPTIONAL BASE,BASE GROUP 09	5,667.20 SY	$37.25	$211,103.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	623.39 TN	$143.06	$89,182.17
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	467.54 TN	$192.38	$89,945.35

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

DRAFT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	43.00	EA	$3.78	$162.54
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.58	GM	$920.95	$2,376.05
	Roadway Component Total				$463,147.80

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$29.36	$49,916.70
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$29.36	$49,916.70
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,133.44	SY	$44.95	$50,948.13
570-1-1	PERFORMANCE TURF	755.63	SY	$2.39	$1,805.96

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,400.32	LF	$2.07	$7,038.66
104-11	FLOATING TURBIDITY BARRIER	80.50	LF	$14.79	$1,190.60
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	80.50	LF	$13.91	$1,119.76
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	17.00	EA	$117.43	$1,996.31
107-1	LITTER REMOVAL	8.19	AC	$18.94	$155.12
107-2	MOWING	8.19	AC	$27.70	$226.86
	Shoulder Component Total				$167,141.09

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,400.32	LF	$23.64	$80,383.56

DRAFT

570-1-1	PERFORMANCE TURF	1,008.76	SY	$2.39	$2,410.94
	Median Component Total				$82,794.50

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00	EA	$6,611.89	$79,342.68
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,843.54	$9,687.08
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,600.00	LF	$124.04	$198,464.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	160.00	LF	$237.63	$38,020.80
570-1-1	PERFORMANCE TURF	97.89	SY	$2.39	$233.96
	Drainage Component Total				$355,428.44

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00	AS	$359.59	$2,876.72
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,114.91	$1,114.91
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,584.95	$7,584.95
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	$10,804.94	$10,804.94
	Signing Component Total				$22,381.52

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,700.16	LF	$15.85	$26,947.54
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	337.46	LF	$23.72	$8,004.55
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$771.13	$9,253.56
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,209.45	LF	$3.45	$21,422.60
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	12.00	EA	$11,736.51	$140,838.12
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	$1,001.50	$12,018.00
	Subcomponent Total				$218,484.37
	Lighting Component Total				$218,484.37

DRAFT

Sequence 3 Total	$2,287,343.28

DRAFT

Sequence: 4 NDU - New Construction, Divided, Urban **Net Length:** 0.253 MI 1,337 LF

Description: SW 137TH AVE AT QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.253
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.68	AC	$77,124.93	$283,819.74
120-6	EMBANKMENT	27,738.96	CY	$26.70	$740,630.23
	Earthwork Component Total				$1,024,449.97

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	22.00 / 22.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,068.91	SY	$9.24	$74,556.73
285-709	OPTIONAL BASE,BASE GROUP 09	6,535.94	SY	$37.25	$243,463.76
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	718.95	TN	$143.06	$102,852.99
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	539.21	TN	$192.38	$103,733.22

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

DRAFT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	103.00	EA	$3.78	$389.34
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.03	GM	$920.95	$1,869.53
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.01	GM	$373.96	$377.70
	Roadway Component Total				$527,243.28

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 10.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$29.36	$39,251.38
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$29.36	$39,251.38
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,782.53	SY	$44.95	$80,124.72
570-1-1	PERFORMANCE TURF	594.18	SY	$2.39	$1,420.09

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,673.79	LF	$2.07	$5,534.75
104-11	FLOATING TURBIDITY BARRIER	63.30	LF	$14.79	$936.21
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	63.30	LF	$13.91	$880.50
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	13.00	EA	$117.43	$1,526.59
107-1	LITTER REMOVAL	6.44	AC	$18.94	$121.97
107-2	MOWING	6.44	AC	$27.70	$178.39
	Shoulder Component Total				$172,052.27

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	24.00
Performance Turf Width	22.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

DRAFT

520-1-7	CONCRETE CURB & GUTTER, TYPE E	2,673.79	LF	$23.64	$63,208.40
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	580.00	LF	$63.72	$36,957.60
570-1-1	PERFORMANCE TURF	3,267.97	SY	$2.39	$7,810.45
	Median Component Total				$107,976.45

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$6,611.89	$66,118.90
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,843.54	$9,687.08
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	672.00	LF	$124.04	$83,354.88
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	76.97	SY	$2.39	$183.96
	Drainage Component Total				$196,813.08

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$359.59	$2,517.13
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,114.91	$1,114.91
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,584.95	$7,584.95
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	$10,804.94	$10,804.94
	Signing Component Total				$22,021.93

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,336.90	LF	$15.85	$21,189.86
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	265.35	LF	$23.72	$6,294.10
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$771.13	$6,940.17
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,882.71	LF	$3.45	$16,845.35
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	9.00	EA	$11,736.51	$105,628.59
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$1,001.50	$9,013.50

DRAFT

Subcomponent Total	$165,911.58
Lighting Component Total	$165,911.58
Sequence 4 Total	$2,216,468.56

DRAFT

Sequence: 5 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.136 MI 716 LF

Description: SW 134TH AVE SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	19.00 / 19.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.136
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.63	AC	$77,124.93	$48,588.71
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	149.20	CY	$27.62	$4,120.90

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	120.00	CY	$20.68	$2,481.60
	Comment: Swale on left side of the road, approximately 650' in length.				
	Earthwork Component Total				$55,191.21

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,909.25	SY	$9.24	$17,641.47
285-709	OPTIONAL BASE,BASE GROUP 09	980.88	SY	$37.25	$36,537.78
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	1,750.14	SY	$2.76	$4,830.39

DRAFT

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	144.39 TN	$143.06	$20,656.43
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	105.01 TN	$143.06	$15,022.73
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	70.01 TN	$192.38	$13,468.52
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.76 TN	$192.38	$15,151.85

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	73.00 EA	$3.78	$275.94
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.54 GM	$920.95	$497.31
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.54 GM	$382.85	$206.74
	Roadway Component Total			$124,289.16

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 4.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	2.00 / 2.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	370.71 SY	$14.59	$5,408.66
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	26.25 TN	$143.06	$3,755.32
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	26.25 TN	$192.38	$5,049.98
570-1-1	PERFORMANCE TURF	636.42 SY	$2.39	$1,521.04

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount

104-10-3	SEDIMENT BARRIER	1,646.73 LF	$2.07	$3,408.73
104-11	FLOATING TURBIDITY BARRIER	13.56 LF	$14.79	$200.55
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	13.56 LF	$13.91	$188.62
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	1.00 EA	$117.43	$117.43
107-1	LITTER REMOVAL	0.33 AC	$18.94	$6.25
107-2	MOWING	0.33 AC	$27.70	$9.14
	Shoulder Component Total			$22,492.02

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	400.00 LF	$185.68	$74,272.00
570-1-1	PERFORMANCE TURF	41.22 SY	$2.39	$98.52

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00 EA	$5,664.97	$22,659.88
425-2-41	MANHOLES, P-7, <10'	2.00 EA	$4,843.54	$9,687.08
	Drainage Component Total			$106,717.48

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	$359.59	$359.59
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00 AS	$1,114.91	$3,344.73
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	$287.77	$287.77
700-1-60	SINGLE POST SIGN, REMOVE	3.00 AS	$23.22	$69.66
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00 AS	$4,672.57	$4,672.57
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$653.31	$653.31
	Signing Component Total			$9,387.63

Sequence 5 Total $318,077.50

DRAFT

Sequence: 6 NUU - New Construction, Undivided, Urban **Net Length:** 0.092 MI 484 LF

Description: SW 134TH AVE NORTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.092
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.56	AC	$77,124.93	$43,189.96
120-6	EMBANKMENT	6,529.87	CY	$26.70	$174,347.53
	Earthwork Component Total				$217,537.49

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	22.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,052.91	SY	$9.24	$18,968.89
285-709	OPTIONAL BASE,BASE GROUP 09	1,775.31	SY	$37.25	$66,130.30
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	195.28	TN	$143.06	$27,936.76
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	146.46	TN	$192.38	$28,175.97

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

DRAFT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	50.00 EA	$3.78	$189.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.73 GM	$920.95	$672.29
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.37 GM	$373.96	$138.37
	Roadway Component Total			$142,211.58

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18 LF	$29.36	$14,215.52
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18 LF	$29.36	$14,215.52
570-1-1	PERFORMANCE TURF	537.97 SY	$2.39	$1,285.75

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	968.35 LF	$2.07	$2,004.48
104-11	FLOATING TURBIDITY BARRIER	22.92 LF	$14.79	$338.99
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	22.92 LF	$13.91	$318.82
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	5.00 EA	$117.43	$587.15
107-1	LITTER REMOVAL	1.11 AC	$18.94	$21.02
107-2	MOWING	1.11 AC	$27.70	$30.75
	Shoulder Component Total			$35,844.29

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00 EA	$6,611.89	$26,447.56
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00 EA	$7,419.98	$7,419.98
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	$5,664.97	$5,664.97
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,843.54	$4,843.54
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	400.00 LF	$124.04	$49,616.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$237.63	$5,703.12

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570-1-1	PERFORMANCE TURF	27.88 SY	$2.39	$66.63
	Drainage Component Total			$99,761.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00 AS	$359.59	$719.18
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,114.91	$1,114.91
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00 AS	$7,584.95	$7,584.95
	Signing Component Total			$9,419.04

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	484.18 LF	$15.85	$7,674.25
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	63.18 LF	$23.72	$1,498.63
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00 EA	$771.13	$1,542.26
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,642.07 LF	$3.45	$5,665.14
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	2.00 EA	$11,736.51	$23,473.02
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00 EA	$1,001.50	$2,003.00
	Subcomponent Total			$41,856.30
	Lighting Component Total			$41,856.30

Sequence 6 Total $546,630.50

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Sequence: 7 NDU - New Construction, Divided, Urban **Net Length:** 1.012 MI 5,343 LF

Description: SR 994/QUAIL ROOST DR. WITH SHARED USE PATHS

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	47.00 / 47.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.012
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	11.53 AC	$77,124.93	$889,250.44
120-6	EMBANKMENT	110,476.94 CY	$26.70	$2,949,734.30
	Earthwork Component Total			$3,838,984.74

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	22.00 / 22.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	32,250.15 SY	$9.24	$297,991.39
285-709	OPTIONAL BASE,BASE GROUP 09	26,123.09 SY	$37.25	$973,085.10
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,873.54 TN	$143.06	$411,088.63
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	2,155.16 TN	$192.38	$414,609.68

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

DRAFT

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,450.03 SY	$9.24	$59,598.28
285-709	OPTIONAL BASE,BASE GROUP 09	5,224.62 SY	$37.25	$194,617.10
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	574.71 TN	$143.06	$82,218.01
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	431.03 TN	$192.38	$82,921.55

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	410.00 EA	$3.78	$1,549.80
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.05 GM	$920.95	$3,729.85
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	2.02 GM	$373.96	$755.40
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	4.05 GM	$4,222.32	$17,100.40
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	2.02 GM	$1,293.64	$2,613.15

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	5.00 / 5.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,311.89 SY	$9.24	$76,801.86
285-701	OPTIONAL BASE,BASE GROUP 01	5,937.07 SY	$18.40	$109,242.09
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	445.28 TN	$143.06	$63,701.76
550-10-120	FENCING, TYPE A, 5.1-6.0, STANDARD	4,000.00 LF	$13.43	$53,720.00
	Roadway Component Total			$2,845,344.04

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.75 / 13.75

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Total Outside Shoulder Perf. Turf Width L/R	6.50 / 6.50
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36 LF	$29.36	$156,881.05
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36 LF	$29.36	$156,881.05
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	5,937.07 SY	$44.95	$266,871.30
570-1-1	PERFORMANCE TURF	7,718.19 SY	$2.39	$18,446.47

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,686.72 LF	$2.07	$22,121.51
104-11	FLOATING TURBIDITY BARRIER	253.00 LF	$14.79	$3,741.87
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	253.00 LF	$13.91	$3,519.23
104-15	SOIL TRACKING PREVENTION DEVICE	2.00 EA	$2,826.29	$5,652.58
104-18	INLET PROTECTION SYSTEM	52.00 EA	$117.43	$6,106.36
107-1	LITTER REMOVAL	25.76 AC	$18.94	$487.89
107-2	MOWING	25.76 AC	$27.70	$713.55
	Shoulder Component Total			$641,422.87

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	16.50
Performance Turf Width	12.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	10,686.72 LF	$23.64	$252,634.06
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	1,060.00 LF	$63.72	$67,543.20
570-1-1	PERFORMANCE TURF	7,124.48 SY	$2.39	$17,027.51
	Median Component Total			$337,204.77

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	40.00 EA	$6,611.89	$264,475.60
425-1-451	INLETS, CURB, TYPE J-5, <10'	15.00 EA	$7,419.98	$111,299.70
425-1-521	INLETS, DT BOT, TYPE C, <10'	6.00 EA	$5,664.97	$33,989.82
425-2-41	MANHOLES, P-7, <10'	23.00 EA	$4,843.54	$111,401.42

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430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	5,064.00 LF	$124.04	$628,138.56
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	1,800.00 LF	$237.63	$427,734.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	240.00 LF	$613.46	$147,230.40
570-1-1	PERFORMANCE TURF	307.65 SY	$2.39	$735.28

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
443-70-6	FRENCH DRAIN, 36"	3,700.00 LF	$216.30	$800,310.00
	Drainage Component Total			$2,525,314.78

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	25.00 AS	$359.59	$8,989.75
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	15.00 AS	$1,114.91	$16,723.65
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00 AS	$7,584.95	$7,584.95
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	3.00 AS	$10,804.94	$32,414.82
	Signing Component Total			$65,713.17

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	5,343.36 LF	$15.85	$84,692.26
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,060.58 LF	$23.72	$25,156.96
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	36.00 EA	$771.13	$27,760.68
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	19,515.41 LF	$3.45	$67,328.16
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	36.00 EA	$6,106.25	$219,825.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	36.00 EA	$1,001.50	$36,054.00
	Subcomponent Total			$460,817.06

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
639-1-111	ELECTRICAL POWER SRV,F&I,OH,M,FURNISHED	1.00 AS	$4,313.81	$4,313.81
639-3-11	ELEC SERV DISCON, F&I, POLE MNT	1.00 EA	$1,831.97	$1,831.97

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715-7-12	LOAD CENTER, F&I, PRIMARY VOLTAGE	1.00 EA	$10,785.92	$10,785.92
	Lighting Component Total			$477,748.76

LANDSCAPING COMPONENT

User Input Data

Description	Value
Cost %	3.00
Component Detail	N

Landscaping Component Total	$300,802.33

Sequence 7 Total	$11,032,535.46

DRAFT

Sequence: 8 MIS - Miscellaneous Construction **Net Length:** 0.246 MI 1,300 LF

Description: Black Creek Underpass

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.35	AC	$77,124.93	$26,993.73
120-1	REGULAR EXCAVATION	200.00	CY	$20.68	$4,136.00
120-6	EMBANKMENT	2,577.00	CY	$26.70	$68,805.90
	Earthwork Component Total				$99,935.63

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	350.00	LF	$82.03	$28,710.50

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	10.00 / 0.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,022.12	SY	$9.24	$18,684.39
285-701	OPTIONAL BASE,BASE GROUP 01	1,444.37	SY	$18.40	$26,576.41
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	108.33	TN	$143.06	$15,497.69
521-72-60	SHLDR CONC BARRIER,38" WALL SHIELD BARR	200.00	LF	$217.20	$43,440.00
	Roadway Component Total				$132,908.99

SHOULDER COMPONENT

User Input Data

Description	Value

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

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530-4-6	ARTICULATING CONC BLOCK REVET SYS, 6"	1,870.00 SY	$183.48	$343,107.60
	Comment: Canal Slope Protection Underpass (East) Side = 1210 SY 400 ft length add 10% for top of bank West Side = 660 SY 200 ft length add 20% for top of bank			
	Shoulder Component Total			$343,107.60

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	400.00
Begin height	7.00
End Height	1.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,600.00 SF	$39.83	$63,728.00
	Retaining Walls Component Total			$63,728.00

Sequence 8 Total $639,680.22

DRAFT

Sequence: 9 NUU - New Construction, Undivided, Urban **Net Length:** 0.289 MI 1,525 LF

Description: SW 127TH AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	40.00 / 40.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.289
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.80	AC	$77,124.93	$215,949.80
120-6	EMBANKMENT	26,795.16	CY	$26.70	$715,430.77
	Earthwork Component Total				$931,380.57

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	26.00 / 26.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	9,684.58	SY	$9.24	$89,485.52
285-709	OPTIONAL BASE,BASE GROUP 09	8,810.33	SY	$37.25	$328,184.79
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	969.14	TN	$143.06	$138,645.17
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	726.85	TN	$192.38	$139,831.40

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	222.00	LF	$63.72	$14,145.84

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1

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Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	195.00	EA	$3.78	$737.10
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.16	GM	$920.95	$1,068.30
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.87	GM	$373.96	$325.35
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.16	GM	$4,222.32	$4,897.89
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.87	GM	$1,293.64	$1,125.47
	Roadway Component Total				$718,446.83

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,524.86	LF	$29.36	$44,769.89
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,524.86	LF	$29.36	$44,769.89
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,694.29	SY	$44.95	$76,158.34
570-1-1	PERFORMANCE TURF	1,694.29	SY	$2.39	$4,049.35

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,049.73	LF	$2.07	$6,312.94
104-11	FLOATING TURBIDITY BARRIER	72.20	LF	$14.79	$1,067.84
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	72.20	LF	$13.91	$1,004.30
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	15.00	EA	$117.43	$1,761.45
107-1	LITTER REMOVAL	3.50	AC	$18.94	$66.29
107-2	MOWING	3.50	AC	$27.70	$96.95
	Shoulder Component Total				$182,883.53

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	11.00	EA	$6,611.89	$72,730.79
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$5,664.97	$11,329.94
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,843.54	$9,687.08
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,104.00	LF	$124.04	$260,980.16
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	184.00	LF	$237.63	$43,723.92
570-1-1	PERFORMANCE TURF	87.80	SY	$2.39	$209.84
	Drainage Component Total				$420,921.67

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	6.00	AS	$359.59	$2,157.54
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,114.91	$1,114.91
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$7,584.95	$7,584.95
	Signing Component Total				$10,857.40

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,524.86	LF	$15.85	$24,169.03
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	198.98	LF	$23.72	$4,719.81
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$771.13	$5,397.91
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,171.54	LF	$3.45	$17,841.81
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	7.00	EA	$11,736.51	$82,155.57
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$1,001.50	$7,010.50
	Subcomponent Total				$141,294.63
	Lighting Component Total				$141,294.63

Sequence 9 Total $2,405,784.63

Sequence: 10 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.362 MI 1,910 LF

Description: SR 994/QUAIL ROOST DR. CONNECTION TO EAST

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.19	AC	$77,124.93	$168,903.60
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1,178.61	CY	$27.62	$32,553.21
	Earthwork Component Total				$201,456.81

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	32.00 / 33.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	5.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,608.46	SY	$9.24	$14,862.17
285-709	OPTIONAL BASE,BASE GROUP 09	1,131.01	SY	$37.25	$42,130.12
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	13,792.83	SY	$2.76	$38,068.21
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,137.91	TN	$143.06	$162,789.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	116.71	TN	$143.06	$16,696.53

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337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	551.71 TN	$192.38	$106,137.97
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.53 TN	$192.38	$16,839.02

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	195.00 EA	$3.78	$737.10
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.45 GM	$920.95	$1,335.38
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.09 GM	$373.96	$407.62
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.45 GM	$4,222.32	$6,122.36
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.09 GM	$1,293.64	$1,410.07
	Roadway Component Total			$407,535.95

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	18.50 / 8.50
New Total Outside Shoulder Width L/R	14.75 / 20.75
Total Outside Shoulder Perf. Turf Width L/R	6.50 / 6.50
Sidewalk Width L/R	6.00 / 12.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78 LF	$29.36	$56,071.14
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78 LF	$29.36	$56,071.14
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	3,819.55 SY	$44.95	$171,688.77
570-1-1	PERFORMANCE TURF	2,758.57 SY	$2.39	$6,592.98

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,819.55 LF	$2.07	$7,906.47
104-11	FLOATING TURBIDITY BARRIER	36.17 LF	$14.79	$534.95
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	36.17 LF	$13.91	$503.12

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104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,826.29	$2,826.29
104-18	INLET PROTECTION SYSTEM	17.00 EA	$117.43	$1,996.31
107-1	LITTER REMOVAL	3.15 AC	$18.94	$59.66
107-2	MOWING	3.15 AC	$27.70	$87.26
	Shoulder Component Total			$304,338.09

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	590.00 LF	$63.72	$37,594.80
570-1-1	PERFORMANCE TURF	1,133.13 SY	$2.39	$2,708.18
	Median Component Total			$40,302.98

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00 EA	$6,611.89	$92,566.46
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00 EA	$7,419.98	$29,679.92
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	200.00 LF	$124.04	$24,808.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00 LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	109.96 SY	$2.39	$262.80
	Drainage Component Total			$162,525.50

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00 AS	$359.59	$2,876.72
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,114.91	$1,114.91
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	$287.77	$287.77
700-1-60	SINGLE POST SIGN, REMOVE	8.00 AS	$23.22	$185.76
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,512.64	$5,512.64
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$653.31	$653.31
	Signing Component Total			$10,631.11

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LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	**Value**
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,909.78	LF	$15.85	$30,270.01
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	379.06	LF	$23.72	$8,991.30
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	13.00	EA	$771.13	$10,024.69
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,975.02	LF	$3.45	$24,063.82
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	13.00	EA	$6,106.25	$79,381.25
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	13.00	EA	$1,001.50	$13,019.50
	Subcomponent Total				$165,750.58
	Lighting Component Total				$165,750.57

Sequence 10 Total $1,292,541.01

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Sequence: 11 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: SIGNALIZATION

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 137 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$23.72	$7,116.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,325.75	$6,325.75
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$771.13	$16,964.86
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.92	$355.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	4.00	EA	$1,387.10	$5,548.40
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	4.00	EA	$1,292.86	$5,171.44
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00	EA	$57,830.80	$346,984.80
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$999.20	$19,984.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$806.55	$6,452.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$325.60	$6,512.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,193.30	$23,866.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$270.67	$2,165.36
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$391.28	$3,130.24
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 2

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	SW 134 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$15.85	$11,887.50

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630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00	LF	$23.72	$5,930.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,325.75	$6,325.75
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	$771.13	$12,338.08
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.92	$355.20
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00	EA	$1,292.86	$10,342.88
649-21-6	STEEL MAST ARM ASSEMBLY, F&I, 50'	2.00	EA	$45,186.33	$90,372.66
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	2.00	EA	$57,830.80	$115,661.60
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00	AS	$999.20	$11,990.40
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$806.55	$6,452.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00	EA	$325.60	$3,907.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00	AS	$1,193.30	$14,319.60
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$270.67	$2,165.36
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$391.28	$3,130.24
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 3

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 127 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$23.72	$7,116.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,325.75	$6,325.75
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$771.13	$16,964.86
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.92	$355.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00	EA	$1,292.86	$10,342.88
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00	EA	$57,830.80	$346,984.80

650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00 AS	$999.20	$19,984.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$806.55	$6,452.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	15.00 EA	$325.60	$4,884.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	15.00 AS	$1,193.30	$17,899.50
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$270.67	$2,165.36
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	$391.28	$3,130.24
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00 EA	$3,255.78	$13,023.12
	Signalizations Component Total			$1,381,490.75

Sequence 11 Total $1,381,490.75

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Sequence: 12 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: BRIDGE REPLACEMENT

BRIDGES COMPONENT

Bridge 01

Description		**Value**
Estimate Type		SF Estimate
Primary Estimate		YES
Length (LF)		88.00
Width (LF)		86.00
Type		Medium Level
Cost Factor		1.25
Structure No.		
Removal of Existing Structures area		8,184.00
Default Cost per SF		$80.00
Factored Cost per SF		$100.00
Final Cost per SF		**$120.46**
Basic Bridge Cost		**$756,800.00**
Description	BRIDGE OVER BLACK CREEK CANAL	

Bridge Pay Items

Pay item	**Description**	**Quantity Unit**	**Unit Price**	**Extended Amount**
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	8,184.00 SF	$37.08	$303,462.72
400-2-10	CONC CLASS II, APPROACH SLABS	191.11 CY	$577.42	$110,350.74
415-1-9	REINF STEEL- APPROACH SLABS	33,444.25 LB	$1.33	$44,480.85
	Bridge 01 Total			$1,215,094.31
	Bridges Component Total			$1,215,094.31

Sequence 12 Total $1,215,094.31

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Date: 3/11/2024 3:19:19 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.360 MI

Project Manager: RIVEROL, ELSA

Version 5 Project Grand Total **$29,536,610.64**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE WITH ELEVATED BIKE LANE.

Project Sequences Subtotal			**$24,736,204.25**
102-1	Maintenance of Traffic	10.00 %	$2,473,620.42
101-1	Mobilization	8.00 %	$2,176,785.97
Project Sequences Total			**$29,386,610.64**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 5 Project Grand Total					**$29,536,610.64**

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APPENDIX E: R/W AQUISITON COST

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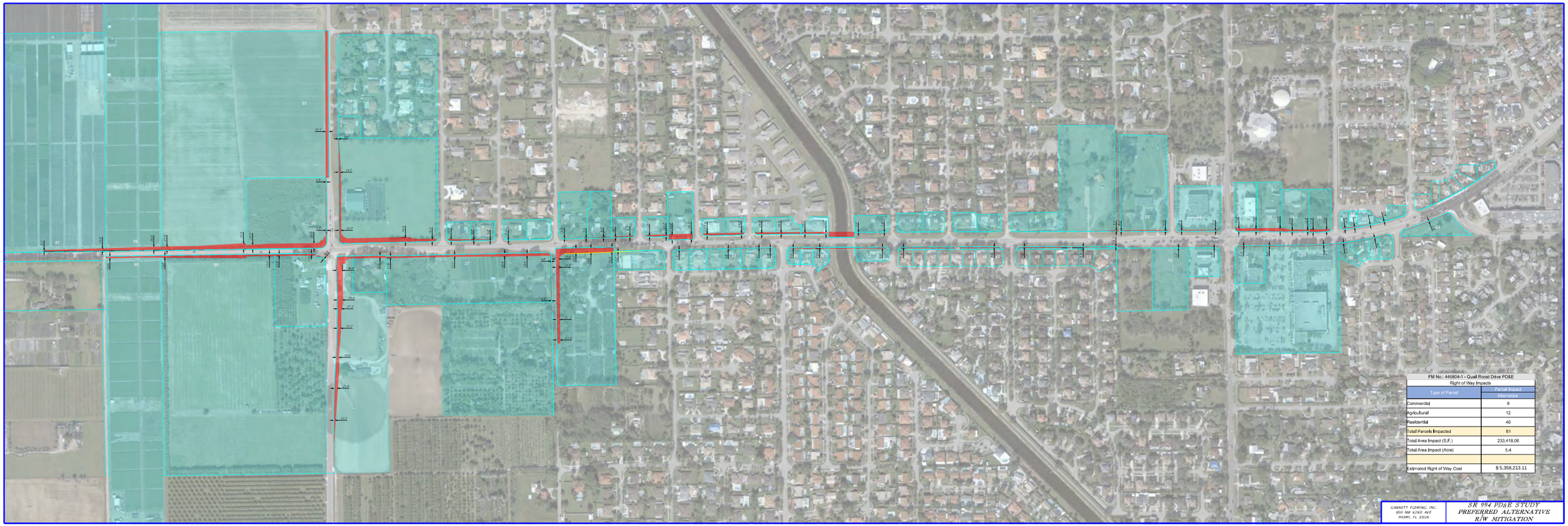


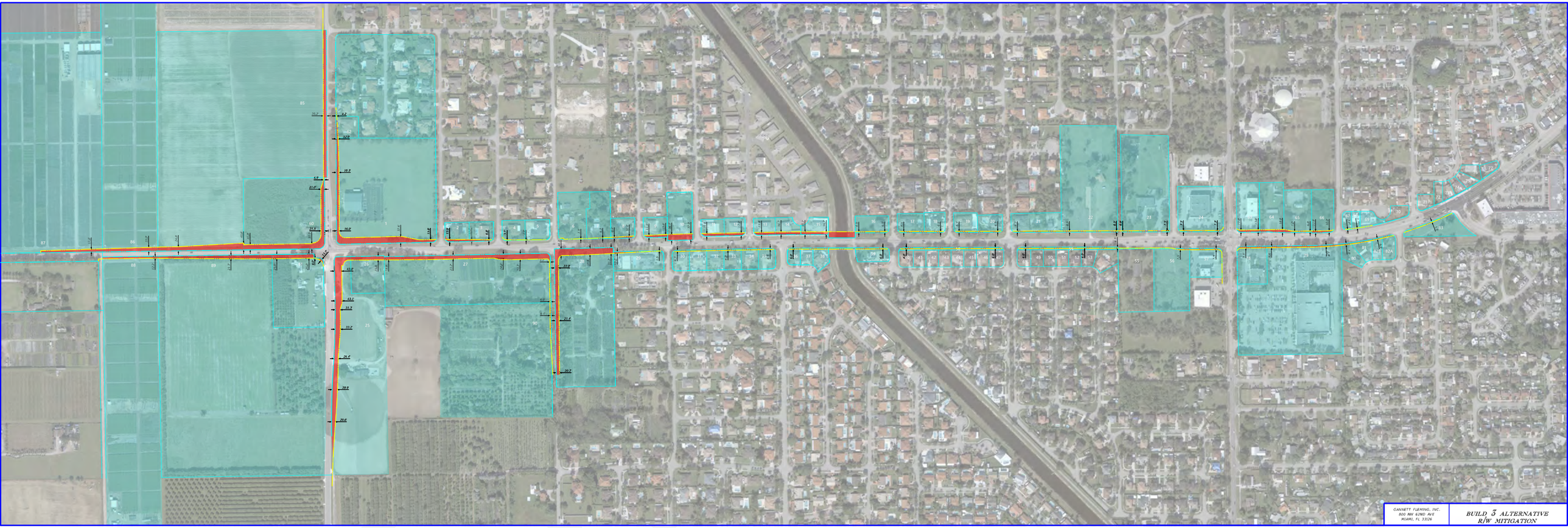
FM No.: 445804-1 - Quail Roost Drive PD&E
Right of Way Impacts

Type of Parcel	Parcel Impact Alternative
Commercial	9
Agricultural	12
Residential	40
Total Parcels Impacted	61
Total Area Impact (S.F.)	233,418.06
Total Area Impact (Acre)	5.4
Estimated Right of Way Cost	$ 5,358,213.11

GANNETT FLEMING, INC.
800 NW 62ND AVE
MIAMI, FL 33126

SR 994 PD&E STUDY
PREFERRED ALTERNATIVE
R/W MITIGATION

BUILD 2 R/W ACQUISITION



BUILD 3 R/W ACQUISITION

BUILD 2 VS BUILD 3 R/W ACQUISITION AREAS

Parcel No.	FID	FOLIO	SUBCODE	ARCI	Owner	Parent Tract Area (SF)	Build 2 Minimization (Preferred)	Build 3 minimization	
1	154704	3069020010410	001	041(	Calvary Pentecostal Church of Kendall Inc	370,297.00	24,687.58	28,532.76	
2	204076	3069020160350	016	035(	Larry James Carter	16,529.50	1,506.17	2,022.81	
3	164673	3069020160360	016	036(	Lilia D Joslyn	16,535.80	892.12	1,255.33	
4	289792	3069020160300	016	030(	Yako Heredia	16,315.90	68.68	451.21	
5	3950	3069020160010	016	001(	Manuel Cagigas	17,560.60		143.41	
6	514546	3069020010424	001	042	BVK LLC	49,016.00	535.88	325.61	
7	498073	3069020010420	001	042(	Enrique A Lopez	43,560.00	698.72	546.98	
8	93585	3069020220010	022	001(	SWAY 2014 1 Borrower LLC	17,097.00	1,076.34	1,112.99	
9	362414	3069020220110	022	011(	Daylenis Barbara I Palacios	17,113.00	1,679.64	1,948.74	
10	193388	3069020010440	001	044(	Miguel A Carmona & W Ena Alvarez	42,783.00	5,090.55	5,476.41	
11	230863	3069020220300	022	030(	Nestor J Melian	13,616.00	1,812.09	2,185.04	
12	293960	3069020290010	029	001(	Oiremis A Argote	12,979.80	1,651.54	1,989.69	
13	575417	3069020290190	029	019(	Rafael Santana Valles	13,021.70	1,620.53	2,051.57	
14	575418	3069020290180	029	018(	Ismael Diaz Rodriguez	13,591.80	1,780.76	2,524.17	
15	575410	3069020290170	029	017(	A&A Business Connexion Corp	15,015.60	2,017.87	2,730.26	
16		3069020250680			SRP SUB LLC		364.14	1,217.99	
17		3069020250850			Rosilene Figueroa			955.13	
18		3069020251000			Juan U Arias			721.35	
19		3069020251250			Rene Valdes			834.54	
20		3069020010580			Antonio M Perez			884.68	
21		3069110130790			Lazaro Iglesias			1,862.36	
22		3069020010601			Apostalic Alliance Church of the Lord Jesus Christ		968.79	2,168.85	
23		3069020010610			Peace United Methodist Church		2,083.62	1,843.50	
29	86213	3069110090010	009	001(	Marjorie Leon	34,355.70	359.62	1,513.32	
30	314350	3069110090080	009	008(	Jorge L Campos & W Erika Montanez	12,231.00	298.79	567.90	
31	108425	3069110090090	009	009(	Antar Alberto Torres TRS	12,499.00	342.06	624.42	
32	272120	3069110090100	009	010(	Carlos V Da Gama	12,499.00	350.59	632.39	
33	290810	3069110090110	009	011(	Rosa Enriqueta Verdejo TRS	12,499.00	359.35	641.15	
34	373853	3069110090120	009	012(	Rosa Chavez	12,499.00	368.11	649.90	
35	399535	3069110090130	009	013(	Jorge Sosa	12,231.00	376.33	570.20	
36	252396	3069110040710	004	071(	2018 2 IH BORROWER L P	7,499.00	381.54	416.06	
37	N/A	N/A			Arairis P Figueredo	7,536.70	450.00	487.50	
38	285344	3069110040690	004	069(	Miguel A Valle	11,012.90	650.00	598.05	
39		3069110040030.00			Global Capital Investments US INC		1,414.12	1,232.43	
40		3069110130010.00			Karina Marty				
41		3069110130020.00			Jorge Camba JR &W				
42		3069110130030.00			Anna Cherington				
43		3069110130040.00			Jose E Ortiz				
44		3069110130050.00			Sergio Hernandez				
45		3069110130060.00			James Barreta Nelson				
46		3069110130070.00			Julio C Natera JR				
47		3069110130080.00			Magaly A Rodriguez Padron				
48		3069020251390.00			Mitchell Mirabal				
49		3069110130800.00			Gregory Pierre				
50		3069110130810.00			Louis Clarington				
51		3069110130820.00			Miguel A Landestoy & W Dulce M				
52		3069110130830.00			Juan C Cavero & W Ana K				
53		3069110130840.00			Maikel Lazo Lopez				
54		3069110130850.00			Jose M Pascual				
55		3069110010012.00			Perrine Church of Christ LLC				
58		3069110130970.00			Miami Dade County Parks		4,474.30	3,885.08	
59		3069110130980.00			Miami Dade County Parks		3,434.40	3,812.06	
62		3069020180010			NELLY CATHERINE FLORES & ALLISON YAMILET FLORES	16,668.00	63.37	63.37	
66		3069010040130			QUAIL ROOST SCHOOL DEVELOPMENT LLC		2,104.48	1,361.88	
67		3069010410460			CARLOS R FERREIRA & ILDA FERREIRA		312.18	92.51	
68		3069010410470			JOSE R MEDINA		313.19	90.24	
69		3069010410480			ALFREDO E ARRUFAT & ALEDYDIS A VALDIVIA		570.75	49.31	
70		3069010410490			12448 MOREIRA LLC		111.56		
71		3069010301530			CLARIS A SANTOS				
72		3069010301550			ANTONIO CARBAJO				
73		3069010301560			MANUEL I GARCIA				
74		3069010301570			ELSIE CELESTE KOPPEL				
75		3069010301580			MERCEDES MARTIN				
76		3069010301590			WENDY MARTINEZ				
77		3069010301850			JAVIER ANTONIO ESTRADA MORENO & MILDREY GONZALEZ TANG				
80		3069120340350			CHARLES TURNER & VIVIAN TURNER		285.24	436.42	
81		3069120340340			ANTONIO RUGAMA		671.11	943.83	
82 A		3069120370010			ENRIQUE SOUTO & BEHICEN PASCUAL		347.27	427.67	
82 B		3069120370020			EMMA HALIM		317.93	420.72	
84		3069020180020			RADAN CANCIOBELLO & ADRIANA GONZALEZ			110.80	
							66,891.31	83,412.59	Residentia
							18.00	18.00	
							1,204,043.58	1,501,426.62	
56		3069110010011			Pointe Quail Investments LLC		69.36	579.51	
57		3022040090160			South West 200 LLC		141.41	1,436.71	
24		3069020270010			Jarem Investments LLC		1,950.23	1,617.12	
63		3069010040220			AUTOZONE STORES INC		2,591.15	1,696.16	
64		3069010040230			RICADRI GROUP LLC		3,050.38	2,180.20	
65		3069010040131			12555 LLC		2,425.23	1,438.48	
78		3069120480010			BANK OF AMERICA NA NC1-001-03-81		900.02	1,664.15	
79		3069120480020			GRI EQY(QUAIL ROOST) LLC		2,440.75	4,108.32	
83		3069120370040			109 OAK PARK ESTATES DADE LLC		1,482.27	1,651.80	
							15,050.80	16,372.45	Business
							40.00	40.00	
							602,032.00	654,898.00	

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60	498706	3069030000250	000	025(	Robert C Madonell JR	203,748.00	17221.25	17,221.25
61	134753	3069100000020	000	002(	Craig Koning & Yvenia Berrios	131,176.00	3688.39	3,688.39
25	570953	3069110000140	000	014(	JOLO INC	364,434.00	27765.72	36,862.75
26	220818	3069110000141	000	014	Francisco Febles	44,000.00	3011.86	4,442.58
27	256311	3069110000030	000	003(	Luis E Herrera	289,896.00	16569.37	26,688.43
28	173686	3069110000050	000	005(	David Joel Lewis TRS	288,512.70	23357.06	29,136.49
85		3069030000255			LYNWOOD LLC	1,088,564.40	31820.35	31,820.35
86		3069030000220			FLORIDA POWER & LIGHT CO ATTN PROPERTY TAX DEPT	871,200	6,887.88	6,887.88
87		3069030000260			I V TRUST & INVESTMENT LLC	1,742,400	5529.79	5,529.79
88		3069100000011			FLORIDA POWER & LIGHT CO ATTN PROPERTY TAX DEPT	1,484,481.24	3,992.79	3,992.79
89		3069100000010			JC REAL ESTATE HOLDINGS LTD JULIO A VIYELLA	1,119,579.12	11393.51	11,393.51
90		3069110000070			LYONS LLC	435,600.00	294.58	1,546.23
							151,532.55	179,210.44 **Agricultur**
							5.00	5.00
							757,662.75	896,052.20

This is for estimating purposes only and is not considered an appraisal service.
Based on high level maps depicting acquisition areas for each alternative and Multiple Listing Services Sales Comparables.

	2,563,738.33	3,052,376.82
Estimated cost	5,358,213.11	6,379,467.55
Residential	2,516,451.08	3,137,981.64
Agricultural	1,583,515.15	1,872,749.10
	1,258,246.88	1,368,736.82
Total	5,358,213.11	6,379,467.55

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APPENDIX F: EVALUATION MATRIX

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Table 4-25 Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives							
		No-Build (2-Lane Undivided)	Score	**Build Alternative 1 (2-Lane with 16.5-ft median)**	Score	**Build Alternative 2 (4-Lane with 16.5-ft median)**	Score	**Build Alternative 3 (4-Lane with 22-ft median)**	Score
Meets Purpose & Need		No	-	Partially (no added thru lanes)	+	Yes	++	Yes	++
Community Support		Not supported by the public based on input received at the Alternatives workshop.	-	Moderate support from the public based on input received at the Alternatives workshop.	+	Greatest support from the public based on input received at the Alternatives workshop.	++	No evidence of public support (or opposition) received at the Alternatives Workshop.	0
ENGINEERING	**Traffic Operations**	**Corridor-Wide**							
		Traffic Operations significantly deteriorate from existing conditions. 4,000 hours of delay* VS. 298 hours today If no action (both AM&PM) *Attributed to heavy delay endured by NB & SB traffic at SW 134 Ave under stop control Travel Time doubles to 13 mins back/forth (from 6 mins) per peak period	--	Delay is significantly reduced by -92% to 301 hours VS. 4,000 hours in No-Build (both AM+PM) Travel Time improved to 9 mins back/forth (from 13 mins) per peak period	+	Delay is further reduced by -23% to 232 hours VS. 301 hours with Build 1 (both AM+PM) Travel Time slightly improved to 8 mins back/forth (from 9 mins) per peak period	++	Delay is further reduced by -3% to 225 hours VS. 232 hours with Build 2 (both AM+PM) Travel Time remains at 8 mins back/forth per peak period	++
		Main Intersections							
		LOS at SW 137 Ave fails (from C or better) Already failing LOS at SW 134 Ave worsens where 2 fatal crashes occurred LOS at SW 127 Ave fails (from D)	--	LOS at SW 137 Ave improved to D (from F, if No Action) LOS at SW 134 Ave improved to C (from F, if No Action) LOS at SW 127 Ave improved to D (from F, if No Action)	+	Although at LOS D, Delay at SW 137 Ave further reduced by -5% (-4 hours) Although at LOS B, SW 134 Ave delay further reduced by -30% (-12 hours) Although at LOS D, SW 127 Ave delay further reduced by -6% (-5 hours)	++	Although at LOS D, SW 137 Ave delay slightly increased by +2% (+2 hours) Although at LOS B, SW 134 Ave delay slightly increased by +12% (+3 hours) Although at LOS D, SW 134 Ave delay further reduced by -3% (-2 hours)	++
		Stop-Controlled Intersections							
		Turning Traffic Delay from/onto side streets worsens by +74% to 66 hours from 17 hours for both AM & PM peak periods	--	Turning Traffic Delay from/onto side streets worsens by +38% to 91 hours from 66 hours for both AM & PM peak periods	--	Turning Traffic Delay from/onto side streets improves by -58% to 38 hours from 91 hours for both AM & PM peak periods	++	Turning Traffic Delay from/onto side streets improves by -28% to 27 hours from 38 hours for both AM & PM peak periods	++

Table 4-25 Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
	Safety	Number of crashes expected to increase compared to existing conditions due to projected increase in traffic volumes	--	Safety Improvements include: • Turn Lanes (left and right) • Protected Left-Turn Phasing • Multimodal Facilities (SUPs) • Special Emphasis Ped/Bike Crossings • Enhancements to Existing Trail Crossing • Corridor Lighting • Traffic Control Upgrade at SW 134 Ave to Signal Control • Some Access Management Improvements • Raised Median Islands/Traffic Separators Per CMF Methodology, expected to reduce 20 crashes per year In addition, this alternative addresses severity of crashes – 2 out of 3 fatal accidents in the past 5 years were related to turning movements at the SW 134th Avenue intersection	+	Safety Improvements include the same as Build Alternative 1 plus the addition of: • One additional thru lane in each direction Per CMF Methodology, expected to reduce 27 crashes per year Same as Build 1, this alternative addresses severity of crashes	++	Safety Improvements include the same as Build alternative 2 plus the addition of: • Wider Raised Median, 22 ft • Additional Access Management Improvements Per CMF Methodology, expected to reduce 27 crashes per year* *Similar safety benefits as Build 2, since the locations where Build 3 implemented additional access management improvements did not have significant crashes for mitigation Same as Builds 1 and 2, this alternative addresses severity of crashes	++
	Utility Impacts	No Impacts	0	Moderate to significant impacts to the following five Utility Agency/Owners (not reimbursable). •AT&T (overhead telephone and communication pole) •Comcast (overhead facilities, underground facilities, and hand holes) •Crown Castle (aerial fiber, HDPE BFO, and hand holes) •FPL (overhead electric pole line and street light circuit) •MD-WASD (Water Main, WM Tie-in Connections, water valves, sanitary sewer, and manholes)	-	Significant impacts to same five Utility Agency/Owners (not reimbursable) as Build Alternative 1.	-	Significant impacts to same five Utility Agency/Owners (not reimbursable) as Build Alternatives 1 and 2.	-

Table 4-25 Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
	Access Management	No changes to current access	0	Divided typical with reduced width raised median and one lane in each direction. No refuge for two-stage left turns. • Restricting turn movements at: – SW 135th Ave (partial) – SW 132nd PL – Eight driveways •U-turn movements restricted (due to one thru lane) •Challenging left and right turn movements for large trucks	--	Divided typical with reduced width raised median and two lanes in each direction. No refuge for two-stage left turns. • Restricting turn movements at: – SW 135th Ave (partial) – SW 132nd PL – Eight driveways •Facilitates u-turn movements (due to wider pavement width -two lanes)	-	Divided typical with raised median. Refuge for two-stage left turns. • Restricting turn movements at: – SW 135th Ave (full) – SW 134th Ct (full) – SW 133rd Ct (partial) – SW 133 Ave (partial) – SW 132nd PL – Nine driveways •Further facilitates u-turn movements (due to wider median)	--
	Multimodal Accommodations	Non-continuous 5-ft sidewalks generally located at residential subdivisions along the study corridor. No bicycle facilities within the project limits.	--	Continuous 10-ft Shared-Use Path on both sides of Quail Roost Drive. Additional separation between vehicular travel lanes and shared use paths. Shorter crossing distance along Quail Roost Dr compared to Alternatives 2 & 3.	++	Continuous 10-ft Shared-Use Path on both sides of Quail Roost Drive. Minimum required separation between vehicular travel lanes and shared use paths. Refuge areas for crossings at major intersections. Longer crossing distance along Quail Roost Dr.	++	Same as Alternative 2	++
	Maintenance of Traffic	No Impacts	+	Various phase shifts and potential temporary pavement for overbuild/shifts during construction. Less construction time. Bridge replacement requires detours.	--	Moderate phase shifts. Less temporary pavement due to wider proposed pavement available. Additional construction time. Bridge construction can be phased.	-	Minimal phase shifts. New pavement can be constructed outside of existing traffic. Additional construction time. Bridge construction can be phased.	-
	Drainage	No Impacts	0	• Improved drainage system along the corridor • Reduction in grassed areas when compared to the No-Build Alternative requires French drain construction	-	• Wider corridor roadway section promoting larger contributing total onsite drainage area, which will require more French drain construction. • Least pervious area (grassed area) which requires more French drain construction.	-	• Widest corridor roadway section promoting largest contributing total onsite drainage area, which will require most French drain construction. • Less pervious area (grassed area) which requires more French drain construction.	-

Table 4-25 Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
	Right of Way Impacts	No Impacts	0	Potential impacts to 40 parcels (8 commercial, 12 agricultural, 20 residential)	-	Potential impacts to 63 parcels (9 commercial, 12 agricultural, 42 residential)	--	Potential impacts to 67 parcels (9 commercial, 12 agricultural, 46 residential)	--
ENVIRONMENT	**Socio-Cultural Effects/ Relocation Potential**	No relocations	0	6 potential relocations (1 residential + 5 personal property)	-	8 potential relocations (2 residential + 6 personal property)	-	10 potential relocations (3 residential + 7 personal property)	-
	Historic Resources	No Impacts	0	Adverse effects (impacts) to three significant properties: 1307 Quail Roost Drive, 20000 SW 137th Avenue, 13390 SW 200 Street. This alternative presents the least physical impact and encroachment of the historic buildings, walls, and properties. Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection) •Parcel impact area = 21,775 SF •Distance from Resource to Proposed ROW = 42' on the north and 56' on the west sides of the parcel MacDonell House (8DA20712) (NW corner of SW 137 Ave intersection) •Parcel impact area = 17,223 SF •Distance from Resource to Proposed ROW = 60' on the south and 14' on the east sides of the parcel 20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection) •Parcel impact area = 2,957 SF •Distance from Resource to Proposed ROW = 22' on the north side of the parcel LEAST SEVERE	-	Adverse effects (impacts) to three significant properties: 1307 Quail Roost Drive, 20000 SW 137th Avenue, 13390 SW 200 Street. This alternative presents more physical impact than Build Alternative 1 in terms of the encroachment of the historic buildings, walls, and properties. Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection) •Parcel impact area = 27,039 SF •Distance from Resource to Proposed ROW = 28' on the north and 58' on the west sides of the parcel MacDonell House (8DA20712) (NW corner of SW 137 Ave intersection) •Parcel impact area = 23,079 SF •Distance from Resource to Proposed ROW = 46' on the south and 14' on the east sides of the parcel 20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection) •Parcel impact area = 6,778 SF •Distance from Resource to Proposed ROW = 8' on the north side of the parcel MORE SEVERE	-	Adverse effects (impacts) to three significant properties: 1307 Quail Roost Drive, 20000 SW 137th Avenue, 13390 SW 200 Street. For the three Build alternatives, this alternative presents the most physical impact and encroachment of the historic buildings, walls, and properties. Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection) •Parcel impact area = 31,186 SF •Distance from Resource to Proposed ROW = 14' on the north and 57' on the west sides of the parcel MacDonell House (8DA20712) (NW corner of SW 137 Ave intersection) •Parcel impact area = 23,103 SF •Distance from Resource to Proposed ROW = 46' on the south and 14' on the east sides of the parcel 20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection) •Parcel impact area = 6,778 SF •Distance from Resource to Proposed ROW = 8' on the north side of the parcel MOST SEVERE	-

Table 4-25 Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
	Recreational Resources	No Impact	0	Temporary impacts for access to the Black Creek Trail are anticipated during construction. The at-grade Trail crossing will be maintained with the proposed improvements. An additional underpass option for the Trail associated with the bridge reconstruction provides a safety improvement for the Trail users, which include pedestrians and bicyclists.	+	Same as Build Alternative 1	+	Same as Build Alternative 1	+
	Wetlands	No Impact	0	Surface water impacts are 0.13 acres and are limited to the bridge reconstruction.	0	Same as Build Alternative 1	0	Same as Build Alternative 1	0
	Wildlife and Habitat	No Impact	0	Five (5) federally listed and three (3) state listed species were evaluated in the study area. The project would have *no effect* to the Florida bonneted bat, American crocodile and the wood stork. The project *may affect, not likely to adversely affect* the West Indian manatee and the Eastern indigo snake. *No effect anticipated* for all three (3) state listed species.	0	Same as Build Alternative 1	0	Same as Build Alternative 1	0
	Noise	The roadway traffic speed will be reduced due to the congestion caused by higher traffic volumes, which results in a slight decrease in sound levels.	0	As the overall performance of the network improves, the traffic speed will increase compared to the No-Build, which results in a slight increase in sound levels. In addition, the traffic lane is 12 ft closer to the residences, when compared to the No-Build Alternative	-	As the traffic speed improves to a free flow condition there will be an increase in sound levels. In addition, the new lane in each direction will move the noise source (roadway traffic volume) 11 ft closer to the residences, when compared to the Build Alternative 1. This may result in an increase in sound levels.	-	The same condition as Alternative 2 except the outside lane is shifted 5 ft closer to the residences than Alternative 2	-

Table 4-25 Alternatives Evaluation Matrix

Evaluation Criteria		Alternatives							
		No-Build (2-Lane Undivided)	Score	Build Alternative 1 (2-Lane with 16.5-ft median)	Score	Build Alternative 2 (4-Lane with 16.5-ft median)	Score	Build Alternative 3 (4-Lane with 22-ft median)	Score
	Air Quality	Project is located within an attainment area. Minimal potential impacts may occur from increased congestion.	0	Project is located within an attainment area. No significant air quality impacts are anticipated. Project is anticipated to decrease congestion.	+	Project is located within an attainment area. No significant air quality impacts are anticipated. Project is anticipated to decrease congestion.	+	Project is located within an attainment area. No significant air quality impacts are anticipated. Project is anticipated to decrease congestion.	+
	Contamination	No Impact	0	One High Risk Site One Medium Risk Site	0	Same as Build Alternative 1	0	Same as Build Alternative 1	0

Score	Description
+	Alternative meets or has a positive response to the Evaluation Criteria
0	Alternative has no effect or provides some benefit to the Evaluation Criteria
-	Alternative has a poor or negative response to the Evaluation Criteria
Note:	++ or ++ denote greater impact positively or negatively

Appendix W – Long Range Estimates

Date: 6/13/2024 12:12:14 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.690 MI

Project Manager: QUINTELA, RAUL

Version 4 Project Grand Total **$34,976,168.42**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 1 ALTERNATIVE.

Sequence: 1 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.163 MI 861 LF

Description: SR 994/QUAIL ROOST DR. CONNECTION TO WEST

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.163
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.99 AC	$51,796.41	$51,278.45
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	27.09 CY	$33.85	$917.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	450.00 CY	$28.29	$12,730.50
	Comment: Swales on each side of 1200 approximate length.			
	Earthwork Component Total			$64,925.95

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	6.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,487.82	SY	$9.40	$23,385.51
285-709	OPTIONAL BASE,BASE GROUP 09	605.69	SY	$46.51	$28,170.64
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	2,105.08	SY	$12.32	$25,934.59
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	231.56	TN	$174.00	$40,291.44
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	63.15	TN	$174.00	$10,988.10
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	173.67	TN	$200.08	$34,747.89
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	47.36	TN	$200.08	$9,475.79

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	22.00	EA	$3.98	$87.56
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.33	GM	$1,219.60	$402.47
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.16	GM	$382.85	$61.26
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.33	GM	$5,053.40	$1,667.62
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.16	GM	$1,314.83	$210.37
	Roadway Component Total				$175,423.24

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	10.00 / 10.00

New Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,020.01	SY	$14.59	$14,881.95
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	78.94	TN	$174.00	$13,735.56
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.94	TN	$200.08	$15,794.32
570-1-1	PERFORMANCE TURF	956.85	SY	$3.83	$3,664.74

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,980.69	LF	$2.71	$5,367.67
104-11	FLOATING TURBIDITY BARRIER	16.31	LF	$16.04	$261.61
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	16.31	LF	$7.99	$130.32
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	0.39	AC	$14.55	$5.67
107-2	MOWING	0.39	AC	$34.62	$13.50
	Shoulder Component Total				$56,114.24

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	32.00	LF	$186.52	$5,968.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$237.63	$3,802.08
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,947.99	$3,895.98
570-1-1	PERFORMANCE TURF	65.89	SY	$3.83	$252.36
	Drainage Component Total				$13,919.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73

700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	4.00 EA	$1,561.15	$6,244.60
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00 EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	4.00 EA	$32.87	$131.48
700-2-113	MULTI- COLUMN SIGN, F&I GM, 20.1-30 SF	1.00 EA	$6,258.24	$6,258.24
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00 EA	$509.39	$509.39
	Signing Component Total			$13,921.61

Sequence 1 Total $324,304.10

Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 0.158 MI 833 LF

Description: QUAIL ROOST WEST OF SW 137 AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	55.00 / 55.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.158
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.11 AC	$51,796.41	$109,290.43
120-6	EMBANKMENT	13,580.19 CY	$35.46	$481,553.54
	Earthwork Component Total			$590,843.97

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,295.17 SY	$9.40	$59,174.60
285-709	OPTIONAL BASE,BASE GROUP 09	4,565.85 SY	$46.51	$212,357.68
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	488.80 TN	$174.00	$85,051.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	366.60 TN	$200.08	$73,349.33

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1

Skip Stripe No. of Stripes 2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	64.00	EA	$3.98	$254.72
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.63	GM	$1,219.60	$768.35
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.32	GM	$424.87	$135.96
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.63	GM	$5,486.64	$3,456.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.32	GM	$1,807.76	$578.48
	Roadway Component Total				$435,126.90

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	986.86	SY	$14.59	$14,398.29
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	76.38	TN	$174.00	$13,290.12
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	76.38	TN	$200.08	$15,282.11
570-1-1	PERFORMANCE TURF	494.36	SY	$3.83	$1,893.40

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,166.28	LF	$2.71	$5,870.62
104-11	FLOATING TURBIDITY BARRIER	39.45	LF	$16.04	$632.78
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	39.45	LF	$7.99	$315.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	3.83	AC	$14.55	$55.73
107-2	MOWING	3.83	AC	$34.62	$132.59
	Shoulder Component Total				$54,129.75

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	18.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	500.00	LF	$65.69	$32,845.00
570-1-1	PERFORMANCE TURF	1,666.37	SY	$3.83	$6,382.20

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	868.00	LF	$30.90	$26,821.20
	Median Component Total				$66,048.40

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	144.00	LF	$186.52	$26,858.88
570-1-1	PERFORMANCE TURF	122.28	SY	$3.83	$468.33

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,276.04	$12,552.08
	Drainage Component Total				$39,879.29

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	5.00	EA	$1,561.15	$7,805.75
700-2-114	MULTI- COLUMN SIGN, F&I GM, 30.1-50 SF	1.00	EA	$6,849.52	$6,849.52
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	2.00	EA	$9,862.99	$19,725.98
	Signing Component Total				$34,835.98

Sequence 2 Total	$1,220,864.29

Sequence: 3 NDU - New Construction, Divided, Urban **Net Length:** 0.322 MI 1,700 LF

Description: SW 137TH AVE NORTH AND SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.322
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.34 AC	$51,796.41	$121,203.60
120-6	EMBANKMENT	28,405.27 CY	$35.46	$1,007,250.87
	Earthwork Component Total			$1,128,454.47

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,616.72 SY	$9.40	$71,597.17
285-709	OPTIONAL BASE,BASE GROUP 09	5,667.20 SY	$46.51	$263,581.47
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	623.39 TN	$174.00	$108,469.86
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	467.54 TN	$200.08	$93,545.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	43.00	EA	$3.98	$171.14
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.29	GM	$1,219.60	$1,573.28
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.29	GM	$5,053.40	$6,518.89
	Roadway Component Total				$545,457.21

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$35.01	$59,522.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$35.01	$59,522.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,133.44	SY	$59.73	$67,700.37
570-1-1	PERFORMANCE TURF	755.63	SY	$3.83	$2,894.06

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,400.32	LF	$2.71	$9,214.87
104-11	FLOATING TURBIDITY BARRIER	80.50	LF	$16.04	$1,291.22
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	80.50	LF	$7.99	$643.20
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	8.19	AC	$14.55	$119.16
107-2	MOWING	8.19	AC	$34.62	$283.54
	Shoulder Component Total				$205,382.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	18.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,400.32	LF	$30.90	$105,069.89
570-1-1	PERFORMANCE TURF	1,008.76	SY	$3.83	$3,863.55
	Median Component Total				$108,933.44

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00	EA	$7,679.52	$92,154.24
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,600.00	LF	$186.67	$298,672.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	160.00	LF	$237.63	$38,020.80
570-1-1	PERFORMANCE TURF	97.89	SY	$3.83	$374.92
	Drainage Component Total				$472,593.54

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00	EA	$454.73	$3,637.84
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	1.00	EA	$10,761.45	$10,761.45
	Signing Component Total				$25,823.43

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,700.16	LF	$15.85	$26,947.54
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	337.46	LF	$35.66	$12,033.82
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$1,457.91	$17,494.92
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,209.45	LF	$5.22	$32,413.33
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	12.00	EA	$10,472.67	$125,672.04
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	$1,215.03	$14,580.36
	Subcomponent Total				$229,142.01

Lighting Component Total	$229,142.01

Sequence 3 Total	$2,715,786.30

Sequence: 4 NDU - New Construction, Divided, Urban **Net Length:** 0.253 MI 1,337 LF

Description: SW 137TH AVE AT QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.253
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.68 AC	$51,796.41	$190,610.79
120-6	EMBANKMENT	30,596.67 CY	$35.46	$1,084,957.92
	Earthwork Component Total			$1,275,568.71

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,336.88 SY	$9.40	$106,566.67
285-709	OPTIONAL BASE,BASE GROUP 09	9,803.90 SY	$46.51	$455,979.39
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,078.43 TN	$174.00	$187,646.82
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	808.82 TN	$200.08	$161,828.71

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	103.00	EA	$3.98	$409.94
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.01	GM	$1,219.60	$1,231.80
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.51	GM	$424.87	$216.68
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.01	GM	$5,053.40	$5,103.93
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.51	GM	$1,426.55	$727.54
	Roadway Component Total				$919,711.48

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 10.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$35.01	$46,804.87
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$35.01	$46,804.87
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,782.53	SY	$59.73	$106,470.52
570-1-1	PERFORMANCE TURF	594.18	SY	$3.83	$2,275.71

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,673.79	LF	$2.71	$7,245.97
104-11	FLOATING TURBIDITY BARRIER	63.30	LF	$16.04	$1,015.33
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	63.30	LF	$7.99	$505.77
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	13.00	EA	$120.73	$1,569.49
107-1	LITTER REMOVAL	6.44	AC	$14.55	$93.70
107-2	MOWING	6.44	AC	$34.62	$222.95
	Shoulder Component Total				$215,147.35

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	24.00
Performance Turf Width	22.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	2,673.79	LF	$30.90	$82,620.11
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	580.00	LF	$65.69	$38,100.20
570-1-1	PERFORMANCE TURF	3,267.97	SY	$3.83	$12,516.33
	Median Component Total				$133,236.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$7,679.52	$76,795.20
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	672.00	LF	$186.67	$125,442.24
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	76.97	SY	$3.83	$294.80
	Drainage Component Total				$253,692.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	7.00	EA	$454.73	$3,183.11
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	1.00	EA	$10,761.45	$10,761.45
	Signing Component Total				$25,368.70

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,336.90	LF	$15.85	$21,189.86
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	265.35	LF	$35.66	$9,462.38
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$1,457.91	$13,121.19
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,882.71	LF	$5.22	$25,487.75

715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	9.00 EA	$10,472.67	$94,254.03
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00 EA	$1,215.03	$10,935.27
	Subcomponent Total			$174,450.48
	Lighting Component Total			$174,450.49

Sequence 4 Total $2,997,175.53

Sequence: 5 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.136 MI 716 LF

Description: SW 134TH AVE SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	19.00 / 19.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.136
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.63	AC	$51,796.41	$32,631.74
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	174.20	CY	$33.85	$5,896.67

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	120.00	CY	$28.29	$3,394.80
	Comment: Swale on left side of road, approximately 650' in length				
	Earthwork Component Total				$41,923.21

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,909.25	SY	$9.40	$17,946.95
285-709	OPTIONAL BASE,BASE GROUP 09	980.88	SY	$46.51	$45,620.73
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	1,750.14	SY	$12.32	$21,561.72

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	192.52 TN	$174.00	$33,498.48
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	105.01 TN	$174.00	$18,271.74
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	144.39 TN	$200.08	$28,889.55
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.76 TN	$200.08	$15,758.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	73.00 EA	$3.98	$290.54
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.27 GM	$1,219.60	$329.29
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.27 GM	$382.85	$103.37
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.27 GM	$5,053.40	$1,364.42
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.27 GM	$1,314.83	$355.00
	Roadway Component Total			$183,990.09

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 6.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	2.00 / 0.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	185.36 SY	$14.59	$2,704.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	13.13 TN	$174.00	$2,284.62
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	13.13 TN	$200.08	$2,627.05
570-1-1	PERFORMANCE TURF	795.52 SY	$3.83	$3,046.84

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,646.73	LF	$2.71	$4,462.64
104-11	FLOATING TURBIDITY BARRIER	13.56	LF	$16.04	$217.50
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	13.56	LF	$7.99	$108.34
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	0.33	AC	$14.55	$4.80
107-2	MOWING	0.33	AC	$34.62	$11.42
	Shoulder Component Total				$17,726.51

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	400.00	LF	$186.52	$74,608.00
570-1-1	PERFORMANCE TURF	41.22	SY	$3.83	$157.87

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00	EA	$6,276.04	$25,104.16
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
	Drainage Component Total				$113,561.69

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	3.00	EA	$1,561.15	$4,683.45
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00	EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	3.00	EA	$32.87	$98.61
700-2-113	MULTI- COLUMN SIGN, F&I GM, 20.1-30 SF	1.00	EA	$6,258.24	$6,258.24
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00	EA	$509.39	$509.39
	Signing Component Total				$12,327.59

Sequence 5 Total $369,529.09

Sequence: 6 NUU - New Construction, Undivided, Urban **Net Length:** 0.092 MI 484 LF

Description: SW 134TH NORTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.092
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.56	AC	$51,796.41	$29,005.99
120-6	EMBANKMENT	6,529.87	CY	$35.46	$231,549.19
	Earthwork Component Total				$260,555.18

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	22.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,052.91	SY	$9.40	$19,297.35
285-709	OPTIONAL BASE,BASE GROUP 09	1,775.31	SY	$46.51	$82,569.67
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	195.28	TN	$174.00	$33,978.72
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	146.46	TN	$200.08	$29,303.72

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	50.00	EA	$3.98	$199.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.37	GM	$1,219.60	$451.25
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.18	GM	$424.87	$76.48
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.37	GM	$5,053.40	$1,869.76
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.18	GM	$1,426.55	$256.78
	Roadway Component Total				$168,002.73

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18	LF	$35.01	$16,951.14
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18	LF	$35.01	$16,951.14
570-1-1	PERFORMANCE TURF	537.97	SY	$3.83	$2,060.43

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	968.35	LF	$2.71	$2,624.23
104-11	FLOATING TURBIDITY BARRIER	22.92	LF	$16.04	$367.64
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	22.92	LF	$7.99	$183.13
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	5.00	EA	$120.73	$603.65
107-1	LITTER REMOVAL	1.11	AC	$14.55	$16.15
107-2	MOWING	1.11	AC	$34.62	$38.43
	Shoulder Component Total				$41,934.11

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00	EA	$7,679.52	$30,718.08
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$7,419.98	$7,419.98
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$6,276.04	$6,276.04
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,845.83	$6,845.83

430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	400.00 LF	$186.67	$74,668.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$237.63	$5,703.12
570-1-1	PERFORMANCE TURF	27.88 SY	$3.83	$106.78
	Drainage Component Total			$131,737.83

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	2.00 EA	$454.73	$909.46
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00 EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	$9,862.99	$9,862.99
	Signing Component Total			$12,333.60

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	484.18 LF	$15.85	$7,674.25
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	63.18 LF	$35.66	$2,253.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00 EA	$1,457.91	$2,915.82
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,642.07 LF	$5.22	$8,571.61
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	2.00 EA	$10,472.67	$20,945.34
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00 EA	$1,215.03	$2,430.06
	Subcomponent Total			$44,790.08
	Lighting Component Total			$44,790.08

Sequence 6 Total $659,353.53

Sequence: 7 NDU - New Construction, Divided, Urban **Net Length:** 1.012 MI 5,343 LF

Description: SR 994/QUAIL ROOST DR. WITH SHARED USE PATHS

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	40.00 / 40.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.012
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	9.81 AC	$51,796.41	$508,122.78
120-6	EMBANKMENT	112,770.62 CY	$35.46	$3,998,846.19
	Earthwork Component Total			$4,506,968.97

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	19,188.60 SY	$9.40	$180,372.84
285-709	OPTIONAL BASE,BASE GROUP 09	13,061.55 SY	$46.51	$607,492.69
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,436.77 TN	$174.00	$249,997.98
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,077.58 TN	$200.08	$215,602.21

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,837.72 SY	$9.40	$36,074.57
285-709	OPTIONAL BASE,BASE GROUP 09	2,612.31 SY	$46.51	$121,498.54
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	287.35 TN	$174.00	$49,998.90
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	215.52 TN	$200.08	$43,121.24

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	137.00 EA	$3.98	$545.26
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.05 GM	$1,219.60	$4,939.38
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	4.05 GM	$5,053.40	$20,466.27

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	10.00 / 10.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	14,248.96 SY	$9.40	$133,940.22
285-701	OPTIONAL BASE,BASE GROUP 01	11,874.13 SY	$19.41	$230,476.86
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	890.56 TN	$174.00	$154,957.44
550-10-120	FENCING, TYPE A, 5.1-6.0, STANDARD	4,000.00 LF	$12.05	$48,200.00
	Roadway Component Total			$2,097,684.40

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.25 / 16.75
Total Outside Shoulder Perf. Turf Width L/R	12.00 / 6.50
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36 LF	$35.01	$187,071.03
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36 LF	$35.01	$187,071.03
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	9,499.31 SY	$59.73	$567,393.79
570-1-1	PERFORMANCE TURF	10,983.57 SY	$3.83	$42,067.07

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,686.72 LF	$2.71	$28,961.01
104-11	FLOATING TURBIDITY BARRIER	253.00 LF	$16.04	$4,058.12
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	253.00 LF	$7.99	$2,021.47
104-15	SOIL TRACKING PREVENTION DEVICE	2.00 EA	$2,138.17	$4,276.34
104-18	INLET PROTECTION SYSTEM	52.00 EA	$120.73	$6,277.96
107-1	LITTER REMOVAL	25.76 AC	$14.55	$374.81
107-2	MOWING	25.76 AC	$34.62	$891.81
	Shoulder Component Total			$1,030,464.44

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	16.50
Performance Turf Width	12.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	10,686.72 LF	$30.90	$330,219.65
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	240.00 LF	$65.69	$15,765.60
570-1-1	PERFORMANCE TURF	7,124.48 SY	$3.83	$27,286.76
	Median Component Total			$373,272.01

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	40.00 EA	$7,679.52	$307,180.80
425-1-451	INLETS, CURB, TYPE J-5, <10'	15.00 EA	$7,419.98	$111,299.70
425-1-521	INLETS, DT BOT, TYPE C, <10'	6.00 EA	$6,276.04	$37,656.24
425-2-41	MANHOLES, P-7, <10'	23.00 EA	$6,845.83	$157,454.09
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	4,056.00 LF	$186.67	$757,133.52
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	1,440.00 LF	$237.63	$342,187.20

430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	192.00 LF	$574.49	$110,302.08
570-1-1	PERFORMANCE TURF	307.65 SY	$3.83	$1,178.30

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
443-70-6	FRENCH DRAIN, 36"	2,960.00 LF	$216.30	$640,248.00
	Drainage Component Total			$2,464,639.93

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	25.00 EA	$454.73	$11,368.25
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	15.00 EA	$1,561.15	$23,417.25
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	3.00 EA	$10,761.45	$32,284.35
	Signing Component Total			$76,932.84

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	5,343.36 LF	$15.85	$84,692.26
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,060.58 LF	$35.66	$37,820.28
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	36.00 EA	$1,457.91	$52,484.76
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	19,515.41 LF	$5.22	$101,870.44
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	36.00 EA	$6,889.68	$248,028.48
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	36.00 EA	$1,215.03	$43,741.08
	Subcomponent Total			$568,637.30

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
639-1-111	ELECTRICAL POWER SRV,F&I,OH,M,FURNISHED	1.00 AS	$4,313.81	$4,313.81
639-3-11	ELEC SERV DISCON, F&I, POLE MNT	1.00 EA	$1,831.97	$1,831.97
715-7-12	LOAD CENTER, F&I, PRIMARY VOLTAGE	1.00 EA	$10,785.92	$10,785.92
	Lighting Component Total			$585,569.00

LANDSCAPING COMPONENT

User Input Data

Description	Value
Cost %	3.00
Component Detail	N

Landscaping Component Total	$178,981.82

Sequence 7 Total	$11,314,513.41

Sequence: 8 MIS - Miscellaneous Construction **Net Length:** 0.066 MI 350 LF

Description: Black Creek Trail

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.42 AC	$51,796.41	$21,754.49
	Comment: Area of path including canal bank			
120-6	EMBANKMENT	750.00 CY	$35.46	$26,595.00
	Comment: volume of east path. 4.5 el. X 30' width X 100' length X 2 paths. volume of west path. 4.5 el. X 20' width X 75' length X 2 paths			
	Earthwork Component Total			$48,349.49

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-0-11	CONC CLASS NS, GRAVITY WALL	416.00 CY	$997.77	$415,072.32
	Comment: 1300 LF of Wall			
415-1-1	REINF STEEL- ROADWAY	3,900.00 LB	$1.75	$6,825.00
	Comment: 1300 LF of Wall			
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	1,105.00 LF	$139.30	$153,926.50
	Comment: Along property line on east side			

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	10.00 / 0.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	544.54 SY	$9.40	$5,118.68
285-701	OPTIONAL BASE,BASE GROUP 01	388.96 SY	$19.41	$7,549.71
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	29.17 TN	$174.00	$5,075.58
521-72-60	SHLDR CONC BARRIER,38" WALL SHIELD BARR	83.00 LF	$217.20	$18,027.60
	Roadway Component Total			$611,595.39

SHOULDER COMPONENT

User Input Data

Description	Value

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
530-4-6	ARTICULATING CONC BLOCK REVET SYS, 6"	2,624.00	SY	$183.48	$481,451.52
	Comment: Canal Slope Protection Underpass(East)Side = 800 SY 160 ft length add 20% for top of bank Under bridge 335 sy + 20% West Side = 660 SY 200 ft length add 20% for top of bk Undr bridge 335 + 20%*2				
	Shoulder Component Total				$481,451.52

Sequence 8 Total $1,141,396.40

Sequence: 9 NUU - New Construction, Undivided, Urban **Net Length:** 0.332 MI 1,754 LF

Description: SW 127 AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	40.00 / 40.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.289
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.22 AC	$51,796.41	$166,784.44
120-6	EMBANKMENT	26,795.16 CY	$35.46	$950,156.37
	Earthwork Component Total			$1,116,940.81

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	26.00 / 26.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,139.95 SY	$9.40	$104,715.53
285-709	OPTIONAL BASE,BASE GROUP 09	10,134.31 SY	$46.51	$471,346.76
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,114.77 TN	$174.00	$193,969.98
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	836.08 TN	$200.08	$167,282.89

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	222.00 LF	$65.69	$14,583.18

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1

Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	224.00	EA	$3.98	$891.52
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.33	GM	$1,219.60	$1,622.07
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.00	GM	$424.87	$424.87
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.33	GM	$5,053.40	$6,721.02
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.00	GM	$1,426.55	$1,426.55
	Roadway Component Total				$962,984.37

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,754.02	LF	$35.01	$61,408.24
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,754.02	LF	$35.01	$61,408.24
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,948.91	SY	$59.73	$116,408.39
570-1-1	PERFORMANCE TURF	1,948.91	SY	$3.83	$7,464.33

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,508.03	LF	$2.71	$9,506.76
104-11	FLOATING TURBIDITY BARRIER	83.05	LF	$16.04	$1,332.12
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	83.05	LF	$7.99	$663.57
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	4.03	AC	$14.55	$58.64
107-2	MOWING	4.03	AC	$34.62	$139.52
	Shoulder Component Total				$262,580.39

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	11.00	EA	$7,679.52	$84,474.72
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,276.04	$12,552.08
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,104.00	LF	$186.67	$392,753.68
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	184.00	LF	$237.63	$43,723.92
570-1-1	PERFORMANCE TURF	87.80	SY	$3.83	$336.27
	Drainage Component Total				$569,792.27

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	6.00	EA	$454.73	$2,728.38
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
	Signing Component Total				$14,152.52

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,524.86	LF	$15.85	$24,169.03
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	198.98	LF	$35.66	$7,095.63
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$1,457.91	$10,205.37
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,171.54	LF	$5.22	$26,995.44
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	7.00	EA	$10,472.67	$73,308.69
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$1,215.03	$8,505.21
	Subcomponent Total				$150,279.37
	Lighting Component Total				$150,279.37

Sequence 9 Total $3,076,729.73

Sequence: 10 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.362 MI 1,910 LF

Description: SR 994/QUAIL ROOST DR. CONNECTION TO EAST

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.19 AC	$51,796.41	$113,434.14
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	2,085.86 CY	$33.85	$70,606.36
	Earthwork Component Total			$184,040.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	32.00 / 33.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	5.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,608.46 SY	$9.40	$15,119.52
285-709	OPTIONAL BASE,BASE GROUP 09	1,131.01 SY	$46.51	$52,603.28
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	13,792.83 SY	$12.32	$169,927.67
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,517.21 TN	$174.00	$263,994.54
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	116.71 TN	$174.00	$20,307.54

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,137.91 TN	$200.08	$227,673.03
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.53 TN	$200.08	$17,513.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	195.00 EA	$3.98	$776.10
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.45 GM	$1,219.60	$1,768.42
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.09 GM	$424.87	$463.11
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.45 GM	$5,053.40	$7,327.43
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.09 GM	$1,426.55	$1,554.94

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 10.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,970.76 SY	$9.40	$27,925.14
285-701	OPTIONAL BASE,BASE GROUP 01	2,121.97 SY	$19.41	$41,187.44
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	159.15 TN	$174.00	$27,692.10
	Roadway Component Total			$875,833.26

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	15.00 / 8.50
New Total Outside Shoulder Width L/R	8.25 / 8.75
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 6.50
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78	LF	$35.01	$66,861.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78	LF	$35.01	$66,861.40
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,273.18	SY	$59.73	$76,047.04
570-1-1	PERFORMANCE TURF	1,379.28	SY	$3.83	$5,282.64

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,819.55	LF	$2.71	$10,350.98
104-11	FLOATING TURBIDITY BARRIER	36.17	LF	$16.04	$580.17
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	36.17	LF	$7.99	$289.00
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	3.15	AC	$14.55	$45.83
107-2	MOWING	3.15	AC	$34.62	$109.05
	Shoulder Component Total				$230,618.09

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	590.00	LF	$65.69	$38,757.10
570-1-1	PERFORMANCE TURF	1,133.13	SY	$3.83	$4,339.89
	Median Component Total				$43,096.99

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00	EA	$7,679.52	$107,513.28
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	200.00	LF	$186.67	$37,334.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	109.96	SY	$3.83	$421.15
	Drainage Component Total				$190,156.67

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00	EA	$454.73	$3,637.84
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00	EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	8.00	EA	$32.87	$262.96
700-2-114	MULTI- COLUMN SIGN, F&I GM, 30.1-50 SF	1.00	EA	$6,849.52	$6,849.52
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00	EA	$509.39	$509.39
	Signing Component Total				$13,144.03

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,909.78	LF	$15.85	$30,270.01
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	379.06	LF	$35.66	$13,517.28
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	13.00	EA	$1,457.91	$18,952.83
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,975.02	LF	$5.22	$36,409.60
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	13.00	EA	$6,889.68	$89,565.84
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	13.00	EA	$1,215.03	$15,795.39
	Subcomponent Total				$204,510.96
	Lighting Component Total				$204,510.95

Sequence 10 Total $1,741,400.49

Sequence: 11 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: SIGNALIZATION

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 137 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$1,457.91	$32,074.02
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$10.07	$604.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00	EA	$1,292.86	$10,342.88
649-21-13	STEEL MAST ARM ASSEMBLY, F&I, 60'- 50'	1.00	EA	$71,431.00	$71,431.00
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	5.00	EA	$57,830.80	$289,154.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,615.98	$32,319.60
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$1,142.03	$9,136.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	17.00	EA	$325.60	$5,535.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	17.00	AS	$1,193.30	$20,286.10
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$414.26	$3,314.08
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$286.77	$2,294.16
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 2

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	SW 134 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00 LF	$15.85	$11,887.50
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	$35.66	$8,915.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	$1,457.91	$23,326.56
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$10.07	$604.20
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00 EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00 EA	$1,292.86	$10,342.88
649-21-6	STEEL MAST ARM ASSEMBLY, F&I, 50'	4.00 EA	$45,186.33	$180,745.32
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	$1,615.98	$19,391.76
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$1,142.03	$9,136.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	10.00 EA	$325.60	$3,256.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	10.00 AS	$1,193.30	$11,933.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$414.26	$3,314.08
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	$286.77	$2,294.16
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00 EA	$3,255.78	$13,023.12

Signalization 3

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 127 AVE

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00 LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00 EA	$1,457.91	$32,074.02
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$10.07	$604.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00 EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00 EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00 EA	$1,292.86	$10,342.88
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00 EA	$57,830.80	$346,984.80

650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,615.98	$32,319.60
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$1,142.03	$9,136.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	15.00	EA	$325.60	$4,884.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	15.00	AS	$1,193.30	$17,899.50
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$414.26	$3,314.08
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$286.77	$2,294.16
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 4

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	PEDESTRIAN CROSSING AT SNAPPER CREEK

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	500.00	LF	$35.66	$17,830.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	$10,540.47	$21,080.94
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	2.00	EA	$1,029.93	$2,059.86
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	15.00	EA	$1,457.91	$21,868.65
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	50.00	LF	$10.07	$503.50
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	2.00	EA	$67,427.00	$134,854.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	4.00	AS	$1,615.98	$6,463.92
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	2.00	AS	$1,142.03	$2,284.06
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00	EA	$414.26	$828.52
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$286.77	$1,147.08

Signalization 5

Description	Value
Type	Miscellaneous
Multiplier	1
Description	SIGNAL MODIFICATIONS AT SW 200 ST

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00 EA	$1,457.91	$14,579.10
646-1-40	ALUMINUM SIGNALS POLE, RELOCATE	3.00 EA	$981.44	$2,944.32
650-1-70	VEHICULAR TRAFFIC SIGNAL, RELOCATE	3.00 AS	$1,481.65	$4,444.95
	Signalizations Component Total			$1,826,981.42

Sequence 11 Total $1,826,981.42

Sequence: 12 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: BRIDGE REPLACEMENT

BRIDGES COMPONENT

Bridge 01

Description		**Value**
Estimate Type		SF Estimate
Primary Estimate		YES
Length (LF)		88.00
Width (LF)		82.00
Type		High Level
Cost Factor		1.25
Structure No.		
Removal of Existing Structures area		9,064.00
Default Cost per SF		$160.00
Factored Cost per SF		$200.00
Final Cost per SF		**$220.46**
Basic Bridge Cost		**$1,443,200.00**
Description	BRIDGE OVER BLACK CREEK CANAL	

Bridge Pay Items

Pay item	**Description**	**Quantity Unit**	**Unit Price**	**Extended Amount**
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	9,064.00 SF	$37.08	$336,093.12
400-2-10	CONC CLASS II, APPROACH SLABS	182.22 CY	$577.42	$105,217.47
415-1-9	REINF STEEL- APPROACH SLABS	31,888.50 LB	$1.33	$42,411.70
	Bridge 01 Total			$1,926,922.29
	Bridges Component Total			$1,926,922.29

Sequence 12 Total $1,926,922.29

Date: 6/13/2024 12:12:16 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.690 MI

Project Manager: QUINTELA, RAUL

Version 4 Project Grand Total **$34,976,168.42**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 1 ALTERNATIVE.

Project Sequences Subtotal			**$29,314,956.58**
102-1	Maintenance of Traffic	10.00 %	$2,931,495.66
101-1	Mobilization	8.00 %	$2,579,716.18
Project Sequences Total			**$34,826,168.42**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 4 Project Grand Total					**$34,976,168.42**

Date: 6/13/2024 12:11:45 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.690 MI

Project Manager: QUINTELA, RAUL

Version 5 Project Grand Total **$37,919,008.50**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE WITH SIDEWALK LEVEL BIKE LANE.

Sequence: 1 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.163 MI 861 LF

Description: SR 994/ QUAIL ROOST DR. CONNECTION TO WEST.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.163
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.99 AC	$51,796.41	$51,278.45
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	27.09 CY	$33.85	$917.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	450.00 CY	$28.29	$12,730.50
	Comment: Swales on each side of 1200' approximate length.			
	Earthwork Component Total			$64,925.95

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	6.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,487.82	SY	$9.40	$23,385.51
285-709	OPTIONAL BASE,BASE GROUP 09	605.69	SY	$46.51	$28,170.64
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	2,105.08	SY	$12.32	$25,934.59
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	231.56	TN	$174.00	$40,291.44
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	63.15	TN	$174.00	$10,988.10
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	173.67	TN	$200.08	$34,747.89
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	47.36	TN	$200.08	$9,475.79

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	22.00	EA	$3.98	$87.56
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.33	GM	$1,219.60	$402.47
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.16	GM	$382.85	$61.26
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.33	GM	$5,053.40	$1,667.62
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.16	GM	$1,314.83	$210.37
	Roadway Component Total				$175,423.24

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	10.00 / 10.00

New Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,020.01	SY	$14.59	$14,881.95
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	78.94	TN	$174.00	$13,735.56
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.94	TN	$200.08	$15,794.32
570-1-1	PERFORMANCE TURF	956.85	SY	$3.83	$3,664.74

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,980.69	LF	$2.71	$5,367.67
104-11	FLOATING TURBIDITY BARRIER	16.31	LF	$16.04	$261.61
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	16.31	LF	$7.99	$130.32
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	0.39	AC	$14.55	$5.67
107-2	MOWING	0.39	AC	$34.62	$13.50
	Shoulder Component Total				$56,114.24

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	32.00	LF	$186.52	$5,968.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$237.63	$3,802.08
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,947.99	$3,895.98
570-1-1	PERFORMANCE TURF	65.89	SY	$3.83	$252.36
	Drainage Component Total				$13,919.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73

700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	4.00 EA	$1,561.15	$6,244.60
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00 EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	4.00 EA	$32.87	$131.48
700-2-113	MULTI- COLUMN SIGN, F&I GM, 20.1-30 SF	1.00 EA	$6,258.24	$6,258.24
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00 EA	$509.39	$509.39
	Signing Component Total			$13,921.61

Sequence 1 Total $324,304.10

Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 0.158 MI 833 LF

Description: QUAIL ROOST WEST OF SW 137 AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	55.00 / 55.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.158
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.11 AC	$51,796.41	$109,290.43
120-6	EMBANKMENT	13,580.19 CY	$35.46	$481,553.54
	Earthwork Component Total			$590,843.97

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,295.17 SY	$9.40	$59,174.60
285-709	OPTIONAL BASE,BASE GROUP 09	4,565.85 SY	$46.51	$212,357.68
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	488.80 TN	$174.00	$85,051.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	366.60 TN	$200.08	$73,349.33

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1

Skip Stripe No. of Stripes 2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	64.00 EA	$3.98	$254.72
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.63 GM	$1,219.60	$768.35
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.32 GM	$424.87	$135.96
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.63 GM	$5,486.64	$3,456.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.32 GM	$1,807.76	$578.48
	Roadway Component Total			$435,126.90

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	986.86 SY	$14.59	$14,398.29
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	76.38 TN	$174.00	$13,290.12
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	76.38 TN	$200.08	$15,282.11
570-1-1	PERFORMANCE TURF	494.36 SY	$3.83	$1,893.40

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,166.28 LF	$2.71	$5,870.62
104-11	FLOATING TURBIDITY BARRIER	39.45 LF	$16.04	$632.78
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	39.45 LF	$7.99	$315.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00 EA	$120.73	$120.73
107-1	LITTER REMOVAL	3.83 AC	$14.55	$55.73
107-2	MOWING	3.83 AC	$34.62	$132.59
	Shoulder Component Total			$54,129.75

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	18.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	500.00	LF	$65.69	$32,845.00
570-1-1	PERFORMANCE TURF	1,666.37	SY	$3.83	$6,382.20

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	868.00	LF	$30.90	$26,821.20
	Median Component Total				$66,048.40

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	144.00	LF	$186.52	$26,858.88
570-1-1	PERFORMANCE TURF	112.80	SY	$3.83	$432.02

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,276.04	$12,552.08
	Drainage Component Total				$39,842.98

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	5.00	EA	$1,561.15	$7,805.75
700-2-114	MULTI- COLUMN SIGN, F&I GM, 30.1-50 SF	1.00	EA	$6,849.52	$6,849.52
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	2.00	EA	$9,862.99	$19,725.98
	Signing Component Total				$34,835.98

Sequence 2 Total	$1,220,827.98

Sequence: 3 NDU - New Construction, Divided, Urban **Net Length:** 0.322 MI 1,700 LF

Description: SW 137TH AVE NORTH AND SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.322
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.34 AC	$51,796.41	$121,203.60
120-6	EMBANKMENT	28,405.27 CY	$35.46	$1,007,250.87
	Earthwork Component Total			$1,128,454.47

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,616.72 SY	$9.40	$71,597.17
285-709	OPTIONAL BASE,BASE GROUP 09	5,667.20 SY	$46.51	$263,581.47
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	623.39 TN	$174.00	$108,469.86
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	467.54 TN	$200.08	$93,545.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	43.00	EA	$3.98	$171.14
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.29	GM	$1,219.60	$1,573.28
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.29	GM	$5,053.40	$6,518.89
	Roadway Component Total				$545,457.21

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$35.01	$59,522.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$35.01	$59,522.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,133.44	SY	$59.73	$67,700.37
570-1-1	PERFORMANCE TURF	755.63	SY	$3.83	$2,894.06

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,400.32	LF	$2.71	$9,214.87
104-11	FLOATING TURBIDITY BARRIER	80.50	LF	$16.04	$1,291.22
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	80.50	LF	$7.99	$643.20
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	8.19	AC	$14.55	$119.16
107-2	MOWING	8.19	AC	$34.62	$283.54
	Shoulder Component Total				$205,382.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	18.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,400.32	LF	$30.90	$105,069.89
570-1-1	PERFORMANCE TURF	1,008.76	SY	$3.83	$3,863.55
	Median Component Total				$108,933.44

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00	EA	$7,679.52	$92,154.24
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,600.00	LF	$186.67	$298,672.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	160.00	LF	$237.63	$38,020.80
570-1-1	PERFORMANCE TURF	97.89	SY	$3.83	$374.92
	Drainage Component Total				$472,593.54

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00	EA	$454.73	$3,637.84
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	1.00	EA	$10,761.45	$10,761.45
	Signing Component Total				$25,823.43

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,700.16	LF	$15.85	$26,947.54
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	337.46	LF	$35.66	$12,033.82
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$1,457.91	$17,494.92
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,209.45	LF	$5.22	$32,413.33
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	12.00	EA	$10,472.67	$125,672.04
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	$1,215.03	$14,580.36
	Subcomponent Total				$229,142.01

Lighting Component Total	$229,142.01

Sequence 3 Total	$2,715,786.30

Sequence: 4 NDU - New Construction, Divided, Urban **Net Length:** 0.253 MI 1,337 LF

Description: SW 137TH AVE AT QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.253
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.68 AC	$51,796.41	$190,610.79
120-6	EMBANKMENT	30,596.67 CY	$35.46	$1,084,957.92
	Earthwork Component Total			$1,275,568.71

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,336.88 SY	$9.40	$106,566.67
285-709	OPTIONAL BASE,BASE GROUP 09	9,803.90 SY	$46.51	$455,979.39
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,078.43 TN	$174.00	$187,646.82
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	808.82 TN	$200.08	$161,828.71

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	103.00	EA	$3.98	$409.94
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.01	GM	$1,219.60	$1,231.80
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.51	GM	$424.87	$216.68
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.01	GM	$5,053.40	$5,103.93
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.51	GM	$1,426.55	$727.54
	Roadway Component Total				$919,711.48

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 10.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$35.01	$46,804.87
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$35.01	$46,804.87
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,782.53	SY	$59.73	$106,470.52
570-1-1	PERFORMANCE TURF	594.18	SY	$3.83	$2,275.71

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,673.79	LF	$2.71	$7,245.97
104-11	FLOATING TURBIDITY BARRIER	63.30	LF	$16.04	$1,015.33
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	63.30	LF	$7.99	$505.77
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	13.00	EA	$120.73	$1,569.49
107-1	LITTER REMOVAL	6.44	AC	$14.55	$93.70
107-2	MOWING	6.44	AC	$34.62	$222.95
	Shoulder Component Total				$215,147.35

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	24.00
Performance Turf Width	22.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	2,673.79	LF	$30.90	$82,620.11
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	580.00	LF	$65.69	$38,100.20
570-1-1	PERFORMANCE TURF	3,267.97	SY	$3.83	$12,516.33
	Median Component Total				$133,236.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$7,679.52	$76,795.20
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	672.00	LF	$186.67	$125,442.24
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	76.97	SY	$3.83	$294.80
	Drainage Component Total				$253,692.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	7.00	EA	$454.73	$3,183.11
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	1.00	EA	$10,761.45	$10,761.45
	Signing Component Total				$25,368.70

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,336.90	LF	$15.85	$21,189.86
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	265.35	LF	$35.66	$9,462.38
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$1,457.91	$13,121.19
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,882.71	LF	$5.22	$25,487.75

715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	9.00 EA	$10,472.67	$94,254.03
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00 EA	$1,215.03	$10,935.27
	Subcomponent Total			$174,450.48
	Lighting Component Total			$174,450.49

Sequence 4 Total $2,997,175.53

Sequence: 5 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.136 MI 716 LF

Description: SW 134TH AVE SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	19.00 / 19.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.136
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.63	AC	$51,796.41	$32,631.74
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	174.20	CY	$33.85	$5,896.67

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	120.00	CY	$28.29	$3,394.80
	Comment: Swale on left side of the road, approximately 650' in length.				
	Earthwork Component Total				$41,923.21

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,909.25	SY	$9.40	$17,946.95
285-709	OPTIONAL BASE,BASE GROUP 09	980.88	SY	$46.51	$45,620.73
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	1,750.14	SY	$12.32	$21,561.72

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	192.52 TN	$174.00	$33,498.48
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	105.01 TN	$174.00	$18,271.74
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	144.39 TN	$200.08	$28,889.55
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.76 TN	$200.08	$15,758.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	73.00 EA	$3.98	$290.54
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.27 GM	$1,219.60	$329.29
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.27 GM	$382.85	$103.37
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.27 GM	$5,053.40	$1,364.42
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.27 GM	$1,314.83	$355.00
	Roadway Component Total			$183,990.09

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 6.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	2.00 / 0.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	185.36 SY	$14.59	$2,704.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	13.13 TN	$174.00	$2,284.62
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	13.13 TN	$200.08	$2,627.05
570-1-1	PERFORMANCE TURF	795.52 SY	$3.83	$3,046.84

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,646.73	LF	$2.71	$4,462.64
104-11	FLOATING TURBIDITY BARRIER	13.56	LF	$16.04	$217.50
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	13.56	LF	$7.99	$108.34
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	0.33	AC	$14.55	$4.80
107-2	MOWING	0.33	AC	$34.62	$11.42
	Shoulder Component Total				$17,726.51

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	400.00	LF	$186.52	$74,608.00
570-1-1	PERFORMANCE TURF	41.22	SY	$3.83	$157.87

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00	EA	$6,276.04	$25,104.16
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
	Drainage Component Total				$113,561.69

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	3.00	EA	$1,561.15	$4,683.45
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00	EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	3.00	EA	$32.87	$98.61
700-2-113	MULTI- COLUMN SIGN, F&I GM, 20.1-30 SF	1.00	EA	$6,258.24	$6,258.24
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00	EA	$509.39	$509.39
	Signing Component Total				$12,327.59

Sequence 5 Total $369,529.09

Sequence: 6 NUU - New Construction, Undivided, Urban **Net Length:** 0.092 MI 484 LF

Description: SW 134TH AVE NORTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.092
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.56	AC	$51,796.41	$29,005.99
120-6	EMBANKMENT	6,529.87	CY	$35.46	$231,549.19
	Earthwork Component Total				$260,555.18

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	22.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,052.91	SY	$9.40	$19,297.35
285-709	OPTIONAL BASE,BASE GROUP 09	1,775.31	SY	$46.51	$82,569.67
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	195.28	TN	$174.00	$33,978.72
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	146.46	TN	$200.08	$29,303.72

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	50.00	EA	$3.98	$199.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.37	GM	$1,219.60	$451.25
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.18	GM	$424.87	$76.48
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.37	GM	$5,053.40	$1,869.76
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.18	GM	$1,426.55	$256.78
	Roadway Component Total				$168,002.73

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18	LF	$35.01	$16,951.14
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18	LF	$35.01	$16,951.14
570-1-1	PERFORMANCE TURF	537.97	SY	$3.83	$2,060.43

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	968.35	LF	$2.71	$2,624.23
104-11	FLOATING TURBIDITY BARRIER	22.92	LF	$16.04	$367.64
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	22.92	LF	$7.99	$183.13
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	5.00	EA	$120.73	$603.65
107-1	LITTER REMOVAL	1.11	AC	$14.55	$16.15
107-2	MOWING	1.11	AC	$34.62	$38.43
	Shoulder Component Total				$41,934.11

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00	EA	$7,679.52	$30,718.08
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$7,419.98	$7,419.98
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$6,276.04	$6,276.04
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,845.83	$6,845.83

430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	400.00 LF	$186.67	$74,668.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$237.63	$5,703.12
570-1-1	PERFORMANCE TURF	27.88 SY	$3.83	$106.78
	Drainage Component Total			$131,737.83

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	2.00 EA	$454.73	$909.46
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00 EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	$9,862.99	$9,862.99
	Signing Component Total			$12,333.60

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	484.18 LF	$15.85	$7,674.25
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	63.18 LF	$35.66	$2,253.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00 EA	$1,457.91	$2,915.82
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,642.07 LF	$5.22	$8,571.61
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	2.00 EA	$10,472.67	$20,945.34
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00 EA	$1,215.03	$2,430.06
	Subcomponent Total			$44,790.08
	Lighting Component Total			$44,790.08

Sequence 6 Total $659,353.53

Sequence: 7 NDU - New Construction, Divided, Urban **Net Length:** 1.012 MI 5,343 LF

Description: SR 994/QUAIL ROOST DR. WITH SIDEWALK LEVEL BICYCLE LANE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.012
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	12.27 AC	$51,796.41	$635,541.95
120-6	EMBANKMENT	112,828.01 CY	$35.46	$4,000,881.23
	Earthwork Component Total			$4,636,423.19

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	22.00 / 22.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	32,250.15 SY	$9.40	$303,151.41
285-709	OPTIONAL BASE,BASE GROUP 09	26,123.09 SY	$46.51	$1,214,984.92
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,873.54 TN	$174.00	$499,995.96
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	2,155.16 TN	$200.08	$431,204.41

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,450.03 SY	$9.40	$60,630.28
285-709	OPTIONAL BASE,BASE GROUP 09	5,224.62 SY	$46.51	$242,997.08
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	574.71 TN	$174.00	$99,999.54
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	431.03 TN	$200.08	$86,240.48

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	410.00 EA	$3.98	$1,631.80
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.05 GM	$1,219.60	$4,939.38
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	2.02 GM	$424.87	$858.24
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	4.05 GM	$5,053.40	$20,466.27
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	2.02 GM	$1,426.55	$2,881.63

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	5.00 / 5.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,311.89 SY	$9.40	$78,131.77
285-701	OPTIONAL BASE,BASE GROUP 01	5,937.07 SY	$19.41	$115,238.53
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	445.28 TN	$174.00	$77,478.72
550-10-120	FENCING, TYPE A, 5.1-6.0, STANDARD	4,000.00 LF	$12.05	$48,200.00
	Roadway Component Total			$3,289,030.42

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	14.75 / 14.75

Total Outside Shoulder Perf. Turf Width L/R	4.50 / 4.50
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36	LF	$35.01	$187,071.03
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36	LF	$35.01	$187,071.03
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	9,499.31	SY	$59.73	$567,393.79
570-1-1	PERFORMANCE TURF	5,343.36	SY	$3.83	$20,465.07

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,686.72	LF	$2.71	$28,961.01
104-11	FLOATING TURBIDITY BARRIER	253.00	LF	$16.04	$4,058.12
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	253.00	LF	$7.99	$2,021.47
104-15	SOIL TRACKING PREVENTION DEVICE	2.00	EA	$2,138.17	$4,276.34
104-18	INLET PROTECTION SYSTEM	52.00	EA	$120.73	$6,277.96
107-1	LITTER REMOVAL	25.76	AC	$14.55	$374.81
107-2	MOWING	25.76	AC	$34.62	$891.81
	Shoulder Component Total				$1,008,862.44

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	16.50
Performance Turf Width	12.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	10,686.72	LF	$30.90	$330,219.65
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	1,060.00	LF	$65.69	$69,631.40
570-1-1	PERFORMANCE TURF	7,124.48	SY	$3.83	$27,286.76
	Median Component Total				$427,137.81

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	40.00	EA	$7,679.52	$307,180.80
425-1-451	INLETS, CURB, TYPE J-5, <10'	15.00	EA	$7,419.98	$111,299.70
425-1-521	INLETS, DT BOT, TYPE C, <10'	6.00	EA	$6,276.04	$37,656.24
425-2-41	MANHOLES, P-7, <10'	23.00	EA	$6,845.83	$157,454.09

430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	5,064.00 LF	$186.67	$945,296.88
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	1,800.00 LF	$237.63	$427,734.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	240.00 LF	$574.49	$137,877.60
570-1-1	PERFORMANCE TURF	307.65 SY	$3.83	$1,178.30

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
443-70-6	FRENCH DRAIN, 36"	3,700.00 LF	$216.30	$800,310.00
	Drainage Component Total			$2,925,987.61

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	25.00 EA	$454.73	$11,368.25
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	15.00 EA	$1,561.15	$23,417.25
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	3.00 EA	$10,761.45	$32,284.35
	Signing Component Total			$76,932.84

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	5,343.36 LF	$15.85	$84,692.26
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,060.58 LF	$35.66	$37,820.28
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	36.00 EA	$1,457.91	$52,484.76
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	19,515.41 LF	$5.22	$101,870.44
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	36.00 EA	$6,889.68	$248,028.48
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	36.00 EA	$1,215.03	$43,741.08
	Subcomponent Total			$568,637.30

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
639-1-111	ELECTRICAL POWER SRV,F&I,OH,M,FURNISHED	1.00 AS	$4,313.81	$4,313.81
639-3-11	ELEC SERV DISCON, F&I, POLE MNT	1.00 EA	$1,831.97	$1,831.97

715-7-12	LOAD CENTER, F&I, PRIMARY VOLTAGE	1.00 EA	$10,785.92	$10,785.92
	Lighting Component Total			$585,569.00

LANDSCAPING COMPONENT

User Input Data

Description	Value
Cost %	3.00
Component Detail	N

Landscaping Component Total	$229,530.55

Sequence 7 Total	$13,179,473.86

Sequence: 8 MIS - Miscellaneous Construction **Net Length:** 0.066 MI 350 LF

Description: Black Creek Trail

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.42 AC	$51,796.41	$21,754.49
	Comment: Area of path including Canal Bank			
120-6	EMBANKMENT	750.00 CY	$35.46	$26,595.00
	Comment: volume of east path. 4.5 el. X 30' width X 100' length X 2 paths. volume of west path. 4.5 el. X 20' width X 75' length X 2 paths			
	Earthwork Component Total			$48,349.49

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-0-11	CONC CLASS NS, GRAVITY WALL	416.00 CY	$997.77	$415,072.32
	Comment: 1300 LF of Wall			
415-1-1	REINF STEEL- ROADWAY	3,900.00 LB	$1.75	$6,825.00
	Comment: 1300 LF of Wall			
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	1,105.00 LF	$139.30	$153,926.50
	Comment: Along property line on east side			

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	10.00 / 0.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	544.54 SY	$9.40	$5,118.68
285-701	OPTIONAL BASE,BASE GROUP 01	388.96 SY	$19.41	$7,549.71
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	29.17 TN	$174.00	$5,075.58
521-72-60	SHLDR CONC BARRIER,38" WALL SHIELD BARR	83.00 LF	$217.20	$18,027.60
	Roadway Component Total			$611,595.39

SHOULDER COMPONENT

User Input Data

Description	Value

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
530-4-6	ARTICULATING CONC BLOCK REVET SYS, 6"	2,624.00	SY	$183.48	$481,451.52
	Comment: Canal Slope Protection Underpass(East)Side = 800 SY 160 ft length add 20% for top of bank Under bridge 335 sy + 20% West Side = 660 SY 200 ft length add 20% for top of bk Undr bridge 335 + 20%*2				
	Shoulder Component Total				$481,451.52

Sequence 8 Total $1,141,396.40

Sequence: 9 NUU - New Construction, Undivided, Urban **Net Length:** 0.332 MI 1,754 LF

Description: SW 127TH AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	40.00 / 40.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.289
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.22 AC	$51,796.41	$166,784.44
120-6	EMBANKMENT	26,795.16 CY	$35.46	$950,156.37
	Earthwork Component Total			$1,116,940.81

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	26.00 / 26.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,139.95 SY	$9.40	$104,715.53
285-709	OPTIONAL BASE,BASE GROUP 09	10,134.31 SY	$46.51	$471,346.76
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,114.77 TN	$174.00	$193,969.98
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	836.08 TN	$200.08	$167,282.89

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	222.00 LF	$65.69	$14,583.18

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1

Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	224.00	EA	$3.98	$891.52
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.33	GM	$1,219.60	$1,622.07
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.00	GM	$424.87	$424.87
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.33	GM	$5,053.40	$6,721.02
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.00	GM	$1,426.55	$1,426.55
	Roadway Component Total				$962,984.37

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,754.02	LF	$35.01	$61,408.24
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,754.02	LF	$35.01	$61,408.24
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,948.91	SY	$59.73	$116,408.39
570-1-1	PERFORMANCE TURF	1,948.91	SY	$3.83	$7,464.33

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,508.03	LF	$2.71	$9,506.76
104-11	FLOATING TURBIDITY BARRIER	83.05	LF	$16.04	$1,332.12
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	83.05	LF	$7.99	$663.57
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	4.03	AC	$14.55	$58.64
107-2	MOWING	4.03	AC	$34.62	$139.52
	Shoulder Component Total				$262,580.39

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	11.00	EA	$7,679.52	$84,474.72
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,276.04	$12,552.08
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,104.00	LF	$186.67	$392,753.68
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	184.00	LF	$237.63	$43,723.92
570-1-1	PERFORMANCE TURF	87.80	SY	$3.83	$336.27
	Drainage Component Total				$569,792.27

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	6.00	EA	$454.73	$2,728.38
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
	Signing Component Total				$14,152.52

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,524.00	LF	$15.85	$24,155.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	198.00	LF	$35.66	$7,060.68
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$1,457.91	$10,205.37
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,171.00	LF	$5.22	$26,992.62
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	7.00	EA	$10,472.67	$73,308.69
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$1,215.03	$8,505.21
	Subcomponent Total				$150,227.97
	Lighting Component Total				$150,227.97

Sequence 9 Total $3,076,678.33

Sequence: 10 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.362 MI 1,910 LF

Description: SR 994/QUAIL ROOST DR. CONNECTION TO EAST

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.19	AC	$51,796.41	$113,434.14
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	2,085.86	CY	$33.85	$70,606.36
	Earthwork Component Total				$184,040.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	32.00 / 33.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	5.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,608.46	SY	$9.40	$15,119.52
285-709	OPTIONAL BASE,BASE GROUP 09	1,131.01	SY	$46.51	$52,603.28
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	13,792.83	SY	$12.32	$169,927.67
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,517.21	TN	$174.00	$263,994.54
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	116.71	TN	$174.00	$20,307.54

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,137.91 TN	$200.08	$227,673.03
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.53 TN	$200.08	$17,513.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	195.00 EA	$3.98	$776.10
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.45 GM	$1,219.60	$1,768.42
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.09 GM	$424.87	$463.11
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.45 GM	$5,053.40	$7,327.43
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.09 GM	$1,426.55	$1,554.94

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 10.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,970.76 SY	$9.40	$27,925.14
285-701	OPTIONAL BASE,BASE GROUP 01	2,121.97 SY	$19.41	$41,187.44
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	159.15 TN	$174.00	$27,692.10
	Roadway Component Total			$875,833.26

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	15.00 / 8.50
New Total Outside Shoulder Width L/R	8.25 / 8.75
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 6.50
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78	LF	$35.01	$66,861.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78	LF	$35.01	$66,861.40
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,273.18	SY	$59.73	$76,047.04
570-1-1	PERFORMANCE TURF	1,379.28	SY	$3.83	$5,282.64

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,819.55	LF	$2.71	$10,350.98
104-11	FLOATING TURBIDITY BARRIER	36.17	LF	$16.04	$580.17
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	36.17	LF	$7.99	$289.00
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	3.15	AC	$14.55	$45.83
107-2	MOWING	3.15	AC	$34.62	$109.05
	Shoulder Component Total				$230,618.09

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	590.00	LF	$65.69	$38,757.10
570-1-1	PERFORMANCE TURF	1,133.13	SY	$3.83	$4,339.89
	Median Component Total				$43,096.99

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00	EA	$7,679.52	$107,513.28
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	200.00	LF	$186.67	$37,334.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	109.96	SY	$3.83	$421.15
	Drainage Component Total				$190,156.67

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00	EA	$454.73	$3,637.84
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00	EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	8.00	EA	$32.87	$262.96
700-2-114	MULTI- COLUMN SIGN, F&I GM, 30.1-50 SF	1.00	EA	$6,849.52	$6,849.52
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00	EA	$509.39	$509.39
	Signing Component Total				$13,144.03

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,909.78	LF	$15.85	$30,270.01
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	379.06	LF	$35.66	$13,517.28
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	13.00	EA	$1,457.91	$18,952.83
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,975.02	LF	$5.22	$36,409.60
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	13.00	EA	$6,889.68	$89,565.84
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	13.00	EA	$1,215.03	$15,795.39
	Subcomponent Total				$204,510.96
	Lighting Component Total				$204,510.95

Sequence 10 Total $1,741,400.49

Sequence: 11 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: SIGNALIZATION

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 137 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$1,457.91	$32,074.02
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$10.07	$604.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00	EA	$1,292.86	$10,342.88
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00	EA	$57,830.80	$346,984.80
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,615.98	$32,319.60
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$1,142.03	$9,136.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$325.60	$6,512.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,193.30	$23,866.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$414.26	$3,314.08
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$286.77	$2,294.16
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 2

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	SW 134 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$15.85	$11,887.50

630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	$35.66	$8,915.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	$1,457.91	$23,326.56
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$10.07	$604.20
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00 EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00 EA	$1,292.86	$10,342.88
649-21-6	STEEL MAST ARM ASSEMBLY, F&I, 50'	2.00 EA	$45,186.33	$90,372.66
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	2.00 EA	$57,830.80	$115,661.60
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	$1,615.98	$19,391.76
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$1,142.03	$9,136.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	$325.60	$3,907.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	$1,193.30	$14,319.60
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$414.26	$3,314.08
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	$286.77	$2,294.16
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00 EA	$3,255.78	$13,023.12

Signalization 3

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 127 AVE

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00 LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00 EA	$1,457.91	$32,074.02
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$10.07	$604.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00 EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00 EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00 EA	$1,292.86	$10,342.88
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00 EA	$57,830.80	$346,984.80

650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$1,615.98	$32,319.60
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$1,142.03	$9,136.24
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	15.00	EA	$325.60	$4,884.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	15.00	AS	$1,193.30	$17,899.50
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$414.26	$3,314.08
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$286.77	$2,294.16
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 4

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	PEDESTRIAN CROSSING AT SNAPPER CREEK

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	500.00	LF	$35.66	$17,830.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	$10,540.47	$21,080.94
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	2.00	EA	$1,029.93	$2,059.86
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	15.00	EA	$1,457.91	$21,868.65
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$5,798.87	$5,798.87
639-2-1	ELECTRICAL SERVICE WIRE, F&I	50.00	LF	$10.07	$503.50
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	2.00	EA	$67,427.00	$134,854.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	4.00	AS	$1,615.98	$6,463.92
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	2.00	AS	$1,142.03	$2,284.06
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00	EA	$414.26	$828.52
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$44,920.29	$44,920.29
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$286.77	$1,147.08

Signalization 5

Description	Value
Type	Miscellaneous
Multiplier	1
Description	SIGNAL MODIFICATIONS AT SW 200 ST

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00 EA	$1,457.91	$14,579.10
646-1-40	ALUMINUM SIGNALS POLE, RELOCATE	3.00 EA	$981.44	$2,944.32
650-1-70	VEHICULAR TRAFFIC SIGNAL, RELOCATE	3.00 AS	$1,481.65	$4,444.95
	Signalizations Component Total			$1,846,264.66

Sequence 11 Total $1,846,264.66

Sequence: 12 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: BRIDGE REPLACEMENT

BRIDGES COMPONENT

Bridge 01

Description		**Value**
Estimate Type		SF Estimate
Primary Estimate		YES
Length (LF)		100.00
Width (LF)		101.67
Type		High Level
Cost Factor		1.25
Structure No.		
Removal of Existing Structures area		8,184.00
Default Cost per SF		$160.00
Factored Cost per SF		$200.00
Final Cost per SF		**$218.00**
Basic Bridge Cost		**$2,033,400.00**
Description	BRIDGE OVER BLACK CREEK CANAL	

Bridge Pay Items

Pay item	**Description**	**Quantity Unit**	**Unit Price**	**Extended Amount**
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	8,184.00 SF	$37.08	$303,462.72
400-2-10	CONC CLASS II, APPROACH SLABS	225.93 CY	$577.42	$130,456.50
415-1-9	REINF STEEL- APPROACH SLABS	39,537.75 LB	$1.33	$52,585.21
	Bridge 01 Total			$2,519,904.43
	Bridges Component Total			$2,519,904.43

Sequence 12 Total $2,519,904.43

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FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.690 MI

Project Manager: QUINTELA, RAUL

Version 5 Project Grand Total **$37,919,008.50**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 2 ALTERNATIVE WITH SIDEWALK LEVEL BIKE LANE.

Project Sequences Subtotal			**$31,792,094.70**
102-1	Maintenance of Traffic	10.00 %	$3,179,209.47
101-1	Mobilization	8.00 %	$2,797,704.33
Project Sequences Total			**$37,769,008.50**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 5 Project Grand Total					**$37,919,008.50**

Date: 6/13/2024 12:12:43 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.690 MI

Project Manager: QUINTELA, RAUL

Version 2-P Project Grand Total **$39,247,534.80**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 3 ALTERNATIVE. PRIMARY

Sequence: 1 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.163 MI 861 LF

Description: SR 994/ QUAIL ROOST DR. CONNCECTION TO WEST

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.163
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.99 AC	$51,796.41	$51,278.45
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	27.09 CY	$33.85	$917.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	450.00 CY	$28.29	$12,730.50
	Comment: Swales on each side of 1200 approximate length			
	Earthwork Component Total			$64,925.95

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	6.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,487.82	SY	$9.40	$23,385.51
285-709	OPTIONAL BASE,BASE GROUP 09	605.69	SY	$46.51	$28,170.64
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	2,105.08	SY	$12.32	$25,934.59
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	231.56	TN	$174.00	$40,291.44
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	63.15	TN	$174.00	$10,988.10
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	173.67	TN	$200.08	$34,747.89
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	47.36	TN	$200.08	$9,475.79

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	22.00	EA	$3.98	$87.56
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.33	GM	$1,219.60	$402.47
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.16	GM	$382.85	$61.26
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.33	GM	$5,053.40	$1,667.62
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.16	GM	$1,314.83	$210.37
	Roadway Component Total				$175,423.24

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	10.00 / 10.00

New Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,020.01	SY	$14.59	$14,881.95
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	78.94	TN	$174.00	$13,735.56
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.94	TN	$200.08	$15,794.32
570-1-1	PERFORMANCE TURF	956.85	SY	$3.83	$3,664.74

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,980.69	LF	$2.71	$5,367.67
104-11	FLOATING TURBIDITY BARRIER	16.31	LF	$16.04	$261.61
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	16.31	LF	$7.99	$130.32
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	0.39	AC	$14.55	$5.67
107-2	MOWING	0.39	AC	$34.62	$13.50
	Shoulder Component Total				$56,114.24

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	32.00	LF	$186.52	$5,968.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$237.63	$3,802.08
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,947.99	$3,895.98
570-1-1	PERFORMANCE TURF	65.89	SY	$3.83	$252.36
	Drainage Component Total				$13,919.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73

700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	4.00 EA	$1,561.15	$6,244.60
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00 EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	4.00 EA	$32.87	$131.48
700-2-113	MULTI- COLUMN SIGN, F&I GM, 20.1-30 SF	1.00 EA	$6,258.24	$6,258.24
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00 EA	$509.39	$509.39
	Signing Component Total			$13,921.61

Sequence 1 Total $324,304.10

Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 0.158 MI 833 LF

Description: QUAIL ROOST WEST OF SW 137 AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	55.00 / 55.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.158
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.11 AC	$51,796.41	$109,290.43
120-6	EMBANKMENT	13,580.19 CY	$35.46	$481,553.54
	Earthwork Component Total			$590,843.97

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,295.17 SY	$9.40	$59,174.60
285-709	OPTIONAL BASE,BASE GROUP 09	4,565.85 SY	$46.51	$212,357.68
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	488.80 TN	$174.00	$85,051.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	366.60 TN	$200.08	$73,349.33

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1

Skip Stripe No. of Stripes 2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	64.00	EA	$3.98	$254.72
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.63	GM	$1,219.60	$768.35
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.32	GM	$424.87	$135.96
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.63	GM	$5,486.64	$3,456.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.32	GM	$1,807.76	$578.48
	Roadway Component Total				$435,126.90

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	986.86	SY	$14.59	$14,398.29
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	76.38	TN	$174.00	$13,290.12
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	76.38	TN	$200.08	$15,282.11
570-1-1	PERFORMANCE TURF	494.36	SY	$3.83	$1,893.40

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,166.28	LF	$2.71	$5,870.62
104-11	FLOATING TURBIDITY BARRIER	39.45	LF	$16.04	$632.78
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	39.45	LF	$7.99	$315.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	3.83	AC	$14.55	$55.73
107-2	MOWING	3.83	AC	$34.62	$132.59
	Shoulder Component Total				$54,129.75

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	18.00
Total Median Shoulder Width L/R	0.00 / 0.00
Paved Median Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	0
Friction Course Spread Rate	0
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	500.00	LF	$65.69	$32,845.00
570-1-1	PERFORMANCE TURF	1,666.37	SY	$3.83	$6,382.20

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	868.00	LF	$30.90	$26,821.20
	Median Component Total				$66,048.40

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	144.00	LF	$186.52	$26,858.88
570-1-1	PERFORMANCE TURF	112.80	SY	$3.83	$432.02

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,276.04	$12,552.08
	Drainage Component Total				$39,842.98

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	5.00	EA	$1,561.15	$7,805.75
700-2-114	MULTI- COLUMN SIGN, F&I GM, 30.1-50 SF	1.00	EA	$6,849.52	$6,849.52
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	2.00	EA	$9,862.99	$19,725.98
	Signing Component Total				$34,835.98

Sequence 2 Total	$1,220,827.98

Sequence: 3 NDU - New Construction, Divided, Urban **Net Length:** 0.322 MI 1,700 LF

Description: SW 137TH AVE NORTH AND SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.322
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.34 AC	$51,796.41	$121,203.60
120-6	EMBANKMENT	28,405.27 CY	$35.46	$1,007,250.87
	Earthwork Component Total			$1,128,454.47

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,616.72 SY	$9.40	$71,597.17
285-709	OPTIONAL BASE,BASE GROUP 09	5,667.20 SY	$46.51	$263,581.47
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	623.39 TN	$174.00	$108,469.86
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	467.54 TN	$200.08	$93,545.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	43.00	EA	$3.98	$171.14
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.29	GM	$1,219.60	$1,573.28
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.29	GM	$5,053.40	$6,518.89
	Roadway Component Total				$545,457.21

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 4.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$35.01	$59,522.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,700.16	LF	$35.01	$59,522.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,133.44	SY	$59.73	$67,700.37
570-1-1	PERFORMANCE TURF	755.63	SY	$3.83	$2,894.06

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,400.32	LF	$2.71	$9,214.87
104-11	FLOATING TURBIDITY BARRIER	80.50	LF	$16.04	$1,291.22
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	80.50	LF	$7.99	$643.20
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	8.19	AC	$14.55	$119.16
107-2	MOWING	8.19	AC	$34.62	$283.54
	Shoulder Component Total				$205,382.20

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	18.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-7	CONCRETE CURB & GUTTER, TYPE E	3,400.32	LF	$30.90	$105,069.89
570-1-1	PERFORMANCE TURF	1,008.76	SY	$3.83	$3,863.55
	Median Component Total				$108,933.44

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	12.00	EA	$7,679.52	$92,154.24
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,600.00	LF	$186.67	$298,672.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	160.00	LF	$237.63	$38,020.80
570-1-1	PERFORMANCE TURF	97.89	SY	$3.83	$374.92
	Drainage Component Total				$472,593.54

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00	EA	$454.73	$3,637.84
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	1.00	EA	$10,761.45	$10,761.45
	Signing Component Total				$25,823.43

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,700.16	LF	$15.85	$26,947.54
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	337.46	LF	$35.66	$12,033.82
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$1,457.91	$17,494.92
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,209.45	LF	$5.22	$32,413.33
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	12.00	EA	$10,472.67	$125,672.04
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	$1,215.03	$14,580.36
	Subcomponent Total				$229,142.01

Lighting Component Total	$229,142.01

Sequence 3 Total	$2,715,786.30

Sequence: 4 NDU - New Construction, Divided, Urban **Net Length:** 0.253 MI 1,337 LF

Description: SW 137TH AVE AT QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.253
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.68 AC	$51,796.41	$190,610.79
120-6	EMBANKMENT	30,596.67 CY	$35.46	$1,084,957.92
	Earthwork Component Total			$1,275,568.71

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,336.88 SY	$9.40	$106,566.67
285-709	OPTIONAL BASE,BASE GROUP 09	9,803.90 SY	$46.51	$455,979.39
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,078.43 TN	$174.00	$187,646.82
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	808.82 TN	$200.08	$161,828.71

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	103.00	EA	$3.98	$409.94
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.01	GM	$1,219.60	$1,231.80
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.51	GM	$424.87	$216.68
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.01	GM	$5,053.40	$5,103.93
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.51	GM	$1,426.55	$727.54
	Roadway Component Total				$919,711.48

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.25 / 10.25
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$35.01	$46,804.87
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,336.90	LF	$35.01	$46,804.87
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,782.53	SY	$59.73	$106,470.52
570-1-1	PERFORMANCE TURF	594.18	SY	$3.83	$2,275.71

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,673.79	LF	$2.71	$7,245.97
104-11	FLOATING TURBIDITY BARRIER	63.30	LF	$16.04	$1,015.33
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	63.30	LF	$7.99	$505.77
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	13.00	EA	$120.73	$1,569.49
107-1	LITTER REMOVAL	6.44	AC	$14.55	$93.70
107-2	MOWING	6.44	AC	$34.62	$222.95
	Shoulder Component Total				$215,147.35

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	24.00
Performance Turf Width	22.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	2,673.79	LF	$30.90	$82,620.11
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	580.00	LF	$65.69	$38,100.20
570-1-1	PERFORMANCE TURF	3,267.97	SY	$3.83	$12,516.33
	Median Component Total				$133,236.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$7,679.52	$76,795.20
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	672.00	LF	$186.67	$125,442.24
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	76.97	SY	$3.83	$294.80
	Drainage Component Total				$253,692.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	7.00	EA	$454.73	$3,183.11
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	1.00	EA	$10,761.45	$10,761.45
	Signing Component Total				$25,368.70

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,336.90	LF	$15.85	$21,189.86
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	265.35	LF	$35.66	$9,462.38
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$1,457.91	$13,121.19
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,882.71	LF	$5.22	$25,487.75

715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	9.00 EA	$10,472.67	$94,254.03
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00 EA	$1,215.03	$10,935.27
	Subcomponent Total			$174,450.48
	Lighting Component Total			$174,450.49

Sequence 4 Total $2,997,175.53

Sequence: 5 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.136 MI 716 LF

Description: SW 134TH AVE SOUTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	19.00 / 19.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.136
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.63	AC	$51,796.41	$32,631.74
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	174.20	CY	$33.85	$5,896.67

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-1	REGULAR EXCAVATION	120.00	CY	$28.29	$3,394.80
	Comment: Swale on left side of the road, approximately 650' in length.				
	Earthwork Component Total				$41,923.21

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,909.25	SY	$9.40	$17,946.95
285-709	OPTIONAL BASE,BASE GROUP 09	980.88	SY	$46.51	$45,620.73
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	1,750.14	SY	$12.32	$21,561.72

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	192.52 TN	$174.00	$33,498.48
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	105.01 TN	$174.00	$18,271.74
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	144.39 TN	$200.08	$28,889.55
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	78.76 TN	$200.08	$15,758.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	73.00 EA	$3.98	$290.54
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.27 GM	$1,219.60	$329.29
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.27 GM	$382.85	$103.37
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.27 GM	$5,053.40	$1,364.42
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.27 GM	$1,314.83	$355.00
	Roadway Component Total			$183,990.09

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	6.00 / 6.00
New Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 6.00
Existing Paved Outside Shoulder Width L/R	0.00 / 0.00
New Paved Outside Shoulder Width L/R	2.00 / 0.00
Structural Spread Rate	165
Friction Course Spread Rate	165
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	185.36 SY	$14.59	$2,704.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	13.13 TN	$174.00	$2,284.62
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	13.13 TN	$200.08	$2,627.05
570-1-1	PERFORMANCE TURF	795.52 SY	$3.83	$3,046.84

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,646.73	LF	$2.71	$4,462.64
104-11	FLOATING TURBIDITY BARRIER	13.56	LF	$16.04	$217.50
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	13.56	LF	$7.99	$108.34
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	1.00	EA	$120.73	$120.73
107-1	LITTER REMOVAL	0.33	AC	$14.55	$4.80
107-2	MOWING	0.33	AC	$34.62	$11.42
	Shoulder Component Total				$17,726.51

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	400.00	LF	$186.52	$74,608.00
570-1-1	PERFORMANCE TURF	41.22	SY	$3.83	$157.87

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00	EA	$6,276.04	$25,104.16
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
	Drainage Component Total				$113,561.69

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	1.00	EA	$454.73	$454.73
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	3.00	EA	$1,561.15	$4,683.45
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00	EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	3.00	EA	$32.87	$98.61
700-2-113	MULTI- COLUMN SIGN, F&I GM, 20.1-30 SF	1.00	EA	$6,258.24	$6,258.24
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00	EA	$509.39	$509.39
	Signing Component Total				$12,327.59

Sequence 5 Total $369,529.09

Sequence: 6 NUU - New Construction, Undivided, Urban **Net Length:** 0.092 MI 484 LF

Description: SW 134TH AVE NORTH OF QR

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.092
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.56	AC	$51,796.41	$29,005.99
120-6	EMBANKMENT	6,529.87	CY	$35.46	$231,549.19
	Earthwork Component Total				$260,555.18

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	22.00 / 11.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,052.91	SY	$9.40	$19,297.35
285-709	OPTIONAL BASE,BASE GROUP 09	1,775.31	SY	$46.51	$82,569.67
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	195.28	TN	$174.00	$33,978.72
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	146.46	TN	$200.08	$29,303.72

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	50.00	EA	$3.98	$199.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.37	GM	$1,219.60	$451.25
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.18	GM	$424.87	$76.48
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.37	GM	$5,053.40	$1,869.76
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.18	GM	$1,426.55	$256.78
	Roadway Component Total				$168,002.73

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18	LF	$35.01	$16,951.14
520-1-10	CONCRETE CURB & GUTTER, TYPE F	484.18	LF	$35.01	$16,951.14
570-1-1	PERFORMANCE TURF	537.97	SY	$3.83	$2,060.43

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	968.35	LF	$2.71	$2,624.23
104-11	FLOATING TURBIDITY BARRIER	22.92	LF	$16.04	$367.64
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	22.92	LF	$7.99	$183.13
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	5.00	EA	$120.73	$603.65
107-1	LITTER REMOVAL	1.11	AC	$14.55	$16.15
107-2	MOWING	1.11	AC	$34.62	$38.43
	Shoulder Component Total				$41,934.11

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00	EA	$7,679.52	$30,718.08
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$7,419.98	$7,419.98
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$6,276.04	$6,276.04
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$6,845.83	$6,845.83

430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	400.00 LF	$186.67	$74,668.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$237.63	$5,703.12
570-1-1	PERFORMANCE TURF	27.88 SY	$3.83	$106.78
	Drainage Component Total			$131,737.83

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	2.00	EA	$454.73	$909.46
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
	Signing Component Total				$12,333.60

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	484.18	LF	$15.85	$7,674.25
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	63.18	LF	$35.66	$2,253.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	$1,457.91	$2,915.82
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,642.07	LF	$5.22	$8,571.61
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	2.00	EA	$10,472.67	$20,945.34
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	$1,215.03	$2,430.06
	Subcomponent Total				$44,790.08
	Lighting Component Total				$44,790.08

Sequence 6 Total $659,353.53

Sequence: 7 NDU - New Construction, Divided, Urban **Net Length:** 1.012 MI 5,343 LF

Description: SR 994/QUAIL ROOST DR. WITH SHARED USE PATHS

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	53.00 / 53.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.012
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	13.00 AC	$51,796.41	$673,353.33
120-6	EMBANKMENT	120,312.68 CY	$35.46	$4,266,287.63
	Earthwork Component Total			$4,939,640.96

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	22.00 / 22.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	32,250.15 SY	$9.40	$303,151.41
285-709	OPTIONAL BASE,BASE GROUP 09	26,123.09 SY	$46.51	$1,214,984.92
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,873.54 TN	$174.00	$499,995.96
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	2,155.16 TN	$200.08	$431,204.41

Turnouts/Crossovers Subcomponent

Description	Value
Asphalt Adjustment	20.00
Stabilization Code	Y
Base Code	Y
Friction Course Code	Y

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,450.03	SY	$9.40	$60,630.28
285-709	OPTIONAL BASE,BASE GROUP 09	5,224.62	SY	$46.51	$242,997.08
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	574.71	TN	$174.00	$99,999.54
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	431.03	TN	$200.08	$86,240.48

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	410.00	EA	$3.98	$1,631.80
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	8.10	GM	$1,219.60	$9,878.76
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	4.05	GM	$424.87	$1,720.72

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	10.00 / 10.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	14,248.96	SY	$9.40	$133,940.22
285-701	OPTIONAL BASE,BASE GROUP 01	11,874.13	SY	$19.41	$230,476.86
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	890.56	TN	$174.00	$154,957.44
550-10-120	FENCING, TYPE A, 5.1-6.0, STANDARD	4,000.00	LF	$12.05	$48,200.00
	Roadway Component Total				$3,520,009.88

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	15.25 / 15.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	8.00 / 8.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36 LF	$35.01	$187,071.03
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,343.36 LF	$35.01	$187,071.03
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	9,499.31 SY	$59.73	$567,393.79
570-1-1	PERFORMANCE TURF	5,937.07 SY	$3.83	$22,738.98

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	10,686.72 LF	$2.71	$28,961.01
104-11	FLOATING TURBIDITY BARRIER	253.00 LF	$16.04	$4,058.12
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	253.00 LF	$7.99	$2,021.47
104-15	SOIL TRACKING PREVENTION DEVICE	2.00 EA	$2,138.17	$4,276.34
104-18	INLET PROTECTION SYSTEM	52.00 EA	$120.73	$6,277.96
107-1	LITTER REMOVAL	25.76 AC	$14.55	$374.81
107-2	MOWING	25.76 AC	$34.62	$891.81
	Shoulder Component Total			$1,011,136.35

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	10,686.72 LF	$30.90	$330,219.65
570-1-1	PERFORMANCE TURF	3,170.39 SY	$3.83	$12,142.59
	Median Component Total			$342,362.24

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	37.00 EA	$7,679.52	$284,142.24
425-1-451	INLETS, CURB, TYPE J-5, <10'	11.00 EA	$7,419.98	$81,619.78
425-1-521	INLETS, DT BOT, TYPE C, <10'	6.00 EA	$6,276.04	$37,656.24
425-2-41	MANHOLES, P-7, <10'	6.00 EA	$6,845.83	$41,074.98
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,680.00 LF	$186.67	$500,275.60
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	240.00 LF	$237.63	$57,031.20
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	5,064.00 LF	$574.49	$2,909,217.36

570-1-1	PERFORMANCE TURF	307.65 SY	$3.83	$1,178.30
	Drainage Component Total			$3,912,195.70

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	25.00 EA	$454.73	$11,368.25
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	15.00 EA	$1,561.15	$23,417.25
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00 EA	$9,862.99	$9,862.99
700-2-116	MULTI- COLUMN SIGN, F&I GM, 100.1-200 SF	3.00 EA	$10,761.45	$32,284.35
	Signing Component Total			$76,932.84

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	5,343.36 LF	$15.85	$84,692.26
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	1,060.58 LF	$35.66	$37,820.28
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	36.00 EA	$1,457.91	$52,484.76
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	19,515.41 LF	$5.22	$101,870.44
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	36.00 EA	$10,472.67	$377,016.12
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	36.00 EA	$1,215.03	$43,741.08
	Subcomponent Total			$697,624.94
	Lighting Component Total			$697,624.94

Sequence 7 Total $14,499,902.91

Sequence: 8 MIS - Miscellaneous Construction **Net Length:** 0.066 MI 350 LF

Description: Black Creek Trail

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.42 AC	$51,796.41	$21,754.49
	Comment: Area of path including canal bank			
120-6	EMBANKMENT	750.00 CY	$35.46	$26,595.00
	Comment: volume of east path. 4.5 el. X 30' width X 100' length X 2 paths. volume of west path. 4.5 el. X 20' width X 75' length X 2 paths			
	Earthwork Component Total			$48,349.49

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-0-11	CONC CLASS NS, GRAVITY WALL	416.00 CY	$997.77	$415,072.32
	Comment: 1300 LF of Wall			
415-1-1	REINF STEEL- ROADWAY	3,900.00 LB	$1.75	$6,825.00
	Comment: 1300 LF of Wall			
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	1,105.00 LF	$139.30	$153,926.50
	Comment: Along property line on east side			

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	10.00 / 0.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	544.54 SY	$9.40	$5,118.68
285-701	OPTIONAL BASE,BASE GROUP 01	388.96 SY	$19.41	$7,549.71
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	29.17 TN	$174.00	$5,075.58
521-72-60	SHLDR CONC BARRIER,38" WALL SHIELD BARR	83.00 LF	$217.20	$18,027.60
	Roadway Component Total			$611,595.39

SHOULDER COMPONENT

User Input Data

Description	Value

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
530-4-6	ARTICULATING CONC BLOCK REVET SYS, 6"	2,624.00	SY	$183.48	$481,451.52
	Comment: Canal Slope Protection Underpass(East)Side = 800 SY 160 ft length add 20% for top of bank Under bridge 335 sy + 20% West Side = 660 SY 200 ft length add 20% for top of bk Undr bridge 335 + 20%*2				
	Shoulder Component Total				$481,451.52

Sequence 8 Total $1,141,396.40

Sequence: 9 NUU - New Construction, Undivided, Urban **Net Length:** 0.332 MI 1,754 LF

Description: SW 127 AVE

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	40.00 / 40.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.289
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.22 AC	$51,796.41	$166,784.44
120-6	EMBANKMENT	26,795.16 CY	$35.46	$950,156.37
	Earthwork Component Total			$1,116,940.81

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Roadway Pavement Width L/R	26.00 / 26.00
Structural Spread Rate	220
Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,139.95 SY	$9.40	$104,715.53
285-709	OPTIONAL BASE,BASE GROUP 09	10,134.31 SY	$46.51	$471,346.76
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,114.77 TN	$174.00	$193,969.98
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	836.08 TN	$200.08	$167,282.89

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	222.00 LF	$65.69	$14,583.18

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1

Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	224.00	EA	$3.98	$891.52
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.33	GM	$1,219.60	$1,622.07
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.00	GM	$424.87	$424.87
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.33	GM	$5,053.40	$6,721.02
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.00	GM	$1,426.55	$1,426.55
	Roadway Component Total				$962,984.37

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,754.02	LF	$35.01	$61,408.24
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,754.02	LF	$35.01	$61,408.24
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,948.91	SY	$59.73	$116,408.39
570-1-1	PERFORMANCE TURF	1,948.91	SY	$3.83	$7,464.33

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,508.03	LF	$2.71	$9,506.76
104-11	FLOATING TURBIDITY BARRIER	83.05	LF	$16.04	$1,332.12
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	83.05	LF	$7.99	$663.57
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	4.03	AC	$14.55	$58.64
107-2	MOWING	4.03	AC	$34.62	$139.52
	Shoulder Component Total				$262,580.39

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	11.00	EA	$7,679.52	$84,474.72
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$7,419.98	$22,259.94
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$6,276.04	$12,552.08
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$6,845.83	$13,691.66
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	2,104.00	LF	$186.67	$392,753.68
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	184.00	LF	$237.63	$43,723.92
570-1-1	PERFORMANCE TURF	87.80	SY	$3.83	$336.27
	Drainage Component Total				$569,792.27

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	6.00	EA	$454.73	$2,728.38
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-2-115	MULTI- COLUMN SIGN, F&I GM, 50.1-100 SF	1.00	EA	$9,862.99	$9,862.99
	Signing Component Total				$14,152.52

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,524.86	LF	$15.85	$24,169.03
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	198.98	LF	$35.66	$7,095.63
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$1,457.91	$10,205.37
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,171.54	LF	$5.22	$26,995.44
715-61-342	LIGHT POLE CMPLT,STD,F&I, 40'MH,12'ARM L	7.00	EA	$10,472.67	$73,308.69
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$1,215.03	$8,505.21
	Subcomponent Total				$150,279.37
	Lighting Component Total				$150,279.37

Sequence 9 Total $3,076,729.73

Sequence: 10 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.362 MI 1,910 LF

Description: SR 994/QUAIL ROOST DR. CONNECTION TO EAST

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	25.00 / 25.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.19 AC	$51,796.41	$113,434.14
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	3,342.66 CY	$33.85	$113,149.04
	Earthwork Component Total			$226,583.18

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Existing Roadway Pavement Width L/R	32.00 / 33.00
Structural Spread Rate	220
Friction Course Spread Rate	165
Widened Outside Pavement Width L/R	5.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,608.46 SY	$9.40	$15,119.52
285-709	OPTIONAL BASE,BASE GROUP 09	1,131.01 SY	$46.51	$52,603.28
327-70-4	MILLING EXIST ASPH PAVT, 3" AVG DEPTH	13,792.83 SY	$12.32	$169,927.67
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,517.21 TN	$174.00	$263,994.54
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	116.71 TN	$174.00	$20,307.54

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	1,137.91 TN	$200.08	$227,673.03
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.53 TN	$200.08	$17,513.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-3	RAISED PAVMT MARK, TYPE B	195.00 EA	$3.98	$776.10
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.45 GM	$1,219.60	$1,768.42
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.09 GM	$424.87	$463.11
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.45 GM	$5,053.40	$7,327.43
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.09 GM	$1,426.55	$1,554.94

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 10.00
Bike Path Structural Spread Rate	150
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,970.76 SY	$9.40	$27,925.14
285-701	OPTIONAL BASE,BASE GROUP 01	2,121.97 SY	$19.41	$41,187.44
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	159.15 TN	$174.00	$27,692.10
	Roadway Component Total			$875,833.26

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	18.50 / 8.50
New Total Outside Shoulder Width L/R	8.25 / 8.75
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 6.50
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78	LF	$35.01	$66,861.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,909.78	LF	$35.01	$66,861.40
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,273.18	SY	$59.73	$76,047.04
570-1-1	PERFORMANCE TURF	1,379.28	SY	$3.83	$5,282.64

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,819.55	LF	$2.71	$10,350.98
104-11	FLOATING TURBIDITY BARRIER	36.17	LF	$16.04	$580.17
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	36.17	LF	$7.99	$289.00
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,138.17	$2,138.17
104-18	INLET PROTECTION SYSTEM	17.00	EA	$120.73	$2,052.41
107-1	LITTER REMOVAL	3.15	AC	$14.55	$45.83
107-2	MOWING	3.15	AC	$34.62	$109.05
	Shoulder Component Total				$230,618.09

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	590.00	LF	$65.69	$38,757.10
570-1-1	PERFORMANCE TURF	1,133.13	SY	$3.83	$4,339.89
	Median Component Total				$43,096.99

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	14.00	EA	$7,679.52	$107,513.28
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$7,419.98	$29,679.92
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	200.00	LF	$186.67	$37,334.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$237.63	$15,208.32
570-1-1	PERFORMANCE TURF	109.96	SY	$3.83	$421.15
	Drainage Component Total				$190,156.67

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-111	SINGLE COL GRND SIGN AS, F&I GM, <12 SF	8.00	EA	$454.73	$3,637.84
700-1-112	SINGLE COL GRND SIGN AS, F&I GM, 12-20	1.00	EA	$1,561.15	$1,561.15
700-1-500	SINGLE COL GRND SIGN AS, RELOCATE	1.00	EA	$323.17	$323.17
700-1-600	SINGLE COL GRND SIGN AS, REMOVE	8.00	EA	$32.87	$262.96
700-2-114	MULTI- COLUMN SIGN, F&I GM, 30.1-50 SF	1.00	EA	$6,849.52	$6,849.52
700-2-600	MULTI- COLUMN GROUND SIGN, REMOVE	1.00	EA	$509.39	$509.39
	Signing Component Total				$13,144.03

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,909.78	LF	$15.85	$30,270.01
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	379.06	LF	$35.66	$13,517.28
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	13.00	EA	$1,457.91	$18,952.83
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,975.02	LF	$5.22	$36,409.60
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	13.00	EA	$1,215.03	$15,795.39

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-61-321	LIGHT POLE CMPLT,STD,F&I, 40'MH,10'ARM L	13.00	EA	$6,889.68	$89,565.84
	Subcomponent Total				$204,510.96
	Lighting Component Total				$204,510.95

Sequence 10 Total $1,783,943.17

Sequence: 11 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: SIGNALIZATION

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 137 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$1,457.91	$32,074.02
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$5.92	$355.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00	EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00	EA	$1,292.86	$10,342.88
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00	EA	$57,830.80	$346,984.80
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$999.20	$19,984.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$806.55	$6,452.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$325.60	$6,512.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,193.30	$23,866.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$270.67	$2,165.36
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$391.28	$3,130.24
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 2

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	SW 134 AVE

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	750.00	LF	$15.85	$11,887.50

630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	250.00 LF	$35.66	$8,915.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	$1,457.91	$23,326.56
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$5.92	$355.20
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00 EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00 EA	$1,292.86	$10,342.88
649-21-6	STEEL MAST ARM ASSEMBLY, F&I, 50'	2.00 EA	$45,186.33	$90,372.66
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	2.00 EA	$57,830.80	$115,661.60
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	12.00 AS	$999.20	$11,990.40
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00 AS	$806.55	$6,452.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	12.00 EA	$325.60	$3,907.20
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	12.00 AS	$1,193.30	$14,319.60
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$270.67	$2,165.36
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00 EA	$391.28	$3,130.24
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00 EA	$3,255.78	$13,023.12

Signalization 3

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	SW 127 AVE

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00 LF	$15.85	$11,095.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00 EA	$1,457.91	$32,074.02
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00 AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00 LF	$5.92	$355.20
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00 EA	$1,459.29	$1,459.29
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	8.00 EA	$1,387.10	$11,096.80
646-1-12	ALUMINUM SIGNALS POLE, PED DETECT POST	8.00 EA	$1,292.86	$10,342.88
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	6.00 EA	$57,830.80	$346,984.80

650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	20.00	AS	$999.20	$19,984.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$806.55	$6,452.40
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	20.00	EA	$325.60	$6,512.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	20.00	AS	$1,193.30	$23,866.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$270.67	$2,165.36
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	8.00	EA	$391.28	$3,130.24
700-5-22	INTERNAL ILLUM SIGN, F&I OM, 12-18 SF	4.00	EA	$3,255.78	$13,023.12

Signalization 4

Description	Value
Type	2 Lane Mast Arm
Multiplier	1
Description	PEDESTRIAN CROSSING AT SNAPPER CREEK

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	500.00	LF	$35.66	$17,830.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	2.00	PI	$10,540.47	$21,080.94
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	2.00	EA	$1,029.93	$2,059.86
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	15.00	EA	$1,457.91	$21,868.65
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$4,707.82	$4,707.82
639-2-1	ELECTRICAL SERVICE WIRE, F&I	50.00	LF	$5.92	$296.00
649-21-4	STEEL MAST ARM ASSEMBLY, F&I, 40'- 30'	2.00	EA	$67,427.00	$134,854.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	4.00	AS	$999.20	$3,996.80
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	2.00	AS	$806.55	$1,613.10
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00	EA	$270.67	$541.34
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$30,878.48	$30,878.48
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$391.28	$1,565.12

Signalization 5

Description	Value
Type	Miscellaneous
Multiplier	1
Description	SIGNAL MODIFICATIONS AT SW 200 ST

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00 LF	$35.66	$10,698.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$10,540.47	$10,540.47
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00 EA	$1,457.91	$14,579.10
646-1-40	ALUMINUM SIGNALS POLE, RELOCATE	3.00 EA	$981.44	$2,944.32
650-1-70	VEHICULAR TRAFFIC SIGNAL, RELOCATE	3.00 AS	$1,481.65	$4,444.95
	Signalizations Component Total			$1,748,304.00

Sequence 11 Total $1,748,304.00

Sequence: 12 MIS - Miscellaneous Construction **Net Length:** 0.000 MI 0 LF

Description: BRIDGE REPLACEMENT

BRIDGES COMPONENT

Bridge 01

Description	**Value**
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	88.00
Width (LF)	105.00
Type	High Level
Cost Factor	1.25
Structure No.	
Removal of Existing Structures area	9,064.00
Default Cost per SF	$160.00
Factored Cost per SF	$200.00
Final Cost per SF	**$220.46**
Basic Bridge Cost	**$1,848,000.00**
Description	BRIDGE OVER BLACK CREEK CANAL

Bridge Pay Items

Pay item	**Description**	**Quantity Unit**	**Unit Price**	**Extended Amount**
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	9,064.00 SF	$37.08	$336,093.12
400-2-10	CONC CLASS II, APPROACH SLABS	233.33 CY	$577.42	$134,729.41
415-1-9	REINF STEEL- APPROACH SLABS	40,832.75 LB	$1.33	$54,307.56
	Bridge 01 Total			$2,373,130.09
	Bridges Component Total			$2,373,130.09

Sequence 12 Total $2,373,130.09

Date: 6/13/2024 12:12:44 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 445804-1-52-01 **Letting Date:** 01/2029

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE

District: 06 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English

Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 1.690 MI

Project Manager: QUINTELA, RAUL

Version 2-P Project Grand Total **$39,247,534.80**

Description: SR 994/SW 200 ST/QUAIL ROOST DR FR W OF SW 137 AVE TO E OF SW 127 AVE. BUILD 3 ALTERNATIVE. PRIMARY

Project Sequences Subtotal			**$32,910,382.83**
102-1	Maintenance of Traffic	10.00 %	$3,291,038.28
101-1	Mobilization	8.00 %	$2,896,113.69
Project Sequences Total			**$39,097,534.80**
Project Unknowns		0.00 %	$0.00
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 2-P Project Grand Total					**$39,247,534.80**