SR 994/Quail Roost Drive PD&E Study

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

FM 445804-1-22-01 ETDM No. 14429

Alternative Evaluation Matrix

	Evaluation Criteria	Alternatives							
		No-Build (2-Lane Undivided)	Score	**Build Alternative 1** (2-Lane with 16.5-ft median)	Score	**Build Alternative 2** (4-Lane with 16.5-ft median)	Score	**Build Alternative 3** (4-Lane with 22-ft median)	Score
	Meets Purpose & Need	No	-	No	+	Yes	++	Yes	++
	Community Support	Not supported by the public based on input received at the Alternatives workshop.	-	Moderate support from the public based on input received at the Alternatives workshop.	+	Greatest support from the public based on input received at the Alternatives workshop.	++	No evidence of public support (or opposition) received at the Alternatives Workshop.	0
ENGINEERING		**Additional Capacity Throughout Project Limits**							
		No	-	No	-	Yes (Two additional lanes)	+	Yes (Two additional lanes)	+
		Corridor-Wide Delay and Travel Times							
		Traffic Operations significantly deteriorate from existing conditions. 310 hours of delay by Opening Year VS. 138 hours today If no action (both AM&PM for signalized/critical movements at unsignalized intersections; mostly due to lack of turning lanes); Delay is expected to double by Design Year 2045 to 693 hours Travel Time increases by 5 mins by Opening Year from 8 mins for the total of both AM&PM + EB/WB; By 2045, travel time increases from 8 mins to 27 mins	--	Delay is significantly reduced by -42% to 401 hours VS. 693 hours in No-Build for 2045 (both AM+PM) Travel Time improved to 7 mins back/forth (from 19 mins) for the AM peak hour and to 7 mins back/forth (from 7.5 mins) for the PM peak hour when compared to No-Build	+	Delay is significantly reduced by -68% to 222 hours VS. 693 hours in No-Build for 2045 (both AM+PM) Build 2 reduces delay by an additional -26% when compared to Build 1 Travel Time improved to 6 mins back/forth (from 7 mins) per peak period when compared to Build 1	++	Delay is significantly reduced by -67% to 226 hours VS. 693 hours in No-Build for 2045 (both AM+PM) Build 3 increases delay by +2% when compared to Build 2 Travel Time remains at 6 mins back/forth per peak period	+
		Main Intersections Level of Service							
	Traffic Operations	LOS at SW 137 Ave fails (from C or better) due to lack of turning lanes Already failing LOS at SW 134 Ave worsens by 2045 where 2 fatal crashes occurred LOS at SW 127 Ave fails by 2045 (from D)	--	LOS at SW 137 Ave improved to E (from F, if No Action); it cannot be improved to LOS D due to the single eastbound approach through lane at SW 137 Ave LOS at SW 134 Ave improved to C (from F, if No Action) LOS at SW 127 Ave improved to D (from F, if No Action)	+	Delay at SW 137 Ave further reduced by -45% (-61 hours) at an improved LOS D Delay at SW 134 Ave further reduced by -53% (-24 hours) at an improved LOS B Although at LOS D, SW 127 Ave delay further reduced by -9% (-8 hours)	++	Although at LOS D, SW 137 Ave delay increased by +9% (+7 hours) Although at LOS B, SW 134 Ave delay increased by +9% (+2 hours) Although at LOS D, SW 134 Ave delay further reduced by -4% (-3 hours)	+
		Stop-Controlled Intersections Delay							
		Turning Traffic Delay from/onto side streets worsens to 106 hours by 2045 from 16 hours for both AM & PM peak periods	--	Turning Traffic Delay from/onto side streets worsens by +24% to 132 hours from 106 hours for both AM & PM peak periods	--	Turning Traffic Delay from/onto side streets improves by -66% to 45 hours from 132 hours for both AM & PM peak periods when compared to Build 1	++	Turning Traffic Delay from/onto side streets improves by -2% to 44 hours from 45 hours for both AM & PM peak periods when compared to Build 2	++
	Safety	Number of crashes expected to increase compared to existing conditions due to projected increase in traffic volumes	--	Safety Improvements include: • Turn Lanes (left and right) • Protected Left-Turn Phasing • Multimodal Facilities (SUPs) • Special Emphasis Ped/Bike Crossings • Enhancements to Existing Trail Crossing • Corridor Lighting • Traffic Control Upgrade at SW 134 Ave to Signal Control • Some Access Management Improvements • Raised Median Islands/Traffic Separators Per CMF Methodology, expected to reduce 33 crashes per year In addition, this alternative addresses severity of crashes – 2 out of 3 fatal accidents in the past 5 years were related to turning movements at the SW 134 Avenue intersection	+	Safety Improvements include the same as Build Alternative 1 plus the addition of: • One additional thru lane in each direction Per CMF Methodology, expected to reduce 50 crashes per year; this is approximately 16 more crashes than Build 1 Same as Build 1, this alternative addresses severity of crashes; however, Build 1 does not address crashes related to traffic congestion such as rear-end collisions	++	Safety Improvements include the same as Build alternative 2 plus the addition of: • Wider Raised Median, 22 ft • Additional Access Management Improvements Per CMF Methodology, expected to reduce 50 crashes per year; this is approximately 16 more crashes than Build 1* *Similar safety benefits as Build 2, since the locations where Build 3 implemented additional access management improvements did not have significant crashes for mitigation Same as Builds 1 and 2, this alternative addresses severity of crashes. however, Build 1 does not address crashes related to traffic congestion such as rear-end collisions	++
	Utility Impacts	No Impacts	0	Moderate to significant impacts to five Utility Agency/Owners (not reimbursable).	-	Significant impacts to same five Utility Agency/Owners (not reimbursable) as Build Alternative 1.	-	Significant impacts to same five Utility Agency/Owners (not reimbursable) as Build Alternatives 1 and 2.	-
	Access Management	No changes to current access	0	Divided typical with reduced width raised median and one lane in each direction. No refuge for two-stage left turns. • Restricting turn movements at: – SW 135th Ave (partial) – SW 132nd PL – Eight driveways •U-turn movements restricted (due to one thru lane) •Restrictive left and right turn movements for trucks	--	Divided typical with reduced width raised median and two lanes in each direction. No refuge for two-stage left turns. • Restricting turn movements at: – SW 135th Ave (partial) – SW 132nd PL – Eight driveways •Facilitates u-turn movements (due to wider pavement width -two lanes)	-	Divided typical with raised median. Refuge for two-stage left turns. • Restricting turn movements at: – SW 135th Ave (full) – SW 134th Ct (full) – SW 133rd Ct (partial) – SW 133 Ave (partial) – SW 132nd PL – Nine driveways •Further facilitates u-turn movements (due to wider median)	--
	Multimodal Accommodations	Non-continuous 5-ft sidewalks generally located at residential subdivisions along the study corridor. No bicycle facilities within the project limits.	--	Continuous sidewalks with sidewalk level Separated Bicycle Lanes (SBLs) on both sides of Quail Roost Drive. Additional separation between vehicular travel lanes and the SBLs. Shorter crossing distance along Quail Roost Dr compared to Alternatives 2 & 3.	++	Continuous sidewalks with sidewalk level Separated Bicycle Lanes (SBLs) on both sides of Quail Roost Drive. Minimum required separation between vehicular travel lanes and the SBLs. Refuge areas for crossings at major intersections. Longer crossing distance along Quail Roost Dr.	++	Same as Alternative 2	++
	Transit	No current bus routes within the project limits. Any future bus routes would need to use the single lane in each direction, creating further delays for vehicular traffic.	-	No current bus routes within the project limits. Any future bus routes would need to use the single lane in each direction, creating further delays for vehicular traffic.	-	An additional through lane in each direction provides opportunities for future bus routes to stop on the outside lane while maintaining the flow of vehicular traffic on the inside lane.	+	An additional through lane in each direction provides opportunities for future bus routes to stop on the outside lane while maintaining the flow of vehicular traffic on the inside lane.	+
	Maintenance of Traffic	No Impacts	+	Various phase shifts and potential temporary pavement for overbuild/shifts during construction. Less construction time. Bridge replacement requires detours.	--	Moderate phase shifts. Less temporary pavement due to wider proposed pavement available. Additional construction time. Bridge construction can be phased.	-	Minimal phase shifts. New pavement can be constructed outside of existing traffic. Additional construction time. Bridge construction can be phased.	-
	Drainage	No Impacts	0	• Improved drainage system along the corridor • Reduction in grassed areas when compared to the No-Build Alternative requires French drain construction	-	• Wider corridor roadway section promoting larger contributing total onsite drainage area, which will require more French drain construction. • Least pervious area (grassed area) which requires more French drain construction.	-	• Widest corridor roadway section promoting largest contributing total onsite drainage area, which will require most French drain construction. • Less pervious area (grassed area) which requires more French drain construction.	-
	Right of Way Impacts	No Impacts	0	Potential impacts to 40 parcels (8 commercial, 12 agricultural, 20 residential) Impact Area: 216,224 SF	-	Potential impacts to 61 parcels (9 commercial, 12 agricultural, 40 residential) Impact Area: 233,475 SF	--	Potential impacts to 67 parcels (9 commercial, 12 agricultural, 46 residential) Impact Area: 389,939 SF	--
ENVIRONMENT	**Socio-Cultural Effects/ Relocation Potential**	No relocations	0	6 potential relocations (1 residential + 5 personal property)	-	8 potential relocations (0 residential + 8 personal property)	-	10 potential relocations (3 residential + 7 personal property)	-
	Historic Resources	No Impacts	0	Adverse effects (impacts) to three significant properties. Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection) •Parcel impact area = 21,775 SF MacDonell House (8DA20712) (NW corner of SW 137 Ave intersection) •Parcel impact area = 17,223 SF 20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection) •Parcel impact area = 2,957 SF LEAST SEVERE	-	Adverse effects (impacts) to three significant properties. Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection) •Parcel impact area = 23,359 SF MacDonell House (8DA20712) (NW corner of SW 137 Ave intersection) •Parcel impact area = 17,165 SF 20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection) •Parcel impact area = 3,375 SF MORE SEVERE	-	Adverse effects (impacts) to three significant properties. Talbott Estate (8DA2789) (SE corner of SW 134 Ave intersection) •Parcel impact area = 31,186 SF MacDonell House (8DA20712) (NW corner of SW 137 Ave intersection) •Parcel impact area = 23,103 SF 20000 SW 137th Avenue (8DA20713) (SW corner of SW 137 Ave intersection) •Parcel impact area = 6,778 SF MOST SEVERE	-
	Recreational Resources	No Impact	0	• At-grade continuity of the Black Creek Trail is maintained. • New lighting, signalized pedestrian crossing, high-emphasis crosswalks, and refuge island. • Temporary impacts for access to the Black Creek Trail during construction.	+	Same as Build Alternative 1	+	Same as Build Alternative 1	+
	Wetlands	No Impact	0	Surface water impacts are 0.271 acres and are limited to the bridge reconstruction.	0	Same as Build Alternative 1	0	Same as Build Alternative 1	0
	Wildlife and Habitat	No Impact	0	Seven federally listed animal species, six state listed animal species, seven federally listed plant species, and one state listed plant species potentially occurring within the project study area Determination of May Affect, Not Likely to Adversely Affect (MANLAA) was concluded for the West Indian manatee and the Eastern Indigo Snake Determination of No Effect, No Effect Anticipated, or No Adverse Effect Anticipated concluded for all other species	0	Same as Build Alternative 1	0	Same as Build Alternative 1	0
	Noise	The roadway traffic speed will be reduced due to the congestion caused by higher traffic volumes, which results in a slight decrease in sound levels.	0	Slight increase in sound levels. In addition, the traffic lane is 12 ft closer to the residences, when compared to the No-Build Alternative	-	Increase in sound levels. In addition, the new lane in each direction will move the noise source (roadway traffic volume) 11 ft closer to the residences, when compared to the Build Alternative 1. This may result in an increase in sound levels.	-	The same condition as Alternative 2 except the outside lane is shifted 3 ft closer to the residences than Alternative 2	-
	Air Quality	Project is located within an attainment area. Minimal potential impacts may occur from increased congestion.	0	Project is located within an attainment area. No significant air quality impacts are anticipated. Project is anticipated to decrease congestion.	+	Project is located within an attainment area. No significant air quality impacts are anticipated. Project is anticipated to decrease congestion.	+	Project is located within an attainment area. No significant air quality impacts are anticipated. Project is anticipated to decrease congestion.	+
	Contamination	No Impact	0	One High Risk Site One Medium Risk Site	0	Same as Build Alternative 1	0	Same as Build Alternative 1	0
COST	**Construction (LRE)**	No Cost	+	$34,976,168	-	$37,919,009	-	$39,247,535	-
	Relocation Cost	No Cost		**$105,100 Total**		**$6,400 Total**		**$344,750 Total**	
	Right of Way Acquisition	No Cost		**$4,679,232 Total**		**$5,604,074 Total**		**$10,066,595 Total**	
	TOTAL SCORE	**-12**		**-6**		**8**		**3**	