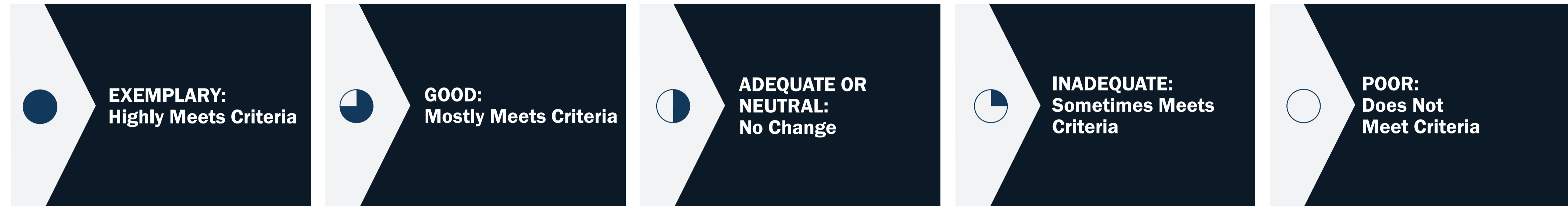




SEGMENT ANALYSIS MATRIX

US 380 FROM COIT ROAD TO FM 1827
 CSJs: 0135-02-065, 0135-03-053, AND 0135-15-002



*All references to "with Spur 399 Extension connection" refer to impacts that would be caused should the separate Spur 399 Extension project be constructed.

SCREENING/ EVALUATION CATEGORY	SEGMENT A & SEGMENT A SHIFT* (MCKINNEY-WEST) COIT ROAD TO CR 161/RIDGE ROAD <small>*The Segment A shift provides for an alternative design near University Drive and future US 380 intersection to better accommodate future developments.</small>	SEGMENT B (PROSPER - FURTHEST WEST) COIT ROAD TO CR 161/RIDGE ROAD	SEGMENT E (BLOOMDALE) CR 161/RIDGE ROAD TO SH 5 COMMON TO ALL ALTERNATIVES	SEGMENT C (MCKINNEY FURTHEST EAST) SH 5 TO FM 1827	SEGMENT D (MCKINNEY - EAST) SH 5 TO FM 1827	NO-BUILD ALTERNATIVE (NO FREEWAY) COIT ROAD TO FM 1827	KEY TAKEAWAYS	
Community Impacts and Cultural Resources - Continued Protected Lands/Parks (Section 4(f), Section 6(f), Chapter 26 properties)	No Section 4(f), Section 6(f), or Chapter 26 properties would be impacted. No change anticipated with the shift option.	No Section 4(f), Section 6(f), or Chapter 26 properties would be impacted.	No Section 4(f), Section 6(f), or Chapter 26 properties would be impacted. All segments avoid Erwin Park.	without Spur 399 Ext. interchange No Section 4(f), Section 6(f), or Chapter 26 properties would be impacted. with Spur 399 Ext. interchange ROW may be needed from McKinney Future Parkland south of US 380 - McKinney Future Parkland has a transportation covenant, so Section 4(f) would not apply. No other Section 4(f), Section 6(f), or Chapter 26 properties would be impacted.	without Spur 399 Ext. interchange No Section 4(f), Section 6(f), or Chapter 26 properties would be impacted. with Spur 399 Ext. interchange ROW may be needed from Trinity River Greenway south of US 380 - de minimis Section 4(f); no other Section 4(f), Section 6(f), or Chapter 26 properties would be impacted.	No impact		
Air Quality	Regardless of the segment, Mobile Source Air Toxics are expected to decline significantly in the future due to federal regulations on vehicles, fuels, fleet turnover, and the increased use of electric vehicles.						Localized air emissions would increase due to the increase in traffic volumes and congestion contributing to slower travel speeds and longer idling times at signalized intersections. Although these effects would be localized, overall, Mobile Source Air Toxics are expected to decline significantly in the future due to federal regulations on vehicles, fuels, fleet turnover, and the increased use of electric vehicles.	Because the project was forecasted to carry more than 140,000 vehicles per day in 2045, TxDOT performed detailed analyses to evaluate potential air quality impacts and to confirm compliance with regional and federal air quality standards, including the Clean Air Act. As required, the project is consistent with the Texas Commission on Environmental Quality (TCEQ) State Implementation Plan (SIP), the NCTCOG's Mobility 2045 Update, as well as the 2023 - 2026 TIP. TxDOT modeled carbon monoxide concentrations (CO TAQA) and none of the modeled concentrations exceeded the 1-hour or 8-hour National Ambient Air Quality Standards for carbon monoxide. TxDOT performed a quantitative Mobile Source Air Toxics (MSAT) analysis. The total MSAT emissions are predicted to decrease by approximately 43% by 2050 due to higher combustion efficiencies of vehicle engines and electrification of the US fleet.
Traffic Noise (Number of Impacted Receptor Locations that Approach/Exceed the Respective Noise Abatement Criteria (NAC) under the Build Condition in 2050) Number of locations where noise abatement is determined feasible and reasonable/total dwelling units benefited	117 impacted receptors (representing 273 dwelling units) out of 542 total receptors (representing 749 dwelling units) modeled. 2 proposed barriers would benefit 29 dwelling units, constructed adjacent to Prestwyk and Stonebridge Ranch. The shift option would result in a negligible difference in traffic noise as compared to Segment A, since the potential impact would be 4 additional homes.	306 impacted receptors (representing 638 dwelling units) out of 339 total receptors (representing 671 dwelling units) modeled. 4 proposed barriers would benefit 128 dwelling units, constructed adjacent to Prestwyk, Ladera Prosper South, Ladera Prosper North, and ManeGait.	78 impacted receptors (representing 954 dwelling units) out of 493 total receptors (representing 1,634 dwelling units) modeled. 2 proposed barriers would benefit 175 dwelling units, constructed adjacent to Erwin Park (equivalent receptors) and Erwin Farms.	79 impacted receptors (representing 79 dwelling units) out of 106 total receptors (representing 106 dwelling units) modeled. no barriers recommended.	16 impacted receptors (representing 138 dwelling units) out of 47 total receptors (representing 169 dwelling units) modeled. no barriers recommended.	Total number of receptors that approach or exceed the NAC: 67 52 receptors exceed 66 dB(A) between Coit Road and Ridge Road 15 receptors exceed 66 dB(A) between Airport Drive and FM 1827 No receptors modeled along existing US 380 between Ridge Road and Airport Drive.	Increases in traffic volumes, including the use of the corridor by heavy trucks, would contribute to increased traffic noise. Numerous receptors, including residences, daycares, medical facilities, and schools, along existing US 380 would experience increased noise levels. Modeling was conducted to determine how many receptors are affected and if the construction of barriers would reduce noise impacts. Existing sound level measurements were collected at noise-sensitive areas adjacent to the segments. Noise modeling software predicts what noise would be expected in 2050. Noise abatement measures are evaluated if traffic noise impacts are identified. TxDOT has already included below-grade roadway designs, which are generally considered to help with mitigating noise impacts to nearby neighborhoods. An impacted receptor is a discrete or representative location of noise-sensitive area listed in FHWA's Noise Abatement Criteria (NAC) for which noise levels in the Design Year condition approach (1 dB(A) below), equal, or exceed the NAC [EXAMPLE - residence NAC B = 67 dB(A); the modeled value would be 66 dB(A) or higher], or create a substantial increase over existing noise levels (>10 dB(A)).	