

**FINAL ENVIRONMENTAL IMPACT STATEMENT
AND
RECORD OF DECISION**

**US 380 MCKINNEY
COIT ROAD to FM 1827
Collin County, Texas
CSJs 0135-02-065 and 0135-15-002**

September 2023

Prepared by the Texas Department of Transportation

**Cooperating Agencies:
US Army Corps of Engineers, Fort Worth District
Environmental Protection Agency, Region 6**

This Final Environmental Impact Statement presents the purpose and need and evaluates the potential environmental consequences of multiple reasonable alternatives for this project. The reasonable alternatives evaluated are four build alternatives – Purple Alternative, Blue Alternative, Brown Alternative, and Gold Alternative – in addition to the No-Build Alternative. Potential environmental impacts of the alternatives are evaluated across multiple resource areas, including community impacts, visual/aesthetic impacts, cultural resources, protected lands, water resources, biological resources, air quality, hazardous materials, traffic noise, induced growth, and cumulative effects. This Final Environmental Impact Statement identifies the Blue Alternative as the Preferred Alternative.

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The estimated total cost to prepare both the Draft and Final EIS for this project is approximately \$4,710,170. This does not include costs incurred by cooperating and participating agencies, as estimation of such incurred costs is not practicable.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 USC § 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

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SEPTEMBER 2023

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9/27/2023

Director, Environmental Affairs Division
Texas Department of Transportation

Date of Approval
Texas Department of Transportation

Record of Decision

1.0 Introduction

Pursuant to 23 United States Code (U.S.C.) 327 and the Memorandum of Understanding (MOU) executed by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT) (dated December 9, 2019), this Record of Decision (ROD) documents selection of the Preferred Alternative described in the Final Environmental Impact Statement (FEIS) for the US 380 McKinney project (CSJs 0135-02-065 and 0135-15-002) as the Selected Alternative. The US 380 McKinney project would create a freeway primarily on new location from existing US 380 near Coit Road (western terminus) around the northern portion of McKinney connecting back to existing US 380 near FM 1827/New Hope Road (eastern terminus). The Blue Alternative is identified as the Selected Alternative in the FEIS and ROD.

In 2020, TxDOT completed the *US 380 Collin County Feasibility Study* (Feasibility Study) that recommended the development of a new freeway facility extending across the county from the Denton County line on the west to the Hunt County line on the east. One of the projects of independent utility identified in the Feasibility Study was the improvement of US 380 between Coit Road in the Town of Prosper to FM 1827 in Collin County, east of McKinney. The environmental review process for the US 380 McKinney project was initiated on December 11, 2020, with publication in the Federal Register of a Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS). An agency scoping meeting was conducted virtually on October 29, 2020, prior to issuance of the NOI; and a public scoping meeting was conducted virtually from January 21 through February 5, 2021. A public meeting presenting the four Build Alternatives (Purple, Blue, Brown, and Gold) was conducted in-person on March 22, 2022, and virtually from March 22 through April 21, 2022. The Draft Environmental Impact Statement (DEIS) published on January 20, 2023, evaluated the No-Build Alternative, four Build Alternatives (Purple, Blue, Brown, and Gold), and recommended the Blue Alternative as the Preferred Alternative. Following the completion of two in-person public hearings (February 16 and February 21, 2023), and a virtual public hearing (February 16 through April 20, 2023 – comment period extended twice); and in consideration of comments received from the public, interested parties, and agencies, TxDOT prepared a FEIS and ROD for the Blue Alternative, the Selected Alternative, to improve US 380 between Coit Road and FM 1827. The ROD is the conclusion of the environmental review process. The purpose of the ROD is to identify the Selected Alternative for the project, having considered all environmental consequences of the various alternatives considered and all public and agency input received.

2.0 Decision

TxDOT has considered all alternatives, information, analyses, and objections submitted by State, Tribal, and local governments, public commenters, and by the lead and cooperating agencies in developing the EIS for this project. This ROD documents the selection of the Preferred Alternative described in the FEIS as the Selected Alternative for this project.

The Selected Alternative (Blue Alternative) to improve US 380 between Coit Road and FM 1827 has been planned and designed to function independent of any other improvements. As a freeway, primarily on new location, the Selected Alternative would provide a complete and functional connection to existing US 380 near Coit Road in Prosper and existing US 380 near FM 1827 east of McKinney; and connect to US 75/SH 5

between McKinney and Melissa. The Selected Alternative would provide additional capacity to accommodate forecasted traffic volumes and support regional mobility and connectivity while addressing congestion. It would create a high-speed, access-controlled facility with frontage roads to safely carry regional traffic while also providing access to existing and planned development. It would also provide system redundancy and resiliency when incidents or construction create congestion along existing US 380 through McKinney.

The US 380 McKinney Selected Alternative connects to the Selected Alternative for the Spur 399 Extension near FM 1827, which received a ROD on March 29, 2023. The multi-level interchange connecting the US 380 McKinney (Selected Alternative), existing US 380, and the Spur 399 Extension has been evaluated in the FEIS.

The Selected Alternative would require relocating of several major underground and aboveground utilities along with the associated costs, such as a 48-inch North Texas Municipal Water District (NTMWD) line within the western portion of the Project Area; multiple McKinney waterlines, water distribution lines associated with the McKinney University Pump Station, a 36-inch McKinney wastewater line, a 10-inch Atmos Energy natural gas pipeline, and two electrical transmission lines within the central portion of the Project Area; and dual 48-inch NTMWD wastewater lines within the western portion of the Project Area. The Selected Alternative would provide access to existing and planned residential and commercial developments along with existing and planned parks and community facilities. Building the freeway on elevated structures in certain areas would minimize impacts to wetlands, streams, and associated floodplains, floodways, and riparian forested habitats. The Selected Alternative would also include noise barriers in designated locations to reduce traffic noise for affected receptors.

3.0 Purpose and Need

The need for the proposed action is to address population growth within the central portion of Collin County, primarily the City of McKinney, that has caused increases in current and forecasted traffic volumes that exceed the capacity of US 380 between Coit Road and FM 1827 (New Hope Road), leading to increased congestion, reduced mobility, and higher crash rates along US 380 compared to other similar roadways in the region. Data supporting these needs is provided in **Section 1.2** of the FEIS.

The purpose of the proposed action is to manage congestion and improve east-west mobility and safety through the Study Area.

4.0 Alternatives Considered

Four Build Alternatives, the No-Build Alternative, Improve Existing US 380, the Collin County Outer Loop, the Teal Alignment, Transportation System Management (TSM), Transportation Demand Management (TDM), and Mass Transit were initially considered to address the stated needs. Improving existing US 380 between Coit Road and FM 1827 was eliminated after agency scoping based on the significant number of businesses and residences that would be displaced by widening the existing 4-lane to 6-lane arterial to an 8-lane freeway with multi-lane frontage roads, as identified during the Feasibility Study. The Collin County Outer Loop was eliminated because traffic analyses indicated that it or any other roadway farther north than the proposed alignment of US 380 McKinney along Segment E would not draw enough traffic from existing US 380 to satisfy regional travel demand and effectively reduce congestion along existing US 380, particularly through McKinney and Prosper. The Teal Alignment, a carryover from the Feasibility Study, would result in substantial impacts to

the communities of Walnut Grove on the west and New Hope on the east. TSM and TDM were eliminated as standalone alternatives as neither would add capacity within the existing highway network (US 380, SH 5, US 75) nor would they provide the connectivity needed to support current and forecasted travel demand or relieve congestion. Mass transit was eliminated as a standalone alternative because it would not provide the needed capacity, connectivity, and mobility within the Study Area (see **Section 2.1** of the FEIS). The four Build Alternatives were carried forward as reasonable alternatives for further evaluation because they were determined to be technically and economically feasible, and they met the purpose and need identified for the proposed action. Although the No-Build Alternative does not meet the identified needs, the No-Build Alternative was carried forward as a benchmark against which the impacts of the other alternatives considered could be compared.

The four Build Alternatives are each composed of three lettered segments: Purple Alternative (A+E+D), Blue Alternative (A+E+C), Brown Alternative (B+E+C) and Gold Alternative (B+E+D). Segments A and B traverse the western portion of the Study Area and Segments C and D traverse the eastern portion of the Study Area. All Build Alternatives share a common central segment – Segment E – connecting the western and eastern portions of the Study Area and roughly running along the existing alignment of Bloomdale Road and CR 164 through north McKinney (see Section 2.0 of the FEIS). Each of the Build Alternatives would improve mobility and connectivity over the No-Build Alternative by providing additional capacity to address congestion along existing US 380 and enhance east-west mobility. Regional travelers and those residents accessing services outside of the Study Area would be able to travel at higher speeds and experience reduced travel times along the freeway while persons accessing local businesses and neighborhoods along existing US 380 would experience less congestion (see **Sections 2.2.2** and **2.3.2** of the FEIS).

The No-Build Alternative was evaluated in comparison to the four Build Alternatives (Purple, Blue, Brown, and Gold). No new location freeway would be built under the No-Build Alternative and no improvements would be made to existing US 380 to reduce congestion and address locations with high crash rates. Beyond the improvements programmed along existing US 380 between Airport Drive and CR 458, along SH 5 from south of FM 1378 to south of CR 275, and the widening of FM 1461, no other improvements would be made to existing US 380 between Coit Road and FM 1827 (see **Section 2.2.1** of the FEIS).

As summarized in **Section 2.3.2** and **Figure 2-15** of the FEIS, TxDOT evaluated potential impacts across multiple categories – purpose and need, property displacements and community effects, protected lands, cultural resources, natural resources, traffic noise, and engineering – in making its decision among the Build Alternatives and the No-Build Alternative. The assessment in the DEIS addressed the potential for a connection to the proposed Spur 399 Extension (CSJs 0364-04-051, 0047-05-058, and 0047-10-002). The DEIS disclosed impacts “with Spur 399 Extension” (W/Spur) and “without Spur 399 Extension” (W/O Spur) in the event the Spur 399 Extension was not approved before clearance was obtained for the US 380 McKinney project. The W/Spur options included the connection of the Purple and Gold Alternatives (Segment D) with the Spur 399 Extension Purple Alternative near Airport Drive, and the Blue and Brown Alternatives (Segment C) with the Spur 399 Extension Orange Alternative near FM 1827. The W/O Spur options connected US 380 McKinney to existing US 380 with at-grade intersections near Airport Drive (Segment D) and near FM 1827 (Segment C). With the ROD for the Spur 399 Extension being issued on March 29, 2023, this FEIS was revised to disclose the potential impacts of the US 380 McKinney Preferred Alternative/Blue Alternative W/Spur to

include a multi-level interchange at existing US 380 where the US 380 McKinney project's Segment C connects to the Selected Alternative (Orange Alternative) for the Spur 399 Extension.

As presented in the DEIS, the Blue Alternative would require the least amount of new ROW compared to the other Build Alternatives while also having the least impact on mapped floodplains and regulatory floodways, and minimizing the conversion of farmland. The Blue Alternative would not displace any community facilities and would require ROW from one planned park within the Town of Prosper. With further review of the Blue Alternative in the FEIS including the assessment of design changes presented at the public hearing, the most important factors considered in determining the Selected Alternative for the US 380 McKinney project include:

- **Displacements** – Although the Blue Alternative would potentially displace the highest number of businesses (38) and the second highest number of residences (26) of the Build Alternatives considered, the Blue Alternative avoids numerous planned and under-construction residences along Segment B that would be potentially displaced by the Brown and Gold Alternatives. One of these planned residential areas is a “55 and over” community, and the Blue Alternative would avoid impacting the community's amenity center. The high number of potential commercial displacements is the result of widening a developed section of existing US 380 through the Town of Prosper and the multi-level interchange connecting US 380 McKinney, existing US 380, and the Spur 399 Extension Selected Alternative near the eastern project terminus (see **Figures 3-1, 3-2, 3-3, 3-28, and 3-29** of the FEIS).
- **Relocation of Major Utilities** – Major utilities occur along every study segment including water distribution lines, wastewater/sanitary sewers, electrical distribution lines, gas pipelines, and their supporting infrastructure. The Blue Alternative requires the second highest number of major utility relocations (12) of the Build Alternatives considered, adding nearly \$99.3 million to the cost of the alternative (see **Figure 3-20** of the FEIS). Following the public hearing on the DEIS, TxDOT confirmed with the NTMWD that two additional 48-inch wastewater lines had been installed within the eastern portion of the Study Area since the development of the 60% Geometric Design Schematic, crossing both Segments C and D, adding two additional major utility relocations and the associated costs to each Build Alternative.
- **Park and Public Land Impacts** – All Build Alternatives would require ROW from the Town of Prosper's planned Rutherford Park along existing US 380 (Segments A and B). This is the only park impact caused by the Blue Alternative, with the other Build Alternatives affecting two to four park properties. The SUPs proposed along the outside of the frontage roads under the Blue Alternative would provide connectivity to existing and planned trail and sidewalk systems in both Prosper and McKinney, many of which connect or will connect to public parklands.
- **Water Features** – All Build Alternatives result in unavoidable impacts to floodplains and associated stream and wetland features because of the general northwest to southeast flow of the major stream corridors and the east-west orientation of existing US 380. Like all Build Alternatives, the Blue Alternative uses bridges to span floodways and to minimize the placement of fill material, including bridge bents, within the mapped 100-year floodplain. The Blue Alternative has the smallest acreage of mapped 100-year floodplain within its proposed ROW, results in the smallest permanent impact on wetlands (0.06 acres), but the largest permanent impact to rivers and streams (9,690 linear feet). The layout of bridge piers/bents and the use of elevated structures in lieu of embankment fill to avoid and minimize impacts has been and will continue to be considered as final design of the Blue Alternative progresses. Even with the design refinements made in the May 2023 95% Geometric Design Schematic, the Blue Alternative would still meet the terms and conditions of a Section 404 Nationwide Permit (NWP) 14 with a Pre-Construction Notification (PCN). Compensatory storage to offset the unavoidable placement of fill below the 100-year water surface elevation is needed for each Build

Alternative because of the interchange and road segment connections at US 75 and SH 5 along Segment E.

- **Traffic Noise** – Based on the analysis conducted in the DEIS, the Blue and Purple Alternatives impacted the fewest number of receptors (207 and 206, respectively), primarily because they avoided the residences planned for construction within the next 2 to 5 years along Segment B within the Town of Prosper. Updated noise modelling to account for the design changes to the Blue Alternative presented at the public hearing and the inclusion of additional residential building permits issued since the previous noise modelling was conducted in April 2022, resulted in the inclusion of eight noise barriers benefitting 319 receivers in the FEIS compared to four noise barriers benefitting 74 receivers as disclosed in the DEIS.

The No-Build Alternative would not displace any homes or businesses, would not require major utility relocations, would not require land from public parks or recreation facilities, and would not require the placement of fill materials within potential waters of the US or floodplains and floodways. Numerous residences and other sensitive land uses along existing US 380 would continue to experience traffic noise levels that approach or exceed applicable noise abatement criteria.

The environmentally preferable alternative/Selected Alternative is the Blue Alternative (see **Section 2.4** of the FEIS). Although the Blue Alternative results in a relatively high number of potential residential and commercial displacements compared to the other Build Alternative (primarily because of the length of existing US 380 that would be widened through the Town of Prosper [Segment A] and the multi-level interchange to be built at the east project terminus [Segment C]), it avoids displacing the numerous planned and under-construction residences north of existing US 380 and west of N. Custer Road, including a “55 and older” neighborhood, the neighborhood’s amenity center, and two planned parks. The Blue Alternative requires the second lowest acreage of new ROW compared to the other Build Alternatives while also having the least impact on mapped floodplains and regulatory floodways, wetlands, and minimizes the conversion of farmland. No community facilities would be displaced by the Blue Alternative.

5.0 Measures to Avoid or Minimize Environmental Harm

The Selected Alternative has been designed to minimize, to the extent practicable, impacts to adjacent properties and water features by constructing much of the new freeway on bridge/structure to accommodate cross-street connections and avoid/minimize the placement of fill materials within potentially jurisdictional water features, including wetlands and streams. Since publication of the DEIS, several design modifications were made along the Blue Alternative to reflect ongoing coordination with the City of McKinney, Town of Prosper, NTMWD, and in consideration of public input. The following modifications to the Preferred Alternative/Blue Alternative are evaluated in the FEIS:

Segment A:

- Connected the frontage roads to frontage roads within the proposed US 380 Prosper-Frisco project (CSJs 0135-11-024, 0135-10-065, and 0135-02-068, Finding of No Significant Impact [FONSI] issued July 25, 2023) at Coit Road. The US 380 Prosper-Frisco project will construct the mainlanes from Coit Road to Lakewood Drive, east of Coit Road.
- Removed Prestwick Hollow Drive crossover intersection east of Coit Road.
- Extended freeway mainlane section to Lakewood Drive and modified adjacent ramps.

- Added driveways, a right turn lane, and made culvert adjustments to accommodate current construction of the Brookhollow Apartments west of N. Custer Road.
- Replaced the diverging diamond interchange at N. Custer Road with a traditional diamond interchange and removed the frontage road bypass lanes in each direction.
- Added a new eastbound exit ramp to Stonebridge Drive and a westbound entrance from Stonebridge Drive to replace proposed bypass lanes.
- Shifted the freeway alignment to the west/northwest along the southeast side of the Tucker Hill neighborhood.
- Shifted the alignment of University Drive to the west and closer to Grassmere Lane connecting existing and proposed US 380).
- Modified the University Drive interchange and associated ramps.
- Added a westbound entrance ramp from CR 124/future Wilmeth Road to US 380.
- Adjusted the bridge length over Wilson Creek.
- Added lanes and reduced the construction limits at CR 124/future Wilmeth Road.

Segment E:

- Shifted the connection with future Ridge Road to align with the City of McKinney's thoroughfare plan update and to connect with the alignment of future Ridge Road currently under construction by the city.
- Shifted the connection to Taylor Burk Drive (formerly CR 1006) eastward to align with the City of McKinney's thoroughfare plan update.
- Lengthened the bridges over unnamed stream near Erwin Park to allow for construction of a future trail connection underneath the proposed US 380 McKinney bridges by the City of McKinney.
- After further evaluation following the public hearing on the DEIS, the proposed freeway alignment remains over CR 164/future Hardin Boulevard to minimize construction impacts and connect with the City of McKinney's planned alignment of CR 164/future Hardin Boulevard.
- Widened Community Avenue to accommodate a future 6-lane section, requested by the City of McKinney.
- Removed the proposed SUP along the eastbound and westbound frontage road bridges through the US 75 interchange, re-routing them to be at-grade along Spur 195 to the US 75/Laud Howell Pkwy intersection, and then along the existing US 75 westbound frontage road to reduce bridge costs and improve safety for pedestrians and bicyclists.
- Realigned the westbound frontage road connection to Spur 195 to address intersection sight distance.
- Added the SUPs proposed along SH 5 to the existing SH 5 structures instead of building separate pedestrian bridges.

Segment C:

- Added dual 48-inch NTMWD wastewater line crossing conflicts at FM 2933 and running parallel to CR 331. Both lines have been constructed since the 60% Geometric Design Schematic was developed.

The following mitigation measures and commitments are incorporated in the decision:

- Following ROW acquisition, TxDOT will conduct additional shovel tests and deep testing, where warranted, for archeological resources on properties where access was previously denied. TxDOT will coordinate those survey findings and any required mitigation with the Texas Historical Commission (THC).
- TxDOT will continue to coordinate with the Town of Prosper regarding further development of Rutherford Park and the design of US 380 adjacent to the planned park.
- TxDOT will continue to coordinate with the Town of Prosper and City of McKinney regarding the final design of the Preferred Alternative adjacent to ongoing and planned development areas.
- TxDOT will continue to coordinate with the NTMWD, Town of Prosper, and City of McKinney to relocate necessary major utility lines prior to initiating construction of the freeway.
- Under the 2008 Final Compensatory Mitigation Rule, TxDOT will purchase the appropriate mitigation credits from USACE-approved wetland and stream mitigation banks within the service area of the project to compensate for the unavoidable permanent and temporary impacts to potentially jurisdictional wetlands and streams.
- TxDOT will implement temporary and permanent best management practices (BMPs) under Texas Commission on Environmental Quality's (TCEQ) Section 401 conditions for NWP's including but not limited to: permanent upstream stormwater detention ponds, vegetated filter strips, erosion control measures (e.g., hydro-seeding, mulching, erosion-control blankets), and sediment control using structures and vegetative measures to stabilize soil.
- TxDOT will implement additional wetland and stream protection BMPs beyond those required under the TCEQ Construction General Permit (may not be limited to the following):
 - Establish and/or maintain buffers around known or discovered recharge features.
 - Locate, design, construct, and maintain stream crossings to provide maximum erosion protection.
 - Maintain existing road ditches, culverts, and turnouts to ensure proper drainage and minimize the potential for the development of ruts and mud holes and other erosion-related problems.
 - Stabilize, seed, and mulch eroded roadsides and new road cuts with native grasses and legumes, where feasible, in a timely manner to minimize impacts to water bodies.
 - Implement erosion and sediment controls where appropriate. Maintain protective vegetative covers over all compatible areas, especially on steep slopes. Where necessary, gravel, fabrics, mulch, riprap, or other materials that are environmentally safe and compatible with the location may be used, as appropriate, for erosion control in problem areas.
 - Water quality protection BMPs will have multiple levels of oversight to ensure their continued proper function. In addition to contractor inspectors who are responsible for daily monitoring of BMPs, TxDOT inspectors will conduct weekly inspections and submit compliance reports to the project engineer. Additional oversight will be provided by the TxDOT project manager (who would be on site each day) and staff from the District Environmental Office, including the district environmental quality coordinator.
- TxDOT will create shallow ditches or swales within the proposed ROW and mapped floodplain adjacent to the East Fork Trinity River (avoiding wetlands and other water features) to provide compensatory flood storage for the unavoidable placement of fill material below the 100-year floodplain water surface elevation of the East Fork Trinity River.

- TxDOT will conduct required species surveys/habitat assessments and implement Texas Parks and Wildlife Department-(TPWD) -recommended best management practices (TPWD BMPs) applied to this project as indicated in **Section 3.11.2** and on the Form-Documentation of Texas Parks and Wildlife Department Best Management Practices prepared for the project, included in **Appendices E and O**.
- Eight noise barriers (Barriers AO1 [Prestwyk Neighborhood], A07-2 [Stonebridge Ranch], A10 [Kensington Neighborhood], A11 [Chase at Wilson Creek – new development], A12 [Brookhollow – new development], E04 [Erwin Park], E05 [Erwin Farms Neighborhood], and E08 [Horizons – new development]) are proposed where designated along the Blue Alternative.
- TxDOT will conduct noise workshops with impacted residents where feasible/reasonable noise barriers are proposed.
- TxDOT will develop and implement a detailed traffic control plan describing how access will be maintained for vehicles, pedestrians, and bicyclists using the existing roadways or neighboring facilities during construction.
- During construction TxDOT, in coordination with contractors, will implement BMPs to reduce the generation of fugitive dust, equipment emissions, and noise, as appropriate.

These mitigation commitments are made by TxDOT to the public; no outside resource agency is specifically charged with enforcing TxDOT mitigation commitments. TxDOT is ultimately responsible for monitoring and enforcing mitigation commitments and will do so through enforcing contracting commitments.

6.0 Section 4(f) of the Department of Transportation Act of 1966

The Selected Alternative would require approximately 1.22 acres of land from planned Rutherford Park that abuts existing US 380. The land to be acquired includes the proposed access drive to the planned park and no other park or recreational amenities. TxDOT received concurrence from the Town of Prosper (Owner with Jurisdiction) on a Section 4(f) *de minimis* finding for unavoidable impacts to the planned Rutherford Park on June 28, 2023. A Section 4(f) *de minimis* finding was approved by TxDOT on July 5, 2023.

7.0 Conclusion

The preparation and signature of this ROD constitutes TxDOT's approval of the Blue Alternative described in the FEIS as the Selected Alternative. This ROD is based on the FEIS and project file which have been independently evaluated by TxDOT and determined to adequately and accurately discuss the need, potential environmental issues and impacts of the project, and appropriate mitigation measures. The FEIS and other documents in the project file are incorporated by reference into this ROD.

FINAL ENVIRONMENTAL IMPACT STATEMENT

Summary of the Final Environmental Impact Statement

This summary is meant to provide a brief overview of some of the information contained in this Environmental Impact Statement (EIS). It is not meant to replace or supersede any of the analysis, information, or conclusions stated within the body of the EIS.

The purpose of the proposed action is to manage congestion and improve east-west mobility and safety through the Study Area. The need for the proposed action is to address population growth within the central portion of Collin County, primarily the City of McKinney, that has caused increases in current and forecasted traffic volumes that exceed the capacity of US 380 between Coit Road and Farm to Market (FM) 1827 (New Hope Road), leading to increased congestion, reduced mobility, and higher crash rates along United States (US) Highway 380 compared to other similar roadways in the region.

In 2020, the Texas Department of Transportation (TxDOT) completed the *US 380 Collin County Feasibility Study* (Feasibility Study) that recommended the development of a new freeway facility extending across the county from the Denton County line on the west to Hunt County line on the east. One of the projects of independent utility identified in the Feasibility Study was the improvement of US 380 between Coit Road in the Town of Prosper to FM 1827 in Collin County, east of the City of McKinney. This EIS includes an alternative analysis that identified four Build Alternatives carried forward as reasonable alternatives for further evaluation because they were determined to be technically and economically feasible, and met the purpose and need for the proposed action. In addition, the No-Build Alternative was carried forward as a benchmark against which the impacts of other alternatives can be compared.

The No-Build Alternative would not improve or make changes to existing US 380 between Coit Road and FM 1827, and no other new major roadways would be constructed in the Study Area except local streets by the Town of Prosper or the City of McKinney. The existing highway system consisting of US 380, US 75, and State Highway (SH) SH 5 would continue to provide the primary connections between the Study Area and destinations within and outside of Collin County. In addition to programmed maintenance activities and safety improvements to maintain operations along existing roadways, the No-Build Alternative includes the following programmed improvements to US 380, SH 5, and FM 2478 (N. Custer Road).

- *US 380 Widening from Airport Drive to County Road (CR) 458 (CSJs 0135-03-046 and 0135-04-033)* – would widen the existing 4-lane 7.2-mile-long section of US 380 to a 6-lane divided urban facility with a raised median and new curb and gutter drainage within the existing highway right-of-way (ROW). The project was environmentally cleared on January 15, 2020, and is anticipated to be ready to let for construction in March 2025.
- *SH 5 Improvements from South of FM 1378 (Country Club Road) to South of CR 275 (CSJs: 0047-05-054, 0047-09-034, and 0364-04-049)* – would reconstruct and widen this 9.7-mile-long section of SH 5 through McKinney and Fairview to a 4-lane and 6-lane divided urban roadway. This project was environmentally cleared in July 2020, and is anticipated to be ready to let for construction in June 2027.
- *FM 2478 (N. Custer Road) Widening from US 380 to FM 1461 (CSJs 2351-01-017 and 2351-02-014)* – would widen the existing 2-lane undivided rural roadway to an ultimate 6-lane divided urban roadway and realign the intersection with FM 1461, for a total length of approximately 3.17 miles. The project was environmentally cleared in September 2017. The project was let for construction in September 2020 with the interim 4-lane expansion completed in Spring 2023.

The Build Alternatives would construct an 8-lane freeway with frontage roads primarily on new location from near Coit Road (western terminus) and existing US 380 around the northern portion of McKinney connecting back to existing US 380 near FM 1827 (eastern terminus). The Build Alternatives would include a new multi-level interchange at the intersection with US 75 in the northeastern quadrant of McKinney, an expanded grade-separated interchange with SH 5 east of the new US 75 interchange, and a new multi-level interchange connecting back to existing US 380 near FM 1827. Depending on the Build Alternative, sections of existing US 380 between Coit Road and west of Ridge Road on the west and between Airport Drive and east of FM 1827 on the east would also be improved. No improvements would be made to existing US 380 through the City of McKinney between Ridge Road and Airport Drive.

The four Build Alternatives are each composed of three lettered segments: Purple Alternative (A+E+D), Blue Alternative (A+E+C), Brown Alternative (B+E+C) and Gold Alternative (B+E+D). All Build Alternatives share a common segment – Segment E – roughly running along the current alignment of Bloomdale Road and CR 164 through north McKinney. The Build Alternatives vary on the west and east ends depending on the segment included. The ROW needed for the Build Alternatives ranges in width from approximately 260 feet (along Segment A between the Tucker Hill and Stonebridge Ranch neighborhoods) to more than 1,582 feet to accommodate the multi-level interchange at US 75. The average ROW width is approximately 420 feet. The segments that comprise the Build Alternatives are described as follows:

Segment A – Coit Road to CR 161/future Ridge Road (Purple and Blue Alternatives) - would begin with 8 freeway mainlanes (4 lanes in each direction) separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes at Coit Road, matching the at-grade freeway section proposed under the US 380 Prosper-Frisco project (CSJs 0135-11-024, 0135-10-065, and 0135-02-068, FONSI issued July 25, 2023). The mainlanes between Coit Road and Lakewood Drive will be constructed under the US 380 Prosper-Frisco project, with the frontage roads constructed under the US 380 McKinney project through the same limits. East of Lakewood Drive, the at-grade freeway section along the existing US 380 alignment would transition to an elevated freeway bridging over future Independence Parkway and continue east and elevated over N. Custer Road where a traditional diamond interchange would be constructed to connect local traffic with the frontage road system. As the alignment continues east, it would be elevated over N. Stonebridge Drive. After crossing N. Stonebridge Drive, the alignment would transition to a lowered (depressed) freeway passing under Tremont Boulevard before climbing back above grade as it curves north on new location past the future connection to W. University Drive (existing US 380). The alignment would stay elevated on bridge over Wilson Creek then on earthen embankment with bridged/grade-separated crossings of CR 124/future Wilmeth Road, and future Bloomdale Road West before tying into Segment E. Frontage roads on both sides of the mainlanes would be carried throughout Segment A from Coit Road to CR 161/future Ridge Road.

Segment B – Coit Road to CR 161/future Ridge Road (Brown and Gold Alternatives) - Like Segment A, Segment B would begin with an 8-lane freeway section and 2-lane one-way frontage roads on both sides of the mainlanes from Coit Road to east of Lakewood Drive, matching the at-grade freeway section proposed under the US 380 Prosper-Frisco project. East of Lakewood Drive near Red Bud Drive, the alignment would turn northward on new location carrying the four travel lanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. The freeway would bridge over future Independence Parkway, a Soil Conservation Service

Reservoir, and a new connection back to W. University Drive (existing US 380). The alignment would continue elevated in a northeasterly direction on an earthen embankment with bridged/grade-separated crossings of Rutherford Branch, FM 2478/N. Custer Road, Wilson Creek, future N. Stonebridge Drive, Stover Creek, and future Bloomdale Road West before tying into Segment E. Frontage roads on both sides of the mainlanes would be carried throughout Segment B from Lakewood Drive through future Bloomdale Road West.

Segment E “Common Segment” – CR 161/future Ridge Road to East of SH 5 (Purple, Blue, Brown, and Gold Alternatives) – Segment E is common to all Build Alternatives and primarily follows the alignment of existing Bloomdale Road and CR 164 along the northern edge of McKinney. The anticipated ROW width along Segment E varies from approximately 350 feet to 1,580 feet to accommodate the new multi-level interchange with US 75. Segment E begins at CR 161/future Ridge Road continuing the four elevated-mainlanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. Segment E begins in a short, depressed section under CR 161/future Ridge Road transitioning to an elevated freeway to cross over FM 1461/Lake Forest Drive, then transitioning back to at-grade to cross under Taylor Burk Drive (former CR 1006 and to be realigned by the City of McKinney) and Bloomdale Road East, then transitioning back to an elevated freeway to cross over CR 164/future Hardin Boulevard and Community Avenue. At Community Avenue the bridge structure would extend northeast on new location to cross the Honey Creek floodplain, accommodate the new multi-level interchange at US 75, span Spur 195, and cross the East Fork Trinity River floodplain and connect to SH 5. Frontage roads on both sides of the mainlanes would be carried throughout Segment E from CR 161/future Ridge Road through the interchange with SH 5. Improvements would be made within the existing US 75 ROW both north and south of the proposed US 380/US 75 interchange. North of the interchange, additional pavement would be added to provide another northbound travel lane, widen existing shoulders, and restripe the mainlanes as far north as Bucee’s Boulevard. South of the interchange, additional pavement would be added to provide another southbound travel lane, widen existing shoulders, and restripe the mainlanes to just north of Wilmeth Road. Along both sections, existing ramps would be relocated, and the northbound frontage road realigned to accommodate the new direct connectors from US 380.

Segment C – East of SH 5 to Existing US 380/FM 1827 (Blue and Brown Alternatives) – Segment C joins the east end of Segment E to cross the East Fork Trinity River floodplain and travels roughly south, parallel to, and east of the floodplain until it turns to the east-southeast to connect to existing US 380 near FM 1827. Segment C would be elevated on bridge over the East Fork Trinity River floodplain and the Dallas Area Rapid Transit (DART)/Dallas, Garland, and Northeastern (DGNO) rail line continuing the four elevated-mainlanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. After crossing the floodplain, the new location alignment would transition to an at-grade section crossing under CR 338, bridging over tributaries to the East Fork Trinity River, and continuing at-grade then transitioning to being elevated on bridge through the interchange connecting to existing US 380 and the Spur 399 Extension near FM 1827. East of the US 380/Spur 399 Extension interchange, the freeway would transition to a 6-lane at-grade section to tie into existing US 380 west of CR 337. Existing local roadways including CR 338, CR 331/future Wilmeth Road, CR 335, CR 332, and FM 2933 would be accessible from the frontage roads. Frontage roads on both sides of the mainlanes would be carried throughout Segment C from east of SH 5 through the interchange at FM 1827 tying into existing US 380 west of Private Road 5446.

Segment D – East of SH 5 to Existing US 380/FM 1827 (Purple and Gold Alternatives) – Segment D joins the east end of Segment E to cross through the East Fork Trinity River floodplain and travels roughly south, parallel to, and west of the East Fork Trinity River until it connects to existing US 380 near Airport Drive and then follows US 380 to FM 1827. Segment D would be elevated on bridge over the East Fork Trinity River floodplain and the McIntyre Road/future Wilmeth Road for the full length of the new location alignment until it ties into existing US 380. Frontage roads on both sides of the mainlanes would be carried throughout Segment D from east of SH 5 through the interchange at Airport Drive and then connect at-grade to US 380 near FM 1827. Woodlawn Road would connect to the frontage roads.

The EIS addresses the environmental impacts associated with each of the Build Alternatives (Purple, Blue, Brown, and Gold) and the No-Build Alternative including the following areas: ROW/displacements, land use, farmlands, utility relocation, bicycle and pedestrian facilities, community impacts, visual/aesthetic impacts, cultural resources, protected lands, water resources, biological resources, air quality, hazardous materials, traffic noise, induced growth, cumulative effects, construction phase impacts, and greenhouse gases and climate change. In the DEIS, the impacts of the potential connection to the proposed Spur 399 Extension (CSJs 0364-04-051, 0047-05-058, and 0047-10-002) were evaluated for each of the Build Alternatives. The DEIS disclosed impacts “with Spur 399 Extension” (W/Spur) and “without Spur 399 Extension” (W/O Spur) in the event the Spur 399 Extension was not approved before clearance was obtained for the US 380 McKinney project. The W/Spur options included the connection of the Purple and Gold Alternatives (Segment D) with the Spur 399 Extension Purple Alternative near Airport Drive, and the Blue and Brown Alternatives (Segment C) with the Spur 399 Extension Orange Alternative near FM 1827. The W/O Spur options connected US 380 McKinney to existing US 380 at an at-grade intersection. With the ROD for the Spur 399 Extension issued on March 29, 2023, this FEIS includes changes to only the Preferred Alternative/Blue Alternative to reflect updated “W/Spur” impacts. Changes made to Segments A, E, and C of the Preferred Alternative/Blue Alternative, and reflected in the May 2023 95% Geometric Design Schematic (**Appendix B**). The impacts of the Purple, Brown, and Gold Alternatives are still evaluated using the July 2022 60% Geometric Design Schematic included in the DEIS, but changes in the affected environment (e.g., new utilities that require relocation) for these alternatives along with some impact updates based on the schematic for Segment A, E, and C have been included in the FEIS. The Preferred Alternative/Blue Alternative W/Spur includes a multi-level interchange at existing US 380 where the US 380 McKinney project’s Segment C connects to the Selected Alternative (Orange Alternative) for the Spur 399 Extension; in addition to other design changes and the inclusion of additional proposed ROW in some areas.

The four Build Alternatives considered would meet the identified purpose and need, but would result in different but similar impacts in part because they all include Segment E. None of the Build Alternatives considered would impact community facilities or result in disproportionately high or adverse impacts to minority and low-income communities. Because of the primarily east-west orientation of the Build Alternatives in comparison to the general north-south flow direction of the rivers and streams across the Study Area, each Build Alternative was designed using bridges and elevated roadway sections to avoid and minimize, where feasible and practicable, impacts to water features, wetlands, floodplains/floodways, and associated forested habitats. Each Build Alternative would require permitting under Section 404 of the Clean Water Act to authorize the placement of fill materials within potentially jurisdictional water features (wetlands and streams); additional archeological field surveys and deep testing in areas of high probability to determine if deeply buried

sites may exist (rights-of-entry were not obtained for all areas requiring survey); construction of compensatory storage to alleviate a rise in base water surface elevations due to the unavoidable placement of fill within 100-year floodplains and regulatory floodways; and consultation with the United States Fish and Wildlife Service regarding the potential loss of habitats supporting federally listed, proposed for listing, and candidate species. Each Build Alternative would include the construction of noise barriers to mitigate traffic noise where construction of the barrier meets TxDOT's feasibility and reasonableness criteria.

In the DEIS, TxDOT focused on the following variables in selecting the Preferred Alternative/Blue Alternative:

- Required the least amount of new ROW.
- Resulted in the fewest noise receptors that would experience a substantial increase in traffic noise levels and avoided numerous planned residential receptors.
- Impacted the fewest acres of 100-year floodplain and minimized impacts to regulatory floodways.
- Minimized the conversion of farmland.
- Required ROW from only one planned park property.

TxDOT has selected the Blue Alternative (A+E+C) as the Preferred Alternative. Although the Blue Alternative results in a relatively high number of potential residential and commercial displacements (primarily due to the expansion of a greater length of existing US 380 through the Town of Prosper and the introduction of the multi-level interchange at the east project terminus), it avoids displacing the numerous planned and under-construction residences along Segment B. The Blue Alternative requires the second lowest acreage of new ROW compared to the other Build Alternatives. The changes to the Blue Alternative evaluated in the FEIS resulted in reductions in permanent wetland and stream impacts and acres of forest and farmland impacted. The Blue Alternative would not displace any community facility, but does require ROW from one park (the planned Rutherford Park along existing US 380 in the Town of Prosper) compared to impacts to two to four planned parks by the other Build Alternatives. The changes presented at the public hearing and evaluated in the FEIS resulted in the Blue Alternative exposing many more receptors to traffic noise primarily due to the number of additional building permits issued along the alignment since the noise model was run in April 2022. The noise modeling in the FEIS resulted in the inclusion of eight feasible and reasonable noise barriers along the Blue Alternative, four more than discussed in the DEIS.

The Blue Alternative has been planned and designed to function independent of any other improvements. It would provide a complete and functional connection to existing US 380 at Coit Road and at FM 1827 with a freeway primarily on new location around the north side of McKinney. The Blue Alternative meets the project purpose and need by providing roadway capacity and network connectivity to address population growth, increases in current and forecasted traffic volumes, and to address higher crash rates along existing US 380 through the Study Area. The Blue Alternative would provide additional roadway capacity to address population and travel demand growth and connect travelers to education, employment, health care, and commerce centers in adjacent counties and across the rest of the Dallas Metroplex. The Blue Alternative would address safety along existing US 380 by providing a new location access-controlled freeway to support travel by through-traffic at higher speeds, while reducing the volume of traffic and easing congestion along existing US 380 for local travelers.

The FEIS includes the evaluation of the following changes made to the Blue Alternative from (west to east) since publication of the DEIS. These changes resulted in the need for additional ROW in some locations and the reduction in proposed ROW in others.

Segment A:

- Connected the frontage roads to frontage roads within the proposed US 380 Prosper-Frisco project (CSJs 0135-11-024, 0135-10-065, and 0135-02-068, anticipated to be environmentally cleared in July 2023) at Coit Road. The US 380 Prosper-Frisco project will construct the mainlanes from Coit Road to Lakewood Drive, east of Coit Road.
- Removed Prestwick Hollow Drive crossover intersection east of Coit Road.
- Extended freeway mainlane section to Lakewood Drive and modified adjacent ramps.
- Added driveways, a right turn lane, and made culvert adjustments to accommodate current construction of the Brookhollow Apartments west of N. Custer Road.
- Replaced the diverging diamond interchange at N. Custer Road with a traditional diamond interchange and removed the frontage road bypass lanes in each direction.
- Added a new eastbound exit ramp to Stonebridge Drive and a westbound entrance from Stonebridge Drive to replace proposed bypass lanes.
- Shifted the freeway alignment to the west/northwest along the southeast side of the Tucker Hill neighborhood.
- Shifted the alignment of University Drive to the west and closer to Grassmere Lane connecting existing and proposed US 380).
- Modified the University Drive interchange and associated ramps.
- Added a westbound entrance ramp from CR 124/future Wilmeth Road to US 380.
- Adjusted the bridge length over Wilson Creek.
- Added lanes and reduced the construction limits at CR 124/future Wilmeth Road.

Segment E:

- Shifted the connection with future Ridge Road to align with the City of McKinney's thoroughfare plan update and to connect with the alignment of future Ridge Road currently under construction by the city.
- Shifted the connection to Taylor Burk Drive (formerly CR 1006) eastward to align with the City of McKinney's thoroughfare plan update.
- Lengthened the bridges over unnamed stream near Erwin Park to allow for construction of a future trail connection underneath the bridges by the City of McKinney.
- After further evaluation following the public hearing on the DEIS, the proposed freeway alignment remains over CR 164/future Hardin Boulevard to minimize construction impacts and connect with the City of McKinney's planned alignment of CR 164/future Hardin Boulevard.
- Widened Community Avenue to accommodate a future 6-lane section, requested by the City of McKinney.

- Removed the proposed SUP along the eastbound and westbound frontage road bridges through the US 75 interchange, re-routing them to be at-grade along Spur 195 to the US 75/Laud Howell Pkwy intersection, and then along the existing US 75 westbound frontage road to reduce bridge costs and improve safety for pedestrians and bicyclists.
- Realigned the westbound frontage road connection to Spur 195 to address intersection sight distance.
- Added the SUPs proposed along SH 5 to the existing SH 5 structures instead of building separate pedestrian bridges.

Segment C:

- Added dual 48-inch NTMWD wastewater line crossing conflicts at FM 2933 and running parallel to CR 331. Both lines have been constructed since the 60% Geometric Design Schematic was developed.

Continued coordination is required with the Town of Prosper, City of McKinney, NTMWD, Collin County, and other property owners as final design proceeds to consider ongoing approvals of planned developments, future development of parks and trails along Rutherford Creek, Wilson Creek, Honey Creek, and the East Fork Trinity River; relocate existing and planned utilities; and maintain property access during construction.

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List of Acronyms and Abbreviations

ACRONYM/ABBREVIATION	FULL DEFINITION
ACS	American Community Survey
Airport	McKinney National Airport
AOI	Area of Influence
APE	area of potential effect(s)
BG	block group
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
ca.	circa
CAA	Clean Air Act
CCSRP	Collin County Strategic Roadway Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CIA	Community Impacts Assessment
CMAQ	Congestion Mitigation and Air Quality Improvement
CMP	Congestion Management Process
CO	carbon monoxide
CO TAQA	Carbon Monoxide Traffic Air Quality Analysis
CR	County Road
CRIS	TxDOT's Crash Records Information System
CWA	Clean Water Act
DART	Dallas Area Rapid Transit
dB	decibels
dB(A)	A-weighted decibels
DEIS	Draft Environmental Impact Statement
DHHS	US Department of Health and Human Services
Diesel PM	diesel particulate matter
DNT	Dallas North Tollway
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	environmental justice
EMST	Ecological Mapping Systems of Texas
EO	Executive Order
ENV	TxDOT Environmental Affairs Division
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
ETC	estimated time of completion
ETJ	extraterritorial jurisdiction
FAA	Federal Aviation Administration
Feasibility Study	US 380 Collin County Feasibility Study
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Farm to Market

ACRONYM/ABBREVIATION	FULL DEFINITION
FPPA	Farmland Protection Policy Act
FR	Federal Register
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	geographic information system
HEI	Health Effects Institute
HRSR	Historic Resources Survey Report
HOV	high-occupancy vehicle
HUD	US Department of Housing and Urban Development
IBWC	International Boundary and Water Commission
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
ISD	Independent School District
LEP	limited English proficiency
Leq	average or equivalent sound level
LF	linear feet
LOS	Level of Service
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MMT	million metric tons
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emissions Simulator
MPA	Metropolitan Planning Area
mph	miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile source air toxics
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NAC	Noise abatement criteria
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTMWD	North Texas Municipal Water District
NWI	National Wetland Inventory
NWP	Nationwide Permit
OHWM	ordinary high-water mark
ONE-McKinney 2040	ONE McKinney 2040 Comprehensive Plan
PALM	Potential Archeological Liability Map
PCN	pre-construction notification
PCR	Project Coordination Request
PM	particulate matter
PS&E	plans, specifications, and estimates

ACRONYM/ABBREVIATION	FULL DEFINITION
PST	petroleum storage tank
ROD	Record of Decision
ROW	Right(s)-of-way
RPZ	Runway Protection Zone
RSA	regionally significant arterial
RTC	Regional Transportation Council
SAL	State Antiquities Landmark
SGCN	Species of Greatest Conservation Need
SH	State Highway
SHPO	State Historic Preservation Officer
SOV	single-occupancy vehicle
STIP	Statewide Transportation Improvement Program
SUP	shared-use path
SWP3	storm water pollution prevention plan
TCEQ	Texas Commission on Environmental Quality
TDM	Transportation Demand Management
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TMDL	total maximum daily load
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TPWD BMP(s)	Texas Parks and Wildlife Department Best Management Practice(s)
TSM	Transportation System Management
TTI	Texas Transportation Institute
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
USC	US Code
UA	Urbanized Area
US	US Highway
USACE	US Army Corps of Engineers
USDOT	US Department of Transportation
USFWS	US Fish and Wildlife Service
UTP	Unified Transportation Program
VMT	vehicle miles traveled
vpd	vehicles per day
WOTUS	Waters of the US
YR	year

1.0 Purpose of and Need for Action

The US 380 Collin County Feasibility Study¹ (Feasibility Study), completed in April 2020, identified the initial purpose and need for the proposed action. It was provided in the agency scoping packets distributed on October 15, 2020, and shared with the public during virtual scoping conducted between January 21, 2021, and February 5, 2021. The Texas Department of Transportation (TxDOT) updated the need statements and supporting facts following scoping to include the results of additional travel demand modeling conducted during schematic design development. The supporting data was updated in March 2022 to capture 2020 census data.

1.1 Need

The need for the proposed action is to address population growth within the central portion of Collin County, primarily the City of McKinney, that has caused increases in current and forecasted traffic volumes that exceed the capacity of US 380 between Coit Road and Farm to Market (FM) 1827 (New Hope Road), leading to increased congestion, reduced mobility, and higher crash rates along US 380 compared to other similar roadways in the region.

1.2 Supporting Facts

1.2.1 Population Growth and Projections

As reported in the Feasibility Study, Collin County recorded a population of 1,034,730 people in 2019, making it one of the most populous counties in Texas. Other Study Area communities experienced more robust growth over the same period, as indicated in **Figure 1-1**. The 2020 census data shows the Study Area communities continued to grow at similar or stronger rates except for the City of McKinney and the Town of New Hope.

Figure 1-1: Population Growth Across the Study Area

Jurisdiction	Population		Percent Population Increase	Annual Growth Rate
	2010	2019 ¹	2010-2019	2010-2019
		2020 ²	2010-2020	2010-2020
Collin County	782,341	1,034,730	32%	3.16%
		1,064,465	36%	3.13%
City of McKinney	131,117	199,177	52%	4.76%
		191,197	49%	4.07%
Town of Prosper	9,423	22,517	138%	13.6%
		30,174	220%	23.9%
Town of New Hope	614	628	2.3%	2.2%
		613	-0.16%	-1.7%

SOURCE: 1 - US Census Bureau 2010 and 2019 data, American FactFinder; accessed July 2020
2 - US Census Bureau 2016-2020 ACS 5-YR, accessed March 2022

¹ The US 380 Collin County Feasibility Study can be accessed at <https://www.keepitmovingdallas.com/projects/us-highways/us-380-collin-county-feasibility-study>

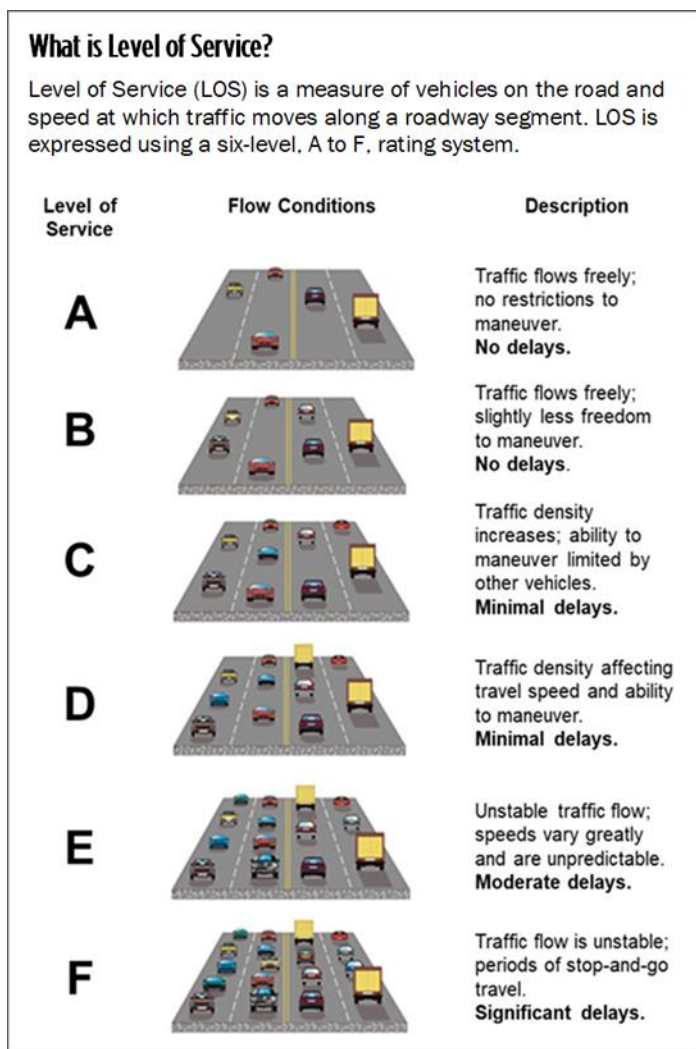
As reported in the Feasibility Study, according to the 2014 Texas State Demographer’s population projections by migration scenario data, over the next 30 years, Collin County could anticipate an increase in population of up to 160 to 170 percent. The 2018 projections by migration scenario data show the Collin County population in 2045 to be more than 2.14 million people and by 2050 more than 2.46 million people. Officials from Collin County, the City of McKinney, the North Texas Municipal Water District, and the City of Irving continue coordination to construct numerous water supply projects across the Study Area to keep pace with growth and development.

1.2.2 Increasing Congestion

Travel demand modeling for the US 380 corridor using the North Central Texas Council of Governments (NCTCOG) 2045 Travel Demand Model, indicated congestion along US 380 between Coit Road and FM 1827 during peak travel times is rated in engineering terms as having an “F” level of service (LOS). This means the number of vehicles on the road exceeds the capacity of the roadway, causing a significant drop in travel speeds and an increase in congestion or delay in traffic, otherwise known as “stop-and-go traffic”, as illustrated in **Figure 1-2**.

US 380 across Collin County has experienced an increase in the number of vehicles on the road of more than 30 percent from 2010 to 2019.² Areas including western McKinney have experienced a 41 percent to 56 percent increase in traffic volumes during this same period (46 percent average).³ In 2020, the Texas Transportation Institute (TTI) named US 380 (University Drive – from N. Custer Road/FM 2478 to N. McDonald Street/SH 5) as the 44th most congested roadway in the state, causing 122,791 annual hours of delay per mile.⁴ As growth continues, increased congestion and reduced mobility will continue over the years to come.

Figure 1-2: Level of Service - Defined



² 2022 TxDOT STARS2 Traffic Counts

³ 2022 TxDOT STARS2 Traffic Counts

⁴ <https://mobility.tamu.edu/texas-most-congested-roadways/>

In 2017, US 380 west of US 75 through McKinney carried an average daily traffic volume (ADT) of 49,000 vehicles,⁵ and is forecasted to carry 89,100 vehicles per day (vpd) east of US 75 and 114,400 vpd west of US 75 in 2050.⁶ These traffic levels combined with constrained roadway capacity and multiple at-grade connections to local roadways contribute to the modeled LOS F in 2017, especially west of US 75, and a more congested/degraded LOS F across the US 380 corridor between Coit Road and FM 1827 by 2045.

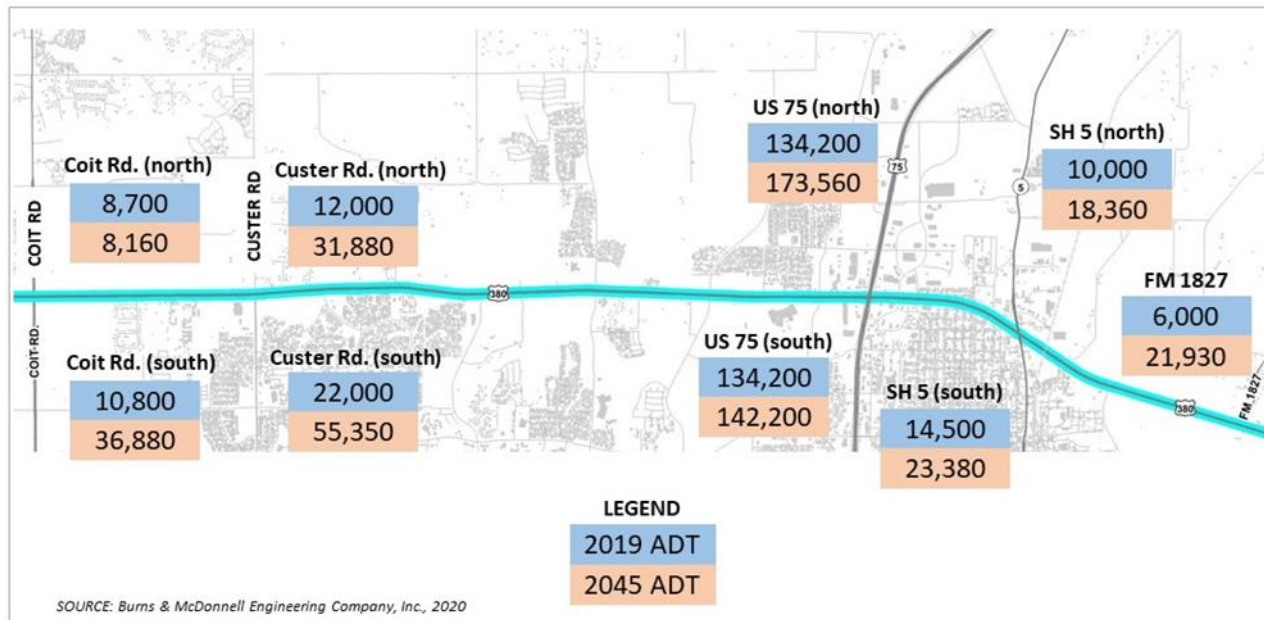
Other roadways within the Study Area also contributed to the traffic volumes and level of congestion experienced along existing US 380 in 2019 as illustrated in **Figure 1-3** and described as follows from west to east:

- Coit Road, the western logical terminus of the proposed action, is a minor arterial with a posted speed limit of 45 miles per hour (mph). Coit Road provides access to local development and carries approximately 10,800 vpd south of US 380 and 8,700 vpd north of US 380.
- N. Custer Road (FM 2478), just east of Coit Road, carries approximately 22,000 vpd south of US 380 and approximately 12,000 vpd north of US 380. It is a two-lane undivided roadway classified as a principal arterial (other) south of US 380 and a minor arterial north of US 380 with a maximum posted speed limit of 55 mph. In 2016, TxDOT approved the expansion of N. Custer Road from US 380 north to north of FM 1461 (CSJs 2351-01-017 and 2351-02-014) to a six-lane divided urban arterial. Construction of the interim 4-lane section started in September 2020 and is anticipated to be completed in Winter 2023. Widening to the ultimate 6-lane section will occur in the future but no defined timeframe has been established.
- US 75 intersects US 380 near the center of McKinney and serves as the primary north-south connector between McKinney and the Sam Rayburn Tollway through Dallas. It is classified as a principal arterial (other freeways and expressways) with a posted speed limit of 70 mph through McKinney. US 75 carries an average of 134,200 vehicles per day.
- SH 5 is a principal arterial aligned east of and somewhat parallel to US 75. SH 5 carries approximately 14,500 vpd south of US 380 and 10,000 vpd north of US 380. The posted speed limit through McKinney varies from 35 to 50 miles per hour (mph). In 2020, TxDOT approved improvements to SH 5 from South of FM 1378 (Country Club Road) to South of CR 275 (CSJs 0047-05-054, 0047-09-034, and 0364-04-049) that would widen the existing 2-lane and 4-lane sections to a combination of 4-lane and 6-lane sections, depending on location. Construction of these SH 5 improvements is anticipated to begin in 2027.
- FM 1827, the eastern logical terminus of the proposed action, extends to the north of US 380 and is considered a major collector with a posted speed limit of 45 miles per hour and carries nearly 6,000 vpd.

⁵ Modeling based on 2017 TxDOT Traffic Counts by Kimley-Horn

⁶ TxDOT Traffic Projections, US 380 Coit Road to FM 1827; November 12, 2021

Figure 1-3: Map of Major Arterials with Existing (2019) and Forecasted (2045)⁷ Traffic Volumes North and South of US 380

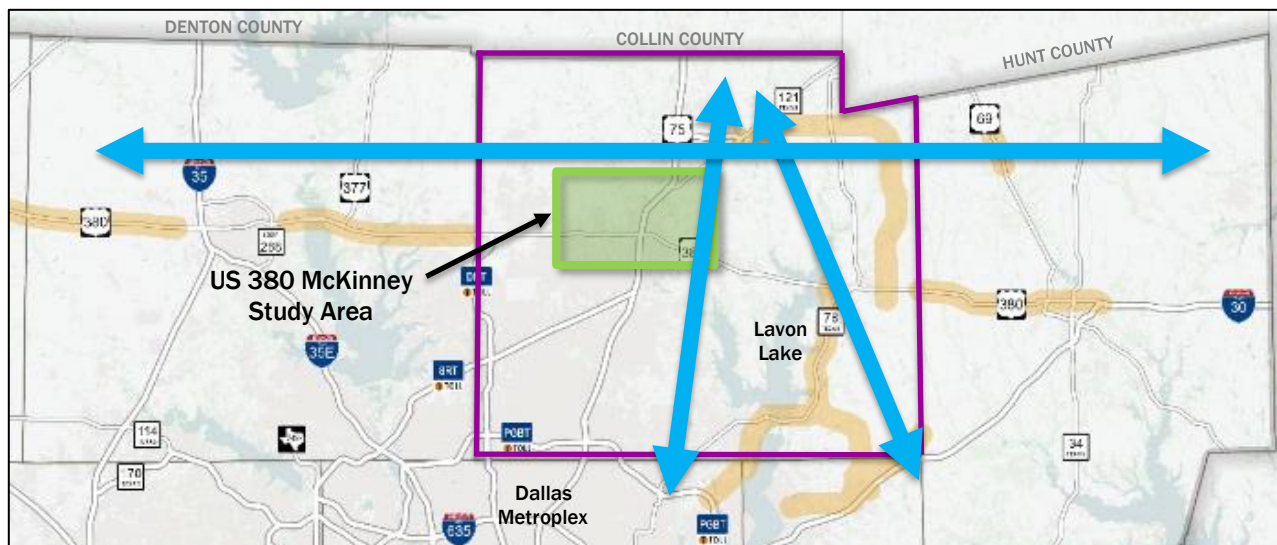


1.2.3 Reduced Mobility

Major travel corridors across Collin County are limited. The only major east-west corridor is US 380, connecting Denton and IH 35E (Denton County) to the west and with Greenville and IH 30 (Hunt County) to the east. North-south mobility corridors are limited to SH 289 on the west (connecting Prosper and Frisco), US 75/SH 5 through the middle of McKinney, and SH 78 east of Lavon Lake through Farmersville. In the NCTCOG Metropolitan Transportation Plan (MTP), *Mobility 2045 Update*, future regional mobility corridors have been discussed to support growing travel demand across the region. In Collin County, both east-west (US 380) and north-south major travel patterns, not specific roadway corridors, have been identified as priority areas for further study (see **Figure 1-4**). NCTCOG is advancing the Collin County Outer Loop, a proposed freeway around the northern and eastern portions of the county. Collin County is acquiring right-of-way (ROW) for the segment of the Outer Loop from the Denton/Collin County line to US 75 and initiated construction of this segment in 2021.

⁷ NCTCOG 2045 Metropolitan Transportation Plan Update, *Mobility 2045 Update*, approved June 2022.

Figure 1-4: NCTCOG Corridors for Future Evaluation



The blue arrows on the map illustrate the general travel patterns under study by the NCTCOG, TxDOT, or Collin County. The beige shading represents corridors to be considered in future MTPs that are not included in the financially constrained portion of Mobility 2045 Update. These shaded corridors reflect areas of additional transportation need and require further analysis or funding before recommendations can be included in the MTP. Source: *Mobility 2045 Update*, June 2022

A Select Link Analysis conducted during the Feasibility Study showed that in 2045, 54 percent of the peak period westbound traffic along US 380 through Collin County would opt to take a freeway bypass (if available) rather than continue driving west along existing US 380. Of the remaining 46 percent of westbound traffic, 26 percent would opt to use a freeway connection from US 380 to Spur 399 (if available) to connect to destinations to the south (core of the Dallas Metroplex), while the remaining 20 percent would take existing US 380 or other available routes to connect to destinations south of McKinney. Likewise, 54 percent of the US 380 eastbound traffic would take a freeway bypass (if available), and of the remaining 46 percent, 22 percent would use existing US 380 for local destinations and 24 percent would travel to US 75 to access destinations south of McKinney.

1.3 Higher Crash Rates than the Statewide Average

Between 2012 and 2019, US 380 within the city limits of McKinney, experienced a 411 percent increase in crashes (according to TxDOT's Crash Records Information System [CRIS] database)⁸, while traffic counts increased by approximately 46 percent. These crashes can be attributed to overcapacity, closely spaced driveways, and the lack of separation of high-speed and low-speed traffic within the corridor.

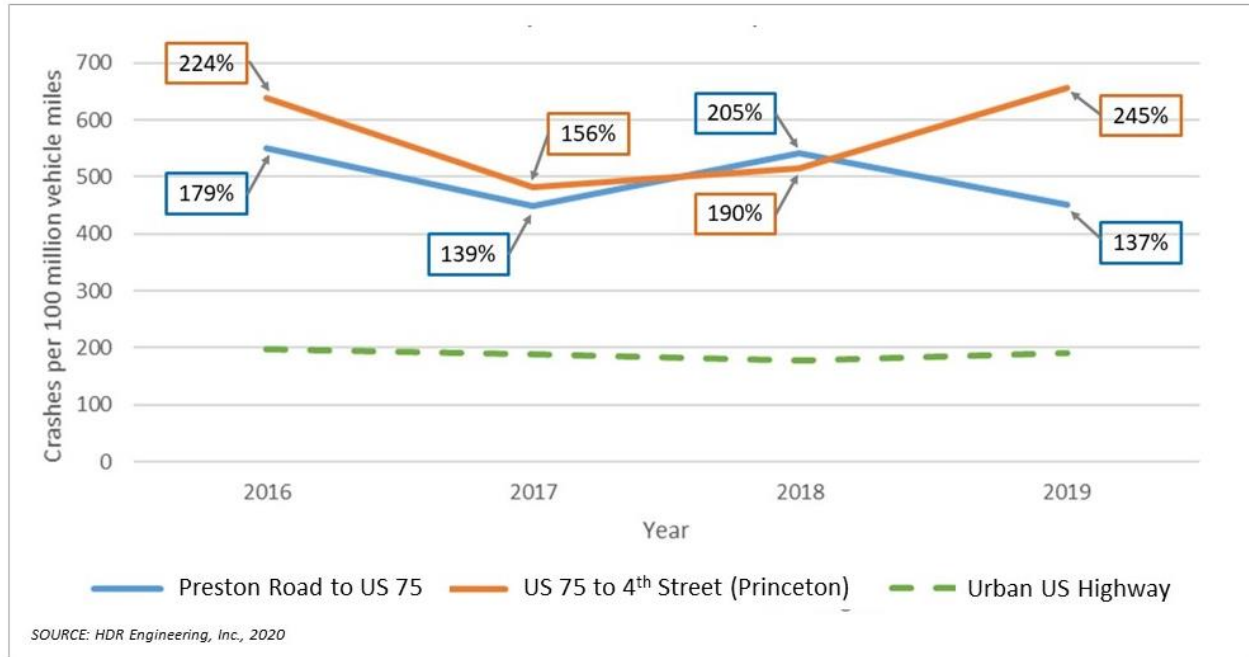
The TxDOT CRIS crash data for the US 380 corridor also indicated concentrations of crashes at US 75 and Airport Drive/FM 1827. Comparing crashes to traffic volumes, crash rates increased at a more rapid rate than the increase in annual traffic volumes.

A separate analysis was conducted to evaluate crash rates for two segments of US 380 - between Preston Road and US 75 and between US 75 and 4th Street in Princeton. CRIS data from 2016-2019 and annual

⁸ TxDOT, CRIS Database, accessed June 9, 2022.

average daily traffic (AADT) data from TxDOT’s OpenGIS portal were used for the evaluation. **Figure 1-5** illustrates the crash rates within each segment of US 380 as well as the Texas statewide average crash rates for an urban US Highway, similar to US 380 (reported in crashes per 100 million vehicle miles traveled).

Figure 1-5: Crash Rate Comparison



Both segments analyzed along US 380 through the Study Area experienced considerably higher crash rates than the statewide average crash rate for an urban US Highway. As shown in **Figure 1-5**, these sections of US 380 experienced a range of 137 percent to 245 percent higher crash rates compared to the urban US Highway statewide average between the years 2016 and 2019. As travel demand and traffic volumes increase along US 380 over the next 20 years in response to growth and development, the number of crashes and their severity will also continue to increase at a higher percentage than the statewide average for other similar roadways.

Figure 1-6: Comparison of US Highway and Interstate Crash Rates

Highway System	Traffic Crashes per 100 million vehicle miles	
	Rural	Urban
Interstate	57.38	158.85
US Highway	69.83	194.80
State Highway	88.30	226.87
Farm to Market	115.91	244.01

SOURCE: Statewide Traffic Crash Rates, TxDOT.gov; accessed December 2022

As illustrated in **Figure 1-6**, a US highway has approximately 18.5 percent more crashes per 100 million vehicle miles traveled than an interstate⁹, primarily due to variations in access control such as signalized intersections versus grade-separated intersections or interchanges. Interstates with full access control support continuous traffic flow and generally operate at higher travel speeds.

1.4 Purpose

The purpose of the proposed action is to manage congestion and improve east-west mobility and safety through the Study Area.

⁹ The American Association of State Highway and Transportation Officials (AASHTO) designates the following differences between Interstates and US Highways. Interstates and Freeways have full access control, are designed and constructed to strict standards, and typically carry traffic at higher travel speeds (50 to 70 miles per hour). US highways (e.g., US 380) are a broader group of facilities with less restrictive design requirements and that typically carry traffic at lower travel speeds.

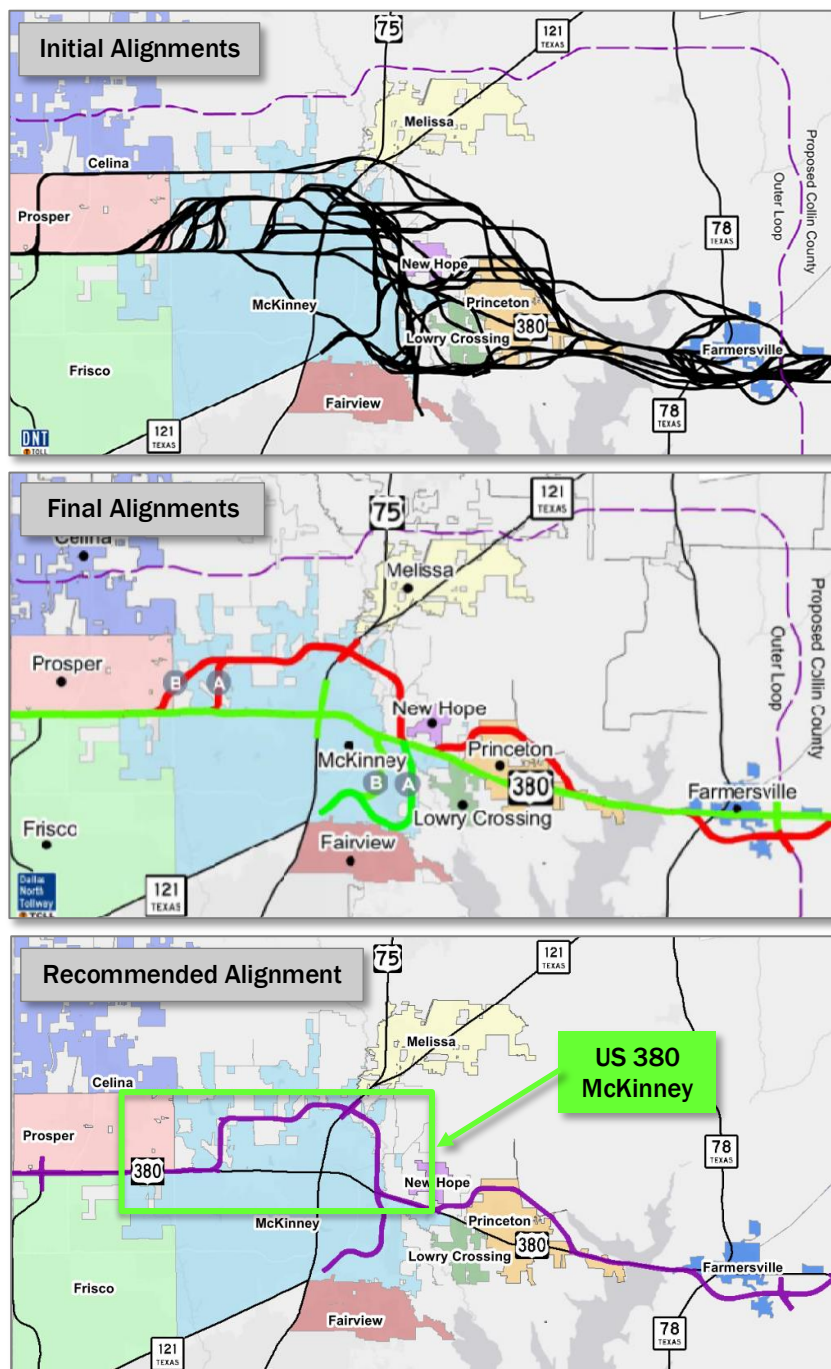
2.0 Alternatives Including the Proposed Action

The Feasibility Study, completed in April 2020, identified a Recommended Alignment for an improved US 380 across Collin County. Residents within many of the communities provided input into the development, refinement, and evaluation of the alignments throughout the study process. After identifying that a freeway facility would best meet the future growth and transportation needs within the county through the current regional planning horizon of 2045, several initial alignments were developed as illustrated in **Figure 2-1**.

TxDOT considered input received during multiple public meetings, results from additional travel demand modeling coordinated closely with NCTCOG, and the results of high-level analyses of the potential impacts of a new freeway on water features, public lands (e.g., parks and recreation areas), community facilities, potential historic resources, neighborhoods, and residences to identify the final alignments.

After completing additional traffic analyses, a preliminary noise analysis of key areas within the “study area”, and analyzing the short-term economic effects of the proposed project on neighboring communities, TxDOT announced a Feasibility Study Recommended Alignment. The proposed improvement of US 380, extending from Coit Road and existing US 380 in the Town of Prosper, around the north side of McKinney to connect to existing US 380

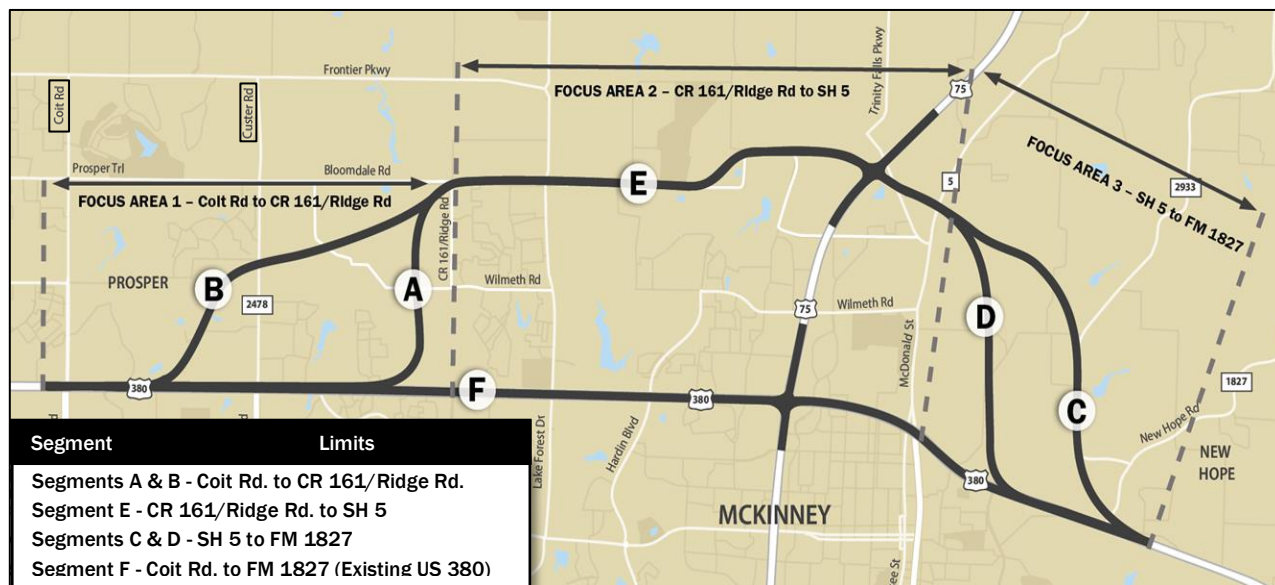
Figure 2-1: Feasibility Study Alignment Development



near FM 1827 was one of the recommended projects of independent utility identified from the Feasibility Study.

Initial US 380 McKinney Study Segments and Focus Areas – Following completion of the Feasibility Study and to initiate the Schematic and Environmental Study for US 380 McKinney, the Study Area was divided into Focus Areas (see **Figure 2-2**) to address common issues and develop and refine the study segments to be considered. The study segments would eventually be combined to form the end-to-end Build Alternatives. Rapidly changing conditions within the Study Area necessitated consideration of alignments/study segments previously reviewed but then removed from consideration during the Feasibility Study to develop the initial end-to-end Build Alternatives. As illustrated in **Figure 2-1**, alignments within the western portion of the Study Area were brought back to provide connectivity to existing US 380 across undeveloped lands, disrupting less existing development along existing US 380, and placing the new alignment closer to Coit Road. An additional alignment east of the East Fork Trinity River in the eastern portion of the Study Area was developed to reduce impacts within the mapped floodplain compared to the eastern leg of the Feasibility Study Recommended Alignment. Because of the amount of existing and planned development occurring within the northern portion of McKinney, TxDOT worked closely with the City of McKinney, Collin County, City of Irving (waterline), and the North Texas Municipal Water District (NTMWD) to further investigate and refine the components of the Recommended Alignment between Coit Road and FM 1827, particularly the east-west alignment along Bloomdale Road. As illustrated in **Figure 2-2**, the study segments to be carried forward to create the end-to-end Build Alternatives were named A-F. Segments A and B provided options for connecting to existing US 380 east of Coit Road with Segment A following more of the existing highway before turning north on new location; and Segments C and D provided options for connecting US 75 to existing US 380 east of McKinney either east or west of the East Fork Trinity River. A single alignment along existing Bloomdale Road (Segment E) was also developed as the common segment of all Build Alternatives.

Figure 2-2: Initial Study Segments and Focus Areas



Ongoing coordination with the City of McKinney, Collin County, and NTMWD resulted in the following segment modifications.

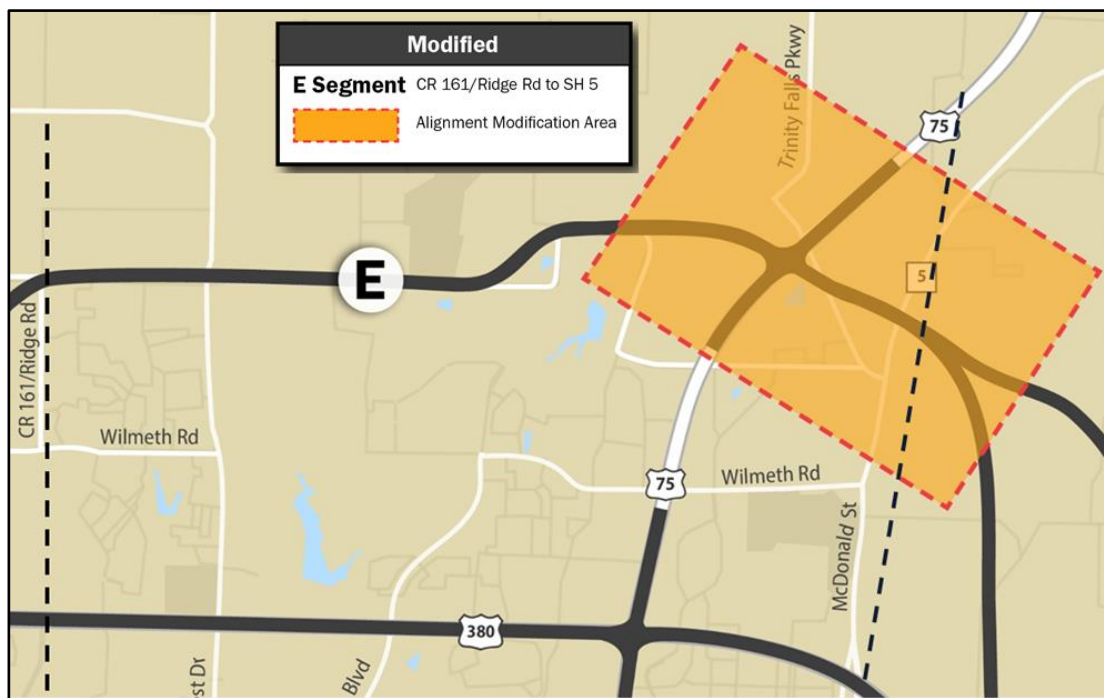
Segment E – The portion of Segment E (Bloomdale Road) between future Ridge Road and Community Avenue was revised by shifting the alignment approximately 80 feet to the north to accommodate construction of a new major water delivery pipeline proposed to serve the needs in the area (**Figure 2-3**). The shift created a wider buffer between existing neighborhoods (such as Heatherwood) and the freeway and would not increase the number of potential residential displacements compared to the original Feasibility Study alignment.

Figure 2-3: Segment E Alignment Change



Segments E, C, and D connection to US 75 and SH 5 – The area of the proposed connection to US 75 and creation of a multi-level interchange was constrained by proposed development in addition to the confluence of Honey Creek and the East Fork Trinity River and their associated floodplains, floodways, and wetlands (**Figure 2-4**). The alignment of these segments and the location of the multi-level interchange at US 75 was shifted to the south to address the proposed location of major economic hub development within the northwest quadrant of the proposed interchange requiring access from Laud Howell Parkway and to facilitate local roadway connectivity.

Figure 2-4: Segments E, C, and D Connection to US 75 and SH 5



These changes to the study segments as presented in the Feasibility Study and how they were combined to form the Build Alternatives along with the No-Build Alternative were presented during a virtual agency scoping meeting conducted on October 29, 2020, and during public scoping conducted virtually January 21, 2021, through February 5, 2021.

As the schematic design proceeded following scoping, TxDOT worked with the Town of Prosper to adjust, where feasible, the alignment of Segment B. In early 2021, the Town of Prosper identified several proposed developments north of existing US 380 and west of N. Custer Road that would be crossed by Segment B. These proposed developments included single family housing and a “55 and over” retirement community with an associated amenity center, that are still in various stages of planning, zoning, platting, and construction. In November 2022, the Town identified three planned park properties – two along Segment B and one on existing US 380 along both Segments A and B.

The Segment B alignment has also been adjusted to avoid encroachment onto the Founders Classical Academy of Prosper, a charter school completed and opened for enrollment in early 2021 within the northwest quadrant of the intersection of Segment B and N. Custer Road, and ManeGait Therapeutic Horsemanship, a privately owned, non-profit organization that provides equine-assisted therapies to children and adults with disabilities in the southeast quadrant of the intersection of Segment B and N. Custer Road.

The alternatives considered in this Environmental Impact Statement (EIS) and decisions based on this EIS will achieve the requirements of Sections 101 and 102(1) of the National Environmental Policy Act (NEPA), as interpreted by the Council on Environmental Quality’s (CEQ) regulations and other environmental laws and policies, by ensuring that decisions regarding this project will be based on a robust evaluation of reasonable alternatives and the potential environmental impacts of those alternatives.

2.1 Alternatives Eliminated from Detailed Study in the EIS

2.1.1 Green Alternative/Segment F - Improve Existing US 380 Between Coit Road and FM 1827

As identified in the Feasibility Study, existing US 380 through McKinney (**Figure 2-5**), a 4-lane to 6-lane principal arterial, supports a diverse mix of residential, commercial, industrial, and institutional uses, with much of the commercial development concentrated near the intersection of US 75 and US 380. The existing corridor is also dotted with minority neighborhoods and low-income residents; city-owned parkland; crosses Wilson Creek, the East Fork Trinity River, several tributaries, and associated floodplains and floodways; and properties potentially eligible for listing in the National Register of Historic Places (NRHP).

Figure 2-5: Green Alternative/Segment F – Improve Existing US 380 Between Coit Road and FM 1827



The Feasibility Study initially focused on improving US 380 along the existing alignment through McKinney by examining at-grade, elevated (on bridge, viaduct, or earthen fill) and depressed/lowered sections in some areas, using retaining walls to minimize the amount of new ROW to be acquired, and shifting the alignment north and south in locations to avoid displacing key developments, businesses, and major employers including Raytheon.

Options for compressing (laterally, making them closer together) the mainlanes and frontage roads and lowering roadway components were examined to minimize the amount of new ROW required and anticipated noise and visual impacts. In most locations, these changes did not result in a substantial reduction in ROW width and in some areas these changes were prohibited due to the presence of existing utilities. Lowering the roadway was seen by the public as having a potentially positive impact on the community by reducing noise and visual effects. Along existing US 380 between the neighborhoods of Tucker Hill and Stonebridge Ranch (west end of the Study Area), lowering and compressing the roadway was feasible and would result in a reduced ROW width and address noise and visibility issues, but as a trade-off it would also require the removal of proposed access ramps reducing access points to both neighborhoods. [This lowered and compressed footprint was carried forward as part of Segment A and was evaluated in the DEIS. Segment A was modified to provide additional local road access points that required additional ROW width].

Other areas along the existing alignment where compressed or lowered roadway sections were not feasible included:

- Sections adjacent to undeveloped or minimally developed property - it was more cost-effective to maintain an at-grade typical section than a compressed and/or lowered typical section.

- Floodplains - lowered sections are not considered in areas within a mapped floodplain where the roadway elevation would be below the 100-year water surface elevation.
- Areas where culverts were proposed and where the elevation difference between the culvert and the roadway surface did not allow sufficient vertical clearance to go under or above the roadway.
- Long roadway segments where ramp access was required – long compressed sections were not considered feasible because ramps must be provided to allow access to frontage roads, the existing roadway network, and neighborhoods.

As shown in the Feasibility Study, the Green Alternative/Segment F displaced 201 businesses and 18 residences, and the shift north to avoid Raytheon displaced 238 businesses and 48 residences. In addition to the physical impacts of improving the existing highway, elected officials took action to oppose improvement of existing US 380. The City of McKinney passed Resolution No 2019-10-128 (R) on October 15, 2019, that included [Section 4] *Due to the overwhelmingly negative impacts on existing neighborhoods and businesses, the City Council of the City of McKinney, Texas, hereby opposes any alternative that converts the existing US 380 to a Limited Access Roadway.* On December 9, 2019, the Collin County Commissioners Court passed a [draft] resolution in support of a new bypass facility for US 380, following along the terms outlined in the McKinney resolution.

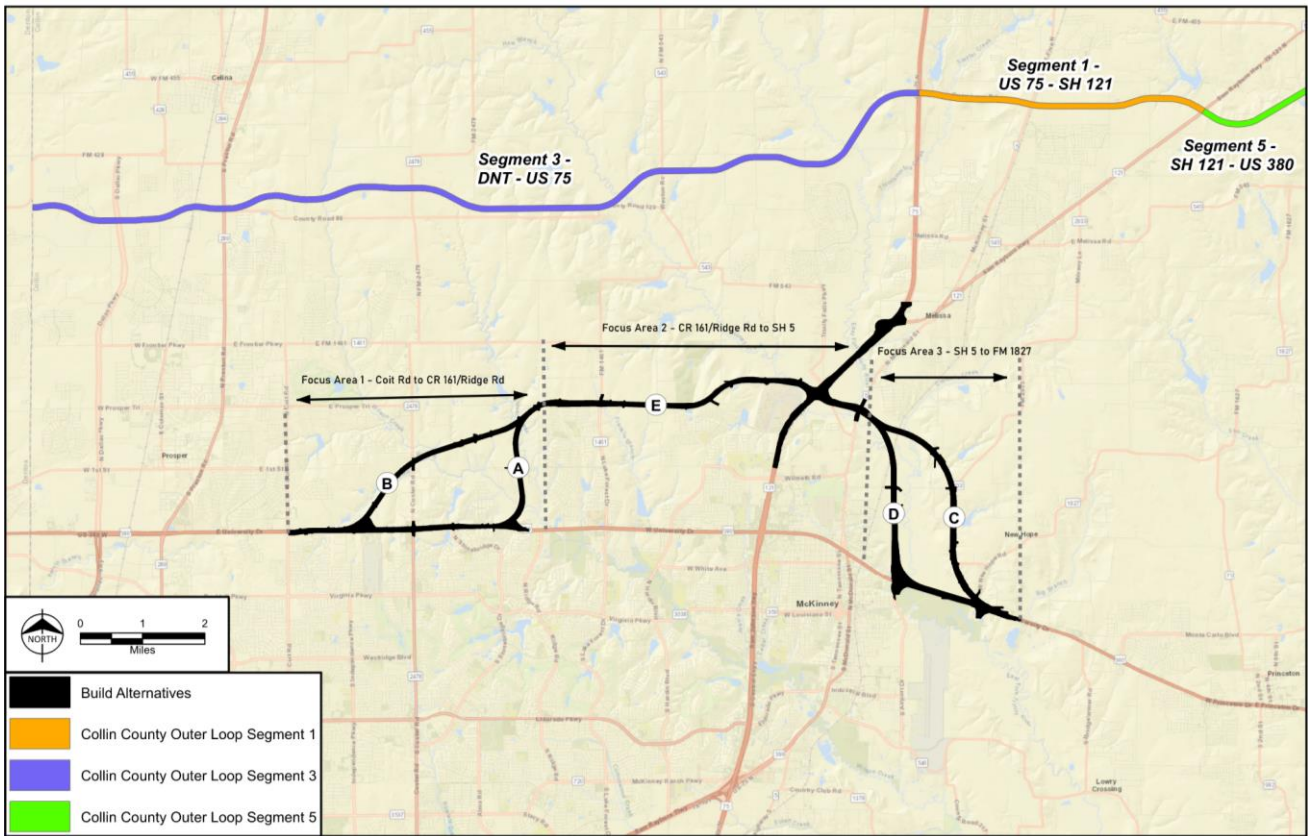
The Green Alternative was presented during both Agency Scoping (October 29, 2020) and Public Scoping (January 21, 2021, through February 5, 2021) as one of the initial alternatives under consideration with information noting that based on the impacts assessed during the Feasibility Study, the Green Alternative was not considered a reasonable alternative for further evaluation in the EIS.

For these reasons and based on the analysis provided in the Feasibility Study, improvement of existing US 380 between Coit Road and FM 1827 (Green Alternative) is not evaluated in this FEIS.

2.1.2 Collin County Outer Loop

During public scoping, TxDOT continued to receive comments regarding the use of the proposed Collin County Outer Loop (**Figure 2-6**) to address congestion along existing US 380 instead of constructing US 380 as a freeway on new location north of McKinney. Traffic analyses conducted during the Feasibility Study indicated the Outer Loop or any roadway farther north than the proposed US 380 McKinney alignment would not draw enough traffic from existing US 380 to satisfy regional travel demands and effectively reduce congestion along existing US 380, particularly through McKinney and Prosper. For this reason, use of the Collin County Outer Loop is not evaluated in this FEIS.

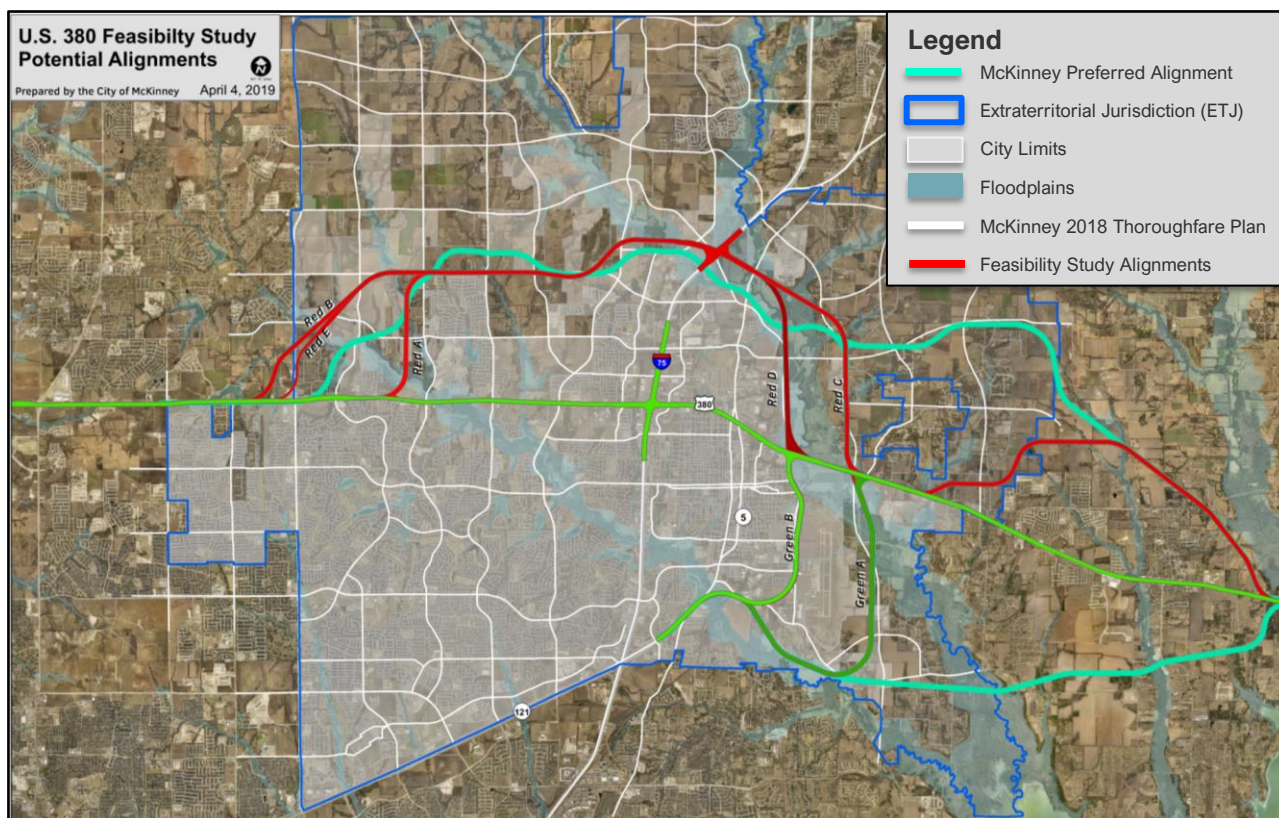
Figure 2-6: Collin County Outer Loop



2.1.3 Teal Alignment

As a carryover from the Feasibility Study, TxDOT continued to receive comments regarding the “Teal Alignment” during public scoping. The “Teal Alignment” was a variation of the Recommended Alignment suggested by the City of McKinney during the Feasibility Study (**Figure 2-7**). An additional Teal Alignment also extended into Denton County (west) from the Dallas North Tollway (DNT) and along the Denton County Outer Loop to ultimately connect with IH 35.

Figure 2-7: Teal Alignment



Because of potential impacts to the Walnut Grove neighborhood (near the west terminus) and lack of support from Collin County and the Town of New Hope along the eastern leg of the alignment, TxDOT dismissed this alignment from further study. The “Teal Alignment” is not evaluated in this FEIS.

2.1.4 Transportation System Management (TSM)

Transportation system management (TSM) is a set of low-cost (non-capital-intensive) strategies to enhance safety, reduce congestion, and improve traffic flow. Specific strategies include traffic signal synchronization, freeway operational improvements (e.g., changeable message signs, ramp metering), and incident management (e.g., clearing accidents and breakdowns quickly to allow traffic to move more smoothly). Other methods can include providing bus pullouts to remove stopped buses from the traffic stream, intersection improvements that provide signal priority for transit vehicles, and queue-jumper lanes to get transit vehicles to the front of the line at intersections.

TSM would not increase the overall capacity of existing US 380, US 75, or SH 5 and would not provide the connectivity needed to support the current and forecasted travel demand, reduce congestion, or address higher crash rates along the existing US 380 corridor. It would only address certain access/egress issues and other minor safety and operational issues in the short-term. TSM could be incorporated as an enhancement into any of the Build Alternatives but would not satisfy the stated needs as a standalone alternative. TSM is not evaluated in this FEIS.

2.1.5 Transportation Demand Management (TDM)

Transportation demand management (TDM) includes managing or decreasing the demand for auto-related travel to increase the operating efficiency of transportation facilities. Managing or decreasing the demand for auto-related travel can be accomplished by providing mobility alternatives to using single-occupant vehicles (e.g., transit, carpool, vanpool, bicycle), incentives/disincentives to using single-occupant vehicles (e.g., congestion pricing, high-occupancy vehicle (HOV) lanes, travel time advantages for HOVs), alternative work environments (e.g., telecommuting and flex time), and parking management.

TDM strategies would not increase the overall capacity of US 380, US 75, or SH 5 and would not provide the connectivity needed to support the current and forecasted travel demand, reduce congestion, or address higher crash rates along the existing US 380 corridor. It could be used in combination with the recommended improvement of SH 5 as described in **Section 1.2.2**, if the project would add HOV lanes or managed lanes to encourage such use, particularly during peak hour travel periods. TDM could be incorporated as an enhancement into any of the Build Alternatives but would not satisfy the stated needs as a standalone alternative. TDM is not evaluated in this FEIS.

2.1.6 Mass Transit

Mass transit as a standalone alternative would not satisfy the identified needs and was not considered to be a reasonable alternative under this proposed action. Dallas Area Rapid Transit (DART) provides bus service as far north as Parker Road and US 75 in Plano, approximately 13.6 miles south of the Study Area. The Draft DART 2045 Transit System Plan,¹⁰ published September 2021, does not include any future service extension to the McKinney area. DART also has partial ownership of the rail line that extends through the eastern portion of the Study Area east of SH 5. At the time the FEIS was developed, DART has not indicated plans to extend light rail along this corridor. Fixed rail transit such as DART's light rail system would not address the transportation needs within the Study Area. Collin County Transit provides transit service for residents 65 years of age or over, individuals with disabilities, and low-income individuals in the Study Area through door-to-door service. This on-demand transit service would not address the transportation needs within the Study Area, even paired with another form of transit service. Mass transit is not evaluated in this FEIS.

2.2 Description of Reasonable Alternatives and the No-Build Alternative

Four reasonable alternatives for the improvement of US 380 McKinney are carried forward for detailed study in addition to the No-Build Alternative. The four reasonable alternatives – Purple, Blue, Brown, and Gold – range in length from approximately 14.8 miles to approximately 16.3 miles. Each would construct an 8-lane, access-

¹⁰ DART 2045 Transit System Plan; accessed on November 5, 2021, at <https://www.dart.org/about/expansion/transitsystemplan.asp>

controlled freeway with 2-lane, one-way frontage roads on each side connecting Coit Road and existing US 380 on the west in Prosper with existing US 380 and FM 1827 on the east in McKinney. Frontage roads may be eliminated, and the primary travel lanes may be depressed (lowered) or elevated (on bridge/viaduct or earthen embankment) to minimize impacts in some locations. Bridges and overpasses along the mainlanes would have a desired vertical clearance of 18.5 feet, with a vertical clearance over railroads proposed at 23.5 feet. The freeway facility would include ramps, direct connector roadways, and connections to existing and planned arterial roadways to support local roadway network connectivity. A multi-level interchange is proposed at US 75/SH 5 with grade-separated interchanges at other primary local roadways depending on the alternative. Shared-use paths (SUPs) would be built along the outside of the frontage roads to provide bicycle and pedestrian accommodations and to support multi-modal access. The western end of the project would match the at-grade freeway section (with frontage roads) to be constructed west of Coit Road (US 380 Prosper-Frisco), and a multi-level interchange would connect the proposed US 380 McKinney improvements to existing US 380 and the Spur 399 Extension near FM 1827, then transitioning to an at-grade section to match existing US 380 east of CR 337. The freeway would be constructed, primarily on new location, within an anticipated ROW width ranging from approximately 260 feet to 1,582 feet (US 75 interchange) with an average ROW width of approximately 420 feet. Additional ROW would be required at interchanges.¹¹

The estimated total project costs (2023 dollars) for the Build Alternatives considered are approximately: Purple Alternative (\$3.447 Billion), Blue Alternative (\$3.267 Billion), Brown Alternative (\$3.125 Billion), and Gold Alternative (\$3.305 Billion). A combination of federal and state funds would be used to construct the project. At this time, only partial funding has been allocated for the US 380 McKinney project.

2.2.1 Description of the No-Build Alternative

Under the No-Build Alternative, no improvements would be made to US 380 between Coit Road and FM 1827 other than already approved or programmed projects. No other new major roadways would be built in the Study Area beyond improvements planned by the City of McKinney, the Town of Prosper, or Collin County. The existing highway system consisting of US 380, US 75, and SH 5 would continue to serve as the primary travel corridors to access destinations outside of the Study Area. In addition to programmed maintenance activities and safety improvements to maintain operations along existing roadways, the No-Build Alternative includes the following programmed improvements to US 380, SH 5, and FM 2478 (N. Custer Road) within the Study Area.

US 380 Widening from Airport Drive to CR 458 (CSJs 0135-03-046 and 0135-04-033) – would widen the existing 4-lane, 7.2-mile-long section of US 380 to a 6-lane divided urban facility with a raised median and new curb and gutter drainage. Existing ROW through the Project Area ranges from 60 feet-wide to 90 feet-wide with no additional ROW needed to complete the widening. The improvements would consist of two 12-foot-wide travel lanes and one 14-foot-wide shared-use travel lane in each direction with 2-foot offsets from the inside and outside curbs and a 5-foot-wide sidewalk along each side of the roadway. Right-turn lanes (12 feet-wide) at intersections would be provided as warranted by traffic analyses. The three existing bridges over the East Fork Trinity River would be widened to two 12-foot-wide travel lanes and one 14-foot-wide travel lane in each direction with a raised median that varies from 5 feet-wide to 14 feet-wide, including a 10-foot-wide outside shoulder in each direction, and a 6-foot-wide sidewalk in each direction separated from the travel lanes by a

¹¹ 60% Geometric Schematic Design submitted to the TxDOT Dallas District on July 1, 2022.

concrete traffic barrier with a pedestrian rail on the outside. This US 380 widening project was environmentally cleared on January 15, 2020, and is anticipated to be ready to let for construction in March 2025.

SH 5 Improvements from South of FM 1378 (Country Club Road) to South of CR 275 (CSJs: 0047-05-054, 0047-09-034, and 0364-04-049) – would reconstruct and widen this 9.7-mile-long section of SH 5 through Fairview and McKinney. From FM 1378 (Country Club Road) to Spur 399, the existing 2-lane rural roadway would be reconstructed to a 4-lane divided urban roadway. From Spur 399 to Industrial Boulevard (FM 546), the existing 4-lane divided rural roadway would be reconstructed to a 6-lane divided urban roadway with frontage roads and ramps added to this section. From Industrial Boulevard (FM 546) to Power House Street, the existing 4-lane divided rural roadway would be reconstructed to a 4-lane divided urban roadway. From Power House Street to just south of CR 275, the existing 2-lane rural roadway would be reconstructed to a 4-lane divided urban roadway. Side streets within the project limits would be reconstructed to tie into the improved SH 5. Buffered sidewalks, providing space between the sidewalks and the roadway, are proposed adjacent to the side streets to accommodate pedestrians. The SH 5 improvement project was environmentally cleared in July 2020, and is anticipated to be ready to let for construction in June 2027.

FM 2478 (N. Custer Road) Widening from US 380 to North of FM 1461 (CSJs 2351-01-017 and 2351-02-014) – is widening approximately 3.17 miles of the existing 2-lane undivided rural roadway to an interim 4-lane divided urban roadway (ultimate 6-lane divided urban roadway in the future) and realigning the intersection at FM 1461. The N. Custer Road improvements were environmentally cleared in September 2017, construction was let in September 2020, and the 4-lane interim improvements were completed in Spring 2023.

FM 1461 (Lake Forest Parkway) Widening from SH 286 to CR 123 (CSJs 1973-01-015 and 1392-03-012) – would reconstruct and widen FM 1461 from SH 289 to CR 123 within the cities of Celina, McKinney, and Prosper in Collin County, expanding the existing 2-lane rural highway to a 4-lane urban highway for a distance of approximately 7.10 miles. The improvements would provide one 12-foot-wide travel lane and one 14-foot-wide outside shared-use lane in each direction, a proposed median to accommodate the ultimate (future) 6-lane facility, and sidewalks along both the eastbound and westbound lanes. The existing ROW width is approximately 90 feet, requiring approximately 58 acres of new ROW to be acquired to widen the existing ROW to approximately 172 feet. The project is currently under design and no letting date has been identified.

The No-Build Alternative would not address current and future population growth nor the increases in current and forecasted traffic volumes that exceed the capacity of existing US 380 between Coit Road and FM 1827. It would not reduce congestion nor improve travel times or average travel speeds due to the levels of congestion along existing US 380 measured at Level of Service F. East-west mobility across the Study Area would not be improved and no improvements would be made to address the crash rates recorded along existing US 380 that are higher than other similar roadways in the region. Although the No-Build Alternative would not address the needs, it will be carried forward as the baseline for comparison of the Build Alternatives.

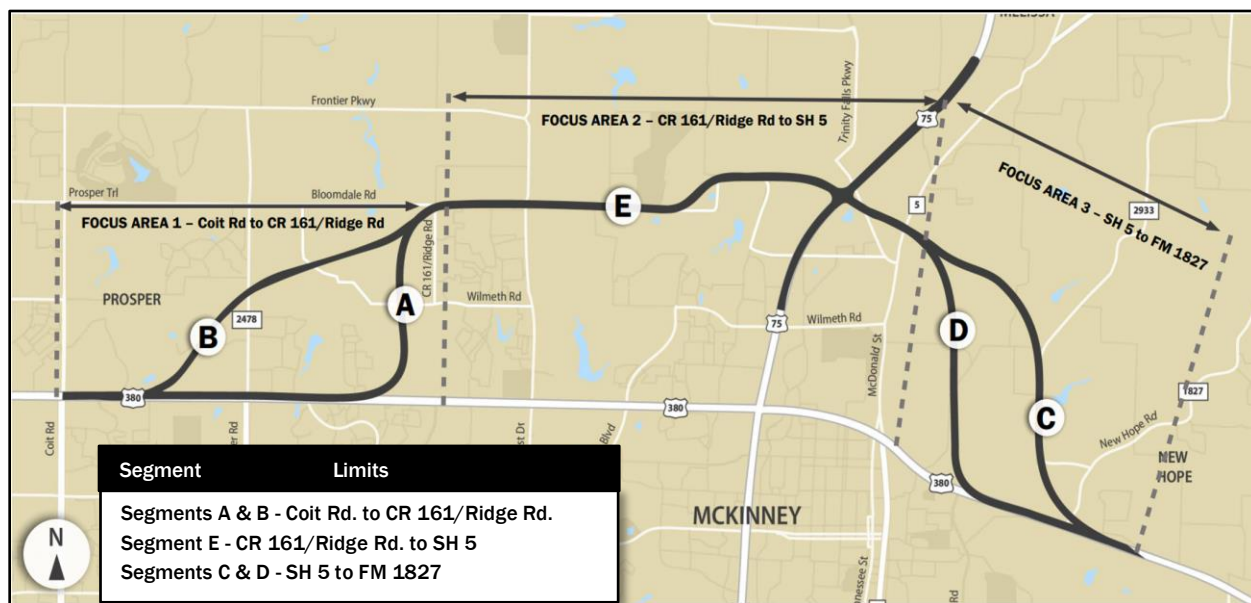
2.2.2 Descriptions of the Build Alternatives

The four Build Alternatives evaluated in the DEIS are each comprised of three segments. The segments were developed to address issues specific to the three focus areas identified within the Study Area (**Figure 2-8**). Segments A and B on the west side of the Study Area provide two options for connecting to existing US 380,

with Segment A being farther east and generally following more of the existing US 380 alignment through Prosper, while Segment B leaves the existing US 380 alignment farther to the west traveling northeast across a part of Prosper planned for development. Segments C and D on the east side of the Study Area provide options for crossing the East Fork Trinity River and associated floodplain/floodway areas. Segment C stretches farther east out of the floodplain crossing sparsely developed lands before turning south to connect to existing US 380. Segment D straddles the floodplain for most of its length and would be constructed on bridge/structure to minimize effects on the function of the floodplain while also avoiding wetlands and sensitive habitats. Segment E is the Common Segment shared by all Build Alternatives considered that primarily follows the existing alignment of Bloomdale Road along the northern edge of McKinney.

In the following Build Alternative descriptions, the May 2023 95% Geometric Design Schematic developed for the Preferred Alternative/Blue Alternative was used to update improvements along Segments A, E, and C for the other Build Alternatives, where applicable. Because 95% geometric design schematics have not been developed for the complete Purple, Brown, and Gold Alternatives (including Segments B and D), impacts for these three Build Alternatives have not been updated in Chapter 3 of this FEIS. The impacts resulting from the refined Preferred Alternative/Blue Alternative have been updated throughout Chapter 3 of this FEIS.

Figure 2-8: Study Segments



2.2.2.1 Description of the Purple Alternative (A+E+D)

The Purple Alternative (Figure 2-9), extending approximately 15.8 miles from Coit Road to FM 1827, is comprised of Segments A, E, and D. It represents the section of the Recommended Alignment from Coit Road to FM 1827 from the Feasibility Study. The Purple Alternative extends along existing US 380 from the intersection of Coit Road in the Town of Prosper to just west of Ridge Road where it turns north. The alignment extends north and then turns east near the intersection of Bloomdale Road and CR 161/future Ridge Road to extend east along the general alignment of Bloomdale Road. It crosses US 75 and SH 5 before turning south

along the western edge of the East Fork Trinity River floodplain to connect to existing US 380, then extends east along US 380 to FM 1827.

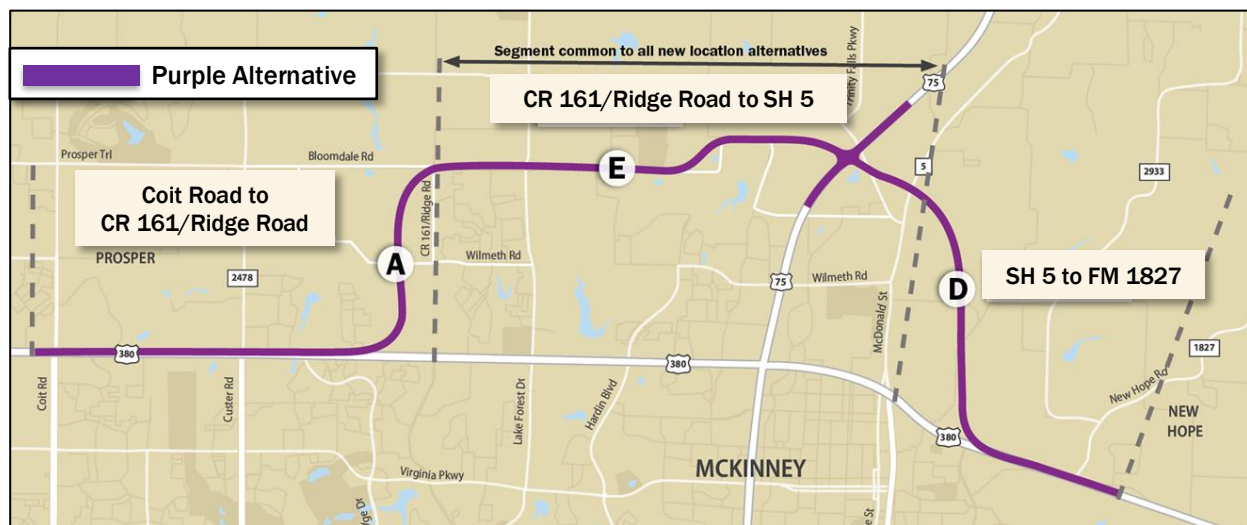


Figure 2-9: Purple Alternative

2.2.2.1.a Existing Facility – Purple Alternative

The Purple Alternative would improve portions of existing US 380 between Coit Road and Ridge Road (part of Segment A) and between Airport Drive and FM 1827 (part of Segment D). US 380 between Coit Road and Ridge Road is a 6-lane divided urban arterial with a raised median and signalized intersections at Coit Road and N. Custer Road. Existing ROW widths range from 120 feet to 165 feet. US 380 between Airport Drive and FM 1827 is a 4-lane undivided rural roadway section with a signalized intersection at Airport Drive and three bridges spanning the East Fork Trinity River within 60 feet to 90 feet of existing ROW. The section of US 380 east of Airport Drive is to be widened, including the bridges, to a 6-lane divided urban roadway with a raised median and 6-foot-wide sidewalks on both sides. This US 380 Widening (CSJs 0135-03-046 and 0135-04-033) was environmentally cleared in January 2020, and is anticipated to be ready to let for construction in March 2025 before construction of the proposed US 380 McKinney project would begin.

The Purple Alternative and all other Build Alternatives would replace portions of existing Bloomdale Road, CR 123, and CR 164 between CR 161/future Ridge Road and Community Avenue, west of US 75 as part of Segment E. CR 123 and CR 164 are 2-lane rural roadways with open ditches within approximately 45 feet to 60 feet of ROW. Bloomdale Road is an urban 2-lane roadway with curb-and-gutter drainage and a 6-foot-wide sidewalk along the south side for most of its length. Turn lanes are provided at the signalized intersection with Lake Forest Drive near the end of Bloomdale Road. The remainder of Bloomdale Road to the east is under construction with the alignment turning to the southeast. A portion of CR 201 would also be replaced. CR 201 is a 2-lane gravel rural roadway with open ditches within approximately 40 feet of ROW.

The Purple Alternative and all other Build Alternatives would connect to US 75 in the northeast corner of McKinney. US 75 (dual designated as SH 121 in the Project Area) is a 6-lane divided urban expressway with

auxiliary lanes and 2-lane frontage roads on both sides. The frontage roads also carry the North Central Expressway. A grade-separated interchange at Laud Howell Parkway provides access to Laud Howell Parkway to the north and Spur 195 to the south. The Build Alternatives would also connect to SH 5, east of US 75. SH 5 (North McDonald Street) is a 2-lane undivided rural highway with wide shoulders, open ditches, and bridges spanning the East Fork Trinity River.

2.2.2.1.b Proposed Facility – Purple Alternative (A+E+D)

Segment A – Coit Road to CR 161/Future Ridge Road - Segment A would have 8 freeway mainlanes (4 in each direction) and 2-lane one-way frontage roads on both sides of the mainlanes at Coit Road, matching the at-grade freeway section proposed under the US 380 Prosper-Frisco project (CSJs 0135-11-024, 0135-10-065, and 0135-02-068, anticipated to be environmentally cleared in July 2023). The mainlanes between Coit Road and Lakewood Drive will be constructed under the US 380 Prosper-Frisco project, with the frontage roads constructed under the US 380 McKinney project through the same limits. East of Lakewood Drive, the at-grade freeway section along the existing US 380 alignment would transition to an elevated freeway bridging over future Independence Parkway and continue east and elevated over N. Custer Road where a traditional diamond interchange would be constructed to connect local traffic with the frontage road system. As the alignment continues east, it would be elevated over N. Stonebridge Drive. After crossing N. Stonebridge Drive, the alignment would transition to a lowered (depressed) freeway passing under Fleetwood Street before climbing back above grade as it curves north on new location past the future connection to W. University Drive (existing US 380). The alignment would stay elevated on bridge over Wilson Creek then on earthen embankment with bridged/grade-separated crossings of CR 124/future Wilmeth Road, future Bloomdale Road West, then transitioning to an at-grade then slightly depressed freeway section under CR 161/future Ridge Road at the tie-in point with Segment E. Frontage roads on both sides of the mainlanes would be carried throughout Segment A from Coit Road to CR 161/future Ridge Road. The proposed ROW width along Segment A varies from approximately 260 feet to approximately 432 feet along existing US 380 between Coit Road and CR 161/future Ridge Road (tie-in to Segment E).

Segment E – CR 161/future Ridge Road to East of SH 5 - Segment E would begin in a short depressed section passing under CR 161/future Ridge Road transitioning to an elevated freeway to cross over FM 1461/Lake Forest Drive, then transitioning back to at-grade to cross under Taylor Burk Drive (former CR 1006) (to be realigned by the City of McKinney) and Bloomdale Road East, then transitioning back to an elevated freeway to cross over CR 164/future Hardin Boulevard and Community Avenue. At Community Avenue the bridge structure would extend east on new location to cross the Honey Creek floodplain, accommodate the new multi-level interchange at US 75, span Spur 195, and cross the East Fork Trinity River floodplain and connect to SH 5. Frontage roads on both sides of the mainlanes would be carried throughout Segment E from CR 161/future Ridge Road through the interchange with SH 5. Improvements would be made within the existing US 75 ROW both north and south of the proposed US 380/US 75 interchange. North of the interchange, pavement would be added to provide another northbound mainlane travel lane and to restripe the mainlanes as far north as Bucee's Boulevard. South of the interchange, additional pavement would be added to provide another southbound mainlane travel lane and restripe the mainlanes to just north of Wilmeth Road. An auxiliary lane would be removed from the southbound frontage road with a new entrance ramp from Laud Howell Parkway constructed in place of where the existing southbound exit ramp to Bloomdale Road is located. In both

sections, existing ramps would be relocated, and the northbound frontage road realigned to accommodate the new direct connectors from US 380. The anticipated ROW width along Segment E varies from approximately 350 feet to approximately 1,580 feet to accommodate the new multi-level interchange with US 75.

Segment D - East of SH 5 to Existing US 380/FM 1827 - Segment D joins the east end of Segment E to cross through the East Fork Trinity River floodplain and travels roughly south, parallel to, and west of the East Fork Trinity River until it connects to existing US 380 near Airport Drive and then follows US 380 to FM 1827. Segment D would be elevated on bridge over the East Fork Trinity River floodplain and the McIntyre Road/future Wilmeth Road for the full length of the new location alignment until it ties into existing US 380. Frontage roads on both sides of the mainlanes would be carried throughout Segment D from east of SH 5 through the interchange at Airport Drive and then connect at-grade to US 380 near FM 1827. Woodlawn Road would connect to the frontage roads. The anticipated ROW width along Segment D varies from approximately 400 feet to approximately 730 feet at the connection to existing US 380 near Airport Drive.

W/O and W/Spur, the Purple Alternative would require the construction of noise barriers, purchase of stream and wetland credits within USACE-approved mitigation banks, and inclusion of compensatory storage within the Honey Creek/Clemons Creek/East Fork Trinity River floodplains.

The Purple Alternative meets the project purpose and need by providing roadway capacity and network connectivity to address population growth and increases in current and forecasted traffic volumes while connecting travelers to education, employment, health care, and commerce centers in adjacent counties and across the rest of the Dallas Metroplex. As a new location, access-controlled freeway, the Purple Alternative would support travel by through-traffic at higher speeds, while reducing the volume of traffic and easing congestion along existing US 380 for local travelers, contributing to fewer crashes along existing US 380.

The total cost of the Purple Alternative is estimated at \$3.447 Billion (2023 dollars). The project would be constructed using a combination of state and federal funding. Additional mitigation (e.g., use of special noise wall materials, context sensitive design enhancements, etc.), if considered, may increase the total project cost.

2.2.2.1.c Logical Termini and Independent Utility – Purple Alternative

Federal regulations require that federally funded transportation projects have logical termini.¹² Simply stated, this means that a project must have rational beginning and ending points. Those beginning and ending points may not be created simply to avoid proper analysis of environmental impacts.

The logical termini for the US 380 McKinney project are Coit Road and existing US 380 on the west and FM 1827 and existing US 380 on the east. To manage congestion and improve east-west mobility along existing US 380, the proposed improvements must tie back to existing US 380. Both Coit Road and FM 1827 were identified as logical boundaries to end the proposed new location freeway section and to allow a transition from the new location alignment back to the existing arterial facility.

- Coit Road - Multiple new location alignments were evaluated during the Feasibility Study, most originating from existing US 380 between Coit Road and N. Custer Road because of the impact a connection farther west along existing US 380 would have on residential and commercial development within the Town of Prosper and the Town's opposition to new location alignments within

¹² 23 CFR 771.111(f)(1)

their jurisdiction. Following completion of the Feasibility Study, TxDOT identified Coit Road as the logical western terminus of the US 380 McKinney project to support connectivity back to existing US 380. Coit Road is classified as a minor arterial on TxDOT's Statewide Planning Map, which according to the Feasibility Study and coordination with the TTI, is projected to carry upwards of 37,000 vpd by 2050, classifying it as a major traffic generator along existing US 380.

- FM 1827 – As part of the Feasibility Study, new location alignments were considered to avoid impacts to residential and commercial development near the intersection of existing US 380 and US 75. Siting of the new location interchange at US 75 and SH 5 in the northeast quadrant of McKinney set the stage for the eastern linkages back to existing US 380 that were limited by existing and planned developments, encroachment concerns of the Town of New Hope farther to the east, the presence of the East Fork Trinity River floodplain and floodway near the eastern boundary of McKinney, and the lack of north-south arterials east of McKinney. Following completion of the Feasibility Study, TxDOT identified FM 1827 (New Hope Road) as the logical eastern terminus of the US 380 McKinney project to support connectivity back to existing US 380. FM 1827 is the first major north-south roadway east of McKinney providing regional connectivity, serving rural populations north of US 380 within Collin County and New Hope. FM 1827 is classified by TxDOT's Statewide Planning Map as a major collector. According to the Feasibility Study and coordination with TTI, FM 1827 is projected to carry upwards of 18,000 vpd by 2050, making it a substantial traffic generator along existing US 380.

US 380 is the primary collector of traffic within McKinney, Prosper, and Collin County providing access to other regionally significant arterials passing through McKinney including US 75 and SH 5, to support getting travelers to education, employment, commerce, and health care destinations outside of Collin County.

Federal regulations require a project to have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area.¹³ This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built.

The proposed US 380 McKinney project would provide the system linkage, connectivity, and capacity needed to serve forecasted population growth and the resulting travel demand, reduce congestion along existing US 380, and provide a safe and high-capacity facility to move people around through the Study Area. Because the US 380 McKinney Purple Alternative would operate as a standalone facility, it cannot and does not irretrievably commit federal funds for other future transportation projects.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements. This means that a project must not dictate or restrict any future roadway alternatives. The US 380 McKinney project has been planned and designed to function independent of any other improvements. It would provide a complete and functional connection to existing US 380 as well as connectivity to US 75 and SH 5 that would address the congestion and safety needs identified without any additional improvements.

2.2.2.1.d Planning Consistency – Purple Alternative

The proposed US 380 McKinney project is included in the NCTCOG's *Mobility 2045 Update* and the 2023–2026 TIP approved by the RTC on June 9, 2022, and by FHWA on December 15, 2022. With approval of the *Mobility 2045 Update* and the 2023–2026 TIP, the project is consistent with both plans. The 2023–2026

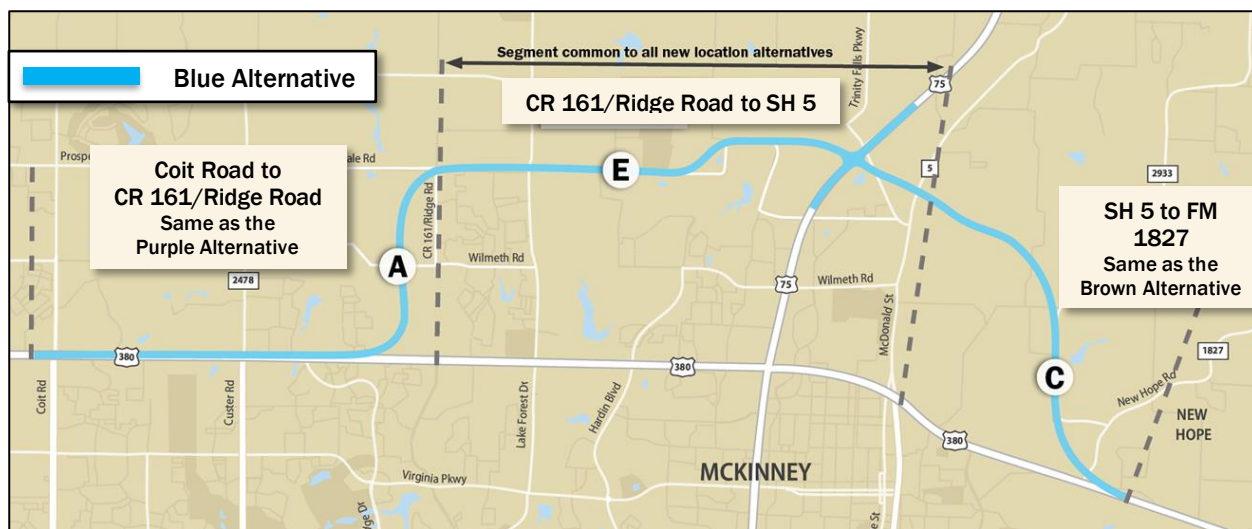
¹³ 23 CFR 771.111(f)(2)

STIP was approved by FHWA on November 18, 2022. Project-level conformity was approved by FHWA on September 26, 2023

2.2.2.2 Description of the Blue Alternative (A+E+C)

The Blue Alternative (**Figure 2-10**) is comprised of Segments A, E, and C for a total approximate length of 15.6 miles. Like the Purple Alternative, the Blue Alternative extends along existing US 380 from the intersection of Coit Road in the Town of Prosper to just west of Ridge Road where it turns north. The alignment extends north and then turns east near the intersection of Bloomdale Road and future Ridge Road to extend east along the alignment of Bloomdale Road, crossing US 75 and SH 5 before turning south. The Blue Alternative differs from the Purple Alternative between US 75/SH 5 and existing US 380 east of McKinney where the alignment follows that of Segment C parallel to and east of the East Fork Trinity River. The alignment would connect back to existing US 380 near FM 1827.

Figure 2-10: Blue Alternative



2.2.2.2.a Existing Facility – Blue Alternative

The Blue Alternative would improve portions of existing US 380 between Coit Road and Ridge Road (part of Segment A) and between Airport Drive and FM 1827 (part of Segment D) in the same manner as the Purple Alternative. US 380 between Coit Road and Ridge Road is a 6-lane divided urban arterial with a raised median and signalized intersections at Coit Road and N. Custer Road. Existing ROW widths range from 120 feet to 165 feet. US 380 between Airport Drive and FM 1827 is a 4-lane undivided rural roadway section with a signalized intersection at Airport Drive and three bridges spanning the East Fork Trinity River within 60 feet to 90 feet of existing ROW. The section of US 380 east of Airport Drive is to be widened, including the bridges, to a 6-lane divided urban roadway with a raised median and 6-foot-wide sidewalks on both sides (CSJs 0135-03-046 and 0135-04-033) before construction of the proposed US 380 McKinney project would begin.

The Blue Alternative and all other Build Alternatives would replace portions of existing Bloomdale Road, CR 123, and CR 164 between CR 161/future Ridge Road and Community Avenue, west of US 75 as part of

Segment E, described under the Purple Alternative. The Blue Alternative and all other Build Alternatives would connect to US 75 and SH 5 in the northeast corner of McKinney as described under the Purple Alternative.

2.2.2.2.b Proposed Facility – Blue Alternative

Segment A – Coit Road to CR 161/Future Ridge Road – As described under the Purple Alternative, would have 8 freeway mainlanes (4 in each direction) and 2-lane one-way frontage roads on both sides of the mainlanes at Coit Road, matching the at-grade freeway section proposed under the US 380 Prosper-Frisco project (CSJs 0135-11-024, 0135-10-065, and 0135-02-068, anticipated to be environmentally cleared in July 2023). The mainlanes between Coit Road and Lakewood Drive will be constructed under the US 380 Prosper-Frisco project, with the frontage roads constructed under the US 380 McKinney project through the same limits. East of Lakewood Drive, the at-grade freeway section along the existing US 380 alignment would transition to an elevated freeway bridging over future Independence Parkway and continue east and elevated over N. Custer Road where a traditional diamond interchange would be constructed to connect local traffic with the frontage road system. As the alignment continues east, it would be elevated over N. Stonebridge Drive. After crossing N. Stonebridge Drive, the alignment would transition to a lowered (depressed) freeway passing under Fleetwood Street before climbing back above grade as it curves north on new location past the future connection to W. University Drive (existing US 380). The alignment would stay elevated on bridge over Wilson Creek then on earthen embankment with bridged/grade-separated crossings of CR 124/future Wilmeth Road, future Bloomdale Road West, then transitioning to an at-grade freeway section crossing under CR 161/future Ridge Road before tying into Segment E. Frontage roads on both sides of the mainlanes would be carried throughout Segment A from Coit Road to CR 161/future Ridge Road. The proposed ROW width along Segment A varies from approximately 260 feet to 432 feet along existing US 380 between Coit Road and CR 161/future Ridge Road (tie-in to Segment E).

Segment E – CR 161/future Ridge Road to East of SH 5 – Segment E would begin in a short depressed section passing under CR 161/future Ridge Road transitioning to an elevated freeway to cross over FM 1461/Lake Forest Drive, then transitioning back to at-grade to cross under Taylor Burk Drive (former CR 1006) (to be realigned by the City of McKinney) and Bloomdale Road East, then transitioning back to an elevated freeway to cross over CR 164/future Hardin Boulevard and Community Avenue. At Community Avenue the bridge structure would extend east on new location to cross the Honey Creek floodplain, accommodate the new multi-level interchange at US 75, span Spur 195, and cross the East Fork Trinity River floodplain and connect to SH 5. Frontage roads on both sides of the mainlanes would be carried throughout Segment E from CR 161/future Ridge Road through the interchange with SH 5. Improvements would be made within the existing US 75 ROW both north and south of the proposed US 380/US 75 interchange. North of the interchange, pavement would be added to provide another northbound mainlane travel lane and to restripe the mainlanes as far north as Bucee's Boulevard. South of the interchange, additional pavement would be added to provide another southbound mainlane travel lane and restripe the mainlanes to just north of Wilmeth Road. An auxiliary lane would be removed from the southbound frontage road with a new entrance ramp from Laud Howell Parkway constructed in place of where the existing southbound exit ramp to Bloomdale Road is located. In both sections, existing ramps would be relocated, and the northbound frontage road realigned to accommodate the new direct connectors from US 380. The anticipated ROW width along Segment E varies from approximately 350 feet and 1,580 feet to accommodate the new multi-level interchange with US 75.

Segment C – East of SH 5 to Existing US 380/FM 1827 - Segment C joins the east end of Segment E to cross the East Fork Trinity River floodplain and travels roughly south, parallel to, and east of the floodplain until it turns to the east-southeast to connect to existing US 380 near FM 1827. Segment C would be elevated on bridge over the East Fork Trinity River floodplain and the Dallas Area Rapid Transit (DART)/Dallas, Garland, and Northeastern (DGNO) rail line continuing the four elevated-mainlanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. After crossing the floodplain, the new location alignment would transition to an at-grade section crossing under CR 338, bridging over tributaries to the East Fork Trinity River, and continuing at-grade then transitioning to being elevated on bridge through the interchange connecting to existing US 380 and the Spur 399 Extension near FM 1827. East of the US 380/Spur 399 Extension interchange, the freeway would transition to a 6-lane at-grade section to tie into existing US 380 west of CR 337. Existing local roadways including CR 338, CR 331/future Wilmeth Road, CR 335, CR 332, and FM 2933 would be accessible from the frontage roads. Frontage roads on both sides of the mainlanes would be carried throughout Segment C from east of SH 5 through the interchange at FM 1827 tying into existing US 380 west of Private Road 5446. The anticipated ROW width along Segment C varies from approximately 400 feet to approximately 1,430 feet at the US 380/Spur 399 Extension interchange.

The proposed US 380 McKinney/Spur 399 Extension interchange near FM 1827 requires the Spur 399 Extension northbound and southbound frontage to be extended, the creation of a frontage road “box”, and the construction of four direct connectors and five additional ramps compared to the at-grade US 380 McKinney intersection reviewed in the DEIS.

See **Appendix B** for the May 2023 95% Geometric Design Schematic for the Blue Alternative including the proposed US 380 McKinney/Spur 399 Extension multi-level interchange.

W/O and W/Spur the Blue Alternative would require the construction of noise barriers, purchase of stream and wetland credits within USACE-approved mitigation banks, and inclusion of compensatory storage within the Honey Creek/Clemons Creek/East Fork Trinity River floodplains.

The Blue Alternative meets the project purpose and need by providing roadway capacity and network connectivity to address population growth and increases in current and forecasted traffic volumes while connecting travelers to education, employment, health care, and commerce centers in adjacent counties and across the rest of the Dallas Metroplex. As a new location, access-controlled freeway the Blue Alternative would support travel by through-traffic at higher speeds, while reducing the volume of traffic and easing congestion along existing US 380 for local travelers, contributing to fewer crashes along existing US 380.

The total cost of the Blue Alternative is estimated at \$3.267 Billion W/Spur (2023 dollars). The project would be constructed using a combination of state and federal funding. Additional mitigation (e.g., use of special noise wall materials, context sensitive design enhancements, etc.), if considered, may increase the total project cost.

2.2.2.2.c Logical Termini and Independent Utility – Blue Alternative

Federal regulations require that federally funded transportation projects have logical termini.¹⁴ Simply stated, this means that a project must have rational beginning and ending points. Those beginning and ending points may not be created simply to avoid proper analysis of environmental impacts.

The logical termini for the US 380 McKinney project are Coit Road and existing US 380 on the west and FM 1827 and existing US 380 on the east. To manage congestion and improve east-west mobility along existing US 380, the proposed improvements must tie back to existing US 380. Both Coit Road and FM 1827 were identified as logical boundaries to end the proposed new location freeway section and to allow a transition from the new location alignment back to the existing arterial facility.

- Coit Road - Multiple new location alignments were evaluated during the Feasibility Study, most originating from existing US 380 between Coit Road and N. Custer Road because of the impact a connection farther west along existing US 380 would have on residential and commercial development within the Town of Prosper and the Town's opposition to new location alignments within their jurisdiction. Following completion of the Feasibility Study, TxDOT identified Coit Road as the logical western terminus of the US 380 McKinney project to support connectivity back to existing US 380. Coit Road is classified as a minor arterial on TxDOT's Statewide Planning Map, which according to the Feasibility Study and coordination with the TTI, is projected to carry upwards of 37,000 vpd by 2050, classifying it as a major traffic generator along existing US 380.
- FM 1827 – As part of the Feasibility Study, new location alignments were considered to avoid impacts to residential and commercial development near the intersection of existing US 380 and US 75. Siting of the new location interchange at US 75 and SH 5 in the northeast quadrant of McKinney set the stage for the eastern linkages back to existing US 380 that were limited by existing and planned developments, encroachment concerns of the Town of New Hope farther to the east, the presence of the East Fork Trinity River floodplain and floodway near the eastern boundary of McKinney, and the lack of north-south arterials east of McKinney. Following completion of the Feasibility Study, TxDOT identified FM 1827 (New Hope Road) as the logical eastern terminus of the US 380 McKinney project to support connectivity back to existing US 380. FM 1827 is the first major north-south roadway east of McKinney providing regional connectivity, serving rural populations north of US 380 within Collin County and New Hope. FM 1827 is classified by TxDOT's Statewide Planning Map as a major collector. According to the Feasibility Study and coordination with TTI, FM 1827 is projected to carry upwards of 18,000 vpd by 2050, making it a substantial traffic generator along existing US 380

US 380 is the primary collector of traffic within McKinney, Prosper, and Collin County providing access to other regionally significant arterials passing through McKinney including US 75 and SH 5, to support getting travelers to education, employment, commerce, and healthcare destinations outside of Collin County.

Federal regulations require a project to have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area.¹⁵ This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built.

The proposed US 380 McKinney project would provide the system linkage, connectivity, and capacity needed to serve forecasted population growth and the resulting travel demand, reduce congestion along existing US

¹⁴ 23 CFR 771.111(f)(1)

¹⁵ 23 CFR 771.111(f)(2)

380, and provide a safe and high-capacity facility to move people around the City of McKinney. Because the US 380 McKinney Blue Alternative would operate as a standalone facility, it cannot and does not irretrievably commit federal funds for other future transportation projects.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements. This means that a project must not dictate or restrict any future roadway alternatives. The US 380 McKinney project has been planned and designed to function independent of any other improvements. It would provide a complete and functional connection to existing US 380 as well as connectivity to US 75 and SH 5 that would address the congestion and safety needs identified without any additional improvements.

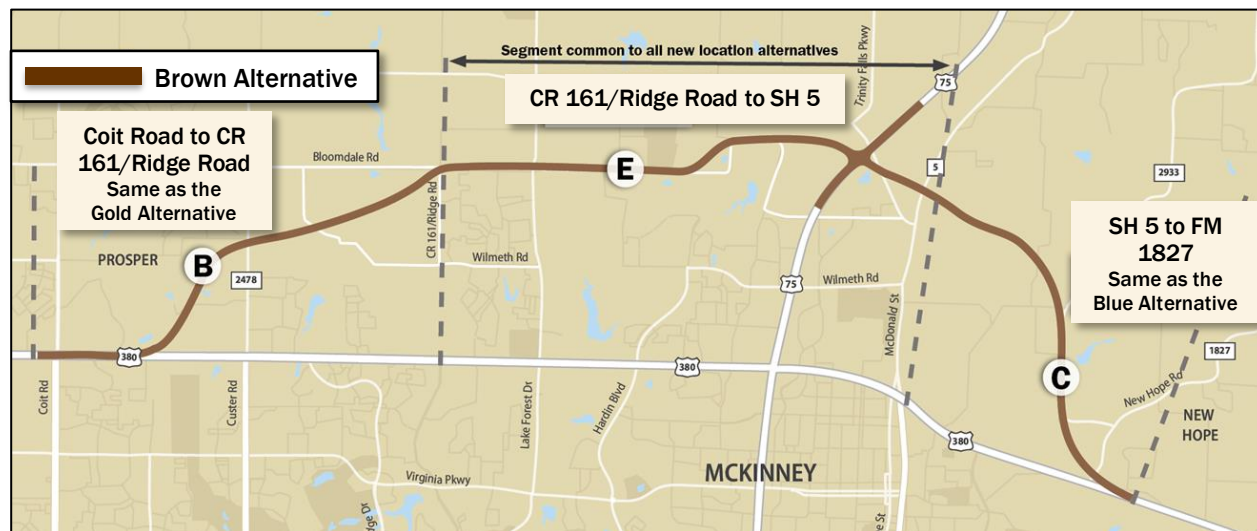
2.2.2.2.d Planning Consistency – Blue Alternative

The proposed US 380 McKinney project is included in the NCTCOG’s *Mobility 2045 Update* and the 2023–2026 TIP approved by the RTC on June 9, 2022, and by FHWA on December 15, 2022. With approval of the *Mobility 2045 Update* and the 2023-2026 TIP, the project is consistent with both plans. The 2023-2026 STIP was approved by FHWA on November 18, 2022. Project-level conformity was approved by FHWA on September 26, 2023.

2.2.2.3 Description of the Brown Alternative (B+E+C)

The Brown Alternative (**Figure 2-11**) is comprised of Segments B, E, and C for a total approximate length of 14.8 miles. The Brown Alternative extends along existing US 380 from the intersection of Coit Road in the Town of Prosper to just east of Lakewood Drive before turning northeasterly to extend over N. Custer Road to the intersection of Bloomdale Road and future Ridge Road where it turns to the east along the alignment of Bloomdale Road, crossing US 75 and SH 5 before turning south. The Brown Alternative is the same as Blue Alternative between US 75/SH 5 and existing US 380 east of McKinney where the alignment follows that of Segment C parallel to and east of the East Fork Trinity River. The alignment would connect back to existing US 380 near FM 1827.

Figure 2-11: Brown Alternative



2.2.2.3.a Existing Facility – Brown Alternative

The Brown Alternative would modify a portion of existing US 380 from Coit Road to just east of Lakewood Drive (part of Segment B) and near FM 1827 (part of Segment C). US 380 between Coit Road and Lakewood Drive is a 6-lane divided urban arterial with a raised median and a signalized intersection at Coit Road. The existing ROW width ranges from 120 feet to 165 feet. US 380 near FM 1827 is a 4-lane undivided rural roadway section with open ditches within approximately 60 feet to 90 feet of existing ROW. This section of US 380 is east of the bridges spanning the East Fork Trinity River. The section of US 380 east of Airport Drive is to be widened, including the bridges, to a 6-lane divided urban roadway with a raised median and 6-foot-wide sidewalks on both sides (CSJs 0135-03-046 and 0135-04-033) before construction of the proposed US 380 McKinney project would begin.

The Brown Alternative and all other Build Alternatives would replace portions of existing Bloomdale Road, CR 123, and CR 164 between CR 161/future Ridge Road and Community Avenue, west of US 75 as part of Segment E, described under the Purple Alternative. The Brown Alternative and all other Build Alternatives would connect to US 75 and SH 5 in the northeast corner of McKinney as described under the Purple Alternative.

2.2.2.3.b Proposed Facility – Brown Alternative

Segment B - Coit Road to CR 161/Future Ridge Road - Segment B begins the same as Segment A with an 8-lane freeway section and 2-lane one-way frontage roads on both sides of the mainlanes from Coit Road to east of Lakewood Drive, matching the at-grade freeway section proposed under the US 380 Prosper-Frisco project. East of Lakewood Drive near Red Bud Drive, the alignment would turn northward on new location carrying the four travel lanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. The freeway would bridge over future Independence Parkway, a Soil Conservation Service Reservoir, and a new connection back to future University Drive (existing US 380). The alignment would continue elevated in a northeasterly direction on an earthen embankment with bridged/grade-separated crossings of Rutherford Branch, FM 2478/N. Custer Road, Wilson Creek, future N. Stonebridge Drive, Stover Creek, and future Bloomdale Road West before tying into Segment E. Frontage roads on both sides of the mainlanes would be carried throughout Segment B from Lakewood Drive through future Bloomdale Road West. The anticipated ROW width along Segment B varies from approximately 340 feet to approximately 1,078 feet.

Segment E – CR 161/Future Ridge Road to East of SH 5 – Segment E would begin in a short depressed section passing under CR 161/future Ridge Road transitioning to an elevated freeway to cross over FM 1461/Lake Forest Drive, then transitioning back to at-grade to cross under Taylor Burk Drive (former CR 1006) (to be realigned by the City of McKinney) and Bloomdale Road East, then transitioning back to an elevated freeway to cross over CR 164/future Hardin Boulevard and Community Avenue. At Community Avenue the bridge structure would extend east on new location to cross the Honey Creek floodplain, accommodate the new multi-level interchange at US 75, span Spur 195, and cross the East Fork Trinity River floodplain and connect to SH 5. Frontage roads on both sides of the mainlanes would be carried throughout Segment E from CR 161/future Ridge Road through the interchange with SH 5. Improvements would be made within the existing US 75 ROW both north and south of the proposed US 380/US 75 interchange. North of the

interchange, pavement would be added to provide another northbound mainlane travel lane and to restripe the mainlanes as far north as Bucee's Boulevard. South of the interchange, additional pavement would be added to provide another southbound mainlane travel lane and restripe the mainlanes to just north of Wilmeth Road. An auxiliary lane would be removed from the southbound frontage road with a new entrance ramp from Laud Howell Parkway constructed in place of where the existing southbound exit ramp to Bloomdale Road is located. In both sections, existing ramps would be relocated, and the northbound frontage road realigned to accommodate the new direct connectors from US 380. The anticipated ROW width along Segment E varies from approximately 350 feet to approximately 1,580 feet to accommodate the new multi-level interchange with US 75.

Segment C – East of SH 5 to Existing US 380/FM 1827 – As described under the Blue Alternative, Segment C joins the east end of Segment E to cross the East Fork Trinity River floodplain and travels roughly south, parallel to, and east of the floodplain until it turns to the east-southeast to connect to existing US 380 near FM 1827. Segment C would be elevated on bridge over the East Fork Trinity River floodplain and the Dallas Area Rapid Transit (DART)/Dallas, Garland, and Northeastern (DGNO) rail line continuing the four elevated-mainlanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. After crossing the floodplain, the new location alignment would transition to an at-grade section crossing under CR 338, bridging over tributaries to the East Fork Trinity River, and continuing at-grade then transitioning to being elevated on bridge through the interchange connecting to existing US 380 and the Spur 399 Extension near FM 1827. East of the US 380/Spur 399 Extension interchange, the freeway would transition to a 6-lane at-grade section to tie into existing US 380 west of CR 337. Existing local roadways including CR 338, CR 331/future Wilmeth Road, CR 335, CR 332, and FM 2933 would be accessible from the frontage roads. Frontage roads on both sides of the mainlanes would be carried throughout Segment C from east of SH 5 through the interchange at FM 1827 tying into existing US 380 west of Private Road 5446. The anticipated ROW width along Segment C varies from approximately 400 feet to approximately 1,430 feet at the US 380/Spur 399 Extension interchange.

The proposed US 380 McKinney/Spur 399 Extension interchange near FM 1827 requires the Spur 399 Extension northbound and southbound frontage to be extended, the creation of a frontage road "box", and the construction of four direct connectors and five additional ramps compared to the at-grade US 380 McKinney intersection reviewed in the DEIS.

. W/O and W/Spur the Brown Alternative would require the construction of noise barriers, purchase of stream and wetland credits within USACE-approved mitigation banks, and inclusion of compensatory storage within the Honey Creek/Clemons Creek/East Fork Trinity River floodplains.

The Brown Alternative meets the project purpose and need by providing roadway capacity and network connectivity to address population growth and increases in current and forecasted traffic volumes while connecting travelers to education, employment, health care, and commerce centers in adjacent counties and across the rest of the Dallas Metroplex. As a new location, access-controlled freeway the Brown Alternative would support travel by through-traffic at higher speeds, while reducing the volume of traffic and easing congestion along existing US 380 for local travelers, contributing to fewer crashes along existing US 380.

The total cost of the Brown Alternative is estimated at \$3.125 Billion (2023 dollars). The project would be constructed using a combination of state and federal funding. Additional mitigation (e.g., use of special noise wall materials, context sensitive design enhancements, etc.), if considered, may increase the total project cost.

2.2.2.3.c Logical Termini and Independent Utility – Brown Alternative

Federal regulations require that federally funded transportation projects have logical termini.¹⁶ Simply stated, this means that a project must have rational beginning and ending points. Those beginning and ending points may not be created simply to avoid proper analysis of environmental impacts.

The logical termini for the US 380 McKinney project are Coit Road and existing US 380 on the west and FM 1827 and existing US 380 on the east. To manage congestion and improve east-west mobility along existing US 380, the proposed improvements must tie back to existing US 380. Both Coit Road and FM 1827 were identified as logical boundaries to end the proposed new location freeway section and to allow a transition from the new location alignment back to the existing arterial facility.

- Coit Road - Multiple new location alignments were evaluated during the Feasibility Study, most originating from existing US 380 between Coit Road and N. Custer Road because of the impact a connection farther west along existing US 380 would have on residential and commercial development within the Town of Prosper and the Town's opposition to new location alignments within their jurisdiction. Following completion of the Feasibility Study, TxDOT identified Coit Road as the logical western terminus of the US 380 McKinney project to support connectivity back to existing US 380. Coit Road is classified as a minor arterial on TxDOT's Statewide Planning Map, which according to the Feasibility Study and coordination with the TTI, is projected to carry upwards of 37,000 vpd by 2050, classifying it as a major traffic generator along existing US 380.
- FM 1827 – As part of the Feasibility Study, new location alignments were considered to avoid impacts to residential and commercial development near the intersection of existing US 380 and US 75. Siting of the new location interchange at US 75 and SH 5 in the northeast quadrant of McKinney set the stage for the eastern linkages back to existing US 380 that were limited by existing and planned developments, encroachment concerns of the Town of New Hope farther to the east, the presence of the East Fork Trinity River floodplain and floodway near the eastern boundary of McKinney, and the lack of north-south arterials east of McKinney. Following completion of the Feasibility Study, TxDOT identified FM 1827 (New Hope Road) as the logical eastern terminus of the US 380 McKinney project to support connectivity back to existing US 380. FM 1827 is the first major north-south roadway east of McKinney providing regional connectivity, serving rural populations north of US 380 within Collin County and New Hope. FM 1827 is classified by TxDOT's Statewide Planning Map as a major collector. According to the Feasibility Study and coordination with TTI, FM 1827 is projected to carry upwards of 18,000 vpd 2050, making it a substantial traffic generator along existing US 380

US 380 is the primary collector of traffic within McKinney, Prosper, and Collin County providing access to other regionally significant arterials passing through McKinney including US 75 and SH 5, to support getting travelers to education, employment, commerce, and healthcare destinations outside of Collin County.

Federal regulations require a project to have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area.¹⁷ This means a project must be able to provide

¹⁶ 23 CFR 771.111(f)(1)

¹⁷ 23 CFR 771.111(f)(2)

benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built.

The proposed US 380 McKinney project would provide the system linkage, connectivity, and capacity needed to serve forecasted population growth and the resulting travel demand, reduce congestion along existing US 380, and provide a safe and high-capacity facility to move people around the City of McKinney. Because the US 380 McKinney Brown Alternative would operate as a standalone facility, it cannot and does not irretrievably commit federal funds for other future transportation projects.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements. This means that a project must not dictate or restrict any future roadway alternatives. The US 380 McKinney project has been planned and designed to function independent of any other improvements. It would provide a complete and functional connection to existing US 380 as well as connectivity to US 75 and SH 5 that would address the congestion and safety needs identified without any additional improvements.

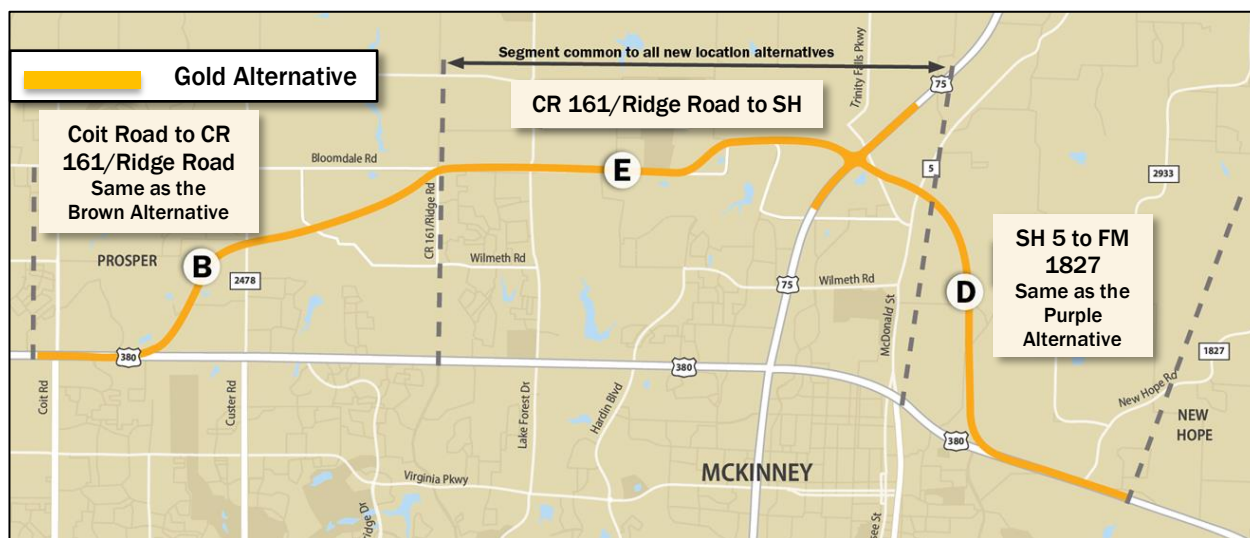
2.2.2.3.d Planning Consistency – Brown Alternative

The proposed US 380 McKinney project is included in the NCTCOG's *Mobility 2045 Update* and the 2023–2026 TIP approved by the RTC on June 9, 2022, and by FHWA on December 15, 2022. With approval of the *Mobility 2045 Update* and the 2023-2026 TIP, the project is consistent with both plans. The 2023-2026 STIP was approved by FHWA on November 18, 2022. Project-level conformity was approved by FHWA on September 26, 2023.

2.2.2.4 Description of the Gold Alternative (B+E+D)

The Gold Alternative (**Figure 2-12**) is comprised of Segments B, E, and D for a total approximate length of 16.3 miles. The Gold Alternative extends along existing US 380, the same as the Brown Alternative, from the intersection of Coit Road in the Town of Prosper to just east of Lakewood Drive before turning northeasterly to extend over N. Custer Road to the intersection of Bloomdale Road and future Ridge Road where it turns to the east along the alignment of Bloomdale Road, crossing US 75 and SH 5 before turning south. The Gold Alternative is the same as the Purple Alternative between US 75 and SH 5 turning south along the western edge of the East Fork Trinity River floodplain to connect to existing US 380, then extending east along US 380 to FM 1827.

Figure 2-12: Gold Alternative



2.2.2.4.a Existing Facility – Gold Alternative

The Gold Alternative would modify a portion of existing US 380 from Coit Road to just east of Lakewood Drive (part of Segment B, the same as the Brown Alternative) and near FM 1827 (part of Segment C, the same as the Blue Alternative). US 380 between Coit Road and Lakewood Drive is a 6-lane divided urban arterial with a raised median and a signalized intersection at Coit Road. The existing ROW width ranges from 120 feet to 165 feet. US 380 near FM 1827 is a 4-lane undivided rural roadway section with open ditches within approximately 60 feet to 90 feet of existing ROW. This section of US 380 is east of the bridges spanning the East Fork Trinity River. The section of US 380 east of Airport Drive is to be widened, including the bridges, to a 6-lane divided urban roadway with a raised median and 6-foot-wide sidewalks on both sides (CSJs 0135-03-046 and 0135-04-033) before construction of the proposed US 380 McKinney project would begin.

The Brown Alternative and all other Build Alternatives would replace portions of existing Bloomdale Road, CR 123, and CR 164 between CR 161/future Ridge Road and Community Avenue, west of US 75 as part of Segment E, described under the Purple Alternative. The Gold Alternative and all other Build Alternatives would connect to US 75 and SH 5 in the northeast corner of McKinney as described under the Purple Alternative.

2.2.2.4.b Proposed Facility – Gold Alternative (B+E+D)

Segment B - Coit Road to CR 161/future Ridge Road – As described under the Brown Alternative, Segment B begins with an 8-lane freeway section and 2-lane one-way frontage roads on both sides of the mainlanes from Coit Road to east of Lakewood Drive, matching the at-grade freeway section proposed under the US 380 Prosper-Frisco project. East of Lakewood Drive near Red Bud Drive, the alignment would turn northward on new location carrying the four travel lanes in each direction separated by a center concrete barrier and 2-lane one-way frontage roads on both sides of the mainlanes to provide access to the local roadway network. The freeway would bridge over future Independence Parkway, a Soil Conservation Service Reservoir, and a new connection back to future University Drive (existing US 380). The alignment would continue elevated in a northeasterly direction on an earthen embankment with bridged/grade-separated crossings of Rutherford

Branch, FM 2478/N. Custer Road, Wilson Creek, future N. Stonebridge Drive, Stover Creek, and future Bloomdale Road West before tying into Segment E. Frontage roads on both sides of the mainlanes would be carried throughout Segment B from Lakewood Drive through future Bloomdale Road West. The anticipated ROW width along Segment B varies from approximately 340 feet to approximately 1,078 feet.

Segment E – CR 161/future Ridge Road to East of SH 5 – Segment E would begin in a short depressed section passing under CR 161/future Ridge Road transitioning to an elevated freeway to cross over FM 1461/Lake Forest Drive, then transitioning back to at-grade to cross under Taylor Burk Drive (former CR 1006) (to be realigned by the City of McKinney) and Bloomdale Road East, then transitioning back to an elevated freeway to cross over CR 164/future Hardin Boulevard and Community Avenue. At Community Avenue the bridge structure would extend east on new location to cross the Honey Creek floodplain, accommodate the new multi-level interchange at US 75, span Spur 195, and cross the East Fork Trinity River floodplain and connect to SH 5. Frontage roads on both sides of the mainlanes would be carried throughout Segment E from CR 161/future Ridge Road through the interchange with SH 5. Improvements would be made within the existing US 75 ROW both north and south of the proposed US 380/US 75 interchange. North of the interchange, pavement would be added to provide another northbound mainlane travel lane and to restripe the mainlanes as far north as Bucee's Boulevard. South of the interchange, additional pavement would be added to provide another southbound mainlane travel lane and restripe the mainlanes to just north of Wilmeth Road. An auxiliary lane would be removed from the southbound frontage road with a new entrance ramp from Laud Howell Parkway constructed in place of where the existing southbound exit ramp to Bloomdale Road is located. In both sections, existing ramps would be relocated, and the northbound frontage road realigned to accommodate the new direct connectors from US 380. The anticipated ROW width along Segment E varies from approximately 350 feet to approximately 1,580 feet to accommodate the new multi-level interchange with US 75.

Segment D - East of SH 5 to Existing US 380/FM 1827 – As described under the Purple Alternative, Segment D joins the east end of Segment E to cross through the East Fork Trinity River floodplain and travels roughly south, parallel to, and west of the East Fork Trinity River until it connects to existing US 380 near Airport Drive and then follows US 380 to FM 1827. Segment D would be elevated on bridge over the East Fork Trinity River floodplain and McIntyre Road/future Wilmeth Road for the full length of the new location alignment until it ties into existing US 380. Frontage roads on both sides of the mainlanes would be carried throughout Segment D from east of SH 5 through the interchange at Airport Drive and then connect at-grade to US 380 near FM 1827. Woodlawn Road would connect to the frontage roads. The anticipated ROW width along Segment D varies from approximately 400 feet to approximately 1,930 feet at the connection to existing US 380 near Airport Drive W/Spur.

W/O and W/Spur the Gold Alternative would require the construction of noise barriers, purchase of stream and wetland credits within USACE-approved mitigation banks, and inclusion of compensatory storage within the Honey Creek/Clemons Creek/East Fork Trinity River floodplains.

The Gold Alternative meets the project purpose and need by providing roadway capacity and network connectivity to address population growth and increases in current and forecasted traffic volumes while connecting travelers to education, employment, health care, and commerce centers in adjacent counties and

across the rest of the Dallas Metroplex. As a new location, access-controlled freeway the Gold Alternative would support travel by through-traffic at higher speeds, while reducing the volume of traffic and easing congestion along existing US 380 for local travelers, contributing to fewer crashes along existing US 380.

The total cost of the Gold Alternative is estimated at \$3.305 Billion (2023 dollars). The project would be constructed using a combination of state and federal funding. Additional mitigation (e.g., use of special noise wall materials, context sensitive design enhancements, etc.), if considered, may increase the total project cost.

2.2.2.4.c Logical Termini and Independent Utility – Gold Alternative

Federal regulations require that federally funded transportation projects have logical termini.¹⁸ Simply stated, this means that a project must have rational beginning and ending points. Those beginning and ending points may not be created simply to avoid proper analysis of environmental impacts.

The logical termini for the US 380 McKinney project are Coit Road and existing US 380 on the west and FM 1827 and existing US 380 on the east. To manage congestion and improve east-west mobility along existing US 380, the proposed improvements must tie back to existing US 380. Both Coit Road and FM 1827 were identified as logical boundaries to end the proposed new location freeway section and to allow a transition from the new location alignment back to the existing arterial facility.

- Coit Road - Multiple new location alignments were evaluated during the Feasibility Study, most originating from existing US 380 between Coit Road and N. Custer Road because of the impact a connection farther west along existing US 380 would have on residential and commercial development within the Town of Prosper and the Town's opposition to new location alignments within their jurisdiction. Following completion of the Feasibility Study, TxDOT identified Coit Road as the logical western terminus of the US 380 McKinney project to support connectivity back to existing US 380. Coit Road is classified as a minor arterial on TxDOT's Statewide Planning Map, which according to the Feasibility Study and coordination with the TTI, is projected to carry upwards of 37,000 vpd by 2050, classifying it as a major traffic generator along existing US 380.
- FM 1827 – As part of the Feasibility Study, new location alignments were considered to avoid impacts to residential and commercial development near the intersection of existing US 380 and US 75. Siting of the new location interchange at US 75 and SH 5 in the northeast quadrant of McKinney set the stage for the eastern linkages back to existing US 380 that were limited by existing and planned developments, encroachment concerns of the Town of New Hope farther to the east, the presence of the East Fork Trinity River floodplain and floodway near the eastern boundary of McKinney, and the lack of north-south arterials east of McKinney. Following completion of the Feasibility Study, TxDOT identified FM 1827 (New Hope Road) as the logical eastern terminus of the US 380 McKinney project to support connectivity back to existing US 380. FM 1827 is the first major north-south roadway east of McKinney providing regional connectivity, serving rural populations north of US 380 within Collin County and New Hope. FM 1827 is classified by TxDOT's Statewide Planning Map as a major collector. According to the Feasibility Study and coordination with TTI, FM 1827 is projected to carry upwards of 18,000 vpd by 2050, making it a substantial traffic generator along existing US 380

US 380 is the primary collector of traffic within McKinney, Prosper, and Collin County providing access to other regionally significant arterials passing through McKinney including US 75 and SH 5, to support getting travelers to education, employment, commerce, and healthcare destinations outside of Collin County.

¹⁸ 23 CFR 771.111(f)(1)

Federal regulations require a project to have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area.¹⁹ This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built.

The proposed US 380 McKinney project would provide the system linkage, connectivity, and capacity needed to serve forecasted population growth and the resulting travel demand, reduce congestion along existing US 380, and provide a safe and high-capacity facility to move people around the City of McKinney. Because the US 380 McKinney Gold Alternative would operate as a standalone facility, it cannot and does not irretrievably commit federal funds for other future transportation projects.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements. This means that a project must not dictate or restrict any future roadway alternatives. The US 380 McKinney project has been planned and designed to function independent of any other improvements. It would provide a complete and functional connection to existing US 380 as well as connectivity to US 75 and SH 5 that would address the congestion and safety needs identified without any additional improvements.

2.2.2.4.d Planning Consistency – Gold Alternative

The proposed US 380 McKinney project is included in the NCTCOG's *Mobility 2045 Update* and the 2023-2026 TIP approved by the RTC on June 9, 2022, and by FHWA on December 15, 2022. With approval of the *Mobility 2045 Update* and the 2023-2026 TIP, the project is consistent with both plans. The 2023-2026 STIP was approved by FHWA on November 18, 2022. Project-level conformity was approved by FHWA on September 26, 2023.

2.3 Comparison of Reasonable Alternatives and the No-Build Alternative

2.3.1 Methodologies Presented During Agency and Public Scoping

The *Methodology and Level of Detail for Analyzing Alternatives* matrix was shared with agencies and the public during scoping activities conducted in October 2020, and January-February 2021, respectively. The matrix included general need statements, engineering criteria, and environmental criteria based on TxDOT guidance and recommended levels of analysis for the No-Build and Purple, Blue, Brown, and Gold Build Alternatives. The initial *Methodology and Level of Detail for Analyzing Alternatives* matrix is shown in **Figure 2-13**. Comments received regarding the proposed evaluation criteria and methodologies are summarized as follows:

- Agency scoping comments included: request for U.S. Army Corps of Engineers (USACE)/Texas Commission on Environmental Quality (TCEQ) coordination, inquiry as to the level of Section 404 permitting/Section 401 water quality certification anticipated, reduce fragmentation of riparian habitats by using existing corridors and incorporating wildlife crossings into the design, effects on aquatic species/habitats and consider relocation of aquatic species under Texas Parks and Wildlife Department (TPWD) permit, request to span water crossings, incorporation of dark-sky lighting practices, coordination with utility providers regarding current and planned infrastructure improvements, use of the existing US 380 alignment through the Town of Prosper, and location and design of roadway connections between the proposed freeway and existing US 380 particularly near

¹⁹ 23 CFR 771.111(f)(2)

Figure 2-13: Methodology and Level of Detail for Analyzing Alternatives Matrix Shared with Agencies and the Public During Scoping – Purpose & Need, Engineering, and Public Input

US 380 EIS - Coit Road to FM 1827 - CSJs: 1035-02-065 and 1035-03-053 - Methodology and Level of Detail for Analyzing Alternatives

Screening/Evaluation Category		No Build Alternative	Green Alternative (Existing US 380)	Purple Alternative	Blue Alternative	Gold Alternative	Brown Alternative
Purpose & Need	Manage Congestion	How well does the alternative satisfy the identified need?					
	Improve East-West Mobility						
	Improve Safety						
Engineering	Total Alternative Length Along Centerline	miles					
	Major Utility Conflicts	number and length (feet) of crossings by utility type (large pipelines, major overhead electrical utilities, etc.)					
	Estimated Construction Cost (installed facility, ROW, utility relocations, etc.)	millions of dollars					
	Estimated Construction Cost per Mile (installed facility)	millions of dollars					
	Total Bridge Length	miles					
	Number of New Grade-Separated Interchanges	number					
	Amount of New ROW Required	acres					
Public Input	Input/Comments/Feedback/Acceptance	level of support, general sentiment, specific concerns					

SOURCE: US 380 McKinney Agency Scoping Packets, October 2020.

Figure 2-13 continued: Methodology and Level of Detail for Analyzing Alternatives Matrix Shared with Agencies and the Public During Scoping – Environmental Resources

US 380 EIS - Coit Road to FM 1827 - CSJs: 1035-02-065 and 1035-03-053 - Methodology and Level of Detail for Analyzing Alternatives

Screening/Evaluation Category	No Build Alternative	Green Alternative (Existing US 380)	Purple Alternative	Blue Alternative	Gold Alternative	Brown Alternative
Environmental Resources	Residential Displacements	number within project footprint, identify if minority/low-income				
	Business Displacements	number within project footprint, identify if minority-owned				
	Land Use	acres within footprint by land use category, effects on developable land, creation of uneconomical remnants, conformance with published plans, etc.				
	Farmland Impacts	acres of prime and statewide important farmland within footprint potentially converted to non-agricultural use				
	Farmland Impacts (separation of farmland from homestead)	number and location of properties, type of separation (main facility, supporting roadway network improvements)				
	Community Demographics and Services (EJ, LEP, Title VI)	minority, low-income, disabled, elderly populations within footprint, type and magnitude of effects - displacements (see above), community cohesion, accessibility to community facilities (see below), bicycle/pedestrian issues, emergency services access/travel time				
	Community Facilities (schools, places of worship, libraries, etc.)	number, type, ownership, population served				
	Visual/Aesthetic Impacts	changes in visual character, sight lines (grade separations), signage, lighting; effects on important views/viewsheds in the project area				
	Archeological Sites and Cemeteries	number and proximity of properties to the footprint (cemeteries, recorded sites, high probability areas)				
	Historic Properties	number and proximity of properties to the footprint (NRHP-listed and NRHP-eligible properties)				
	Protected Lands (Section 4(f), Section 6(f), Chapter 26 Properties)	number, ownership, funding, public accessibility, acres within footprint				
	Waters of the US - Wetlands	acres within footprint by type (emergent, scrub-shrub, forested) and jurisdictional status				
	Waters of the US - Streams and Rivers	number of crossings and linear feet within footprint by type (ephemeral, intermittent, perennial) and jurisdictional status				
	Section 303(d) Waters	proximity of impaired assessment unit (within 5 linear miles of water, watershed, or drains to)				
	Floodplains (100-year) and Floodways	acres of each within footprint, longitudinal or perpendicular crossing				
	Impacts to Vegetation/Habitat	acres within footprint by type (riparian forest, upland forest, meadow/pasture/old field, etc.) by EMST classification/field verification				
	Impacts to Wildlife	species and habitat affected, habitat fragmentation, movement corridors				
	Threatened, Endangered, or Candidate Species	species, Federal/State status, potential effects				
	State Species of Greatest Conservation Need (SGCN)	species, potential impacts				
	Air Quality	do anticipated emissions from future predicted traffic volumes necessitate the need for a conformity analysis, CO analysis, MSAT, or CMP?				
	Hazardous Materials	number of potential regulated materials sites and level of risk (low, moderate, high) and proximity to footprint				
	Traffic Noise	location and number of sensitive noise receivers that experience an increase in traffic noise levels that approach or exceed the FHWA NAC or that will substantially exceed existing noise levels				
	Induced Growth	location and number of parcels within a defined area of influence (AOI) that may be subject to development/redevelopment induced by the proposed project				
	Reasonably Foreseeable/Cumulative Effects	reasonably foreseeable effects of this project in combination with other related actions within the project area				

SOURCE: US 380 McKinney Agency Scoping Packets, October 2020.

the intersection with FM 1827 in New Hope. The summary of agency comments received is included in **Appendix F**.

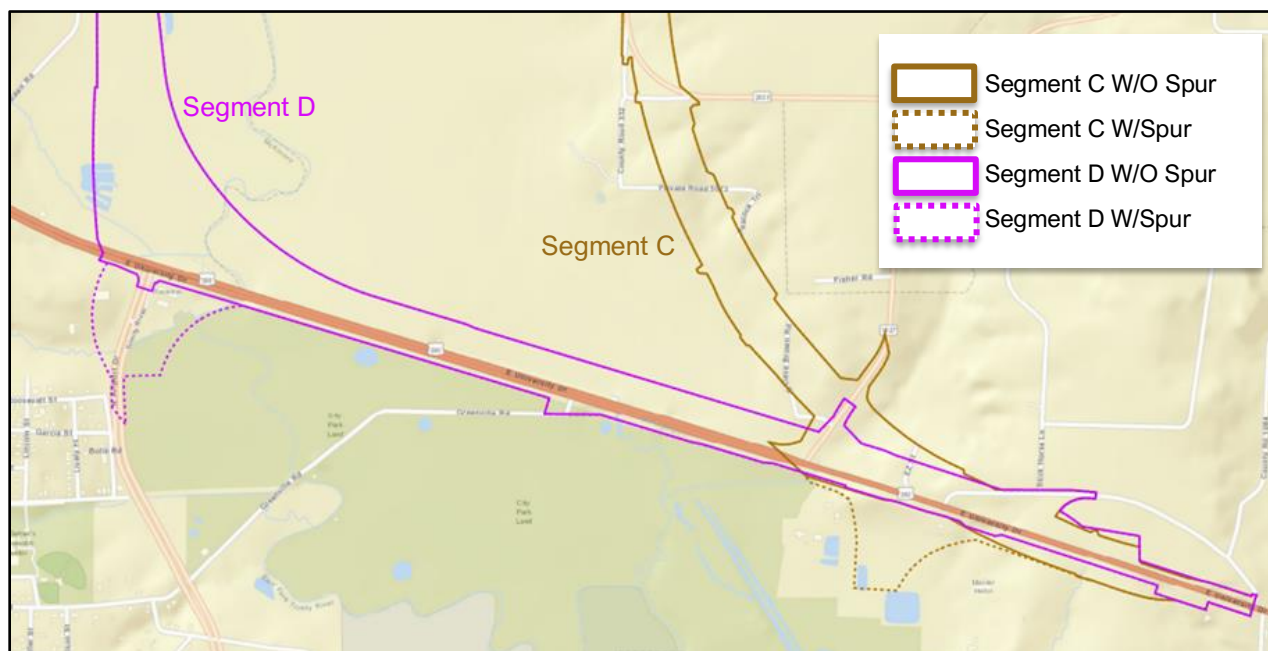
- Public scoping comments included: air quality and TxDOT required analyses, traffic noise, potential residential displacements, impacts to parks and community facilities including the proximity of the alignments to schools, effects on planned and future development and coordination with municipal plans, potential effects on ManeGait Therapeutic Horsemanship facility, loss of habitat and impacts to wildlife species, and consideration of the “Teal Alignment”. The summary of public comments received is included in **Appendix F**.

2.3.2 Comparison of Reasonable Alternatives

The matrix shared during scoping (**Figure 2-13**) was adapted to reflect the results of ongoing study of the reasonable alternatives and presented at the March 22, 2022, public meeting (in-person and virtual). Data in relevant categories were presented to compare the potential impacts of the No Build and Build Alternatives based on the developing Geometric Schematic Design (see **Appendix B** of the DEIS for all Build Alternatives). Some environmental categories were combined, some quantitative data were provided, and results for other categories still under review were presented in a qualitative form.

A separate, independent project was approved by TxDOT on March 29, 2023, to extend Spur 399 south of the eastern US 380 McKinney project terminus (CSJs 0364-04-051, 0047-05-058, 0047-10-002). Because an alignment had not been determined for the Spur 399 Extension during development of the US 380 McKinney DEIS, the US 380 McKinney Build Alternatives evaluated impacts under two scenarios “with Spur 399 Extension” (W/Spur) and “without Spur 399 Extension” (W/O Spur). W/Spur included the acquisition of additional ROW south of existing US 380 to provide an interchange connecting to the proposed Spur 399 Extension along the US 380 McKinney project Segments C or D. W/O Spur was the US 380 McKinney proposed ROW only connecting to existing US 380 east of McKinney at an at-grade intersection (see **Figure 2-14**). The effects of both W/Spur and W/O Spur are discussed, where applicable, throughout Chapter 3 of the DEIS. With the additional detail provided in the 95% Geometric Design Schematic submitted for the Blue Alternative (A+E+C) in May 2023, the affected environment and impact discussion of the Blue Alternative has been updated in Chapter 3 of this FEIS. The affected environment for Segments A, E, and C for the Purple, Brown, and Gold Alternatives has been updated, where applicable, but because the additional level of detail and schematic design has not been developed for Segments B and D, an update of the total impacts of the Purple, Brown, and Gold Alternatives cannot be provided in the FEIS. Because the ROD for the Spur 399 Extension was issued on March 29, 2023, the impacts of the Preferred Alternative/Blue Alternative include the proposed ROW needed for the multi-level interchange connecting US 380 McKinney (Segment C), existing US 380, and the Spur 399 Extension (W/Spur) near FM 1827.

Figure 2-14: US 380 McKinney W/Spur and W/O Spur



The following effects of the Reasonable Alternatives are provided to supplement the information provided in the Alternatives Comparison Matrix (Figure 2-15).

- **Improve Mobility and Connectivity** – Each Build Alternative would improve mobility over the No-Build Alternative by providing additional capacity to address congestion along existing US 380 and enhancing east-west mobility. Regional travelers and those residents accessing services outside of the Study Area would be able to travel at higher speeds and experience reduced travel times along the freeway while persons needing to access local businesses and neighborhoods would have a less congested drive along existing US 380 (see Figure 2-15 in the FEIS). No major differences in travel time, travel speed, or level of service (LOS – measure of traffic congestion) occurs among the Build Alternatives considered (see Figure 2-15).
- **Displacements** – Each Build Alternative potentially displaces residences and businesses. The highest concentration of existing residential uses is along Segment E, the segment common to all four Build Alternatives. Commercial displacements primarily occur along sections of existing US 380 (Segments A, C, and D). The Brown Alternative (B+E+C) has the highest number of potential residential displacements (30) W/Spur (with only Segments E and C updated based on the May 2023 95% Geometric Design Schematic). Although the Blue Alternative would potentially displace the highest number of potential commercial displacements (38) and the second highest number of potential residential displacements (26) of the Build Alternatives considered, the Blue Alternative avoids numerous planned and under-construction residences along Segment B that would be potentially displaced by the Brown and Gold Alternatives. The high number of commercial displacements associated with the Blue Alternative is because of the length of existing US 380 through the Town of Prosper that would be widened and the multi-level interchange connecting US 380 McKinney, existing US 380, and the Spur 399 Extension Selected Alternative near the eastern project terminus (see Figures 3-1, 3-2, 3-3, 3-28, and 3-29 of the FEIS).
- **Community Facilities**– No community facilities are displaced by any of the Build Alternatives, but all Build Alternatives would require ROW from planned parks in the Town of Prosper (see Section 3.9). Access via frontage roads and connectivity to the local roadway network would maintain access to

adjacent neighborhoods, and existing and planned trails and sidewalk systems. Traffic noise analyses (described below) have been conducted for all Build Alternatives and abatement in the form of building a noise wall or barrier was included where determined feasible and reasonable to reduce traffic noise for adjacent homes, parks, schools, and community facilities including ManeGait.

- **Relocation of Major Utilities** – Major utility conflicts²⁰ occur along every study segment and include water distribution lines, wastewater/sanitary sewers, electrical distribution lines, gas pipelines, and their supporting infrastructure. The Purple Alternative requires the largest number of major utility relocation (15) adding nearly \$118.4 million to the cost of the alternative. It follows a long stretch of existing US 380 (Segment A), existing Bloomdale Road (Segment E like all Build Alternatives), and crosses US 75 to travel south through the East Fork Trinity River floodplain where several utilities also cross. The Blue Alternative requires the second largest number of major utility relocations (12) of the Build Alternatives considered, adding nearly \$99.3 million to the cost of the alternative (see **Figure 3-20** of the FEIS), encountering the same utilities along Segments A and E as the Purple Alternative, but requires fewer major utility relocations along Segment C compared to Segment D. Following the public hearing on the DEIS, TxDOT confirmed with the NTMWD that two additional 48-inch wastewater lines had been installed within the eastern portion of the Study Area since development of the 60% Geometric Design Schematic. These two wastewater lines cross both Segments C and D, adding two additional major utility relocations and the cost associated with them to each Build Alternative. Extensive coordination among TxDOT, the City of McKinney, and NTMWD has minimized to the extent practicable conflicts with existing and proposed utilities along Segment E.
- **Park and Public Land Impacts** – All Build Alternatives would require ROW from the Town of Prosper’s planned Rutherford Park along existing US 380 (Segments A and B). The Brown and Gold Alternatives would require ROW from two additional planned parks in Prosper, and the Purple and Gold Alternatives W/Spur (Segment D) would require ROW from the Trinity River Greenway south of existing US 380 to accommodate a future interchange connection to existing US 380 and the proposed Spur 399 Extension Purple Alternative. Impacts to the Trinity River Greenway are avoided by the Blue and Brown Alternatives (Segment C). None of the Build Alternatives would require ROW from Erwin Park along Segment E. The Blue Alternative only impacts one park property compared to two to four park properties impacted by the other Build Alternatives. SUPs proposed along the outside of the frontage roads would provide connectivity to existing and planned trail and sidewalk systems in both Prosper and McKinney, many of which connect or will connect to public parklands.
- **Water Features** – All of the Build Alternatives result in unavoidable impacts to floodplains and associated stream and wetland features because of the general northwest to southeast flow of the major stream corridors and the east-west orientation of existing US 380. Like all Build Alternatives, the Blue Alternative uses bridges to span floodways and to minimize the placement of fill material, including bridge bents, within the mapped 100-year floodplain. The Blue Alternative has the smallest acreage of mapped 100-year floodplain within its proposed ROW, has the smallest permanent impact on wetlands (0.06 acres), but the largest permanent impact to rivers and streams (9,690 linear feet). The layout of bridge piers/bents and the use of elevated structures in lieu of embankment fill to avoid and minimize impacts has been and will continue to be considered as final design of the Blue Alternative progresses. Based on the Geometric Schematic Design submitted in July 2022, the crossings identified for each Build Alternative would meet the terms and conditions of Nationwide Permit (NWP) 14 with a Pre-Construction Notification (PCN). Even with the design refinements made in the May 2023 95% Geometric Design Schematic, the Blue Alternative would still meet the terms and conditions of a NWP 14 with a PCN. Compensatory storage to offset the unavoidable placement of fill

²⁰ Major utility conflicts may be resolved by relocating the utility or by bridging over or reinforcing the area above the utility (encasement) to accommodate the roadway. Each major utility relocation will be reviewed further during final design.

below the 100-year water surface elevation is needed for each Build Alternative because of the interchange and road segment connections at US 75 and SH 5 along Segment E.

- **Traffic Noise** – Based on the analysis conducted in the DEIS, the Blue and Purple Alternatives impacted the fewest number of receptors (207 and 206, respectively), primarily because they avoided the residences planned for construction within the next 2 to 5 years along Segment B within the Town of Prosper. Updated noise modelling to account for the design changes to the Blue Alternative presented at the public hearing and the incorporation of additional residential building permits issued since the previous noise modelling was conducted in April 2022, resulted in the inclusion of eight noise barriers benefitting 319 receivers in the FEIS compared to four noise barriers benefitting 74 receivers as disclosed in the DEIS.

The Alternatives Comparison Matrix (**Figure 2-15**) summarizes the analysis of quantifiable data under each performance measure and criterion identified to compare the Purple, Blue, Brown, Gold, and No-Build Alternatives. Only the Blue Alternative has been updated since publication of the DEIS and based on the May 2023 95% Geometric Design Schematic.

Figure 2-15: Alternatives Comparison Matrix

Performance Measure	Criterion	Evaluation Parameter and Units	PURPLE ALTERNATIVE (A+E+D)	BLUE ALTERNATIVE (A+E+C)	BROWN ALTERNATIVE (B+E+C)	GOLD ALTERNATIVE (B+E+D)	NO-BUILD ALTERNATIVE
PURPOSE AND NEED							
Improve Mobility and Connectivity	Manage Congestion – Improve travel time across corridor in the design year (2050) over existing (2020).	Measured by the projected time in minutes it takes a motorist to drive the alignment in 2050 (Coit Road to FM 1827 - both morning and evening rush hour and both directions). Derived from Highway Capacity Software using TxDOT approved projections based on the NCTCOG Travel Demand Model, historical roadway volumes, future growth projections, and census data.	Morning Rush Hour: 14.3 minutes Eastbound 15.8 minutes Westbound Evening Rush Hour: 14.5 minutes Eastbound 15.6 minutes Westbound	Morning Rush Hour: 14.2 minutes Eastbound 15.6 minutes Westbound Evening Rush Hour: 14.5 minutes Eastbound 15.4 minutes Westbound	Morning Rush Hour: 13.6 minutes Eastbound 14.5 minutes Westbound Evening Rush Hour: 14.0 minutes Eastbound 14.2 minutes Westbound	Morning Rush Hour: 13.7 minutes Eastbound 14.7 minutes Westbound Evening Rush Hour: 14.0 minutes Eastbound 14.4 minutes Westbound	Morning Rush Hour: 70.9 minutes Eastbound 91.5 minutes Westbound Evening Rush Hour: 118.8 minutes Eastbound 108.3 minutes Westbound
	Manage Congestion – Improve average moving speed in the design year (2050) over existing (2020).	Measured by the average projected speed in miles per hour (mph), it takes a motorist to drive the alignment in the year 2050 (Coit Road to FM 1827 - both morning and evening rush hour and both directions). Derived from Highway Capacity Software using TxDOT approved projections based on the NCTCOG Travel Demand Model, historical roadway volumes, future growth projections, and census data.	Morning Rush Hour: 66.6 mph Eastbound 63.2 mph Westbound Evening Rush Hour: 66.6 mph Eastbound 63.9 mph Westbound	Morning Rush Hour: 66.0 mph Eastbound 63.5 mph Westbound Evening Rush Hour: 65.3 mph Eastbound 64.1 mph Westbound	Morning Rush Hour: 66.0 mph Eastbound 63.8 mph Westbound Evening Rush Hour: 65.0 mph Eastbound 65.0 mph Westbound	Morning Rush Hour: 66.6 mph Eastbound 63.5 mph Westbound Evening Rush Hour: 65.5 mph Eastbound 64.9 mph Westbound	Morning Rush Hour: 14 mph Eastbound 10 mph Westbound Evening Rush Hour: 10 mph Eastbound 9 mph Westbound
	Improve East-West Mobility – roadway to operate at an acceptable level of service (LOS) in 2050 (acceptable >LOS D).	LOS using a scale of A to F Derived from the Highway Capacity Software using TxDOT-approved traffic projections based on the NCTCOG Travel Demand Model, historical roadway volumes, future growth projections, and census data.	Morning Rush Hour: LOS B Eastbound LOS C Westbound Evening Rush Hour: LOS C Eastbound LOS B Westbound	Morning Rush Hour: LOS B Eastbound LOS C Westbound Evening Rush Hour: LOS B Eastbound LOS B Westbound	Morning Rush Hour: LOS B Eastbound LOS C Westbound Evening Rush Hour: LOS B Eastbound LOS B Westbound	Morning Rush Hour: LOS B Eastbound LOS C Westbound Evening Rush Hour: LOS B Eastbound LOS B Westbound	Morning Rush Hour: LOS F Eastbound LOS F Westbound Evening Rush Hour: LOS F Eastbound LOS F Westbound
	Improve safety compared to existing US 380.	2050 predictive crashes, mainlanes only.	361 total predicted crashes in 2050 110 fatal and injury crashes in 2050	346 total predicted crashes in 2050 107 fatal and injury crashes in 2050	329 total predicted crashes in 2050 101 fatal and injury crashes in 2050	344 total predicted crashes in 2050 104 fatal and injury crashes in 2050	900 total predicted crashes in 2050 406 fatal and injury crashes in 2050
Does the Alternative meet the stated Purpose and Need? (Yes or No)			YES	YES	YES	YES	NO

Figure 2-15 continued: Alternatives Comparison Matrix

Performance Measure	Criterion	Evaluation Parameter and Units	PURPLE ALTERNATIVE (A+E+D)	BLUE ALTERNATIVE (A+E+C)	BROWN ALTERNATIVE (B+E+C)	GOLD ALTERNATIVE (B+E+D)	NO-BUILD ALTERNATIVE
PROPERTY AND COMMUNITY IMPACTS							
Potential Property Impacts	Minimize residential displacements.	Number of single-family residential displacements.	22 W/O Spur 22 W/Spur	26 W/O Spur 26 W/Spur	30 W/O Spur 30 W/Spur	26 W/O Spur 26 W/Spur	None
	Minimize business displacements.	Number of business displacements – primary building within the proposed ROW.	35 W/O Spur 37 W/Spur	38 W/O Spur 38 W/Spur	21 W/O Spur 21 W/Spur	19 W/O Spur 21 W/Spur	None
	Minimize “other” displacements.	Number of displacements of other structures not considered primary residences or businesses (e.g., garages, barns, sheds, etc.)	10 W/O Spur 10 W/Spur	9 W/O Spur 9 W/Spur	9 W/O Spur 9 W/Spur	9 W/O Spur 9 W/Spur	None
Low-Income and Minority Populations	Minimize impacts to Low-Income and Minority Communities (Environmental Justice).	Are there EJ communities that will suffer disproportionately high or adverse impacts – Yes or No?	No	No	No	No	Yes. Drivers avoiding congestion and traffic incidents seek faster routes around US 380 cutting-through the Lively Hill/La Loma, Central/Mouzon, and Old East McKinney/Free Methodist College neighborhoods. Businesses owned by and serving minority populations would continue to suffer from congestion and difficulties accessing their properties along existing US 380.
Community Facilities	Minimize impacts to community facilities.	Number of community facilities impacted or separated from neighborhoods served.	0	0	0	0	0
Protected Lands	Avoid/minimize impacts to Section 4(f), Section 6(f), and Chapter 26 protected lands.	Number and type of protected land and the anticipated level of impact.	2 W/Spur - Trinity River Greenway and Planned Rutherford Park (1.22 acres). 1 W/O Spur - Planned Rutherford Park (1.22 acres).	1 W/O and W/Spur - Planned Rutherford Park (1.22 acres).	3 W/O and W/Spur - Planned Rutherford Park (2.62 acres), Planned Ladera Park, and Planned Wandering Creek Park.	4 W/Spur - Trinity River Greenway, Planned Rutherford Park (2.62 acres), Planned Ladera Park, Planned Wandering Creek Park. 3 W/O Spur - Planned Rutherford Park (2.62 acres), Planned Ladera Park, Planned Wandering Creek Park.	No ROW would be acquired from Section 4(f), Section 6(f), or Ch. 26 protected lands.
Hazardous Material Sites	Avoid/minimize risks from hazardous material sites.	Number of sites of moderate or high risk within or adjacent to the proposed ROW.	7 moderate/2 high W/O Spur 8 moderate/3 high W/Spur	10 moderate/2 high W/O Spur 10 moderate/2 high W/Spur	8 moderate W/O Spur 8 moderate W/Spur	5 moderate W/O Spur 6 moderate/1 high W/Spur	No sites of moderate or high risk would be affected.
Farmland	Minimize impacts to prime and statewide important farmland.	Acres of prime and statewide important farmland in the proposed ROW; percent of the affected farmland in an Urbanized Area.	339.0 acres Prime/Statewide Important W/O Spur 338.9 acres Prime/Statewide Important W/Spur 88.6% in Urbanized Area W/O Spur 88.8% in Urbanized Area W/Spur	330.5 acres Prime/Statewide Important W/O Spur 330.5 acres Prime/Statewide Important W/Spur 82.2% in Urbanized Area W/O Spur 82.5% in Urbanized Area W/Spur	335.9 acres Prime/Statewide Important W/O Spur 335.9 acres Prime/Statewide Important W/Spur 79.7% in Urbanized Area W/O Spur 80.2% in Urbanized Area W/Spur	344.5 acres Prime/Statewide Important W/O Spur 335.9 acres Prime/Statewide Important W/Spur 79.7% in Urbanized Area W/O Spur 80.2% in Urbanized Area W/Spur	No conversion of prime or statewide important farmland would occur.
Induced Growth	Induced growth	Would the action induce growth – Yes or No?	No. Most of the land adjacent to Segments A and E is developed or planned to be developed with limited properties available. Presence of the East Fork Trinity River floodplain along Segment D makes development prohibitive.	Yes, but limited to along Segment C as it is open, undeveloped, and no developments are currently planned. Induced growth would be limited along Segment A and E because the land is already developed or planned to be developed.	Yes, but limited to along Segment C as it is open, undeveloped, and no developments are currently planned. Induced growth would be limited along Segment B and E because the land is already developed or planned to be developed.	No. Most of the land adjacent to Segments B and E is developed or planned to be developed with limited properties available. Presence of the East Fork Trinity River floodplain along Segment D makes development prohibitive.	No. Congestion along US 380 and the lack of available properties not already developed or planned for development would limit the induced growth potential.

NOTE: Data for the Blue Alternative have been updated, where applicable, based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B of the FEIS). Data for Segments A, E, and C under the Purple, Brown, and Gold Alternatives have been updated under some categories based on the May 2023 Blue Alternative. See the specific resource sections for further discussion. Because an updated schematic has not been developed for Segments B and D, the remaining data for the Purple, Brown, and Gold Alternatives are based on the July 2022 60% Geometric Design Schematic included in Appendix B of the DEIS.

Figure 2-15 continued: Alternatives Comparison Matrix

Performance Measure	Criterion	Evaluation Parameter and Units	PURPLE ALTERNATIVE (A+E+D)	BLUE ALTERNATIVE (A+E+C)	BROWN ALTERNATIVE (B+E+C)	GOLD ALTERNATIVE (B+E+D)	NO-BUILD ALTERNATIVE
PROPERTY AND COMMUNITY IMPACTS, continued							
Traffic Noise	Minimize noise impacts on receptors.	Number of receptors that approach/exceed the respective NAC under the build condition in 2050.	206 W/O and W/Spur	906 W/Spur	396 W/O and W/Spur	395 W/O and W/Spur	More than 1,000 existing receptors would experience traffic noise levels that exceed the applicable NAC in the areas around Segments A, E, and C. Additional receptors along the remainder of existing US 380 (between Ridge Road and FM 1827) would most likely experience similarly high traffic noise levels.
		Number of receptors that have substantial increases in noise levels in 2050.	93 W/O and W/Spur	385 W/Spur	328 W/O and W/Spur (includes future developments along Segment B)	330 W/O and W/Spur (includes future developments along Segment B)	
		Number of locations where noise abatement is determined feasible and reasonable; and number of benefitted receivers.	4 barriers 74 benefitted receivers (W/O and W/Spur)	8 barriers 319 benefitted receivers (W/Spur)	6 barriers 123 benefitted receivers (W/O and W/Spur)	6 barriers 123 benefitted receivers (W/O and W/Spur)	No noise abatement would be provided along existing US 380 between Coit Road and FM 1827.
Air Quality	Evaluate air quality impacts.	Reduces Mobile Source Air Toxics (MSAT) as compared to current conditions – Yes or No?	Yes, regardless of the alternative, MSAT are expected to decline significantly in the future due to federal regulations on vehicles, fuels, fleet turnover, and increased use of electric vehicles.				No No-Build traffic volumes would not exceed 140,000 vpd in 2050.
		Do Design Year [2050] traffic volumes warrant a Carbon Monoxide (CO) Traffic Air Quality Analysis (TAQA)?	Yes, Design Year [2050] traffic forecasts for mainlanes and frontage roads combined exceed the 140,000 vpd threshold, therefore warranting a CO TAQA.				No No-Build traffic volumes would not exceed 140,000 vpd in 2050.
		Is the project consistent with the regional conformity determination?	Regardless of the Build Alternative, the Preferred Alternative will be in a nonattainment area and will be evaluated for consistency with the regional emissions analysis in the MTP and the STIP by FHWA.				No
		Is the project consistent with NCTCOG's project-level Congestion Management Process (CMP) coordination?	Regardless of the Build Alternative selected, the Preferred Alternative will be included in the NCTCOG's adopted CMP.				No
Visual Impacts	Change in visual character of the Study Area.	Design features that potentially change the visual character of the Study Area, change sight lines, obstruct existing views, etc.	Grade-separations, elevated roadway sections, ramps, signage, and safety lighting would be introduced in both rural and developing suburban areas that will change the visual character. The elevated freeway would create a more substantial physical and visual barrier between neighborhoods already separated by arterials (Us 380, Bloomdale Road) and preclude views of the surrounding landscape from locations along the corridor.				No change would occur in the visual character of the Study Area.

NOTE: Data for the Blue Alternative have been updated, where applicable, based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B of the FEIS). Data for Segments A, E, and C under the Purple, Brown, and Gold Alternatives have been updated under some categories based on the May 2023 Blue Alternative. See the specific resource sections for further discussion. Because an updated schematic has not been developed for Segments B and D, the remaining data for the Purple, Brown, and Gold Alternatives are based on the July 2022 60% Geometric Design Schematic included in Appendix B of the DEIS.

Figure 2-15 continued: Alternatives Comparison Matrix

Performance Measure	Criterion	Evaluation Parameter and Units	PURPLE ALTERNATIVE (A+E+D)	BLUE ALTERNATIVE (A+E+C)	BROWN ALTERNATIVE (B+E+C)	GOLD ALTERNATIVE (B+E+D)	NO-BUILD ALTERNATIVE
NATURAL AND CULTURAL RESOURCES							
Historic and Archeological Resources	Avoid/minimize impacts to NRHP-eligible historic resources.	Number of NRHP-eligible historic resources affected by the alternative.	0	0	0	0	0
	Avoid/minimize impacts to recorded archeological sites.	Number of NRHP-eligible archeological sites affected by the alternative.	1 W/O and W/Spur	1 W/O and W/Spur	1 W/O and W/Spur	1 W/O and W/Spur	0
	Avoid impacts to cemeteries.	Number of cemeteries within or adjacent to proposed ROW.	0	0	0	0	0
	Avoid impacts to historic Section 4(f) properties.	Number of protected historic properties and type of Section 4(f) use/documentation (temporary use, <i>de minimis</i> , Programmatic, or Individual).	0	0	0	0	0
Water Resources	Minimize permanent impacts to Wetlands.	Total area of potentially jurisdictional wetlands within proposed ROW (acres). ²¹	W/O Spur 1.03 acres permanent impacts 9.95 acres temporary impacts W/Spur 1.03 acres permanent impacts 9.95 acres temporary impacts	W/O Spur 0.72 acres permanent impacts 7.73 acres temporary impacts W/Spur 0.06 acres permanent impacts 9.36 acres temporary impacts	W/O Spur 0.51 acres permanent impacts 9.05 acres temporary impacts W/Spur 0.62 acres permanent impacts 12.78 acres temporary impacts	W/O Spur 0.82 acres permanent impacts 11.27 acres temporary impacts W/Spur 0.82 acres permanent impacts 11.27 acres temporary impacts	None
	Minimize permanent impacts to Rivers/Streams.	Total linear feet (LF) of potentially jurisdictional streams within proposed ROW.	W/O Spur 9,185 LF permanent impacts 9,978 LF temporary impacts W/Spur 9,185 LF permanent impacts 9,978 LF temporary impacts	W/O Spur 10,433 LF permanent impacts 9,296 LF temporary impacts W/Spur 9,690 LF permanent impacts 10,002 LF temporary impacts	W/O Spur 7,951 LF permanent impacts 8,328 LF temporary impacts W/Spur 7,951 LF permanent impacts 8,328 LF temporary impacts	W/O Spur 6,783 LF permanent impacts 9,010 LF temporary impacts W/Spur 6,783 LF permanent impacts 9,010 LF temporary impacts	None
	Minimize impacts to 100-year floodplain areas.	Area mapped as 100-YR floodplain within proposed ROW (acres).	262 acres W/O Spur 268 acres W/Spur	166 acres W/O Spur 175 acres W/Spur	171 acres W/O Spur 180 acres W/Spur	267 acres W/O Spur 273 W/Spur	Existing US 380 crosses the same floodplains (Wilson Creek and the East Fork Trinity River) as the Build Alternatives but a locations lower in the watershed where the floodplain is wider.
	Minimize impacts to regulatory floodway.	Area mapped as regulatory floodway within proposed ROW (acres).	141 acres W/O Spur 142 acres W/Spur	67 acres W/O Spur 93 acres W/Spur	62 acres W/O Spur 88 acres W/Spur	136 acres W/O Spur 137 acres W/Spur	Existing US 380 crosses the mapped floodway of Wilson Creek and the East Fork Trinity River.
	Proximity to impaired waters (303(d)).	Number of impaired waterway segments that cross the proposed ROW (number).	2 W/O and W/Spur	2 W/O and W/Spur	2 W/O and W/Spur	2 W/O and W/Spur	2 crossings of existing ROW
	Vegetation and Habitat	Minimize forest habitat impacts.	Area of forest (riparian, upland) within proposed ROW (acres).	185.0 acres W/O Spur 189.4 acres W/Spur	215.5 acres W/O Spur 215.1 acres W/Spur	209.1 acres W/O Spur 210.4 acres W/Spur	179.3 acres W/O Spur 183.6 acres W/Spur
Minimize disturbed prairie/grassland habitat impacts.		Area of grassland (tallgrass prairie, grassland, disturbed prairie) within proposed ROW (acres).	157.8 acres W/O Spur 159.4 acres W/Spur	212.7 acres W/O Spur 215.1 acres W/Spur	231.8 acres W/O Spur 238.9 acres W/Spur	180.8 acres W/O Spur 182.3 acres W/Spur	None

NOTE: Data for the Blue Alternative have been updated, where applicable, based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B of the FEIS). Data for Segments A, E, and C under the Purple, Brown, and Gold Alternatives have been updated under some categories based on the May 2023 Blue Alternative. See the specific resource sections for further discussion. Because an updated schematic has not been developed for Segments B and D, the remaining data for the Purple, Brown, and Gold Alternatives are based on the July 2022 60% Geometric Design Schematic included in Appendix B of the DEIS.

²¹ Ponds removed from the total wetland acreage; see Figure 3-46 for subtotal breakdown by wetlands, ponds, and streams.

Figure 2-15 continued: Alternatives Comparison Matrix

Performance Measure	Criterion	Evaluation Parameter and Units	PURPLE ALTERNATIVE (A+E+D)	BLUE ALTERNATIVE (A+E+C)	BROWN ALTERNATIVE (B+E+C)	GOLD ALTERNATIVE (B+E+D)	NO-BUILD ALTERNATIVE
NATURAL AND CULTURAL RESOURCES continued							
Protected Species	Minimize impacts to potential Black Rail (BLRA) and Whooping Crane (WHCR) stop-over habitats.	Presence and quality of stop-over habitats within proposed ROW.	BLRA – “no effect”; habitat present, considered of marginal quality and only incidental/ephemeral use. WHCR – “no effect”; habitat present, considered suitable but only incidental/ephemeral use. Same W/O and W/Spur.	BLRA – “no effect”; habitat present, considered of marginal quality and only incidental/ephemeral use. WHCR – “no effect”; habitat present, considered suitable but only incidental/ephemeral use. Same W/O and W/Spur.	BLRA – “no effect”; habitat present, considered of marginal quality and only incidental/ephemeral use. WHCR – “no effect”; habitat present, considered suitable but only incidental/ephemeral use. Same W/O and W/Spur.	BLRA – “no effect”; habitat present, considered of marginal quality and only incidental/ephemeral use. WHCR – “no effect”; habitat present, considered suitable but only incidental/ephemeral use. Same W/O and W/Spur.	None
	Minimize potential impacts to state-listed mussel species.	Number of perennial stream crossings within the proposed ROW (number).	6 W/O and W/Spur	7 W/O and W/Spur	6 W/O and W/Spur	5 W/O and W/Spur	19 crossings of existing ROW
	Minimize potential to SGCN bat species.	Number of wooded habitat crossings within the proposed ROW (number).	30 W/O and W/Spur	32 W/O and W/Spur	32 W/O and W/Spur	30 W/O and W/Spur	15 crossings of existing ROW
	Minimize potential impacts to federally protected species (listed and proposed for listing).	Species with potential habitat within the proposed ROW.	Alligator snapping turtle, Texas fawnsfoot, tricolored bat, Louisiana pigtoe, Texas heelsplitter, and monarch butterfly. Same W/O and W/Spur.	Alligator snapping turtle, Texas fawnsfoot, tricolored bat, Louisiana pigtoe, Texas heelsplitter, and monarch butterfly. Same W/O and W/Spur.	Alligator snapping turtle, Texas fawnsfoot, tricolored bat, Louisiana pigtoe, Texas heelsplitter, and monarch butterfly. Same W/O and W/Spur.	Alligator snapping turtle, Texas fawnsfoot, tricolored bat, Louisiana pigtoe, Texas heelsplitter, and monarch butterfly. Same W/O and W/Spur.	The same protected species may occupy habitats within or adjacent to the existing ROW.
ENGINEERING							
Provide a freeway facility meeting current design standards	Minimize project costs while also avoiding significant environmental impacts.	Total Length Along Mainlane Centerline	15.8 miles W/O and W/Spur	15.6 miles W/O and W/Spur	14.8 miles W/O and W/Spur	16.3 miles W/O and W/Spur	Although no money would be spent building a new road, purchasing ROW, or relocating utilities, long-term costs would occur associated with existing road maintenance and programmed improvements, increased congestion and travel times/delay, and safety considerations as travel demand continues to increase along existing US 380 and other regional arterials.
		Total length of all bridges or elevated structures (measured in both directions) needed to clear water features, cross-roads, ramps, etc.	30.38 miles W/O Spur (additional bridges would be added for the interchange at the eastern terminus with existing US 380)	23.2 miles W/O Spur 27.71 miles W/Spur	24.52 miles W/O Spur (additional bridges would be added for the interchange at the eastern terminus with existing US 380)	31.98 miles W/O Spur (additional bridges would be added for the interchange at the eastern terminus with existing US 380)	
		Number of new grade separated interchanges to maintain freeway design standards and provide access to local/regional roadway system.	17 W/O Spur 19 W/Spur	19 W/O Spur 19 W/Spur	18 W/O Spur 19 W/Spur	16 W/O Spur 18 W/Spur	
		Major Utility Relocations (water mains, wastewater lines, gas pipelines, transmission lines, etc.).	15 W/O and W/Spur	12 W/O and W/Spur	8 W/O and W/Spur	11 W/O and W/Spur	
		Acres of New ROW Anticipated.	672.5 acres W/O Spur 683.2 acres W/Spur	663.2 acres W/O Spur 674.5 acres W/Spur	682.4 acres W/O Spur 693.7 acres W/Spur	691.7 acres W/O Spur 702.5 acres W/Spur	
Estimated Total Project Cost	Minimize costs while minimizing impacts.	2023 dollars	\$3.447 Billion	\$3.267 Billion (W/Spur)	\$3.125 Billion	\$3.305 Billion	

NOTE: Data for the Blue Alternative have been updated, where applicable, based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B of the FEIS). Data for Segments A, E, and C under the Purple, Brown, and Gold Alternatives have been updated under some categories based on the May 2023 Blue Alternative. See the specific resource sections for further discussion. Because an updated schematic has not been developed for Segments B and D, the remaining data for the Purple, Brown, and Gold Alternatives are based on the July 2022 60% Geometric Design Schematic included in Appendix B of the DEIS.

2.4 Identification of Preferred Alternative

The Blue Alternative (A+E+C) is recommended as the Preferred Alternative and has been developed to a higher level of detail than the other reasonable alternatives to facilitate the development of mitigation measures and concurrent compliance with other applicable laws, as provided for by 23 USC §139(f)(4)(D). Development of a higher level of detail will not prevent TxDOT from making an impartial decision as to whether to accept another alternative.

Although the Blue Alternative results in a relatively high number of potential residential and commercial displacements (primarily due to the expansion of a greater length of existing US 380 through the Town of Prosper and the introduction of the multi-level interchange at the east project terminus), it avoids displacing the numerous planned and under-construction residences within the Town of Prosper along Segment B. The Blue Alternative requires the second lowest acreage of new ROW compared to the other Build Alternatives. The changes to the Blue Alternative evaluated in the FEIS resulted in reductions in permanent wetland and stream impacts and acres of forest and farmland impacted compared to the impacts presented in the DEIS. The Blue Alternative would not displace any community facility but does require ROW from one park (the planned Rutherford Park along existing US 380 in the Town of Prosper) compared to ROW needed from two to four parks for the other Build Alternatives. The changes presented at the public hearing and evaluated in the FEIS resulted in the Blue Alternative exposing many more receptors to traffic noise primarily due to the number of additional building permits issued along the alignment since the noise model was run in April 2022. The noise modeling in the FEIS resulted in the inclusion of nine feasible and reasonable noise barriers along the Blue Alternative, five more than discussed in the DEIS.

The Blue Alternative has been planned and designed to function independent of any other improvements. It would provide a complete and functional connection to existing US 380 at Coit Road and at FM 1827 with a freeway primarily on new location around the north side of McKinney. The Blue Alternative meets the project purpose and need by providing roadway capacity and network connectivity to address population growth, increases in current and forecasted traffic volumes, and to address higher crash rates along existing US 380 through the Study Area. The Blue Alternative would provide additional roadway capacity to address population and travel demand growth and connect travelers to education, employment, health care, and commerce centers in adjacent counties and across the rest of the Dallas Metroplex. The Blue Alternative would address safety along existing US 380 by providing a new location access-controlled freeway to support travel by through-traffic at higher speeds, while reducing the volume of traffic and easing congestion along existing US 380 for local travelers.

Segments A, E, and C comprise the Blue Alternative. The following describes how each segment would avoid or minimize impacts to key resources.

Segment A was a component of the Feasibility Study Recommended Alignment. Segment A would displace fewer existing homes in comparison to Segment B and would avoid displacing numerous proposed residences under construction west of N. Custer Road within the Town of Prosper. Segment A requires a Section 4(f) *de minimis* determination for unavoidable impacts to the Town of Prosper's planned Rutherford Park. Segment B would impact three planned parks within the Town of Prosper (Rutherford, Ladera, and Wandering Creek

Parks). Segment A also had greater support from the public than Segment B as reflected in comments received during the March-April 2022 public meeting.

Segment E is common to all Build Alternatives considered and was a component of the Feasibility Study Recommended Alignment. Segment E does not require land from Erwin Park and has been designed to address development of a proposed Future McKinney Sports Park. Segment E passes through the most densely developed part of the Study Area resulting in the largest number of receptors impacted by traffic noise.

Segment C minimizes impacts to the mapped 100-year floodplains and regulatory floodways associated with Honey Creek, Clemons Creek, and the East Fork Trinity River in comparison to Segment D. With an alignment outside of these areas, more of the roadway would be constructed at-grade or on an earthen fill embankment requiring fewer bridges or elevated roadway sections to be built, therefore reducing anticipated construction costs.

The Blue Alternative would require the construction of noise barriers, purchase of stream and wetland credits within USACE-approved mitigation banks, and inclusion of compensatory storage within the Honey Creek/Clemons Creek/East Fork Trinity River floodplains.

The impacts for the Preferred Alternative/Blue Alternative disclosed in **Figure 2-15** incorporate the following changes made to the Blue Alternative from (west to east) since publication of the DEIS. These design changes resulted in the need for additional ROW in some locations and the reduction in proposed ROW in others.

Segment A:

- Connected the frontage roads to frontage roads within the proposed US 380 Prosper-Frisco project (CSJs 0135-11-024, 0135-10-065, and 0135-02-068, anticipated to be environmentally cleared in July 2023) at Coit Road. The US 380 Prosper-Frisco project will construct the mainlanes from Coit Road to Lakewood Drive, east of Coit Road.
- Removed Prestwick Hollow Drive crossover intersection east of Coit Road.
- Extended freeway mainlane section to Lakewood Drive and modified adjacent ramps.
- Added driveways, a right turn lane, and made culvert adjustments to accommodate current construction of the Brookhollow Apartments west of N. Custer Road.
- Replaced the diverging diamond interchange at N. Custer Road with a traditional diamond interchange and removed the frontage road bypass lanes in each direction.
- Added a new eastbound exit ramp to Stonebridge Drive and a westbound entrance from Stonebridge Drive to replace proposed bypass lanes.
- Shifted the freeway alignment to the west/northwest along the southeast side of the Tucker Hill neighborhood.
- Shifted the alignment of University Drive to the west and closer to Grassmere Lane connecting existing and proposed US 380).
- Modified the University Drive interchange and associated ramps.
- Added a westbound entrance ramp from CR 124/future Wilmeth Road to US 380.
- Adjusted the bridge length over Wilson Creek.

- Added lanes and reduced the construction limits at CR 124/future Wilmeth Road.

Segment E:

- Shifted the connection with future Ridge Road to align with the City of McKinney's thoroughfare plan update and to connect with the alignment of future Ridge Road currently under construction by the city.
- Shifted the connection to Taylor Burk Drive (formerly CR 1006) eastward to align with the City of McKinney's thoroughfare plan update.
- Lengthened the bridges over unnamed stream near Erwin Park to allow for construction of a future trail connection underneath the bridges by the City of McKinney.
- After further evaluation following the public hearing on the DEIS, the proposed freeway alignment remains over CR 164/future Hardin Boulevard to minimize construction impacts and connect with the City of McKinney's planned alignment of CR 164/future Hardin Boulevard.
- Widened Community Avenue to accommodate a future 6-lane section, requested by the City of McKinney.
- Removed the proposed SUP along the eastbound and westbound frontage road bridges through the US 75 interchange, re-routing them to be at-grade along Spur 195 to the US 75/Laud Howell Pkwy intersection, and then along the existing US 75 westbound frontage road to reduce bridge costs and improve safety for pedestrians and bicyclists.
- Realigned the westbound frontage road connection to Spur 195 to address intersection sight distance.
- Added the SUPs proposed along SH 5 to the existing SH 5 structures instead of building separate pedestrian bridges.

Segment C:

- Added two 48-inch NTMWD wastewater line crossing conflicts at FM 2933 and running parallel to CR 331. Both lines have been constructed since the 60% Geometric Design Schematic was developed.

The estimated total project cost to construct the Blue Alternative W/Spur is \$3.267 Billion (W/Spur) and would be accomplished using a combination of state and federal funds. The estimated total project cost does not include the costs of proposed mitigation which may increase the overall project cost.

3.0 Affected Environment and Environmental Consequences

In support of this FEIS, the following technical documentation were prepared:

- Farmland Conversion Impact Rating For Corridor Type Projects (NRCS-CPA-106) and Supporting Documentation
- Community Impacts Assessment Narrative Report
- Traffic Noise Analysis Technical Report
- Indirect and Cumulative Analysis Technical Report

Cultural Resources:

- Archeological Background Study
- Antiquities Permit Application
- Archeological Survey Report
- Project Coordination Request for Historical Studies
- Historical Studies Research Design
- Historic Resources Survey Report
- Intensive Survey Report

Water Resources:

- Water Features Delineation Report
- Surface Water Analysis Form
- Section 404/10 Impact Table

Biological Resources:

- Species Analysis Spreadsheet, Species Analysis Form, and Supporting U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD) Species Lists
- TPWD Best Management Practices Form

Air Quality:

- Transportation Conformity Report Form
- Congestion Management Process Disclosure Statement
- Quantitative Mobile Source Air Toxics (MSAT) Analysis
- Carbon Monoxide Traffic Air Quality Analysis (CO TAQA)

Hazardous Materials

- Hazardous Materials Initial Site Assessment and Hazardous Materials Impact Evaluation

Copies of the appropriate technical documents are provided in **Appendices J through S**.

This chapter describes the direct impacts of the four Build Alternatives and the No-Build Alternative (described in **Section 2.2**) on the features and conditions within the proposed ROW needed to construct them and where direct impacts would occur; also referred to as the Project Area. To better understand the potential effects the project could have on related features and larger connected systems, the following areas were defined to describe the affected environment and determine potential project impacts:

- Study Area - The area encompassing the alternatives under consideration generally bounded by Coit Road on the west, northern boundary of Erwin Park on the north, FM 1827/New Hope Road on the east, and existing US 380 on the south. It is used to describe the affected built and natural environments including the existing transportation network and natural ecosystems such as stream systems and watersheds.
- Environmental Footprint – An area associated with each Build Alternative that is slightly larger than the proposed ROW within which early desktop and field surveys were used to identify features that could be potentially affected by construction of the alternative. The Environmental Footprint is intended to provide room for alignment adjustments without requiring additional field surveys. As an example, Section 3.10 includes descriptions of the water features (e.g., wetlands, streams, ponds, etc.) within the Environmental Footprint, while impacts were determined based on the Project Area.
- Project Area or Proposed ROW – The area defined on the Geometric Design Schematic plans needed to construct the alternative. It includes property that would be acquired by TxDOT in fee title and permanent and temporary easements needed for drainage and utilities. The proposed ROW is used to determine the direct impacts resulting from construction of each Build Alternative.

In addition to direct impacts such as clearing vegetation, placing fill material within wetlands, or displacing homes or businesses; TxDOT must consider the potential for the alternatives considered to induce changes in land use and growth within the Study Area (see **Section 3.15**). TxDOT must also consider the potential effects of each Build Alternative (Purple, Blue, Brown, and Gold) in combination or “cumulatively” with other past, present, and reasonably foreseeable actions within the US 380 McKinney Study Area and a defined Area of Influence (see **Section 3.16**). This chapter also addresses any adverse environmental impacts that cannot be avoided, the measures considered to minimize harm and to mitigate adverse effects, where applicable; and the steps taken during the study to comply with applicable state and federal environmental laws.

As described in **Section 2.3.2**, the separate, independent project to extend Spur 399 south of existing US 380 (the eastern US 380 McKinney project terminus) was under study during development of the DEIS. At that time, because an alignment for the Spur 399 Extension had not been determined as to how or if the two projects would connect, the potential impacts of the US 380 McKinney project both W/Spur and W/O Spur were evaluated for each Build Alternative in the DEIS. The ROD for the Spur 399 Extension was issued on March 29, 2023; therefore, this FEIS includes a proposed interchange connection between the US 380 McKinney Preferred Alternative/Blue Alternative and the Selected Alternative (Orange Alternative) for the Spur 399 Extension. With the additional detail provided in the 95% Geometric Design Schematic submitted for the Blue Alternative (A+E+C) in May 2023 (**Appendix B**), the affected environment and impact discussions for the

Blue Alternative have been updated in this chapter. The affected environment for Segments A, E, and C for the Purple, Brown, and Gold Alternatives has also been updated, where applicable, but because the additional level of detail and schematic design has not been developed for Segments B and D, an update of the total impacts of the Purple, Brown, and Gold Alternatives are not provided in the FEIS. Changes in the affected environment since publication of the DEIS have also been captured across all Build Alternatives, where applicable (e.g., Public Lands, Utilities, and Proposed/Future Developments, etc.).

The design of the US 380 McKinney project is not complete as revisions will still be made as the project goes into final design. As noted in this FEIS, all Build Alternatives were developed to a 60% conceptual level of design (60% Geometric Design Schematic) to assess potential impacts in the DEIS. The 60% Geometric Design Schematic was presented at the March 2022 public meetings. Following those public meetings, the Preferred Alternative/Blue Alternative was developed to a 95% conceptual level of design (95% Geometric Design Schematic) and the impacts of the Preferred Alternative/Blue Alternative have been updated and presented in this FEIS.

3.1 Right-of-Way/Displacements

Property required for the proposed improvements would be acquired by TxDOT in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970; 49 CFR Part 24, Subparts C through F; Title VIII of the Civil Rights Act of 1968 (Fair Housing Act); Housing and Community Development Act of 1974, and TxDOT policies and procedures. Relocation resources will be made available, without discrimination, to all affected property owners and tenants required to relocate because of project implementation. No person will be displaced by the proposed project unless and until adequate replacement housing has been provided or is in place. Non-residential property owners, such as businesses, places of worship, and others will be provided information on adequate replacement locations for their current property and may be reimbursed for relocation costs based on TxDOT policies and procedures.

3.1.1 Residential, Commercial, and Other Displacements

Potential direct displacements result when the primary residence or business structure is within the proposed ROW. At this time, no induced displacements resulting from the removal of access or reduction in parking, lot size, or substantial effects to the parcel that would negatively affect the viability of the business or livability of a residence) are anticipated. Displacements classified as “other” include establishments that are not used for residential or commercial purposes and ancillary structures such as garages, sheds, and barns. Ancillary structures on a parcel identified via aerial photography and not listed by the Collin County Appraisal District (CCAD) are included in the ancillary structure displacements count. If the proposed ROW impacts a structure with more than one business (e.g., strip mall), each business is counted as a displacement.

Potential direct residential and commercial property displacements resulting from the US 380 McKinney project were initially identified in the DEIS using the 60% Geometric Design Schematic for the four Build Alternatives. Displacements were identified through collaborative reviews conducted by the design team; review of CCAD data for each affected parcel to determine the address, residence type, and appurtenant, appraised structures (secondary buildings belonging to the main building on a property); and by conducting windshield surveys. In this FEIS, the number of potential direct residential and commercial property

displacements for the Blue Alternative was updated based on the May 2023 95% Geometric Design Schematic (**Appendix B**). Potential displacement counts along Segments A, E, and C were updated for the Blue Alternative and for the applicable segments of the other Build Alternatives based on the 95% Geometric Design Schematic.

Figure 3-1 summarizes the number of parcels to be acquired, total acres of ROW needed, and potential displacements resulting from the four Build Alternatives W/Spur and W/O Spur. **Figure 3-2** describes the potential displacements by study segment (A, B, E, C, and D) that comprise the four Build Alternatives.

Figure 3-1: Comparison of ROW Impacts and Potential Displacements Resulting from the Build Alternatives

Build Alternative	Number of Parcels to be Acquired	Total Acres of ROW needed (approx.)	Existing ROW Affected by the Proposed ROW (Acres)	New ROW to be Acquired (Acres)	Number of Potential Residential Displacements	Number of Potential Commercial Displacements	Number of Potential Other Displacements*
PURPLE ALTERNATIVE (A+E+D) W/O Spur	232	1,105.9	433.4	672.5	22	35	10 Other 58 Ancillary
PURPLE ALTERNATIVE W/Spur	242	1,125.1	441.9	683.2	22	37	10 Other 58 Ancillary
BLUE ALTERNATIVE (A+E+C) W/O Spur	238	1,084.7	421.5	663.2	26	38	8 Other 89 Ancillary
BLUE ALTERNATIVE W/Spur	246	1,099.3	424.8	674.5	26	38	8 Other 89 Ancillary
BROWN ALTERNATIVE (B+E+C) W/O Spur	178	1,065.5	383.1	682.4	30	21	9 Other 75 Ancillary
BROWN ALTERNATIVE W/Spur	186	1,080.1	386.4	693.7	30	21	9 Other 75 Ancillary
GOLD ALTERNATIVE (B+E+D) W/O Spur	172	1,086.7	395.0	691.7	26	19	9 Other 64 Ancillary
GOLD ALTERNATIVE W/Spur	182	1,105.9	403.4	702.5	26	21	9 Other 64 Ancillary

NOTE: The data for the Blue Alternative have been updated based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B of the FEIS). The number of potential residential, commercial, and other displacements for the Purple, Brown, and Gold Alternatives have been updated based on Segments A, E, and C of the Blue Alternative as depicted in the May 2023 Geometric Design Schematic, but do not include updated potential displacements along Segments B and D. If the 95% level of schematic design had been completed for Segments B and D, similar changes in the potential displacement counts for the Purple, Brown, and Gold Alternatives would have likely occurred. The number of parcels and ROW for the Purple, Brown, and Gold Alternatives are based on the July 1, 2022 60% Geometric Design Schematic included in Appendix B of the DEIS. All acreages have been rounded to the tenth of an acre and some figures or 'Totals' may reflect rounding error. Existing roadway and ROW limits are interpreted from GIS data; actual existing ROW limits (based on survey) were not available for existing roadways at the time the EIS was developed.

*Displacements classified as "other" include establishments that are not used for residential or commercial purposes and ancillary structures such as garages, sheds, and barns.

1 **Figure 3-2: Comparison of Potential Residential, Commercial, and Other Displacements by Segment**

Study Segment	Potential Residential Displacements	Potential Commercial Displacements	Potential Other Displacements	Ancillary Structure Displacements
SEGMENT A	1 single family unit	17	1 neighborhood entrance monument Potential major utility displacements are discussed in Section 3.4.	10 ancillary structures (1 detached garage, 5 sheds, 3 barns, 1 metal building)
SEGMENT B	5 single family units	None	Potential major utility displacements are discussed in Section 3.4.	10 ancillary structures (1 detached garage, 1 carport, 4 sheds, and 4 barns)
SEGMENT E	12 single family units	None	1 Atmos Natural Gas Lift Station and 1 billboard Potential major utility displacements are discussed in Section 3.4.	38 ancillary structures (7 detached garages, 17 sheds, 11 barns, 1 carport, and 2 storage containers)
SEGMENT C W/O Spur	13 single family units	21	2 large commercial propane ASTs, 5 billboards Potential major utility displacements are discussed in Section 3.4.	42 ancillary structures (2 detached garages, 13 sheds, 2 stables, 9 barns, 1 horse pen, 5 carports, 9 canopies, and 1 metal building)
SEGMENT C W/Spur	13 single family units	21	2 large commercial propane ASTs, 3 billboards Potential major utility displacements are discussed in Section 3.4.	41 ancillary structures (2 detached garages, 13 sheds, 2 stables, 9 barns, 5 carports, 9 canopies, and 1 metal building)
SEGMENT D W/O Spur	9 single family units	19	2 large commercial propane ASTs, 5 billboards Potential major utility displacements are discussed in Section 3.4.	32 ancillary structures (4 detached garages, 11 sheds, 3 barns, 5 carports, 8 canopies, and 1 metal building)
SEGMENT D W/Spur	9 single family units	21	2 large commercial propane ASTs, 5 billboards Potential major utility displacements are discussed in Section 3.4.	32 ancillary structures (4 detached garages, 11 sheds, 3 barns, 5 carports, 8 canopies, and 1 metal building)

NOTE: The data for Segments A, E, and C have been updated based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B of the FEIS). The data for Segments B and D include the potential commercial displacements described in Figure 3-3 in reference to the July 1, 2022 60% Geometric Design Schematic included in Appendix B of the DEIS.

Figure 3-3: Comparison of Potential Business Displacements Resulting from the Build Alternatives

SEGMENTS	PURPLE ALTERNATIVE (A+E+D) W/O Spur	BLUE ALTERNATIVE (A+E+C) W/O Spur	BROWN ALTERNATIVE (B+E+C) W/O Spur	GOLD ALTERNATIVE (B+E+D) W/O Spur
SEGMENT A (17)	Firestone Popeyes Louisiana Kitchen Prosper Plaza – Starbucks, T-Mobile, UPS Store, Sherwin Williams Paints Burger King Taco Bueno Ewing Irrigation & Landscape Supply Former Valero Brackeen Trailer Sales Valvoline Instant Oil Change Pap Johns AT&T Store The Dental Offices of McKinney Jason’s Deli Scooter’s Coffee	Firestone Popeyes Louisiana Kitchen Prosper Plaza – Starbucks, T-Mobile, UPS Store, Sherwin Williams Paints Burger King Taco Bueno Ewing Irrigation & Landscape Supply Former Valero Brackeen Trailer Sales Valvoline Instant Oil Change Papa Johns AT&T Store The Dental Offices of McKinney Jason’s Deli Scooter’s Coffee	Not Applicable	Not Applicable
SEGMENT B (0)	Not Applicable	Not Applicable	NONE	NONE
SEGMENT E (0)	NONE	NONE	NONE	NONE
SEGMENT C W/O Spur (21)	Not Applicable	Pearls Wedding Venue White Horse Ranch, LLC Carroll's Automotive FnG Commissary Kitchens & Food Spartan Wrecker Collin County Recovery Solid Woodmakers PowerDynamix Supreme Shutters Arrete Auto Repair Whiteside Customs Vivid Auto Shop and Hail Repair Texas Metal Company Hernandez Auto Progressive Water Treatment Parkway Auto Sales	Pearls Wedding Venue White Horse Ranch, LLC Carroll's Automotive FnG Commissary Kitchens & Food Spartan Wrecker Collin County Recovery Solid Woodmakers PowerDynamix Supreme Shutters Arrete Auto Repair Whiteside Customs Vivid Auto Shop and Hail Repair Texas Metal Company Hernandez Auto Progressive Water Treatment Parkway Auto Sales	Not Applicable

Figure 3-3 continued: Comparison of Potential Business Displacements Resulting from the Build Alternatives

SEGMENTS	PURPLE ALTERNATIVE (A+E+D) W/O Spur	BLUE ALTERNATIVE (A+E+C) W/O Spur	BROWN ALTERNATIVE (B+E+C) W/O Spur	GOLD ALTERNATIVE (B+E+D) W/O Spur
SEGMENT C W/O Spur (21) Cont'd	Not Applicable	Sonic Auto Hail Repair Collin County Truck Parts & Drive Shaft Service Nanos Tire Chokle Consignment Auto Sales Viper Auto	Sonic Auto Hail Repair Collin County Truck Parts & Drive Shaft Service Nanos Tire Chokle Consignment Auto Sales Viper Auto	Not Applicable
SEGMENT D W/O Spur (19)	Caraway Concrete Construction Misfits of Christ Garage Welders of Art Carroll's Automotive Spartan Wrecker Collin County Recovery Solid Woodmakers PowerDynamix Whiteside Customs Vivid Auto Shop Texas Metal Company Hernandez Auto Progressive Water Treatment FnG Commissary Kitchens & Food Parkway Auto Sales Sonic Auto Hail Repair Collin County Truck Parts & Drive Shaft Service Nanos Tire Chokle Consignment Auto Sales	Not Applicable	Not Applicable	Caraway Concrete Construction Misfits of Christ Garage Welders of Art Carroll's Automotive Spartan Wrecker Collin County Recovery Solid Woodmakers PowerDynamix Whiteside Customs Vivid Auto Shop Texas Metal Company Hernandez Auto Progressive Water Treatment FnG Commissary Kitchens & Food Parkway Auto Sales Sonic Auto Hail Repair Collin County Truck Parts & Drive Shaft Service Nanos Tire Chokle Consignment Auto Sales
SEGMENT C W/Spur (0)	Not Applicable	NONE	NONE	Not Applicable
SEGMENT D W/Spur (2)	Lattimore Materials Company RaceTrac	Note Applicable	Not Applicable	Lattimore Materials Company RaceTrac

SOURCE: Updated potential commercial displacements along Segments A, E and C are from the May 2023 95% Geometric Design Schematic; Community Impact Assessment Addendum, Appendix K. No updates of the potential commercial displacements along Segments B and D have been made since publication of the DEIS.

Additional details on potential commercial displacements are provided in **Figure 3-3**. Additional information on potential displacements is provided in **Appendix K, Community Impacts Assessment Technical Report** and the *Community Impacts Addendum*.

Purple Alternative (A+E+D)

Construction of the Purple Alternative W/O Spur would require approximately 1,105.9 acres of proposed ROW, including an estimated 672.5 acres of new ROW and approximately 433.4 acres of existing ROW. ROW would be acquired on new location north of existing US 380 between N. Custer Road and Lake Forest Drive, between CR 164 and US 75, between US 75 and N. McDonald Street, and between N. McDonald Street and existing US 380. The Purple Alternative W/O Spur would potentially displace 22 residences, 35 businesses, and 10 “other” displacements, Atmos Natural Gas Lift Station (Segment E), 2 large propane above-ground storage tanks (ASTs) (Segment D), and 5 billboards (1 on Segment E and 5 on Segment D).

The Purple Alternative W/Spur would require approximately 1,125.2 acres of proposed ROW, including an estimated 683.2 acres of new ROW and approximately 441.9 acres of existing ROW. Because W/Spur stretches to the south across existing US 380, it would potentially displace 2 additional businesses compared to W/O Spur.

Blue Alternative (A+E+C)

Construction of the Blue Alternative W/Spur would require approximately 1,099.3 acres of proposed ROW, including an estimated 674.5 acres of new ROW and approximately 424.8 acres of existing ROW. The existing ROW would be along the same roadways as the Purple Alternative, except east of N. McDonald Street where portions of McIntire Road and Woodlawn Road would be included along Segment C. Proposed ROW would be acquired on new location in the same areas as the Purple Alternative, except east of N. McDonald Street where the proposed alignment is west of FM 2933 and north of US 380. Both W/O and W/Spur, the Blue Alternative would potentially displace 26 residences, 38 businesses, and 8 “other” displacements including a neighborhood entrance monument (Segment A); an Atmos Natural Gas Lift Station and billboard (Segment E); and 2 large propane tanks and 3 billboards (along Segment C).

The Blue Alternative W/O Spur would require approximately 1,084.7 acres of proposed ROW, including an estimated 663.2 acres of new ROW and approximately 421.5 acres of existing ROW.

Brown Alternative (B+E+C)

Construction of the Brown Alternative W/O Spur would require approximately 1,065.5 acres of proposed ROW, including an estimated 682.4 acres of new ROW and approximately 383.1 acres of existing ROW. The existing ROW would be along US 380 east of Coit Road, a portion of N. Custer Road south of CR 123, a portion of CR 124 east of N. Custer Road, and along the same new location proposed ROW areas (Segment C) as the Blue Alternative. The Brown Alternative W/O and W/Spur would potentially displace 30 residences, 21 businesses, and 9 “other” displacements including the Atmos Natural Gas Lift Station, 2 large propane ASTs (Segment C), and 6 billboards (1 on Segment E, 5 on Segment C).

The Brown Alternative W/Spur would require approximately 1,080.1 acres of proposed ROW, including an estimated 693.7 acres of new ROW and approximately 386.4 acres of existing ROW.

Gold Alternative (B+E+D)

Construction of the Gold Alternative W/O Spur would require approximately 1,086.7 acres of proposed ROW, including an estimated 691.7 acres of new ROW and approximately 395.0 acres of existing ROW. The existing ROW would be along the same roads affected by the Brown Alternative and the proposed ROW would be across the same new location areas as Segment D of the Purple Alternative. The Gold Alternative W/O Spur would potentially displace 26 residences, 19 businesses, and 9 “other” displacements including the Atmos Natural Gas Lift Station, 2 large propane ASTs (Segment D), and 6 billboards (1 on Segment E, 5 on Segment D).

The Gold Alternative W/Spur would require approximately 1,105.9 acres of proposed ROW, including an estimated 702.5 acres of new ROW and approximately 403.4 acres of existing ROW. Because W/Spur stretches to the south across existing US 380 it would potentially displace 2 additional businesses compared to W/O Spur.

No-Build Alternative

The No-Build Alternative would not result in the acquisition of new ROW or any displacements.

Preferred Alternative - Blue Alternative (A+E+C)

Although the Blue Alternative would potentially displace 24 residences and 38 businesses W/Spur, it would require less proposed ROW than the Purple and Gold Alternatives and it avoids relocation of an existing blow off valve for a 72-inch Irving waterline along N. Custer Road affected under Segment B of the Brown and Gold Alternatives, discussed further in **Section 3.4**. Alignment modifications may be developed during final design to avoid displacements or minimize impacts on adjacent properties if determined feasible.

3.2 Land Use

This section describes current land use patterns and development trends within and adjacent to the proposed Project Area and the project’s potential effect on land uses and developments.

3.2.1 Consistency with Local Plans and Land Use Policies

The development and implementation of the US 380 McKinney project was reviewed to determine its consistency with the land use plans, land use policies/zoning, and transportation plans governing the Study Area. Local jurisdictions and governing entities (e.g., NCTCOG, Collin County, City of McKinney, and the NTMWD) have been engaged throughout the development of the previous Feasibility Study (precursor to the DEIS) and development of this FEIS including providing information regarding planned and proposed development and input on project design. The most relevant local and regional plans and policy documents are briefly discussed below.

Mobility 2045 Update - *Mobility 2045 Update*,²² the MTP for the 12-county Dallas-Fort Worth region developed by the NCTCOG, describes the transportation needs of the region to guide federal, state, and local transportation expenditures through the year 2045. *Mobility 2045 Update* includes recommendations to address forecasted population and development growth and the corresponding anticipated travel demand across the region, including areas where RSAs are lacking (see **Section 1.2**). The general area around the US

²² North Central Texas Council of Governments (NCTCOG), *Mobility 2045 Update*, adopted by the Regional Transportation Council, June 9, 2022. <https://www.nctcog.org/trans/plan/mtp/mobility-2045-2022-update>.

380 McKinney Study Area is identified in *Mobility 2045 Update* as an area of further study to address future transportation, regional travel, and mobility issues across the region (see **Figure 1-4**). The proposed US 380 McKinney project is included in the *Mobility 2045 Update*, approved on June 9, 2022.

Transportation Improvement Program, Statewide Transportation Improvement Program, and Unified Transportation Program – A TIP is developed by a Metropolitan Planning Organization (MPO) (in this case NCTCOG) and includes all projects within the MPOs boundaries. The TIP is a short-term planning document, typically listing approximately four years of funded transportation projects designed to carry out the recommendations of the long-range MTP. The STIP includes all MPO TIPs, plus rural listings of projects for the entire state and is approved by the Texas Transportation Commission, and then by both the FTA and the FHWA. The STIP, updated every two years, is TxDOT's four-year capital improvement program and federal dollars cannot be spent on a project until it is listed individually in the STIP or included by reference. In most cases, a project must be included in both the TIP and the STIP to move forward. The Unified Transportation Program (UTP), TxDOT's 10-year program and updated annually, guides development of the transportation network across the state. The UTP links the planning activities conducted to support development of the MTPs and STIP. At the time the FEIS was developed, the proposed US 380 McKinney project was not included in the UTP.

McKinney National Airport Master Plan - The McKinney National Airport (Airport), a division of the City of McKinney, completed a master plan update in 2019,²³ that included a proposed extension of Runway 18-36. Alternatives were considered to extend the runway both to the north and to the south to obtain the desired additional operational length. The FAA and TxDOT Aviation Division issued a FONSI/ROD on July 27, 2022, approving the extension of Runway 18-36 1,000 feet to the north and 500 feet to the south. The proposed extension would place the Runway Protection Zone (RPZ) for Runway 18 (north end) closer to existing US 380 than it is today, but it would not cross US 380. The Airport Master Plan also includes the proposed expansion of the Airport footprint to the east to provide a parallel runway, additional ramp/apron areas (pavement area for the parking and movement of aircraft), and a new passenger terminal and parking garage.

ONE McKinney 2040 Comprehensive Plan City of McKinney Comprehensive Plan - *ONE McKinney 2040 Comprehensive Plan (ONE-McKinney 2040)*²⁴ is the City of McKinney's recently amended comprehensive plan, incorporating the city's future land use, development, and mobility strategies, among other planning components. Overall, *ONE-McKinney 2040* provides a vision and guiding principles to direct the city's growth and development over the next two decades. The plan's land use and development strategy defines 17 distinct districts within the city and defines the preferred development types and predominant land uses to be encouraged within each district to retain the defined character and compatibility, while still providing the city the flexibility to take advantage of changing market trends. The mobility strategy encourages a forward-thinking, strategic, multimodal approach to meeting the city's future transportation needs. The mobility strategy includes the *Master Thoroughfare Plan*, a long-term vision of the major street network necessary to meet future travel needs, while also recognizing changing preferences for transportation mode choices. The mobility strategy supports the land use district approach by encouraging the city to consider unique transportation needs of varied development contexts and aims to support connectivity and efficiency in conjunction with regional transportation plans.

²³ Coffman Associates, McKinney National Airport, *Airport Master Plan*; <https://www.mckinneytexas.org/3378/About-Us>

²⁴ City of McKinney, *ONE-McKinney 2040 Comprehensive Plan*; <https://www.mckinneytexas.org/292/2040-Comprehensive-Plan>

McKinney City-Wide Trail Master Plan (Conceptual Trail Network Plan) - The City of McKinney is developing a *City-Wide Trail Master Plan*²⁵ to guide implementation of a connected trail network. In community meetings as part of the plan development process, the city defined character zones to guide trail development compatible with the varied character of different city areas. The conceptual version of the plan identifies trail types that may be strategically developed across the city based on needs and character zone compatibility. Trail and amenity types include “Parkway Trails”, “Greenbelt & Park Trails”, “Bicycle Boulevards” (on-street), “Easement Trails”, and roadway crossings and trailheads. The effects of the proposed action on the components of the proposed *City-Wide Trail Master Plan* within the Study Area are described in **Sections 3.5** and **3.9**.

Town of Prosper Comprehensive Plan – As noted in the Plan’s Executive Summary, “*Prosper’s 2012 Comprehensive Plan*²⁶ is a plan to preserve the past, realize the potential of the present, and guide the future of the Town. It is a coordinated effort of citizens, decision makers, Town staff, and other stakeholders”. The Plan is intended solely as a guide to direct future development decisions made by Town staff, elected officials, and all other decision makers. The Plan includes the Town’s *Future Land Use Plan* (Amended August 2021)²⁷ that is a guide for development west of N. Custer Road and includes nine distinct land use categories and districts. The Plan also includes a *Thoroughfare Plan* (Amended May 2021)²⁸ that serves as a guide for transportation decisions within the Town. It was developed based upon past transportation planning efforts with a goal to maintain connectivity along key thoroughfares with adjacent communities. The *Thoroughfare Plan* depicts major and minor north-south and east-west gateways, including the number of lanes, ROW, and grade separations. The Plan includes the *Parks, Recreation, and Open Space Master Plan*²⁹ (adopted September 2015) which provides recommendations for future land acquisition, park expansion, and park development to serve the Town’s fast-growing population and open space needs. The Town’s *Hike and Bike Trail Master Plan*,³⁰ adopted in November 2020, indicates the Town’s proposed trail and sidewalk network.

City of Frisco 2015 Comprehensive Plan – The *City of Frisco’s 2015 Comprehensive Plan*³¹ is intended to guide staff and the City in developing policy for the long-term fiscal and built environment. The Plan is guided by 12 overarching principles that serve as key concepts for promoting Frisco as a desirable place to live. The *Plan* includes the City’s *Future Land Use Plan*³² guiding future land use decisions and identifies 12 unique “Place Types”. Two of the Place Types are residential in nature, and seven are activity centers of varying intensity envisioned as locations for jobs, entertainment, mixed-use, and a live-work-play environment. The remaining three types focus on public/semi-public uses, park/open space and floodplain areas. The

²⁵ City of McKinney, *City-Wide Trail Master Plan Conceptual Trail Network Plan*; <https://www.mckinneytexas.org/612/Parks-Trails>

²⁶ Town of Prosper 2012 *Comprehensive Plan*; <https://www.prospertx.gov/wp-content/uploads/Prosper-Comprehensive-Plan-Combined-Updated-Sept-2020-Reduced.pdf>

²⁷ Town of Prosper *Future Land Use Plan* (Amended August 2021); <https://www.prospertx.gov/wp-content/uploads/Plate-2-Future-Land-Use-Plan-Adopted-August-2021.pdf>

²⁸ Town of Prosper *Thoroughfare Plan* (Amended May 2021); https://www.prospertx.gov/wp-content/uploads/Thoroughfare_Plan_2021_May.pdf

²⁹ Town of Prosper *Parks, Recreation, and Open Space Master Plan* (adopted September 2015); <https://www.prospertx.gov/wp-content/uploads/Town-of-Prosper-Master-Plan.pdf>

³⁰ Town of Prosper *Hike and Bike Trail Master Plans* (adopted November 2020); <https://www.prospertx.gov/about-prosper/maps/2020-hike-and-bike-trail-master-plan/>

³¹ City of Frisco 2015 *Comprehensive Plan*; <https://www.friscotexas.gov/DocumentCenter/View/4926/2015-Comprehensive-Plan-PDF?bidId=>

³² City of Frisco *Future Land Use Plan*; <https://www.friscotexas.gov/DocumentCenter/View/5406/Future-Land-Use-Plan-Map-PDF>

*Thoroughfare Plan*³³ provides a benchmark for evaluating the proposed 2015 Comprehensive Plan and redirecting transportation policies and planning efforts as necessary to ensure that an efficient transportation system is built and maintained.

The *Frisco Hike and Bike Master Plan*³⁴ adopted in July 2019, is the city's 20-year blueprint to make walking and bicycling safe, comfortable, and efficient choices for people of all ages and abilities. This plan is derived from extensive public engagement and analysis of existing conditions. The city also adopted the *Frisco Parks and Recreation Open Space Master Plan*³⁵ in April 2016. This plan identifies community needs and preferences and provides guidance for the continued development of Frisco's parks, recreation, and open space system, while addressing the needs of both existing facilities and future facilities.

Town of New Hope Comprehensive Zoning Ordinance – *The Town of New Hope's Comprehensive Zoning Ordinance*³⁶ limits and restricts development to specified districts or zones and regulates buildings and structures according to their construction and the nature and extent of their use. It regulates the nature and extent of the land uses and structure design in the Town of New Hope, including the height, number of stories, square footage, the percentage of a lot that may be occupied, the size of yards, courts, and other open spaces, population densities, and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes. The Town's *Zoning Map*³⁷ shows the boundaries of the zoning districts described in the ordinance.

Collin County Mobility Plan - The *Collin County Mobility Plan* (updated in 2014 with major addendum in 2016) is a comprehensive, multi-modal plan and guide for transportation systems and investments that will serve the mobility needs of county residents into the future. The purpose of the plan is to identify the transportation needs of area residents and businesses, and includes a county-wide system of roadways, transit facilities, and hike-and-bike trails. It identifies the future transportation network that will be needed to serve projected population and employment growth and increased travel demand. The plan includes policies, programs, and projects for implementation and continued development and guidance for local funding decisions. The 2016 plan addendum provides transportation options based on an alternate county build-out scenario subsequently developed based on changes to population forecasts and revisions cities made to their respective comprehensive plans. Collin County Transit provides transit service for residents 65 years of age or over, individuals with disabilities, and low-income individuals in the Study Area through door-to-door service. No facilities or infrastructure that support this service are in the Study Area.

³³ City of Frisco Thoroughfare Plan; <https://www.friscotexas.gov/DocumentCenter/View/5420/Thoroughfare-PlanMap-PDF>

³⁴ City of Frisco Hike and Bike Master Plan; <https://www.friscotexas.gov/DocumentCenter/View/22526/Hike-and-Bike-Master-Plan-PDF>

³⁵ City of Frisco Parks and Recreation Open Space Master Plan; <https://www.friscotexas.gov/DocumentCenter/View/22528/Parks-Master-Plan-PDF>

³⁶ Town of New Hope Comprehensive Zoning Ordinance; https://drive.google.com/file/d/1wSARiLiaGshaU_R9Y4JxciPbP5pCNzTp/view

³⁷ Town of New Hope Zoning Map; <https://drive.google.com/file/d/1oij9LuGLxC0kAJb3h2rvbjlVvPRwfB6/view>

3.2.2 Impacts of the Alternatives on Land Use

Existing land uses were identified for parcels within and adjacent to the proposed ROW for the four Build Alternatives using land use data available from the City of McKinney³⁸ and the NCTCOG.³⁹ Where appropriate, land use data were modified based on observed conditions and review of current aerial imagery of the Project Area. Thirteen dominant land use categories are mapped across the Study Area, shown on the Resources-Specific Maps for each study segment provided in **Appendix D**. Lands designated as undeveloped or vacant indicate parcels that do not have buildings or on-site improvements but are within a larger urban setting. With implementation of any of the Build Alternatives W/O Spur and W/Spur, land from several categories would be converted to transportation use. The area within each land use category was calculated using geographic information system (GIS) resources based on published plans as summarized in **Figures 3-4** and **3-5**.

Purple Alternative

Segment A makes up the western leg of the Purple Alternative extending along existing US 380 through areas of undeveloped/vacant and agricultural land with pockets of single-family residences and commercial parcels and single-family parcels north of US 380 and west and east of N. Custer Road. East of N. Stonebridge Drive and north of US 380 the alignment encroaches on the southern portions of a City of McKinney Pump Station property and the Tucker Hill neighborhood, as well as the parking lot of several businesses. East of Grassmere Lane, Segment A extends north through undeveloped/vacant and agricultural lands, and several large rural single-family parcels. La Cima Lake, parkland owned by the Stonebridge Ranch Community Association borders the south side of existing US 380 between Prestwick Hollow Drive and Lakewood Drive.

Segment E extends through large tracts of agricultural and undeveloped/vacant lands and numerous existing large-lot single-family parcels north of existing Bloomdale Road between CR 163 and N. Lake Forest Drive and east of N. Lake Forest Drive. The segment also extends through the northern portion of the newly constructed Erwin Farms single-family tract home neighborhood. West of and adjacent to US 75 the alignment extends east, north of Collin County owned parcels housing the County Jail, Sheriff's Office, Courthouse, and other facilities, through a large lot single-family parcel and agricultural land. Erwin Park, owned by the City of McKinney, is along Segment E along with land recently acquired by the city to create additional recreational facilities. Parks and recreation facilities are discussed further in **Section 3.9**. Existing and planned bicycle and pedestrian facilities, part of the proposed *City-Wide Trail Master Plan*, are discussed further in **Section 3.5**

Segment D extends east of SH 5 through mostly agricultural and undeveloped/vacant lands, crosses the DART/DGNO Railroad, and a somewhat isolated area with several single-family residences and an industrial/commercial parcel. As the alignment approaches existing US 380 it extends through mostly agricultural lands, and east of FM 1827/New Hope Road through several residential and commercial parcels. Parkland owned by the City of McKinney, is adjacent to and south of existing US 380 and ROW would be needed from the park under the W/Spur option.

³⁸ ONE-McKinney 2040 Comprehensive Plan (2018), Existing Land Use, Figure 2.4; <https://www.mckinneytexas.org/292/2040-Comprehensive-Plan>

³⁹ NCTCOG Regional Data Center; <https://www.dfwmaps.com/#>

Figure 3-4: Direct Land Use Impacts (in Acres) of the Build Alternatives W/O Spur

Existing Land Use	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
	Acres	Percent of Proposed ROW	Acres	Percent of Proposed ROW	Acres	Percent of Proposed ROW	Acres	Percent of Proposed ROW
Agriculture	318.8	29.2%	315.7	29.1%	352.3	33.4%	361.6	33.3%
Park Lands /Open Space	0.8	0.1%	0.8	0.1%	6.5	0.1%	6.5	0.1%
Private Open Space	2.5	0.2%	8.2	0.8%	6.8	0.6%	1.2	0.1%
Residential - Single-Family	24.4	2.3%	24.4	2.3%	24.3	2.3%	25.4	2.3%
Residential - Rural Single-Family	53.3	4.8%	89.2	8.2%	92.4	8.7%	56.0	5.2%
Residential - Vacant	2.0	0.2%	2.0	0.2%	2.0	0.2%	2.0	0.2%
Residential – Multi-Family	0.5	0.0%	0.5	0.0%	0.0	0.0%	0.0	0.0%
Institutional	1.9	0.2%	1.9	0.2%	1.8	0.2%	1.9	0.2%
Commercial	24.2	1.9%	24.4	2.1%	14.5	1.4%	12.3	1.1%
Industrial	11.2	1.1%	3.4	0.4%	3.0	0.3%	11.1	1.0%
Utility/Infrastructure ¹	0.6	0.1%	0.6	0.1%	0.0	0.0%	0.0	0.0%
Undeveloped/Vacant ²	232.3	21.1%	192.1	17.7%	178.8	16.6%	213.7	20.2%
Existing Roadway and ROW ³ (no land use conversion)	433.4	38.9%	421.5	38.9%	383.1	36.3%	395.0	36.3%
Total Acres within Proposed ROW	1,105.9	100.0%	1,084.75	100.0%	1,065.5	100.0%	1,086.7	100.0%

NOTE: The data for the Blue Alternative have been updated based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B). For the Purple, Brown, and Gold Alternatives quantity calculations are based on changes to Segments A, E, and C in the May 2023 95% schematic, and the proposed ROW shown on the July 1, 2022 60% Geometric Design Schematic for Segments B and D. The quantities may not match those indicated in other resource sections such as park properties or farmland as they may be based on different data sources. Acres shown are approximate. All acreages have been rounded to the tenth of an acre and some figures or 'Totals' may reflect rounding error.

1 - City of McKinney Pump Station, 7560 W. University Drive

2 - Undeveloped/Vacant - land not in active agricultural use but cleared for development, may have access to utilities

3 - Existing ROW limits are interpreted based on GIS data; actual existing ROW limits (based on survey) were not available for existing roadways.

Figure 3-5: Direct Land Use Impacts (in Acres) of the Build Alternatives W/Spur

Existing Land Use	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
	Acres	Percent of the Proposed ROW	Acres	Percent of the Proposed ROW	Acres	Percent of the Proposed ROW	Acres	Percent of the Proposed ROW
Agriculture	312.7	28.1%	324.2	29.5%	358.7	33.7%	355.4	32.1%
Park Lands/Open Space	6.3	0.6%	0.8	0.1%	6.5	0.1%	6.5	0.6%
Private Open Space	2.5	0.2%	8.2	0.7%	6.8	0.6%	1.2	0.1%
Residential - Single-Family	24.5	2.2%	24.7	2.2%	24.6	2.3%	25.3	2.3%
Residential - Rural Single-Family	53.3	4.7%	89.3	8.1%	92.6	8.6%	56.0	5.1%
Residential - Vacant	2.0	0.2%	2.1	0.2%	2.1	0.2%	2.0	0.2%
Residential – Multi-Family	0.5	0.0%	0.5	0.0%	0.0	0.0%	0.0	0.0%
Institutional	1.9	0.2%	1.9	0.2%	1.8	0.2%	1.9	0.2%
Commercial	26.2	2.3%	26.0	2.3%	14.5	1.6%	17.6	1.6%
Industrial	17.1	1.6%	4.6	0.4%	2.7	0.3%	17.0	1.5%
Utility/Infrastructure ¹	0.6	0.1%	0.6	0.1%	0.0	0.0%	0.0	0.0%
Undeveloped/Vacant ²	235.6	20.8%	191.7	17.4%	183.4	16.4%	219.6	19.9%
Existing Roadway and ROW ³ (no land use conversion)	441.9	39.0%	424.8	38.7%	386.4	36.1%	403.4	36.5%
Total Acres within Proposed ROW	1,125.1	100.0%	1,099.3	100.0%	1,080.1	100.0%	1,105.9	100.0%

NOTE: The data for the Blue Alternative have been updated based on the May 2023 90% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B). For the Purple, Brown, and Gold Alternatives quantity calculations are based on changes to Segments A, E, and C in the May 2023 95% schematic, and the proposed ROW shown on the July 1, 2022 60% Geometric Design Schematic for Segments B and D. The quantities may not match those indicated in other resource sections such as park properties or farmland as they may be based on different data sources. Acres shown are approximate. All acreages have been rounded to the tenth of an acre and some figures or 'Totals' may reflect rounding error.

1 - City of McKinney Pump Station, 7560 W. University Drive

2 - Undeveloped/Vacant – land not in active agricultural use but cleared for development, may have access to utilities

3 - Existing ROW limits are interpreted based on GIS data; actual existing ROW limits (based on survey) were not available for existing roadways.

Construction of the Purple Alternative W/Spur would have the potential to change the use of currently undeveloped tracts, vacant lands, and lands categorized as in agriculture uses to transportation uses by opening access up to areas that are currently served by a limited network of rural and county roads, utilities, and other public services. The potential for induced development and growth associated with the Purple Alternative is discussed in **Section 3.15** and Cumulative Effects are addressed in **Section 3.16**. Segment A would encroach on numerous businesses north and south of existing US 380 adjacent to N. Custer Road and the Tucker Hill neighborhood and a parking lot serving several businesses between Tremont Boulevard and Grassmere Lane. Segment E would encroach on existing and newly constructed single-family residences along CR 164 and Bloomdale Road. Segment D would convert existing residential parcels, a large portion of an industrial parcel along Woodlawn Road, and commercial properties along existing US 380 to transportation uses.

Existing utilities along all proposed Build Alternatives would be relocated to make way for the roadway improvements and proposed/planned utilities may be moved or upgraded to support future development and growth. Utility relocations are discussed further in **Section 3.4**. Utilities are not accounted for as a separate land use category in the referenced land use plans.

Blue Alternative

The Blue Alternative would extend through the same land uses as the Purple Alternative along Segments A and E.

Segment C, east of SH 5 extends through mostly agricultural and undeveloped/vacant lands and as it travels farther east and south, the alignment passes through several rural single-family parcels along FM 2933 and west of FM 1827. The alignment extends through agricultural lands as it approaches existing US 380 and, east of FM 1827/New Hope Road, through numerous residential and commercial parcels similar to Segment D. Parkland owned by the City of McKinney, is adjacent to and south of existing US 380; no ROW would be acquired from this parcel under the W/Spur option.

Construction of the Blue Alternative W/Spur would have the potential to change the use of currently undeveloped tracts, vacant lands, and lands categorized as in agriculture uses to transportation uses by opening access to areas that area currently served by a limited network of rural and county roads, utilities, and other public services. The potential for induced development and growth associated with the Blue Alternative is discussed in **Section 3.15** and Cumulative Impacts are discussed in **Section 3.16**.

Brown Alternative

Segment B extends through areas of mostly undeveloped/vacant land, single-family residences, and commercial parcels along existing US 380. North of existing US 380 the alignment extends northeast through currently undeveloped/vacant and agricultural lands and a rural single-family parcel at CR 933. Since early 2021, the Town of Prosper has made plans to develop the area crossed by Segment B north of existing US 380 and west of N. Custer Road. These developments, at various stages of planning, zoning, platting, and construction include single- and multi-family housing, senior-living, and a cemetery expansion. One of the developments -- the Ladera Prosper 55 and older single-family development -- is under construction at the time of this writing. At N. Custer Road, Segment B extends between the Founders Classical Academy of Prosper, completed and opened to enrollment in early 2021 (southwest quadrant of N. Custer Road and E. First Street),

and ManeGait Therapeutic Horsemanship, adjacent to and east of N. Custer Road. East of N. Custer Road the alignment extends through several rural single-family parcels and large agricultural tracts.

The Brown Alternative extends through the same land uses along Segments E and C as described under the Blue Alternative. Construction of the Brown Alternative W/Spur would have the same potential to change land use patterns along Segment C and south of US 380 as described under the Blue Alternative. The potential for induced development and growth associated with the Brown Alternative is discussed in **Section 3.15** and Cumulative Impacts are addressed in **Section 3.16**.

Gold Alternative

The Gold Alternative extends through the same land uses described for the Brown Alternative along Segments B and E. The impacts to land use described under Segment D of the Purple Alternative apply to the Gold Alternative.

No-Build Alternative

Under the No-Build Alternative, no new ROW would be acquired, and no new roadways would be constructed; therefore, no impacts to land use would result. Vacant land along US 380, within the project limits, would continue to develop to support commercial and industrial uses like those already present.

Preferred Alternative - Blue Alternative (A+E+C)

On June 9, 2022, the RTC approved the NCTCOG's *Mobility 2045 Update* and the 2023–2026 TIP, obtaining FHWA approval on December 15, 2022. With approval of the *Mobility 2045 Update* and the 2023-2026 TIP, the project is consistent with both plans. The 2023-2026 STIP was approved by FHWA on November 18, 2022.

Construction of the Blue Alternative through undeveloped areas (portions of Segments A and C) would open areas to potential development, resulting in land use changes along the corridor. Land uses along Segment E are in transition with the conversion of large lot areas north of CR 164 and Bloomdale Road to higher density single-family development. Other areas along Segment A and the west end of Segment E are in various stages of planning, zoning, and construction, adding to the future change in general land use from rural and agricultural to residential uses of varying densities (see **Figure 3-68**). The City of McKinney acquired land on both sides of CR 164/Bloomdale Road for the future development of recreational facilities to be accessed from the future frontage road system. Changes in land use along Segment C may be more influenced by the new freeway than the other segments, as most of the area is sparsely developed, but the new access-controlled freeway is not anticipated to induce new development. By providing a freeway with connections to the existing and planned roadway network, land uses with higher densities, including commercial and retail, may occur near the proposed US 75/SH 5 interchange and the connection to existing US 380 and the Spur 399 Extension near FM 1827.

3.3 Farmlands

The Farmland Protection Policy Act (FPPA) of 1981 is intended to minimize the unnecessary conversion of prime farmlands and farmlands of statewide importance to non-agricultural uses by federal projects and programs. Projects that cross soils classified as prime or statewide important farmlands and that are not located on land already in urban development, are subject to review by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) under the FPPA. Because of its proximity to

the Dallas Metroplex, a large portion of the Study Area is located within the census-designated McKinney Urbanized Area and the Dallas-Fort-Worth-Arlington Urbanized Area (UA). Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land. Farmland “committed to urban development or water storage” includes all such land that receives a combined score of 160 points or less from the land evaluation and site assessment criteria based on the use of the NRCS-CPA-106 Farmland Conversion Impact Rating Form completed for this project.

Build Alternatives

Figures 3-6 and 3-7 indicate the acreage of mapped prime and statewide important farmland soils that would be converted to non-agricultural use with implementation of any of the Build Alternatives. Along Segments A and E, most of these areas are already developed or are planned to be developed as they are located within the City of McKinney and within the two census-designated UAs described above. Conversely, Segments C and D cross a rural area dominated by agricultural uses (e.g., row crops, pasture, and livestock).

A total corridor assessment was initiated for the Build Alternatives using Parts I, III, and VI of the CPA 106 Form. TxDOT-rated sections of the form indicated total points ranging from 60 to 73 for the Build Alternatives W/Spur. The assessment for all Build Alternatives met or exceeded 60 total points, requiring coordination with the NRCS. TxDOT submitted the CPA-106 Form and a request to initiate coordination to the NRCS on March 11, 2022. No response was received from the NRCS within the 30-day comment period. Therefore, coordination under the FPPA is complete and *the project may proceed as though either there is no protected farmland in the Project Area, or that the relative land values show the conversion of protected farmland does not result in an adverse effect, and no minimization is recommended.*⁴⁰ A copy of the CPA-106 Form and supporting documentation is included in **Appendix J**. With submittal of the Geometric Schematic Design in July 2022, changes in the proposed ROW limits and acreages were made across the Build Alternatives to account for access, drainage, and design modifications. The Farmland Addendum included in **Appendix J** captures the changes in the acreages of prime and statewide important farmlands within the Project Area because of the ROW change. The quantities in this section reflect those updated impacts.

No-Build Alternative

No ROW acquisition or development would occur under the No-Build Alternative, therefore, no impacts to farmlands would occur.

Preferred Alternative - Blue Alternative (A+E+C)

The areas of mapped farmland converted to transportation ROW are primarily used for hay production, pasture, and livestock grazing. No specialty crops and no irrigated fields are affected by the Blue Alternative that would require consideration of mitigation.

⁴⁰ TxDOT, *Environmental Handbook for Farmland Protection Policy Act, June 2021*; <https://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/natural-resources.html>

Figure 3-6: Comparison of Farmland Impacts of the Build Alternatives (W/O Spur)

Prime and Statewide Important Farmland	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
	Acres	Percent Total Acres	Acres	Percent Total Acres	Acres	Percent Total Acres	Acres	Percent Total Acres
Total Area within Proposed ROW	1,105.9	100.0%	1,084.7	100.0%	1,065.5	100.0%	1,086.7	100.0%
Total Area of Mapped Prime and Statewide Important Farmland within Proposed ROW	339.0	30.6%	330.5	30.5%	335.9	31.5%	344.5	31.7%
Area of Mapped Prime Farmland	298.8	27.0%	290.3	26.8%	297.4	27.9%	305.9	28.1%
Area of Mapped Farmland of Statewide Importance	40.2	3.6%	40.2	3.7%	38.5	3.6%	38.5	3.5%
Total Acreage of Proposed ROW within Urbanized Areas (McKinney UA)	980.1	88.6%	891.8	82.2%	850.9	79.7%	939.3	86.4%

Figure 3-7: Comparison of Farmland Impacts of the Build Alternatives (W/Spur)

Prime and Statewide Important Farmland	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
	Acres	Percent Total Acres	Acres	Percent Total Acres	Acres	Percent Total Acres	Acres	Percent Total Acres
Total Area within Proposed ROW	1,125.1	100.0%	1,099.3	100.0%	1,080.1	100.0%	1,105.9	100.0%
Total Area of Mapped Prime and Statewide Important Farmland within Proposed ROW	338.9	30.1%	330.5	30.0%	335.9	31.1%	344.3	31.1%
Area of Mapped Prime Farmland	298.7	26.5%	290.3	26.4%	297.4	27.5%	305.8	27.6%
Area of Mapped Farmland of Statewide Importance	40.2	3.6%	40.2	3.6%	38.5	3.6%	38.5	3.5%
Total Acreage of Proposed ROW within Urbanized Areas (McKinney UA)	999.4	88.8%	907.2	82.5%	866.4	80.2%	866.4	78.3%

NOTE: For both Figure 3-6 and Figure 3-7 – The proposed ROW and impacts under Segments A, E, and C for the Build Alternatives have been updated based on the May 2023 95% Geometric Design Schematic developed for the Blue Alternative (Appendix B of the FEIS). The Proposed ROW portion of the impacts for Segments B and D under the Purple, Brown, and Gold Alternatives are based on the July 1, 2022 60% Geometric Design Schematic included in the DEIS. All acreages have been rounded to the tenth of an acre and some figures or ‘Totals’ may reflect rounding error.

3.4 Utility Relocation

Utility lines in the Study Area include water and wastewater, fiber optics, natural gas, telephone, cable, electrical lines, and one highly volatile liquid transmission line. NTMWD, a public utility, supplies water and wastewater services throughout the Study Area. Internet, cable, and telephone service is provided in the City of McKinney, Town of Prosper, and surrounding areas by private companies, including AT&T, Spectrum, and Zayo. Natural gas is supplied by Atmos Energy and CoServ. Utilities were identified through coordination with the utility companies, municipalities, and by conducting Level B sub-surface utility explorations.

Implementation of any of the four Build Alternatives requires the acquisition of new ROW and construction activities that involve land clearing, grading, and sub-surface excavation. Prior to initiating construction, utilities in the proposed path of the new freeway must be moved. Coordination with utility owners will continue through final design and construction to either relocate the utility outside of the proposed ROW within a separate easement or make provisions for the utility to be incorporated within the proposed TxDOT ROW. This section identifies utility conflicts – existing and planned utilities within areas where new ROW would be acquired that would require relocation to another location, vertical relocation (e.g., placing an underground utility at a greater depth or raising a transmission line), or additional design considerations to allow the utility to remain within the proposed ROW (e.g., bridging or encasement). Major utilities that require relocation can add substantial costs to a project. The TxDOT reimbursable utility costs for major utility relocations have been estimated by study segment and by Build Alternative.

TxDOT has not determined which dislocated or displaced utilities will be re-installed within the TxDOT ROW, or which will be moved to a location outside of the TxDOT ROW for any of the Build Alternatives. However, the potential impacts resulting from re-installation of displaced utilities within the TxDOT ROW have been considered as part of the overall project footprint impacts (e.g., construction noise, potential disturbance to archeological resources, and potential impacts to species habitat) within this FEIS. To the extent that the owner of any displaced utility determines to re-install it at a location outside TxDOT ROW, such location will be determined by the owner of the utility subject to the rules and policies governing the utility relocation process. Additionally, the owner of the utility will be responsible for acquiring any easements outside of the TxDOT ROW and ensuring that the design and construction of the relocated utility meets all regulatory and environmental compliance requirements.⁴¹

3.4.1 Above-Grade and Subsurface Utilities Along the Study Segments

Figures 3-8 through 3-17 summarize the above grade and subsurface utilities encountered along the five study Segments (A through E) that comprise the four Build Alternatives. **Figure 3-18** describes the major utility conflicts along each segment and the proposed resolution of each conflict. **Figure 3-19** summarizes the major utility relocations and estimated major utility relocation costs by segment; with **Figure 3-20** summarizing the major utility relocations and total estimated major utility relocation costs by Build Alternatives (Purple, Blue, Brown, and Gold). The 60 % Geometric Design Schematics in **Appendix B** of the DEIS illustrate the major utility relocations for the Purple, Brown, and Gold Alternatives. The 95% Geometric Design Schematic (Appendix B of the FEIS) depicts and updates the major utility relocations for the Blue Alternative and Segments A, E, and C for

⁴¹ See 43 TAC 21.37(a)(9), (g)(1)), and (g)(4); 43 TAC 21.38(e)(2).

the Purple, Brown, and Gold Alternatives as applicable. Following publication of the DEIS, coordination with NTMWD indicated that two 48” wastewater lines had been installed east of McKinney that would potentially pose conflicts along Segments C and D. Those additional lines and the estimated costs to relocate them have been added to the applicable Build Alternatives.

Figure 3-8: Segment A Above-Grade Utilities

SEGMENT A Above-Grade Utilities	Size	Type	Owner	Location
	N/A	Electric	CoServ	North side of existing US 380 from Coit Road to Custer Road; along west side of Custer Road.
	N/A	Telephone	ATT	South side of existing US 380 from of Coit Road to Custer Road.
	N/A	Telephone	ATT	Crosses existing US 380 east of Redbud Drive, along north side of existing US 380 turning north along Custer Road.
	N/A	Telephone	ATT	North side of existing US 380 from Custer Road to Stonebridge Drive.
	N/A	Telephone	ATT	South side of existing US 380 from Custer Road to west of Freedom Drive.
	N/A	Electric	Not Listed	Both sides of existing US 380 from Coit Road to Freedom Drive

Figure 3-9: Segment A Subsurface Utilities

SEGMENT A Subsurface Utilities	Size	Type	Owner	Location
	Not listed	Utility Duct	ATT	Existing US 380 east of Coit Road west of Freedom Drive.
	30”	Water	City of Prosper	North side of existing US 380 from Coit Road to west of Custer Road.
	N/A	Fiber Optic	ATT	North side of existing US 380 from Coit Road to west side of Custer Road
	N/A	Fiber Optic	Zayo	North side of existing US 380 from Coit Road to Stonebridge Drive and crosses existing US 380 turning south.
	N/A	Fiber Optic	ATT	South side of existing US 380 from Coit Road to Custer Road, crossing existing US 380 east of Custer Road.
	N/A	Fiber Optic	ATT	East side of Coit Road crossing existing US 380 from south to north.
	10.75”	Gas Pipeline	Atmos	Pipeline crosses the proposed ROW near the southeast corner of existing US 380 and Coit Road and again, running generally east-west, approximately mid-way between CR 124 and CR 123 (future Bloomdale Road West).
	Not Listed	Gas Pipeline	CoServ	North side of existing US 380, west of Coit Road, turning north up west side of Lakewood Drive.
	8”	Wastewater	City of Prosper	North side of existing US 380, from Coit Road to Lakewood Drive.
	12”	Water	City of McKinney	South side of existing US 380 from Coit Road to Lakewood Drive.
	48”*	Water	NTMWD	Utility runs east-west along the north side of existing US 380, within the proposed ROW, from Redbud Drive to N. Custer Road.
12” to 24”	Water	City of McKinney	South side of existing US 380 from Redbud Drive and along east side of Redbud Drive.	

Figure 3-9 continued: Segment A Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT A Subsurface Utilities	21"	Wastewater	City of McKinney	South side of existing US 380 from Redbud Drive and along east side of Redbud Drive.
	Not Listed	Gas Pipeline	ATMOS	South side of existing US 380 east of Redbud Drive to Custer Road.
	CATV	Not listed	NA.	Existing US 380 west of N. Custer Road.
	N/A	Fiber Optic	Spectrum	South side of existing US 380 between Rosebud Drive and Custer Road, running south along Custer Road.
	N/A	Fiber Optic	Spectrum	South side of existing US 380 between Custer Road and Grassmere Lane, crossing existing US 380 to parallel Grassmere Lane to the north.
	N/A	Fiber Optic	Zayo	Crossing existing US 380 and south side of existing US 380 between Rosebud Drive and Tremont Boulevard.
	20"	Force Main Wastewater	City of McKinney	South side of existing US 380 west of Custer Road.
	24"	Wastewater	City of McKinney	South side of existing US 380 west of Custer Road.
	18"	Water	City of McKinney	East side of Custer Road crossing existing US 380.
	N/A	Fiber Optic	Grande	North side of exiting US 380 from Custer Road to east of Stonebridge Drive.
	10"	Water	City of McKinney	North side of existing US 380 to Watch Hill Lane.
	N/A	Fiber Optic	City of McKinney	South side of existing US 380 from Coit Road, crossing to the north along existing US 380 east of Custer Road, north side of existing US 380 to Tremont Boulevard.
	8"	Wastewater	City of McKinney	Crosses existing US 380 east of Custer Road.
	Not Listed	Gas Pipeline	ATMOS	North side of existing US 380 from Custer Road to Tremont Boulevard.
	8"	Wastewater	City of McKinney	South side of existing US 380 across Stonebridge Drive.
	24"	Force Main Wastewater	City of McKinney	South side of existing US 380 across Stonebridge Drive.
	36" to 66"*	Water	City of McKinney	East-west along the south side of existing US 380, adjacent to the proposed ROW, from N. Custer Road to just west of CR 856. The line turns north, crossing to the north side of existing 380, and runs east-west along existing 380, within the proposed ROW, from west of CR 856 to Watch Hill Lane.
36" *	Water	City of McKinney	East-west along the south side of existing US 380, adjacent to the proposed ROW, from N Stonebridge Drive to west of Tremont Boulevard. The line turns north and crosses the proposed ROW.	
36"*	Water	City of McKinney	Generally east-west along the north side of existing US 380, within the proposed ROW, from west of Tremont Boulevard to Forest Ridge Lane.	

Figure 3-9 continued: Segment A Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT A Subsurface Utilities	36"*	Water	City of McKinney	Generally east-west along the north side of existing US 380, within the proposed ROW, from west of Tremont Boulevard to Forest Ridge Lane.
	16"	Water	City of McKinney	South side of existing US 380 from southeast corner of Custer Road intersection, crossing north across existing US 380 east of Watch Hill Lane, continuing along the north side of existing US 380 west of Tremont Boulevard.
	24"	Wastewater	City of McKinney	Running south and parallel to Wilson Creek.
	Not Listed	Gas Pipeline	CoServ	North side of County Road 124.
	Not Listed	Gas Pipeline	ATMOS	Parallel to CR 123, southwest of CR 123 and CR 161.
	72"*	Water	City of Irving	East-west, crossing the proposed ROW approximately mid-way between CR 124 and CR 123 (Future Bloomdale Road West).
	27"	Wastewater	City of McKinney	Southwest of Bloomdale Road and west of Ridge Road.
	6"	Gas Pipeline	Matador	Southwest of Bloomdale Road and west of Ridge Road.
	6.63"	Highly Volatile Liquid Transmission	Oneok	Generally east-west, crossing the proposed ROW near the northern terminus of Segment A, approximately one-quarter mile south of CR 123.

An asterisk (*) indicates a major utility having potential conflict with the proposed alternative(s). Further information regarding major utility relocations is presented in Figures 3-18, 3-19, and 3-20.

Figure 3-10: Segment B Above-Grade Utilities

	Size	Type	Owner	Location
SEGMENT B Above-Grade Utilities	Not listed	Telephone	ATT	South side of existing US 380, west of Red Bud Drive (extends further east). Crosses future Independence Parkway intersection.
	N/A	Electric	Not Listed	Both sides of existing US 380 from Coit Road to Freedom Drive

Figure 3-11: Segment B Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT B Subsurface Utilities	10.75"	Gas Pipeline	Atmos	Crosses proposed ROW near the southeast corner of existing US 380 and Coit Road and again, running generally east-west, approximately mid-way between CR 124 and CR 123 (future Bloomdale Road West). Also extends towards intersection of N. Custer Road and E. 1st Street, immediately north of Rutherford Branch and ManeGait Therapeutic Horsemanship facility. Remains within proposed ROW for roughly 2,000' east of N. Custer Road.
	N/A	Fiber Optic	ATT	Both sides of existing US 380 between Coit Road and Lakewood Drive.
	8"	Wastewater	City of Prosper	Along existing US 380, between Coit Road and Lakewood Drive.
	24"	Wastewater	City of Prosper	Along existing US 380 between Coit Road and Lakewood Drive; additional segments along N Custer Road, near the corner of N Custer Road and E 1st Street; and along Rutherford Branch north of CR 933.
	12"	Water	City of McKinney	South side of existing US 380, between Coit Road and future Independence Parkway.
	30"	Water	City of Prosper	North side of existing US 380, between Coit Road and future Independence Parkway.
	30"	Water	City of Prosper	Crossing near the Rutherford Branch, north of CR 933.
	72"*	Water	City of Irving	Running northeast, turns east-west and crosses the proposed ROW west of and at N. Custer Road, between E. 1st Street and CR 858.
	N/A	Fiber Optic	ATT	North side of existing US 380, west of future Independence Parkway and extends farther east.
	48"*	Water	NTMWD	East-west along the north side of existing US 380, within the proposed ROW, from Redbud Dr. to west of N. Custer Road.
	24"	Wastewater	NTMWD	Crosses northeast of the ManeGait Therapeutic Horsemanship facility, along Wilson Creek.
	27"	Wastewater	City of McKinney	Along Stover Creek, southwest of the intersection of Bloomdale Road and Ridge Road.
	6"	Gas Pipeline	Matador	Within undeveloped area to the west of Ridge Road and south of Bloomdale Road.
	6.63"	Highly Volatile Liquid Transmission	Oneok	Generally east-west, crossing the proposed ROW near the northern terminus of Segment B, approximately one-quarter mile south of CR 123

An asterisk (*) indicates a major utility having potential conflict with the proposed alternative(s). Further information regarding major utility relocations is presented in Figures 3-18, 3-19, and 3-20.

Figure 3-12: Segment E Above-Grade Utilities

	Size	Type	Owner	Location
SEGMENT E Above-Grade Utilities	N/A	Electric	GCEC	Along US 75 near southwest corner with Laud Howell Parkway (Spur 195). Section along CR 201, west of Community Avenue, terminating at CR 164. Additional along CR 164 terminating at CR 1006.
	N/A*	Electric	Oncor	Generally north-south and crosses the proposed ROW west of the Laud Howell Pkwy/Spur 195 and US 75 intersection.
	N/A*	Electric	Oncor	Generally north-south and crosses the proposed ROW and existing US 75 between Bloomdale Rd. and Spur 195.
	N/A	Fiber Optic	ATT	West side of US 75 north of Bloomdale Road south of Laud Howell Parkway.
	N/A	Fiber Optic	Unknown	Along US 75 extending north from intersection of US 75 and Bloomdale Road, additional section along N. McDonald Street east of Honey Creek.
	N/A	Telephone	ATT	Along west side of US 75 between Bloomdale Road and CR 275. Additional section extends from intersection of US 75 and Laud Howell Parkway along Laud Howell Parkway. Additional sections - east-west along CR 201, east-west along CR 164 terminating near CR 1006.
	Not listed	CATV	Spectrum	Along N. McDonald Street west of the Willow Wood neighborhood. Additional section along US 75, near southwest corner of US 75 and Bloomdale Road.

An asterisk (*) indicates a major utility having potential conflict with the proposed alternative(s). Further information regarding major utility relocations is presented in Figures 3-18, 3-19, and 3-20.

Figure 3-13: Segment E Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT E Subsurface Utilities	N/A	Communications	ATT	Along US 75 south of Bloomdale Road, additional connection along US 75 near Lighthouse RV Resort.
	N/A	Fiber Optic	ATT	Along US 75 north of Bloomdale Road south of Laud Howell Parkway.
	N/A	Fiber Optic	Unknown	Along US 75 extending north from the corner of US 75 and Bloomdale Road, additional section along N. McDonald Street east of Honey Creek.
	N/A	Telephone	ATT	Along west side of US 75 between Bloomdale Road and CR 275; additional east-west sections along CR 201 and CR 164, terminating near CR 1006.
	Not listed	Wastewater	City of McKinney	West of Bloomdale Road and Limousine Parkway intersection.
	16"	Water	City of McKinney	Extends north along west side US 75 from Bloomdale Road, crosses existing US 75 south of Honey Creek, and extends south along US 75.
	10	Gas Pipeline	Atmos	Briefly enters the proposed ROW at Limousine Pkwy, west of Hardin Road. It crosses the proposed ROW again at US 75 south of intersection with Laud Howell Parkway, and crosses again at Spur 195 east of US 75.

Figure 3-13 continued: Segment E Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT E Subsurface Utilities	N/A	Electric	TxDOT	Along US 75 between Bloomdale Road and Laud Howell Parkway, additional section south of US 75-SRT interchange northeast of CR 275.
	N/A	Fiber Optic	ATT	Along US 75 between Bloomdale Road and SRT, additional section extends from southwest corner of US 75 and Laud Howell Parkway intersection along Spur 195 to the southeast terminating north of Honey Creek.
	21"	Wastewater	NTMWD	Crosses US 75 north of Bloomdale Road, runs along south side of Honey Creek.
	N/A	Electric	GCEC	Along US 75 near to southwest corner of Laud Howell Parkway, additional sections along CR 201 west of Community Avenue terminating at CR 164 and along CR 164 terminating at CR 1006.
	N/A	Fiber	Spectrum	Along US 75, southwest of Laud Howell Parkway.
	48"*	Wastewater	NTMWD	North-northeast and crosses the proposed ROW between Spur 195 and McDonald Street/SH 5.
	21"	Wastewater	City of Melissa	Extending north-south west of SH 5 southwest of Willow Wood neighborhood and along CR 201.
	36" *	Water	City of McKinney	North-south, crossing the proposed ROW and existing Bloomdale Rd on the west side of the Bloomdale Road. and Lake Forest Drive/FM 1461 intersection.
	36" *	Water	City of McKinney	North-northeast paralleling SH 5/McDonald Street, crosses proposed ROW on the west side of SH 5/McDonald Street, southwest of the Willow Wood neighborhood.
	36" *	Wastewater	City of McKinney	North-northeast and crosses the proposed ROW between Spur 195 and McDonald Street/SH 5.
	36"*	Wastewater	City of McKinney	Crosses the proposed ROW between Community Avenue and the intersection of Laud Howell Parkway/Spur 195 and US 75. The line enters the proposed ROW from the south side running north-northeast, turns west-northwest within the proposed ROW, and exits the proposed ROW on the north side.
	N/A	Fiber	City of Irving	Crosses US 75 south of Bloomdale Road, parallel with 72" Irving Waterline.
	8" (?)	Water	North Collin WSC	East side of SH 5, southwest of Willow Wood neighborhood; crosses US 75 north of Laud Howell Parkway.
	6.63"	Highly Volatile Liquid Transmission	Oneok	Briefly enters the proposed ROW at Limousine Pkwy, west of Hardin Rd. It crosses the proposed ROW again US 75 south of intersection with Laud Howell Parkway, and crosses again at Spur 195 east of US 75.
N/A	CATV	Spectrum	East side of SH 5 west of Willow Wood neighborhood.	
N/A	Fiber Optic	Zayo	Along N. McDonald Street west of Willow Wood neighborhood.	

An asterisk (*) indicates a major utility having potential conflict with the proposed alternative(s). Further information regarding major utility relocations is presented Figures 3-18, 3-19, and 3-20.

Figure 3-14: Segment C Above-Grade Utilities

	Size	Type	Owner	Location
SEGMENT C Above-Grade Utilities	N/A	Electric	Oncor	Parallel to and west of DGNO railroad, crosses East Fork Trinity River.
	Not listed	Communications	Spectrum	North side of existing US 380 east of Airport Drive.
	N/A	Telephone	ATT	West side of FM 2933 and multiple crossings.
	N/A	Electric	GCEC	Numerous line north side of existing US 380 between Airport Drive and FM 1827 (New Hope Road) extending easterly from FM 1827.
	N/A	Electric	Oncor	Southwest of Willow Wood neighborhood, west of the utility easement, and section along SH 5 east of Honey Creek.
	N/A	Electric	GCEC	Near CR 331 and CR 2933 intersection, extends west along CR 331 and northeast along CR 2933.
	N/A	Electric	GCEC	Along CR 338, north of CR 331 and south of Borchard Trail.
	N/A	Electric	GCEC	Along CR 2933, south of CR 335 and North of CR 332
	N/A	Fiber Optic	ATT	Along CR 2933 extending south from CR 2933 and 335 to intersection of CR 332 and CR 329 turning and extending eastward.

Figure 3-15: Segment C Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT C Subsurface Utilities	N/A	Fiber Optic	City of Irving	East of SH 5, north of East Fork of the Trinity River.
	72"*	Water	City of Irving	Northeast, crossing the proposed ROW between SH 5 and the DGNO Railroad, south of the Willow Wood neighborhood, then turns east.
	30"	Water	GTUA	South of Willow Wood neighborhood, east of SH 5 parallel to 72" City of Irving waterline.
	84"*	Water	NTMWD	Utility (under construction) crosses the proposed ROW, running northeast, just west of the DGNO Railroad and south of the Willow Wood neighborhood.
	27"	Wastewater	City of Melissa	Within utility easement east of DGNO Railroad and west of CR 338.
	12"	Water	NTMWD	Within utility easement east of DGNO Railroad and west of CR 338.
	N/A	Fiber Optic	ATT	West side of FM 2933.
	48"	Wastewater	NTMWD	Dual lines cross FM 2933.
	N/A	Fiber	Zayo	South side of existing US 380 east of FM 1827.
	6"	Water	North Collin WSC	East side of FM 1827 and north side of existing US 380 and CR 330 east of FM 1827.
	N/A	Water	NTMWD	South of existing US 380 between Airport Drive and FM 1827, additional line within utility easement south of Willow Wood neighborhood.
	Not listed	Communications	ATT	Near CR 2933 and CR 335 intersection, along CR 338 to the to the CR 338 and Borchard Trail intersection.

An asterisk (*) indicates a major utility having potential conflict with the proposed alternative(s). Further information regarding major utility relocations is presented in Figures 3-18, 3-19, and 3-20.

Figure 3-16: Segment D Above-Grade Utilities

	Size	Type	Owner	Location
SEGMENT D Above-Grade Utilities	N/A	Electric	Oncor	West of the utility easement southwest of Willow Wood neighborhood, additional section along SH 5 east of Honey Creek.
	N/A	Communications	Spectrum	Crosses existing US 380 west of FM 1827.
	N/A	Electric	Oncor	North side of existing US 380 between Airport Drive and FM 1827, extends south along Airport Drive.
	N/A	Fiber Optic	ATT	South side of existing US 380 and both sides of Airport Drive.
	N/A	Fiber Optic	Zayo	South side of existing US 380 east of Airport Drive, extends south along Airport Drive.
	N/A	Telephone	ATT	Both sides of existing US 380 between Airport Drive and FM 1827.

Figure 3-17: Segment D Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT D Subsurface Utilities	N/A	Fiber Optic	City of Irving	Parallel to 72" Irving waterline southwest of Willow Wood neighborhood, extends southwest to northeast.
	72"*	Water	City of Irving	Utility runs northeast, crossing the proposed ROW between SH 5 and the DGNO Railroad, south of the Willow Wood neighborhood.
	30"	Water	GTUA	Parallel to 72" Irving waterline southwest of Willow Wood neighborhood east of SH 5.
	27"	Wastewater	City of Melissa	Within utility easement alongside DGNO Railroad and south of Willow Wood neighborhood.
	84"*	Water	NTMWD	Utility (under construction) crosses the proposed ROW, running northeast, between SH 5 and the DGNO Railroad and south of the Willow Wood neighborhood.
	12"	Water	NTMWD	East side of DGNO railroad.
	36"*	Water	City of McKinney	Generally east-southeast along the south side of existing US 380 and crosses within the proposed ROW at the southwest corner of the existing Airport Drive and existing US 380 intersection.
	24"	Wastewater	NTMWD	Along Woodlawn Road north of existing US 380 and Airport Drive intersection, runs north to CR 274/McIntyre Road.
	48"	Wastewater	NTMWD	Dual lines cross existing US 380 east of Airport Drive.
	48"*	Wastewater	NTMWD	Southeast, then turns southwest, crossing the proposed connection of Airport Drive with US 380, north of the existing US 380/Airport Drive intersection.
48"*	Wastewater	NTMWD	Utility crosses within the proposed ROW at two locations: <ul style="list-style-type: none"> Runs east-west and crosses within the proposed ROW of McIntyre Road at the southwest corner of intersection with proposed US 380 Runs southeast, then turns southwest, crossing the proposed connection of Airport Drive with US 380, north of and through the existing US 380/Airport Drive intersection.	

Figure 3-17 continued: Segment D Subsurface Utilities

	Size	Type	Owner	Location
SEGMENT D Subsurface Utilities	N/A	CATV Fiber	Spectrum	Along Woodlawn Road, near southwest corner of CNC Concrete.
	N/A	Electric	Oncor	South side of existing US 380 east of Airport Drive.
	N/A	Fiber Optic	ATT	Along existing US 380 from Airport Drive to FM 1827, additional sections under existing US 380 and south along Airport Drive and along Woodlawn Road.
	N/A	Fiber Optic	Zayo	South side of existing US 380 between Airport Drive and FM 1827; additional section extends south from existing US 380/Airport Drive intersection along existing Airport Drive.
	72"*	Water	NTMWD	North-south, then turns southeast entering the proposed ROW southeast of Woodlawn Drive and crosses the proposed connection of Airport Drive with US 380, north of and through the existing US 380/Airport Drive intersection.
	6"	Water	North Collin WSC	East side of FM 1827, north sides of existing US 380 and CR 330 east of FM 1827.

An asterisk (*) indicates a major utility having potential conflict with the proposed alternative(s). Further information regarding major utility relocations is presented in Figures 3-18, 3-19, and 3-20.

Figure 3-18: Major Utility Conflict Locations by Segment and Proposed Conflict Resolution

Size	Type	Owner	Location	Proposed Resolution
SEGMENT A				
48"	Water	NTMWD	Utility runs east-west along the north side of existing US 380, within the proposed ROW, from Redbud Drive to N. Custer Road.	Utility would require full relocation and new easement within the adjacent commercial development parking lot/drive aisle. Additional discussion with NTMWD would be required to determine if placement of the line under the existing parking drive aisle would be acceptable. If it is not acceptable, the drive aisle may need to be removed which may result in additional displacements.
30"-66"	Water	City of McKinney	Utility runs east-west along the south side of existing US 380, adjacent to the proposed ROW, from Custer Road to just west of CR 856. The line turns north, crossing to the north side of existing 380, and runs east-west along existing 380, within the proposed ROW, from west of CR 856 to Watch Hill Lane.	Full relocation would be required for an existing US 380 crossing of the utility.
36"	Water	City of McKinney	Utility runs east-west along the south side of existing US 380, adjacent to the proposed ROW, from N Stonebridge Drive to west of Tremont Boulevard. The line turns north and crosses the proposed ROW.	Utility crosses US 380 and connects with the 36" City of McKinney waterline listed below. Crossing of this utility would require reconstruction. May require vertical relocation but would remain at or near its existing horizontal location.

Figure 3-18 continued: Major Utility Conflict Locations by Segment and Proposed Conflict Resolution

Size	Type	Owner	Location	Proposed Resolution
SEGMENT A continued				
36"	Water	City of McKinney	Utility runs generally east-west along the north side of existing US 380, within the proposed ROW, from west of Tremont Boulevard. to Forest Ridge Lane.	Requires full relocation within a new easement. Requires partial placement under an existing commercial parking lot.
36"	Water	City of McKinney	Utility runs generally east-west along the north side of existing US 380, within the proposed ROW, from west of Tremont Boulevard. to Forest Ridge Lane.	Requires full relocation within a new easement. Requires a partial placement under an existing commercial parking lot.
72"	Water	City of Irving	Utility runs east-west, crossing the proposed ROW approximately mid-way between CR 124 and CR 123 (future Bloomdale Road West).	Utility crossing would remain within its existing easement location and would likely require concrete or steel encasement or need to be lowered. No relocation required.
SEGMENT B				
48"	Water	NTMWD	Utility runs east-west along the north side of existing US 380, within the proposed ROW, from Redbud Drive to west of N. Custer Road.	Utility would cross future cross streets but would not cross US 380. Cross street crossings may require some vertical relocation and/or encasement but would likely remain within its current easement location.
72"	Water	City of Irving	Utility runs northeast, turns east-west crossing the proposed ROW west of and at N. Custer Road, between E. 1 st Street and CR 858.	Utility crossing would require an extension of the mainlane bridge over the existing easement or would require concrete encasement. An existing blow off valve is located within the proposed east bound frontage road and would require relocation to the east side of N. Custer Road.
SEGMENT E				
36"	Water	City of McKinney	Utility runs north-south crossing the proposed ROW and existing Bloomdale Road on the west side of the Bloomdale Road and Lake Forest Drive/FM 1461 intersection.	Utility line connects to a manhole on the southwest corner of FM 1461 and Bloomdale Road/CR 164 inside proposed ROW. No direct conflict occurs and no relocation required.
36"	Water	City of McKinney	Utility runs north-northeast paralleling SH 5/McDonald Street and crosses the proposed ROW on the west side of SH 5/McDonald Street, southwest of the Willow Wood neighborhood.	Utility line crosses the proposed alignment at nearly a 90-degree angle and the mainlanes and eastbound frontage road bridge bents have been designed to avoid any direct impact to the utility. No relocation required.
36"	Waste water	City of McKinney	Utility runs north-northeast and crosses the proposed ROW between Spur 195 and McDonald Street/SH 5.	Utility line crosses the proposed alignment at nearly a 90-degree angle and the mainlanes and eastbound frontage road bridge bents have been designed to avoid any direct impact to the utility. The utility would remain. No relocation required.

Figure 3-18 continued: Major Utility Conflict Locations by Segment and Proposed Conflict Resolution

Size	Type	Owner	Location	Proposed Resolution
SEGMENT E continued				
36"	Waste water	City of McKinney	Utility crosses the proposed ROW between Community Avenue and the intersection of Laud Howell Parkway/Spur 195 and US 75. The line enters the proposed ROW from the south side running north-northeast, turns west-northwest within the proposed ROW, and exits the proposed ROW on the north side	Utility line crosses the proposed alignment. Both the mainlane and frontage road bridge bents have been designed to avoid any direct impact to the utility. Relocation is required to a new easement.
N/A	Electric	Oncor	Utility runs generally north-south and crosses the proposed ROW west of the Laud Howell Parkway/Spur 195 and US 75 intersection.	Require relocation of existing or construction of new towers within or immediately adjacent to the proposed ROW and raising of the existing transmission lines to accommodate vertical clearance criteria.
N/A	Electric	Oncor	Utility runs generally north-south and crosses the proposed ROW and existing US 75 between Bloomdale Road and Spur 195.	Require raising of the existing transmission lines to accommodate vertical clearance criteria. No relocation required.
48"	Waste water	City of Melissa	Utility runs north-northeast and crosses the proposed ROW between Spur 195 and McDonald Street/SH 5.	Utility line crosses the proposed alignment at nearly a 90-degree angle. Both mainlane and frontage road bridge bents designed to avoid a direct impact to the utility. No relocation required.
10	Gas Pipeline	Atmos	Briefly enters the proposed ROW at Limousine Pkwy, west of Hardin Road. It crosses the proposed ROW again at US 75 south of intersection with Laud Howell Parkway, and crosses again at Spur 195 east of US 75.	Pipeline requires relocation.

Figure 3-18 continued: Major Utility Conflict Locations by Segment and Proposed Conflict Resolution

Size	Type	Owner	Location	Proposed Resolution
SEGMENT C				
72"	Water	City of Irving	Utility runs northeast, crossing the proposed ROW between SH 5 and the DGNO Railroad, south of the Willow Wood neighborhood, then turns east.	Waterline is within a 75-foot easement alongside a parallel 30-foot Greater Texoma Utility Authority easement. The mainlane and frontage road bridges have been designed to span over both easements; however, the west bound frontage road bridge would require the use of steel spans to span the combined easement width due to a bend in the easements at the proposed crossing location. No relocation required.
84"	Water	NTMWD	Utility (under construction) crosses the proposed ROW, running northeast, just west of the DGNO Railroad and south of the Willow Wood neighborhood.	The frontage roads, mainlanes, and a pair of ramps each cross the 120-foot utility easement at a heavily skewed angle. To avoid any direct impacts to or placement of columns within the easement, steel span bridges would be required for each of these roadway crossings. No relocation required.
48"	Waste water	NTMWD	Dual lines run east-west crossing FM 2933.	Constructed after the July 2022 60% Geometric Design Schematics were prepared. Both require relocation.
SEGMENT D				
72"	Water	City of Irving	Utility runs northeast, crossing the proposed ROW between SH 5 and the DGNO Railroad, south of the Willow Wood neighborhood.	Utility line is within a 75-foot easement alongside a parallel 30-foot Greater Texoma Utility Authority easement. The mainlane and frontage road bridges have been designed to span over both easements to avoid any direct impact to the easements or utility. No relocation required.
84"	Water	NTMWD	Utility (under construction) crosses the proposed ROW, running northeast, between SH 5 and the DGNO Railroad and south of the Willow Wood neighborhood.	The mainlanes, frontage roads, and ramp bridges that cross this line are each on proposed bridge structure with the bents designed to span over the full easement width to avoid any direct impact to the easement or utility. No relocation required.
48"	Waste water	NTMWD	<p>Utility crosses within the proposed ROW at two locations:</p> <ul style="list-style-type: none"> Runs east-west and crosses within the proposed ROW of McIntyre Rd at the southwest corner of intersection with proposed US 380. Runs southeast, then turns southwest, crossing the proposed connection of Airport Drive with US 380, north of and through the existing US 380/Airport Drive intersection. 	<p>Requires relocation as this line occurs at 2 different locations; further discussions and investigations with City of Melissa/NTMWD would be required to determine impacts to the utility:</p> <ul style="list-style-type: none"> A manhole at the southwest corner of McIntyre Road/proposed US 380 is within the proposed ROW and may require relocation along with a short segment of the utility line. The utility crosses a proposed north connection of Airport Drive and may require encasement and/or relocation of a short segment that crosses the roadway.

Figure 3-18 continued: Major Utility Conflict Locations by Segment and Proposed Conflict Resolution

Size	Type	Owner	Location	Proposed Resolution
SEGMENT D continued				
72"	Water	NTMWD	Utility runs north-south then turns southeast entering the proposed ROW southeast of Woodlawn Drive and crosses the proposed connection of Airport Drive with US 380, north of and through the existing US 380/Airport Drive intersection.	Utility line crosses a proposed north connection of Airport Drive and may require encasement of a short segment that crosses the roadway. The eastbound frontage road also crosses at this location but is proposed to be on bridge with proposed bridge bents designed to avoid a direct conflict with the utility.
48"	Waste water	NTMWD	Utility runs southeast, then turns southwest, crossing the proposed connection of Airport Dr. with US 380, north of the existing US 380/Airport Drive intersection.	Utility line crosses a proposed north connection of Airport Drive and may require encasement and/or relocation of a short segment that crosses the roadway.
36"	Water	City of McKinney	Utility runs generally east-southeast along the south side of existing US 380 and crosses within the proposed ROW at the southwest corner of the existing Airport Drive and existing US 380 intersection.	Utility line crosses existing Airport Drive and may require additional encasement and relocation of some existing appurtenances, but it is likely there would be no relocation of the line itself. No relocation required.
48"	Waste water	NTMWD	Dual lines run north-south parallel to Segment D and under existing US 380 east of Airport Drive.	Constructed after the July 2022 60% Geometric Design Schematics were prepared. The lines were installed under existing US 380 to connect to the lift station south of US 380 near Airport Drive.

Figure 3-19: Summary of Major Utility Relocations and Estimated Major Utility Relocation Costs by Segment

	SEGMENT A	SEGMENT B	SEGMENT E	SEGMENT C	SEGMENT D
Number of Major Utility Relocations	6	2	4	2	4
Utility and Size	48" NTMWD Waterline	48" NTMWD Waterline	36" McKinney Wastewater Line	Dual 48" NTMWD Wastewater Lines**	48" NTMWD Wastewater Line
	30"-66" McKinney Waterline	72" Irving Waterline	Transmission Line (2)		72" NTMWD Waterline
	36" McKinney Waterlines (3)		10" Atmos Energy Natural Gas Pipeline		Dual 48" NTMWD Wastewater Lines**
	McKinney University Pump Station water distribution lines				
	McKinney University Pump Station water distribution lines				
Estimated total cost of relocating major utilities	\$74.6M	\$34.1M	\$19.4M	\$5.3M	\$24.4M

NOTE: The costs are reflective of those utilities that would be relocated based on the May 2023 95% Geometric Design Schematic developed for the Blue Alternative including Segments A, E, and C. The costs reflect TxDOT reimbursable utility costs only. Costs associated with bridging or encasement of the utility in lieu of relocation are included in the general design cost figures.

** Wastewater lines constructed after the July 2022 60% Geometric Design Schematic was developed.

3.4.2 Summary of Major Utility Relocations by Build Alternative (Purple, Blue, Brown, and Gold)

Figure 3-20: Summary of Major Utility Relocations and Estimated Total Major Utility Relocation Costs by Build Alternative

	Purple Alternative (A+E+D)	Blue Alternative (A+E+C) ^{1, 2}	Brown Alternative (B+E+C) ^{1, 2}	Gold Alternative (B+E+D)
Number of Major Utility Relocations	15	12	8	11
Major Utility	48" NTMWD Waterline	48" NTMWD Waterline	48" NTMWD Waterline	48" NTMWD Waterline
	30"-66" McKinney Waterline	30"-66" McKinney Waterline	72" Irving Waterline	72" Irving Waterline
	36" McKinney Waterlines (3)	36" McKinney Waterlines (3)	36" McKinney Waterline	36" McKinney Wastewater line
	McKinney University Pump Station water distribution lines	McKinney University Pump Station water distribution lines	36" McKinney Wastewater line	Transmission Line (2)
	36" McKinney Wastewater line	36" McKinney Wastewater line	Transmission Line (2)	10' Atmos Energy Natural Gas Pipeline
	Transmission Line (2)	Transmission Line (2)	10' Atmos Energy Natural Gas Pipeline	48" NTMWD Wastewater line
	10' Atmos Energy Natural Gas Pipeline	10' Atmos Energy Natural Gas Pipeline	Dual 48" NTMWD Wastewater Lines	72" NTMWD Waterline
	48" NTMWD Wastewater lines (2)	Dual 48" NTMWD Wastewater Lines **		48" NTMWD Wastewater line
	72" NTMWD Waterline			Dual 48" NTMWD Wastewater Lines
	Dual 48" NTMWD Wastewater Lines**			
Estimated total major utility relocation cost	\$118.4M	\$99.3M	\$58.8M	\$77.9M

NOTES: The costs are reflective of those utilities that would be relocated based on the May 2023 95% Geometric Design Schematic developed for the Blue Alternative including Segments A, E, and C. The costs reflect TxDOT reimbursable utility costs only. Costs associated with bridging or encasement of the utility in lieu of relocation are included in the general design cost figures.

** Wastewater lines constructed after the July 2022 60% Geometric Design Schematic was developed.

Purple Alternative (A+E+D)

Both publicly and privately owned major utilities are within or cross the proposed ROW of the Purple Alternative. The estimated cost to relocate major utilities under the Purple Alternative is \$118.4 million.

Above-grade/overhead utilities along the Purple Alternative include electric, telecom, and fiber optic. **Figure 3-8** (Segment A), **Figure 3-12** (Segment E), and **Figure 3-16** (Segment D) list the size, type, owner, and general location of the above-grade/overhead utilities located within the proposed ROW of the Purple Alternative.

Subsurface utilities include water, wastewater, electric, pipelines, telecom, and fiber optic along SH 5, FM 546, US 380, Couch Drive, Airport Drive, CR 317, CR 722 and Old Mill Road. **Figure 3-9** (Segment A), **Figure 3-13** (Segment E), and **Figure 3-17** (Segment D) list the size, type, owner, and general location of the subsurface utilities located within the proposed ROW of the Purple Alternative.

The major utilities that require relocation along Segments A, E, and D are described in **Figures 3-18 and 3-19**.

Blue Alternative (A+E+C)

Both publicly and privately owned major utilities are within or cross the proposed ROW of the Blue Alternative. The estimated cost to relocate major utilities under the Blue Alternative is \$99.3 million.

Above-grade/overhead utilities along the Blue Alternative include electric, telecom, and fiber optic. **Figure 3-8** (Segment A), **Figure 3-12** (Segment E), and **Figure 3-14** (Segment C) list the size, type, owner, and general location of the above-grade/overhead utilities located within the proposed ROW of the Blue Alternative.

Subsurface utilities include water, wastewater, electric, pipelines, telecom, and fiber optic along SH 5, FM 546, US 380, Couch Drive, Airport Drive, CR 317, CR 722 and Old Mill Road. **Figure 3-9** (Segment A), **Figure 3-13** (Segment E), and **Figure 3-15** (Segment C) list the size, type, owner, and general location of the subsurface utilities located within the proposed ROW of the Blue Alternative.

The major utilities that require relocation along Segments A, E, and C are described in **Figures 3-18 and 3-19**.

Brown Alternative (B+E+C)

Both publicly and privately owned major utilities are within or cross the proposed ROW of the Brown Alternative. The estimated cost to relocate major utilities under the Brown Alternative is \$58.8 million.

Above-grade/overhead utilities along the Brown Alternative include electric, telecom, and fiber optic. **Figure 3-10** (Segment B), **Figure 3-12** (Segment E), and **Figure 3-14** (Segment C) list the size, type, owner, and general location of the above-grade/overhead utilities located within the proposed ROW of the Brown Alternative.

Subsurface utilities include water, wastewater, electric, pipelines, telecom, and fiber optic. **Figure 3-11** (Segment B), **Figure 3-13** (Segment E), and **Figure 3-15** (Segment C) list the size, type, owner, and general location of the subsurface utilities located within the proposed ROW of the Brown Alternative.

The major utilities that require relocation along Segments B, E, and C are described in **Figures 3-18 and 3-19**.

Gold Alternative (B+E+D)

Both publicly and privately owned major utilities are within or cross the proposed ROW of the Gold Alternative. The estimated cost to relocate major utilities under the Gold Alternative is \$77.9 million.

Above-grade/overhead utilities along the Gold Alternative include electric, telecom, and fiber optic **Figure 3-10** (Segment B), **Figure 3-12** (Segment E), and **Figure 3-16** (Segment D) list the size, type, owner, and general location of the above-grade/overhead utilities located within the proposed ROW of the Gold Alternative.

Subsurface utilities include water, wastewater, electric, pipeline, telecom, and fiber optic. **Figure 3-11** (Segment B), **Figure 3-13** (Segment E), and **Figure 3-17** (Segment D) list the size, type, owner, and general location of the subsurface utilities located within the proposed ROW of the Gold Alternative.

The major utilities require that relocation along Segment B, E, and D are described in **Figures 3-18 and 3-19**.

No-Build Alternative

No ROW acquisition or construction would occur under the No-Build Alternative; therefore, no utilities would be relocated.

Blue Alternative (A+E+C) – Preferred Alternative

Construction of the Blue Alternative results in 16 major utility conflicts, of which 12 would require relocation including a 48-inch NTMWD waterline, a 30-inch to 60-inch City of McKinney waterline, two parallel 36-inch City of McKinney waterlines, a 36" McKinney wastewater line, a 48" NTMWD wastewater line, a 72-inch NTMWD waterline, a 48" NTMWD wastewater line, dual 48-inch NTMWD wastewater lines crossing Segment C (constructed after the July 2022 Geometric Design Schematics were submitted), and two Oncor transmission lines and towers as described in **Figure 3-19**. The major utility relocation cost for the Blue Alternative is estimated at \$99.3 M. Two to four years of design and construction could be needed to relocate and mitigate major utility conflicts from within the proposed ROW before roadway construction would begin. During final design, further discussion with all utility owners, including NTMWD, is needed to determine the location of relocated utilities, including under existing driveways, parking lots, or SUPs depending on the utility and the location.

Four separate City of McKinney waterlines will need to be relocated along Segment A. A 30-inch to 66-inch waterline, located along both sides of and crossing existing US 380 between N. Custer Road and Tremont Boulevard, will require full relocation. Full relocation will be needed for two parallel waterlines on the north side of existing US 380 between Stonebridge Drive and the future University Drive realignment. These will require partial placement under an existing commercial parking lot. Another City of McKinney waterline, located on the south side of existing US 380 between Stonebridge Drive and Tremont Boulevard, connects to the 36-inch waterline parallel to and crossing existing US 380. This crossing will require reconstruction and potential vertical relocation, although it can remain at or near its current horizontal location. An Irving waterline, located at the crossing of CR 124 and future Bloomdale Road West, can remain within its existing easement (no relocation) but will likely require concrete or steel encasement.

Along Segment E, three instances occur where the City of McKinney waterline crosses the alignment at a nearly 90-degree angle (on the west side of the SH 5 intersection, between Spur 195 and SH 5, and between Community Avenue and future Trinity Falls Parkway). In these instances, the main lanes and eastbound

frontage road bridge bents have been designed to avoid directly impacting the lines. These waterlines can remain in place.

An Oncor transmission line, that crosses to the west side of the Trinity Falls Parkway intersection, will likely need to be raised to achieve the needed vertical clearance. Multiple transmission towers along the line, which are located within or immediately adjacent to the proposed ROW, will need to be relocated. Another Oncor line, that crosses US 75 north of Bloomdale Road, will need to be raised to achieve the needed vertical clearance above the roadway.

A NTMWD wastewater line, located between Spur 195 and SH 5, crosses the alignment at a nearly 90-degree angle. The mainlane and frontage road bents have been designed to avoid any direct impact to the line allowing the line to remain in place.

Along Segment C, a waterline owned by the City of Irving, that crosses between SH 5 and the DGNO Railroad, is within a 75-foot-wide easement alongside a parallel 30-foot-wide Greater Texoma Utility Authority easement. The mainline and frontage road bridges have been designed to span over both easements; however, the westbound frontage road bridge will require the use of steel spans over the combined easement width due to a bend in the easements (additional width) at the proposed crossing location.

A NTMWD water line crosses between SH 5 and DGNO in a location where the frontage roads, mainlanes, and a pair of ramps all cross a 120-foot easement at a heavily skewed angle. To avoid any direct impact or placement of columns within the easement, steel span bridges will be required for each of these crossing roadways.

As final design progresses for the Blue Alternative, further assessment would determine which underground utilities could be crossed and which would need to be relocated outside of the proposed ROW and within a separate easement. Overhead utilities would be addressed in a similar manner through coordination with the utility companies. The final order, lead time, and cost of the utility relocations would also be determined.

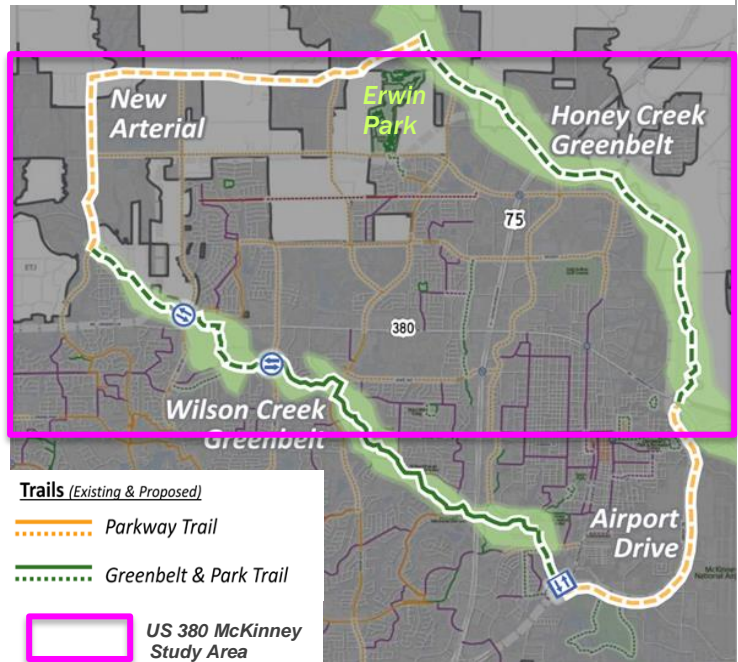
3.5 Bicycle and Pedestrian Facilities

This section describes the existing and planned linear facilities and hardscape improvements that accommodate pedestrian and bicycle travel within the Study Area. Park properties and greenbelts are described in **Section 3.9**.

City of McKinney - Within the Study Area, existing bicycle and pedestrian facilities and sidewalks are established along many city streets and within a portion of the Wilson Creek Greenbelt south of existing US 380. A multi-use path is within the ROW along the south side of Bloomdale Road (Segment E). Erwin Park, owned by the City of McKinney, contains numerous trails. Bicycle users share the roadways with vehicles across the city along "Bicycle Boulevards" or within designated bike lanes. As described in **Section 3.2**, public transit does not serve the Study Area so there are no bus shelters or park-and-ride facilities with bicycle or pedestrian access.

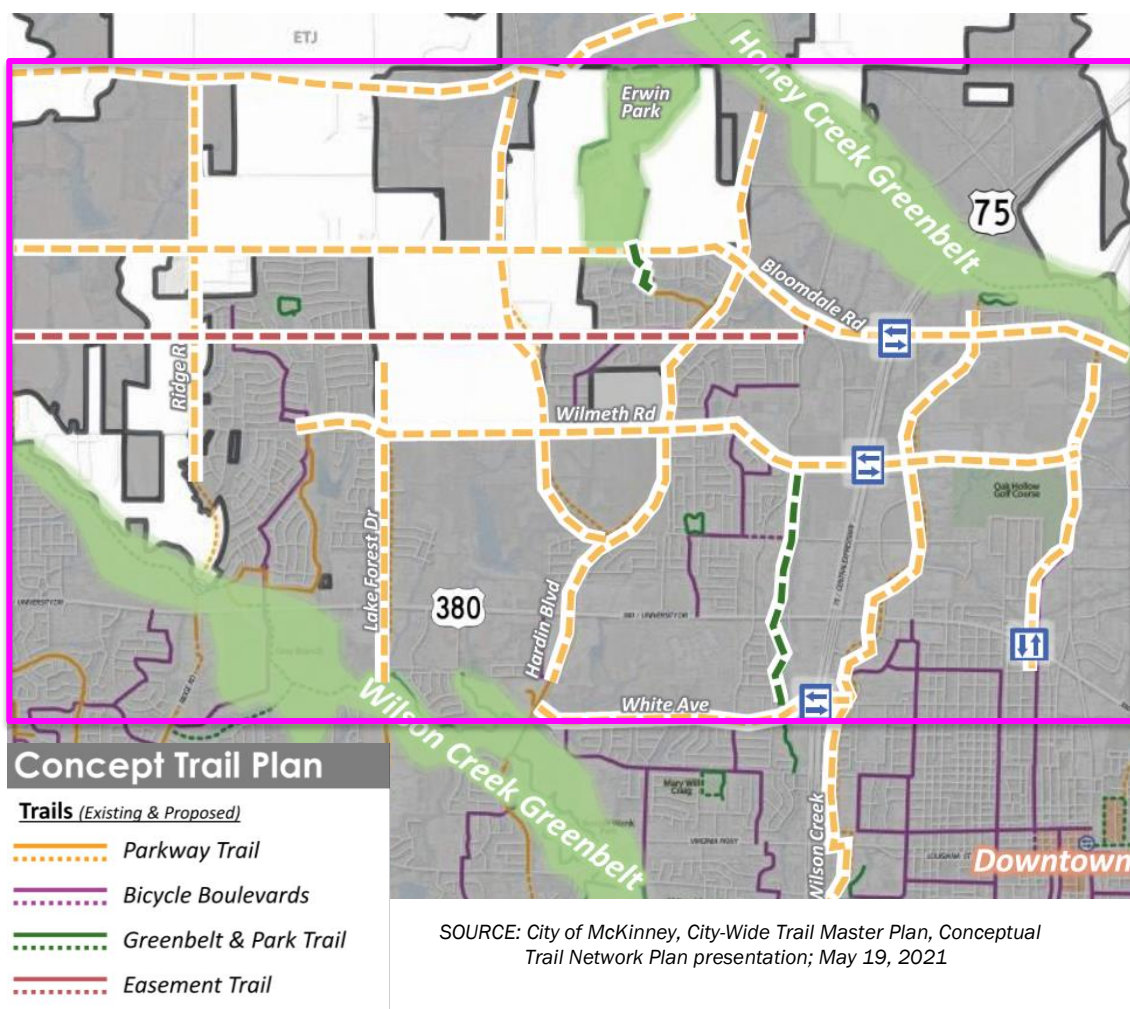
As depicted in **Figure 3-21** and **Figure 2-22**, the City of McKinney is developing a City-Wide Trail Master Plan to guide implementation of a connected trail network. The plan includes trails of multiple types including “Parkway Trails” and “Bicycle Boulevards” within and along established streets, “Greenbelt & Park Trails” along creek corridors, and “Easement Trails” established within a standalone corridor. City planners are also looking at the potential to provide a Greenbelt Loop Trail connecting trails along the Wilson Creek Greenbelt and the planned Honey Creek Greenbelt via an on-street trail along Airport Drive in the southeast part of the city and along a new arterial in the northeast part of the city (**Figure 3-21**). The pink box in both figures indicates a portion of the US 380 McKinney Study Area.

Figure 3-21: City of McKinney Conceptual Trail Network Plan – Proposed Greenbelt Loop Trail



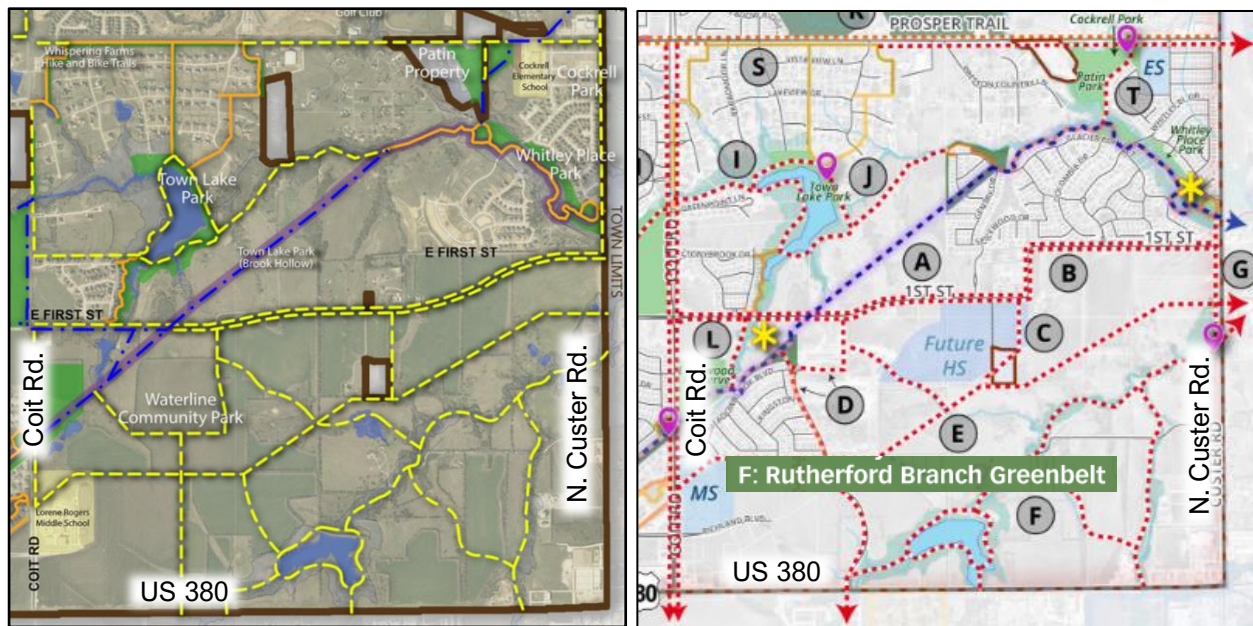
SOURCE: City of McKinney, City-Wide Trail Master Plan, Conceptual Trail Network Plan presentation; May 19, 2021

Figure 3-22: City of McKinney Conceptual Trail Network Plan



Town of Prosper – The Town of Prosper 2015 *Parks, Recreation, and Open Space Master Plan* indicates the Town’s plans to develop an 8-foot-wide trail network within the southeast corner of the community (and a portion of the US 380 McKinney Study Area) bounded by existing US 380 on the south, Coit Road on the west, and N. Custer Road (Town Limits) on the east (**Figure 3-23**). Their *Hike & Bike Trails Master Plan* adopted in November 2020, shows the same trail alignment but with 10-foot-wide trails along the planned Rutherford Creek Greenbelt through the Study Area. The Rutherford Creek Greenbelt is not mentioned in the 2015 *Parks, Recreation, and Open Space Master Plan*. According to Town Council meeting minutes from August and November 2022, the Town was beginning to acquire land for construction of portions of the proposed trail (see red dashed line on **Figure 3-40**) along the planned Rutherford Creek Greenbelt.

Figure 3-23: Town of Prosper Conceptual Trail Network Plan



SOURCE: LEFT - Town of Prosper Parks, Recreation, and Open Space Plan, 2015; and RIGHT- Town of Prosper Hike & Bike Trails Master Plan, Adopted November 2020

Purple Alternative (A+E+D)

The Purple Alternative (Segment A) would encroach upon sections of the Rutherford Branch Greenbelt Trail planned to cross existing US 380 west of the NRCS Reservoir and planned to encircle the reservoir as part of the overall concept plan for the proposed Rutherford Park (see Section 3.9.1) Based on information provided by the Town in early 2023, approximately 809 linear feet of the proposed Rutherford Branch Greenbelt Trail around the NRCS reservoir would be within the proposed ROW. The Purple Alternative (Segments A and E) would cross the City of McKinney’s planned Wilson Creek Greenbelt, the proposed “Easement Trail”, and the “Parkway Trail” indicated along Bloomdale Road in **Figure 3-22**. Segments E and D would cross the planned Honey Creek Greenbelt trail area with Segment D following a similar alignment along the planned greenbelt as it moves south along the East Fork Trinity River floodplain to existing US 380. SUPs proposed along the frontage roads would connect to these existing and planned trail segments to maintain bike-pedestrian connectivity along the corridor. Connections at grade-separations would link to existing and proposed trail system components and sidewalks. The proposed SUPs would be 10-foot-wide and along both sides of the freeway outside of the frontage in most instances. The SUPs would be separated from the frontage roads by a grassed berm when the roadway is at-grade, or on earthen fill or by a concrete barrier when the roadway is on structure/bridge. The Purple Alternative complies with TxDOT’s *Bicycle Accommodation Design Guidance* (adopted April 2, 2021) which also implements U.S. Department of Transportation (USDOT) and FHWA policies regarding bicycle and pedestrian accommodations.

The Purple Alternative W/Spur would extend south of existing US 380 and affect the “Greenbelt & Park Trail” proposed along Airport Drive and require land from the Trinity River Greenway (see **Section 3.9**) east of Airport Drive. SUPs would extend along the frontage roads through this area connecting to the planned trail system and the existing sidewalk system along Airport Drive.

Blue Alternative (A+E+C)

The Blue Alternative (Segments A and E) would cross the same existing and proposed trail features within Prosper and McKinney as described under the Purple Alternative. Segments E and C would cross the planned Honey Creek Greenbelt trail area but Segment C would stretch farther east and away from the Honey Creek Greenbelt and out of the East Fork Trinity River floodplain as it extends to the south to connect to existing US 380. The Blue Alternative would not affect any of the McKinney City-wide Trail Network, as mapped, east of the East Fork Trinity River. SUPs proposed along the frontage roads would connect to existing and planned trail segments to maintain bike-pedestrian connectivity along the corridor. Connections at grade-separations would link to existing and proposed trail system components and sidewalks. The proposed SUPs would be 10-foot-wide and along both sides of the freeway and separated from the frontage roads by a grassed berm or by a concrete barrier depending on location, as described under the Purple Alternative. The Blue Alternative complies with TxDOT's *Bicycle Accommodation Design Guidance* (adopted April 2, 2021) which also implements USDOT and FHWA policies regarding bicycle and pedestrian accommodations.

Brown Alternative (B+E+C)

The Brown Alternative (Segment B) would cross areas planned for trail development within the Town of Prosper. At the time this FEIS is being developed, parts of this area are under development while others remain open/vacant. None of the trail improvements depicted in the 2015 or 2020 Town of Prosper plans have been developed in this area, but the Town is acquiring land to build the trail along the planned Rutherford Creek Greenbelt (see red dashed line on **Figure 3-40**). Based on information provided by the Town in early 2023, approximately 1,700 linear feet of the proposed Rutherford Branch Greenbelt Trail around the NRCS reservoir would be within the proposed ROW. The Brown Alternative (Segments B and E) would also cross the planned Wilson Creek Greenbelt and the "Parkway Trail" indicated along Bloomdale Road in **Figure 3-22**. Segments E and C would cross the planned Honey Creek Greenbelt trail area with Segment C stretching east out of the floodplain before turning south as described under the Blue Alternative. SUPs proposed along the frontage roads would connect to these existing and planned trail segments to maintain bike-pedestrian connectivity along the corridor. Connections at grade-separations would link to existing and proposed trail system components and sidewalks. The proposed SUPs would be 10-foot-wide and along both sides of the freeway and separated from the frontage roads by a grassed berm or by a concrete barrier depending on location. The Brown Alternative complies with TxDOT's *Bicycle Accommodation Design Guidance* (adopted April 2, 2021) which also implements USDOT and FHWA policies regarding bicycle and pedestrian accommodations.

Gold Alternative (B+E+D)

Same as the Brown Alternative, the Gold Alternative (Segment B) would cross areas of planned trail development within the Town of Prosper. Segments E and D would cross the planned Honey Creek Greenbelt trail area with Segment D following a similar alignment along the planned greenbelt as it moves south along the East Fork Trinity River floodplain to existing US 380. SUPs proposed along the frontage roads would connect to these existing and planned trail segments to maintain bike-pedestrian connectivity along the corridor. Connections at grade-separations would link to existing and proposed trail system components and sidewalks. The proposed SUPs would be 10-foot-wide and along both sides of the freeway and separated from the frontage roads by a grassed berm or by a concrete barrier depending on location. The Gold Alternative complies with TxDOT's *Bicycle Accommodation Design Guidance* (adopted April 2, 2021) which also implements USDOT and FHWA policies regarding bicycle and pedestrian accommodations.

No-Build Alternative

The No-Build Alternative would make no improvements to existing roadways nor construct new roadways, therefore, no effect on existing or planned bicycle and pedestrian facilities would occur. The No-Build Alternative would not interfere with the Town of Prosper trail improvements or the City of McKinney's implementation of the proposed Trail Master Plan. The SUPs along frontage roads proposed under the Build Alternatives would not be built.

Preferred Alternative - Blue Alternative (A+E+C)

Based on information provided by the Town of Prosper in early 2023, approximately 809 linear feet of the proposed Rutherford Branch Greenbelt Trail around the NRCS reservoir would be within the proposed ROW. The trail has not been constructed at this time, but the Town has acquired easements for its construction. Implementation of the Blue Alternative would comply with TxDOT's *Bicycle Accommodation Design Guidance* (adopted April 2, 2021), which also implements the USDOTs and FHWA's policies regarding bicycle and pedestrian accommodations. SUPs built along the outside of the frontage roads would link to existing sidewalk systems and the components of McKinney's *City-Wide Trail Master Plan* and Prosper's *Parks, Recreation, and Open Space Master Plan* and *Hike & Bike Trail Master Plan* as they are implemented. The design of the SUPs would comply with TxDOT's Roadway Design Manual, guidelines developed by AASHTO, and with the Americans with Disabilities Act (ADA). Providing SUPs with connectivity to existing and planned bicycle and pedestrian systems would comply with the USDOT's policy to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into transportation systems. The SUPs would also support multi-modal use of the corridor for those residents that do not have access to a vehicle.

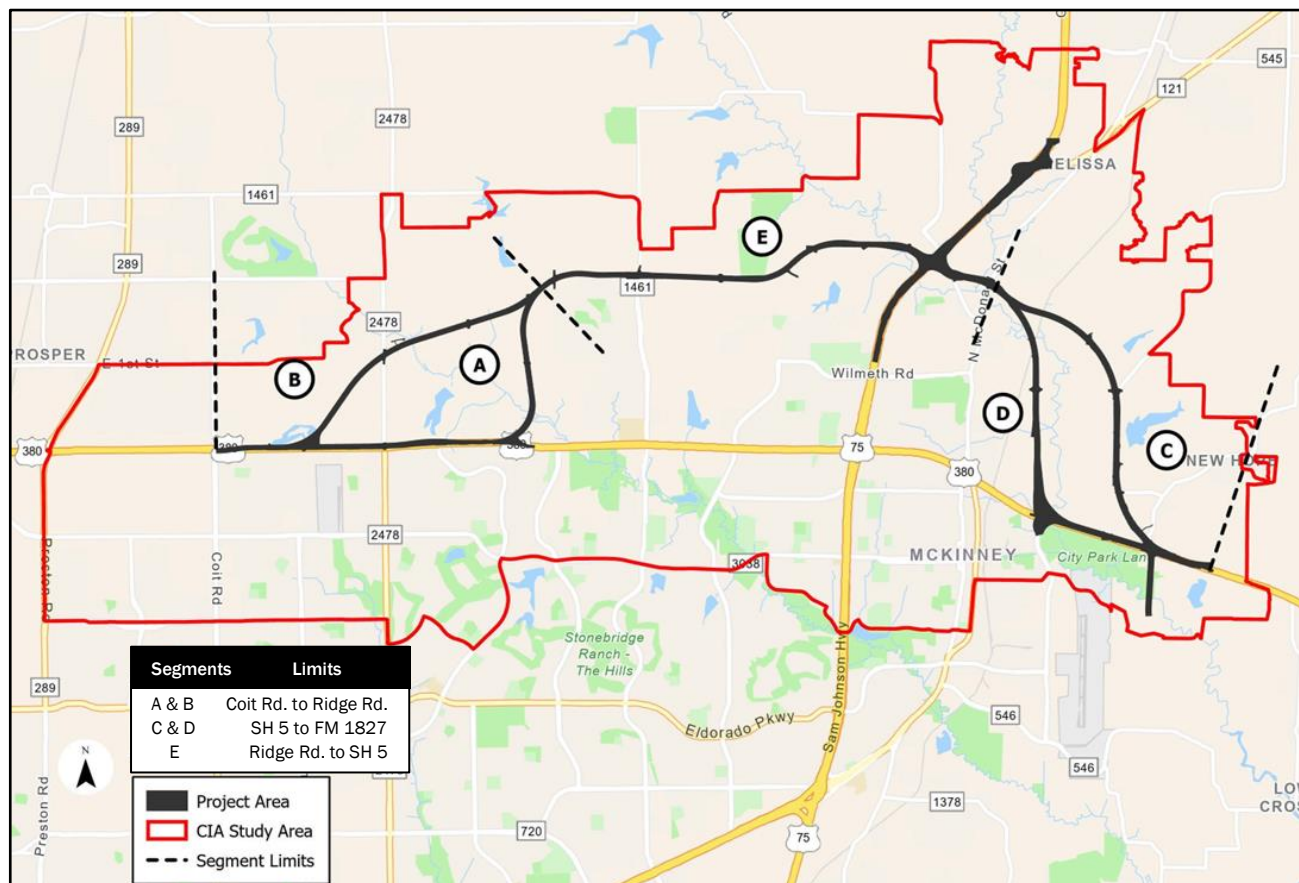
3.6 Community Impacts

This section summarizes the potential effects of construction of the four Build Alternatives in comparison to the No-Build Alternative on the communities within the Community Impact Assessment (CIA) Study Area defined by the 2020 census blocks that encompass the Build Alternatives (**Figure 3-24**). The CIA Study Area and detailed evaluation of community impacts are described further in the *Community Impacts Assessment Technical Report and Addendum*, included as **Appendix K**. A summary of the impacts by Build Alternative for the community impact categories discussed in this section is provided in **Figure 3-31**.

The CIA Study Area encompasses densely developed portions of the City of McKinney along with residential neighborhoods, open space, and undeveloped parcels within the Town of Prosper, City of Frisco, and the Town of New Hope, in addition to sparsely developed areas within Collin County. The Lively Hill/La Loma and Central/Mouzon neighborhoods, two historically African American and Mexican/Latin American communities, are south of existing US 380 and immediately west of Airport Drive within the southeast portion of the CIA Study Area. Several neighborhoods with community facilities along and north of existing US 380 would be affected by the Build Alternatives. Most of the established neighborhoods in the CIA Study Area are south of existing US 380 and are the focal points of many community activities along with the McKinney Downtown. Although not affected directly by the proposed Build Alternatives, these neighborhoods influence the demographic character of the CIA Study Area. Potential impacts to neighborhoods are described in **Sections 3.6.5 and 3.6.6**.

Demographic information is presented by Segment Focus Area and study segments (A, B, E, C, and D) generally from west to east, with summaries provided by Build Alternative (Purple, Blue, Brown, and Gold).

Figure 3-24: US 380 McKinney CIA Study Area



3.6.1 Demographics

Figure 3-25 summarizes the demographic profile of the CIA Study Area in comparison to that of Collin County and the cities and towns included in the CIA Study Area. Using the 2016-2020 American Community Survey (ACS) 5-YR Estimates, approximately 38 percent or a total of 224 census blocks out of 580 populated census blocks comprising the CIA Study Area have populations ranging from 50 percent to 100 percent minority. No census geographies (e.g., census blocks or block groups) within the CIA Study Area show a median household income below the U.S. Department of Health and Human Services (DHHS) 2022 poverty level (\$27,750) for a family of 4. However, 2 block groups (BGs) within the CIA Study Area with minority populations of 50 percent or greater have median household income averages of \$4,362 and \$6,402 above the DHHS 2022 poverty level. The discussion below details race, income, and Limited English Proficiency (LEP) by Segment Focus Area to describe the populations and community facilities potentially directly and indirectly affected by the Build Alternatives. Minority populations indicated by census blocks within the CIA Study are shown in Figure 3-26.

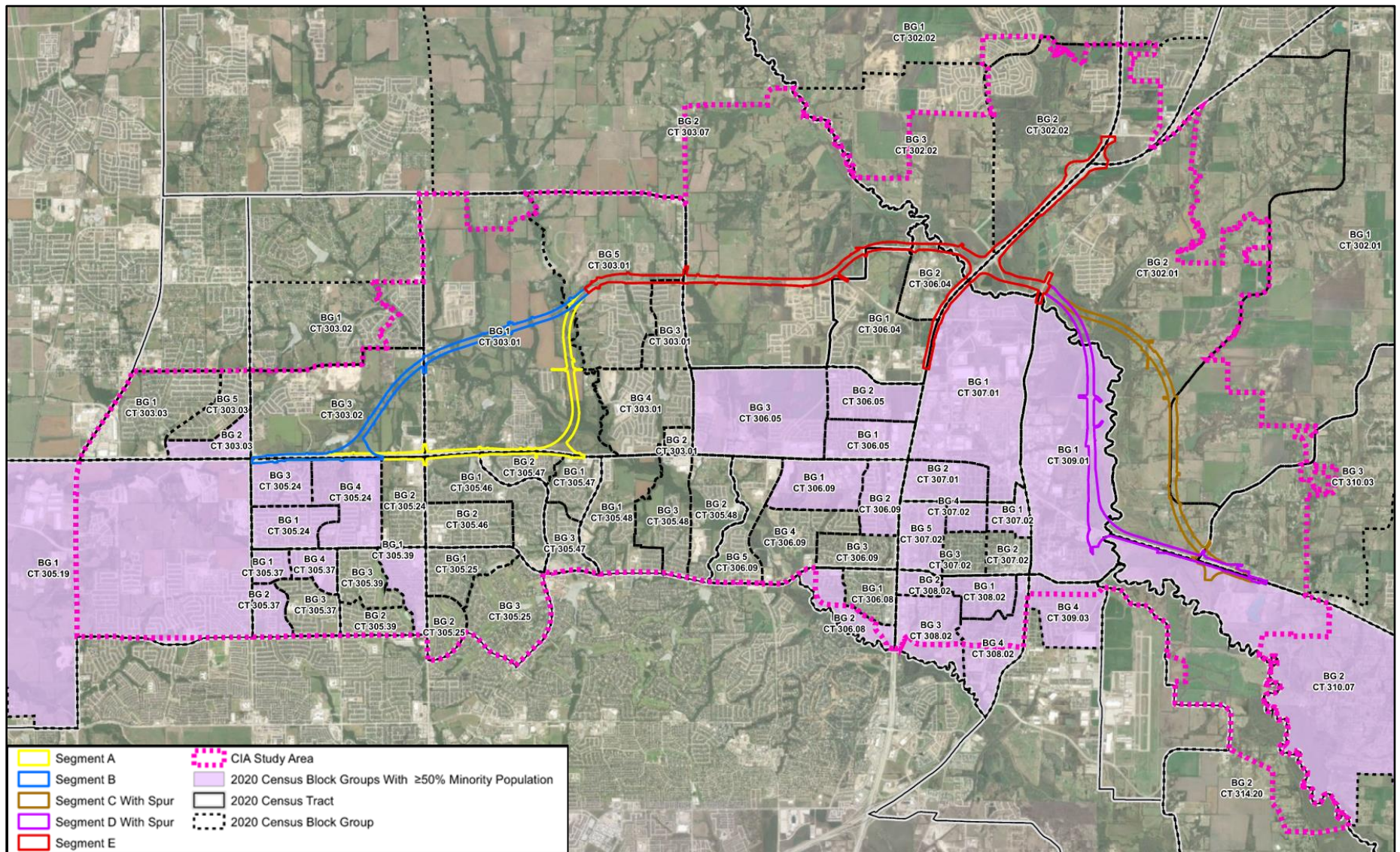
Figure 3-25: Demographic Profile of the CIA Study Area

Demographic Characteristics	CIA Study Area (2020) ¹	City of Frisco (2020) ²	City of Melissa (2020) ²	City of McKinney (2020) ²	City of Prosper (2020) ²	Collin County (2020) ²	Town of New Hope (2020) ²
Total Population	110,660	188,337	13,901	191,197	30,174	1,034,730	600
Race and Ethnicity:							
White	58.5%	61.7%	83.8%	71.5%	80.3%	65.9%	82.8%
Black or African American	12.2%	8.2%	8.2%	11.1%	8.0%	9.7%	0.5%
American Indian/Alaskan Native	0.4%	0.5%	0.1%	0.4%	0.5%	0.4%	0.0%
Asian	12.1%	22.4	3.0%	9.3%	6.1%	15.7%	2.5%
Native Hawaiian/Other Pacific Islander	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
Hispanic	17.3%	12.2%	9.1%	17.9%	8.5%	15.3%	13.8%
Median Household Income	\$103,747	\$128,761	\$117,750	\$100,775	\$153,777	\$100,541	\$73,750
Percent Living Below Poverty	11.4%	4.0%	1.4%	6.9%	2.5%	6.2%	4.5%
Persons w/Limited English Proficiency ²	4.0%	6.6%	3.3%	7.5%	2.0%	9.5%	8.7%

1 - US Census Bureau 2016-2020 ACS 5-YR Estimates; accessed September 2022.

2 - US Census Bureau 2020 Quick Facts, accessed September 2022.

Figure 3-26: Minority Population Census Blocks in the US 380 McKinney CIA Study Area



Segments A-B

The Segment A-B Focus Area consists of 11 census tracts (CT), and 28 BGs. The total 2020 population of the Segment A-B Focus Area is 61,665. The minority population totals 26,863, or approximately 44 percent. According to 2016-2020 ACS 5-year Estimates, 9 BGs have 50 percent or greater minority population ranging from 50 percent (CT 305.37, BG 4) to 79 percent (CT 305.37, BG 2). Eight of these BGs are south of existing US 380 along the western portions of Segments A and B and one BG is north of US 380 between Coit Road and S. Preston Road. See **Figure 3-26** and **Appendix K** for the locations of these BGs.

Approximately 1 percent of the total household population within the Segment A-B Focus Area is identified as having speaking English less than very well/LEP. Fifteen BGs within the Segment A-B Focus Area have LEP populations ranging from 1 percent to 15 percent of the total households in each BG. LEP persons in the CIA Study Area speak Spanish, other Indo-European languages, and Asian and Pacific Island languages along with others. The 2020 average median household income for a family of four within the Segment A-B focus area is \$129,879 with the lowest median household income for a family of four of \$60,647 (CT 303.03, BG 2).

Segment E

The Segment E Focus Area consists of 11 CTs, and 32 BGs. The total population of the Segment E Focus Area is 53,308. The minority population totals 24,562 or approximately 46 percent. According to 2016-2020 ACS 5-YR estimates, 15 BGs have 50 percent or greater minority population ranging from 50 percent (CT 308.02, BG 1) to 75 percent (CT 307.02, BG 1). Four BGs are north of US 380 between Lake Forest Drive and SH 5 and 11 BGs are south of US 380 between S. Hardin Boulevard and SH 5. See **Appendix K** for the locations of these BGs.

Approximately 5 percent of the total household population in the Segment E Focus Area is classified as LEP. Eighteen BGs have LEP populations ranging from 2 percent to 22 percent of the total population in each BG. The average median household income for a family of four in the Segment E Focus Area is \$91,782 with the lowest median household income for a family of four of \$32,112 (CT 308.02, BG 2).

Segments C-D

The Segment C-D Focus Area consists of 7 CTs and 8 BGs. The total population of the Segment C-D Focus Area is 19,543. According to 2020 ACS 5-year estimates, 3 BGs have 50 percent or greater minority population ranging from 53 percent (CT 310.07, BG 2) to 91 percent (CT 309.03, BG 4) percent. Two BGs, CT 309.01, BG 1 and CT 309.03, BG 4, south of existing US 380 in the Central/Mouzon Neighborhood have approximately 82 percent and approximately 91 percent, respectively, minority population. See **Appendix K** for the locations of these BGs. Segment D has the potential to displace 4 residences, (three single-family homes and a manufactured home), in BG1 1, CT 309.01. Business and residential relocations are that are discussed further in **Section 3.1**.

Approximately 6 percent of the total households in the Segment C-D Focus Area are classified as LEP. Five BGs have LEP populations ranging from 2 percent to 13 percent of the total household population in each BG. The average median household income for a family of four in this focus area is \$86,208 with the lowest median household income for a family of four of \$34,152 (CT 309.01, BG 1).

Existing US 380 from Coit Road to FM 1827 (the No-Build Alternative) crosses through or adjacent to 11 BGs that have 50 percent or greater minority population as shown in **Figure 3-26**.

3.6.2 Displacements

3.6.2.1 Residential, Commercial, and Other Displacements

Potential residential (all single-family) and commercial displacements would occur when ROW is acquired for construction of any of the four Build Alternatives as summarized in **Figure 3-27**. ROW and displacements are discussed more specifically in **Section 3.1**. Figures in **Appendix D** illustrate the potential displacements by study segment. **Figures 3-28** and **3-29** indicate the potential residential and commercial displacements along each segment and by Build Alternative.

Figure 3-27: Total Displacements for Each Build Alternative

Displacements*	Purple Alternative A+E+D	Blue Alternative A+E+C	Brown Alternative B+E+C	Gold Alternative B+E+D
Residential W/O Spur	22	26	30	26
Residential W/Spur	22	26	30	26
Commercial W/O Spur	35	38	21	19
Commercial W/Spur	37	38	21	21
Other W/O Spur	10	8	9	9
Other W/Spur	10	8	9	9

NOTE: The data for the Blue Alternative (A+E+C) have been updated based on the May 2023 95% Geometric Design Schematic and filed observations conducted in July 2023. The data for the Purple, Brown, and Gold Alternatives (Segments B and D) are based on the July 1, 2022 60% Geometric Design Schematic, updates of Segments A, E, and C from the Blue Alternative, and July 2023 field observations.

Purple Alternative (A+E+D)

Residential Displacements - Most of the potential residential displacements (22 W/O Spur and W/Spur) resulting from the Purple Alternative occur along existing Bloomdale Road, west and east of N. Lake Forest Drive and west of US 75. A cluster of four potentially displaced residences occurs on Woodlawn Road, north of existing US 380 and east of US 75.

Commercial Displacements - Potential commercial displacements (35 W/O Spur, 37 W/Spur) occur along the north side of existing US 380 as part of Segments A and D. Potential business displacements along Segment A include 7 retail stores, 7 restaurants, a former gas station, a landscaping business, and a dental office. No commercial displacements occur along Segment E. The previously identified All Storage at Lake Forest, slated to be completed in Fall 2022 construction, has not been constructed, but TxDOT continues to coordinate with the property owner to adjust the facility site plan to be compatible with the proposed ROW footprint. Potential displacements along Segment D include one auto sales business, nine auto repair shops, one construction supplier, one welding service, one water treatment and supply business, two auto towing businesses, one custom woodworking shop, one recycling business, and two unidentified businesses near FM 1827. W/Spur would affect additional businesses - a concrete batch facility and a gas station within the southeast and southwest quadrants of the existing US 380/Airport Drive intersection. A detailed list of the potential commercial displacements is included in **Figure 3-3**.

Figure 3-28: Potential Residential Displacements in the US 380 McKinney CIA Study Area

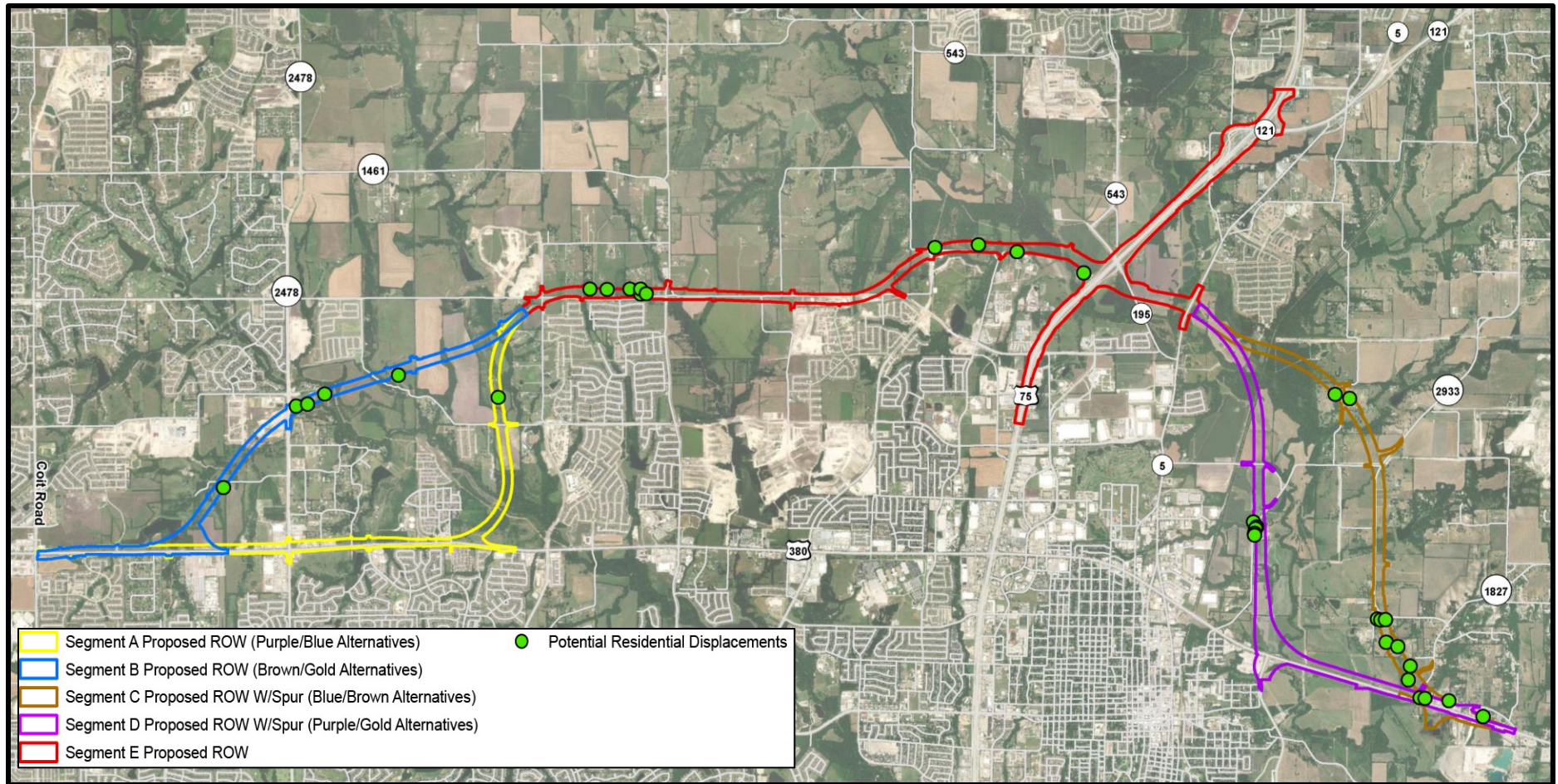
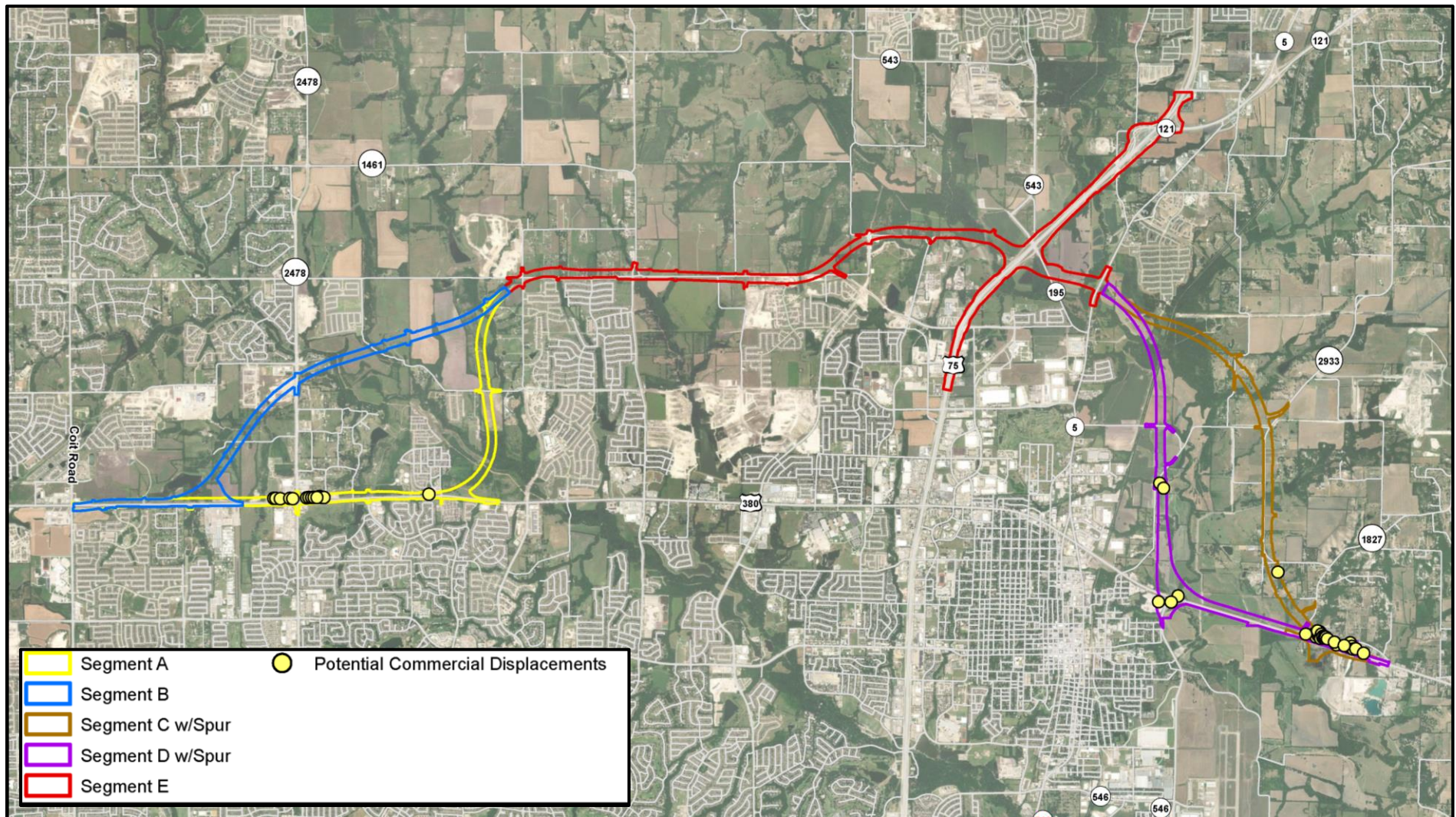


Figure 3-29: Potential Commercial Displacements within the US 380 McKinney CIA Study Area



Other Displacements - Potential other displacements (i.e., establishments not used for residential or commercial purposes and ancillary structures such as garages, sheds, and barns) include buildings, billboards, utilities, ASTs, and a neighborhood entrance monument are listed in **Figure 3-2**.

Blue Alternative (A+E+C)

Residential Displacements - Most of the potential residential displacements (26 W/O and W/Spur) resulting from the Blue Alternative occur along existing Bloomdale Road, west and east of N. Lake Forest Drive, west of US 75, and north of existing US 380 and west of FM 1827.

Commercial Displacements - Potential commercial displacements (38 W/Spur) occur along the north side of existing US 380 as part of Segments A and C. Potential business displacements along Segment A include 7 retail stores, 7 restaurants, a former gas station, a landscaping business, and a dental office. No commercial displacements occur along Segment E. The previously identified All Storage at Lake Forest, slated to be completed in Fall 2022 construction, has not been constructed. Potential commercial displacements along Segment C include: 1 wedding venue, 1 horse boarding business; 1 kitchen commissary storage building; 1 window treatment business; 1 auto sales business, 9 auto repair shops; 1 construction supplier business; 1 water treatment and supply business; 2 auto towing businesses; 1 custom woodworking business; and 1 recycling business. A detailed list of the potential commercial displacements is included in **Figure 3-3**.

Other Displacements - Potential other displacements include buildings, billboards, utilities, ASTs, and a neighborhood entrance monument are listed in **Figure 3-2**.

Brown Alternative (B+E+C)

Residential Displacements - Most of the potential residential displacements (30 W/O Spur and W/Spur) resulting from the Brown Alternative occur on CR 933 west of N. Custer Road, south of E. First Street east of N. Custer Road and Prosper's Founders Academy, along existing Bloomdale Road west and east of N. Lake Forest Drive and west of US 75, and north of existing US 380 and west of FM 1827.

Commercial Displacements - Potential commercial displacements (21 W/O Spur, 21 W/Spur) that occur along Segments E and C are the same as described under the Blue Alternative. No businesses are displaced along Segment B. W/Spur would affect additional businesses near FM 1827. A detailed list of the potential commercial displacements is included in **Figure 3-3**.

Other Displacements - Potential other displacements include billboards, utilities, and ASTs are listed in **Figure 3-2**.

Gold Alternative (B+E+D)

Residential Displacements - Most of the potential residential displacements (26 W/O Spur and W/Spur) resulting from the Gold Alternative occur on CR 933 west of N. Custer Road, south of E. First Street east of N. Custer Road and Prosper's Founders Academy, along existing Bloomdale Road west and east of N. Lake Forest Drive, and west of US 75. A cluster of four potentially displaced residences occurs along Woodlawn Road, north of existing US 380 and east of US 75.

Commercial Displacements - Potential commercial displacements (19 W/O Spur and W/Spur) that occur along Segments E and D are the same as those described under the Purple Alternative. No businesses are displaced along Segment B. W/Spur would affect additional businesses - a concrete batch facility and a gas station

within the southeast and southwest quadrants of the existing US 380/Airport Drive intersection. A detailed list of the potential commercial displacements is included in **Figure 3-3**.

Other Displacements - Potential other displacements include billboards, utilities, and ASTs are listed in **Figure 3-2**.

The No-Build Alternative would not cause any potential displacements as no ROW would be acquired and no construction would occur.

3.6.2.2 Replacement Housing and Commercial Property Availability

A search of homes for sale on Homes.com in April 2023 showed 550 single-family homes available for sale and 201 single-family homes available to rent in the zip codes encompassed by and intersecting the CIA Study Area.

Replacement commercial and industrial spaces are available within the zip codes encompassed by and intersecting the CIA Study Area. In April 2023, a combination of retail, commercial, industrial spaces were available for sale and for lease within the zip code areas included in and intersecting the CIA Study Area.

3.6.2.3 Potential Future Displacements

Due to the considerable and fast paced growth within the CIA Study Area, TxDOT is tracking future developments including future residences and businesses. Although the planned residential homes and businesses have not been built or are occupied at the time this FEIS was developed, TxDOT could potentially begin ROW acquisition for the Preferred Alternative before some of the planned developments begin construction. Developments are in various stages of planning, platting, and construction (as depicted in **Figure 3-68**, updated in April 2023) with residences that may be completed, sold, and occupied by the time TxDOT issues the ROD for the US 380 McKinney project. TxDOT continues to work with local governments and developers to gather information on these developments to determine the potential effect the project may have as it enters final design.

3.6.3 Access and Travel Patterns

Construction of any of the four Build Alternatives would introduce an access-controlled freeway, primarily on new location, connecting existing RSAs (US 380 and US 75/SH 5) within the CIA Study Area. The new multi-lane freeway would provide additional roadway capacity introducing new traffic within the residential areas north of existing US 380. All four Build Alternatives would change established travel patterns by providing an alternate route for traffic traveling east-west through the Study Area that would avoid heavy congestion and stop lights at major arterial intersections and allow travel at higher speeds to access destinations outside of McKinney. All Build Alternatives would have a posted speed limit of between 65 and 70 mph improving travel times compared to those along existing area highways.

3.6.3.1 Bicycle and Pedestrian Accommodations

Bicycle and pedestrian facilities in the CIA Study Area include existing and planned hike and bike trails through residential and recreational areas and streets designated as "Bicycle Boulevards" throughout the City of McKinney north and south of existing US 380. As described in **Section 3.5**, Prosper is planning several trail corridors for development north of existing US 380 and west of N. Custer Road, and McKinney is developing a

City-Wide Trail Master Plan to guide implementation of a connected trail network including a Greenbelt Loop Trail connecting the existing Wilson Creek and planned Honey Creek Greenbelts. The SUPs proposed along the frontage roads would connect to this planned trail network as well as existing and planned sidewalks and trails on public ROW.

The design of the SUPs would comply with TxDOT's Roadway Design Manual, guidelines developed by AASHTO, and the ADA. Providing SUPs with connectivity to existing and planned bicycle and pedestrian systems complies with TxDOT's Bicycle Accommodation Design Guidance (adopted April 2, 2021) which also implements the USDOT's policy to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into transportation systems. The SUPs would also support multi-modal use of the corridor for those residents that do not have access to a vehicle.

3.6.3.2 Transit

No public bus routes serve the Study Area. Public transit options are limited to a subsidized taxi service provided by DART Mobility Service that provides on-demand shared rides to qualifying riders from McKinney and Prosper. Collin County Transit provides on-demand, door-to-door service for residents 65 years of age or over, individuals with disabilities, and low-income individuals.

3.6.3.3 Emergency Responders

The added capacity and faster travel speeds provided by each Build Alternative is anticipated to improve east-west travel times for both emergency responders and commuters using the proposed routes. TxDOT will coordinate with emergency responders to prevent disruptions in service during phased construction of the proposed project and will develop a traffic management plan as discussed further in **Section 3.17**. The proposed grade-separated interchanges and intersection improvements (including U-turns) along the proposed frontage roads would reduce congestion at major cross-streets allowing emergency vehicles to bypass traffic lights, shortening transit times through the CIA Study Area. For all Build Alternatives, access to adjacent community facilities listed in **Appendix K** would be maintained.

3.6.3.4 Neighborhood Access and Travel Patterns

The following sections describe the access changes resulting from implementation of each of the Build Alternatives described from the western terminus near Coit Road to the eastern terminus near FM 1827. At the time of this writing, the descriptions presented in the following sections include only the W/O Spur scenario. See **Appendix K** for a more detailed description of access changes in the CIA Study Area. The May 2023 95% Geometric Design Schematic (for the Blue Alternative – Segments A, E, and C) is included in **Appendix B** and a typical section is provided for reference in **Appendix C**.

Purple Alternative (A+E+D)

Segment A:

- The existing cross-over intersection at Prestwick Hollow Drive would be replaced by a right-turn only intersection on the eastbound frontage road to access the neighborhood south of existing US 380. The existing cross over intersection at Lakewood Drive would be replaced by a right turn only intersection on the westbound frontage road to access the neighborhood north of existing US 380. Eastbound travelers would no longer be able to make a left-turn onto Lakewood Drive from existing US 380 and would need to use the proposed U-turn at the future Independence Parkway intersection.

- A new grade-separated interchange at N. Custer Road and existing US 380 with a bridge constructed over N. Custer Road. U-turns would be provided at this interchange.
- A new grade-separated interchange with U-turns would be built to connect to N. Stonebridge Drive, north of proposed freeway.
- Access to the Tucker Hill neighborhood would be preserved with left-turn lanes to and from Tremont Boulevard eliminating the need to use turnarounds and existing US 380/University Drive and Stonebridge Drive to access the neighborhood from the frontage roads.
- Business access would be maintained east of existing Red Bud Drive, west of N. Custer Road, and south of US 380.
- The new location portion north of existing US 380 would include new grade-separated interchanges with U-turns along the frontage roads at CR 124, future Bloomdale Road West, and CR 161/future Ridge Road.

Segment E:

- Bloomdale Road would be replaced by the frontage roads proposed between CR 161/future Ridge Road and CR 164 (Bloomdale East to Bloomdale West interchanges providing access to the neighborhoods south of Bloomdale Road.
- A new grade-separated interchange with U-turns would be provided at FM 1461/N. Lake Forest Drive.
- CR 943 would connect to the eastbound frontage roads and CR 1006 would connect to the west bound frontage roads west of the new interchange with Taylor Burk Drive.
- Access to Erwin Park via Taylor Burk Drive would be provided from the westbound frontage road. A future trail connection to Erwin Park is proposed by the City of McKinney under the proposed bridge just east of Limousine Parkway.
- Limousine Parkway east of Taylor Burk Drive would provide access to the Erwin Farms and Timber Creek neighborhoods south of the proposed alignment via the eastbound frontage road. An additional access point would be provided along the realigned Bloomdale Road section, southeast of proposed US 380.
- East of Taylor Burk Drive, the alignment turns northeast and east replacing the alignment of CR 201 to its terminus at Community Avenue. Access to and from the remaining portion of CR 201 would be provided by a new right-turn from the proposed westbound frontage road. East of the new CR 201 access point, a new grade-separated interchange at CR 164 (future Hardin Boulevard) would be built. CR 164 would be accessible from the eastbound (right-turn) and westbound (left turn) frontage roads.
- A new grade-separated intersection with southbound only Community Avenue would be built to access the Collin County facilities south of the proposed alignment. CR 1200 would be removed in this location.
- East of Community Avenue the proposed alignment transitions to bridge structures that include direct connection flyovers to access northbound and southbound US 75, as well as direct ramp access to and from SH 5 east of the proposed US 380/US 75 interchange near Laud Howell Parkway. Frontage road connections from the eastbound frontage road to the southbound US 75 frontage road and from the westbound frontage road to Spur 195 would also be provided.

Segment D W/O Spur:

- From SH 5, the mainlanes and frontage roads extend east then south on new location to the new interchange at McIntyre Road. The new interchange would include U-turns and left and right-turns onto

either CR 331 or McIntyre Road. South of the proposed US 380/McIntyre Road interchange, sections of Woodlawn Road would be removed where it crosses the proposed facility and new frontage road access points would be provided to tie into existing Woodlawn Road.

- Travelers to the Thượng Hạnh Buddhist Monastery would take the new McIntyre Road/CR 331 exit from the southbound US 380 mainlanes, continue past the new McIntyre Road/CR 331 intersection, then make a right-turn at new Woodlawn Road. Access to the monastery would remain the same for eastbound and westbound travelers along existing US 380, west of Airport Drive.
- South of the proposed US 380/McIntyre Road interchange, the alignment turns to connect back to existing US 380 near Airport Drive.
- East of Airport Drive existing US 380 mainlanes would be replaced with by a new westbound mainlane alignment north of the existing US 380 ROW. The existing US 380 eastbound mainlanes would be reconstructed within the existing US 380 ROW. Access to Greenville Road would be maintained from the eastbound mainlanes with businesses south of existing US 380 maintaining driveway access. The intersection of existing US 380 and FM 1827 would be replaced by a new grade-separated intersection with U-turns, maintaining northbound-southbound and east-west traffic movements between FM 1827 and existing US 380, respectively. East of FM 1827, the existing connection to CR 330 would be removed and replaced by a new right-turn access road from US 380 and right-turn from CR 330 to westbound US 380.

Segment D W/Spur:

- The 4-lane frontage road would split as it approaches existing US 380 – 2-lanes would connect at-grade to the US 380/Airport Drive intersection with a dedicated right-turn only lane to existing westbound US 380. A 2-lane eastbound frontage road would connect to existing eastbound US 380.
- Additional turn lanes would be provided to and from existing US 380 and to and from Airport Drive.

Blue Alternative (A+E+C)

Segments A and E – include the same changes as described under the Purple Alternative.

Segment C:

- From SH 5, the mainlanes and frontage roads travel east and south to the new CR 338 interchange that includes U-turns and right- and left-turns onto CR 338, tying into the proposed realignment of CR 338. Sections of existing CR 338 would be removed to create the new intersection and a new access to CR 338 from the southbound frontage road would be created just south of Private Road 5310. Another new access point would be created from the northbound frontage road to tie into the private road.
- A new interchange would be constructed at CR 331 and FM 2933 requiring sections of existing CR 331 to be removed. No direct access would be provided to FM 2933 from CR 331. A right-turn only access to and from CR 331 would be provided from the southbound frontage road. A right-turn only access to and from FM 2933 would be provided from the northbound frontage road. To access FM 2933 from CR 331, travelers would make a right-turn onto the proposed southbound frontage road, then travel south to the proposed U-turn south of CR 335 and travel back north along the frontage road to access FM 2933.
- South of the new CR 331/FM 2933 interchange, existing southbound FM 2933 would be removed and replaced by the proposed southbound frontage road. Existing residential driveways would be removed to construct the new facility, but access would be maintained to these residences. South of the residences, sections of existing CR 335 would be removed where the proposed alignment would cross, and travelers would no longer have direct access to the residences east of the proposed

freeway alignment. Eastbound travelers on CR 335 would turn right onto the southbound frontage and make a U-turn, then travel north to access the homes on the east side of the proposed freeway alignment.

- South of CR 335, the existing intersections at CR 329, CR 332, and FM 2933 would be replaced. Access to an equestrian facility and residence west of the freeway alignment would be provided by driveways along the southbound frontage road. Direct access to these areas would no longer be provided from CR 332 and FM 2933. A new access to FM 2933 would be provided along the proposed northbound frontage road. Existing Peacock Trail and Dave Brown Road would be removed south of the intersections of CR 329, CR 332, and FM 2933.
- The existing intersection of US 380 and FM 1827 would be replaced, making FM 1827 accessible only from the westbound frontage road via right-in/right-out only turns. Access to the businesses south of the new FM 1827 intersection would be provided from the proposed eastbound frontage road with construction of a cul-de-sac providing driveway access. In other areas where the proposed freeway mainlanes make use of existing US 380, driveway access would be maintained to the businesses north and south of the proposed ROW.
- Three high-speed direct connectors would be built (1) from the proposed US 380 eastbound lanes to the Spur 399 Extension southbound lanes, (2) from the proposed US 380 westbound lanes to the Spur 399 Extension southbound lanes, and (3) from the Spur 399 Extension northbound lanes to the proposed US 380 westbound lanes. Local access would be provided from frontage roads along both new US 380 and the Spur 399 Extension. The frontage roads would join forming a “box” just east of the existing FM 1827 intersection.

Brown Alternative (B+E+C)

Segment B:

- A crossover would be built to maintain access to Prestwick Hollow Drive and the neighborhoods south of existing US 380. The existing crossover at Lakewood Drive would be removed and replaced with a right- and left-turn-only intersection for westbound travelers. Eastbound travelers would no longer be able to make a left turn onto Lakewood Drive from existing US 380 and would use the proposed U-turn at future Independence Parkway east of the existing Lakewood Drive intersection.
- The existing crossover at Red Bud Drive would be removed and replaced by a right-turn only intersection from the eastbound frontage road. A residential access along a private road just east of Red Bud Drive would be maintained.
- East of the future Independence Parkway intersection, a new access to existing US 380 would be built to allow travelers to continue north along the freeway mainlanes or turn right onto the new frontage to access existing eastbound US 380. Access points would also be provided to the businesses south of existing US 380.
- A new grade-separated interchange would be built at N. Custer Road with U-turns on the frontage roads. Existing access points to the newly constructed Founders Academy would be maintained north of the proposed alignment on E. First Street. The existing access from N. Custer Road to ManeGait Therapeutic Horsemanship would be maintained.
- Travelers northbound on CR 124 would turn right onto the eastbound frontage road and make a U-turn at the future N. Stonebridge Drive intersection, then travel west along the new frontage road to make a right-turn onto CR 124. Conversely, to access CR 124 south of the proposed freeway alignment, travelers would make a right-turn onto the westbound frontage road and make a U-turn at the new N. Custer Road interchange, then travel east and turn right onto southbound CR 124.

- A new grade-separated interchange at future N. Stonebridge Drive, east of CR 124, would include U-turns along the frontage roads.
- A new grade-separated interchange at future Bloomdale Road West, east of the future N. Stonebridge Drive intersection would only connect to the north side of the proposed freeway alignment.
- A new grade-separated interchange with U-turns would be built at CR 161 (future Ridge Road).

Segment E – same as described under the Purple Alternative.

Segment C – same as described under the Blue Alternative.

Gold Alternative (B+E+D)

Segment B – same as described under the Brown Alternative.

Segments E and D – same as described under the Purple Alternative.

No-Build Alternative

The No-Build Alternative would maintain the existing roadway network as it exists today so no changes would occur in accessing neighborhoods, community facilities, or commercial areas.

3.6.4 Community Cohesion

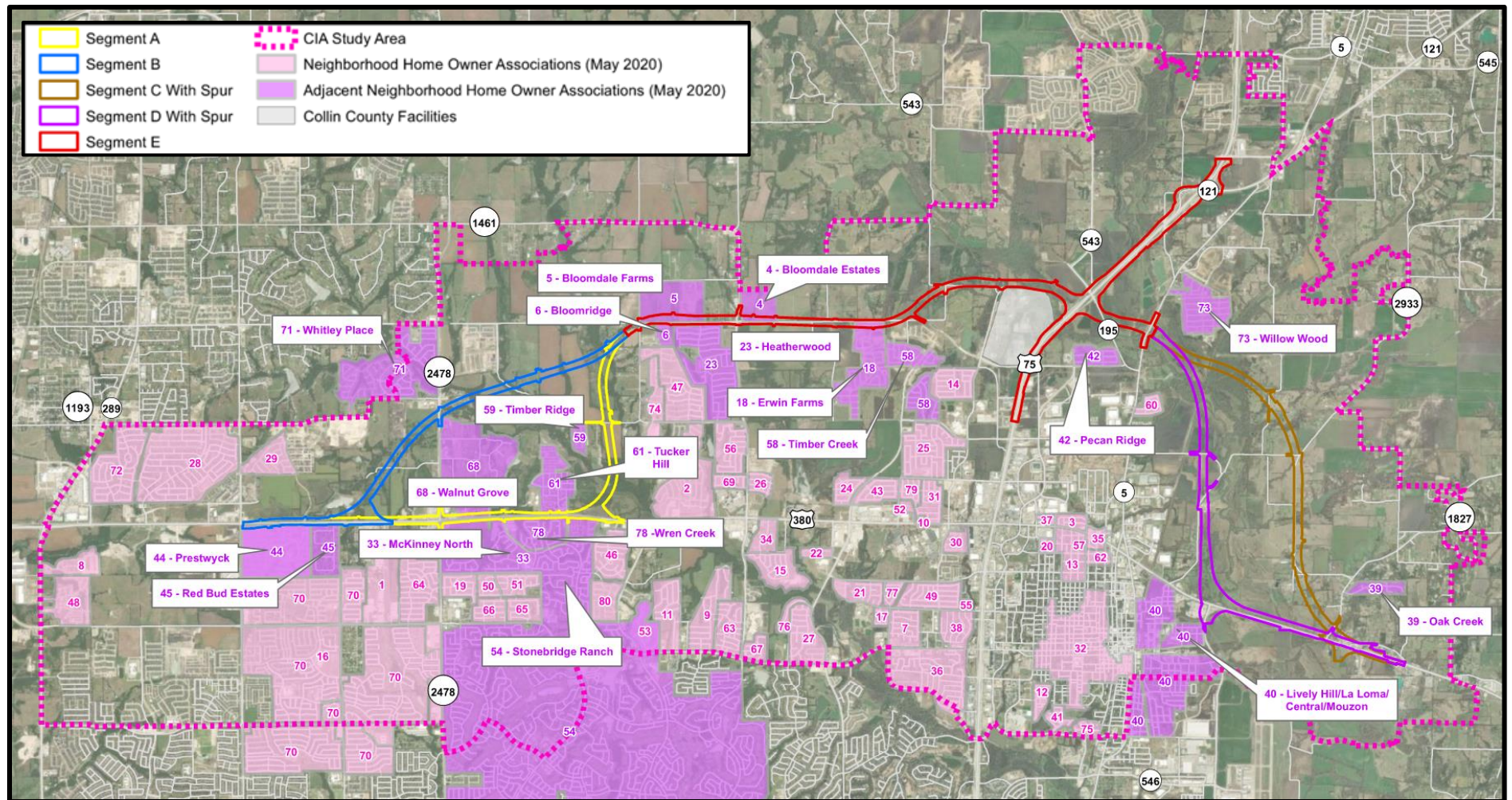
Build Alternatives

Neighborhoods north and south of existing US 380 comprise the most populated areas within the CIA Study Area. The Build Alternatives pass through areas in Prosper and around McKinney that are currently more rural in nature. However, these areas are rapidly transitioning to a suburban built-up environment with the ongoing and planned development of several neighborhoods between Coit Road and N. Custer Road in Prosper, and along the Bloomdale Road corridor from N. Lake Forest Drive to Community Avenue in McKinney.

The neighborhoods south of existing US 380 appear to have a high level of community cohesion based on the number and variety of community facilities servicing the neighborhoods including churches, schools, city parks, retail stores, and restaurants. The neighborhoods north of existing US 380 also have churches, schools, parks, retail stores, and restaurants; however, community cohesion appears to be lower than it is south of existing US 380 because the neighborhoods to the north are less dense (larger lots), more spread out, and of slightly newer construction. New residential developments are planned and are actively being constructed north of existing US 380 within the CIA Study Area, particularly west of N. Custer Road in Prosper, and to the north along future Ridge Road and Bloomdale Road. The neighborhoods adjacent to the Build Alternatives are depicted in **Figure 3-30**.

None of the Build Alternatives would directly or indirectly separate or isolate groups of people, nor would they bisect established neighborhoods not already separated by existing US 380 (e.g., Stonebridge Ranch south of US 380 and Tucker Hill north of US 380). However, construction of an elevated freeway would create a physical and visual barrier where one does not exist today. Each Build Alternatives would increase mobility throughout the CIA Study Area by providing a new location access-controlled highway with frontage roads connecting to local roadways and maintaining access to nearby community facilities. SUPs built along the outside of the frontage roads would support bicycle and pedestrian access between neighborhoods and to community

Figure 3-30: Neighborhoods Adjacent to the Build Alternatives



facilities while also supporting multi-modal transportation for persons without access to a vehicle. While the proposed freeway would be mainly elevated and wider than existing US 380, the improved mobility and operational efficiency it would provide would offset possible negative impacts to community cohesion.

Most of the proposed freeway would be elevated on structure or earthen embankment or constructed roughly at-grade to provide access and maintain visibility to adjacent properties. In some locations, for example along Segment A between Stonebridge Ranch and Tucker Hill (see **Figure 3-30**), TxDOT is considering depressing (lowering) the roadway section to minimize visual and noise impacts. Noise modeling has been conducted to assess the feasibility and reasonableness of noise barriers to reduce traffic noise levels experienced by receivers (including homes, schools, places of worship, and other community facilities) caused by the project that are anticipated to exceed FHWA thresholds (see **Section 3.14**).

The following sections describe the neighborhoods adjacent to the proposed Build Alternatives, the level of community cohesion in each, and the potential impacts to community cohesion resulting from the implementation of each Build Alternative.

Purple Alternative (A+E+D)

Segment A - Neighborhoods adjacent to the alignment, along existing US 380 and west of the northbound portion of Segment A include Prestwick, Red Bud Estates, Wren Creek, McKinney North, Stonebridge Ranch, Ridgecrest, Walnut Grove, and Tucker Hill. Walnut Grove and Red Bud Estates are characterized by large lot (1+ acres) single-family residences, with the remainder of the neighborhoods comprised of single-family tract homes. Proposed ROW along the existing US 380 portion of Segment A would not displace any residences; however, the wider freeway footprint would encroach into Walnut Grove and Tucker Hill. Segment A includes a depressed (lowered) freeway section along the existing US 380 alignment between Tucker Hill and Stonebridge Ranch to reduce traffic noise and visual impacts. A grade-separated access at Tremont Boulevard would be provided to maintain access between the two neighborhoods via the frontage roads.

Segment E - Segment E borders a large area of single-family tract home developments west of N. Lake Forest Drive including Auburn Hills Waterside, Highridge, Summit View Estates, Robinson Ridge, Wilmeth Ridge, Heatherwood, and Bloomridge. These neighborhoods contain schools, churches, large recreational facilities, and a medical center (Baylor Scott & White). These neighborhoods appear to have a high level of community cohesion based on the number and variety of community facilities present.

Three potential residential displacements would occur within Bloomdale Farms and Bloomdale Estates, two large lot single-family neighborhoods north of Bloomdale Road (Segment E). The Erwin Farms and Timber Creek additions, east of Bloomdale Estates, are comprised of planned single-family tract homes. ROW from Erwin Farms is needed to build Segment E, but at the time this FEIS is being developed, no homes have been constructed within the proposed ROW based on development data obtained in April 2023. Pecan Ridge is located east of US 75 and south of CR 195, and characterized by single-family tract homes and contains Naomi Press Elementary School located at the western edge of the neighborhood. The Trinity Heights neighborhood is east of SH 5 and south of Segment C and is comprised of single-family tract homes east of US 75 and south of CR 195. Northeast of Segment C and east of SH 5 is Willow Wood and Willow Wood Elementary School. Trail and sidewalk connections to the SUPs along the frontage roads would provide

recreational and multi-modal connectivity to the identified schools and Erwin Park. The potential community cohesion impacts to these neighborhoods would be the same for all proposed alternatives.

Segment D - South of existing US 380 and west of Segment D are the well-established Lively Hill/La Loma and Central/Mouzon neighborhoods. Both neighborhoods have long-standing African American and Mexican/Latin American heritage with most single-family homes built in the 1950s and 1960s. Both neighborhoods contain churches, schools, parks, and restaurants. A community food pantry (Community Garden Kitchen) on Howard Street is west of Airport Drive. These neighborhoods have a high level of community cohesion supported by their heritage and the number and variety of community facilities serving them. The US 380 McKinney project would have no direct effect on these two neighborhoods.

Blue Alternative (A+E+C)

The Blue Alternatives is adjacent to the same neighborhoods identified under the Purple Alternative for Segments A and E. The easternmost portion of the Blue Alternative (Segment C) traverses southward through mostly rural agricultural land with sparsely populated areas, potentially displacing nine large lot single-family homes. No schools, churches or other community facilities are along Segment C. The area where Segment C connects back to existing US 380 near FM 1827 has large lot single-family residential neighborhoods, including Oak Creek north of existing US 380 and east of FM 1827.

Brown Alternative (B+E+C)

Neighborhoods adjacent to existing US 380 and west of the northbound portion of Segment B starting at Coit Road include Prestwick, Red Bud Estates, and Lakewood. The Lakewood neighborhood is comprised of single-family tract homes and was recently expanded east of Lakewood Drive. Whitley Place, comprised of single-family tract homes, is north of Segment B, east of Lakewood and west of N. Custer Road. East of N. Custer Road is the newly constructed Mansions of Prosper apartments and Luxe Prosper apartments. Walnut Grove, an older, large-lot single family neighborhood is south of Segment B and east of N. Custer Road. These neighborhoods appear to have a relatively high level of community cohesion due to the presence of schools, retail centers, and restaurants. The Brown Alternatives is adjacent to the same neighborhoods identified under the Purple Alternative for Segment E and the Blue Alternative for Segment C.

Gold Alternative (B+E+D)

The Gold Alternative would have the same community cohesion impacts along Segments B and E as described under the Brown Alternative and along Segment D as described under the Purple Alternative.

No-Build Alternative

The No-Build Alternative would not displace any residences, businesses, or community facilities and would not change access points or modify travel patterns that would negatively affect the cohesion of existing neighborhoods. The No-Build Alternative would not address population growth and the resulting travel demand contributing to increasing congestion along existing US 380 that adds travel time, affects access into existing businesses and neighborhoods, and potentially adds travel time for emergency responders. Under the No-Build Alternative the SUPs would not be constructed to support multi-modal connectivity across the Study Area.

3.6.5 Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations”. EO 12898 also directs agencies to develop a strategy for implementing environmental justice (EJ).

Environmental justice populations occur across the CIA Study Area with most of the minority populations located south of existing US 380, near the existing US 380/US 75 interchange, and west of Airport Drive. No low-income census block groups intersect any of the Build Alternatives, no businesses would be displaced that specifically serve minority or low-income populations, and no community facilities would be displaced.

Build Alternatives

Environmental justice populations within the CIA Study Area are not expected to experience disproportionately high and adverse impacts compared to the impacts borne by non-EJ populations. The proposed project would improve mobility and connectivity and provide access to employment, education, health care, and commerce centers across and beyond the Study Area communities for all users of the transportation system. All Build Alternatives would support resiliency and redundancy within the transportation network benefiting all travelers by providing an alternative travel route to existing US 380. The inclusion of ADA-accessible SUPs along the outside of the frontage roads would provide connectivity to existing and planned sidewalks and trail networks and support the safe use of alternative modes of travel for those individuals lacking access to a personal vehicle. Some of the potential residential displacements are within minority census blocks and within two block groups with median household incomes, slightly above the DHHS poverty threshold.

None of the businesses displaced by the Build Alternatives specifically serve low-income or minority populations. Because of the capacity and travel speeds provided by the proposed freeway facility, each Build Alternatives would attract traffic from local streets used to travel around congested areas along existing US 380. Areas experiencing benefits from less through traffic include “Old East McKinney” (south of existing US 380, between US 75 and SH 5) and the African American neighborhoods (with a growing Hispanic population) associated with the former Free Methodist College development (now a Winco Supermarket) and the surrounding College Additions -- a result that would not occur with the No-Build Alternative.

Segment B of the Brown and Gold Alternatives would be adjacent to ManeGait Therapeutic Horsemanship Facility (east of N. Custer Road). Although ManeGait provides services for protected or vulnerable populations, including children and persons with disabilities, the facility does not specifically cater to minority or low-income populations as defined under EO 12898 or USDOT Order 5610.2C. For detailed information about ManeGait and its services as a community facility in the Study Area, refer to **Appendix K**.

No-Build Alternative

The No-Build Alternative has the potential for disproportionately high or adverse impacts to EJ populations. It would not displace any residences, businesses, or community facilities owned, leased, or focused on serving low-income or minority populations. However, the No-Build Alternative would not address population growth and the resulting travel demand contributing to increasing congestion experienced by all residents using

existing US 380 that adds travel time, affects access into existing businesses and neighborhoods, and potentially adds travel time for emergency responders. This travel congestion occurs adjacent to existing minority and low-income neighborhoods and adjacent to business that serve minority populations along existing US 380 in McKinney. Cut-through traffic is common through the Lively Hill/La Loma and Central/Mouzon neighborhoods as travelers use local streets to connect to and from US 75 and SH 5 to avoid congestion along existing US 380 within McKinney. Under the No-Build Alternative the SUPs would not be constructed to support the safe use of alternative modes of travel across the Study Area especially for those individuals lacking access to a personal vehicle.

3.6.6 Limited English Proficiency

EO 13166, *Improving Access to Services for Persons with Limited English Proficiency (LEP)*, requires federal agencies to examine the services they provide, identify needs for services to LEP persons, and develop and implement a system to provide LEP persons with meaningful access to those services, including those recipients of federal financial assistance.

According to the census data reviewed, LEP persons in the CIA Study Area primarily speak Spanish (15 percent) and other Indo-European, Asian, and Pacific Island languages. LEP persons comprise 1 percent to 22 percent of the population within the CIA Study Area, with approximately 4 percent of the total population speaking English "less than very well." Based on field observations and census data, LEP populations are concentrated south of existing US 380 between US 75 and Airport Drive.

Purple Alternative (A+E+D)

During the field survey, signs in Spanish and Vietnamese were observed in association with businesses and places of worship in the Lively Hill/La Loma and Central/Mouzon neighborhoods west of Segment D and south of existing US 380. A Vietnamese language sign was observed west of Segment D and north of existing US 380, associated with the Thượng Hạnh Buddhist Monastery (place of worship).

Blue Alternative (A+E+C)

Besides the signs described under the Purple Alternative, no additional signs in languages other than English were observed during the field survey along and/or adjacent to Segment C of the Blue Alternative.

Brown Alternative (B+E+C)

No signs in languages other than English were observed during the field survey along and/or adjacent to the Brown Alternative.

Gold Alternative (B+E+D)

As with the Purple Alternative, signs in Spanish and Vietnamese were observed in association with businesses and places of worship in the Lively Hill/La Loma and Central/Mouzon neighborhoods west of Segment D and south of existing US 380. A Vietnamese language sign was observed west of Segment D, north of existing US 380, associated with the Thượng Hạnh Buddhist Monastery (place of worship). No other signs were observed along Segment B or E.

At the March 2022 in-person and virtual public meeting, a Spanish interpreter was available to assist the public. Notices for March 2022 public outreach activities were published on the project website at <https://www.keepitmovingdallas.com/projects/us-380-environmental-impact-statement-from-coit-road-to-fm->

[1827](#) in English and Spanish and indicated that special accommodations would be made as necessary. For the February 16, 2023, and February 21, 2023, in-person and virtual public hearings, TxDOT published notices in Vietnamese in addition to English and Spanish to accommodate the language needs of populations within the Study Area. All notices were posted on the project website (indicated above) and included instructions for the public on how to request language assistance. Vietnamese and Spanish translators were available at both public hearings.

3.6.7 Community Impacts Summary

Build Alternatives

Figure 3-31 provides a summary of the community impacts for each Build Alternative.

No-Build Alternative

The No-Build Alternative would result in no residential, business, or other relocations, including loss of employment due to displaced businesses. The No-Build Alternative would not result in direct impacts to neighborhoods and community cohesion, public facilities, or bicycle and pedestrian access.

The No-Build Alternative has the potential to cause disproportionately high or adverse impacts to EJ populations as it would not relieve traffic congestion, improve access, or address cut-through traffic adjacent to and through minority neighborhoods. Under the No-Build Alternative, the entire community, including minority and low-income populations, would not experience impacts related to construction and operation of the proposed project. However, the community would also not experience the benefits of decreased traffic congestion, improved mobility, and improved safety conditions resulting from improvements to the transportation network.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative would improve mobility and connectivity for all populations while not creating an additional physical and visual barrier within or between minority communities identified within the CIA Study Area (Lively Hill/La Loma, Central/Mouzon, Old East McKinney/Free Methodist Church Addition) west of Airport Drive and along existing US 380. The Blue Alternative would provide capacity and support resiliency and redundancy within the highway network to improve emergency response times and the efficiency of school bus routes by moving freeway through/regional traffic more efficiently while allowing local traffic to use existing US 380, US 75, SH 5, and the local street network. The Blue Alternative would improve connectivity for all populations to employment, education, health care, and commerce centers outside of the Study Area including the adjacent counties and center of the Dallas Metroplex. The Blue Alternative would not displace any community facilities or displace or negatively affect the operations of businesses catering to minority populations like the La Michoacana Meat Market and minority-owned small businesses along existing US 380. It would support regional travel and improve access to existing and planned developments. Outreach will continue predominantly in English with public notices and translation support provided at future design meetings, as needed.

Environmental justice populations within the CIA Study Area would not experience disproportionately high and adverse impacts compared to the impacts borne by non-EJ populations. The inclusion of ADA-accessible SUPs along the outside of the frontage roads would provide connectivity to existing and planned sidewalks and trail

Figure 3-31: Summary of Community Impacts for the Build Alternatives

Community Impact Category	Purple Alternative A+E+D	Blue Alternative A+E+C	Brown Alternative B+E+C	Gold Alternative B+E+D
Land Use	<ul style="list-style-type: none"> - Acquisition of 232 parcels W/O Spur (242 W/Spur) and approx. 672.5 acres W/O Spur (683.2 W/Spur) of new ROW - 1 Prosper planned park and trail would be directly impacted (W/O and W/Spur). - 1 McKinney Park would be directly impacted W/Spur. 	<ul style="list-style-type: none"> - Acquisition of 238 parcels W/O Spur (246 W/Spur) and approx. 663.2 acres W/O Spur (674.5 W/Spur) of new ROW. - 1 Prosper planned park and trail would be directly impacted (W/O and W/Spur). 	<ul style="list-style-type: none"> - Acquisition of 178 parcels W/O Spur (186 W/Spur) and approx. 682.4 acres W/O Spur (693.7 W/Spur) of new ROW - 3 Prosper planned parks and trail would be directly impacted (W/O and W/Spur). 	<ul style="list-style-type: none"> - Acquisition of 172 parcels W/O Spur (182 W/Spur) and approx. 691.7 acres W/O Spur (702.5 W/Spur) of new ROW - 3 Prosper planned parks and trail would be directly impacted (W/O and W/Spur). - 1 McKinney Park would be directly impacted W/Spur.
Displacements	<ul style="list-style-type: none"> - 22 single-family residences W/Spur and W/O Spur - 35 businesses W/O Spur, 37 W/Spur - 10 other W/Spur and W/O Spur 	<ul style="list-style-type: none"> - 26 single-family residences W/Spur and W/O Spur - 38 businesses W/ and W/O Spur - 8 other W/ and W/O Spur 	<ul style="list-style-type: none"> - 30 single-family residences W/Spur and W/O Spur - 21 businesses W/O and W/Spur - 9 other W/O Spur and W/Spur 	<ul style="list-style-type: none"> - 26 single-family residences W/Spur and W/O Spur - 19 businesses W/O Spur, 21 W/Spur - 9 other W/Spur and W/O Spur
Access and Travel Patterns	<ul style="list-style-type: none"> - No anticipated change to access or use of local roads that may serve as emergency response routes. 	<ul style="list-style-type: none"> - No anticipated change to access or use of local roads that may serve as emergency response routes. 	<ul style="list-style-type: none"> - No anticipated change to access or use of local roads that may serve as emergency response routes. 	<ul style="list-style-type: none"> - No anticipated change to access or use of local roads that may serve as emergency response routes.
Community Cohesion	<ul style="list-style-type: none"> - No direct impacts to places of worship, schools, community centers, or other neighborhood services and facilities. - 24 adjacent neighborhoods, does not divide existing/established neighborhoods - Creates a substantial physical/visual barrier between established neighborhoods already separated by major arterials (Segments A & E). - Segment A proposed encroaches on the southern portion of the Walnut Grove and Tucker Hill Neighborhoods. - Proposed ROW of Segment E displaces two residences in the Bloomdale Farms neighborhood and one residence in the Bloomdale Estates neighborhood. 	<ul style="list-style-type: none"> - No direct impacts to places of worship, schools, community centers, or other neighborhood services and facilities. - 21 adjacent neighborhoods, does not divide existing/established neighborhoods - Creates a substantial physical/visual barrier between established neighborhoods already separated by major arterials (Segments A & E). - Segment A proposed ROW encroaches on the southern portion of the Walnut Grove and Tucker Hill Neighborhoods. - Proposed ROW of Segment E displaces two residences in the Bloomdale Farms neighborhood and one residence in the Bloomdale Estates neighborhood. 	<ul style="list-style-type: none"> - No direct impacts to places of worship, schools, community centers, or other neighborhood services and facilities. - 20 adjacent neighborhoods, does not divide existing/established neighborhoods - Creates a substantial physical/visual barrier between established neighborhoods already separated by major arterials (Segment E). - Segment E proposed ROW displaces two residences in the Bloomdale Farms neighborhood and one residence in the Bloomdale Estates neighborhood. 	<ul style="list-style-type: none"> - No direct impacts to places of worship, schools, community centers, or other neighborhood services and facilities. - 24 adjacent neighborhoods, does not divide existing/established neighborhoods - Creates a substantial physical/visual barrier between established neighborhoods already separated by major arterials (Segment E). - Segment E proposed ROW displaces two residences in the Bloomdale Farms neighborhood and one residence in the Bloomdale Estates neighborhood.

Figure 3-31 continued: Summary of Community Impacts for the Build Alternatives

Community Impact Category	Purple Alternative A+E+D	Blue Alternative A+E+C	Brown Alternative B+E+C	Gold Alternative B+E+D
Environmental Justice	<ul style="list-style-type: none"> - No construction-related impacts. - 3 potentially low-income individuals/families would be affected by displacement of housing in Segment D - 9 BGs with 50 percent or greater minority population in the Segment A-B focus area - 15 BGs with 50 percent or greater minority population in the Segment E focus area - 3 BGs with 50 percent or greater minority population in the Segment C-D focus area 	<ul style="list-style-type: none"> - No construction-related impacts - No low-income individuals/families would be affected by displacement of housing - 9 BGs with 50 percent or greater minority population in the Segment A-B focus area - 15 BGs with 50 percent or greater minority population in the Segment E focus area - 3 BGs with 50 percent or greater minority population in the Segment C-D focus area 	<ul style="list-style-type: none"> - No construction-related impacts - No low-income individuals/families would be affected by displacement of housing - 9 BGs with 50 percent or greater minority population in the Segment A-B focus area - 15 BGs with 50 percent or greater minority population in the Segment E focus area - 3 BGs with 50 percent or greater minority population in the Segment C-D focus area 	<ul style="list-style-type: none"> - No construction-related impacts - 3 potentially low-income individuals/families would be affected by displacement of housing in Segment D - 9 BGs with 50 percent or greater minority population in the Segment A-B focus area - 15 BGs with 50 percent or greater minority population in the Segment E focus area - 3 BGs with 50 percent or greater minority population in the Segment C-D focus area
LEP	<ul style="list-style-type: none"> - Highest concentration of LEP households in the CIA Study Area is in the Segment E Focus Area ranging from 1 percent to 22 percent. - Segment D is adjacent to the Thượg Hậh Buddhist Monastery, a Vietnamese speaking place of worship. 	<ul style="list-style-type: none"> - Highest concentration of LEP households in the CIA Study Area is in the Segment E Focus Area ranging from 1 percent to 22 percent. 	<ul style="list-style-type: none"> - Highest concentration of LEP households in the CIA Study Area is in the Segment E Focus Area ranging from 1 percent to 22 percent. 	<ul style="list-style-type: none"> - Highest concentration of LEP households in the CIA Study Area is in the Segment E Focus Area ranging from 1 percent to 22 percent. - Segment D is adjacent to the Thượg Hậh Buddhist Monastery, a Vietnamese speaking place of worship.

NOTE: The impacts for the Blue Alternative and Segments A, E, and C for the other Build Alternatives and have been updated based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B). The impacts for the Purple, Brown, and Gold Alternatives Segments B and D are based on the proposed ROW shown on the July 1, 2022 60% Geometric Design Schematic and applicable updates of Segments A, E, and C from the Blue Alternative.

networks and support the safe use of alternative modes of travel for those individuals lacking access to a personal vehicle.

3.7 Visual/Aesthetic Impacts

Certain design characteristics (e.g., elevated structures/bridges, roadway signs, and safety lighting) would change the visual/aesthetic character of the Study Area and views from features and of features along each Build Alternative. The following descriptions are provided by Study Segment (A, B, E, C, and D) and summarized by Build Alternative.

Segment A – Coit Road to CR 161/future Ridge Road – Segment A would introduce the 8-lane freeway section starting at-grade near Coit Road, moving easterly and beginning to elevate above existing ground level east of Lakewood Drive. The elevated mainlanes approximately 18.5 feet above the ground, would be constructed on earthen fill supported by retaining walls. The elevated alignment as it approaches N. Custer Road would include a grade-separate interchange with on- and off-ramps to access the adjacent businesses via frontage roads. As the alignment continues east, the mainlanes would begin to lower east of Stonebridge Drive to create a depressed mainlane section between Tucker Hill on the north and Stonebridge Ranch on the south (**Figure 3-32**). The depressed section would place the mainlanes within a walled section approximately 20 feet below the existing ground level and maintain the frontage roads at existing ground level. After passing Grassmere Lane, the alignment would gradually exit the depressed section and curve to the north. The mainlanes would begin to elevate again to be on a bridge structure over Wilson Creek and its associated floodplain, then transition to a section on earthen fill through an undeveloped area before curving to the east as it approaches and travels over CR 124/future Wilmeth Road and the connection to future Bloomdale Road west, before it enters a slightly depressed section CR 161/future Ridge Road to connect to Segment E. North of existing US 380, openings under the freeway would be provided to accommodate cross-street connections, including U-turns, to the adjacent frontage roads built at-grade to accommodate local roadway and property access. These openings in the roadway embankment would occur at CR 124/future Wilmeth Road and future Bloomdale Road West.

Figure 3-32: View Looking West Along the Depressed Section Between Tucker Hill (right) and Stonebridge Ranch (left) - Segment A



Segment B - Coit Road to CR 161/Future Ridge Road – Like Segment A, Segment B would introduce the 8-lane freeway section starting at-grade near Coit Road, moving to the east and beginning to elevate above existing ground level east of Lakewood Drive. The elevated mainlanes approximately 18.5 feet above the ground, would be constructed on earthen fill supported by retaining extending walls. As the elevated alignment approaches the future extension of Independence Parkway, the alignment turns northeasterly crossing a Soil Conservation Service reservoir, through an undeveloped area crossing Rutherford Branch and its associate floodplain twice before turning more easterly to cross N. Custer Road and Wilson Creek before connecting to Segment E at CR 161/future Ridge Road. The alignment north of existing US 380 would be on earthen fill except for the crossings of Rutherford Branch, N. Custer Road, and Wilson Creek that would be on bridge. Frontage roads would remain at-grade to accommodate local access. A grade-separated intersection at the recently widened N. Custer Road would provide access to Founders Classical Academy, ManeGait Therapeutic Horsemanship, and residential areas north and south of the alignment (**Figure 3-33**).

Figure 3-33: View of Elevated Section and Intersection at N. Custer Road – Segment B



Segment E – CR 161/future Ridge Road to East of SH 5 - Segment E, common to all of the Build Alternatives, primarily follows the alignment of existing CR 123 and Bloomdale Road along the northern edge of McKinney. Segment E would start in a slightly depressed section between CR 161/future Ridge Road and south of FM 1461/Lake Forest Drive. Segment E would pass through a developing area with existing neighborhoods of Bloomridge and Heatherwood to the south and developing neighborhoods Bloomdale Farms and Bloomdale Estates to the north (**Figure 3-34**).

Figure 3-34: View of Elevated Section Near Heatherwood, Looking West - Segment E



The alignment would pass adjacent to the Future McKinney Sports Park, Erwin Park, and the Erwin Farms development before turning north and then east to be north of the Collin County government complex to connect to US 75 with a multi-level interchange. At US 75 and slightly east near SH 5, the alignment is elevated over Honey Creek, the East Fork Trinity River, and their associated floodplains where it continues east and south along either Segment C or Segment D. Along the Bloomdale alignment, openings under the freeway would be provided to accommodate cross-street connections, including U-turns, to the adjacent frontage roads built at-grade to accommodate local roadway and property access. These openings in the roadway embankment would occur at CR 1461/Lake Forest Drive, future Taylor Burk Drive (formerly CR 1006), Honey Creek CR 164/future Hardin Boulevard, Community Avenue. Bloomdale Road East would span over the proposed US 380 alignment. At Community Avenue the alignment would extend on bridge structure north of the Collin County government center, through the US 75/SH 5 interchange, and over the wide floodplain shared by Honey Creek and the East Fork Trinity River (**Figure 3-35**).

Segment C – East of SH 5 to Existing US 380/FM 1827 –Segment C joins the east end of Segment E on bridge to cross the East Fork Trinity River floodplain and the DGNO Railroad, then turns south, parallel to, and east of the floodplain until it turns to the east-southeast to connect to existing US 380 near FM 1827. This segment travels through undeveloped areas with open fields, pastures, and scattered residences. Most of the alignment south and east of CR 338 would be elevated on earthen fill with openings under the freeway to accommodate cross-street connections, including U-turns, to the adjacent frontage roads built at-grade to accommodate local roadway and property access. These openings would occur at CR 338, CR 331 and tributaries to the East Fork Trinity River (**Figure 3-36**). As the alignment curves east to connect to exiting US 380, it would be on bridge over FM 1827 as it enters the multi-level interchange connecting to the Spur 399 Extension south of existing US 380. The alignment would then extend east of the interchange connecting to existing US 380 at-grade.

Figure 3-35: Multi-level Interchange at US 75 and Connection to SH 5, Looking Northwest – Segment E



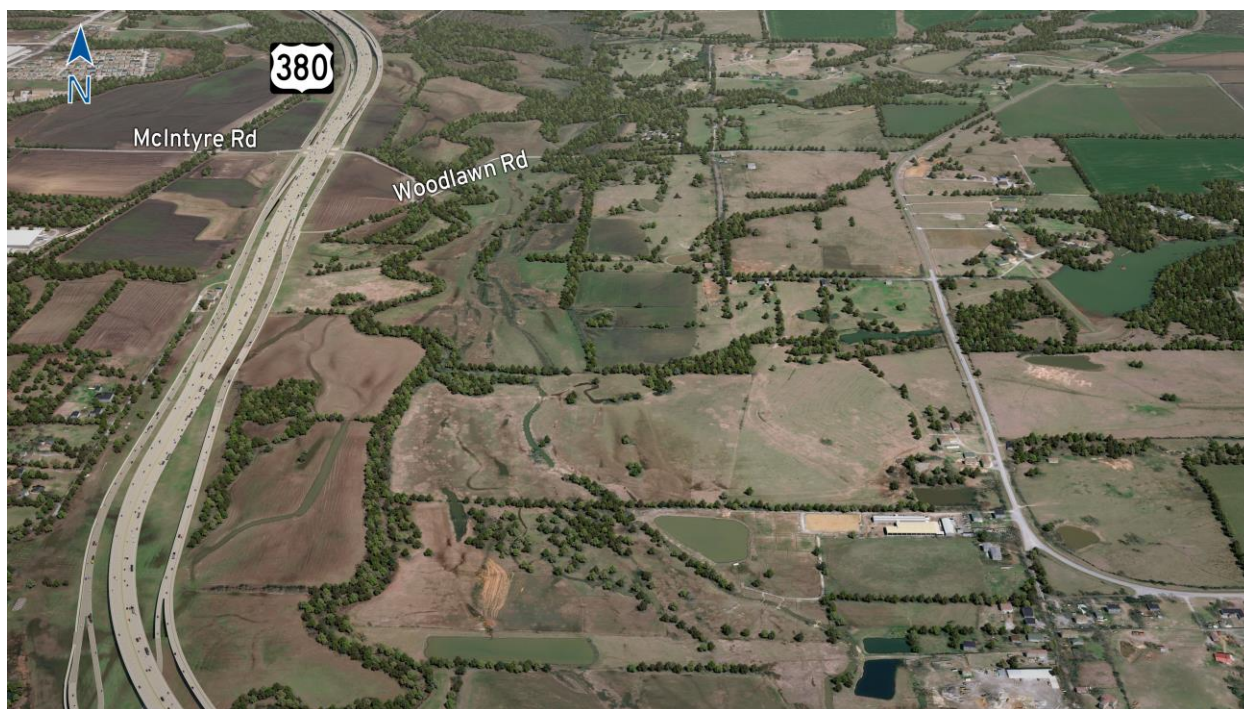
Figure 3-36: View Near CR 331/Woodlawn Road, Looking North – Segment C



Segment D - East of SH 5 to Existing US 380/FM 1827 – Like Segment C, Segment D joins the east end of Segment E to cross the East Fork Trinity River floodplain traveling roughly south, parallel to, and west of the East Fork Trinity River until it connects to existing US 380 near Airport Drive. At Airport Drive the alignment

follows US 380 to FM 1827. The alignment passes through undeveloped floodplain, crop fields, pastures, and wooded areas before connecting to existing US 380 near Airport Drive (**Figure 3-37**).

Figure 3-37: View Near CR 331/Woodlawn Road, Looking North – Segment D



Build Alternatives

Each Build Alternative would introduce a wide, elevated roadway into areas where one does not exist today. The elevated roadway would be a more substantial physical and visual barrier to neighborhoods already separated by existing US 380 (e.g., Tucker Hill and Stonebridge Ranch) and Bloomdale Road while also creating an obstruction to once open views within the relatively undeveloped landscape west and east of McKinney. Because of the presence of numerous streams and their associated floodplains, building the freeway at-grade in these areas is undesirable. The elevated structure carrying the freeway and in many places the frontage roads too, would obstruct views from neighboring properties across the alignment in areas of somewhat rural character (and the rapidly developing western portion of the Study Area), relatively flat, and in the case of the East Fork Trinity River, heavily wooded. Safety lighting and signage would be installed along the alignments, particularly at grade separations and interchanges, per TxDOT design standards. Traffic signals would be installed at intersections where the frontage road system and local cross streets meet.

No-Build Alternative

Under the No-Build Alternative no visual/aesthetic impacts would occur. No elevated structures or roadways on new location would be built nor would signage or safety lighting be introduced in areas where roadways do not exist today. However, growth across the county will continue to result in more rooftops, parking lots, shopping centers, and business complexes being built that will need to be served by roads and utilities, changing the visual environment in a much less controlled manner.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative would introduce a new roadway where one does not exist today, creating a substantial change in the visual environment, especially views of the corridor by area residents and adjacent landowners. The relative flatness of the eastern portion of the Study Area is desirable for agricultural use but lacks the topography that is useful in shielding views and sounds and creating visual softness against a concrete and steel structure. As additional design detail is developed for the Blue Alternative, options to introduce context sensitive solutions⁴² into the highway design may be beneficial from a public acceptance standpoint while also helping to blend the facility into the surrounding landscape. Consideration may be given to sustainable landscaping, wildflower planting, and aesthetic treatments to lessen the harshness and increase the visual appeal of the elevated structures, noise barriers (where proposed), guard rails, etc.

3.8 Cultural Resources

Impacts to cultural resources were evaluated under Section 106 of the National Historic Preservation Act (NHPA) in accordance with the Programmatic Agreement among FHWA, TxDOT, the Texas State Historic Preservation Officer (SHPO,) and the Advisory Council on Historic Preservation (ACHP) *Regarding the Implementation of Transportation Undertakings*.

3.8.1 Archeology and Cemeteries

This section summarizes the potential effects of the four Build Alternatives (Purple, Blue, Brown, and Gold) on archeological resources and cemeteries within the Area of Potential Effect (APE). The archeology APE is defined as the footprint of each Build Alternative to the maximum depth of impact, including all easements and project-specific locations. The *Archeological Background Study* completed for the project (provided in **Appendix L-1**) assessed the potential for impacts to archeological resources and cemeteries within the archeology APE and a 150-foot buffer extending from the APE. No cemeteries were identified within 150 feet of the APE. The Texas Historical Commission (THC) issued Antiquities Permit #30497 to AmaTerra (Principal Investigator Sunshine Thomas) on February 1, 2022 (**Appendix L-2**). The results of archeological surveys where rights-of-entry were obtained are provided in the *Archeological Survey Report*, approved by TxDOT on May 24, 2022, in (**Appendix L-3**) and are summarized below.

In accordance with the Programmatic Agreement and Memorandum of Understanding (MOU) between TxDOT and the THC (43 TAC §§2.251-2.278), Section 106 Consultation was initiated on May 20, 2022, with submittal of the *Archeological Survey Report* to the THC and federally recognized Tribes with a potential interest in the proposed action. On July 7, 2022, the THC concurred with the report's findings. On May 24, 2022, the Comanche Nation indicated "No Properties" had been identified in their review of the project information compared to their site files. Correspondence is included in **Appendix E**

⁴² Context sensitive solutions is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions. Examples of context sensitive solutions that could be incorporated into final design include: roadway signage, bridge and retaining wall enhancements (design/texture/color), public art, and native landscaping.

Purple Alternative

The *Archeological Background Study* identified one previously recorded archeological site, 41COL0309, within the Purple Alternative APE. The site is a Middle Archaic occupation with a preserved midden, lithic debris, animal bone, shell, burned rock, and several features (Bentley and Feit 2018). In 2017, archeologists excavated three backhoe trenches at the site and recorded cultural deposits at 65 to 250 centimeters (approximately 25.6 inches to 98.4 inches) below the surface, beneath the plowzone. Site 41COL0309 was previously determined NRHP-eligible. During that previous survey, shovel tests placed immediately north and south of this site during were typically excavated to 30 to 40 centimeters (approximately 11.8 inches to 15.7 inches) below the surface and found no evidence of the site. Although the site was not surveyed during development of the EIS, backhoe trenching is necessary to determine the extent of the site within the Purple Alternative APE⁴³. Adverse effects to 41COL0309 must be mitigated.

Site 41COL0066 is a Late Prehistoric site currently unevaluated for NRHP eligibility. Rights-of-entry for areas adjacent to the site were not granted for intensive survey or deep testing during development of the DEIS. Shovel testing and backhoe trenching is needed to delineate and assess the NRHP eligibility of site 41COL0066 within the Purple Alternative APE.

Portions of 41COL0315 were newly identified within the Purple Alternative APE during the current survey. Site 41COL0315 is remnants of the former Texas Electric Railway, constructed in 1908 (Bentley and Feit 2018). Site 41COL0315 was determined ineligible for the NRHP within the ROW in which it was originally recorded. Within the Purple Alternative APE, the railroad has been completely dismantled, and only concrete piers and a portion of the railroad berm remain. No artifacts associated with the railroad were identified in shovel tests during the current survey. The railroad lacks integrity of design, which precludes it from being NRHP-eligible under Criterion A or C. It is not known to be associated with significant persons in the past (Criterion B), and it is unlikely to yield important information about prehistory or history (Criterion D). The site was determined “Ineligible In ROW” for designation as a State Antiquities Landmark (SAL) or NRHP listing within the Purple Alternative APE.

No additional archeological sites were identified within the Purple Alternative APE during the *Archeological Background Study* or recent archeological survey. However, further shovel testing and trenching is needed across approximately 500 acres W/O Spur (523 acres W/Spur) of the Purple Alternative APE identified as having moderate to high potential for archeological deposits based on review of TxDOT’s Potential Archeological Liability Map (PALM). rights-of-entry have not been obtained to conduct deep trenching.

Blue Alternative

The *Archeological Background Study* identified two previously recorded archeological sites, 41COL0309 and 41COL0315, within 150 feet of the Blue Alternative APE. Deep testing is necessary to determine the extent of 41COL0309, discussed above, within the Blue Alternative APE. Adverse effects to 41COL0309 must be mitigated. Site 41COL0315, also discussed above, was determined “Ineligible In ROW” for NRHP inclusion or SAL designation within the Blue Alternative APE.

⁴³ 41COL0309 is included in the “No Survey Area of the APE” as a portion of the APE that has been previously surveyed with methods that meet or exceed the March 2020 standards for survey. Right-of-entry for trenching/deep testing on the subject property had not been granted at the time the 2022 US 380 McKinney project survey was conducted.

No additional archeological sites were identified within the Blue Alternative APE during the *Archeological Background Study* or archeological survey. However, further shovel testing and trenching is needed across approximately 491 acres W/O Spur (506 acres W/Spur) of the Blue Alternative APE identified as having moderate to high potential for archeological deposits according to TxDOT's PALM. Rights-of-entry have not been obtained to complete the additional archeological surveys as of the development of this FEIS.

Brown Alternative

The *Archeological Background Study* identified two archeological sites, 41COL0309 and 41COL0315, within 150 feet of the Brown Alternative APE. Deep testing is necessary to determine the extent of 41COL0309, discussed above, within the Brown Alternative APE. Adverse effects to 41COL0309 must be mitigated. Site 41COL0315, discussed above, was determined "Ineligible In ROW" for NRHP inclusion or SAL designation within the Brown Alternative APE.

No additional archeological sites were identified within the Brown Alternative APE during the *Archeological Background Study* or current archeological survey. However, further shovel testing and trenching is needed across approximately 542 acres W/O Spur (557 acres W/Spur) of the Brown Alternative APE identified as having moderate to high potential for archeological deposits according to TxDOT's PALM. Rights-of-entry have not been obtained to conduct deep trenching.

Gold Alternative

The *Archeological Background Study* identified one previously recorded archeological site, 41COL0309, within the Gold Alternative APE and one, 41COL0066, within 50 meters (approximately 164 feet) of the Gold Alternative APE. Portions of 41COL0315 were also newly identified within the Gold Alternative APE during the current survey. Deep testing is necessary to determine the extent of 41COL0309, discussed above, within the Gold Alternative APE. Adverse effects to 41COL0309 must be mitigated. Shovel testing and backhoe trenching is needed to delineate and assess the NRHP eligibility of site 41COL0066, also discussed above, within the Gold Alternative APE. Site 41COL0315, discussed above, was determined "Ineligible In ROW" for NRHP inclusion or SAL designation within the Gold Alternative APE.

No additional archeological sites were identified within the Gold Alternative APE during the *Archeological Background Study* or archeological survey. However, further shovel testing and trenching is needed across approximately 570 acres W/O Spur (584 acres W/Spur) of the Gold Alternative APE identified as having moderate to high potential for archeological deposits according to TxDOT's PALM. Rights-of-entry have not been obtained to conduct deep trenching.

No-Build Alternative

The No-Build Alternative would not involve construction or ROW acquisition; therefore, the No-Build Alternative would have no effect on archeological resources.

Preferred Alternative - Blue Alternative (A+E+C)

Two previously recorded archeological sites, 41COL0309 and 41COL0315, are within 150 feet of the Blue Alternative APE. Deep testing is necessary to determine the extent of 41COL0309. Adverse effects to 41COL0309 must be mitigated. Site 41COL0315 was determined "Ineligible In ROW" for NRHP inclusion or SAL designation within the Blue Alternative APE.

Rights-of-entry to approximately 491 acres W/O Spur (506 acres W/Spur) of proposed ROW for the Blue Alternative were denied for the purpose of conducting archeological surveys during development of the DEIS. Based on the May 2023 95% Geometric Schematic Design for the Blue Alternative, rights-of-entry would be needed across approximately 34 acres W/Spur to conduct pedestrian surveys and deep testing. TxDOT would complete these shovel tests and deep testing following issuance of the ROD and after TxDOT has acquired the ROW for the Blue Alternative. TxDOT would coordinate with the THC regarding potential mitigation of any adverse effects to 41COL0309 and the NRHP eligibility and effects determinations, if relevant, of any additional sites discovered. Following completion of these surveys, if unanticipated archeological deposits are encountered during construction, work in the immediate area would cease, and TxDOT archeological staff would be contacted to initiate post-review discovery procedures.

3.8.2 Historic Properties

The effects of the four Build Alternatives (Purple, Blue, Brown, and Gold) on non-archeological historic resources within the variable APE are discussed in this section. The non-archeological historic resources variable APE for all four Build Alternatives extends 300 feet beyond the proposed ROW where the proposed freeway is on new location, and 150 feet beyond the proposed ROW where the proposed freeway follows an existing roadway (e.g., existing US 380), including all parcels partially or wholly therein. A Project Coordination Request (PCR) and *Historical Studies Research Design* with amendment were approved by TxDOT ENV in November 2021, initiating the review of historic-age resources and establishing the variable APE defined for the proposed action. The PCR and *Historical Studies Research Design* are included in **Appendix L-4** and **Appendix L-5**, respectively. A draft *Historical Resources Survey Report* (HRSR) was submitted to TxDOT in January 2022. The HRSR (approved by TxDOT on February 11, 2022) included in **Appendix L-6** provides details regarding the reconnaissance survey of historic-age resources and documentation efforts. TxDOT requested a Section 106 intensive survey for one property containing a resource recommended NRHP-eligible in the HRSR (Resource 78a). The *Historical Resources Survey Report Intensive Survey* is included in **Appendix L-7**. Results of the intensive survey (approved by TxDOT on July 8, 2022) determined the property containing the previously recommended NRHP-eligible resource (Resource 78a) not eligible for NRHP inclusion based on lack of integrity or significance.

The reconnaissance survey conducted within a historic resources variable APE for each of the four Build Alternatives identified a total of 191 individual historic-age resources (constructed in or prior to 1981) associated with 102 properties. No NRHP-listed resources or districts and no state-designated resources (Recorded Texas Historic Landmarks or SALs) were identified within the historic resources variable APE. One cemetery, Hunt Cemetery (Resource 08), was identified within the historic resources variable APE but was determined not eligible for NRHP or SAL designation. The reconnaissance survey identified three properties with resources recommended NRHP-eligible, including an early twentieth century dwelling and associated barn and outbuilding (Resources 34a-34c), a railroad truss bridge (Resource 35b), and an early-twentieth-century dwelling (Resource 78a). However, the intensive survey conducted for the property containing Resources 78a-78e determined Resource 78a not eligible for NRHP inclusion. The two determined NRHP-eligible properties (Resources 34a-34c and 35b) are shown on **Figure 3-38**.

3.8.2.1 NRHP-Eligible Resources

Resource 34, east of SH 5 on McIntyre Road (see **Figure 3-38**), includes a ca. 1910 Queen Anne-style dwelling (34a), a ca. 1925 barn (34b), and a smaller ca. 1945 barn (34c). The property also contains two buildings that do not contribute to the NRHP-eligible property. The resources are on two small adjacent parcels, and although outside of the APE, are historically and currently associated through ownership with a large adjacent agricultural parcel that extends into a portion of the APE. The dwelling (34a) represents an intact and significant example of an early-twentieth-century simplified Queen Anne-style dwelling with Classical and Prairie-style influences. It was determined NRHP-eligible under Criterion C at the local level, in the area of architecture. The two barns (Resources 34b and 34c) were determined as contributing resources to the recommended NRHP-eligible dwelling. The NRHP-eligible boundary includes the two small adjacent parcels containing the barns.

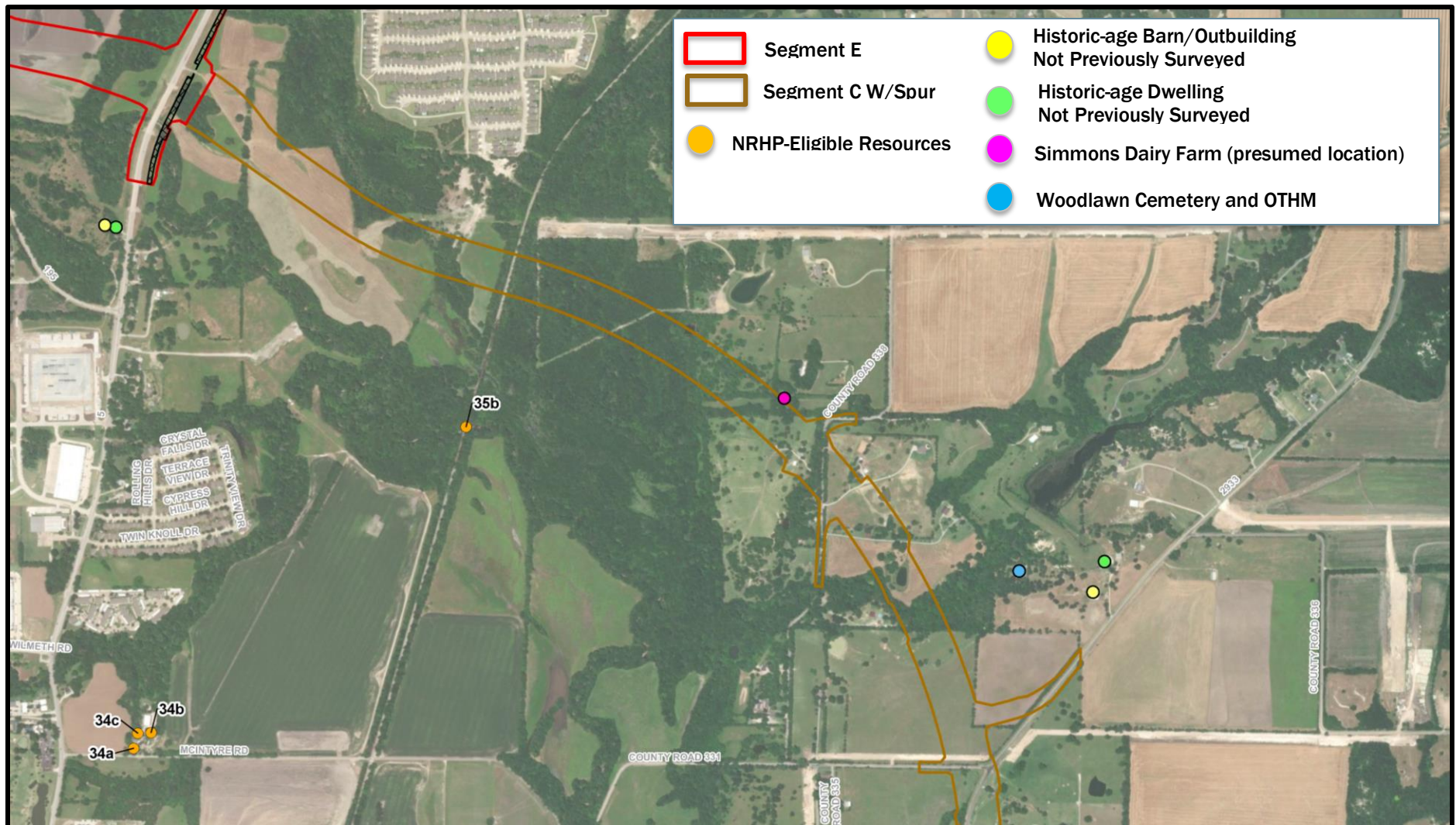
Resource 35b (**Figure 3-38**) is a ca. 1900 metal truss railroad bridge spanning the East Fork Trinity River north of McIntyre Road. Originally part of the alignment of the Houston and Texas Central Railway, the active rail line is now used by DART. The bridge represents a Pratt through-truss bridge with a total span length of 100 feet and includes concrete abutments within the channel and wooden abutments below the bridge approaches. In Texas, Pratt truss bridges were generally superseded by Warren truss bridge construction in the early twentieth century. The bridge (Resource 35b) was determined NRHP-eligible under Criterion A, in the area of transportation, for its continued role in rail transportation in McKinney and Collin County, and under Criterion C, in the area of engineering, as a less common type of truss bridge remaining in Texas. The NRHP-eligible boundary includes the truss bridge itself (Resource 35b) between the concrete abutments but not the associated railroad line (Resource 35a).

3.8.2.2 Resources Requiring Intensive Survey

Upon completion of the reconnaissance survey for the HRSR, Resource 78a, a ca. 1900 National Folk-style dwelling, was recommended NRHP-eligible. A portion of the dwelling's footprint extends into the ROW needed to construct Segment C of the Blue and Brown Alternatives where proposed construction activities would occur (refer to Blue Alternative and Brown Alternative Resource-Specific Maps in **Appendix D**). As the Blue and Brown Alternatives would result in a direct physical effect to the dwelling (Resource 78a), TxDOT requested additional information and intensive survey of the property.

An intensive survey was conducted in May 2022 for the property (identified as the Brown property) containing the dwelling and associated ancillary resources (Resources 78a-78e). Based on historical research, the intensive survey recommended all five of the resources not eligible for NRHP inclusion. The intensive survey recommended that the buildings no longer reflect the property's associations with early area settlers or with farming or ranching activities, and as such, the property does not represent a significant or intact example of an extant nineteenth-century farmstead or cattle ranch. TxDOT concurred with these recommendations and determined the resources were not eligible for NRHP inclusion on July 8, 2022.

Figure 3-38: NRHP-Eligible Historic Resources – Segments E and C – Preferred Alternative/Blue Alternative



Purple Alternative

Determined NRHP-eligible Resource 35b is within a portion of the historic resources APE of the Purple Alternative (Segment D) immediately adjacent to an area of proposed ROW acquisition where construction activities could occur. However, the proposed new location roadway would be elevated and span the existing railroad line immediately south of the existing bridge. The Purple Alternative would not physically affect the railroad bridge, and although it would introduce visual changes to the current setting, the bridge's setting does not contribute to its NRHP eligibility under Criterion A or C. The Purple Alternative would have no adverse effect to Resource 35b (**Figure 3-38**).

Blue Alternative

No NRHP-eligible historic resources would be affected by the Blue Alternative.

Brown Alternative

No NRHP-eligible historic resources would be affected by the Brown Alternative.

Gold Alternative

As described under the Purple Alternative, determined NRHP-eligible Resource 35b is located with a portion of the historic resources APE of the Gold Alternative (Segment D) immediately adjacent to an area of proposed ROW acquisition where proposed construction activities could occur. The Gold Alternative would not physically or otherwise adversely affect the railroad bridge, and although the Gold Alternative would introduce visual changes to the current setting, the bridge's setting does not contribute to its NRHP eligibility under Criterion A or C. The Gold Alternative would have no adverse effect to Resource 35b (**Figure 3-38**).

No-Build Alternative

The No-Build Alternative would not involve construction or ROW acquisition; therefore, the No-Build Alternative would have no effect on historic properties.

Preferred Alternative - Blue Alternative (A+E+C)

Based on design and proposed ROW changes made in the May 2023 95% Geometric Design Schematic for the Blue Alternative, TxDOT reviewed two additional properties now within the variable APE – a residential property with a ca. 1965 Minimal Traditional-style dwelling, a ca. 1975 former garage outbuilding, and a small ca. 1980 gabled outbuilding at 4177 N. McDonald Street; and an agricultural property with a ca. 1900 Folk Victorian-type dwelling, a ca. 1960 barn, and a non-historic-age shed at 3187 FM 2933 (see **Figure 3-38**). In consideration of comments received during the public hearing, TxDOT investigated the possible location of the former Simmons Dairy Farm noted to be located along CR 388.

The additional properties at 4177 N. McDonald Street and 3187 FM 2933 were recommended as not NRHP-eligible due to lack of integrity and/or significance. The actual location of the former Simmons Dairy Farm has not been confirmed as no specific address or location was identified by the commenter. Based on the previous field reconnaissance and background research conducted to develop the approved HRSR, and additional research and a field visit conducted after the public hearing, TxDOT identified a possible location for the former dairy farm. Historic aerial imagery of the presumed property indicates several buildings were present from 1956 through 2001 (the commenter noted the dairy farm operational in the 1930s). Based on the field visit conducted in April 2023, the presumed property is completely obscured from view by dense trees and

overgrown vegetation. Specific information on the property location and access to the property would be needed to evaluate the potential NRHP eligibility of the associated resources and the effects of the Blue Alternative on the property.

No NRHP-eligible historic resources would be affected by the Blue Alternative, and the Blue Alternative would not require the use of any NRHP-eligible resources under Section 4(f). Therefore, no further consideration of non-archeological historic resources is required under the Preferred Alternative. Pursuant to Stipulation IX, Appendix 6 “Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)” of the Section 106 PA and the MOU, TxDOT historians determined there will be no adverse effect to historic properties, regardless of the alternative chosen for the project. In compliance with the Antiquities Code of Texas and the MOU, TxDOT historians determined project activities have no potential for adverse effects. Individual project coordination with SHPO is not required.

3.9 Protected Lands

Protected lands include the following property types:

- **Section 4(f) properties** include publicly owned, significant and accessible parks, recreation areas, and wildlife and waterfowl refuges; and significant historic and archeological sites regardless of whether they are publicly or privately owned. [Section 4(f) of the Department of Transportation Act]
- **Section 6(f) properties** were acquired or developed, partially or wholly, with Land and Water Conservation Fund (LWCF) assistance from the National Park Service. [Section 6(f) of the Land and Water Conservation Fund Act]
- **Chapter 26 properties** are parks, recreation areas, scientific areas, wildlife refuges, or historic sites used for public recreational purposes at the time of the proposed TxDOT project. [Chapter 26 of the Texas Parks and Wildlife Code]

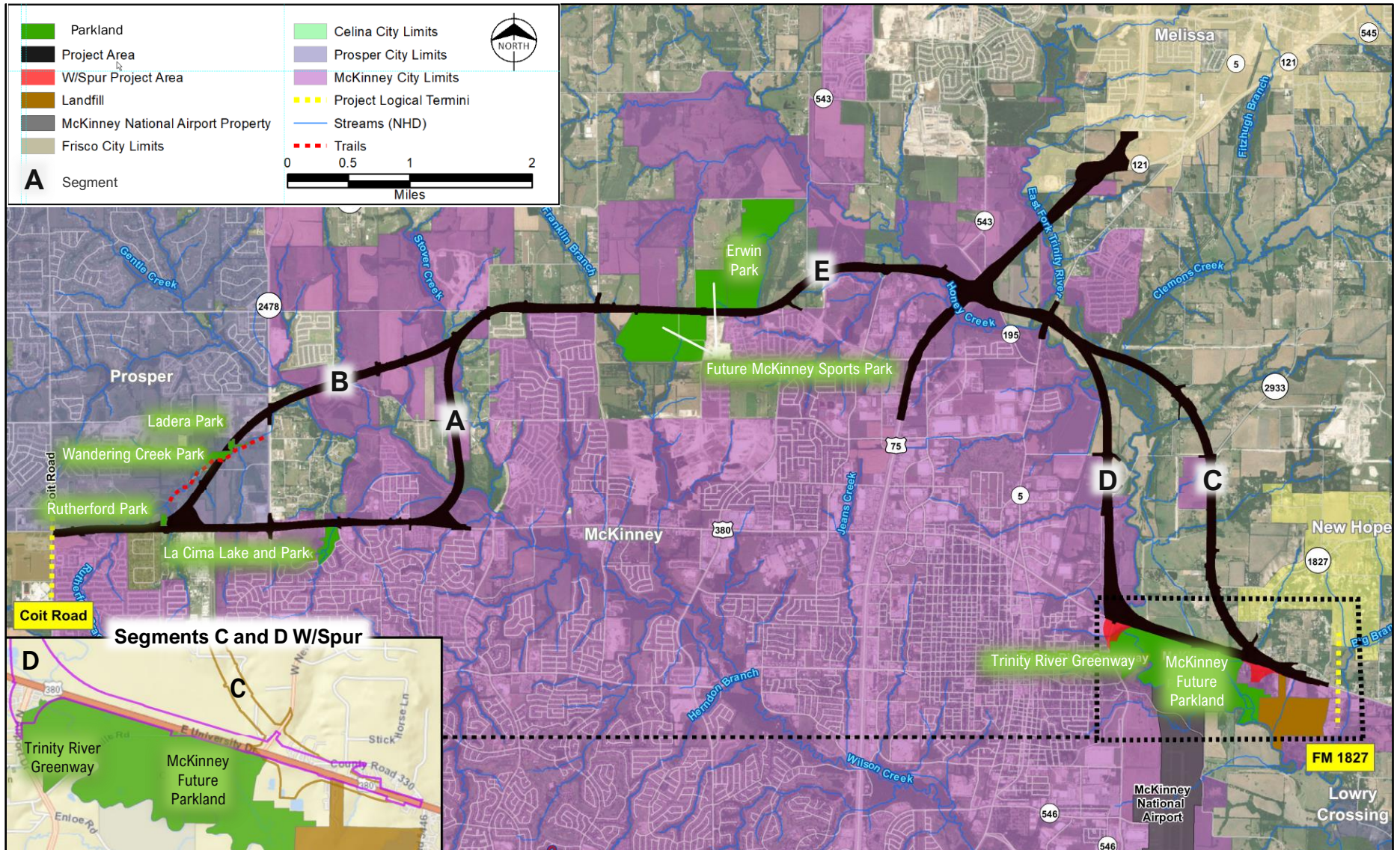
Six properties within and adjacent to the US 380 McKinney Project Area meet the definitions of protected public lands and recreational facilities described in this section. No historic or archeological sites protected under Section 4(f) are in the Project Area. **Figure 3-39** lists these properties and indicates the regulatory protections that apply along with the anticipated impacts resulting from the proposed project. The locations of these properties are depicted in **Figure 3-40** and on the Resource-Specific Maps for the Build Alternatives provided in **Appendix D**.

Figure 3-39: Protected Lands in the US 380 McKinney Study Area

Publicly Owned Lands and Recreational Facilities Within Project Area	Section 4(f) Property	Section 6(f) Property	Chapter 26 Property	Alternative Potentially Affecting Property	Resulting Use (yes or no)
Erwin Park (Segment E)	YES	NO	YES	PURPLE ALTERNATIVE	NO
				BLUE ALTERNATIVE	
				BROWN ALTERNATIVE	
				GOLD ALTERNATIVE	
Future McKinney Sport Park ¹ (Segment E)	NO	NO	NO	PURPLE ALTERNATIVE	NO
				BLUE ALTERNATIVE	
				BROWN ALTERNATIVE	
McKinney Future Parkland ² (Segment C W/Spur)	YES	NO	NO	BLUE ALTERNATIVE	NO
				BROWN ALTERNATIVE	
Trinity River Greenway (Segment D W/Spur)	YES	NO	NO	PURPLE ALTERNATIVE	YES
				GOLD ALTERNATIVE	
Rutherford Park ³ (Segment B)	YES	NO	NO	PURPLE ALTERNATIVE	YES
				BLUE ALTERNATIVE	
				BROWN ALTERNATIVE	
Wandering Creek Park ³ (Segment B)	YES	NO	NO	GOLD ALTERNATIVE	YES
				BROWN ALTERNATIVE	
Ladera Park ³ (Segment B)	YES	NO	NO	GOLD ALTERNATIVE	YES
				BROWN ALTERNATIVE	
La Cima Lake and Park ⁴ (Segment A)	NO	NO	NO	PURPLE ALTERNATIVE	NO
				BLUE ALTERNATIVE	

- Property for the Future McKinney Sport Park was acquired by the City of McKinney in 2021. The property is being planned to accommodate both public open space and concession-based recreation services (entry fee required).
- McKinney Future Parkland - the Douglas Tract carries a Blanket Easement designating a portion of the Douglas Tract for transportation use.
- Rutherford Park, Wandering Creek Park, and Ladera Park were identified by the Town of Prosper in November 2022. All 3 properties are in various stages of planning and land acquisition. None of these 3 parks are included in the Town's 2015 Parks, Recreation, and Open Space Plan or the 2020 Hike & Bike Trail Master Plan.
- La Cima Lake and Park is privately owned and maintained by the Stonebridge Ranch Community Association (SRCA) for the use and enjoyment of the residents of Stonebridge Ranch.

Figure 3-40: Map of Protected Lands in the US 380 McKinney Study Area



3.9.1 Section 4(f) of the Department of Transportation Act of 1966

3.9.1.1 Public Park and Recreational Facilities Protected by Section 4(f)

Erwin Park, the Trinity River Greenway, and the McKinney Future Parkland in McKinney; and planned Rutherford Park, planned Wandering Creek Park, and planned Ladera Park in Prosper (listed in **Figure 3-39**) are within or adjacent to the Build Alternatives and are either currently in recreational use or planned for such use in the future. As described below, the Future McKinney Sport Park is planned to accommodate concession-based recreation services, therefore it would not be protected under Section 4(f) or Chapter 26.

Purple Alternative – (A+E+D)

Segment A – Approximately 1.22 acres from the planned Rutherford Park in Prosper adjacent to and north of existing US 380 would be acquired to build Segment A. The freeway improvements within this section of existing US 380 have been pushed to the north to avoid impacts to residents south of existing US 380. Rutherford Park was established by the Town of Prosper in the Fall of 2022, with the purchase of approximately 3.75 acres for park amenities and approximately 2.3 acres for trail easements. The park is to be constructed adjacent to the south edge of a NRCS reservoir, in partnership with the Prosper Independent School District (ISD) who owns land north of the reservoir and where they would construct the District's Environmental Education Center.

In January 2023, the Town of Prosper provided additional parcel data for Rutherford Park, locating the 3.75-acre parcel abutting the north side of existing US 380, east of Lakewood Drive. The planned park frontage along existing US 380 measures approximately 312 feet and would contain the park entrance drive. According to the concept plan for the park (see **Appendix M**), the primary park amenities would be within the northern portion of the tract and adjacent to the southern edge of the NRCS reservoir. The planned park would also connect to a proposed segment of the Rutherford Creek Greenbelt Trail that would stretch to the east, dipping close to existing US 380 east of the planned park. The proposed park entrance drive would need to be modified to connect to the proposed US 380 McKinney westbound frontage road. The southern loop of the proposed trail would need to be shifted to the north and out of the proposed US 380 McKinney ROW. The Town has not indicated when construction of Rutherford Park will begin. No other existing or planned parks have been identified within the Town of Prosper portion of Segment A.

The La Cima Lake and Park is privately owned by the Stonebridge Ranch Community Association (SRCA) and is managed and maintained for the use and enjoyment of the residents of Stonebridge Ranch, therefore it is not considered open for public use and not provided protection under Section 4(f).

Segment E - The Future McKinney Sport Park property was acquired by the city in 2021 and is being planned to accommodate both public open space and concession-based recreation services (entry fee required). Two properties, north and south of Bloomdale Road, the north property adjacent to Erwin Park, have been planned to accommodate the proposed ROW for the US 380 McKinney project. No ROW would be acquired from Erwin Park.

Segment D – No parks or recreation facilities would be affected by construction of Segment D. W/Spur, Segment D would use land from the Trinity River Greenway south of existing US 380 and east of Airport Drive. The Trinity River Greenway property is unimproved but reserved by the City of McKinney for future public

recreational use as future demand warrants. The city has no immediate plans for developing the property but is considering the viability of the property for a future indoor sports facility. Construction of the Purple Alternative W/Spur would acquire ROW from the property resulting in a use under Section 4(f). The use of the Trinity River Greenway is considered minimal or *de minimis* as it would not affect the features, attributes, or activities that qualify the property for protection under Section 4(f).

Blue Alternative – (A+E+C)

Segment A – Same as described under the Purple Alternative.

Segment E - Same as described under the Purple Alternative.

Segment C – No parks or recreation facilities would be affected by construction of Segment C W/O Spur. During final design of the Blue Alternative W/Spur, additional ROW or a change in the design of the Spur 399 Extension Selected Alternative could occur with incorporation of the US 380 McKinney/Spur 399 Extension interchange across the western portion of the McKinney Future Parkland south of existing US 380. The approximately 301.3-acre “Douglas Tract” portion of the McKinney Future Parkland carries a Blanket Easement providing for *the continuous ingress and egress in, upon, over, and across [an identified tract]...together with the right to...perpetually maintain a future roadway’s intersection with US Highway 380.*⁴⁴ This Blanket Easement designates a portion of the Douglas Tract for transportation use, therefore, construction of the US 380 McKinney/Spur 399 Extension interchange would not result in a use of the McKinney Future Parkland under Section 4(f). The city has no immediate plans to develop the McKinney Future Parkland property but may consider developing hike/bike trails and other improvements within the property as the need arises.⁴⁵

Brown Alternative – (B+E+C)

Segment B – Approximately 2.62 acres from the planned Rutherford Park would need to be acquired (based on the July 1, 2022 60% Geometric Design Schematic) along with approximately 4.66 acres from the planned Wandering Creek Park and approximately 1.17 acres from the planned Ladera Park. As described under the Purple Alternative, Rutherford Park is in the early development stages as a partnership between the Town and Prosper ISD. Sections of the proposed Rutherford Creek Greenbelt Trail connecting to planned Rutherford Park and within the proposed US 380 McKinney ROW would need to be relocated outside of the proposed ROW. Both Wandering Creek Park and Ladera Park are being acquired through land dedication by developers. Ladera Park is intended as an approximately 5.2-acre property along the southwestern edge of the Ladera at Prosper development, a 55 and older retirement community. Ladera Park would be maintained by PR Ladera, LLC. Wandering Creek Park is being dedicated as part of the Wandering Creek Development. Property boundaries and legal descriptions of Ladera Park and Wandering Creek Park were provided by the Town of Prosper in January 2023. The uses to be included within Ladera Park and Wandering Creek Park have not been described by the Town. All three planned Prosper parks would be connected by a trail system within the “Rutherford Creek Greenbelt” as indicated in the Town’s *Hike and Bike Master Plan*. The greenbelt is also not included or described in either Town planning document.

⁴⁴ McKy East Fork (Douglas) – Blanket Easement, 10/18/2013. A copy of the covenant is included in Appendix M-2

⁴⁵ Input received from Jenny Baker, Parks Planning & Development Manager, City of McKinney, Parks & Recreation Department, August 23, 2021.

Segment E - Same as described under the Purple Alternative.

Segment C - Same as described under the Blue Alternative.

Gold Alternative – (B+E+D)

Segment B - Same as described under the Brown Alternative.

Segment E - Same as described under the Purple Alternative.

Segment D - Same as described under the Purple Alternative.

No-Build Alternative would not acquire any ROW so no land from existing and planned parks adjacent to existing US 380 would be acquired. Access to the planned Rutherford Park would be provided as part of the No-Build Alternative.

TxDOT will continue to coordinate with the Town of Prosper and the City of McKinney as the Officials with Jurisdiction over Section 4(f) properties as the design of the US 380 McKinney project advances.

3.9.1.2 Historic Resources Protected by Section 4(f)

Build Alternatives

As described in **Section 3.8.2.1**, construction of Segment C of the Blue and Brown Alternatives would span over or be built in the proximity of Resource 35b, a NRHP-eligible, ca. 1900 metal truss railroad bridge spanning the East Fork Trinity River north of McIntyre Road originally part of the alignment of the Houston and Texas Central Railway. THC has concurred with a “no effect” determination for the bridge under Section 106 of the NHPA; therefore, no use would occur under Section 4(f). Since that determination was made, Segment C had been shifted farther away from Resources 35b to accommodate changes in the crossing of SH 5 to the north. As described in **Section 3.8.2.2**, none of the Build Alternatives would result in an adverse effect under Section 106 of the NHPA to any non-archeological historic resource. If changes occur during final design that would require removal or alteration of the bridge, additional analysis would be required to assess if the proposed modification is the only feasible and prudent alternative to avoidance of the bridge. If the bridge could not be avoided, the appropriate mitigation would be developed in coordination with the THC and DART. The Purple and Gold Alternatives would not affect historic resources.

No-Build Alternative

The No-Build Alternative would not result in construction or the acquisition of ROW, therefore, the No-Build alternative would have no impact on historic resources s protected under Section 4(f).

3.9.1.3 Section 4(f) for the Preferred Alternative - Blue Alternative (A+E+C)

Based on the May 2023 95% Geometric Design Schematic, the Blue Alternative W/Spur would require approximately 1.22 acres of land from the planned Rutherford Park in Prosper and would necessitate the relocation of approximately 809 linear feet of the planned Rutherford Creek Greenbelt Trail to outside of the proposed ROW needed for Segment A. Although Rutherford Park is not open to the public at the time this FEIS is being developed and it is not included in the Town’s approved *2015 Parks, Recreation, and Open Space Plan*, TxDOT has determined the impacts to Rutherford Park and relocation of the associated trail section result in a use under Section 4(f). The use of the planned Rutherford Park parcel and relocation of a section of

the planned trail are considered minimal or *de minimis* as it would not affect the features, attributes, or activities that qualify either property for protection under Section 4(f).

A public notice announcing a 15-day comment period was published on May, 30, 2023, indicating TxDOT's intention to pursue a *de minimis* finding under Section 4(f) for the use of planned Rutherford Park and the associated planned trail. No public comments were received in response to the notice. The Town of Prosper concurred with the *de minimis* Section 4(f) finding for the planned Rutherford Park and the planned trail on June 28, 2023, with TxDOT approving the Section 4(f) *de minimis* finding on July 5, 2023. A copy of the Section 4(f) documentation is included in **Appendix M**. TxDOT will continue to coordinate with the Town of Prosper as the final design progresses to accommodate ongoing planning associated with Rutherford Park and the trail.

No other existing or planned parks, recreation areas, or historic resources protected under Section 4(f) would be affected by the Blue Alternative. As described in **Section 3.5**, SUPs constructed along the frontage roads would provide opportunities to increase connectivity to other city parks and planned trails.

3.9.2 Section 6(f) of the Land and Water Conservation Fund Act

As presented in **Figure 3-35**, none of the public park or recreational facility properties in or adjacent to the US 380 McKinney Project Area were acquired or developed using Land and Water Conservation Funds. Therefore, the Build Alternatives considered, the No-Build Alternative, and the Preferred Alternative would have no effect on Section 6(f) protected properties.

3.9.3 Chapter 26 of the Texas Parks and Wildlife Code

Build Alternatives

None of the Build Alternatives W/O Spur would acquire permanent ROW from any Chapter 26 property. W/Spur, the Purple and Gold Alternatives (Segment D) would need ROW from the Trinity River Greenway, but the Greenway is not open for public use at this time, therefore it is not protected under Chapter 26. None of the Build Alternatives would acquire ROW from Erwin Park, a Chapter 26 property. None of the three Town of Prosper planned parks (Rutherford Park, Wandering Creek Park, or Ladera Park) or the Rutherford Creek Greenbelt trail system have been developed at the time of this FEIS; therefore, none of the properties are open for public use and would not be protected under Chapter 26. As part of both the Chapter 26 and Section 4(f) processes, TxDOT will continue to coordinate with the Town of Prosper and the City of McKinney as the Officials with Jurisdiction prior to issuance of the ROD.

No-Build Alternative

The No-Build Alternative would not result in construction or the acquisition of ROW from any property in public use; therefore, the no-build alternative would have no effect on properties protected under Chapter 26.

Preferred Alternative - Blue Alternative (A+E+C)

No ROW from Chapter 26 properties would be acquired to construct the Blue Alternative W/Spur.

3.10 Water Resources

This section discusses and compares the potential impacts to water resources, including surface water, groundwater, wetlands, coastal resources, and floodplains for the alternatives considered.

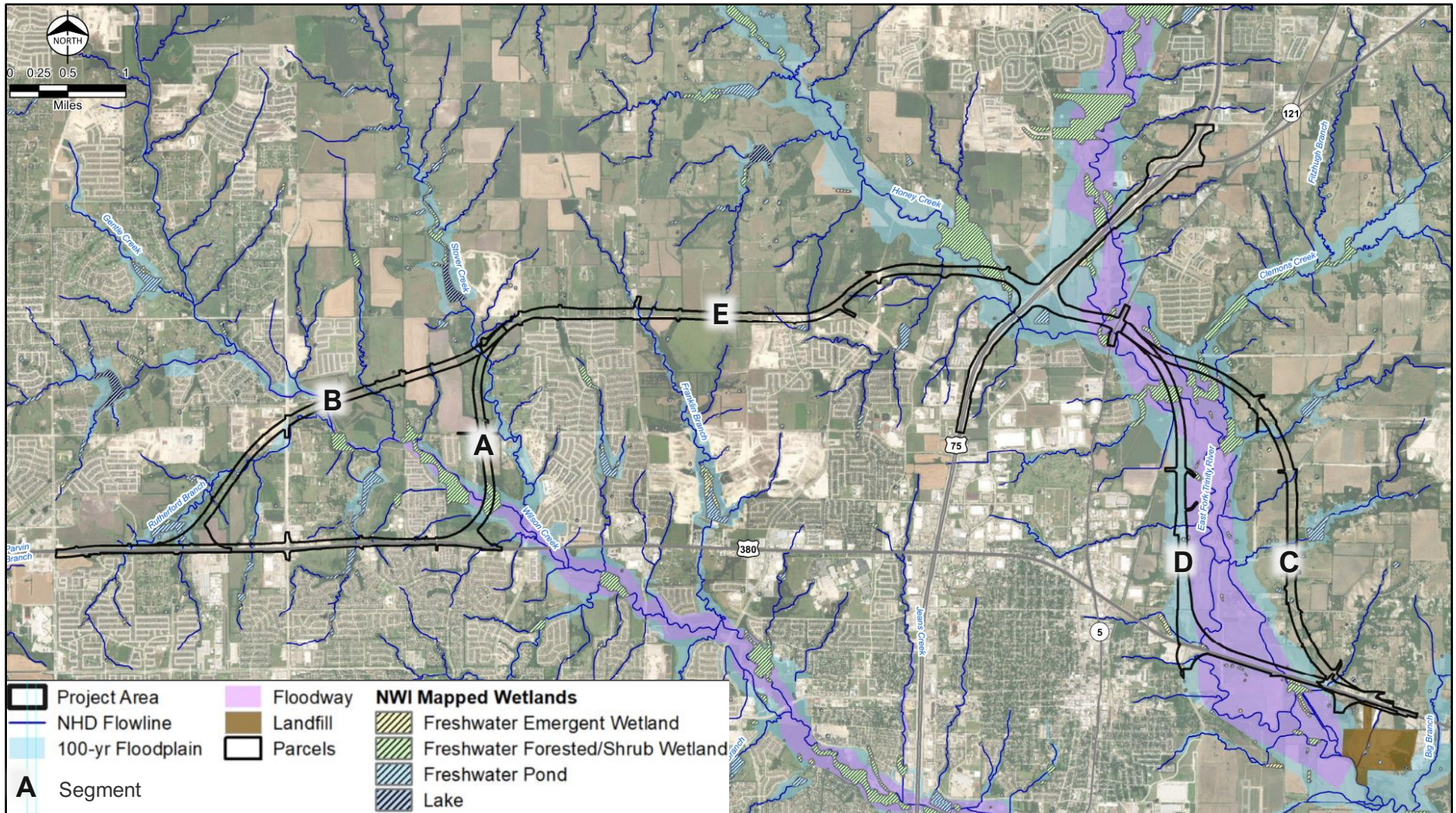
Hydrologic Setting - The Study Area is within the Southwestern Prairies Cotton and Forage Land Resource Region of the Great Plains; more specifically in Major Land Resource Area 86A (Texas Blackland Prairie, Northern Part). It is characterized by level to gently sloping and dissected plains with steep slopes along river and creek valleys, meander belts associated with major streams, and wide floodplains along stream terraces (NRCS, 2006). Geology in this area consists of Cretaceous chalk, claystone, marl, and shale with Quaternary alluvium deposits within the floodplains and terraces of major drainages.

The Study Area is within the East Fork Trinity River-Lavon Lake Watershed, including the Clemons Creek-East Fork Trinity River Sub Watershed in the eastern portion of the Study Area; the Lower Wilson Creek Sub Watershed in the south-central portion of the Study Area, the Honey Creek Sub Watershed in the north-central portion of the Study Area, and the Upper Wilson Sub Watershed in the western portion of the Study Area, of the Trinity River Basin (Hydrologic Unit Code 8: 12030106). The Study Area consists of existing ROW, residential development, pastures, rangelands, and forested and emergent wetlands.

Wetlands and Surface Waters - TxDOT field delineated water features on August 24, 28; September 8, 10, 11, 14, 16, 17, 24, 25; October 12, 13, 15, 20; November 3, 9, 11, 29; December 1, 3, 22, 2020; January 17, 19; June 8; August 12, 16, 17, 18, 25; and September 22, 2021. The delineations were performed to evaluate water features and identify their boundaries within the Environmental Footprint (an area initially established to identify water features that is larger than the proposed ROW) and conducted according to the applicable USACE regulatory guidance. The delineations were conducted where property rights-of-entry had been granted. Depending on water feature type (e.g., forested wetland or intermittent stream), approximately 63 percent of mapped water features were field delineated and approximately 37 percent were only photo interpreted because of the lack of access. All features were photo interpreted before conducting field delineations where property access was granted. For properties where access was not granted, additional photo interpretation was conducted based on the context of adjacent features that were field delineated and by making observations from public rights-of-way to verify information from aerial photos and other referenced datasets. The water features not field-delineated are noted in the Water Resources Delineation Report and 404/10 Impact Tables in **Appendix N**. Wetlands were classified according to the Cowardin Classification System used for the USFWS's National Wetlands Inventory (NWI). The Study Area contains ephemeral, intermittent, and perennial stream tributaries; palustrine forested, scrub-shrub and emergent wetlands; open water features (e.g., ponds); excavated upland ponds, swales, ditches, and water-filled depressions associated with road construction; and stormwater retention ponds and wetlands. Some of these features are visible on **Figure 3-41**.

Floodplains and Floodways – Low-lying lands along Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and East Fork Trinity River are subject to flooding. The Federal Emergency Management Agency (FEMA) has delineated the base floodplain elevation and floodways along these streams within the Study Area and are shown on **Figure 3-41** and discussed further in **Section 3.10.7**.

Figure 3-41: Water Resources within the US 380 McKinney Study Area



The water features crossing and within the Project Area (proposed ROW) are shown in **Attachment 1, Figures 8-1 through 8-15** of the Water Features Delineation Report included in **Appendix N**.

Other Water Resources - No navigable waterways cross the Study Area. No coastal resources or protected aquifers or recharge areas are in the Study Area.

As summarized in **Figure 3-46**, the Preferred Alternative (Blue Alternative) would permanently impact 0.06 acres of wetlands, 9,690 LF of streams, and 0.29 acres of ponds W/Spur (0.72 acres, 10.433 LF, and 0.29 acres, respectively, W/O Spur). Mitigation measures may be required for all or a portion of this loss dependent upon single and complete crossings. Compensatory mitigation would be accomplished through the purchase of mitigation credits from USACE-approved wetland and stream mitigation banks within the service area of the project. Because of the highly variable nature of mitigation bank ratios and credit availability, the exact number of credits needed for the project would be determined based upon final design. The number of credits to be purchased would be based on appropriate mitigation ratios as approved by the USACE or outlined in the individual mitigation bank instrument. The need for an Individual Standard Permit under Section 404 is not anticipated. If during final design TxDOT determines that an Individual Standard Permit under Section 404 is needed, compliance with EPA's Section 404(b)(1) Guidelines would be confirmed prior to submittal of the Individual Standard Permit application.

3.10.1 Clean Water Act Section 404

The Build Alternatives including the Preferred Alternative would involve regulated activities within waters regulated under Section 404 of the Clean Water Act, otherwise referred to as Waters of the United States (WOTUS). The following tables (**Figure 3-42** through **Figure 3-45**) show the features that are anticipated to be jurisdictional waters in which regulated activity would take place. They also indicate whether the impacts are anticipated to be authorized under Section 404 by a non-reporting nationwide permit (i.e., no pre-construction notification required), or if it is anticipated that a nationwide permit (NWP) with pre-construction notification (PCN), Individual Standard Permit, Letter of Permission, or Regional General Permit would be required. In addition, water features within the Environmental Footprint but not crossed by the project are also indicated in the tables in the event changes are made to the alignment for inclusion in the FEIS. The water features associated with each Build Alternative that cross or are within the Project Area (proposed ROW) are also illustrated in **Attachment 1, Figures 8-1 through 8-25** of the *Water Features Delineation Report* in **Appendix N**. **Figure 1** in **Appendix N** provides an overview of Segments A through E that combine to form the new location Build Alternatives under consideration.

Purple Alternative (A+E+D)

Figure 3-42 lists the water features associated with the Purple Alternative (see **Figures 2-8** and **2-9**). Approximately 47.43 acres of water features, including streams, are mapped within the Environmental Footprint evaluated for the Purple Alternative. The streams from west to east are Rutherford Creek, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek and their tributaries, and the East Fork Trinity River and its tributaries.

Figure 3-42: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 1					
1A	5	Palustrine emergent	33.218465, -96.763637		
1B	6	Intermittent stream	33.218306, -96.763060	No	Yes
1C	7	Ephemeral stream	33.218074, -96.762245		
SEGMENT A, CROSSING 2					
2A	8	Ephemeral stream	33.218238, -96.759790	No	Yes
2B	11	Intermittent stream	33.218289, -96.758225		
2C	12*	Intermittent stream	33.218343, -96.757167		
2D	14*	Perennial stream	33.218139, -96.757183		
2E	15*	Perennial stream	33.218250, -96.756545		
2F	16	Perennial stream	33.218613, -96.756079		
2G	17*	Perennial stream	33.218959, -96.756047		
2H	18*	Palustrine forested	33.219598, -96.755041		
2I	19*	Perennial stream	33.219622, -96.755236		
2J	20*	Intermittent stream	33.220075, -96.755335		
2K	21*	Palustrine emergent	33.219966, -96.754664		
SEGMENT A, CROSSING 3					
3A	24*	Ephemeral stream	33.219272, -96.751874		
3B	25	Ephemeral stream	33.218622, -96.751921	Yes	No
3C	26*	Ephemeral stream	33.218410, -96.751938		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 4					
4A	30*	Perennial stream	33.218149, -96.748407	No	Yes
4B	31	Perennial stream	33.218763, -96.748396		
4C	32	Palustrine forested	33.219023, -96.748507		
4D	33	Palustrine emergent	33.219978, -96.748478		
4E	37	Perennial stream	33.219339, -96.746994		
SEGMENT A, CROSSING 5					
5A	45	Ephemeral stream	33.218590, -96.740878	Yes	No
5B	46*	Ephemeral stream	33.219223, -96.740196		
SEGMENT A, CROSSING 6					
6A	50*	Intermittent stream	33.218192, -96.738089	Yes	No
6B	51	Intermittent stream	33.218521, -96.737984		
6C	52*	Intermittent stream	33.219211, -96.738022		
6D	53*	Palustrine scrub-shrub	33.219728, -96.738218		
SEGMENT A, CROSSING 7					
7A	58	Ephemeral stream	33.218955, -96.727926	Yes	No
7B	59*	Ephemeral stream	33.219454, -96.727602		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 8					
8A	61	Palustrine emergent	33.218671, -96.722608	No	Yes
8B	62	Perennial stream	33.219013, -96.722532		
8C	63	Pond/Impoundment	33.219555, -96.722655		
8D	65	Perennial stream	33.220010, -96.722409		
8E	66	Ephemeral stream	33.220332, -96.723075		
SEGMENT A, CROSSING 9					
9A	69	Palustrine forested	33.220057, -96.720336	Yes	No
9B	70	Ephemeral stream	33.219558, -96.720128		
SEGMENT A, CROSSING 10					
10A	79	Ephemeral stream	33.218511, -96.715135	Yes	No
0.36	80	Palustrine forested	33.218560, -96.714480		
10C	82	Ephemeral stream	33.218248, -96.714173		
10D	84	Ephemeral stream	33.218783, -96.714340		
10E	85	Ephemeral stream	33.219871, -96.713216		
10F	87	Ephemeral stream	33.220048, -96.712232		
10G	88	Ephemeral stream	33.219529, -96.711973		
10H	89	Ephemeral stream	33.218792, -96.711567		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 11					
11A	92	Intermittent stream	33.221653, -96.710545		
11B	94	Intermittent stream	33.218160, -96.704640	No	Yes
11C	97*	Intermittent stream	33.218822, -96.701420		
SEGMENT A, CROSSING 12					
12A	99	Palustrine forested	33.223393, -96.706169	No	Yes
12B	100	Intermittent stream	33.223528, -96.705798		
12C	101	Intermittent stream	33.223483, -96.705110		
12D	102	Ephemeral stream	33.223098, -96.706252		
12E	103*	Intermittent stream	33.221721, -96.705961		
12F	104	Intermittent stream	33.222946, -96.705536		
12G	105	Intermittent stream	33.223040, -96.703494		
12H	106*	Ephemeral stream	33.221959, -96.703509		
12I	107	Ephemeral stream	33.222544, -96.702733		
12J	108*	Intermittent stream	33.222915, -96.701594		
12K	109	Palustrine emergent	33.223723, -96.704052		
12L	110	Perennial stream	33.223770, -96.703243		
12M	111*	Perennial stream	33.223230, -96.701580		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
12M	111*	Perennial stream	33.223230, -96.701580	No	Yes
12N	112*	Intermittent stream	33.224154, -96.701728		
12O	113	Intermittent stream	33.225126, -96.702920		
12P	114	Ephemeral stream	33.225108, -96.703308		
12Q	115	Ephemeral stream	33.226399, -96.703030		
SEGMENT A, CROSSING 13					
13A	118	Pond/Impoundment	33.234368, -96.703329	No	Yes
13B	119	Ephemeral stream	33.234524, -96.703814		
13C	120*	Ephemeral stream	33.234612, -96.704455		
SEGMENT A, CROSSING 14					
14A	121	Perennial Stream	33.237106, -96.703034	Yes	No
SEGMENT A, CROSSING 15					
15A	123*	Perennial stream	33.243315, -96.703941	No	Yes
15B	146*	Intermittent stream	33.244158, -96.704012		
15C	147*	Pond/Impoundment	33.245694, -96.701397		
15D	148	Intermittent stream	33.246399, -96.700038		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 1					
1A	147*	Pond/Impoundment	33.245694, -96.701397	Yes	No
1B	148	Intermittent stream	33.246399, -96.700038		
1C	149*	Ephemeral stream	33.246927, -96.699184		
1D	150*	Ephemeral stream	33.246598, -96.698414		
SEGMENT E, CROSSING 2					
2A	151*	Other non-stream, non-wetland waterbody	33.247041, -96.691761	Yes	No
2B	152*	Ephemeral stream	33.246426, -96.692100		
2C	153*	Pond/Impoundment	33.245938, -96.691875		
2D	154*	Intermittent stream	33.244453, -96.691061		
SEGMENT E, CROSSING 3					
3A	155*	Ephemeral stream	33.245542, -96.691911	No	Yes
3B	156*	Ephemeral stream	33.244454, -96.691441		
3C	157*	Intermittent stream	33.248581, -96.680349		
3D	158	Intermittent stream	33.247541, -96.679926		
3E	160*	Palustrine emergent	33.246746, -96.679775		
3F	161*	Intermittent stream	33.246272, -96.679629		
3G	162*	Ephemeral stream	33.246427, -96.678601		
3H	163*	Ephemeral stream	33.247688, -96.677824		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 4					
4	165*	Palustrine emergent	33.247558, -96.666942	N/A	N/A
SEGMENT E, CROSSING 5					
5	168*	Perennial stream	33.246221, -96.654502	Yes	No
SEGMENT E, CROSSING 6					
6A	170	Palustrine forested	33.249743, -96.644096	N/A	N/A
6B	171	Palustrine emergent	33.249776, -96.643753		
SEGMENT E, CROSSING 7					
7A	172	Ephemeral stream	33.251272, -96.640619	Yes	No
7B	173	Ephemeral stream	33.251488, -96.639341		
7C	174*	Ephemeral stream	33.251817, -96.639400		
SEGMENT E, CROSSING 8					
8A	175	Intermittent stream	33.250685, -96.634914	No	Yes
8B	176	Perennial stream	33.251867, -96.634639		
SEGMENT E, CROSSING 9					
9A	178	Palustrine forested	33.252701, -96.631361	No	Yes
9B	179	Palustrine forested	33.252001, -96.630427		
9C	180	Palustrine emergent	33.251104, -96.629462		
9D	182	Perennial stream	33.251321, -96.627645		
9E	185	Palustrine emergent	33.251157, -96.625670		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 10					
10	187	Ephemeral stream	33.249546, -96.623804	N/A	N/A
SEGMENT E, CROSSING 11					
11	189	Ephemeral stream	33.235599, -96.630674	N/A	N/A
SEGMENT E, CROSSING 12					
12A	190	Palustrine emergent	33.244049, -96.625342	No	Yes
12B	191	Palustrine emergent	33.245441, -96.625876		
12C	192	Perennial stream	33.246292, -96.623565		
SEGMENT E, CROSSING 13					
13	194	Palustrine emergent	33.250437, -96.619792	N/A	N/A
SEGMENT E, CROSSING 14					
14	196	Intermittent stream	33.251764, -96.618083	N/A	N/A
SEGMENT E, CROSSING 15					
15	198*	Palustrine forested	33.252589, -96.614307	N/A	N/A
SEGMENT E, CROSSING 16					
16A	199	Ephemeral stream	33.254211, -96.614358	N/A	N/A
16B	200	Palustrine forested	33.254996, -96.613371		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 17					
17A	201	Palustrine forested	33.256341, -96.611674	N/A	N/A
17B	202	Palustrine forested	33.256622, -96.611323		
17C	203*	Palustrine forested	33.255802, -96.610182		
17D	204	Intermittent stream	33.257379, -96.610197		
17E	205	Perennial stream	33.257266, -96.609413		
17F	206	Intermittent stream	33.257357, -96.608135		
17G	207	Palustrine forested	33.257582, -96.607844		
SEGMENT E, CROSSING 18					
18	209	Ephemeral stream	33.259247, -96.607917	N/A	N/A
SEGMENT E, CROSSING 19					
19	212	Intermittent stream	33.263000, -96.603838	N/A	N/A
SEGMENT E, CROSSING 20					
20	215	Ephemeral stream	33.263331 -96.599624	N/A	N/A
SEGMENT E, CROSSING 21					
21A	218	Intermittent stream	33.269617, -96.596378	N/A	N/A
21B	219	Palustrine emergent	33.269631, -96.596155		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 22					
22A	220*	Palustrine scrub-shrub	33.249006, -96.617080		
22B	221	Palustrine emergent	33.248874, -96.618153		
22C	222	Palustrine forested	33.247368, -96.617542	No	Yes
22D	223	Pond/Impoundment	33.246915, -96.619293		
22E	224	Ephemeral stream	33.246662, -96.617975		
SEGMENT E, CROSSING 23					
23A	227	Perennial stream	33.244037, -96.615003	N/A	N/A
23B	228*	Palustrine forested	33.243055, -96.614757		
SEGMENT E, CROSSING 24					
24A	231	Perennial stream	33.245586, -96.610250	Yes	No
24B	231A	Perennial Stream	33.243895, -96.609092		
SEGMENT D, CROSSING 1					
1	232	Ephemeral stream	33.244123, -96.608077	Yes	No
SEGMENT D, CROSSING 2					
2A	233	Palustrine emergent	33.238427, -96.600567	N/A	N/A
2B	234	Perennial stream	33.237547, -96.602079		
SEGMENT D, CROSSING 3					
3	235	Perennial stream	33.235245, -96.600091	Yes	No
SEGMENT D, CROSSING 4					
4	236	Perennial stream	33.226427, -96.594895	N/A	N/A

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT D, CROSSING 5					
5A	237	Palustrine emergent	33.222156, -96.599051	No	Yes
5B	238*	Palustrine emergent	33.221288, -96.599271		
5C	239*	Palustrine emergent	33.221025, -96.599104		
5D	240*	Palustrine emergent	33.220494, -96.598161		
5E	241*	Perennial stream	33.219433, -96.600522		
5F	242	Perennial stream	33.219487, -96.600146		
5G	243*	Perennial stream	33.219520, -96.598770		
SEGMENT D, CROSSING 6					
6A	244*	Palustrine emergent	33.217489, -96.597855	No	Yes
6B	245*	Palustrine emergent	33.215840, -96.598849		
SEGMENT D, CROSSING 7					
7A	246*	Palustrine emergent	33.213372, -96.597739	No	Yes
7B	247*	Palustrine emergent	33.213630, -96.598832		
7C	248*	Intermittent stream	33.213433, -96.599171		
7D	249*	Palustrine emergent	33.212561, -96.598843		
7E	250*	Palustrine forested	33.211530, -96.598204		
7F	251*	Palustrine emergent	33.210946, -96.599171		
7G	252*	Palustrine emergent	33.209853, -96.599061		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
7H	254*	Palustrine emergent	33.208363, -96.598621	No	Yes
7I	255*	Palustrine emergent	33.207979, -96.599244		
7J	256*	Palustrine emergent	33.207611, -96.600303		
7K	258	Pond/Impoundment	33.206645, -96.600286		
7L	259	Palustrine emergent	33.206064, -96.599821		
7M	260*	Palustrine emergent	33.205965, -96.599456		
7N	261	Perennial stream	33.205839, -96.600270		
7O	262	Perennial stream	33.205828, -96.600035		
7P	263*	Perennial stream	33.205404, -96.599420		
7Q	264	Palustrine forested	33.205275, -96.600081		
7R	265*	Palustrine forested	33.205106, -96.599609		
7S	266*	Intermittent stream	33.205059, -96.598912		
7T	267*	Ephemeral stream	33.204858, -96.598721		
7U	268*	Ephemeral stream	33.204910, -96.598655		
7V	269	Intermittent stream	33.204744, -96.598906		
7W	270*	Intermittent stream	33.204775, -96.598343		
7X	271	Intermittent stream	33.204740, -96.597422		
7Y	272*	Perennial stream	33.205744, -96.596613		

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
7Z	273	Perennial stream	33.203712, -96.596520	No	Yes
7AA	274*	Palustrine forested	33.203726, -96.594190		
SEGMENT D, CROSSING 8					
8A	276*	Palustrine emergent	33.203361, -96.586127	No	Yes
8B	277*	Palustrine emergent	33.201758, -96.586379		
8C	278*	Palustrine emergent	33.201483, -96.585436		
8D	279*	Palustrine emergent	33.201723, -96.584262		
8E	280*	Pond/Impoundment	33.201973, -96.583998		
8F	282*	Intermittent stream	33.200788, -96.584407		
8G	283	Intermittent stream	33.199895, -96.584019		
8H	285	Ephemeral stream	33.199700, -96.583092		
SEGMENT D, CROSSING 9					
9A	336*	Intermittent stream	33.198610, -96.579331	Yes	No
9B	337	Intermittent stream	33.199421, -96.577880		
9C	338	Ephemeral stream	33.200058, -96.577682		
9D	339*	Ephemeral stream	33.199887, -96.577462		
9E	340*	Intermittent stream	33.200075, -96.576660		
SEGMENT D, CROSSING 10					
10	342	Ephemeral stream	33.197013, -96.573852	N/A	N/A

Figure 3-42 continued: Water Features within the Purple Alternative

PURPLE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Long)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT D, CROSSING 11					
11	347*	Ephemeral stream	33.196025, -96.570289	N/A	N/A
SEGMENT D, CROSSING 12					
12	351	Ephemeral stream	33.195490, -96.567568	N/A	N/A
SEGMENT D, CROSSING 14					
14A	353*	Intermittent stream	33.198463, -96.599552	N/A	N/A
14B	354	Intermittent stream	33.198545, -96.598042		
14C	355*	Perennial stream	33.202223, -96.600293		
14D	356	Perennial stream	33.202855, -96.598315		

*Photo-interpreted

N/A Not applicable: these features are not crossed by the project but are located within the Environmental Footprint or are associated with the proposed Spur 399 Extension and evaluated therein.

Because the impacts provided in the table are based on the Geometric Schematic Design submitted July 2022, and permitting will occur after the design is further refined, permitting needs may change. All necessary permits will be obtained based on the final design.

SOURCE: US 380 McKinney Water Features Delineation Report and 404/10 Impact Table, October 2022

Blue Alternative (A+E+C)

Figure 3-43 lists the water features associated with the Blue Alternative (see Figures 2-8 and 2-10).

Approximately 35.65 acres of water features, including streams, are mapped within the Environmental Footprint evaluated for the Blue Alternative. The streams from west to east are Rutherford Creek, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek and their tributaries; and the East Fork Trinity River and its tributaries.

Figure 3-43: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 1					
1A	5	Palustrine emergent	33.218465, -96.763637		
1B	6	Intermittent stream	33.218306, -96.763060	No	Yes
1C	7	Ephemeral stream	33.218074, -96.762245		
SEGMENT A, CROSSING 2					
2A	8	Ephemeral stream	33.218238, -96.759790	No	Yes
2B	11	Intermittent stream	33.218289, -96.758225		
2C	12*	Intermittent stream	33.218343, -96.757167		
2D	14*	Perennial stream	33.218139, -96.757183		
2E	15*	Perennial stream	33.218250, -96.756545		
2F	16	Perennial stream	33.218613, -96.756079		
2G	17*	Perennial stream	33.218959, -96.756047		
2H	18*	Palustrine forested	33.219598, -96.755041		
2I	19*	Perennial stream	33.219622, -96.755236		
2J	20*	Intermittent stream	33.220075, -96.755335		
2K	21*	Palustrine emergent	33.219966, -96.754664		
SEGMENT A, CROSSING 3					
3A	24*	Ephemeral stream	33.219272, -96.751874		
3B	25	Ephemeral stream	33.218622, -96.751921	Yes	No
3C	26*	Ephemeral stream	33.218410, -96.751938		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 4					
4A	30*	Perennial stream	33.218149, -96.748407	No	Yes
4B	31	Perennial stream	33.218763, -96.748396		
4C	32	Palustrine forested	33.219023, -96.748507		
4D	33	Palustrine emergent	33.219978, -96.748478		
4E	37	Perennial stream	33.219339, -96.746994		
SEGMENT A, CROSSING 5					
5A	45	Ephemeral stream	33.218590, -96.740878	Yes	No
5B	46*	Ephemeral stream	33.219223, -96.740196		
SEGMENT A, CROSSING 6					
6A	50*	Intermittent stream	33.218192, -96.738089	Yes	No
6B	51	Intermittent stream	33.218521, -96.737984		
6C	52*	Intermittent stream	33.219211, -96.738022		
6D	53*	Palustrine scrub-shrub	33.219728, -96.738218		
SEGMENT A, CROSSING 7					
7A	58	Ephemeral stream	33.218955, -96.727926	Yes	No
7B	59*	Ephemeral stream	33.219454, -96.727602		
SEGMENT A, CROSSING 8					
8A	61	Palustrine emergent	33.218671, -96.722608	No	Yes
8B	62	Perennial stream	33.219013, -96.722532		
8C	63	Pond/ Impoundment	33.219555, -96.722655		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
8D	65	Perennial stream	33.220010, -96.722409	No	Yes
8E	66	Ephemeral stream	33.220332, -96.723075		
SEGMENT A, CROSSING 9					
9A	69	Palustrine forested	33.220057, -96.720336	Yes	No
9B	70	Ephemeral stream	33.219558, -96.720128		
SEGMENT A, CROSSING 10					
10A	79	Ephemeral stream	33.218511, -96.715135	Yes	No
10B	80	Palustrine forested	33.218560, -96.714480		
10C	82	Ephemeral stream	33.218248, -96.714173		
10D	84	Ephemeral stream	33.218783, -96.714340		
10E	85	Ephemeral stream	33.219871, -96.713216		
10F	87	Ephemeral stream	33.220048, -96.712232		
10G	88	Ephemeral stream	33.219529, -96.711973		
10H	89	Ephemeral stream	33.218792, -96.711567		
SEGMENT A, CROSSING 11					
11A	92	Intermittent stream	33.221653, -96.710545	No	Yes
11B	94	Intermittent stream	33.218160, -96.704640		
11C	97*	Intermittent stream	33.218822, -96.701420		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 12					
12A	99	Palustrine forested	33.223393, -96.706169	No	Yes
12B	100	Intermittent stream	33.223528, -96.705798		
12C	101	Intermittent stream	33.223483, -96.705110		
12D	102	Ephemeral stream	33.223098, -96.706252		
12E	103*	Intermittent stream	33.221721, -96.705961		
12F	104	Intermittent stream	33.222946, -96.705536		
12G	105	Intermittent stream	33.223040, -96.703494		
12H	106*	Ephemeral stream	33.221959, -96.703509		
12I	107	Ephemeral stream	33.222544, -96.702733		
12J	108*	Intermittent stream	33.222915, -96.701594		
12K	109	Palustrine emergent	33.223723, -96.704052		
12L	110	Perennial stream	33.223770, -96.703243		
12M	111*	Perennial stream	33.223230, -96.701580		
12N	112*	Intermittent stream	33.224154, -96.701728		
12O	113	Intermittent stream	33.225126, -96.702920		
12P	114	Ephemeral stream	33.225108, -96.703308		
12Q	115	Ephemeral stream	33.226399, -96.703030		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT A, CROSSING 13					
13A	118	Pond/ Impoundment	33.234368, -96.703329		
13B	119	Ephemeral stream	33.234524, -96.703814	No	Yes
13C	120*	Ephemeral stream	33.234612, -96.704455		
SEGMENT A, CROSSING 14					
14A	121*	Perennial stream	33.237106, -96.703034	Yes	No
SEGMENT A, CROSSING 15					
15A	123*	Perennial stream	33.243315, -96.703941		
15B	146*	Intermittent stream	33.244158, -96.704012	No	Yes
15C	147*	Pond/ Impoundment	33.245694, -96.701397		
15D	148	Intermittent stream	33.246399, -96.700038		
SEGMENT E, CROSSING 1					
1A	147*	Pond/ Impoundment	33.245694, -96.701397	Yes	No
1B	148	Intermittent stream	33.246399, -96.700038		
1C	149*	Ephemeral stream	33.246927, -96.699184		
1D	150*	Ephemeral stream	33.246598, -96.698414		
SEGMENT E, CROSSING 2					
2A	151*	Other non-stream, non-wetland waterbody	33.247041, -96.691761	Yes	No
2B	152*	Ephemeral stream	33.246426, -96.692100		
2C	153*	Pond/ Impoundment	33.245938, -96.691875		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
2D	154*	Intermittent stream	33.244453, -96.691061		
SEGMENT E, CROSSING 3					
3A	155*	Ephemeral stream	33.245542, -96.691911	No	Yes
3B	156*	Ephemeral stream	33.244454, -96.691441		
3C	157*	Intermittent stream	33.248581, -96.680349		
3D	158	Intermittent stream	33.247541, -96.679926		
3E	160*	Palustrine emergent	33.246746, -96.679775		
3F	161*	Intermittent stream	33.246272, -96.679629		
3G	162*	Ephemeral stream	33.246427, -96.678601		
3H	163*	Ephemeral stream	33.247688, -96.677824		
SEGMENT E, CROSSING 4					
4	165*	Palustrine emergent	33.247558, -96.666942	N/A	N/A
SEGMENT E, CROSSING 5					
5	168*	Perennial stream	33.246221, -96.654502	Yes	No
SEGMENT E, CROSSING 6					
6A	170	Palustrine forested	33.249743, -96.644096	N/A	N/A
6B	171	Palustrine emergent	33.249776, -96.643753		
SEGMENT E, CROSSING 7					
7A	172	Ephemeral stream	33.251272, -96.640619	Yes	No
7B	173	Ephemeral stream	33.251488, -96.639341		
7C	174*	Ephemeral stream	33.251817, -96.639400		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 8					
8A	175	Intermittent stream	33.250685, -96.634914	No	Yes
8B	176	Perennial stream	33.251867, -96.634639		
SEGMENT E, CROSSING 9					
9A	178	Palustrine forested	33.252701, -96.631361	No	Yes
9B	179	Palustrine forested	33.252001, -96.630427		
9C	180	Palustrine emergent	33.251104, -96.629462		
9D	182	Perennial stream	33.251321, -96.627645		
9E	185	Palustrine emergent	33.251157, -96.625670		
SEGMENT E, CROSSING 10					
10	187	Ephemeral stream	33.249546, -96.623804	N/A	N/A
SEGMENT E, CROSSING 11					
11	189	Ephemeral stream	33.235599, -96.630674	N/A	N/A
SEGMENT E, CROSSING 1					
12A	190	Palustrine emergent	33.244049, -96.625342	No	Yes
12B	191	Palustrine emergent	33.245441, -96.625876		
12C	192	Perennial stream	33.246292, -96.623565		
SEGMENT E, CROSSING 13					
13	194	Palustrine emergent	33.250437, -96.619792	N/A	N/A
SEGMENT E, CROSSING 14					
14	196	Intermittent stream	33.251764, -96.618083	N/A	N/A

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 15					
15	198*	Palustrine forested	33.252589, -96.614307	N/A	N/A
SEGMENT E, CROSSING 16					
16A	199	Ephemeral stream	33.254211, -96.614358	N/A	N/A
16B	200	Palustrine forested	33.254996, -96.613371		
SEGMENT E, CROSSING 17					
17A	201	Palustrine forested	33.256341, -96.611674	N/A	N/A
17B	202	Palustrine forested	33.256622, -96.611323		
17C	203*	Palustrine forested	33.255802, -96.610182		
17D	204	Intermittent stream	33.257379, -96.610197		
17E	205	Perennial stream	33.257266, -96.609413		
17F	206	Intermittent stream	33.257357, -96.608135		
17G	207	Palustrine forested	33.257582, -96.607844		
SEGMENT E, CROSSING 18					
18	209	Ephemeral stream	33.259247, -96.607917	N/A	N/A
SEGMENT E, CROSSING 19					
19	212	Intermittent stream	33.263000, -96.603838	N/A	N/A
SEGMENT E, CROSSING 20					
20	215	Ephemeral stream	33.263331 - 96.599624	N/A	N/A

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 21					
21A	218	Intermittent stream	33.269617, -96.596378	N/A	N/A
21B	219	Palustrine emergent	33.269631, -96.596155		
SEGMENT E, CROSSING 22					
22A	220*	Palustrine scrub-shrub	33.249006, -96.617080	No	Yes
22B	221	Palustrine emergent	33.248874, -96.618153		
22C	222	Palustrine forested	33.247368, -96.617542		
22D	223	Pond/Impoundment	33.246915, -96.619293		
22E	224	Ephemeral stream	33.246662, -96.617975		
SEGMENT E, CROSSING 23					
23A	227	Perennial stream	33.244037, -96.615003	N/A	N/A
23B	228*	Palustrine forested	33.243055, -96.614757		
SEGMENT E, CROSSING 24					
24A	231	Perennial stream	33.245586, -96.610250	Yes	No
24B	231A	Perennial stream	33.243895, -96.609092		
SEGMENT C, CROSSING 1					
1	232	Ephemeral stream	33.244123, -96.608077	Yes	No
SEGMENT C, CROSSING 2					
2A	286	Palustrine forested	33.241816, -96.602102	No	Yes
2B	287	Intermittent stream	33.241048, -96.600562		
2C	288	Palustrine emergent	33.239786, -96.600405		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
2D	289	Palustrine forested	33.239861, -96.599787		
2E	290	Palustrine emergent	33.239552, -96.599151		
2F	291	Perennial stream	33.239576, -96.597608		
2G	292*	Intermittent stream	33.240009, -96.596506		
2H	293	Intermittent stream	33.238930, -96.595902		
2I	294*	Intermittent stream	33.238165, -96.595550	No	Yes
2J	295*	Intermittent stream	33.237663, -96.594190		
2K	296*	Palustrine forested	33.239179, -96.594167		
2L	297	Palustrine forested	33.238731, -96.594008		
2M	298*	Palustrine forested	33.237572, -96.592708		
2N	299*	Pond/ Impoundment	33.238020, -96.591986		
SEGMENT C, CROSSING 3					
3A	302*	Ephemeral stream	33.235831, -96.587578	Yes	No
3B	304	Ephemeral stream	33.235493, -96.587832		
3C	305*	Ephemeral stream	33.234379, -96.588183		
SEGMENT C, CROSSING 4					
4A	309*	Ephemeral stream	33.232385, -96.585166	Yes	No
4B	312*	Intermittent stream	33.230799, -96.585407		

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT C, CROSSING 5					
5	317*	Intermittent stream	33.224687, -96.584001	Yes	No
SEGMENT C, CROSSING 6					
6A	318*	Pond/Impoundment	33.216803, -96.584218	Yes	No
6B	319*	Intermittent stream	33.217229, -96.582658		
6C	320*	Ephemeral stream	33.216416, -96.582486		
SEGMENT C, CROSSING 7					
7A	322	Intermittent stream	33.212362, -96.583132	No	Yes
7B	323*	Pond/Impoundment	33.211381, -96.584341		
SEGMENT C, CROSSING 8					
8A	333	Palustrine forested	33.204694, -96.585839	N/A	N/A
8B	334	Palustrine emergent	33.204698, -96.586051		
8C	335	Intermittent stream	33.204502, -96.586364		
SEGMENT C, CROSSING 9					
9A	336*	Intermittent stream	33.198610, -96.579331	No	Yes
9B	337	Intermittent stream	33.199421, -96.577880		
9C	338	Ephemeral stream	33.200058, -96.577682		
9D	339*	Ephemeral stream	33.199887, -96.577462		
9E	340*	Intermittent stream	33.200075, -96.576660		
SEGMENT C, CROSSING 10					
10	342	Ephemeral stream	33.197013, -96.573852	N/A	N/A

Figure 3-43 continued: Water Features within the Blue Alternative

BLUE ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT C, CROSSING 11					
11	347*	Ephemeral stream	33.196025, -96.570289	Yes	No
SEGMENT C, CROSSING 12					
12	351	Ephemeral stream	33.195490, -96.567568	Yes	No
SEGMENT C, CROSSING 13					
13A	358	Perennial stream	33.190381, -96.577237	N/A	N/A
13B	359	Intermittent stream	33.190661, -96.576704		
13C	362	Pond/Impoundment	33.191987, -96.576904		
13D	364	Pond/Impoundment	33.192794, -96.577035		
13E	366	Pond/Impoundment	33.192357, -96.578068		
13F	367	Palustrine forested	33.192725, -96.578163		
13G	368	Pond/Impoundment	33.193769, -96.578011		
13H	370	Pond/Impoundment	33.194065, -96.578005		

*Photo-interpreted

N/A Not applicable; these features are not crossed by the project but are located within the Environmental Footprint or are associated with the proposed Spur 399 Extension and evaluated therein.

Because the impacts provided in the table are based on the May 2023 95% Geometric Design Schematic for the Blue Alternative, and permitting will occur after the design is further refined, permitting needs may change. All necessary permits will be obtained based on the final design.

SOURCE: US 380 McKinney Water Features Delineation Report (October 2022) and Blue Alternative 404/10 Impact Table (May 2023)

Brown Alternative (B+E+C)

Figure 3-44 lists the water features associated with the Brown Alternative (see Figures 2-8 and 2-11).

Approximately 37.60 acres of water features, including streams, are mapped within the Environmental Footprint evaluated for the Brown Alternative. The streams from east to west are Rutherford Branch, Stover Creek, Franklin Branch, and Honey Creek and their tributaries; and the East Fork Trinity River and its tributaries.

Figure 3-44: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT B, CROSSING 1					
1A	5	Palustrine emergent	33.218465, -96.763637		
1B	6	Intermittent stream	33.218306, -96.763060	No	Yes
1C	7	Ephemeral stream	33.218074, -96.762245		
SEGMENT B, CROSSING 2					
2A	8	Ephemeral stream	33.218238, -96.759790	No	Yes
2B	11	Intermittent stream	33.218289, -96.758225		
2C	12*	Intermittent stream	33.218343, -96.757167		
2D	14*	Perennial stream	33.218139, -96.757183		
2E	15*	Perennial stream	33.218250, -96.756545		
2F	16	Perennial stream	33.218613, -96.756079		
2G	17*	Perennial stream	33.218959, -96.756047		
2H	18*	Palustrine forested	33.219598, -96.755041		
2I	19*	Perennial stream	33.219622, -96.755236		
2J	20*	Intermittent stream	33.220075, -96.755335		
2K	21*	Palustrine emergent	33.219966, -96.754664		
SEGMENT B, CROSSING 3					
3A	24*	Ephemeral stream	33.219272, -96.751874		
3B	25	Ephemeral stream	33.218622, -96.751921	Yes	No
3C	26*	Ephemeral stream	33.218410, -96.751938		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT B, CROSSING 4					
4A	30*	Perennial stream	33.218149, -96.748407	No	Yes
4B	31	Perennial stream	33.218763, -96.748396		
4C	32	Palustrine forested	33.219023, -96.748507		
4D	33	Palustrine emergent	33.219978, -96.748478		
4E	37	Perennial stream	33.219339, -96.746994		
4F	124	Pond/Impoundment	33.220264, -96.748534		
4G	125	Palustrine forested	33.219799, -96.747518		
SEGMENT B, CROSSING 5					
5A	127	Intermittent stream	33.225262, -96.743959	Yes	No
SEGMENT B, CROSSING 6					
6A	128*	Palustrine forested	33.227954, -96.739946	No	Yes
6B	129*	Pond/Impoundment	33.228394, -96.740234		
6C	130*	Perennial stream	33.228508, -96.741457		
6D	131*	Perennial stream	33.229666, -96.737644		
6E	132*	Intermittent stream	33.229268, -96.737587		
SEGMENT B, CROSSING 7					
7A	136	Perennial stream	33.233875, -96.732090	No	Yes
7B	137	Palustrine emergent	33.233851, -96.732061		
7C	138	Perennial stream	33.233876, -96.732026		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
7D	139	Ephemeral stream	33.234057, -96.732213		
7E	140	Palustrine emergent	33.234150, -96.732071	No	Yes
7F	142	Perennial stream	33.234912, -96.729925		
SEGMENT B, CROSSING 8					
8	143*	Perennial stream	33.236659, -96.726896	Yes	No
SEGMENT B, CROSSING 9					
9	144*	Perennial stream	33.238332, -96.720178	No	Yes
SEGMENT B, CROSSING 10					
10	145*	Intermittent stream	33.240636, -96.710871	Yes	No
SEGMENT B, CROSSING 11					
11A	123*	Perennial stream	33.243315, -96.703941		
11B	146*	Intermittent stream	33.244158, -96.704012	Yes	No
11C	147*	Pond/Impoundment	33.245694, -96.701397		
11D	148	Intermittent stream	33.246399, -96.700038		
SEGMENT E, CROSSING 1					
1A	147*	Pond/Impoundment	33.245694, -96.701397	Yes	No
1B	148	Intermittent stream	33.246399, -96.700038		
1C	149*	Ephemeral stream	33.246927, -96.699184		
1D	150*	Ephemeral stream	33.246598, -96.698414		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 2					
2A	151*	Other non-stream, non-wetland waterbody	33.247041, -96.691761		
2B	152*	Ephemeral stream	33.246426, -96.692100	Yes	No
2C	153*	Pond/Impoundment	33.245938, -96.691875		
2D	154*	Intermittent stream	33.244453, -96.691061		
SEGMENT E, CROSSING 3					
3A	155*	Ephemeral stream	33.245542, -96.691911	No	Yes
3B	156*	Ephemeral stream	33.244454, -96.691441		
3C	157*	Intermittent stream	33.248581, -96.680349		
3D	158	Intermittent stream	33.247541, -96.679926		
3E	160*	Palustrine emergent	33.246746, -96.679775		
3F	161*	Intermittent stream	33.246272, -96.679629		
3G	162*	Ephemeral stream	33.246427, -96.678601		
3H	163*	Ephemeral stream	33.247688, -96.677824		
SEGMENT E, CROSSING 4					
4	165*	Palustrine emergent	33.247558, -96.666942	N/A	N/A
SEGMENT E, CROSSING 5					
5	168*	Perennial stream	33.246221, -96.654502	Yes	No

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 6					
6A	170	Palustrine forested	33.249743, -96.644096	N/A	N/A
6B	171	Palustrine emergent	33.249776, -96.643753		
SEGMENT E, CROSSING 7					
7A	172	Ephemeral stream	33.251272, -96.640619	Yes	No
7B	173	Ephemeral stream	33.251488, -96.639341		
7C	174*	Ephemeral stream	33.251817, -96.639400		
SEGMENT E, CROSSING 8					
8A	175	Intermittent stream	33.250685, -96.634914	No	Yes
8B	176	Perennial stream	33.251867, -96.634639		
SEGMENT E, CROSSING 9					
9A	178	Palustrine forested	33.252701, -96.631361	No	Yes
9B	179	Palustrine forested	33.252001, -96.630427		
9C	180	Palustrine emergent	33.251104, -96.629462		
9D	182	Perennial stream	33.251321, -96.627645		
9E	185	Palustrine emergent	33.251157, -96.625670		
SEGMENT E, CROSSING 10					
10	187	Ephemeral stream	33.249546, -96.623804	N/A	N/A
SEGMENT E, CROSSING 11					
11	189	Ephemeral stream	33.235599, -96.630674	N/A	N/A

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 12					
12A	190	Palustrine emergent	33.244049, -96.625342		
12B	191	Palustrine emergent	33.245441, -96.625876	No	Yes
12C	192	Perennial stream	33.246292, -96.623565		
SEGMENT E, CROSSING 13					
13	194	Palustrine emergent	33.250437, -96.619792	N/A	N/A
SEGMENT E, CROSSING 14					
14	196	Intermittent stream	33.251764, -96.618083	N/A	N/A
SEGMENT E, CROSSING 15					
15	198*	Palustrine forested	33.252589, -96.614307	N/A	N/A
SEGMENT E, CROSSING 16					
16A	199	Ephemeral stream	33.254211, -96.614358	N/A	N/A
16B	200	Palustrine forested	33.254996, -96.613371		
SEGMENT E, CROSSING 17					
17A	201	Palustrine forested	33.256341, -96.611674	N/A	N/A
17B	202	Palustrine forested	33.256622, -96.611323		
17C	203*	Palustrine forested	33.255802, -96.610182		
17D	204	Intermittent stream	33.257379, -96.610197		
17E	205	Perennial stream	33.257266, -96.609413		
17F	206	Intermittent stream	33.257357, -96.608135		
17G	207	Palustrine forested	33.257582, -96.607844		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 18					
18	209	Ephemeral stream	33.259247, -96.607917	N/A	N/A
SEGMENT E, CROSSING 19					
19	212	Intermittent stream	33.263000, -96.603838	N/A	N/A
SEGMENT E, CROSSING 20					
20	215	Ephemeral stream	33.263331 -96.599624	N/A	N/A
SEGMENT E, CROSSING 21					
21A	218	Intermittent stream	33.269617, -96.596378	N/A	N/A
21B	219	Palustrine emergent	33.269631, -96.596155		
SEGMENT E, CROSSING 22					
22A	220*	Palustrine scrub-shrub	33.249006, -96.617080	No	Yes
22B	221	Palustrine emergent	33.248874, -96.618153		
22C	222	Palustrine forested	33.247368, -96.617542		
22D	223	Pond/Impoundment	33.246915, -96.619293		
22E	224	Ephemeral stream	33.246662, -96.617975		
SEGMENT E, CROSSING 23					
23A	227	Perennial stream	33.244037, -96.615003	N/A	N/A
23B	228*	Palustrine forested	33.243055, -96.614757		
SEGMENT E, CROSSING 24					
24A	231	Perennial stream	33.245586, -96.610250	Yes	No
24B	231A	Perennial stream	33.243895, -96.609092		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT C, CROSSING 1					
1	232	Ephemeral stream	33.244123, -96.608077	Yes	No
SEGMENT C, CROSSING 2					
2A	286	Palustrine forested	33.241816, -96.602102	No	Yes
2B	287	Intermittent stream	33.241048, -96.600562		
2C	288	Palustrine emergent	33.239786, -96.600405		
2D	289	Palustrine forested	33.239861, -96.599787		
2E	290	Palustrine emergent	33.239552, -96.599151		
2F	291	Perennial stream	33.239576, -96.597608		
2G	292*	Intermittent stream	33.240009, -96.596506		
2H	293	Intermittent stream	33.238930, -96.595902		
2I	294*	Intermittent stream	33.238165, -96.595550		
2J	295*	Intermittent stream	33.237663, -96.594190		
2K	296*	Palustrine forested	33.239179, -96.594167		
2L	297	Palustrine forested	33.238731, -96.594008		
2M	298*	Palustrine forested	33.237572, -96.592708		
2N	299*	Pond/Impoundment	33.238020, -96.591986		
SEGMENT C, CROSSING 3					
3A	302*	Ephemeral stream	33.235831, -96.587578	Yes	No
3B	304	Ephemeral stream	33.235493, -96.587832		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
3C	305*	Ephemeral stream	33.234379, -96.588183	Yes	No
SEGMENT C, CROSSING 4					
4A	309*	Ephemeral stream	33.232385, -96.585166	Yes	No
4B	312*	Intermittent stream	33.230799, -96.585407		
SEGMENT C, CROSSING 5					
5	317*	Intermittent stream	33.224687, -96.584001	Yes	No
SEGMENT C, CROSSING 6					
6A	318*	Pond/Impoundment	33.216803, -96.584218	Yes	No
6B	319*	Intermittent stream	33.217229, -96.582658		
6C	320*	Ephemeral stream	33.216416, -96.582486		
SEGMENT C, CROSSING 7					
7A	322	Intermittent stream	33.212362, -96.583132	No	Yes
7B	323*	Pond/Impoundment	33.211381, -96.584341		
SEGMENT C, CROSSING 8					
8A	333	Palustrine forested	33.204694, -96.585839	N/A	N/A
8B	334	Palustrine emergent	33.204698, -96.586051		
8C	335	Intermittent stream	33.204502, -96.586364		
SEGMENT C, CROSSING 9					
9A	336*	Intermittent stream	33.198610, -96.579331	No	Yes
9B	337	Intermittent stream	33.199421, -96.577880		
9C	338	Ephemeral stream	33.200058, -96.577682		

Figure 3-44 continued: Water Features within the Brown Alternative

BROWN ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
9D	339*	Ephemeral stream	33.199887, -96.577462	No	Yes
9E	340*	Intermittent stream	33.200075, -96.576660		
SEGMENT C, CROSSING 10					
10	342	Ephemeral stream	33.197013, -96.573852	Yes	No
SEGMENT C, CROSSING 11					
11	347*	Ephemeral stream	33.196025, -96.570289	Yes	No
SEGMENT C, CROSSING 12					
12	351	Ephemeral stream	33.195490, -96.567568	Yes	No
SEGMENT C, CROSSING 13					
13A	358	Perennial stream	33.190381, -96.577237	N/A	N/A
13B	359	Intermittent stream	33.190661, -96.576704		
13C	362	Pond/Impoundment	33.191987, -96.576904		
13D	364	Pond/Impoundment	33.192794, -96.577035		
13E	366	Pond/Impoundment	33.192357, -96.578068		
13F	367	Palustrine forested	33.192725, -96.578163		
13G	368	Pond/Impoundment	33.193769, -96.578011		
13H	370	Pond/Impoundment	33.194065, -96.578005		

*Photo-interpreted

N/A Not applicable; these features are not crossed by the project but are located within the Environmental Footprint or are associated with the proposed Spur 399 Extension and evaluated therein.

Because the impacts provided in the table are based on the Geometric Schematic Design submitted July 2022, and permitting will occur after the design is further refined, permitting needs may change. All necessary permits will be obtained based on the final design.

SOURCE: US 380 McKinney Water Features Delineation Report and 404/10 Impact Table, October 2022

Gold Alternative (B+E+D)

Figure 3-45 lists the water features associated with the Gold Alternative (see Figures 2-8 and 2-12). Approximately 49.38 acres of water features, including streams, are mapped within the Environmental Footprint evaluated for the Gold Alternative. The streams from east to west are Rutherford Branch, Stover Creek, Franklin Branch, and Honey Creek and their tributaries; and the East Fork Trinity River and its tributaries.

Figure 3-45: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT B, CROSSING 1					
1A	5	Palustrine emergent	33.218465, -96.763637		
1B	6	Intermittent stream	33.218306, -96.763060	No	Yes
1C	7	Ephemeral stream	33.218074, -96.762245		
SEGMENT B, CROSSING 2					
2A	8	Ephemeral stream	33.218238, -96.759790		
2B	11	Intermittent stream	33.218289, -96.758225		
2C	12*	Intermittent stream	33.218343, -96.757167		
2D	14*	Perennial stream	33.218139, -96.757183		
2E	15*	Perennial stream	33.218250, -96.756545		
2F	16	Perennial stream	33.218613, -96.756079	No	Yes
2G	17*	Perennial stream	33.218959, -96.756047		
2H	18*	Palustrine forested	33.219598, -96.755041		
2I	19*	Perennial stream	33.219622, -96.755236		
2J	20*	Intermittent stream	33.220075, -96.755335		
2K	21*	Palustrine emergent	33.219966, -96.754664		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT B, CROSSING 3					
3A	24*	Ephemeral stream	33.219272, -96.751874		
3B	25	Ephemeral stream	33.218622, -96.751921	Yes	No
3C	26*	Ephemeral stream	33.218410, -96.751938		
SEGMENT B, CROSSING 4					
4A	30*	Perennial stream	33.218149, -96.748407	No	Yes
4B	31	Perennial stream	33.218763, -96.748396		
4C	32	Palustrine forested	33.219023, -96.748507		
4D	33	Palustrine emergent	33.219978, -96.748478		
4E	37	Perennial stream	33.219339, -96.746994		
4F	124	Pond/Impoundment	33.220264, -96.748534		
4G	125	Palustrine forested	33.219799, -96.747518		
SEGMENT B, CROSSING 5					
5A	127	Intermittent stream	33.225262, -96.743959	Yes	No
SEGMENT B, CROSSING 6					
6A	128*	Palustrine forested	33.227954, -96.739946	No	Yes
6B	129*	Pond/Impoundment	33.228394, -96.740234		
6C	130*	Perennial stream	33.228508, -96.741457		
6D	131*	Perennial stream	33.229666, -96.737644		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
6E	132*	Intermittent stream	33.229268, -96.737587		
SEGMENT B, CROSSING 7					
7A	136	Perennial stream	33.233875, -96.732090		
7B	137	Palustrine emergent	33.233851, -96.732061		
7C	138	Perennial stream	33.233876, -96.732026		
7D	139	Ephemeral stream	33.234057, -96.732213	No	Yes
7E	140	Palustrine emergent	33.234150, -96.732071		
7F	142	Perennial stream	33.234912, -96.729925		
SEGMENT B, CROSSING 8					
8	143*	Perennial stream	33.236659, -96.726896	Yes	No
SEGMENT B, CROSSING 9					
9	144*	Perennial stream	33.238332, -96.720178	No	Yes
SEGMENT B, CROSSING 10					
10	145*	Intermittent stream	33.240636, -96.710871	Yes	No
SEGMENT B, CROSSING 11					
11A	123*	Perennial stream	33.243315, -96.703941		
11B	146*	Intermittent stream	33.244158, -96.704012		
11C	147*	Pond/Impoundment	33.245694, -96.701397	Yes	No
11D	148	Intermittent stream	33.246399, -96.700038		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 1					
1A	147*	Pond/Impoundment	33.245694, -96.701397	Yes	No
1B	148	Intermittent stream	33.246399, -96.700038		
1C	149*	Ephemeral stream	33.246927, -96.699184		
1D	150*	Ephemeral stream	33.246598, -96.698414		
SEGMENT E, CROSSING 2					
2A	151*	Other non-stream, non-wetland waterbody	33.247041, -96.691761	Yes	No
2B	152*	Ephemeral stream	33.246426, -96.692100		
2C	153*	Pond/Impoundment	33.245938, -96.691875		
2D	154*	Intermittent stream	33.244453, -96.691061		
SEGMENT E, CROSSING 3					
3A	155*	Ephemeral stream	33.245542, -96.691911	No	Yes
3B	156*	Ephemeral stream	33.244454, -96.691441		
3C	157*	Intermittent stream	33.248581, -96.680349		
3D	158	Intermittent stream	33.247541, -96.679926		
3E	160*	Palustrine emergent	33.246746, -96.679775		
3F	161*	Intermittent stream	33.246272, -96.679629		
3G	162*	Ephemeral stream	33.246427, -96.678601		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
3H	163*	Ephemeral stream	33.247688, -96.677824	No	Yes
SEGMENT E, CROSSING 4					
4	165*	Palustrine emergent	33.247558, -96.666942	N/A	N/A
SEGMENT E, CROSSING 5					
5	168*	Perennial stream	33.246221, -96.654502	Yes	No
SEGMENT E, CROSSING 6					
6A	170	Palustrine forested	33.249743, -96.644096	N/A	N/A
6B	171	Palustrine emergent	33.249776, -96.643753		
SEGMENT E, CROSSING 7					
7A	172	Ephemeral stream	33.251272, -96.640619	Yes	No
7B	173	Ephemeral stream	33.251488, -96.639341		
7C	174*	Ephemeral stream	33.251817, -96.639400		
SEGMENT E, CROSSING 8					
8A	175	Intermittent stream	33.250685, -96.634914	No	Yes
8B	176	Perennial stream	33.251867, -96.634639		
SEGMENT E, CROSSING 9					
9A	178	Palustrine forested	33.252701, -96.631361	No	Yes
9B	179	Palustrine forested	33.252001, -96.630427		
9C	180	Palustrine emergent	33.251104, -96.629462		
9D	182	Perennial stream	33.251321, -96.627645		
9E	185	Palustrine emergent	33.251157, -96.625670		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 10					
10	187	Ephemeral stream	33.249546,9 6.623804	N/A	N/A
SEGMENT E, CROSSING 11					
11	189	Ephemeral stream	33.235599, -96.630674	N/A	N/A
SEGMENT E, CROSSING 12					
12A	190	Palustrine emergent	33.244049, -96.625342	No	Yes
12B	191	Palustrine emergent	33.245441, -96.625876		
12C	192	Perennial stream	33.246292, -96.623565		
SEGMENT E, CROSSING 13					
13	194	Palustrine emergent	33.250437, -96.619792	N/A	N/A
SEGMENT E, CROSSING 14					
14	196	Intermittent stream	33.251764, -96.618083	N/A	N/A
SEGMENT E, CROSSING 15					
15	198*	Palustrine forested	33.252589, -96.614307	N/A	N/A
SEGMENT E, CROSSING 16					
16A	199	Ephemeral stream	33.254211 - 96.614358	N/A	N/A
16B	200	Palustrine forested	33.254996, -96.613371		
SEGMENT E, CROSSING 17					
17A	201	Palustrine forested	33.256341, -96.611674	N/A	N/A
17B	202	Palustrine forested	33.256622, -96.611323		
17C	203*	Palustrine forested	33.255802, -96.610182		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
17D	204	Intermittent stream	33.257379, -96.610197	N/A	N/A
17E	205	Perennial stream	33.257266, -96.609413		
17F	206	Intermittent stream	33.257357, -96.608135		
17G	207	Palustrine forested	33.257582, -96.607844		
SEGMENT E, CROSSING 18					
18	209	Ephemeral stream	33.259247, -96.607917	N/A	N/A
SEGMENT E, CROSSING 19					
19	212	Intermittent stream	33.263000, -96.603838	N/A	N/A
SEGMENT E, CROSSING 20					
20	215	Ephemeral stream	33.263331, -96.599624	N/A	N/A
SEGMENT E, CROSSING 21					
21A	218	Intermittent stream	33.269617, -96.596378	N/A	N/A
21B	219	Palustrine emergent	33.269631, -96.596155		
SEGMENT E, CROSSING 22					
22A	220*	Palustrine scrub-shrub	33.249006, -96.617080	No	Yes
22B	221	Palustrine emergent	33.248874, -96.618153		
22C	222	Palustrine forested	33.247368, -96.617542		
22D	223	Pond/Impoundment	33.246915, -96.619293		
22E	224	Ephemeral stream	33.246662, -96.617975		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
SEGMENT E, CROSSING 23					
23A	227	Perennial stream	33.244037, -96.615003	N/A	N/A
23B	228*	Palustrine forested	33.243055, -96.614757		
SEGMENT E, CROSSING 24					
24A	231	Perennial stream	33.245586, -96.610250	Yes	No
24B	231A	Perennial stream	33.243895, -96.609092		
SEGMENT D, CROSSING 1					
1	232	Ephemeral stream	33.244123, -96.608077	Yes	No
SEGMENT D, CROSSING 2					
2A	233	Palustrine emergent	33.238427, -96.600567	No	Yes
2B	234	Perennial stream	33.237547, -96.602079		
SEGMENT D, CROSSING 3					
3	235	Perennial stream	33.235245, -96.600091	Yes	No
SEGMENT D, CROSSING 4					
4	236	Perennial stream	33.226427, -96.594895	N/A	N/A
SEGMENT D, CROSSING 5					
5A	237	Palustrine emergent	33.222156, -96.599051	No	Yes
5B	238*	Palustrine emergent	33.221288, -96.599271		
5C	239*	Palustrine emergent	33.221025, -96.599104		
5D	240*	Palustrine emergent	33.220494, -96.598161		
5E	241*	Perennial stream	33.219433, -96.600522		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
5F	242	Perennial stream	33.219487,-96.600146	No	Yes
5G	243*	Perennial stream	33.219520,-96.598770		
SEGMENT D, CROSSING 6					
6A	244*	Palustrine emergent	33.217489,-96.597855	No	Yes
6B	245*	Palustrine emergent	33.215840,-96.598849		
SEGMENT D, CROSSING 7					
7A	246*	Palustrine emergent	33.213372,-96.597739	No	Yes
7B	247*	Palustrine emergent	33.213630,-96.598832		
7C	248*	Intermittent stream	33.213433,-96.599171		
7D	249*	Palustrine emergent	33.212561,-96.598843		
7E	250*	Palustrine forested	33.211530,-96.598204		
7F	251*	Palustrine emergent	33.210946,-96.599171		
7G	252*	Palustrine emergent	33.209853,-96.599061		
7H	254*	Palustrine emergent	33.208363,-96.598621		
7I	255*	Palustrine emergent	33.207979,-96.599244		
7J	256*	Palustrine emergent	33.207611,-96.600303		
7K	258	Pond/Impoundment	33.206645,-96.600286		
7L	259	Palustrine emergent	33.206064,-96.599821		
7M	260*	Palustrine emergent	33.205965,-96.599456		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
7N	261	Perennial stream	33.205839, -96.600270	No	Yes
7O	262	Perennial stream	33.205828, -96.600035		
7P	263*	Perennial stream	33.205404, -96.599420		
7Q	264	Palustrine forested	33.205275, -96.600081		
7R	265*	Palustrine forested	33.205106, -96.599609		
7S	266*	Intermittent stream	33.205059, -96.598912		
7T	267*	Ephemeral stream	33.204858, -96.598721		
7U	268*	Ephemeral stream	33.204910, -96.598655		
7V	269	Intermittent stream	33.204744, -96.598906		
7W	270*	Intermittent stream	33.204775, -96.598343		
7X	271	Intermittent stream	33.204740, -96.597422		
7Y	272*	Perennial stream	33.205744, -96.596613		
7Z	273	Perennial stream	33.203712, -96.596520		
7AA	274*	Palustrine forested	33.203726, -96.594190		
SEGMENT D, CROSSING 8					
8A	276*	Palustrine emergent	33.203361, -96.586127	No	Yes
8B	277*	Palustrine emergent	33.201758, -96.586379		
8C	278*	Palustrine emergent	33.201483, -96.585436		
8D	279*	Palustrine emergent	33.201723, -96.584262		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
8E	280*	Pond/Impoundment	33.201973, -96.583998	No	Yes
8F	282*	Intermittent stream	33.200788, -96.584407		
8G	283	Intermittent stream	33.199895, -96.584019		
8H	285	Ephemeral stream	33.199700, -96.583092		
SEGMENT D, CROSSING 9					
9A	336*	Intermittent stream	33.198610, -96.579331	Yes	No
9B	337	Intermittent stream	33.199421, -96.577880		
9C	338	Ephemeral stream	33.200058, -96.577682		
9D	339*	Ephemeral stream	33.199887, -96.577462		
9E	340*	Intermittent stream	33.200075, -96.576660		
SEGMENT D, CROSSING 10					
10	342	Ephemeral stream	33.197013, -96.573852	N/A	N/A
SEGMENT D, CROSSING 11					
11	347*	Ephemeral stream	33.196025, -96.570289	N/A	N/A
SEGMENT D, CROSSING 12					
12	351	Ephemeral stream	33.195490, -96.567568	N/A	N/A
SEGMENT D, CROSSING 13					
13A	353*	Intermittent stream	33.198463, -96.599552	N/A	N/A
13B	354	Intermittent stream	33.198545, -96.598042		
13C	355*	Perennial stream	33.202223, -96.600293		

Figure 3-45 continued: Water Features within the Gold Alternative

GOLD ALTERNATIVE Crossing Number	Name of the Water Feature	Water Feature Type	Water Feature Location (Lat/Lon)	Covered by Non-reporting NWP under Section 404?	NWP w/PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404?
13D	356	Perennial stream	33.202855, -96.598315	N/A	N/A

*Photo-interpreted

N/A Not applicable; these features are not crossed by the project but are located within the Environmental Footprint or are associated with the proposed Spur 399 Extension and evaluated therein.

Because the impacts provided in the table are based on the Geometric Schematic Design submitted July 2022, and permitting will occur after the design is further refined, permitting needs may change. All necessary permits will be obtained based on the final design. SOURCE: US 380 McKinney Water Features Delineation Report and 404/10 Impact Table, October 2022

TxDOT submitted the Water Features Delineation Report to the USACE Fort Worth District for review on October 14, 2022. The USACE acknowledged the assessment in the report appeared reasonable on January 3, 2023 (see correspondence in **Appendix E**). The Water Features Delineation Report and 404/10 Impact Tables were updated in November 2022 to account for schematic design changes to all Build Alternatives. The 404/10 Impact Table for the Blue Alternative was revised again in May 2023 to account for the schematic design changes presented at the public hearing and made part of the May 2023 95% Geometric Design Schematic for the Blue Alternative. Coordination with the USACE following issuance of the ROD is necessary to determine if TxDOT should request an Approved Jurisdictional Determination (AJD) based on the 2022 Water Features Delineation Report. Any additional field delineations that need to be conducted, particularly on properties where right of entry was previously denied, would occur after TxDOT has acquired the ROW for the Blue Alternative.

Regardless of the alternative constructed for the US 380 McKinney project, both permanent and temporary impacts would occur to potentially jurisdictional WOTUS constituting a regulated activity.⁴⁶ Permanent impacts are defined as any cut or fill material placed within a WOTUS that is not removed and/or returned to pre-construction elevations upon completion of construction. This includes but is not limited to earthen cut or fill, placement of structural fill such as columns or permanent culverts, and material redeposit. Additionally, vegetation clearing resulting in a discharge into a WOTUS (e.g., below ground disturbance) or that converts a WOTUS to another type of jurisdictional water feature (e.g., a forested wetland to an emergent wetland) is considered a permanent impact. Permanent loss is defined as the conversion of a WOTUS to an upland, thus resulting in the elimination of the water feature. Temporary impacts would include, but are not limited to, the effects of heavy equipment use or temporary placement of a culvert within a wetland boundary or below the ordinary high-water mark (OHWM) of a stream where the area is returned to pre-construction contours and revegetated as appropriate upon completion. For all four Build Alternatives, temporary construction impacts would be minimal with implementation of best management practices (BMPs) or activities (e.g., use of work platforms, coffer dams, temporary access roads, etc.) designed to minimize impacts to existing water features.

⁴⁶ Because the Navigable Waters Protection Rule (NWPR) was vacated in August 2021, the *Rapanos Guidance*, issued December 2, 2008, was applied to the review of the water features identified during development of the DEIS, and to determine the potential jurisdictionality of the water features affected by the project.

An initial impact assessment (see **Appendix N, Section 404/10 Impact Table**) was conducted based on the July 2022 Geometric Design Schematic developed for all Build Alternatives with updates made to only the Preferred Alternative/Blue Alternative in this FEIS based on the May 2023 95% Geometric Design Schematic as presented in **Figure 3-46**. The Blue Alternative W/Spur 399 would permanently impact 0.06 acres of wetlands, 0.39 acres of ponds, and 9,690 LF of streams; and temporarily impact 9.36 acres of wetlands, 0.29 acres of ponds, and 10,002 LF of streams.

The Purple Alternative would permanently impact 1.03 acres of wetlands, 0.37 acres of ponds, and 9,185 LF of streams W/O and W/Spur; and temporarily impact 9.95 acres of wetlands, 1.38 acres of ponds, and 9,978 LF of streams W/O and W/Spur. The Brown Alternative would permanently impact 0.51 acres of wetlands, 0.01 acres of ponds, and 7,951 LF of streams W/O Spur (0.62 acres, 0.01 acres, and 7,951 LF W/Spur); and temporarily impact 9.05 acres of wetlands, 2.59 acres of ponds, and 8,328 LF of streams W/O Spur (12.78 acres, 2.59 acres, and 8,328 LF W/Spur). The Gold Alternative would permanently impact 0.82 acres of wetlands, no ponds, and 6,783 LF of streams W/O and W/Spur; and temporarily impact 11.27 acres of wetlands, 3.68 acres of ponds, and 9,010 LF of streams W/O and W/Spur.

Discharges of dredged or fill material into WOTUS, including wetlands, require permit authorization from the USACE under Section 404 of the Clean Water Act (CWA) prior to the initiation of project activities involving discharges.

Typically for linear transportation projects, if no more than 0.50 acre of loss of non-tidal WOTUS occurs at a single and complete crossing, the impacts to any WOTUS, including wetlands could be authorized under NWP 14. Loss of greater than 0.50 acre would require an Individual Standard Permit. For NWP 14, a loss that exceeds 0.10 acre of discharge into a special aquatic site, including wetlands, would require a PCN. Based on the initial impact assessment described above, all Build Alternatives would meet the terms and conditions of NWP 14 with a PCN for the crossings of Rutherford Branch, Wilson Creek, Honey Creek, the East Fork Trinity River and their respective tributaries, as a result of minimal loss of these water features. The NWP 14 PCN for this project would likely be submitted under the 2021 reauthorization of the permit that went into effect in February 2022 and follows the 2021 NWP general conditions. All permitting would be consistent with the 2021 NWP general conditions and the 2021-Combined Regional Conditions for Texas.

Figure 3-46: Water Features within the Proposed ROW of the Purple, Blue, Brown, and Gold Alternatives

Water Feature Type	Type of Impact	Purple Alternative W/O Spur	Purple Alternative W/Spur	Blue Alternative W/O Spur	Blue Alternative W/Spur	Brown Alternative W/O Spur	Brown Alternative W/Spur	Gold Alternative W/O Spur	Gold Alternative W/Spur
Ephemeral Stream	Permanent	0.37 ac (3,723 LF)	0.37 ac (3,723 LF)	0.51 ac (4,850 LF)	0.56 ac (5,359 LF)	0.36 ac (3,045 LF)	0.36 ac (3,045 LF)	0.22 ac (1,998 LF)	0.22 ac (1,998 LF)
	Temporary	0.12 ac (1,758 LF)	0.12 ac (1,758 LF)	0.15 ac (1,968 LF)	0.68 ac (1,363 LF)	0.05 ac (648 LF)	0.05 ac (648 LF)	0.02 ac (438 LF)	0.02 ac (438 LF)
Intermittent Stream	Permanent	0.50 ac (2,702 LF)	0.50 ac (2,702 LF)	0.74 ac (3,064 LF)	0.58 ac (3,093 LF)	0.58 ac (2,656 LF)	0.58 ac (2,656 LF)	0.43 ac (2,294 LF)	0.43 ac (2,294 LF)
	Temporary	0.38 ac (2,504 LF)	0.38 ac (2,504 LF)	1.08 ac (3,757 LF)	1.04 ac (3,872 LF)	0.99 ac (2,887 LF)	0.92 ac (2,887 LF)	0.29 ac (1,634 LF)	0.29 ac (1,634 LF)
Perennial Stream	Permanent	0.77 ac (2,760 LF)	0.77 ac (2,760 LF)	0.71 ac (2,519 LF)	0.26 ac (1,238 LF)	0.65 ac (2,250 LF)	0.65 ac (2,250 LF)	0.71 ac (2,491 LF)	0.71 ac (2,491 LF)
	Temporary	4.07 ac (5,716 LF)	4.07 ac (5,716 LF)	2.20 ac (3,571 LF)	2.64 ac (4,767 LF)	2.87 ac (4,793 LF)	2.87 ac (4,793 LF)	4.74 ac (6,938 LF)	4.74 ac (6,938 LF)
Stream Impact Subtotals	Permanent	1.64 ac (9,185 LF)	1.64 ac (9,185 LF)	1.96 ac (10,433 LF)	1.40 ac (9,690 LF)	1.59 ac (7,951 LF)	1.59 ac (7,951 LF)	1.36 ac (6,783 LF)	1.36 ac (6,783 LF)
	Temporary	4.57 ac (9,978 LF)	4.25 ac (9,978 LF)	3.43 ac (9,296 LF)	4.36 ac (10,002 LF)	3.91 ac (8,328 LF)	3.84 ac (8,328 LF)	5.05 ac (9,010 LF)	5.05 ac (9,010 LF)
Palustrine Forested Wetland	Permanent	0.46 ac	0.46 ac	0.48 ac	0.02 ac	0.29 ac	0.29 ac	0.27 ac	0.27 ac
	Temporary	2.15 ac	2.15 ac	5.32 ac	6.44 ac	5.67 ac	5.67 ac	2.50 ac	2.50 ac
Palustrine Scrub-Shrub Wetland	Permanent	0.00 ac	0.00 ac	0.00 ac	0.01 ac	0.00 ac	0.00 ac	0.00 ac	0.00 ac
	Temporary	0.91 ac	0.91 ac	0.91 ac	0.49 ac	0.91 ac	0.91 ac	0.91 ac	0.91 ac
Palustrine Emergent Wetland	Permanent	0.57 ac	0.57 ac	0.24 ac	0.03 ac	0.22 ac	0.33 ac	0.55 ac	0.55 ac
	Temporary	6.89 ac	6.89 ac	1.50 ac	2.43 ac	2.47 ac	6.20 ac	7.86 ac	7.86 ac
Wetland Impact Subtotals	Permanent	1.03 ac	1.03 ac	0.72 ac	0.06 ac	0.51 ac	0.62 ac	0.82 ac	0.82 ac
	Temporary	9.95 ac	9.95 ac	7.73 ac	9.36 ac	9.05 ac	12.78 ac	11.27 ac	11.27 ac

Figure 3-46 continued: Water Features within the Proposed ROW of the Purple, Blue, Brown, and Gold Alternatives

Water Feature Type	Type of Impact	Purple Alternative W/O Spur	Purple Alternative W/Spur	Blue Alternative W/O Spur	Blue Alternative W/Spur	Brown Alternative W/O Spur	Brown Alternative W/Spur	Gold Alternative W/O Spur	Gold Alternative W/Spur
Pond/ Impoundment	Permanent	0.37 ac	0.37 ac	0.38 ac	0.39 ac	0.01 ac	0.01 ac	0.00 ac	0.00 ac
	Temporary	1.38 ac	1.38 ac	0.29 ac	0.29 ac	2.59 ac	2.59 ac	3.68 ac	3.68 ac
TOTAL WATER FEATURE IMPACTS	Permanent	3.04 ac (9,185 LF)	3.04 ac (9,185 LF)	3.06 ac (10,433 LF)	1.85 ac (9,690 LF)	2.11 ac (7,951 LF)	2.22 ac (7,951 LF)	2.18 ac (6,783 LF)	2.18 ac (6,783 LF)
	Temporary	15.90 ac (9,978 LF)	15.90 ac (9,978 LF)	11.45 ac (9,296 LF)	14.01 ac (10,002 LF)	15.55 ac (8,328 LF)	19.21 ac (8,328 LF)	20.00 ac (9,010 LF)	20.00 ac (9,010 LF)

SOURCE: Appendix N – Section 404/10 Impact Tables for Purple, Brown, and Gold Alternatives (updated October 2022), Section 404/10 Impact Table for the Blue Alternative (May 2023) provided in Appendix N, and based on the May 2023 Geometric Design Schematic for the Blue Alternative provided in Appendix B.

Mitigation will be required for the following:

- 1) Loss of wetlands that exceed 0.10 acre at a single and complete crossing and triggers a PCN [General Condition (GC) 23(c)].
- 2) Loss of streams that exceed 0.03 acre at a single and complete crossing and triggers a PCN [GC 23(d)].
- 3) Loss that exceeds 0.010 acre, including open water features, to ensure that adverse environmental effects are no more than minimal [GC 23(b)].
- 4) Loss of streams that exceed 0.03 acre at a single and complete crossing and do not, in and of themselves at that particular single and complete crossing, trigger a PCN, so long as one or more of the single and complete crossings on the linear transportation project do trigger a PCN [GC 23(d)], and
- 5) In cases where loss of forested or scrub shrub wetlands are converted to emergent wetlands, mitigation may be required [GC 23(i)].

Figure 3-47 lists the applicable general conditions for mitigation requirements that would apply to the water features impacted by the Preferred Alternative/Blue Alternative – Segment A, E, and C.

Figure 3-47: Applicable General Conditions for Mitigation Measures Required for Impacts to Water Features Under the Preferred Alternative/Blue Alternative (A+E+C)

Preferred Alternative/ Blue Alternative Segment	Water Feature ID Number	Applicable General Conditions
Segment A	5	within crossing that triggers GC 23(d)
	6	GC 23(d)
	15*	within crossing that triggers GC 23(d)
	16	GC 23(d)
	18*	GC 23(i) and within crossing that triggers GC 23(d)
	19*	within crossing that triggers GC 23(c) and (d)
	30*	within crossing that triggers GC 23(c) and (d)
	31	within crossing that triggers GC 23(c)
	32	GC 23(i) and within crossing that triggers GC 23(c)
	33	within crossing that triggers GC 23(c)
	37	within crossing that triggers GC 23(c)
	45	within crossing that triggers GC 23(d)
	46*	within crossing that triggers GC 23(d)
	50*	within crossing that triggers GC 23(d)
	51	within crossing that triggers GC 23(d)
	52*	within crossing that triggers GC 23(d)
	61	within crossing that triggers GC 23(d)
	62	GC 23(d)
63	within crossing that triggers GC 23(d)	
65	within crossing that triggers GC 23(d)	
70	GC 23(d)	

Figure 3-47 continued: Applicable General Conditions for Mitigation Measures Required for Impacts to Water Features Under the Preferred Alternative/Blue Alternative (A+E+C)

Preferred Alternative/ Blue Alternative Segment	Water Feature ID Number	Applicable General Conditions
Segment A	84	within crossing that triggers GC 23(d)
	85	within crossing that triggers GC 23(d)
	88	within crossing that triggers GC 23(d)
	89	within crossing that triggers GC 23(d)
	94	GC 23(d)
	103*	within crossing that triggers GC 23(d)
	105	within crossing that triggers GC 23(d)
	107	within crossing that triggers GC 23(d)
	109	within crossing that triggers GC 23(d)
	113	within crossing that triggers GC 23(d)
	115	GC 23(d)
	118	GC 23(c)
	119	within crossing that triggers GC 23(c)
	120	within crossing that triggers GC 23(c)
Segment E	148	within crossing that triggers GC 23(d)
	149*	within crossing that triggers GC 23(d)
	150*	GC 23(d)
	157*	GC 23(d) and within crossing that triggers GC 23(c)
	158	GC 23(d) and within crossing that triggers GC 23(c)
	160*	within crossing that triggers GC 23(c) and (d)
	161*	within crossing that triggers GC 23(c) and (d)
	162*	within crossing that triggers GC 23(c) and (d)
	163*	GC 23(d) and within crossing that triggers GC 23(c)
	168	GC 23(c) and (d)
	176	GC 23(d)
	179	GC 23(f)(6)(i)
222	GC 23(f)(6)(i)	
Segment C	289	GC 23(f)(6)(i)
	297	GC 23(f)(6)(i)
	298*	GC 23(f)(6)(i)
	304	within crossing that triggers GC 23(d)
	305*	within crossing that triggers GC 23(d)
	320*	GC 23(d)
	322	GC 23(c) and (d)
	323*	within crossing that triggers GC 23(c) and (d)

Figure 3-47 continued: Applicable General Conditions for Mitigation Measures Required for Impacts to Water Features Under the Preferred Alternative/Blue Alternative (A+E+C)

Preferred Alternative/ Blue Alternative Segment	Water Feature ID Number	Applicable General Conditions
Segment C	336*	within crossing that triggers GC 23(c) and (d)
	337	GC 23(d)
	340*	within crossing that triggers GC 23(c) and (d)

*Photo-interpreted

SOURCE: Appendix N – Section 404/10 Impact Table for Preferred Alternative- Segments A, E, and C (May 2023)

Per the 2008 final rule on Compensatory Mitigation for Losses of Aquatic Resources, TxDOT would pursue the purchase of appropriate mitigation credits from an approved mitigation bank to compensate for the unavoidable loss of aquatic resources. USACE prefers the use of mitigation banks over permittee-responsible mitigation when a project impacts WOTUS, including wetlands. TxDOT would follow their standard operating procedure for acquiring and/or purchasing Section 404 compensatory mitigation credits for these affected features.

The need for an Individual Standard Permit under Section 404 is not anticipated for any of the Build Alternatives including the Preferred Alternative. If it is determined during final design that an Individual Standard Permit under Section 404 is needed for the Preferred Alternative, compliance with the U.S. Environmental Protection Agency (EPA)'s Section 404(b)(1) Guidelines would be confirmed prior to submittal of the Individual Standard Permit application.

No-Build Alternative

Under the No-Build Alternative, no construction activity or ROW acquisition would occur; therefore, no direct effects on WOTUS or other water resources would occur. Water bodies within or traversing existing ROW would continue to be maintained to expedite the conveyance of storm water flows. Vegetated riparian areas adjacent to water bodies within existing ROW would likely persist in their present condition.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative would involve regulated activity in jurisdictional waters and therefore would require authorization under Section 404. **Figure 3-43** lists the waters that are anticipated to be jurisdictional in which regulated activity is anticipated to take place for the Blue Alternative. It also indicates whether the impacts would be authorized under Section 404 by a non-reporting NWP (i.e., no PCN required), or would require a NWP with PCN, Individual Standard Permit, Letter of Permission, or Regional General Permit. Photo interpreted water features will be field delineated after TxDOT acquires the property and before beginning the permitting process. At that time, TxDOT will schedule a field review with the USACE.

Design refinements made in the May 2023 95% Geometric Design Schematic following the public hearing included reductions in bridge spans (length) and pier or column relocations that changed some of the permanent and temporary water impact calculations along with shifts in the proposed ROW limits in other areas. Areas where these design refinements changed the impacts disclosed in the DEIS occurred (from west to east):

- Segment A - Two wetland/stream crossings along existing US 380 (east of Lakewood Drive) where Rutherford Branch is dammed to form SCS Site 1B were further minimized with bridge

additions/modifications, and a westward shift in the north-south section of Segment A increased wetland impacts but decreased stream crossing impacts.

- Segment E – Horizontal and vertical alignment shifts changed wetland (primarily temporary) impacts at the US 75 interchange.
- Segment C – Proposed ROW and alignment changes within the US 380 McKinney/Spur 399 Extension interchange changed wetland and stream impacts.

As summarized in **Figure 3-46**, the design revisions made to the Blue Alternative (W/Spur) would permanently impact 0.06 acres of wetlands, 0.39 acres of ponds, and 9,690 LF of streams; and temporarily impact 9.36 acres of wetlands, 0.29 acres of ponds, and 10,002 LF of streams. Within the proposed ROW presented on the May 2023 95% Geometric Design Schematic, an additional 19 LF of Water Feature 6 are impacted that is outside of the previously defined Environmental Footprint.

Approximately 6,192 cubic yards of permanent fill and approximately 11,874 cubic yards of temporary fill placed within potential WOTUS would result from the Blue Alternative W/Spur. Compensatory mitigation would include the purchase of mitigation credits from USACE-approved wetland and stream mitigation banks within the service area of the project. Because of the highly variable nature of mitigation bank ratios and credit availability, the exact number of credits needed for the project would be determined upon final design. The number of credits to be purchased would be based on appropriate mitigation ratios as approved by the USACE or outlined in the individual mitigation bank instrument. An Individual Standard Permit under Section 404 is not anticipated for construction of the Blue Alternative. If during final design it is determined that an Individual Standard Permit under Section 404 is needed, compliance with EPA's Section 404(b)(1) Guidelines would be confirmed prior to submittal of the Individual Standard Permit application.

TxDOT has not identified and will not evaluate potential material source/borrow locations or spoil locations to support construction of the proposed project. TxDOT will require the contractor to identify borrow and spoil sites, test the suitability of the materials, and acquire rights and obtain permits to use such sites.

3.10.2 Clean Water Act Section 401

Build Alternatives

All Build Alternatives would require a NWP under Section 404 regardless of whether the NWP is non-reporting, or requires the submission of a PCN. For projects that require a NWP under Section 404 that is covered by TCEQ's blanket 401 water quality certification, regardless of whether the NWP is non-reporting, or requires the submission of a PCN, TxDOT complies with Section 401 of the Clean Water Act by implementing TCEQ conditions for NWPs. For projects that require authorization under a NWP under Section 404 that is not covered by TCEQ's blanket 401 water quality certification, or under an Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404, TxDOT will coordinate the Section 401 water quality certification with TCEQ. TCEQ will either approve or deny the Section 401 water quality certification or issue a waiver. The TCEQ Section 401 water quality certification decision must be submitted to the USACE before use of the NWP can be confirmed, or an Individual Standard Permit, Letter of Permission, or Regional General Permit decision can be made.

No-Build Alternative

No construction would occur; therefore, the No-Build Alternative would have no direct effects on wetlands or WOTUS, and no permits under Section 404 or compliance under Section 401 would be required.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative would require authorization under a NWP from the USACE. TxDOT would comply with Section 401 of the CWA by implementing TCEQ conditions for the NWPs. A combination of temporary and permanent BMPs and general construction-phase BMPs may be implemented to minimize impacts to water quality including but not limited to: permanent upstream stormwater detention ponds, vegetated filter strips, erosion control measures (e.g., hydro-seeding, mulching, erosion-control blankets), and sediment control through the use of structures and vegetative measures to stabilize soil.

3.10.3 Executive Order 11990 Wetlands

Executive Order 11990 mandates that federal agencies *take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands*. EO 11990 applies to actions undertaken and/or funded by federal agencies; therefore, EO 11990 applies to the proposed US 380 McKinney project. EO 11990 prohibits new construction in wetlands unless (1) there is no practicable alternative to such construction, and (2) the project includes all practicable measures to minimize harm to wetlands.

3.10.3.1 No Practicable Alternative

The proposed action is needed to address increased congestion, provide capacity to improve east-west mobility, and address safety along existing US 380 through the McKinney area. Improvement of existing US 380 cannot feasibly address these needs without displacing numerous businesses and residences and disrupting access into neighborhoods, commercial centers, and community facilities due to the width of the ROW needed to provide the proposed freeway facility. The proposed new location Build Alternatives would connect to existing US 380 on the west and east sides of McKinney while also connecting to the existing and proposed transportation network, including US 75 and SH 5, through grade-separated interchanges and at-grade connections to the frontage road system. The Build Alternatives are constrained by residential neighborhoods, commercial development, parklands, and floodplains/floodways associated with numerous streams and rivers crossing the Study Area in a general northwest to southeast direction depicted on **Figure 3-50** and on the resource maps for each Build Alternative in **Appendix D**. Because of the general east-west trajectory of the Build Alternatives and the more north-south orientation of the streams and rivers, crossing of these water features and associated wetlands cannot be avoided by any of the Build Alternatives. Therefore, no practicable alternative exists to the crossing of stream and river features and associated wetlands within the Project Area.

3.10.3.2 Project Includes All Practicable Measures to Minimize Harm to Wetlands

The design of each Build Alternative includes the use of bridges and elevated roadway sections over stream crossings and wetland areas, including minimizing the clearing of riparian vegetation and forested wetlands and spanning stream channels to avoid the placement of bridge piers below the OHWM. The placement of permanent fill materials within jurisdictional areas would be minimized to the greatest extent possible during final design while balancing the effect of those design changes on total project construction costs. In addition,

BMPs (described in **Section 3.10.5**) would be implemented during construction to minimize harm to streams, wetlands, and water quality.

As the schematic design evolved and the hydraulic analysis was completed, additional design improvements were made to avoid and minimize impacts on wetlands where feasible. Based on the physical constraints described, the presence of wetlands and other water features that cross the proposed ROW, and the relation of the proposed project to the existing transportation system, no practicable alternatives exist to completely avoid impacts to wetlands.

Preferred Alternative - Blue Alternative (A+E+C)

There is no practicable alternative to construction in wetlands. Complete avoidance is not practicable because of the orientation of the Blue Alternative, the orientation of Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, East Fork Trinity River and their tributaries, and the need to connect to existing north-south (US 75 and SH 5) and east-west (US 380) highway corridors. The alignment of the Blue Alternative includes all practicable measures to minimize harm including the use of bridges and elevated roadway sections to span wetland areas, stream channels, and floodplains and floodways, where feasible. To cross the East Fork Trinity River, fill would be placed below the 100-year floodplain water surface elevation requiring the need to create additional flood storage within the proposed ROW (see **Section 3.10.7**). Areas excavated within the floodplain and ROW could also become wetland habitats through recolonization or planting. The additional costs of spanning areas beyond stream channels and floodplains will continue to be evaluated against the benefit to the project as the final design of the Blue Alternative progresses.

3.10.4 Rivers and Harbors Act

Build Alternatives

None of the Build Alternatives would require a Section 10 permit from the USACE or a Section 9 permit from the U.S. Coast Guard (USCG) under the Rivers and Harbors of Act. None of the rivers crossed by the Build Alternatives are considered navigable. None of the water feature crossings affect any civil works projects (e.g., sea walls, bulkheads, reservoirs, levees, wharfs, or associated federal land [fee simple] or easements). Therefore, none of the Build Alternatives would require a permit under Section 14 of the Rivers and Harbors Act (commonly referred to as Section 408 because it is codified in USC Title 33, Chapter 9, Subchapter I, Section 408).

No-Build Alternatives

The No-Build Alternative involves no construction and does not cross any navigable waterways.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative would not require a Section 10 permit from the USACE or a Section 9 permit from the USCG. The Blue Alternative would not require a Section 408 permit from the USACE.

3.10.5 Clean Water Act Section 303(d)

Section 303(d) of the Clean Water Act is a mechanism to list impaired, or threatened to be impaired, waters and set Total Maximum Daily Loads (TMDLs) for these waterbodies. Impaired waters are those that do not meet state water quality standards. A TMDL establishes the maximum amount of a pollutant, from point

sources and non-point sources, that can occur within the waterbody and still meet state water quality standards.

Build Alternatives

Segment 0821C of Wilson Creek and Segment 0821D of the East Fork Trinity River above Lavon Lake are both impaired in the “East Fork Trinity River-Lake Lavon” watershed, as noted in **Figure 3-48**. The impairment of both segments is due to bacteria in the water. All Build Alternatives are within five linear miles (not stream miles) of, are within the watershed of, and drain to, these assessment units considered impaired under Section 303(d) of the CWA.

Figure 3-48: Impaired Assessment Units within Five Aerial Miles of the US 380 McKinney Project

Watershed	Segment Name	Segment Number	Assessment Unit Number
East Fork Trinity River-Lake Lavon	East Fork Trinity River Above Lavon Lake	0821D	0821D_01
East Fork Trinity River-Lake Lavon	Wilson Creek	0821C	0821C_01

SOURCE: Section 303(d) list consulted October 2021; published May 20, 2020.

No-Build Alternatives

The No-Build Alternative involves no construction and does not cross any navigable waterways.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative is within five aerial miles of, is within the watershed of, drains to, and crosses both identified impaired waterway segments. To date, TCEQ has not identified (through either a TMDL or the review of projects under the TCEQ Memorandum of Understanding (MOU) a need to implement control measures beyond those required by the Construction General Permit (CGP) on road construction projects. Therefore, compliance with the project’s CGP, along with coordination under the TCEQ MOU for certain transportation projects, collectively meets the need to address impaired waters during the environmental review process. As required by the CGP, the Preferred Alternative and associated activities would be implemented, operated, and maintained using BMPs to control the discharge of pollutants from the project site.

Additional wetland and stream protection BMPs could include, but may not be limited to the following:

- Establish and/or maintain buffers around known or discovered recharge features.
- Locate, design, construct, and maintain stream crossings to provide maximum erosion protection.
- Maintain existing road ditches, culverts, and turnouts to ensure proper drainage and minimize the potential for the development of ruts and mud holes and other erosion-related problems.
- Stabilize, seed, and mulch eroded roadsides and new road cuts with native grasses and legumes, where feasible, in a timely manner to minimize impacts to water bodies.
- Implement erosion and sediment controls where appropriate. Maintain protective vegetative covers over all compatible areas, especially on steep slopes. Where necessary, gravel, fabrics, mulch, riprap,

or other materials that are environmentally safe and compatible with the location may be used, as appropriate, for erosion control in problem areas.

- Water quality protection BMPs would have multiple levels of oversight to ensure their continued proper function. In addition to contractor inspectors who are responsible for daily monitoring of BMPs, TxDOT inspectors would conduct weekly inspections and would submit compliance reports to the project engineer. Additional oversight would be provided by the TxDOT project manager (who would be on site each day) and staff from the District Environmental Office, including the district environmental quality coordinator.

3.10.6 Clean Water Act Section 402

Because Texas Pollutant Discharge Elimination System (TPDES) CGP authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the project. The Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require that a storm water pollution prevention plan (SWP3) be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of intent or site notice) be completed, posted, and submitted, when required by the CGP, to TCEQ and the municipal separate storm sewer system operator (MS4). It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the “Required Specification Checklists” require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SWP3, and to complete the appropriate authorization documents.”

No-Build Alternative

Because no land disturbance or construction activities causing stormwater discharges would occur, the No-Build Alternative would not require authorization under TPDES CGP or the development and implementation of a SWP3.

Preferred Alternative - Blue Alternative

As described in **Section 3.17.5**, erosion controls and BMPs detailed in the SWP3 will be implemented to minimize, to the extent practicable, the discharge of pollutants in stormwater associated with construction activity and (certain) non-stormwater discharges. The contractor would be responsible for filing the Notice of Intent with TCEQ for coverage under the CGP and would develop and implement the SWP3 to minimize the discharge of pollutants in stormwater from construction activities. The contractor would also file the Notice of Termination within 30 days following final stabilization of all disturbed areas of the project. As noted in Section 3.10.5 under the Preferred Alternative, contractor inspectors would be responsible for daily monitoring of BMPs and TxDOT inspectors would conduct weekly inspections and submit compliance reports to the project engineer. Additional oversight would be provided by the TxDOT project manager (who would be on site each day) and staff from the District Environmental Office, including the district environmental quality coordinator.

3.10.7 Floodplains

Build Alternatives

The Purple, Blue, Brown, and Gold Alternatives cross floodplains mapped by FEMA, and are depicted in **Figure 3-49** and summarized in **Figure 3-50**. Coordination with the FEMA local floodplain administrator (W. Kyle Odom, CFM, RS – City of McKinney) would continue through any refinement of the Preferred Alternative including final design. The following acreages of 100-year floodplain are mapped with the proposed ROW of each Build Alternative (W/Spur) considered: Purple = 268 acres, Blue = 175 acres, Brown = 180 acres, and Gold = 273 acres. Each Build Alternative includes a combination of culverts and bridges to minimize/avoid impacts to floodplains so the proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. The Purple and Gold Alternatives would result in a longitudinal encroachment of the East Fork Trinity River floodplain.

Based on the above considerations, no practicable alternative exists to the proposed construction in floodplains and all Build Alternatives include all practicable measures to minimize harm to floodplains which may result from such use.

Figure 3-49: Build Alternative Crossings of FEMA Floodplains and Floodways in the Study Area

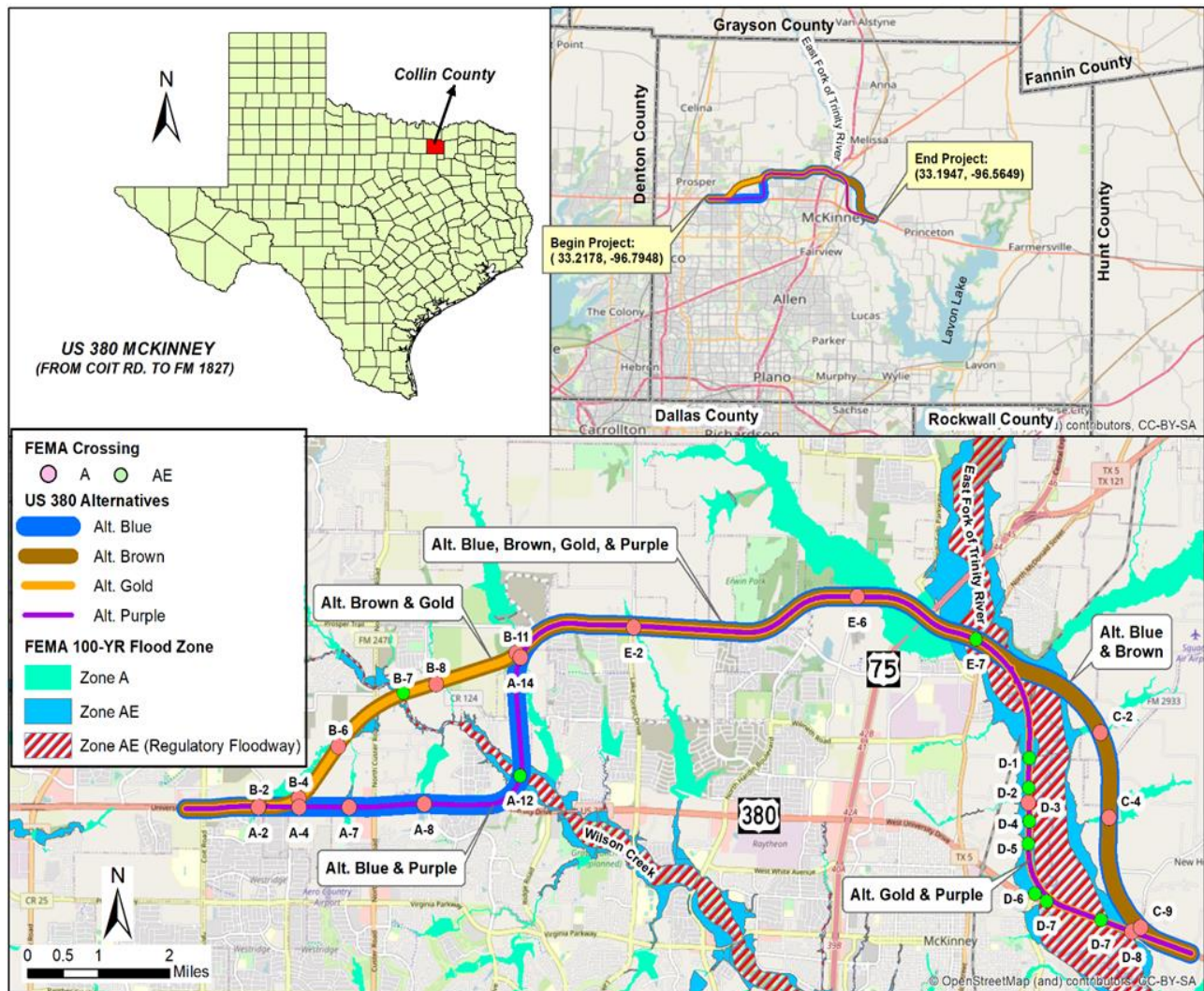


Figure 3-50: FEMA Crossing Locations Along the Build Alternatives

Build Alternative	Crossing	Waterway	FEMA Floodplain	FIRM No.	FIS No. / LOMR
PURPLE	A-2	Rutherford Branch	A	48085C0235J Effective: 6/2/2009	N/A
BLUE					
BROWN					
GOLD	A-4	Rutherford Branch East Tributary.	A	48085C0255J Effective: 6/2/2009	N/A
PURPLE					
PURPLE	A-7	Rutherford Branch Tributary 1	A at roadway U/S, AE w/ floodway at roadway D/S	48085C0255J Effective: 6/2/2009	LOMR: 16-06-4255P Eff: 5/25/2017
BLUE					
PURPLE	A-8	Wilson Creek Tributary 13	A	48085C0255J Effective: 6/2/2009	N/A
BLUE					
PURPLE	A-12	Wilson Creek	AE w/ Floodway A	48085C0255J Effective: 6/2/2009	FIS: 48085CV001B Rev. 6/7/2017 LOMR: 16-06-3366P Eff: 5/18/2017
BLUE					
PURPLE	A-14	Stover Creek	A	48085C0255J Effective: 6/2/2009	
BLUE					
PURPLE	B-2	Rutherford Branch	A	48085C0235J Effective: 6/2/2009	N/A
BLUE					
BROWN					
GOLD	B-4	Rutherford Branch East Tributary.	A	48085C0255J Effective: 6/2/2009	N/A
BROWN					
GOLD	B-6	Rutherford Branch	A	48085C0255J Effective: 6/2/2009	N/A
BROWN					
PURPLE	B-7	Wilson Creek	AE w/ Floodway A	48085C0255J Effective: 6/2/2009	FIS: 48085CV001B Rev. 6/7/2017 LOMR: 16-06-3366P Eff: 5/18/2017
GOLD					
PURPLE	B-8	Wilson Creek Tributary 12	A	48085C0255J Effective: 6/2/2009	N/A
GOLD					
PURPLE	B-11	Stover Creek	A	48085C0255J Effective: 6/2/2009	N/A
GOLD					

Figure 3–50 continued: FEMA Crossing Locations Along the Build Alternatives

Build Alternative	Crossing	Waterway	FEMA Floodplain	FIRM No.	FIS No.
BLUE	C-2	East Fork Trinity River Tributary 12	A	48085C0280J Effective: 6/2/2009	N/A
BROWN					
BLUE	C-4	East Fork Trinity River Tributary 10	A	48085C0280J Effective: 6/2/2009	N/A
BROWN					
BLUE	C-9	East Fork Trinity River Tributary 5	A	48085C0280J Effective: 6/2/2009	N/A
BROWN					
PURPLE	D-1	East Fork Trinity River Tributary	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	D-2	East Fork Trinity River Tributary	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	D-3	East Fork Trinity River Tributary 11	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	D-4	East Fork Trinity River Tributary	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	D-5	East Fork Trinity River Tributary	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	D-6	East Fork Trinity River Tributary 9	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	D-7	East Fork Trinity River Tributary	AE w/ Floodway A	48085C0280J Effective: 6/2/2009	48085CV001B Rev. 6/7/2017
GOLD					
PURPLE	D-8	East Fork Trinity River Tributary 5	A	48085C0280J Effective: 6/2/2009	N/A
GOLD					
PURPLE	E-2	Franklin Branch	A	48085C0260J Effective: 6/2/2009	N/A
BLUE					
BROWN					
GOLD					

Figure 3–50 continued: FEMA Crossing Locations Along the Build Alternatives

Build Alternative	Crossing	Waterway	FEMA Floodplain	FIRM No.	FIS No.
PURPLE	E-6	Honey Creek Tributary 1	A	48085C0145J Effective: 6/2/2009	N/A
BLUE					
BROWN					
GOLD					
PURPLE	E-7	East Fork Trinity River, Honey Creek & Clemons Creek	AE w/ Floodway A	48085C0280J Eff.: 6/2/2009	FIS: 48085CV001B Rev. 6/7/2017 LOMR: 16-06-0922P Eff: 10/10/2016
BLUE					
BROWN					
GOLD					

NOTE: Zone A/Zone AE - 100-year floodplain, areas subject to inundation by the 1-percent-annual-chance flood event.

3.10.7.1 Executive Order 11988

This project is federally funded and therefore is subject to EO 11988, *Floodplain Management*, and will involve a significant encroachment into the floodplain. EO 11988, directs federal agencies to:

1. assert leadership in reducing flood losses and losses to environmental values served by floodplains;
2. avoid actions located in or adversely affecting floodplains unless there is no practicable alternative;
3. take action to mitigate losses if avoidance is not practicable; and
4. establish a process for flood hazard evaluation based upon the 100-year base flood standard of the National Flood Insurance Program (NFIP). It also directs federal agencies to issue implementing procedures; provides a consultation mechanism for developing the implementing procedures; and provides oversight mechanisms.

The explanation of how the proposed project will comply with EO 11988 is provided below:

How the project has been designed to minimize potential harm to or within the floodplain – The Build Alternatives include extensive bridging across mapped floodplain areas to minimize impacts where feasible. Floodways would be spanned and pier placements within the floodplain would be planned to minimize hydraulic impacts. The use of other bridged or elevated sections versus the use of earthen fill embankment would continue to be evaluated in consideration of project costs versus impacts to wetlands and WOTUS, natural habitats, and the effect of the new roadway on the hydraulic function of the stream system for the Preferred Alternative/Blue Alternative. Additional modeling would be conducted during final design to determine if compensatory storage would be required.

Reasons why the proposed action must be located in the floodplain - Because of the orientation of the water features across the Study Area and the need for the proposed project to provide east-west connectivity across the Study Area by reconnecting to existing US 380 both west and east of McKinney, crossing floodplain and regulatory floodways associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River along with their tributaries is unavoidable. Additional

physical constraints including residential and commercial development, major utilities, community facilities, and parks, limit consideration of other locations or alignments for the proposed freeway.

Alternatives considered and why they were not practicable – Development of the Build Alternatives was constrained by the presence of residential neighborhoods, commercial development, major utilities, community facilities, and parks. While the floodplains associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries were avoided to the greatest extent practicable, the orientation of the streams and rivers generally perpendicular to the primarily east-west alternatives made it impracticable to avoid crossing floodplains.

The proposed action conforms to applicable state or local floodplain protection standards - Under the Constitution, a federal agency does not have to obtain local community permits to develop property within the community. However, all federal agencies are responsible for implementing EO 11988 through their own regulations. EO 11988 states that, at a minimum, federal agencies must comply with NFIP regulations.

From TxDOT's Hydraulic Design Manual (09/2019), 23 CFR 650 Subpart A:

When a TxDOT project with participation by the FHWA involves an encroachment on the 1% Annual Exceedance Probability (100-year event) floodplain, the location and design of the project must comply with FHWA Policy 23 CFR 650, Subpart A. Compliance with this regulation is required when a proposed project includes a new or expanded encroachment on a floodplain regulated by FEMA, or contains the potential for adversely impacting private property or insurable buildings on or near a floodplain. The FHWA has prepared a non-regulatory supplement, 23 CFR 650, Subpart A, Attachment 2, which explains the requirements for coordination with FEMA and the local community responsible for administering the NFIP under different floodplain encroachment scenarios. Chapter 5 of this manual explains TxDOT procedures for compliance with these requirements.

The proposed project will comply with the standards in the TxDOT Hydraulic Design Manual.

No-Build Alternative

The No-Build Alternative involves no construction or changes in the existing crossings of floodplains and floodways mapped in the Project Area. Therefore, the No-Build Alternative would have no effect on floodplains or floodways.

Preferred Alternative - Blue Alternative (A+E+C)

As the Preferred Alternative, the Blue Alternative includes extensive bridging across mapped floodplain areas to minimize impacts where feasible and avoids a longitudinal encroachment of the East Fork Trinity River floodplain. The proposed schematic design was unable to completely avoid the placement of fill (bridge piers) below the 100-year water surface elevation of Honey Creek, Clemons Creek, and the East Fork Trinity River. Based on the May 2023 95% Geometric Design Schematic, a total of approximately 4,200 cubic yards of fill material would be placed below the 100-year water surface elevation of Honey Creek, Clemons Creek, and the East For Trinity River in the form of proposed bridge piers over Honey Creek, Clemons Creek, and the East Fork Trinity River within the area of the proposed US 75/SH 5 interchange and to create the embankments needed to connect proposed US 380 to future Trinity Falls Parkway (within the Honey Creek floodplain) and SH 5 (within the floodplain and floodway of the East Fork Trinity River). This amount of fill could be offset by creating

shallow ditches or swales within the proposed ROW, and mapped floodplain areas but outside of any potentially jurisdictional wetlands, to temporarily retain water during rain and flood events before it flows downstream. The Blue Alternative W/Spur would not conflict with the changes proposed along the East Fork Trinity River associated with the proposed McKinney National Airport improvements south of existing US 380. Any design changes to the Blue Alternative made after issuance of the ROD for the US 380 McKinney project would minimize, to the extent practicable, impacts on floodplains. Pier placement within the floodplain along with options to span floodways would be refined to further minimize hydraulic impacts and the need for compensatory storage. The use of bridged or elevated sections beyond the East Fork Trinity River area versus the use of earthen fill embankment would continue to be evaluated in consideration of project costs versus impacts to wetlands, streams, and riparian forests in order to protect the natural and beneficial values of floodplains and reduce the project's hydraulic effect on the stream system.

3.10.8 Wild and Scenic Rivers

Texas has just one river segment that is designated as wild or scenic under the federal Wild and Scenic Rivers Act and it is located along the Rio Grande on the border between the United States and Mexico. The US 380 McKinney project would not affect the Rio Grande; therefore, the Preferred Alternative would have no effect on rivers protected under the federal Wild and Scenic Rivers Act. No further analysis is required.

3.10.9 Coastal Barrier Resources

The US 380 McKinney project is proposed in an interior area of Texas without coastal resources. Therefore, protections under the Coastal Barrier Resources Act do not apply to the Preferred Alternative. No further analysis is required.

3.10.10 Coastal Zone Management

The US 380 McKinney project is proposed within an interior area of Texas without coastal resources. The Preferred Alternative/Blue Alternative is not located within the Texas Coastal Management Plan boundary. Therefore, a consistency determination is not required.

3.10.11 Edwards Aquifer

The US 380 McKinney project is proposed in Collin County outside of the recharge, contributing, or transition zones of the Edwards Aquifer. Therefore, coordination with the EPA Region 6 is not required under the MOU between EPA Region 6 and TxDOT Regarding EPA's Review of Projects Potentially Affecting the Edwards Aquifer. The TCEQ Edwards Aquifer Rules also do not apply to the Preferred Alternative.

3.10.12 International Boundary Water Commission

The US 380 McKinney project is proposed within an interior area of Texas and would not encroach upon the floodway of the International Boundary Water Commission (IBWC) ROW or an IBWC flood control project. Therefore, the Preferred Alternative would be allowed to proceed without obtaining such a license.

3.10.13 Drinking Water Systems

Review of Texas Water Development Board (TWDB) online data indicates no public drinking water wells known within the proposed ROW for the Build Alternatives. As disclosed in the hazardous Materials Initial Site Assessment (ISA) prepared for this project, a private well is north of CR 124, approximately 0.3 miles west of CR 161. According to the database, it is unknown if the well is currently in use, but groundwater depths in the area is approximately 1,000 feet below the surface. This private well is within the proposed ROW for Segment A and would need to be capped and abandoned as part of the ROW acquisition process.

In accordance with TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (Item 103, Disposal of Wells), any drinking water wells would need to be properly removed and disposed of during construction of the US 380 McKinney project.

3.11 Biological Resources

3.11.1 Impacts to Vegetation

The Ecological Mapping Systems of Texas (EMST) was used to identify the vegetation communities within the proposed ROW of the four Build Alternatives (Purple, Blue, Brown and Gold). **Figure 3-51 (W/O Spur)** and **Figure 3-52 (W/Spur)** provide a quantitative comparison of the vegetation community types identified within the proposed ROW based on field observations and review of current aerial imagery, where appropriate. Field visits were conducted in August 2020, and again in June/July and September 2021, although rights-of-entry were not granted for all parcels reviewed; therefore, field verification of vegetation communities was not possible for all areas. Additional detail including the EMST mapping for the Build Alternatives considered is provided in **Appendix O**.

Purple Alternative

Construction of the Purple Alternative requires approximately 1,113.9 acres of proposed ROW W/O Spur (1,133.1 acres W/Spur), of which approximately 487.7 acres W/O Spur (43.8 percent) or 498.9 acres W/Spur (44 percent) is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the July 2022 60% Geometric Design Schematics). The loss or disturbance of vegetative communities would not occur within these areas during construction. The remaining 626.2 acres W/O Spur (634.2 acres W/Spur) consist of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. No protected or rare vegetation communities were identified within the proposed ROW during field investigations.

Blue Alternative

Construction of the Blue Alternative requires approximately 1,099.3 acres of proposed ROW W/Spur (1,084.7 acres W/O Spur), of which approximately 492 acres W/Spur (44.8 percent) or 485.7 acres W/O Spur (44.8 percent) is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (updated based on the May 2023 95% Geometric Design Schematic). The loss or disturbance of vegetative communities would not occur within these areas during construction. The remaining 607.3 acres W/Spur (599.0 acres W/O Spur) consist of a mix of Blackland Prairie/grassland, floodplain/riparian forest and

Figure 3-51: Vegetation Community Impact Comparison of the Build Alternatives (W/O Spur)

EMST Common Name	EMST ID	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
		Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW
Blackland Prairie: Disturbance or Tame Grassland	207	114.4	10.3%	180.7	16.7%	197.9	18.7%	134.5	12.4%
Edwards Plateau: Oak - Hardwood Slope Forest	904	0.0	0.0%	0.0	0.0%	2.8	0.3%	2.8	0.3%
Edwards Plateau: Live Oak Motte and Woodland	1102	0.1	0.0%	2.5	2.3%	0.9	0.1%	0.9	0.1%
Edwards Plateau: Deciduous Oak - Evergreen Motte and Woodland	1103	1.5	0.1%	1.5	0.1%	1.5	0.1%	1.5	0.1%
Edwards Plateau: Oak - Hardwood Motte and Woodland	1104	3.5	0.3%	1.5	0.1%	3.0	0.3%	3.0	0.3%
Edwards Plateau: Savanna Grassland	1107	15.7	1.4%	17.9	1.7%	16.5	1.6%	16.5	1.5%
Central Texas: Floodplain Live Oak Forest	1802	0.1	0.0%	0.1	0.0%	0.2	0.0%	0.2	0.0%
Central Texas: Floodplain Hardwood - Evergreen Forest	1803	1.3	0.1%	0.0	0.0%	0.0	0.0%	1.3	0.1%
Central Texas: Floodplain Hardwood Forest	1804	98.7	8.9%	91.7	8.5%	81.6	7.7%	86.6	8.0%
Central Texas: Floodplain Herbaceous Vegetation	1807	27.4	2.5%	14.9	1.4%	15.5	1.5%	29.5	2.7%
Central Texas: Riparian Live Oak Forest	1902	0.0	0.0%	0.0	0.0%	0.5	0.0%	0.5	0.0%
Central Texas: Riparian Hardwood Forest	1904	12.1	1.1%	15.2	1.4%	15.4	1.5%	12.9	1.2%
Central Texas: Riparian Evergreen Shrubland	1905	0.5	0.0%	0.0	0.0%	0.0	0.0%	0.5	0.0%
Central Texas: Riparian Herbaceous Vegetation	1907	0.3	0.0%	2.1	0.2%	1.9	0.2%	0.3	0.0%
Barren	9000	12.8	1.2%	12.9	1.2%	12.8	1.2%	12.8	1.2%
Swamp	9004	0.0	0.0%	0.0	0.0%	0.3	0.0%	0.3	0.0%
Native Invasive: Deciduous Woodland	9104	67.2	6.0%	100.3	9.2%	103.2	9.8%	69.1	6.4%

Figure 3-51 continued: Vegetation Community Impact Comparison of the Build Alternatives (W/O Spur)

EMST Common Name	EMST ID	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
		Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW
Row Crops	9307	268.2	24.1%	155.6	14.3%	168.4	15.9%	286.3	26.4%
Urban High Intensity	9410	40.6	3.7%	27.4	2.5%	18.7	1.8%	34.0	3.1%
Urban Low Intensity	9411	447.1	40.1%	458.3	42.2%	410.6	38.9%	388.5	35.8%
Open Water	9600	2.4	0.2%	2.4	0.2%	5.0	0.5%	4.9	0.5%
Total		1,113.9	100.0%	1,084.7	100.0%	1065.4	100.0%	1086.8	100.0%

NOTES: All acreages have been rounded to the tenth of an acre and some figures or 'Totals' may reflect rounding error.

The impacts for the Blue Alternative have been updated based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B) and the EMST mapping in Appendix O of the FEIS. The impacts for the Purple, Brown, and Gold Alternatives are based on the proposed ROW shown on the July 1, 2022 60% Geometric Design Schematic and the EMST mapping in the DEIS Appendix O. For the purpose of Figure 2-15: Alternatives Comparison Matrix, area of forest includes EMST IDs 904, 1102, 1103, 1104, 1802, 1803, 1804, 1902, 1904, 1905, and 9104. Area of grassland includes EMST IDs 207, 1107, 1807, and 1907.

Figure 3-52: Vegetation Community Impact Comparison of the Build Alternatives (W/Spur)

EMST Common Name	EMST ID	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
		Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW
Blackland Prairie: Disturbance or Tame Grassland	207	115.8	10.2%	180.7	16.4%	205.0	19.1%	135.9	12.3%
Edwards Plateau: Oak - Hardwood Slope Forest	904	0.0	0.0%	0.0	0.0%	2.8	0.3%	2.8	0.3%
Edwards Plateau: Live Oak Motte and Woodland	1102	0.1	0.0%	2.5	0.2%	0.9	0.1%	0.9	0.1%
Edwards Plateau: Deciduous Oak - Evergreen Motte and Woodland	1103	1.5	0.1%	1.5	0.1%	1.5	0.1%	1.5	0.1%
Edwards Plateau: Oak - Hardwood Motte and Woodland	1104	3.5	0.3%	1.5	0.1%	3.0	0.3%	3.0	0.3%
Edwards Plateau: Savanna Grassland	1107	15.7	1.4%	17.9	1.6%	16.5	1.5%	16.5	1.5%
Central Texas: Floodplain Live Oak Forest	1802	0.1	0.0%	0.1	0.0%	0.2	0.0%	0.2	0.0%
Central Texas: Floodplain Hardwood - Evergreen Forest	1803	1.3	0.1%	0.0	0.0%	0.0	0.0%	1.3	0.1%
Central Texas: Floodplain Hardwood Forest	1804	103.1	9.1%	90.7	8.3%	81.7	7.6%	90.9	8.2%
Central Texas: Floodplain Herbaceous Vegetation	1807	27.6	2.4%	14.9	1.4%	15.5	1.4%	29.6	2.7%
Central Texas: Riparian Live Oak Forest	1902	0.0	0.0%	0.0	0.0%	0.5	0.0%	0.5	0.0%
Central Texas: Riparian Hardwood Forest	1904	12.1	1.1%	15.2	1.4%	15.4	1.4%	12.9	1.2%
Central Texas: Riparian Evergreen Shrubland	1905	0.5	0.0%	0.0	0.0%	0.0	0.0%	0.5	0.0%
Central Texas: Riparian Herbaceous Vegetation	1907	0.3	0.0%	1.7	0.2%	1.9	0.2	0.3	0.0%
Barren	9000	12.8	1.1%	12.9	1.2%	12.8	1.2%	12.8	1.2%
Swamp	9004	0.0	0.0%	0.0	0.0%	0.3	0.0%	0.3	0.0%
Native Invasive: Deciduous Woodland	9104	67.2	5.9%	103.6	9.4%	104.4	9.7%	69.1	6.3%

Figure 3-52 continued: Vegetation Community Impact Comparison of the Build Alternatives (W/Spur)

EMST Common Name	EMST ID	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative	
		Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW	Acres	% of Total Proposed ROW
Row Crops	9307	270.4	23.9%	161.3	14.7%	172.0	16.1%	288.4	26.1%
Urban High Intensity	9410	49.2	4.3%	27.1	2.5%	18.7	1.7%	42.6	3.9%
Urban Low Intensity	9411	449.7	39.7%	464.9	42.3%	413.7	38.6%	391.1	35.4%
Open Water	9600	2.4	0.2%	2.9	0.3%	5.4	0.5%	4.9	0.4%
Totals		1,133.1	100%	1,099.3	100%	1,071.8	100%	1,106.0	100%

NOTES: The impacts for the Blue Alternative have been updated based on the May 2023 95% Geometric Design Schematic for the Blue Alternative (A+E+C) (Appendix B) and the EMST mapping in Appendix O of the FEIS. The impacts for the Purple, Brown, and Gold Alternatives are based on the proposed ROW shown on the July 1, 2022 60% Geometric Design Schematic and the EMST mapping in the DEIS Appendix O. For the purpose of Figure 2-15: Alternatives Comparison Matrix, area of forest includes EMST IDs 904, 1102, 1103, 1104, 1802, 1803, 1804, 1902, 1904, 1905, and 9104. Area of grassland includes EMST IDs 207, 1107, 1807, and 1907.

herbaceous (associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. No protected or rare vegetation communities were identified within the proposed ROW during field investigations.

Brown Alternative

Construction of the Brown Alternative requires approximately 1,056.4 acres of proposed ROW W/O Spur (1,071.8 acres W/Spur), of which approximately 429.3 acres W/O Spur (40.7 percent) or 432.4 acres W/Spur (40.3 percent) is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the July 2022 60% Geometric Design Schematics). The loss or disturbance of vegetative communities would not occur within these areas during construction. The remaining 636.1 acres W/O Spur (639.4 acres W/Spur) consist of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. No protected or rare vegetation communities were identified within the proposed ROW during field investigations.

Gold Alternative

Construction of the Gold Alternative requires approximately 1,086.8 acres of proposed ROW W/O Spur (1,106.0 acres W/Spur), of which approximately 422.5 acres W/O Spur (37.5 percent) or 433.7 acres W/Spur (39.3 percent) is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the July 2022 60% Geometric Design Schematics). The loss or disturbance of vegetative communities would not occur within these areas during construction. The remaining 664.3 acres W/O Spur (672.3 acres W/Spur) consist of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Stover Creek, Franklin Branch, Honey Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. No protected or rare vegetation communities were identified within the proposed ROW during field investigations.

No-Build Alternative

Under the No-Build Alternative, no impacts to vegetation would occur.

Preferred Alternative - Blue Alternative (A+E+C)

Construction of the Blue Alternative would unavoidably impact vegetative communities within areas of the proposed ROW. Construction activities would permanently remove a variety of forest and grassland communities within the limits of construction and replace them with impervious surfaces and maintained herbaceous species. Construction of the Preferred Alternative would not remove any protected or rare plant communities. Additionally, sections of the Blue Alternative would be built on elevated structures minimizing temporary and permanent impacts to vegetation and allowing many plant communities to become re-established under the roadway over time. Clearing of riparian and adjacent upland forest habitats where the alignment crosses streams would fragment these habitats that serve as wildlife travel corridors. The Blue Alternative would potentially clear the most forested habitat (combination of upland, bottomland, and riparian forests and shrublands) and the second most grassland habitat compared to the other Build Alternatives (see **Figure 2-15**). Riparian forest and herbaceous vegetation provide suitable habitats for protected species

including the tricolored bat, SGCN bat species, migratory birds, and also shade adjacent streams and pools that may support the alligator snapping turtle, mussel species, along with reptiles and amphibians. TPWD BMPs would be implemented before, during, and after construction to minimize the effects of vegetation clearing on protected species.

During construction, areas of exposed soil within the proposed ROW would be revegetated with herbaceous species to minimize the introduction of eroded soils into receiving waters. Following construction, landscaping, or seeding of the proposed ROW may occur in accordance with EO 13122 (Invasive Species) and under the guidance of *TxDOT's Roadside Vegetation Management Manual* and *Landscape and Aesthetics Design Manual* (see **Section 3.11.3**) and the Executive Memorandum on Environmentally and Economically Beneficial Landscaping (further described in **Section 3.11.4**). Vegetation within the proposed ROW would be maintained in accordance with TxDOT standard practices on an ongoing basis.

3.11.2 Impacts to Wildlife and Habitat

The US 380 McKinney Study Area is within the Texan Biotic Province, which provides both terrestrial and aquatic habitats supporting a wide range of fishes, birds, mammals, reptiles, amphibians, and invertebrates. No endemic wildlife species occur within the Study Area and vertebrate fauna is typical of that found over most of the Texan Biotic Province.

Purple Alternative

Potential impacts to wildlife can be attributed to the loss of wildlife habitat, habitat fragmentation, noise interference, interaction of wildlife with construction machinery, and wildlife/vehicle collision mortalities. Approximately 43.8 percent of the Purple Alternative W/O Spur and approximately 44.0 percent of the Purple Alternative W/Spur is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the July 2022 60% Geometric Design Schematic). Little wildlife habitat occurs in these areas and species expected to occur would be those adapted to a human environment such as the House Sparrow (*Passer domesticus*), European Starling (*Sturnus vulgaris*), and Rock Pigeon (*Columba livia*). Construction of the Purple Alternative would directly affect animals that reside within the path of the roadway alignment.

Purple Alternative would directly impact animals that reside within the path of the new location portions of the roadway alignment, resulting in construction-related mortality or injury. In addition to direct, construction-related mortality or injury, wildlife populations often suffer impacts associated with displacement into adjacent habitats, which may already be at or near carrying capacity for the same or related species. Wildlife living within the proposed ROW would need to relocate to adjacent habitats, located primarily north of Segment E and east of Segment D, during vegetation clearing and earth-moving activities to survive. Heavy machinery and other construction equipment may cause the mortality of wildlife species that are slow moving or species that seek cover in debris and fallen vegetation. Construction-related impacts would be short-term and would primarily occur during initial ROW clearing activities. Wildlife populations near the project would also be impacted by construction noise and activity that can cause stress or cause them to seek refuge away from the Project Area. Wildlife/vehicle collisions can occur along roadways and could increase when adjacent to areas of disturbance. The elevated freeway mainlanes and grade-separated interchanges at cross streets should help separate vehicles from wildlife in some instances.

The Purple Alternative crosses six perennial streams and 30 wooded habitat areas. The perennial stream crossings, wetlands, and associated wooded habitats could provide suitable habitat for the Texas fawnsfoot (*Truncilla macrodon*) and alligator snapping turtle (*Macrochelys temminckii*), both state-listed as threatened and both proposed for federal listing as threatened, the tricolored bat (*Perimyotis subflavus*) proposed for federal listing as endangered, the Louisiana pigtoe (*Pleurobema riddellii*) proposed for federal listing as threatened, the Texas heelsplitter (*Potamilus amphichaenus*) proposed for federal listing as endangered, and potentially the White-faced Ibis (*Plegadis chihi*) and Wood Stork (*Mycteria americana*), both state-listed as threatened. The stream and associated wooded habitats in addition to wetlands, disturbed grasslands, and agricultural areas could also support Species of Greatest Conservation Need (SGCN), including the big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), eastern spotted skunk (*Spilogale putorius*), western hog-nosed skunk (*Conepatus leuconotus*), long-tailed weasel (*Mustela frenata*), swamp rabbit (*Sylvilagus aquaticus*), eastern box turtle (*Terrapene carolina*), western box turtle (*Terrapene ornata*), slender glass lizard (*Ophisaurus attenuatus*), and timber rattlesnake (*Crotalus horridus*). Other SGCN species that may be impacted by the Purple Alternative include the southern crawfish frog (*Lithobates areolatus areolatus*), Strecker's chorus frog (*Pseudacris streckeri*), Woodhouse's toad (*Anaxyrus woodhousii*), Chestnut-collared Longspur (*Calcarius ornatus*), Western Burrowing Owl (*Athene cunicularia hypugaea*), a cave obligate isopod (*Caecidotea bilineata*), Parkhill prairie crayfish (*Procambarus steigmani*), mountain lion (*Puma concolor*), muskrat (*Ondatra zibethicus*), Texas garter snake (*Thamnophis sirtalis annectens*), and Sutherland hawthorn (*Crataegus sutherlandensis*). The monarch butterfly (*Danaus plexippus*), a federal candidate species, may also be impacted. **Section 3.11.10** provides more information on the effect/impact determinations of state- and federally listed species.

Impacts to fish and wildlife would be minimized through initial project design considerations, avoidance and minimization of vegetation removal and stream channel disturbance, and implementation of stormwater and TPWD best management practices TPWD (BMPs). TPWD BMPs are identified in the TPWD BMP form provided in **Appendix O** and are listed below. BMPs would be implemented because of potential impacts to state-listed species and SGCN. Construction activities would disturb only those areas necessary to construct the proposed project, including minimizing disturbance to important microhabitats (e.g., snags, brush piles), if present. The removal of native vegetation would be avoided to the greatest extent practicable and seeding mixes and plantings would be installed to restore cleared areas and minimize colonization by invasive species.

The following BMPs would be implemented for the Purple Alternative:

- Freshwater Mussel BMP
- Water Quality BMP
- Stream Crossing BMP
- Bird BMP
- Species-specific BMPs for the following:
 - Alligator snapping turtle
 - Southern crawfish frog
- Aquatic Amphibian and Reptile BMP
- Terrestrial Amphibian and Reptile BMP
- Vegetation BMP
- Rare Plant BMP

- Aquatic Invertebrate BMP
- Crayfish BMP
- Bat BMP
- Invasive Species BMP
- General Design and Construction BMP
- Dewatering BMP

Blue Alternative

Potential impacts to wildlife can be attributed to the loss of wildlife habitat, habitat fragmentation, noise interference, interaction of wildlife with construction machinery, and wildlife/vehicle collision mortalities. Approximately 44.8 percent of the Blue Alternative W/O Spur and W/Spur is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the May 2023 95% Geometric Design Schematic). As described under the Purple Alternative, little wildlife habitat occurs in these areas and the same species are expected to occur would be those adapted to a human environment as described under the Purple Alternative.

Blue Alternative would directly impact animals that reside within the path of the new location portions of the roadway alignment, resulting in construction-related mortality or injury. In addition to direct, construction-related mortality or injury, wildlife populations often suffer impacts associated with displacement into adjacent habitats, which may already be at or near carrying capacity for the same or related species. Wildlife living within the proposed ROW would need to relocate to adjacent habitats, north of Segment E and outside of Segment C, during vegetation clearing and earth-moving activities to survive. As noted under the Purple Alternative, heavy machinery and other construction equipment may cause the mortality of wildlife species that are slow moving or species that seek cover in debris and fallen vegetation. Construction-related impacts would be short-term and would primarily occur during initial ROW clearing activities. Wildlife populations near the project would also be impacted by construction noise and activity that can cause stress or cause them to seek refuge away from the Project Area. Wildlife/vehicle collisions can occur along roadways and could increase when adjacent to areas of disturbance. The elevated freeway mainlanes and grade-separated interchanges at cross streets should help separate vehicles from wildlife in some instances.

The Blue Alternative crosses seven perennial streams and 32 wooded habitat areas. The perennial stream crossings, wetlands, and associated wooded habitats could provide suitable habitat for the Texas fawnsfoot and alligator snapping turtle, both state-listed as threatened and both proposed for federal listing as threatened, the tricolored bat proposed for federal listing as endangered, the Louisiana pigtoe proposed for federal listing as threatened, the Texas heelsplitter proposed for federal listing as endangered, and potentially the White-faced Ibis and Wood Stork, both state-listed as threatened. The stream and associated wooded habitats in addition to wetlands, disturbed grasslands, and agricultural areas could also support the same SGCN as listed under the Purple Alternative. The Blue Alternative could also impact the monarch butterfly. **Section 3.11.10** provides more information on the effect/impact determinations of state- and federally listed species.

Impacts to fish and wildlife would be minimized through initial project design considerations, avoidance and minimization of vegetation removal and stream channel disturbance, and implementation of stormwater and

TPWD BMPs as described under the Purple Alternative. These BMPs are identified in the TPWD BMP form provided in **Appendix O**.

Brown Alternative

Potential impacts to wildlife can be attributed to the loss of wildlife habitat, habitat fragmentation, noise interference, interaction of wildlife with construction machinery, and wildlife/vehicle collision mortalities. Approximately 40.7 percent of the Brown Alternative W/O Spur and approximately 40.3 percent of the Brown Alternative W/Spur is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the July 2022 60% Geometric Design Schematic). As described under the Purple and Blue Alternatives, little wildlife habitat occurs in these areas and the same species are expected to occur would be those adapted to a human environment as described under the Purple and Blue Alternatives

Brown Alternative would directly impact animals that reside within the path of the new location portions of the roadway alignment, resulting in construction-related mortality or injury. In addition to direct, construction-related mortality or injury, wildlife populations often suffer impacts associated with displacement into adjacent habitats, which may already be at or near carrying capacity for the same or related species. Wildlife living within the proposed ROW would need to relocate to adjacent habitats, north of Segment E and outside of Segment C, during vegetation clearing and earth-moving activities to survive. Heavy machinery and other construction equipment may cause the mortality of wildlife species that are slow moving or species that seek cover in debris and fallen vegetation. Construction-related impacts would be short-term and would primarily occur during initial ROW clearing activities. Wildlife populations near the project would also be impacted by construction noise and activity that can cause stress or cause them to seek refuge away from the Project Area. Wildlife/vehicle collisions can occur along roadways and could increase when adjacent to areas of disturbance. The elevated freeway mainlanes and grade-separated interchanges at cross streets should help separate vehicles from wildlife in some instances.

The Brown Alternative crosses six perennial streams and 32 wooded habitat areas. The perennial stream crossings, wetlands, and associated wooded habitats could provide suitable habitat for the Texas fawnsfoot and alligator snapping turtle, both state-listed as threatened and both proposed for federal listing as threatened, the tricolored bat proposed for federal listing as endangered, the Louisiana pigtoe proposed for federal listing as threatened, the Texas heelsplitter proposed for federal listing as endangered, and potentially the White-faced Ibis and Wood Stork, both state-listed as threatened. The stream and associated wooded habitats in addition to wetlands, disturbed grasslands, and agricultural areas could also support the same SGCN as listed under the Purple Alternative. The Brown Alternative could also impact the monarch butterfly. **Section 3.11.10** provides more information on the effect/impact determinations of state- and federally listed species.

Impacts to fish and wildlife would be minimized through initial project design considerations, avoidance and minimization of vegetation removal and stream channel disturbance, and implementation of stormwater and TPWD BMPs as described under the Purple and Blue Alternatives. These BMPs are identified in the TPWD BMP form provided in **Appendix O**.

Gold Alternative

Potential impacts to wildlife can be attributed to the loss of wildlife habitat, habitat fragmentation, noise interference, interaction of wildlife with construction machinery, and wildlife/vehicle collision mortalities. Approximately 37.5 percent of the Gold Alternative W/O Spur and approximately 39.3 percent of the Gold Alternative W/Spur is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways (based on the July 2022 60% Geometric Design Schematic). As described under the Purple, Blue, and Brown Alternatives, little wildlife habitat occurs in these areas and the same species are expected to occur would be those adapted to a human environment as described under the Purple, Blue, and Brown Alternatives.

In addition to direct, construction-related mortality or injury, wildlife populations often suffer impacts associated with displacement into adjacent habitats, which may already be at or near carrying capacity for the same or related species. Wildlife living within the proposed ROW would need to relocate to adjacent habitats during vegetation clearing and earth-moving activities to survive. Heavy machinery and other construction equipment may cause the mortality of wildlife species that are slow moving or species that seek cover in debris and fallen vegetation. Construction-related impacts would be short-term and would primarily occur during initial ROW clearing activities. Wildlife populations near the project would also be impacted by construction noise and activity that can cause stress or cause them to seek refuge away from the Project Area. Wildlife/vehicle collisions can occur along roadways and could increase when adjacent to areas of disturbance. The elevated freeway mainlanes and grade-separated interchanges at cross streets should help separate vehicles from wildlife in some instances.

The Gold Alternative crosses five perennial streams and 30 wooded habitat areas. The perennial stream crossings, wetlands, and associated wooded habitats could provide suitable habitat for the Texas fawnsfoot and alligator snapping turtle, both state-listed as threatened and both proposed for federal listing as threatened, the tricolored bat proposed for federal listing as endangered, the Louisiana pigtoe proposed for federal listing as threatened, the Texas heelsplitter proposed for federal listing as endangered, and potentially the White-faced Ibis and Wood Stork, both state-listed as threatened. The stream and associated wooded habitats in addition to wetlands, disturbed grasslands, and agricultural areas could also support the same SGCN as listed under the Purple Alternative. The Gold Alternative could also impact the monarch butterfly. **Section 3.11.10** provides more information on the effect/impact determinations of state- and federally listed species.

Impacts to fish and wildlife would be minimized through initial project design considerations, avoidance and minimization of vegetation removal and stream channel disturbance, and implementation of stormwater and TPWD BMPs as described under the Purple, Blue, and Brown Alternatives. These BMPs are identified in the TPWD BMP form provided in **Appendix O**

No-Build Alternative

Under the No-Build Alternative, no construction or ground disturbance would occur, therefore no impacts to wildlife or wildlife habitat would occur.

Preferred Alternative - Blue Alternative (A+E+C)

Detailed assessments of the stream crossings and potential mussel/bat habitats, and evaluation of the temporary and permanent effects of construction of the Blue Alternative on possible habitats in the Project Area may be conducted after issuance of the ROD. Potential impacts would be minimized during final design. Prior to, during, and following construction, stormwater BMPs and TPWD BMPs would be implemented to avoid/minimize impacts on state- and federally listed species and their habitats, including fish and wildlife, and avoidance and minimization of vegetation removal and stream channel disturbance where practicable and feasible. Clearing of riparian, upland forest, and grassland habitats within the proposed ROW and construction in and near stream crossings (e.g., placement of bridge bents/piers, culverts, or bank protection) would remove habitat potentially used by protected species. These actions would also fragment travel corridors along streams and fencerows used by wildlife. Some wildlife populations may suffer impacts associated with displacement into adjacent habitats, which may already be at or near carrying capacity for the same or related species. Some of the adjacent habitat areas are also threatened by planned development not associated with the proposed project. Heavy machinery and other construction equipment may injure or cause the mortality of animals that are slow moving or that seek cover in debris and fallen vegetation. Wildlife populations near the project would also be impacted by construction noise and activity that can cause stress or cause them to seek refuge away from the Project Area. Wildlife/vehicle collisions can occur along roadways and could increase when adjacent to disturbed areas. When construction is completed, the elevated freeway mainlanes and bridges over stream channels would provide options for wildlife to move under the freeway corridor.

3.11.3 Executive Order 13122 on Invasive Species

This project is subject to and will comply with federal EO 13112 on Invasive Species. TxDOT implements this EO on a programmatic basis through its *Roadside Vegetation Management Manual* and *Landscape and Aesthetics Design Manual*.

3.11.4 Executive Memorandum on Environmentally and Economically Beneficial Landscaping

This project is subject to and would comply with the federal Executive Memorandum on Environmentally and Economically Beneficial Landscaping, effective April 26, 1994. TxDOT implements this Executive Memorandum on a programmatic basis through its *Roadside Vegetation Management Manual* and *Landscape and Aesthetics Design Manual*.

3.11.5 Migratory Bird Protections**Build Alternatives**

Construction of any of the Build Alternatives will comply with applicable provisions of the Migratory Bird Treaty Act (MBTA) and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64, Birds. It is TxDOT's policy to avoid removal and destruction of active bird nests except through federal or state approved options. In addition, it is TxDOT's policy to, where appropriate and practicable:

- Use measures to prevent or discourage birds from building nests on man-made structures within portions of the Project Area planned for construction.
- Schedule construction activities outside the typical nesting season.

No-Build Alternative

The No-Build Alternative would not involve construction but may involve ongoing maintenance of existing bridges and culverts that may support migratory bird nests. As noted under the Build Alternatives above, it is TxDOT's policy to avoid removal and destruction of active bird nests except through federal or state approved options. Where appropriate and practicable, TxDOT also uses measures to prevent or discourage birds from building nests on man-made structures and schedule maintenance and construction activities outside the typical nesting season. The No-Build Alternative would comply with the applicable provisions of the MBTA and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64, Birds.

Preferred Alternative - Blue Alternative (A+E+C)

Construction of the Blue Alternative will comply with applicable provisions of the MBTA and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64, Birds. It is TxDOT's policy to avoid removal and destruction of active bird nests except through federal or state approved options. TxDOT would work with contractors to develop and implement measures to prevent or discourage birds from building nests on man-made structures within portions of the Project Area planned for construction and to schedule construction activities outside of the typical nesting season when practicable and feasible.

3.11.6 Fish and Wildlife Coordination Act**Build Alternatives**

Construction of any of the Build Alternatives is anticipated to require a NWP issued by the USACE. Compliance with the Fish and Wildlife Coordination Act would be accomplished by complying with the terms and conditions of the NWP.

No-Build Alternative

The No-Build Alternative would not involve construction and would not require any permits; therefore, compliance with the Fish and Wildlife Coordination Act is not required.

Preferred Alternative - Blue Alternative (A+E+C)

Construction of the Blue Alternative is anticipated to require a NWP issued by the USACE. As the final design for the Blue Alternative develops, additional consideration would be given to avoidance and further minimization of placing fill materials, piers, or the effects of temporary construction activities on water features, floodplains, and habitats associated with Wilson Creek, Honey Creek, Clemons Creek, and East Fork Trinity River, and their tributaries while also balancing design and cost parameters for the project. Compliance with the Fish and Wildlife Coordination Act will be accomplished by complying with the terms and conditions of the NWP issued for the project.

3.11.7 Bald and Golden Eagle Protection Act of 2007**Build Alternatives**

None of the Build Alternative are within 660 feet of an active or inactive Bald or Golden Eagle nest. However, an inactive Bald Eagle nest is along the East Fork Trinity River approximately one mile south of the eastern terminus of the Blue and Brown Alternatives (Segment C) at existing US 380. Roosting habitat for the Bald Eagle occurs in and around the Project Area at the crossing of the East Fork Trinity River along Segment D

(Purple and Gold Alternatives). However, the trees along this shallow reach of the East Fork Trinity River are most likely too far (more than six miles) from Lavon Lake, the nearest large waterbody that would provide foraging habitat for eagles. Therefore, no coordination with USFWS under the Bald and Golden Eagle Protection Act (BGEPA) is required.

No-Build Alternative

The No-Build Alternative does not include activities, nor make improvements within 660 feet of an active or inactive Bald or Golden Eagle nest. Therefore, no coordination with the USFWS under the BGEPA is required.

Preferred Alternative - Blue Alternative (A+E+C)

The Blue Alternative would not be constructed within 660 feet of an active or inactive Bald or Golden Eagle nest and is not likely to affect roosting or perching habitat near open waterbodies used for foraging such as Lavon Lake. No coordination with the USFWS under BGEPA is required for the Blue Alternative.

3.11.8 Magnuson-Stevens Fishery Conservation Management Act

The Magnuson–Stevens Fishery Conservation and Management Act is the primary law that governs marine fisheries management in United States federal waters. The Essential Fish Habitat/Magnuson-Stevens Fishery Conservation and Management Act does not apply to either of the Build Alternatives considered including the Preferred Alternative because the Project Area does not contain marine waters.

3.11.9 Marine Mammal Protection Act

The Project Area for the Preferred Alternative contains no suitable habitat for marine mammals.

3.11.10 Threatened, Endangered, and Candidate Species

The purpose of the Endangered Species Act (ESA), passed by Congress in 1973, is to protect and provide for the recovery of imperiled species and the ecosystems upon which they depend. The ESA is administered by the USFWS and the National Marine Fisheries Service (NMFS). An endangered species is one that is in danger of extinction throughout all or a significant portion of its natural range, while a threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Candidate and proposed species are ones that are currently in the assessment process to determine if listing is appropriate using the listing factors in Section 4 of the ESA.

An analysis of the proposed ROW for the four Build Alternatives (Purple, Blue, Brown, and Gold) was performed to determine their potential to affect state- or federally listed threatened, endangered, and candidate species. Field investigations were conducted in August 2020 and again June/July 2021 and September 2021.

Build Alternatives

Based on review of TPWD Texas Natural Diversity Database (TXNDD), the May 2023 USFWS-TPWD Texas Freshwater Mussel Survey Protocol, and field review of the habitat within and adjacent to the proposed ROW, none of the four Build Alternatives would affect federally listed species or designated critical habitats. Each Build Alternative would have no effect on the Texas fawnsfoot (state-listed as threatened and proposed for federal listing as threatened), the Louisiana pigtoe (proposed for federal listing as threatened), and the Texas heelsplitter (proposed for federal listing as endangered). Each Build Alternative may affect the alligator

snapping turtle (state-listed as threatened and proposed for federal listing as threatened), the tricolored bat (proposed for federal listing as endangered), and the monarch butterfly, a federal candidate species.

The proposed ROW for each Build Alternative is within the range of and contains suitable habitats for all six species; although the effects on the tricolored bat are undetermined. Mussel surveys would be required for the Preferred Alternative during final design and prior to initiating construction. Section 7 consultation/conference with USFWS would be completed for the Preferred Alternative should these species be listed.

Each of the Build Alternatives would involve roadway construction on new location and would not be completed prior to fiscal year 2024, the year USFWS intends to propose listing the monarch butterfly. If this species is proposed for listing prior to or during construction of the project, the effects to monarch butterflies would be reevaluated to determine the appropriate course of action, which may include conference or consultation with USFWS. TxDOT has determined construction of any of the Build Alternatives would have no effect on all other federally listed species that may occur in the Project Area.

Each of the four Build Alternatives may impact the state-listed as threatened White-faced Ibis and Wood Stork. The proposed ROW for each of the four Build Alternatives is within the range of these two species and contains suitable habitat for each. Construction of any of the four Build Alternatives would have no impact on all other state-listed species that may occur in the Project Area.

Appendix O provides the Species Analysis Spreadsheet approved by TxDOT on June 29, 2023, and the Species Analysis Form and the TPWD BMP Form approved by TxDOT on May 22, 2023, containing additional information regarding threatened, endangered, and candidate species and information regarding potential impacts to SGCN. The Species Analysis Spreadsheet and Species Analysis Form are also available for review at the TxDOT Dallas District Office. The TPWD BMP Form is also included in **Appendix E**.

No-Build Alternative

Under the No-Build Alternative, no impact to threatened, endangered, or candidate species would occur.

Preferred Alternative - Blue Alternative (A+E+C)

Construction of the Blue Alternative would occur primarily on new location and would not be completed prior to fiscal year 2024, the year USFWS intends to propose listing the monarch butterfly. If this species is proposed for listing prior to or during construction of the project, the effects to monarch butterflies would be reevaluated to determine the appropriate course of action, which may include conference or consultation with USFWS. The proposed ROW for the Blue Alternative contains suitable habitats for the White-faced Ibis and Wood Stork both state listed as threatened. TPWD BMPs would be implemented to avoid/minimize impacts to state-listed and SGCN species. Construction of the Blue Alternative would have no impact on all other state-listed species that may occur in the Project Area.

Impacts to protected species and species that may become listed as state or federally protected at any time during the life of the project would be avoided or minimized through implementation of TPWD BMPs, as described in **Section 3.11.2**, and provided in **Appendix O**. Suitable habitat for the tricolored bat (proposed for federal listing as endangered), the Louisiana pigtoe (proposed for federal listing as threatened), the Texas heelsplitter (proposed for federal listing as endangered), the Texas fawnsfoot and alligator snapping turtle (both proposed for federal listing as threatened), and the monarch butterfly (federal candidate species), may

be present within the Project Area of the Blue Alternative. The effects of the Blue Alternative on the tricolored bat are currently undetermined.

TxDOT has determined construction of the Blue Alternative would have “no effect” on the Texas fawnsfoot, the Louisiana pigtoe, and the Texas heelsplitter, and “may affect” the alligator snapping turtle, White-faced Ibis, and Wood Stork. Consultation with USFWS is not required at this time for these species, but if any of them are listed during the life of the project, the effects on these species will be re-evaluated to determine the appropriate course of action which may include USFWS consultation or conference. Implementation of water quality and wetland/stream BMPs, as described in **Sections 3.10.1** and **3.10.2**, would additionally serve to avoid or minimize impacts to threatened, endangered, and candidate species and sensitive aquatic resources.

3.11.11 Texas Parks and Wildlife Coordination

Coordination with TPWD was initiated by TxDOT on January 24, 2022. Coordination is ongoing and, when complete, all coordination documentation would be included in **Appendix E** of the FEIS/ROD.

In accordance with the 2021 MOU between TxDOT and TPWD, TPWD has provided a set of recommended BMPs in a document titled “*Beneficial Management Practices – Avoiding, Minimizing, and Mitigating Impacts of Transportation Projects on State Natural Resources*,” which is available on TxDOT’s Natural Resources Toolkit at <https://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/natural-resources.html>. The MOU states that application of specific TPWD BMPs to individual projects will be determined by TxDOT at its discretion. The TPWD-recommended BMPs that will be applied to this project are indicated in the Form “*Documentation of Texas Parks and Wildlife Department Best Management Practices*” prepared for the project, which is included in **Appendix E**.

The state-listed species and SGCNs impacted by the proposed project and the TPWD BMPs applicable to implementation of the four Build Alternatives are described in **Section 3.11.2**.

3.12 Air Quality

3.12.1 Transportation Conformity

Purple, Blue, Brown, and Gold Alternatives

The proposed US 380 McKinney project is regionally significant, providing additional travel capacity primarily on new location within Collin County. This proposed project is within the nine-county Dallas-Fort-Worth (DFW) area including Collin County designated as severe nonattainment for the 2008 ozone National Ambient Air Quality Standards (NAAQS) and moderate nonattainment for the 2015 ozone NAAQS), effective November 7, 2022;⁴⁷ therefore, transportation conformity rules apply. Collin County and the remainder of the DFW area are in attainment/unclassifiable for the following criteria pollutants: carbon monoxide (CO), nitrogen dioxide, particulate matter (PM [2.5 and 10]), and sulfur dioxide. Conformity for older standards is satisfied by conformity to the more stringent 2008 and 2015 ozone NAAQS, as applicable.

⁴⁷ <https://www.tceq.texas.gov/airquality/sip/dfw/dfw-status>; accessed December 19, 2022. The DFW nonattainment area includes 9 of the 10 counties designated nonattainment under the 2008 8-hour ozone but does not include Rockwall County, which was designated attainment/unclassifiable. The new attainment deadline for the DFW moderate nonattainment for the 2015 ozone NAAQS is August 3, 2024. The new attainment deadline for the severe nonattainment 2008 ozone NAAQS is July 20, 2027.

No-Build Alternative

The No-Build Alternative would not create any additional transportation capacity and is not subject to EPA's transportation conformity rules.

Preferred Alternative - Blue Alternative (A+E+C)

Approval of transportation conformity is a two-step process involving (1) NCTCOG making its initial transportation conformity determination at the local level in the MTP, and (2) obtaining a joint conformity determination from FTA/FHWA at the federal level. Upon favorable approval, the projects, programs, and policies in the MTP and TIP may move forward toward implementation. The Blue Alternative as the Preferred Alternative for the US 380 McKinney project is included in the NCTCOG's *Mobility 2045 Update* and the 2023--2026 TIP, both approved by the RTC on June 9, 2022, and by FHWA on December 15, 2022; making the project consistent with both plans. The 2023-2026 STIP was approved by FHWA on November 18, 2022. Project-level conformity was approved by FHWA on September 26, 2023.

3.12.2 Carbon Monoxide Traffic Air Quality Analysis (CO TAQA)

The traffic was modeled for the estimated time of completion (ETC) year [2030] and the design year [2050] for all five study segments. Because the design year (2050) vehicle volumes for Segments A, B, and E are predicted to exceed the 140,000 vpd threshold, a quantitative analysis is required for the project. While only three segments were determined to exceed the 140,000 thresholds, triggering the need for a carbon monoxide traffic air quality analysis (CO TAQA) was performed on each study Segment (A through E) for consistency (see **Figure 3-53**).

Figure 3-53: US 380 McKinney Average Annual Daily Traffic Volumes by Study Segment

Study Segment	2030 Maximum AADT	2050 Maximum AADT	Exceeds 140,000 vpd CO TAQA Threshold?
A	96,700	148,100	YES
B	93,000	142,900	YES
E	100,500	154,200	YES
C	75,800	117,300	NO
D	84,600	130,900	NO

AADT = average annual daily traffic in vehicles per day (vpd)

The traffic data used in the analysis was developed and approved by the TxDOT Dallas District. Carbon monoxide concentrations for the five study segments were modeled using CAL3QHC and EPA's Motor Vehicle Emissions Simulator (MOVES) 2014a (MOVES2014a) and factoring in adverse meteorological conditions and sensitive receptors at the ROW line. Local concentrations of carbon monoxide are not expected to exceed national standards at any time.

Within the model, receptors were placed at either end of the thinnest cross-section of the roadway where the highest traffic volumes are forecasted to occur. The modeled roadways, design hourly volume (DHV) of each roadway, distance to the receptors, speed, number of lanes, and emission factors use are described in Tables 7 through 11 of the CO TAQA Technical Report included in **Appendix P**. The results from the CO TAQA modeling are shown in **Figure 3-54** (modeled receptor locations are shown in Exhibit 3, Attachment A of the CO TAQA

Technical Report). None of the modeled concentrations exceeded the 1-hour or 8-hour NAAQS for carbon monoxide.

No-Build Alternative

The No-Build Alternative would not create any additional transportation capacity and is, therefore, not subject to CO TAQA requirements.

Preferred Alternative - Blue Alternative (A+E+C)

As described above, the CO TAQA analysis indicates local concentrations of carbon monoxide are not expected to exceed national standards at any time.

Figure 3-54: Project 1-Hour and 8-Hour Carbon Monoxide Modeling Results

Receptor Name	2030 Build Concentration (ppm ^A)			2050 Build Concentration (ppm ^A)			NAAQS ^A (ppm)
	Modeled Concentration	Background Value	Total	Modeled Concentration	Background Value	Total	
1-Hour							
Receptor A1	0.1	1.7	1.8	0.0	1.7	1.7	35
Receptor A2	0.2	1.7	1.9	0.2	1.7	1.9	35
Receptor A3	0.2	1.7	1.9	0.2	1.7	1.9	35
Receptor A4	0.1	1.7	1.8	0.0	1.7	1.7	35
Receptor B1	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor B2	0.1	1.7	1.8	0.1	1.7	1.8	35
Receptor B3	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor C1	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor C2	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor C3	0.1	1.7	1.8	0.1	1.7	1.8	35
Receptor C4	0.2	1.7	1.9	0.2	1.7	1.9	35
Receptor C5	0.1	1.7	1.8	0.1	1.7	1.8	35
Receptor C6	0.1	1.7	1.8	0.1	1.7	1.8	35
Receptor D1	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor D2	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor D3	0.0	1.7	1.7	0.0	1.7	1.7	35
Receptor D4	0.1	1.7	1.8	0.1	1.7	1.8	35
Receptor E1	0.2	1.7	1.9	0.2	1.7	1.9	35
Receptor E2	0.1	1.7	1.8	0.1	1.7	1.8	35

Figure 3-54 continued: Project 1-Hour and 8-Hour Carbon Monoxide Modeling Results

Receptor Name	2030 Build Concentration (ppm ^A)			2050 Build Concentration (ppm ^A)			NAAQS ^A (ppm)
	Modeled Concentration	Background Value	Total	Modeled Concentration	Background Value	Total	
8-Hour							
Receptor A1	0.1	1.4	1.5	0.1	1.4	1.4	9
Receptor A2	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor A3	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor A4	0.1	1.4	1.5	0.0	1.4	1.4	9
Receptor B1	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor B2	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor B3	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor C1	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor C2	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor C3	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor C4	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor C5	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor C6	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor D1	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor D2	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor D3	0.0	1.4	1.4	0.0	1.4	1.4	9
Receptor D4	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor E1	0.1	1.4	1.5	0.1	1.4	1.5	9
Receptor E2	0.1	1.4	1.5	0.1	1.4	1.5	9

(A) ppm = parts per million, NAAQS = National Ambient Air Quality Standards

3.12.3 Mobile Source Air Toxics (MSAT)

The purpose of this project is to manage congestion and improve east-west mobility and safety across the Study Area by constructing an 8-lane freeway around the northern edge of McKinney, connecting to existing US 380 near Coit Road on the west and FM 1827 on the east. Based on the traffic volumes forecasted at ETC and in the design year for the four Build Alternatives, this project has been determined to trigger a quantitative mobile source air toxics (MSAT) analysis. Although travel demand is forecasted to increase within the Study Area due to population growth and with the added capacity provided by the new location freeway, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014a model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle miles traveled (VMT) are projected to increase by over 45 percent.⁴⁸ The MSAT Technical Report provided in **Appendix P** provides additional background on EPA's MOVES2014a model, FHWA Projected National MSAT Emission Trends for 2021-2050, and additional MSAT research.

⁴⁸ Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 2016 - http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm

3.12.3.1 Qualitative Analysis - Build Alternatives

All of the Build Alternatives in the design year (2050) are expected to result in reduced MSAT emissions within the immediate area of the project, relative to the No-Build Alternative, although the VMT for each Build Alternative is slightly higher than the No-Build Alternative due to their length. The Build Alternatives would support new development and will attract trips that would have occurred along local roads if the new facility is not built. Localized differences in MSAT may result from indirect effects such as associated access traffic, emissions of evaporative MSAT (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks. The location of the proposed travel lanes by Build Alternatives, with travel lanes being placed closer to homes, schools, and businesses in some locations contributing to localized areas where ambient concentrations of MSAT would be higher compared to other Build Alternatives. Localized increases in MSAT emissions would likely be most pronounced at potential points of congestion where the new freeway alignment connects back to existing US 380 and near the proposed US 75/SH 5 interchange.

However, the magnitude and duration of these potential increases compared to the No-Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent from 2010 to 2050.⁴⁹ Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the Study Area are likely to be lower in the future in virtually all locations.

3.12.3.2 Quantitative MSAT Analysis –Build Alternatives

A quantitative analysis of MSAT emissions was performed to assess the difference in MSAT emissions between the 2020 Existing, 2050 Build (proposed), and 2050 No-Build scenarios for the affected network links including existing US 380. The VMT for each link was aggregated by road type categories (frontage roads, ramps, mainlanes, and local roads) for the 2020 Existing, 2050 Build, and 2050 No-Build scenarios based on link lengths and average daily traffic (ADT) no-build traffic volumes developed by TxDOT for the project. The total VMT within the Study Area for the 2020 Existing scenario was determined to be 468,838,325; the total VMT for the 2050 No-Build scenario 573,934,351, and the VMT in the 2050 Build scenario were found to be 893,615,616 (Purple), 912,522,553 (Blue), 838,065,768 (Brown), and 856,972,706 (Gold).

The total mass of MSAT emissions under the 2020 Existing Scenario were 3.52 tons per year, and the MSAT emissions for the 2050 Build Alternatives are 2.04 (Purple), 2.01 (Blue), 1.90 (Brown), and 1.94 (Gold) tons per year. These equate to decreases of 42, 43, 46, and 45 percent, respectively, in total MSAT emissions when compared to the 2020 Existing Scenario. MSAT emissions for the 2050 Build Alternatives decrease despite total VMT increasing by 95, 91, 79, and 83 percent, respectively, over the 2020 Existing Scenario. Although the VMT increases in the 2050 Build Scenario, the MSAT emissions decrease due to improved engine combustion efficiencies, higher average vehicle speed, and the electrification of the US fleet. The 2050 No-Build scenario would result in a 27 percent reduction in MSAT emissions due to increases in combustion efficiency of engines and the electrification of the US fleet. However, the congestion expected under the 2050

⁴⁹ Ibid.

No-Build Scenario will cause significant speed reductions, increasing the expected corridor-specific MSAT. The 2050 Build Scenarios have higher predicted annual VMTs due to slight increases in daily traffic volumes and longer alignment distances; however, the Build Scenarios would greatly reduce congestion, allowing for higher traffic speeds, which further reduces the overall expected MSAT emissions. In addition, the future Build Scenario is diverting traffic from existing US 380 and connecting roadways, reducing congestion, and increasing vehicle speeds, which also reduces the expected MSAT emissions across the Study Area. The VMT and predicted MSAT emissions for each scenario are shown in **Figure 3-55**.

As the Preferred Alternative for the US 380 McKinney project, VMT in 2050 along the Blue Alternative and the rest of the local roadway network would increase by approximately 22 percent compared to 2020 (No-Build). This increase is due to higher volumes of traffic expected to use the roadway network analyzed because of population growth in the area and the diversion of traffic from existing US 380 to the new location freeway, a slightly longer route. While the VMT for the Preferred (Blue) Alternative are expected to increase, the total MSAT emissions are predicted to decrease by approximately 43 percent, from 3.52 to 2.01 tons per year. This reduction of MSAT emissions within the network area is due to higher combustion efficiencies of vehicle engines and the electrification of the US fleet. If the proposed improvements are not implemented, the VMT under the 2050 No-Build Scenario would increase by approximately 25 percent compared to the 2020 (No-Build) Scenario. While the VMT in the 2050 No-Build Scenario is lower than that predicted for the four Build Alternatives analyzed in the 2050 Build Scenario, the increase in vehicles on existing US 380 will cause significant congestion in the Future No-Build Scenario. This congestion and very low traffic speeds would offset the difference in VMT between the 2050 Build and 2050 No-Build Scenarios, causing the No-Build Scenario to have higher total MSAT emissions than any of the four Build Alternatives in the future (2050).

Figure 3-55: Mass of MSAT Emissions in Tons per Year and Percent Change in 2050 (Build) Compared to the 2020 Base Scenario

Pollutant	Base (Existing) 2020 (ton/yr)	Purple Alternative		Blue Alternative		Brown Alternative		Gold Alternative		No-Build 2050	Percent Change of No-Build 2050 Compared to 2050
		MSAT Emissions	Percent Change from 2020	MSAT Emissions	Percent Change from 2020	MSAT Emissions	Percent Change from 2020	MSAT Emissions	Percent Change from 2020		
Acrolein	2.95E-02	1.95E-02	-34%	1.92E-02	-35%	1.82E-02	-38%	1.86E-02	-37%	2.83E-02	-4%
Acetaldehyde	0.25	0.14	-44%	0.14	-45%	0.13	-48%	0.14	-47%	0.20	-20%
Benzene	0.57	0.26	-55%	0.26	-55%	0.24	-58%	0.24	-57%	0.37	-34%
Butadiene	0.06	1.27E-03	-98%	1.24E-03	-98%	1.18E-03	-98%	1.21E-03	-98%	1.92E-03	-97%
Diesel PM	1.59	0.94	-41%	0.93	-42%	0.88	-45%	0.90	-44%	0.72	-55%
Ethylbenzene	0.42	0.21	-51%	0.20	-52%	0.19	-55%	0.19	-54%	0.57	34%
Formaldehyde	0.51	0.42	-18%	0.41	-20%	0.39	-24%	0.40	-22%	0.61	19%
Naphthalene	0.06	0.04	-37%	0.04	-38%	0.03	-41%	0.03	-40%	5.08E-02	-11%
POM	2.62E-02	1.19E-02	-54%	1.18E-02	-55%	1.11E-02	-57%	1.13E-02	-57%	1.43E-02	-45%
Millions VMT	469	913	95%	894	91%	838	79%	857	83%	574	22%
Total MSAT	3.52	2.04	-42%	2.01	-43%	1.90	-46%	1.94	-45%	2.57	-27%

3.12.4 Congestion Management Process (CMP)

The congestion management process (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The project was developed from the NCTCOG’s CMP, which meets all requirements of 23 CFR 450.320 and 500.109, as applicable. The CMP Update was adopted by NCTCOG Regional Transportation Council in August 2021.

The region commits to operational improvements and travel demand reduction strategies at two levels of implementation: program level and project level. Program level commitments are inventoried in the regional CMP, which was adopted by NCTCOG; they are included in the financially constrained MTP, and future resources are reserved for their implementation. The CMP element of the plan carries an inventory of all project commitments (including those resulting from major investment studies) that details the type of strategy, implementing responsibilities, schedules, and expected costs. At the project’s programming stage, travel demand reduction strategies and commitments will be added to the regional TIP or included in the construction plans. The regional TIP provides for programming of these projects at the appropriate time with respect to the single occupancy vehicle (SOV) facility implementation and project-specific elements.

Committed congestion reduction strategies and operational improvements within the US 380 McKinney Study Area boundary will consist of traffic signal and ITS/communication improvements, the addition of travel lanes and frontage roads, access management improvements along frontage roads (e.g., turn-lanes, signalized intersections, driveway/crossroad closures), and construction of SUPs along the outside of frontage roads to provide connectivity to existing and proposed sidewalk and trail networks. Individual projects are listed in **Figure 3-56**.

Figure 3-56: Congestion Management Process Strategies for the Preferred Alternative/Blue Alternative

Operational Improvements in Travel Corridor		
Location	Type	Implementation Date
Citywide Signal System, Video Detectors and Communication ITS	Travel Time Index Travel Time Reliability	2007-ongoing
SH5 Improvements from South of FM 1378 to South of CR 275)	Addition of Travel Lanes	Existing Condition (presumed w/implementation of the SH 5 Improvement Project by June 2027)
US 380 Widening from Airport Drive to CR 458	Addition of Travel Lanes	Existing Condition (presumed w/implementation of the US 380 Widening Project by March 2025)
Collin County Outer Loop FM 2478 to US 75	Addition of Travel Lanes	Undetermined
FM 546 Phase I Bridgefarmer Road to US 380	Addition of Travel Lanes	Undetermined
FM 546 Phase II Airport Drive to CR 393	Addition of Travel Lanes	Undetermined

Figure 3-56 continued: Congestion Management Process Strategies for the Preferred Alternative/Blue Alternative

Operational Improvements in Travel Corridor		
Location	Type	Implementation Date
SH 5 from US 75/SRT-SH-121 to Stewart Road and FM 546/Harry McKillop Boulevard	Addition of Travel Lanes	2027 (proposed project)
Spur 399 Extension from SH 5 to Airport Drive/Old Mill Road to US 380	Addition of Travel Lanes	2026 (proposed project)
Airport Drive "Parkway Trail" from SH 5 to US 380 (City of McKinney)	Bike/Ped Improvements	Undetermined
US 380 Prosper-Frisco Teel Parkway/Championship Drive to West of Lakewood Drive	Addition of Travel Lanes	2026 (proposed project)
US 380 Princeton FM 1827 to CR 560	Addition of Travel Lanes	2027 (proposed project)

SOURCE: TxDOT Dallas District, www.keepitmovingdallas.com; City of McKinney Proposed City-Wide Trail Master Plan, Conceptual Trail Network Plan, May 21, 2021; NCTCOG Transportation Improvement Program Information System (TIPINS), Collin County https://www.collincountytx.gov/county_projects.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and NCTCOG will continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality Improvement (CMAQ) program, the CMP, and the MTP. The congestion reduction strategies considered for this project would help alleviate congestion in the SOV study boundary but would not eliminate it.

Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects in the Transportation Management Area is on file and available for review at the NCTCOG.

3.12.5 Construction Emissions

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation and the primary construction-related emissions of MSAT are diesel PM from diesel-powered construction equipment and vehicles.

The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found on TCEQ's TERP website.⁵⁰

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory

⁵⁰ <https://www.tceq.texas.gov/airquality/terp>

requirements; it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

3.13 Hazardous Materials

This section summarizes the baseline conditions and potential environmental impacts or effects of hazardous materials on the four Build Alternatives (W/O Spur and W/Spur) and the No-Build Alternative. The information presented has been summarized from the (ISA approved on February 9, 2022, and provided as **Appendix Q**.

The term “hazardous materials” refers to a broad category of hazardous wastes, hazardous substances, and toxic chemicals with the potential to negatively impact human health or the environment. Examples of hazardous material sites or issues commonly encountered for transportation projects include, but are not limited to, industrial sites, petroleum storage tank (PST) sites, oil and gas well sites, landfills, pipelines, structures with asbestos- or lead-containing materials, and other sites impacted by soil and/or groundwater contamination.

The ISA was performed to determine the potential for hazardous materials issues within and adjacent to the proposed ROW and included regulatory database reviews, desktop analyses, and site surveys. The list of data sources reviewed, and protocols followed are described in the ISA (**Appendix Q**). The regulatory database search identified records within the defined search distances for each of the Build Alternatives, and only sites and parcels located within and adjacent to the proposed ROW and where construction activity is proposed to occur were the focus of the evaluation, in addition to consideration of current and past land uses, previous regulatory actions, and current regulatory status of the affected parcels.

Sites were assigned an estimated level of risk (low, moderate, or high) of encountering hazardous materials issues during the construction phase of the proposed project based on the following criteria:

- Low – The issue has a low potential to impact the proposed project and no further investigations are required.
- Moderate – Not enough information is currently known about the project and/or issue to determine potential impacts. Further investigation and/or additional project design and ROW information is required.
- High – The issue has a high potential to impact the proposed project and further investigations, coordination, or contingencies may be required.

Purple Alternative (A+E+D)

Three sites of high environmental risk and eight sites of moderate environmental risk identified along the Purple Alternative are described in **Figure 3-57**.

Country Boy Store – The site is a closed gas station and convenience store that utilized one 10,000-gallon gasoline, one 8,000-gallon gasoline, and one 4,000-gallon diesel underground PSTs installed in 1984. All three tanks were removed from the ground in 2019. Per TCEQ Records Online, a 1992 Site Assessment report states that contamination was reported to the property owner after an investigation performed by the Texas Highway Department indicated soil and groundwater impact in the states right-of-way along the North side of Highway 380. A follow up investigation indicated significant levels of contamination were located north of the

Figure 3-57: Purple Alternative Hazardous Materials Sites of High and Moderate Environmental Risk

BUILD ALTERNATIVE	Site Information	Site Identification	Potential to Impact Project/Segment
PURPLE ALTERNATIVE W/O Spur	Country Boy Store (ISA Map ID 65) Closed gas station and convenience store, formerly containing multiple PSTs, and prior significant soil and groundwater contamination.	Regulatory records review	High Segment A
	Bomac McKinney Tract 2 (ISA Map ID 12) Site of prior groundwater contamination due to migration of petroleum-contaminated groundwater from off-site source.	Regulatory records review	High Segment A
	2858 Joint Venture Property (ISA Map ID 61) Former gas station location, currently vacant property, with prior LPST and minor soil contamination.	Regulatory records review	Moderate Segment A
	Site 2, Project site survey Site of abandoned AST with unknown contents.	Project site survey observations	Moderate Segment A
	Hines, Lucien Property (ISA Map ID 2) Closed (inactive) former landfill, at unconfirmed location potentially within or adjacent to proposed ROW of Segment E.	Regulatory records review	Moderate Segment E
	Site 4, Project site survey Site of abandoned AST, trash and debris piles, discarded tractor, and multiple drums with unknown contents.	Project site survey observations	Moderate Segment E
	Fowler Construction (ISA Map ID 20) Inactive construction business, conducted fleet refueling activities and contained multiple PSTs.	Regulatory records review	Moderate Segment D
	Site 6, Project site survey Site of commercial welding and fabrication services business, with totes of unknown contents and visible ground staining.	Project site survey observations	Moderate Segment D
	Site 7, Project site survey Site of AST for hydraulic system, multiple drums containing racing fuel, and visible ground staining.	Project site survey observations	Moderate Segment D
PURPLE ALTERNATIVE W/Spur additional sites	Latimore Materials, Inc. (ISA Map ID 50) Active cement ready-mix plant with mercury and lead compounds onsite and large amounts of diesel fuel, petroleum distillates, and other chemical materials stored onsite. A large waste or detention basin, aboveground PSTs, 55-gallon drums, and numerous totes containing various fuels, oils and other chemicals were observed onsite during site reconnaissance.	Regulatory records review	High Segment D W/Spur
	Race Trac 155 (ISA Map ID 52) Active gas station. Based on historic aerials, this property was formerly part of the Lattimore property prior to Airport Drive being constructed in approx. July 2006.	Regulatory records review	Moderate Segment D W/Spur

gasoline tanks and southwest of the diesel tanks. The results of the site assessment showed no subsurface soil contamination; however, groundwater was impacted.

In 2009, a Release Determination Report (RDR) stated four soil borings were drilled and converted to groundwater monitor wells. No groundwater was encountered in any of the borings at the time of drilling; however, within five hours one monitor well had water up to 10 feet below ground surface. The RDR report concluded no constituent concentrations in soil in excess of TCEQ action limits and groundwater displayed benzene concentrations in excess of TCEQ action limits in two monitor wells. The RDR states that the groundwater results indicate there may have been an off-site source for the impact.

In 2010 a TCEQ Final Site Closure Report was completed. The closure report stated that no remediation system was installed and all borings/wells were plugged. Based on the historic use of this site as a gas station with an LPST that impacted groundwater as well as ROW acquisition from this site, this site is considered a high environmental risk.

Bomac McKinney Tract 2 – At present, 8734 W. University Drive is a parcel containing Brackeen Trailer Sales. This parcel is not Map ID 12. Prior to 2020, the parcel included the Brackeen Trailer Sales parcel and the adjoining east parcel now occupied by the Valvoline oil change facility. After constructed, the Valvoline facility was given the address of 8720. The current Valvoline facility parcel was the former Bomac Tract 2 which is Map ID 12.

Based on TCEQ Central Records information, a Phase I ESA and Limited Subsurface Investigation (LSI) was conducted for this site and adjacent parcels. The Phase I ESA was conducted for six total tracts in July 2017. Map ID 12 (Tract 2 in the PHI & LSI) consists of a tract of property totaling approximately 1.919 acres. Brackeen Mini Storage has operated at the subject property from 1996 to approximately 2019 on Tract 2. The 2020 aerial shows Tract 2 as a vacant lot.

A former Country Boy Store facility addressed at 8850 West University Drive, located approximately 118 feet west and topographical upgradient to Tract 2, was identified in the reports as the source of contamination. Country Boy Store (ISA Map IDs 64, 65) is further discussed below. The tank hold at the Country Boy Store was formerly located on the property boundary with 8734 Tract 1. During the LPST investigation, three boring were installed, to a depth of 20 feet, at that property boundary. Groundwater beneath Tracts 1 and 2 were shown to be impacted with BTEX and MTBE.

Based on historical information presented in the ESA, the contamination on Tracts 1 and 2 was likely the result of migration of petroleum products from off-site sources via groundwater migration. Based on regulatory information, previous Phase I ESA and LSI, and the proposed ROW acquisition of most of this property, this site is considered a high environmental risk. Although 8734 Tract 1 was not identified as a regulatory site, based on the information in the Phase I ESA and LSI for Tract 2 and the ROW acquisition on Tract 1, Tract 1 is also considered a high environmental risk site.

2858 Joint Venture Property – A review of historic aerials identified a gas station type facility at the northeast corner of US 380 and N. Custer Rd from at least 1956 to 1995. The property was a vacant lot by 1999 and has remained such to the present. TCEQ Central Registry does not provide the physical address for the site. Per TCEQ records, the site had a petroleum UST registered in 1987 and was removed from the ground in 1991. The UST size and contents are not provided. The site is listed as an LPST facility with the TCEQ LPST ID #101436 and on January 9, 1992, minor soil contamination was reported. The site was issued Final

Concurrence, Case Closed on January 10, 1992. CCAD does not provide deed information for the parcel prior to 2012. Based on the ROW acquisition, proposed work on this property, the former use of the property as well as the former LPST, this site is considered a moderate environmental risk.

Site 2 – Per the site visit performed on 8/4/2021, an old AST (possibly a propane tank) was observed on the parcel. It is unknown when the AST was abandoned on the property and if it contained liquid materials at the time of abandonment, based on unknown factors related to this item, this site is considered a moderate environmental risk.

Hines, Lucien Property – Regulatory information states this Closed Landfill Inventory (CLI) site closed in 1976 and that closure was confirmed in a TDH memo dated Sept. 1976. The CLI was reported as accepting household and construction demo waste.

The 1981 historic aerial shows a business at the northwest corner of FM 543 and US 75. The business appears to possibly be a trailer and/or prefab structure sales facility or possibly a scrap facility. This business was present at this location through 2013. Laud Howell Parkway was constructed in 2014, cutting through this property and disconnecting the former FM 543 from US 75.

An attempt was made to identify the former ownership of this property on CCAD online; however, the parcel plats in this area have been changed since the construction of Laud Howell Pkwy and former ownership of the older, smaller parcels is no longer available. One former Lucien Hines property was identified on CCAD located along US 380 east of CR 330. This parcel is not anticipated to be Map ID 2. Based on the possible location of this former site, this location is considered a moderate environmental risk.

Site 4 – Per the site visit performed on 8/3/2021, multiple large piles of trash and debris, an abandoned AST, an old tractor, and drums of unknown contents were observed. The trash and debris appeared to be common household items, construction material and auto parts. The AST was placed in a heavily wooded area and appeared to be a propane tank. A smaller metal container (possibly a PST) was also observed adjacent to the larger AST. Several 55-gallon drums appeared to be sealed and were laying on their side. One drum was observed upright and sealed. It is unknown when the PSTs and drums were abandoned on the property and if they contained liquid materials at the time of abandonment. Based on unknown factors related to these items, this site is considered a moderate risk.

Fowler Construction – The site is an inactive construction business that had fleet refueling. The facility formerly utilized one 3,000-gallon gasoline underground PST installed in 1983 and was removed from the ground in 1990. The facility also formerly used one 3,000-gallon gasoline aboveground PST that was out-of-use in 2003. Per TCEQ, no violations, enforcement actions, or releases have been reported. According to CCAD three parcels of land likely comprised the Fowler Construction facility. Historic aerials show a pond on the southern portion of the 19.324 ac tract and 2017 aerials show that the pond is gone and was being used as a parking area for trucks. Due to the prior use of the property that had a fleet refueling operation and ROW acquisition displacing this facility, this site is considered a moderate environmental risk.

Site 6 – Per the site visit performed on 8/3/2021, totes of unknown contents and visible staining on the ground in the shop garage area was observed. The site appeared to be a commercial business offering welding

and fabrication services. Due to surface staining in the garage area, it is likely releases of petroleum products occurred; therefore, this site is considered a moderate environmental risk.

Site 7– Per the site visit performed on 8/2/2021, observed an AST for a suspected hydraulic system behind a house and, adjacent to the garage. Also observed several 55-gallon drums labeled as racing fuel with visible leaks and stained soil/concrete. Due to surface staining in the garage area, it is likely releases of petroleum products occurred; therefore, this site is considered a moderate risk.

Purple Alternative W/Spur would include one additional site of high and one additional site of moderate environmental risk. Lattimore Materials, Inc. (ISA Map ID 50) is within and adjacent to the proposed ROW and would be a high environmental risk. Race Trac 155 (ISA Map ID 52) is within the proposed ROW and would be a moderate environmental risk.

Lattimore Materials, Inc. – The facility is an active cement ready-mix plant that currently uses one 10,000-gallon diesel fuel AST, with no secondary containment, installed in 2019.

Based on information on the Spur 399 Extension project ISA (0364-04-051 etc.), a 2003 incident reported 1,500 gallons of used oil released from “a used oil heater due to operator error.” The material is reported to have spilled into secondary containment. A vacuum truck contractor was hired and the spill was cleaned up. Another spill was reported in Nov. 2019 and appears to be related to the onsite retention pond. Additional information is not provided. The TCEQ Central Registry also shows that in January 2020 a spill of approximately 86 gallons of diesel fuel occurred when the driver filling an underground storage tank walked away and the overfill device failed. No USTs are registered for this property. There is also reported in the US 380 McKinney ISA, mercury and lead compounds onsite and large amounts of diesel fuel, petroleum distillates, and other chemical materials stored onsite.

Aboveground PSTs, 55-gallon drums, and numerous totes containing various fuels, oils and other chemicals were observed onsite during site reconnaissance. Also observed was a large waste or detention basin.

For Segment D W/O Spur, there is no ROW acquisition and minimal grading for widening eastbound US 380 and making improvements to Airport Drive at the US 380 intersection is the only work proposed adjacent to the site. Based on the minimal work activity occurring adjacent to the site for the W/O Spur design, this site is considered a low environmental risk.

For Segment D W/Spur, at least half of this property will be acquired for ROW. The conceptual design for the proposed Spur 399 Extension project also proposes several direct connectors to cross this property. Based on the work activity for Segment D W/Spur, the amount of ROW required from this facility, and the use of the property, this site is considered a high risk.

Race Trac 155 – This facility is an active gas station utilizing one 12,000-gallon gasoline, one 20,000-gallon gasoline, and one 12,000-gallon diesel underground PSTs installed in 2007. Per TCEQ, no violations, enforcement actions, or releases have been reported. Based on historic aerials, this property was formerly part of the Lattimore property prior to Airport Dr being constructed in approx. 2006/07.

For Segment D W/O Spur, the area where ROW is to be acquired, along US 380, is within a landscaped portion of the property. The facility tank hold is located adjacent to the proposed ROW. Minimal grading along

eastbound US 380 with addition of a sidewalk as well as making improvements to Airport Drive at the US 380 intersection is the only work proposed adjacent to the site. Based on the minimal work activity occurring adjacent to the site for the 'no spur' design, this site is considered a low environmental risk.

For Segment D W/Spur, this entire property will be acquired for ROW. The conceptual Spur 399 design also proposes a direct connector to cross this property. Based on the work activity for Segment D W/Spur and the amount of ROW required from this facility, this site is considered a moderate environmental risk.

Pipelines - Two pipelines cross the Purple Alternative. A 10.75-inch diameter natural gas pipeline crosses the Purple Alternative near its western terminus (Segment A), just east of Coit Road. It continues in an east-northeast direction crossing Segment A a second time near the northern portion of the segment. The pipeline continues east-northeast and somewhat parallels Segment E, passing adjacent to the Segment E alignment near Limousine Parkway. It continues eastward and crosses Segment E alignment at the proposed interchange with US 75.

A 6.63-inch diameter highly-volatile liquid (HVL) pipeline crosses Segment A near its junction with Segment E, south of CR 123. The pipeline continues generally east and somewhat parallels Segment E, passing adjacent to the Segment E alignment near Limousine Parkway. The pipeline continues east-northeast, and crosses Segment E as it crosses existing US 75, on the southwest side of the proposed US 75 interchange. It exits the Segment E alignment for a short distance, then crosses Segment E a second time, on the southeast side of the proposed US 75 interchange.

The natural gas pipeline is not considered an environmental risk to construction of the Purple Alternative. Based on its contents, the HVL pipeline is considered a moderate environmental risk to construction of the Purple Alternative. Both pipelines are discussed further in **Section 3.4**.

Environmental risk to the Purple Alternative W/Spur due to existing pipelines would be the same as previously described above under Purple Alternative W/O Spur.

Blue Alternative (A+E+C)

Two sites of high environmental risk and ten sites of moderate environmental risk identified along the Blue Alternative are described in **Figure 3-58**.

Country Boy Store – as described under the Purple Alternative, the site (ISA Map ID 65) was determined to be a high environmental risk to the construction of Segment A.

Bomac McKinney Tract 2 – as described under the Purple Alternative, the site (ISA Map ID 12) was determined to be a high environmental risk to the construction of Segment A.

2858 Joint Venture Property – as described under the Purple Alternative, the site (ISA Map ID 61) was determined to be a moderate environmental risk to the construction of Segment A.

Site 2 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment A.

Hines, Lucien Property – as described under the Purple Alternative, the site (ISA Map ID 2) was determined to be a moderate environmental risk to the construction of Segment E.

Figure 3-58: Blue Alternative Hazardous Materials Sites of High and Moderate Environmental Risk

BUILD ALTERNATIVE	Site Information	Site Identification	Potential to Impact Project/Segment
BLUE ALTERNATIVE W/O Spur	Country Boy Store (ISA Map ID 65) Closed gas station and convenience store, formerly containing multiple PSTs, and prior significant soil and groundwater contamination.	Regulatory records review	High Segment A
	Bomac McKinney Tract 2 (ISA Map ID 12) Site of prior groundwater contamination due to migration of petroleum-contaminated groundwater from off-site source.	Regulatory records review	High Segment A
	2858 Joint Venture Property (ISA Map ID 61) Former gas station location, currently vacant property, with prior LPST and minor soil contamination.	Regulatory records review	Moderate Segment A
	Site 2, Project site survey Site of abandoned AST with unknown contents.	Project site survey observations	Moderate Segment A
	Hines, Lucien Property (ISA Map ID 2) Closed (inactive) former landfill, at unconfirmed location potentially within or adjacent to proposed ROW of Segment E.	Regulatory records review	Moderate Segment E
	Site 4, Project site survey Site of abandoned AST, trash and debris piles, discarded tractor, and multiple drums with unknown contents.	Project site survey observations	Moderate Segment E
	Site 7, Project site survey Site of AST for hydraulic system, multiple drums containing racing fuel, and visible ground staining.	Project site survey observations	Moderate Segment C
	Site 9, Project site survey Site of Parkway Auto Sales, containing multiple 55-gallon drums, large totes, and an AST of unknown contents.	Project site survey observations	Moderate Segment C
	Site 10, Project site survey Site of Nanos Tire Services, containing tire piles, old automobiles, and visible ground staining.	Project site survey observations	Moderate Segment C
	Site 11, Project site survey Site of Chokle Consignment Auto Sales, with visible ground staining.	Project site survey observations	Moderate Segment C
	Site 12, Project site survey Site of Roy Miller Auto Salvage, containing old automobiles and visible ground staining.	Project site survey observations	Moderate Segment C
	Site 13, Project site survey Site of an automobile sales and repair facility, containing trash and debris piles and visible ground staining.	Project site survey observations	Moderate Segment C
	BLUE ALTERNATIVE W/Spur	All sites are the same as W/O Spur.	See above

Site 4 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment E.

Site 7 – as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Site 9 was identified during the site survey within and adjacent to the proposed ROW of Segment C. The site currently operates as Parkway Auto Sales, a commercial business selling pre-owned vehicles and providing automotive repair services, since approximately 2013. The site was observed to contain multiple 55-gallon drums of unknown content but are likely to contain used oil. Three large totes and an AST of unknown contents were also observed. Due to the nature of site operations and the need for acquisition of a large portion of the site for ROW, the site was determined to be a moderate environmental risk to construction of Segment C.

Site 10 was identified during review of available resources, including aerial imagery, within and adjacent to the proposed ROW of Segment C. The site currently operates as Nanos Tire Services. Review of aerial imagery indicates visible soil and concrete staining, piles of tires, and old automobiles placed in various locations on the site. Due to the nature of site operations and observation of staining on the ground within an area proposed for ROW acquisition, the site was determined to be a moderate environmental risk to construction of Segment C.

Site 11 was identified during review of available resources, including aerial imagery, within and adjacent to the proposed ROW of Segment C. The site currently operates as Chokle Consignment Auto Sales. Review of aerial imagery indicates visible soil and concrete staining on the site. Due to the nature of site operations and observation of staining on the ground within an area proposed for ROW acquisition, the site was determined to be a moderate environmental risk to construction of Segment C.

Site 12 was identified during review of available resources, including aerial imagery, adjacent to the proposed ROW of Segment C. The site currently operates as Roy Miller Auto Salvage, an automobile salvage yard operation. Review of aerial imagery indicates visible soil and concrete staining and old automobiles on the site. Review of TCEQ databases indicate there are no PSTs registered at the site and no reported releases. The site was determined to be a moderate environmental risk to the proposed project due to the nature of site operations and observation of staining on the ground and the site's adjacency to the Segment C proposed ROW.

Site 13 was identified during review of available resources, including aerial imagery, adjacent to the proposed ROW of Segment C. The site currently operates as an automobile sales and repair facility. Review of aerial imagery indicates visible soil and concrete staining and trash and debris in several areas of the site. The site was determined to be a moderate environmental risk to the proposed project due to the nature of site operations and observation of staining on the ground and the site's adjacency to the Segment C proposed ROW.

Pipelines - Environmental risk to the Blue Alternative due to existing pipelines would be the same as described previously under the Purple Alternative.

No additional sites of moderate or high environmental risk were identified along the Blue Alternative W/Spur. Site 12 would be partially located within proposed ROW along Segment C and would remain a moderate environmental risk to the proposed project. Site 13 would be located entirely within proposed ROW along

Segment C and would remain a moderate environmental risk to the proposed project. Environmental risk to the Blue Alternative W/Spur would be the same as described previously under the Purple Alternative W/Spur.

Brown Alternative (B+E+C)

Eight sites of moderate environmental risk identified along the Brown Alternative are described in **Figure 3-59**.

Figure 3-59: Brown Alternative Hazardous Materials Sites of High and Moderate Environmental Risk

BUILD ALTERNATIVE	Site Information	Site Identification	Potential to Impact Project/Segment
BROWN ALTERNATIVE W/O SPUR	Hines, Lucien Property (ISA Map ID 2) Closed (inactive) former landfill, at unconfirmed location potentially within or adjacent to proposed ROW of Segment E	Regulatory records review	Moderate Segment E
	Site 4, Project site survey Site of abandoned AST, trash and debris piles, discarded tractor, and multiple drums with unknown contents	Project site survey observations	Moderate Segment E
	Site 7, Project site survey Site of AST for hydraulic system, multiple drums containing racing fuel, and visible ground staining	Project site survey observations	Moderate Segment C
	Site 9, Project site survey Site of Parkway Auto Sales, containing multiple 55-gallon drums, large totes, and an AST of unknown contents.	Project site survey observations	Moderate Segment C
	Site 10, Project site survey Site of Nanos Tire Services, containing tire piles, old automobiles, and visible ground staining	Project site survey observations	Moderate Segment C
	Site 11, Project site survey Site of Chokle Consignment Auto Sales, with visible ground staining	Project site survey observations	Moderate Segment C
	Site 12, Project site survey Site of Roy Miller Auto Salvage, containing old automobiles and visible ground staining	Project site survey observations	Moderate Segment C
	Site 13, Project site survey Site of an automobile sales and repair facility, containing trash and debris piles and visible ground staining	Project site survey observations	Moderate Segment C
BROWN ALTERNATIVE W/Spur	All sites are the same as W/O Spur.	See above	See above

Hines, Lucien Property – as described under the Purple Alternative, the site (ISA Map ID 2) was determined to be a moderate environmental risk to the construction of Segment E.

Site 4 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment E.

Site 7 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Site 9 - as described under the Blue Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Site 10 - as described under the Blue Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Site 11 - as described under the Blue Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Site 12 - as described under the Blue Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Site 13 - as described under the Blue Alternative, the site was determined to be a moderate environmental risk to the construction of Segment C.

Pipelines - Environmental risk to the Brown Alternative due to existing pipelines would be the same as described previously under the Purple Alternative.

No additional sites of high or moderate environmental risk were identified along the Brown Alternative W/Spur. As described under the Blue Alternative W/Spur Site 12 and Site 13 are partially and entirely (respectively) within the proposed ROW along Segment C and would remain a moderate environmental risk to the proposed project. Environmental risk to the Brown Alternative W/Spur would be the same as described previously under the Purple and Blue Alternatives W/Spur.

Gold Alternative (B+E+D)

Six sites of moderate environmental risk and one site of high risk along the Gold Alternative are described in **Figure 3-60**.

Figure 3-60: Gold Alternative Hazardous Materials Sites of High and Moderate Environmental Risk

BUILD ALTERNATIVE	Site Information	Site Identification	Potential to Impact Project/Segment
GOLD ALTERNATIVE W/O SPUR	Hines, Lucien Property (ISA Map ID 2) Closed (inactive) former landfill, at unconfirmed location potentially within or adjacent to proposed ROW of Segment E	Regulatory records review	Moderate Segment E
	Site 4, Project site survey Site of abandoned AST, trash and debris piles, discarded tractor, and multiple drums with unknown contents	Project site survey observations	Moderate Segment E
	Fowler Construction (ISA Map ID 20) Inactive construction business conducted fleet refueling activities and contained multiple PSTs	Regulatory records review	Moderate Segment D
	Site 6, Project site survey Site of commercial welding and fabrication services business, with totes of unknown contents and visible ground staining	Project site survey observations	Moderate Segment D
	Site 7, Project site survey Site of AST for hydraulic system, multiple drums containing racing fuel, and visible ground staining.	Project site survey observations	Moderate Segment D

Figure 3-59 continued: Gold Alternative Hazardous Materials Sites of High and Moderate Environmental Risk

BUILD ALTERNATIVE	Site Information	Site Identification	Potential to Impact Project/Segment
<p style="text-align: center;">GOLD ALTERNATIVE W/SPUR additional sites</p>	<p>Latimore Materials, Inc. (ISA Map ID 50) Active cement ready-mix plant with mercury and lead compounds onsite and large amounts of diesel fuel, petroleum distillates, and other chemical materials stored onsite. A large waste or detention basin Aboveground PSTs, 55-gallon drums, and numerous totes containing various fuels, oils and other chemicals were observed onsite during site reconnaissance.</p>	<p>Regulatory records review</p>	<p>High Segment D W/Spur</p>
	<p>Race Trac 155 (ISA Map ID 52) Active gas station. Based on historic aerials, this property was formerly part of the Lattimore property prior to Airport Drive being constructed in approx. July 2006.</p>	<p>Regulatory records review</p>	<p>Moderate Segment D W/Spur</p>

Hines, Lucien Property – as described under the Purple Alternative, the site (ISA Map ID 2) was determined to be a moderate environmental risk to the construction of Segment E.

Site 4 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment E.

Fowler Construction – as described under the Purple Alternative, the site (ISA Map ID 20) was determined to be a moderate environmental risk to the construction of Segment D, both W/Spur and W/O Spur.

Site 6 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment D, both W/Spur and W/O Spur.

Site 7 - as described under the Purple Alternative, the site was determined to be a moderate environmental risk to the construction of Segment D, both W/Spur and W/O Spur.

Pipelines

Environmental risk to the Gold Alternative due to existing pipelines would be the same as described previously under the Purple Alternative.

W/Spur one additional site of high and one additional site of moderate environmental risk would be added to the Gold Alternative. Lattimore Materials, Inc. (ISA Map ID 50) is within and adjacent to the proposed ROW and would be a high environmental risk. Race Trac 155 (ISA Map ID 52) is within the proposed ROW and would be a moderate environmental risk. Additional description of these sites is provided previously under the Purple Alternative W/Spur.

No-Build Alternative

Under the No-Build Alternative, no ROW acquisition, demolition, or development would occur, and therefore no effect to the identified hazardous materials sites would occur.

Preferred Alternative - Blue Alternative (A+E+C)

While there are no other sites expected to pose greater than a low potential to impact the Blue Alternative, special provisions or contingency language would be included in the project plans, specifications, and estimates to handle any hazardous materials that may be encountered during construction of the Preferred

Alternative/Blue Alternative. Plans would include language for, but not limited to, the handling and disposal of petroleum contamination, asbestos-containing materials, and additional hazardous materials according to applicable federal and state regulations.

3.14 Traffic Noise

A traffic noise analysis was conducted in accordance with TxDOT's (FHWA-approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise and Construction Noise (TxDOT 2019). A *Traffic Noise Analysis Technical Report – US 380 McKinney* was completed for the proposed project in October 2022. This report is included as **Appendix R**. An additional noise analysis was conducted in June-July 2023 to assess the design refinements made to the Preferred Alternative/Blue Alternative following the public hearing (see **Section 2.4**). The results of this additional analysis is captured in the *Traffic Noise Analysis Report Addendum – Preferred Alternative – US 380 McKinney*, August 2023 included in **Appendix R**.

3.14.1 Background Information

The predominant land uses in the vicinity of the Study Area are residential, commercial, and transportation. The Study Area includes the proposed ROW of the Purple, Blue, Brown, and Gold Alternatives under consideration for improving US 380 McKinney.

Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust. It is commonly measured in decibels and is expressed as "dB."

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dB(A)."

Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq."

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur (**Figure 3-61**).

Figure 3-61: Noise Abatement Criteria

Activity Category	FHWA (dB(A) Leq)	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ⁵¹	67 (exterior)	Residential
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

SOURCE: Guidelines for Analysis and Abatement of Roadway Traffic Noise (TxDOT 2019)

A noise impact occurs when either the absolute or relative criterion is met:

Absolute criterion: The predicted noise level at a receptor approaches, equals, or exceeds the NAC. Approach is defined as 1 dB(A) below the NAC. For example, a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dB(A) or above.

Relative criterion: The predicted noise level substantially exceeds the existing noise level at a receptor even though the predicted noise level does not approach, equal, or exceed the NAC. Substantially exceeds is defined as more than 10 dB(A). For example, a noise impact would occur at a Category B residence if the existing noise level is 54 dB(A) and the predicted noise level is 65 dB(A) (11dB(A) increase).

When a traffic noise impact occurs, noise-abatement measures must be considered. A noise-abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

The FHWA traffic noise modeling software (TNM 2.5) was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

3.14.2 Environmental Consequences

Existing and predicted traffic noise levels were modeled at representative land use activity areas (receptors) adjacent to the project that might be impacted by traffic noise and would potentially benefit from feasible and

⁵¹ The analysis in the Noise Technical Report Addendum includes new Category B, C and E receptors from residential developments permitted within the Town of Prosper and the City of McKinney between April 2022 (previous noise model) and April 28, 2023. Development permits issued after April 28, 2023, were not included in the analysis.

reasonable noise abatement. The proposed Build Alternatives would result in traffic noise impacts to receptors, as described in the following sections. Noise abatement measures including traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers were considered.

Noise abatement measures were considered and analyzed for each impacted receptor location. Abatement measures, typically noise barriers, must provide a minimum noise reduction, or benefit, at or above the threshold of 5 dB(A). A barrier is not acoustically feasible unless it reduces noise levels by at least 5 dB(A) at greater than 50 percent of first-row impacted receptors and benefits a minimum of two impacted receptors. To be reasonable, the barrier must not exceed the cost reasonableness allowance of 1,500 square feet per benefited receptor and must meet the noise reduction design goal of 7 dB(A) for at least one receptor.

Traffic management: control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.

Alteration of horizontal and/or vertical alignments: any alteration of the existing alignment would displace existing businesses and residences, require additional ROW and not be cost effective/reasonable.

Buffer zone: the acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

Traffic noise barriers: this is the most commonly used noise abatement measure. Noise barriers were evaluated for each of the impacted receptor locations. It was then determined whether noise barriers would be reasonable and feasible.

3.14.2.1 Noise Contours for Land Use Planning

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, that no new activities are planned or constructed along or within the following predicted (2050) noise impact contours shown in **Figure 3-62**.

Impact contours are one dB(A) lower than the NAC per category to reflect impacts that would occur as a result of approaching the NAC for the respective contours. Permit research was conducted using the best available online data from the City of McKinney and Town of Prosper as of April 28, 2023. This research was based on available online permit search and address information from the Collin Central Appraisal District database.

Figure 3-62: Noise Contours for Land Use Planning

Segment	Land Use	Impact Contour	Distance from Right of Way
A	NAC categories B & C	66 dB(A)	≈ 300 feet
	NAC category E	71 dB(A)	≈ 114 feet
B	NAC categories B & C	66 dB(A)	≈ 610 feet
	NAC category E	71 dB(A)	≈ 243 feet
C	NAC categories B & C	66 dB(A)	≈ 425 feet
	NAC category E	71 dB(A)	≈ 124 feet
D	NAC categories B & C	66 dB(A)	≈ 320 feet
	NAC category E	71 dB(A)	≈ 148 feet
E	NAC categories B & C	66 dB(A)	≈ 333 feet
	NAC category E	71 dB(A)	≈ 124 feet

SOURCE: Segments B and D - *Traffic Noise Analysis Technical Report – US 380 McKinney*, October 2022; Segments A, E, and C - *Traffic Noise Analysis Report Addendum – Preferred Alternative – US 380 McKinney*, August 2023; Appendix R.

3.14.2.2 Construction Noise

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receptors is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

3.14.2.3 Alternative Results

Existing and predicted traffic noise levels were modeled at receptor locations that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement. The following summarizes and illustrates the modeling results for the four Build Alternatives. **Figure 3-63** summarizes the change in dB(A) expected at each receiver location for each of the four Build Alternatives. Mapping by study segment follows the alternative summaries illustrating the locations of receptors and barriers that were analyzed. Detailed results of the traffic noise analysis are provided in the *Traffic Noise Analysis Report – US 380 McKinney* and the *Traffic Noise Analysis Report Addendum- Preferred Alternative – US 380 McKinney* in **Appendix R**.

Figure 3-63: Summary of Predicted Traffic Noise Level Changes for the Build Alternatives

Noise Impact	NAC Activity Category / Acceptable Criteria Level db(A) Leq	Predicted dB(A) Change Compared to Existing (+/-)	Total Number of Representative Receptors			
			Purple Alternative	Blue Alternative	Brown Alternative	Gold Alternative
NO	B / 67 dB(A)	<0	158	753	139	136
		+1 to +10	662	416	396	337
YES	B/ 67 dB(A)	<0	12	369	0	0
		+1 to +10	97	217	61	57
		≥+11	83	358	281	283
NO	C/ 67 dB(A)	<0	32	40	1	0
		+1 to +10	20	6	2	7
YES	C/ 67 dB(A)	<0	0	3	0	0
		+1 to +10	4	2	7	8
		≥+11	10	10	47	47
No	E/ 72 dB(A)	+1 to +10	1	1	1	1

SOURCE: Traffic Noise Analysis Technical Report – US 380 McKinney, November 2022; Traffic Noise Analysis Report Addendum – Preferred Alternative – US 380 McKinney, August 2023; Appendix R.

The values shown for the Purple, Brown, and Gold Alternatives are based on the 60% Geometric Design Schematic reviewed in the DEIS and the modeling described in the November 2022 Traffic Noise Analysis Technical Report. Only the Blue Alternative was updated based on the May 2023 95% Geometric Design Schematic and the findings presented in the Traffic Noise Analysis Report Addendum – Preferred Alternative. The receptor counts for the Blue Alternative include new developments permitted since April 2022 through April 28, 2023, within the Town of Prosper and City of McKinney.

Purple Alternative (A+E+D)

The Purple Alternative contained 206 impacted receptors (Figure 3-64). Out of these impacted receptors, 93 receptors had substantial increase and 74 receptors would benefit from feasible and reasonable barriers.

Receptors and barriers are depicted in the following figures in Appendix R, Attachment 1:

- Segment A – Figures A-1 through A-13
- Segment E – Figures E-1 through E-14
- Segment D – Figures D1 through D-11

Blue Alternative (A+E+C)

Based on the updated noise analysis conducted for the Blue Alternative in June 2023, the Blue Alternative contained 854 impacted receptors (Figure 3-64). Out of these impacted receptors, 368 receptors would experience a substantial increase and 320 receivers would benefit from feasible and reasonable barriers.

Receptors and barriers are depicted in the following figures in the Traffic Noise Analysis Report Addendum – Preferred Alternative in Appendix R, Attachment 1:

- Segment A – Figures A-1 through A-17
- Segment E – Figures E-1 through E-21
- Segment C – Figures C-1 through C-11

Brown Alternative (B+E+C)

The Brown Alternative contained 396 impacted receptors (**Figure 3-64**). Out of these impacted receptors, 328 receptors had substantial increase and 123 receptors would benefit from feasible and reasonable barriers.

Receptors and barriers are depicted in the following figures in **Appendix R, Attachment 1**:

- Segment B – Figures B-1 through B-11
- Segment E – Figures E-1 through E-14
- Segment C - Figures C-1 through C-14

Gold Alternative (B+E+D)

The Gold Alternative contained 395 impacted receptors (**Figure 3-64**). Out of these impacted receptors, 330 receptors had substantial increase and 123 receptors would benefit from feasible and reasonable barriers.

Receptors and barriers are depicted in the following figures in **Appendix R, Attachment 1**:

- Segment B – Figures B-1 through B-11
- Segment E – Figures E-1 through E-14
- Segment D - Figures D-1 through D-11

As indicated in the previous figures the proposed project would result in a traffic noise impact at one or more representative receptor locations. **Figure 3-64** summarizes and compares the predicted traffic noise level change for the Purple, Brown, and Gold Alternatives as presented in the DEIS. The revised values for the Blue Alternative based on the noise analysis conducted for the Blue Alternative (Preferred Alternative) only following the public hearing are summarized in **Figure 3-65**.

Figure 3-64: Summary of Traffic Noise Impacts of the Build Alternatives

Statistics		Purple Alternative ^a	Blue Alternative ^b	Brown Alternative ^a	Gold Alternative ^a
Number of Receptors that approach or exceed the NAC	Cat B	192	846	342	340
	Cat C	14	8	54	55
	Cat E	0	0	0	0
Total Number of Receptors Approach/Exceed NAC:		206	906	396	395
Substantial increase	Cat B	83	358	281	283
	Cat C	10	27	47	47
	Cat E	0	0	0	0
Total Number of Receptors w/Substantial Increase:		93	385	328	330
Proposed Barriers	Receptor Type	4 Barriers (A01, A07-2, E04 and E05)	8 Barriers (A01, A07-2, A10, A11, A12, E04, E05, and E06)	6 Barriers (B01, B02, B03, B05-1, E04 and E05)	6 Barriers (B01, B02, B03, B05-1, E04 and E05)
	Benefited Receivers				
Benefited Receivers	Cat B	72	317	119	119
	Cat C	2	2	4	4
	Cat E	0	0	0	0
Total Number of Benefitted Receivers:		74	319	123	123

SOURCE:

a - Traffic Noise Analysis Technical Report – US 380 McKinney, October 2022; Appendix R.

b - Traffic Noise Analysis Report Addendum – Preferred Alternative – US 380 McKinney, August 2023; Appendix R.

The values shown for the Purple, Brown, and Gold Alternatives are based on the 60% Geometric Design Schematic reviewed in the DEIS and the modeling described in the November 2022 Traffic Noise Analysis Technical Report. Only the Blue Alternative was updated based on the May 2023 95% Geometric Design Schematic and the findings presented in the Traffic Noise Analysis Report Addendum – Preferred Alternative. The receptor counts for the Blue Alternative include new developments permitted since April 2022 through April 28, 2023, within the Town of Prosper and City of McKinney.

Figure 3-65: Summary of Traffic Noise Impacts of the Preferred Alternative/Blue Alternative

Statistics	Receptor Type	Blue Alternative			
		SEGMENT A	SEGMENT E	SEGMENT C	TOTALS
Number of Receptors that approach or exceed the NAC	Cat B	561	243	42	846
	Cat C	4	3	1	8
	Cat E	0	0	0	0
Total Number of Receptors:		565	246	43	854
Substantial increase	Cat B	7	334	17	358
	Cat C	7	3	0	10
	Cat E	0	0	0	0
Total Number of Receptors:		14	337	17	368
Proposed Barriers	Receptor Type	5 Barriers (A01, A07-2, A10, A11, and A12)	3 Barriers (E04, E05, and E08)	None	9
Benefited Receivers	Cat B	223	94	0	317
	Cat C	0	2	0	3
	Cat E	0	0	0	0
Total Number of Benefitted Receivers:		223	97	0	320

SOURCE: Traffic Noise Analysis Report Addendum – Preferred Alternative – US 380 McKinney, August 2023; Appendix R.

Noise abatement measures will be considered for each location with predicted noise impacts. Abatement measures, typically noise barriers, must provide a minimum noise reduction, or benefit, at or above the threshold of 5 dB(A). A barrier is not acoustically feasible unless it reduces noise levels by at least 5 dB(A) at greater than 50 percent of first-row impacted receptors and benefits a minimum of two impacted receptors. To be reasonable, the barrier must not exceed the cost reasonableness allowance of 1,500 square feet per benefited receptor and must meet the noise reduction design goal of 7 dB(A) for at least one receptor.

3.14.2.4 Abatement Analysis – Reasonable and Feasible Barriers

The following barriers are both feasible and reasonable based on the barrier analysis conducted for the Blue Alternative. **Figure 3-66** summarizes the proposed barriers.

Barrier A01: R-51, R-61, and R-71 (Figures A-1 and A-2) – These receivers represent a total of 3 impacted residences at the Prestwyck Neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,572 feet long, 12 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 14 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least 1 of those receptors. With a total area of abatement of 18,864 square feet or 1,347 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier A01 is considered acoustically feasible and cost effective.

Barrier A07-2: R-638 to R-649, R-652, R-658, R-662 to R-665, R-668, R-677, R-678, R-680 to R-686, R-688, R-689, R-693, R-699, R-700 to R-702, R-704 to R-706, R-709, R-715, R-719, R-720, R-722, R-725, R-727 to R-730, R-740, R-742, R-745, R-748, R-753, R-755, and R-764 (Figures A-8 and A-9) Two alternatives are analyzed for this barrier - Barrier A07-1 and Barrier A07-2. Only Barrier A07-2 is reasonable and feasible. Both barrier alternatives cover the same receptors listed above.

Barrier A07-1: These receivers represent a total of 55 impacted residences in the Stonebridge Ranch neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 971 feet long, 20 feet tall, and located between the off-ramp and the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier A07-2: These receivers represent a total of 55 impacted residences in the Stonebridge Ranch neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 943 feet long, 18 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 20 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 16,974 square feet or 849 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier A07-2 is considered acoustically feasible and cost effective.

Barrier A10: R-818, R-820, and R-821 (Figures A-8 and A-10) – These receivers represent a total of 3 impacted residences at the Kensington Neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 683 feet long, 8 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 7 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 5,464 square feet or 781 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier A10 is considered acoustically feasible and cost effective.

Barrier A11: R-1527 to R-1606, R-1608 to R-1610, R-1612 to R-1622, R-1624 to R-1626, R-1628 to R-1638, R-1640 to R-1642, R-1644 to R-1646, R-1648 to R-1654, R-1656 to R-1658, R-1670 to R-1672, R-1674 to R-1680, R-1682 to R-1688, R-1690 to R-1696, R-1698 to R-1704, R-1706 to R-1712, R-1714 to R-1716, R-1718 to R-1720, R-1722 to R-1724, R-1726 to R-1728, R-1730 to R-1732, R-1734 to R-1736, R-1738 to R-1740, R-1743, R-1744, R-1747, R-1748, R-1751, R-1752, R-1755, R-1756, R-1759, R-1760, R-1762 to R-1764, R-1766 to R-1768, R-1770 to R-1772, R-1775, R-1776, R-1778 to R-1784, R-1787, R-1788, R-1790 to R-1792, R-1794 to R-1800, R-1803, R-1804, R-1807, R-1808, R-1810 to R-1816, R-1820, R-1824, R-1826 to R-1828, R-1830 to R-1832, R-1836, R-1839, R-1840, R-1842 to R-1844, R-1848, R-1851, R-1852, R-1856, R-1859, R-1860, R-1868, R-1888, R-1894 to R-1900, R-1922 to R-1928, R-1930 to R-1932, R-1934 to R-1936, R-1955, R-1956, R-1960, R-2007, R-2010, R-2011, R-2014, R-2015, R-2050, R-2051, R-2053 to R-2055, R-2058, R-2059, R-2061 to R-2063, R-2066, R-2067, R-2069, R-2070, R-2071, R-2074, R-2075, R-2077 to R-2079, R-2082, R-2083, R-2085, R-2087, R-2090, R-2091, R-2093 to R-2095, R-2098, R-2099, R-2101 to R-2103, R-2106, R-2107, R-2109 to R-2111, R-2114, R-2115, R-2117 to R-2119, R-2122, R-2123, R-2125 to R-2127, R-2130, R-2131, R-2133 to R-2135, R-2138, R-2139, R-2141 to R-2143 (Residential) (Figures A-10, A-11, and A-12) – These receivers represent a total of 344 impacted residences at the new

development Chase at Wilson Creek along the Preferred Alternative. Based on preliminary calculations, a noise barrier 3,328 feet long, 20 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 162 (one hundred sixty-two) benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 66,560 square feet or 411 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier A11 is considered acoustically feasible and cost effective.

Barrier A12: R-2319 to R-2325, R-2327 to R-2330, R-2332, R-2334 to R-2337, R-2341 to R-2344, R-2346 to R-2355, R-2357 to R-2359, R-2363, R-2364, R-2367, R-2368, R-2370 to R-2381, R-2383 to R-2385, R-2387, R-2389 to R-2395, R-2398 to R-2401, R-2403, R-2404, R-2406 to R-2411, R-2413 to R-2419, R-2422, R-2423, R-2425, R-2426, R-2428, R-2430 to R-2434, R-2436, R-2438, R-2439, R-2441, R-2442, R-2444, R-2445, R-2447, R-2448, R-2451, R-2452, R-2453 to R-2466 to R-2470, R-2472 to R-2476, R-2478, R-2480, R-2482 to R-2484, R-2486 to R-2495 (Figures A-3 and A-4) – These receivers represent a total of 362 impacted residences/dwelling units at the new development at Brookhollow Neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 909 feet long, 15 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 40 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 13,635 square feet or 341 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier A12 is considered acoustically feasible and cost effective.

Barrier E04: R-1225 and R-1236 (Figures E-9, E-10, and E-11) - These receivers represent a total of 40 equivalent dwelling units at Erwin Park along the Preferred Alternative. Based on preliminary calculations, a noise barrier 2,481 feet long, 17 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 40 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 42,177 square feet or 1,054 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier E04 is considered acoustically feasible and cost effective.

Barrier E05: R-1196 to R-1200, R-1202 to R-1205, R-1207 to R-1222, R-1224, R-1228 to R-1232, and R-2285 (Figures E-9 and E-10) - These receivers represent a total of 32 impacted residences at the Erwin Farms neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 2,450 feet long, 19 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 34 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 46,550 square feet or 1,369 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier E05 is considered acoustically feasible and cost effective.

Barrier E08: R-2147, R-2148, R-2152, R-2153, R-2156, R-2159, R-2162 to R-2165, R-2170 to R-2202, R-2207 to R-2216, R-2220 to R-2224, R-2227 to R-2230, R-2233 to R-2237, R-2239 to R-2256, R-2258 to R-2267, R-2269 to R-2284, R-2680, and R-2682 (Figures E-10 and E-12) - These receivers represent a total of 113 impacted residences at the new development at Horizons neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 3,872 feet long, 11 feet tall, and located along the proposed ROW would reduce noise levels by at least 5 dB(A) for 60 benefited receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. With a total area of abatement of 42,592 square feet

or 710 square feet per benefited receptor, the barrier would be cost reasonable. Therefore, Barrier E08 is considered acoustically feasible and cost effective.

3.14.2.5 Abatement Analysis – Barriers Not Proposed

Noise barriers were not reasonable and feasible for the remaining impacted representative receptors, and abatement is not proposed for those locations. Additional details regarding the barrier analysis can be found in the *Traffic Noise Analysis Technical Report – US 380 McKinney, November 2022*, and the *Traffic Noise Analysis Report Addendum – Preferred Alternative – US 380 McKinney, July 2023 (Appendix R)*. The descriptions reference figures from the *Traffic Noise Analysis Report Addendum Appendix R*.

Noise barriers are not proposed at the following locations:

R-161 (Figure A-2), R-466 (Figure A-6), R-837 (Figure A-10), and R-894 (Figure E-1) - These receptors are separate, isolated residences, which are not associated with a neighborhood or subdivision. Because a noise abatement measure must potentially benefit a minimum of two impacted receptors, noise abatement for these locations is not feasible.

Barrier A02: R-474 and R-477 (Figures A-6 and A-7)– These receivers represent a total of 4 equivalent impacted dwelling units in La Cima Park along the Preferred Alternative. Based on preliminary calculations, a noise barrier 607 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier A04: R-483, R-485, R-489, R-492, and R-573 (Figures A-6, A-7, and A-8)- These receivers represent a total of 5 impacted residences in the Stonebridge Ranch neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 2,248 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier A05: R-817, R-819 and R-822 (Figure A-13) - These receivers represent a total of 3 impacted residences between STA 1519+00 and STA 1535+00 (south of CR 124) along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,637 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Figure 3-66: Proposed Reasonable and Feasible Noise Barriers for the Preferred Alternative/Blue Alternative

Barrier	Locations	Receptor Number - Type	Number of Benefited Receptors	Length (feet)	Height (feet)	Cost Reasonableness	
						Total Barrier Area (sq. ft.)	Area/Benefitted Receptor (sq. ft.)
A01	Prestwyck Neighborhood	R-51, R-61, and R-71 (Residential)	14	1,572	12	18,864	1,347
A07-2	Stonebridge Ranch	R-638 to R-649, R-652, R-658, R-662 to R-665, R-668, R-677, R-678, R-680 to R-686, R-688, R-689, R-693, R-699, R-700 to R-702, R-704 to R-706, R-709, R-715, R-719, R-720, R-722, R-725, R-727 to R-730, R-740, R-742, R-745, R-748, R-753, R-755, and R-764 (Residential)	20	943	18	16,974	849
A10	Kensington	R-818, R-820, and R-821 (Residential)	7	683	8	5,464	781
A11	New Development Chase at Wilson Creek*	R-1527 to R-1606, R-1608 to R-1610, R-1612 to R-1622, R-1624 to R-1626, R-1628 to R-1638, R-1640 to R-1642, R-1644 to R-1646, R-1648 to R-1654, R-1656 to R-1658, R-1670 to R-1672, R-1674 to R-1680, R-1682 to R-1688, R-1690 to R-1696, R-1698 to R-1704, R-1706 to R-1712, R-1714 to R-1716, R-1718 to R-1720, R-1722 to R-1724, R-1726 to R-1728, R-1730 to R-1732, R-1734 to R-1736, R-1738 to R-1740, R-1743, R-1744, R-1747, R-1748, R-1751, R-1752, R-1755, R-1756, R-1759, R-1760, R-1762 to R-1764, R-1766 to R-1768, R-1770 to R-1772, R-1775, R-1776, R-1778 to R-1784, R-1787, R-1788, R-1790 to R-1792, R-1794 to R-1800, R-1803, R-1804, R-1807, R-1808, R-1810 to R-1816, R-1820, R-1824, R-1826 to R-1828, R-1830 to R-1832, R-1836, R-1839, R-1840, R-1842 to R-1844, R-1848, R-1851, R-1852, R-1856, R-1859, R-1860, R-1868, R-1888, R-1894 to R-1900, R-1922 to R-1928, R-1930 to R-1932, R-1934 to R-1936, R-1955, R-1956, R-1960, R-2007, R-2010, R-2011, R-2014, R-2015, R-2050, R-2051, R-2053 to R-2055, R-2058, R-2059, R-2061 to R-2063, R-2066, R-2067, R-2069, R-2070, R-2071, R-2074, R-2075, R-2077 to R-2079, R-2082, R-2083, R-2085, R-2087, R-2090, R-2091, R-2093 to R-2095, R-2098, R-2099, R-2101 to R-2103, R-2106, R-2107, R-2109 to R-2111, R-2114, R-2115, R-2117 to R-2119, R-2122, R-2123, R-2125 to R-2127, R-2130, R-2131, R-2133 to R-2135, R-2138, R-2139, R-2141 to R-2143 (Residential)	162	3,328	20	66,560	411

Figure 3-66 continued: Proposed Reasonable and Feasible Noise Barriers for the Preferred Alternative/Blue Alternative

Barrier	Locations	Receptor Number - Type	Number of Benefitted Receptors	Length (feet)	Height (feet)	Cost Reasonableness	
						Total Barrier Area (sq. ft.)	Area/Benefitted Receptor (sq. ft.)
A12	New Development Brookhollow*	R-2319 to R-2325, R-2327 to R-2330, R-2332, R-2334 to R-2337, R-2341 to R-2344, R-2346 to R-2355, R-2357 to R-2359, R-2363, R-2364, R-2367, R-2368, R-2370 to R-2381, R-2383 to R-2385, R-2387, R-2389 to R-2395, R-2398 to R-2401, R-2403, R-2404, R-2406 to R-2411, R-2413 to R-2419, R-2422, R-2423, R-2425, R-2426, R-2428, R-2430 to R-2434, R-2436, R-2438, R-2439, R-2441, R-2442, R-2444, R-2445, R-2447, R-2448, R-2451, R-2452, R-2453 to R-2466 to R-2470, R-2472 to R-2476, R-2478, R-2480, R-2482 to R-2484, R-2486 to R-2495 (Residential)	40	909	15	13,635	341
E04	Erwin Park	R-1225 and R-1236 (Park)	40 dwelling unit equivalents	2,481	17	42,177	1,054
E05	Erwin Farms*	R-1196 to R-1200, R-1202 to R-1205, R-1207 to R-1222, R-1224, R-1228 to R-1232, and R-2285 (Residential)	34	2,450	19	46,550	1,369
E08	New Development Horizons*	R-2147, R-2148, R-2152, R-2153, R-2156, R-2159, R-2162 to R-2165, R-2170 to R-2202, R-2207 to R-2216, R-2220 to R-2224, R-2227 to R-2230, R-2233 to R-2237, R-2239 to R-2256, R-2258 to R-2267, R-2269 to R-2284, R-2680, and R-2682 (Residential)	60	3,872	11	42,592	710

Note: The Chase at Wilson Creek, Brookhollow, and Horizons developments are either under construction or permitted/planned for development. At the time the noise model was conducted, none of the receptors were present within the developments.

SOURCE: Traffic Noise Analysis Report Addendum – Preferred Alternative, US 380 McKinney, August 2023; Appendix R.

Barrier A06: R-863, R-884, and R-912 (Figures A-15, A-16, and A-17)- These receivers represent a total of 3 impacted residential lots between STA 1545+00 and STA 1574+00 (northern end of Segment A) along the Preferred Alternative. Based on preliminary calculations, a noise barrier 3,180 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier A08: R-900, R-901, R-918, R-919, R-925, R-939 and R-946 (Figure A-13)- These receivers represent a total of 98 equivalent dwelling units in the Zinger Bat Ball Park along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,498 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier A09: R-127, R-131, R-135, R-139, R-147, R-153, R-155, R-157, and R-159 (Figure A-2) - These receivers represent a total of 9 equivalent dwelling units in the Red Bud Estates neighborhood along the Preferred Alternative. A continuous noise barrier 20 feet tall and approximately 1,829 feet long was modeled along the proposed ROW. This barrier would achieve the minimum feasible reduction of 5 dB(A) for 4 receptors while meeting the 7 dB(A) noise reduction design goal at one of those receptors. However, the square footage of abatement (36,580 square feet or 9,145 square feet per benefited receptor) would exceed the reasonable, cost-reasonableness criterion of 1,500 square feet per benefited receptor.

Barrier A13: R-225, R-231, R-237, R-241, and R-243 (Figure A-3)- These receivers represent a total of 5 equivalent dwelling units in the new development at Hidden Lakes along the Preferred Alternative. Based on preliminary calculations, a noise barrier 916 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

R-1433 (Figure C-4) is a separate, isolated residence, which is not associated with a neighborhood or subdivision. Because a noise abatement measure must potentially benefit a minimum of two impacted receptors, noise abatement for this location is not feasible.

Barrier C03: R-1438, R-1440, R-1443, R-1446, and R-1447 (Figures C-6 and C-7)- These receivers represent a total of 5 equivalent dwelling units between STA 2051+50 and STA 2060+00 along the Preferred Alternative. Based on preliminary calculations, a noise barrier 877 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier C04: R-1456, and R-1458 (Figures C-6 and C-7)- These receivers represent a total of 2 equivalent dwelling units between STA 2054+00 and STA 2062+00 along the Preferred Alternative. Based on preliminary calculations, a noise barrier 847 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier C05: R-1509, R-1511, R-1513, R-1515, R-1517, R-1519, R-1524, R-2678, and R-2679 (Figure C-9)- These receivers represent a total of 9 equivalent dwelling units between STA 2114+50 and STA 2122+00 along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,642 feet long, 20 feet tall,

and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier C06: R-1461, R-1463, R-1465, R-1467, R-1469, R-1471, R-1473, R-1475, R-1477, R-1479, R-1481, R-1483, R-1485, R-1487, R-1489 (Figures C-7, C-8, and C-9)– These receivers represent a total of 15 equivalent dwelling units between STA 2068+50 and STA 2092+00 along the Preferred Alternative. Based on preliminary calculations, a noise barrier 2,187 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier C07: R-1491, R-1493, R-1495, R-1497, R-1499, R-1501, R-1503, R-1505, and R-1507 (Figure C-9)– These receivers represent a total of 9 equivalent dwelling units between STA 2104+50 and STA 2114+00 along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,118 feet long, 20 tall, and located between the proposed roadway and the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier C08: R-1434 and R-1459 (Figure C-8)– These receivers represent a total of 776 equivalent dwelling units at McKinney Park Land along the Preferred Alternative. Based on preliminary calculations, a noise barrier 9,510 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

R-1187 (Figure E-4), R-1188 (Figure E-4), R-1374 (Figure E-15), and R-2144 (Figure E-16) - These receptors are separate, isolated residences, which are not associated with a neighborhood or subdivision. Because a noise abatement measure must potentially benefit a minimum of two impacted receptors, noise abatement for these locations is not feasible.

Barrier E03: R-1191 (Figures E-6 and E-7) - This receiver represents a total of 102 equivalent dwelling units on city parkland (Future McKinney Sports Park) along the Preferred Alternative. Based on preliminary calculations, a noise barrier 2,268 feet long, 20 feet tall, and located along the proposed ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier E06: R-1178 and R-1181 to R-1184 (Figures E-4 and E-5) – An existing barrier is in front of the Heatherwood neighborhood, where noise impacts at the sides of the barrier occur at locations where the existing barrier cannot adequately address the increase in traffic noise under the build condition. While the existing neighborhood wall does provide some noise reduction, the existing wall does not wrap around the ends or sides of the barrier and therefore does not provide enough acoustical shielding to homes deeper into the neighborhood due to flanking.

These receivers represent a total of 5 equivalent dwelling units in the Heatherwood neighborhood along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,897 feet long, 20 feet tall, and located along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier E07: R-1170 and R-1175 (Figures E-4 and E-5) – These receivers represent a total of 2 equivalent dwelling units from STA 1635+20 to STA 1635+80 along the Preferred Alternative. Based on preliminary calculations, a noise barrier 284 feet long, 20 feet tall, and located along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Barrier E09: R-2496 to R-2675 (Figures E-12 and E-13)– These receivers represent a total of 540 equivalent dwelling units at the new development at Modera McKinney Ridge along the Preferred Alternative. Based on preliminary calculations, a noise barrier 1,786 feet long, 20 feet tall, and located along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted receptors or the noise reduction design goal of 7 dB(A).

Statement of Likelihood

Any subsequent project design changes may require a reevaluation of this noise barrier analysis. The final decision to construct a proposed noise barrier will not be made until completion of the project design, utility evaluation, and polling of all benefited and adjacent property owners and residents.

A copy of the traffic noise analysis will be made available to local officials to assist in future land use planning and ensure, to the maximum extent possible, future developments are planned, designed, and programmed in a manner that would avoid traffic noise impacts. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the Preferred Alternative once one is selected.

No-Build Alternative

Under the No-Build Alternative, no increase in traffic noise, aside from increases caused by additional traffic on existing roadways would occur.

Preferred Alternative - Blue Alternative (A+E+C)

In response to comments received regarding traffic noise at the public hearing, especially from the Tucker Hill neighborhood, a second noise analysis was conducted incorporating the changes to the schematic design shared within the public during the public hearing. TxDOT adjusted the design of the alignment, along Segment A south of Tucker Hill and north of Stonebridge Ranch, by depressing the mainlanes approximately 20 feet below existing grade. The walls retaining the earthen fill adjacent to the depressed mainlanes act as noise barriers and decrease the noise levels compared to those projected in the DEIS. As shown in **Figure 3-67**, the depressed lanes diffract the noise in the same manner that an above-grade noise barrier would.

Figure 3-67: Proposed Depressed Section Between Tucker Hill (North) and Stonebridge Ranch (South)

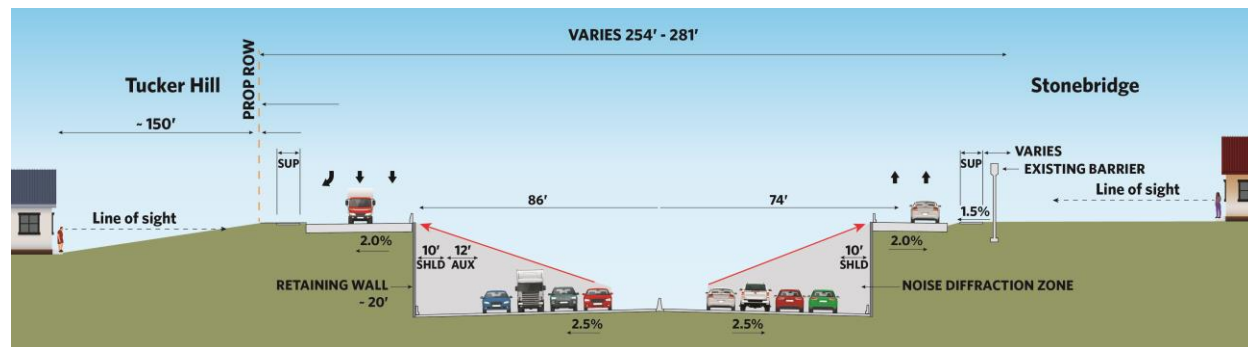


Figure 3-68 summarizes the modeled change in noise levels with implementation of the depressed freeway section.

Figure 3-68: Preferred Alternative/Blue Alternative Proposed Depressed Section Between Tucker Hill (North) and Stonebridge Ranch (South)

Receptor	Existing (dBA)	DEIS (dBA)	FEIS (dBA)	DEIS/FEIS comparison	Noise Impact <u>Improvement</u> (FEIS compared to Existing)	Relative Loudness
R-539	59	61	60	(-1 dBA)	No, (+1 dBA)	No perceptible change
R-543	59	62	60	(-2 dBA)	No, (+1 dBA)	No perceptible change
R-548	59	63	61	(-2 dBA)	No, (+2 dBA)	Barely perceptible
R-549	60	64	61	(-3 dBA)	No, (+1 dBA)	No perceptible change
R-550	60	65	61	(-4 dBA)	No, (+1 dBA)	No perceptible change
R-551	61	66	61	(-5 dBA)	No, (0 dBA)	No perceptible change
R-552	62	66	61	(-5 dBA)	No, (-1 dBA)	Noise Reduction
R-554	63	67	62	(-5 dBA)	No, (-1 dBA)	Noise Reduction
R-559	63	68	62	(-6 dBA)	No, (-1 dBA)	Noise Reduction
R-562	64	69	62	(-7 dBA)	No, (-2 dBA)	Noise Reduction
R-568	64	69	61	(-8 dBA)	No, (-3 dBA)	Noise Reduction
R-575	62	68	60	(-8 dBA)	No, (-2 dBA)	Noise Reduction

SOURCE: DEIS, December 2022; Traffic Noise Analysis Report Addendum – Preferred Alternative, US 380 McKinney, August 2023; and TxDOT Guidelines for Analysis and Abatement of Traffic Noise.

A total of 2,175 receptors were analyzed for the Blue Alternative of which 959 receptors would be impacted, 854 would experience noise levels exceeding the NAC, 368 would experience substantial increases in noise levels, and 263 would experience both noise levels exceeding the NAC and substantial increases in noise levels. Eight noise barriers are proposed benefitting a total of 319 receivers or 377 dwelling units: Barrier A01 would benefit 14 receptors at the Prestwyck Neighborhood (Segment A), Barrier A10 would benefit 7 receivers (Segment A), Barrier A11 would benefit 162 receivers at Chase at Wilson Creek (new development in Segment A), Barrier A12 would benefit 20 receivers at Brookhollow (new development in Segment A), Barrier E04 would benefit 2 receivers at Erwin Park (Segment E), Barrier E05 would benefit 34 receivers at Erwin Farms, and Barrier E08 would benefit 60 receivers at Horizons (new development along Segment E). After issuance of the ROD, changes in the project as final design advances may necessitate that additional noise analyses be conducted at certain locations to determine if abatement is still warranted, feasible, and reasonable. TxDOT will conduct noise workshops during final design with those residents benefitting from abatement to determine if the proposed barriers will be constructed.

3.15 Induced Growth

The CEQ defines direct effects as those effects that are “caused by the action and occur at the same time and place.”⁵² Direct effects are predictable and are a direct result of the project. In addition to direct effects, major transportation projects may also have indirect effects on land use and the environment. As defined by the CEQ, indirect effects are “caused by an action and occur later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.”⁵³.

TxDOT identifies two categories of indirect effects: induced growth and encroachment alteration.

Induced Growth: For transportation projects, induced growth effects are most often related to changes in accessibility of an area, which in turn affects the area’s attractiveness for development. Indirect effects associated with induced development are also like direct impacts but would occur in association with future land use development undertaken by others over the development horizon within an area larger and beyond the extent of the direct footprint of the proposed project.

Encroachment Alteration: These effects may result from changes in ecosystems, natural processes, or socioeconomic conditions that are caused by the proposed action but occur later in time or farther removed in distance. One example of this type of effect would be a change in habitat or flow regime downstream resulting from installation of a new culvert.

According to TxDOT’s 2019 *Indirect Impacts Analysis Guidance*, direct and indirect effects are linked in a causal chain. By nature, indirect effects are less certain than direct impacts, but are still reasonably foreseeable. Indirect effects are probable rather than just possible consequences of an action. Determining probable consequences of an action involves reviewing numerous sources of information – such as development trends, land purchases, local plans, investment and/or marketing studies, etc. – and requires logical analysis of the likely effects of the proposed action and the possible consequences to determine the likelihood they will occur. The following sections outline the six-step process in the induced growth impact analysis. For a more detailed description of the induced growth impact analysis see **Appendix S** (Indirect and Cumulative Effects Analysis Technical Report).

3.15.1 Define the Methodology

A combined planning and collaborative judgment approach was selected to identify areas of potential growth, development trends, and the probability of the proposed project to influence local land use decisions within an Area of Influence (AOI). This approach uses professional judgement, data collected from local and regional planning entities, and an assessment of local conditions and trends to determine the potential for induced growth. Review of regional population estimates and local growth trends (2010 to 2045) and information from local and county planning documents were used to identify the potential extent of the AOI. The Feasibility Study was also used to identify issues pertaining to future development related to transportation improvements raised by the various jurisdictions involved to help define the AOI.

⁵² 40 CFR § 1508.8(a)

⁵³ 40 CFR § 1508.8(b)

As part of the approach, an Indirect Impacts Questionnaire, including the defined AOI, was sent via email to planners and city officials with Collin County, City of McKinney, Town of Prosper, City of Frisco, City of Allen, Town of Fairview, City of Melissa, Town of New Hope, City of Weston, the North Central Texas Council of Governments (NCTCOG), and the North Texas Municipal Water District (NTMWD). The questionnaire presented six questions/discussion topics covering development trends, the potential for the project to induce development within the respective jurisdiction, future development trends, development intensity, and the potential changes the project could have on the types of development within each jurisdiction. The questions and responses are discussed in detail in **Appendix S**.

3.15.2 Define the Area of Influence (AOI) and Study Timeframe

An essential objective of the process is to define the scope of the analysis by considering the potential indirect induced growth effects and their possible geographic range or extent. This is done by considering the attributes and the context of the proposed project and leads to a general assessment of the level of effects anticipated. In addition, the assessment considers the distance from the project construction footprint necessary for those effects to decrease to a negligible level. This approach helps determine the level of effort and approach needed to complete the analysis and is also critical in determining the geographic extent of the indirect effects within the Study Area, or the AOI.

3.15.2.1 Geographic Boundary of the Area of Influence

Depicted in **Figures 3-69 and 3-70**, the US 380 McKinney AOI encompasses approximately 71,914 acres and is generally bounded by Preston Road to the west; FM 1461, portions of unincorporated Collin County, and part of the jurisdictional boundaries of Melissa to the north; FM 2933, CR 412, CR 409, CR 408, CR 406, and South Bridgefarrow Road to the east; and FM 546, SH 5, and El Dorado Parkway to the south. The AOI includes the cities of Prosper, Frisco, McKinney, Melissa, Lowry Crossing, and New Hope with McKinney comprising a majority of the AOI acreage.

The AOI was defined in consideration of the following factors:

- The neighborhoods and areas best served by the US 380 McKinney project – mostly potential travelers heading west and then south.
- Areas with potential to be opened for development following construction of the proposed freeway because of increased mobility and ease of area access.
- Natural resources that have the potential to be indirectly affected.

Figure 3-69: US 380 McKinney Area of Influence (AOI) with the Build Alternatives

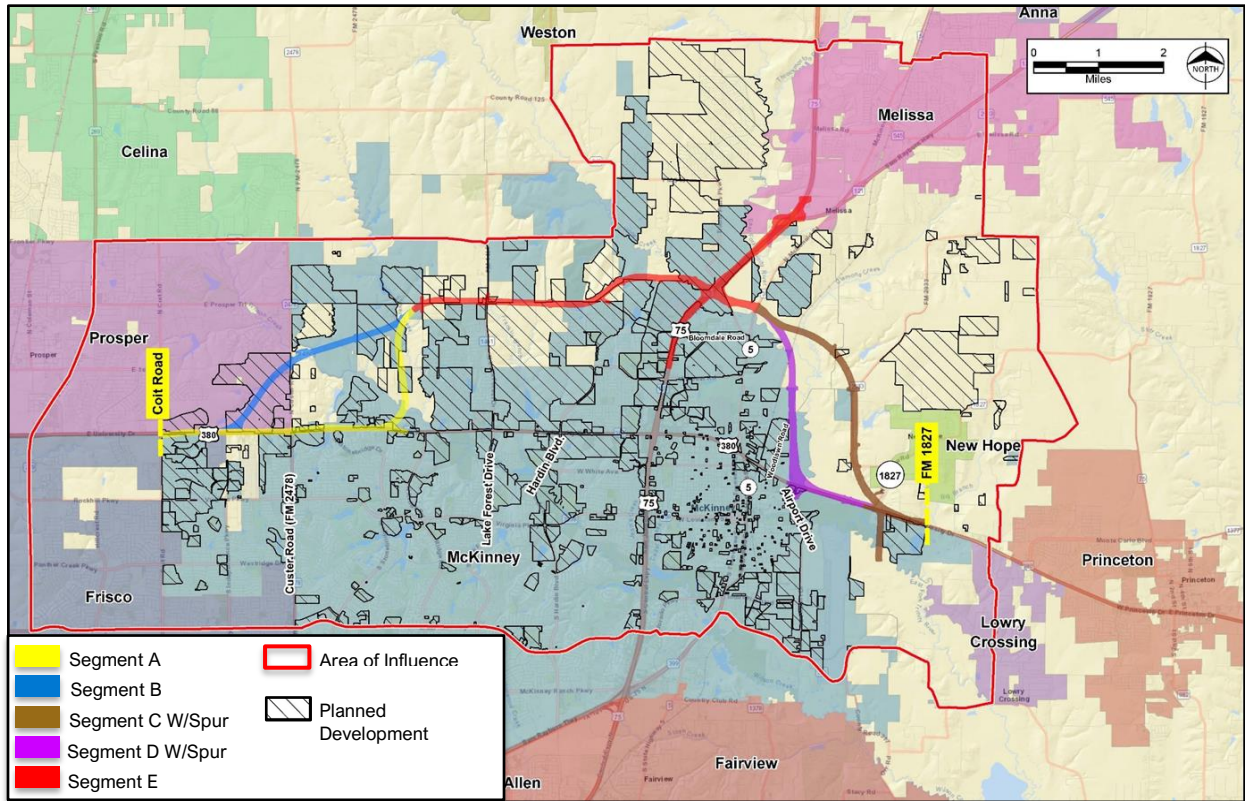
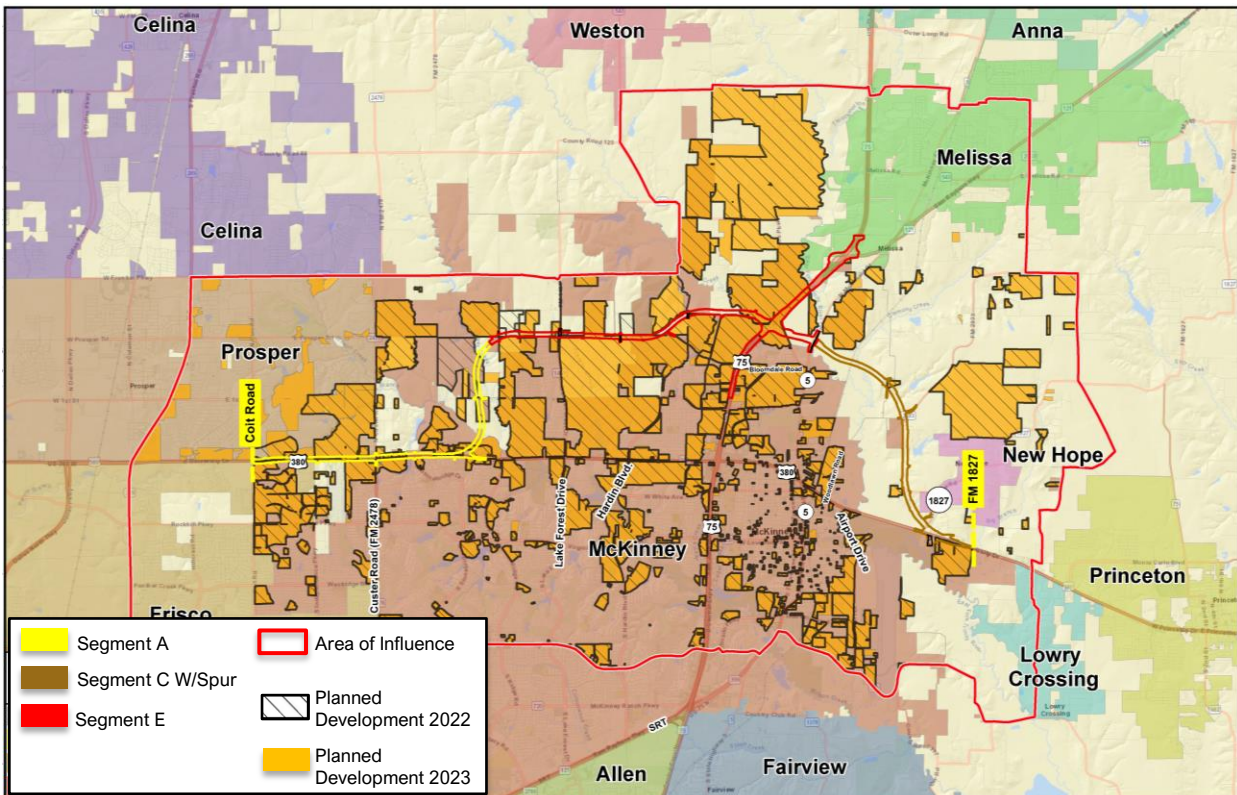


Figure 3-70: US 380 McKinney AOI with the Preferred Alternative/Blue Alternative and 2023 Planned Development Update



3.15.2.2 Time Frame for Assessing Indirect Impacts

The temporal boundary for the induced growth effects analysis extends from 2022 (date of the DEIS) to 2045 (the planning horizon year for *Mobility 2045*).

3.15.3 Identify Areas Subject to Induced Growth in the AOI

Vacant land and undevelopable areas (e.g., waterbodies, floodplains, parklands, and existing development) were identified to determine where induced growth could occur in the AOI and where development would be limited. Future land use plans and local planning regulations were reviewed to identify projected areas of growth, areas of redevelopment, and policies that may encourage or restrict development. The City of McKinney, Town of Prosper, City of Frisco, City of Allen, Town of Fairview, Town of New Hope, City of Princeton, City of Lowry Crossing, City of Melissa, and Collin County have adopted future land use plans as summarized in **Section 3.15.3.1**.

The total acreage of potentially developable and undevelopable land in the AOI is presented in **Figure 3-71** and illustrated in **Figure 3-72**.

Figure 3-71: Total Acreage of Potentially Developable and Undevelopable Land Within the AOI

Land Type	Acres	Percent of AOI
Total Area of Influence (AOI)	71,914	100%
Undevelopable Land (floodplains, waterbodies, parklands, and existing development)	35,207	49%
Planned Development	17,079	24%
Developable Land	19,628	27%

SOURCE: NCTCOG, 2018, and City of McKinney and Town of Prosper, 2022

Developed areas in the AOI include existing and planned development (i.e., cleared lands and projects under construction), which is mostly in the southern, central, and northwest portions of the AOI, in the cities of McKinney, Frisco, and Prosper. Approximately 17,079 acres in the AOI is comprised of planned development (known to-date) and approximately 19,628 acres is considered land that has the potential to be developed.

Approximately 35,207 acres, or 49 percent, of the land in the AOI is considered undevelopable because it is within mapped floodplains and it is within areas of existing or planned development. Development is limited due to the presence of mapped floodplains and the need to add fill material to raise building foundations and most roadways above the base flood elevation, which has a cumulative effect on the downstream flow regime of the watershed, potentially causing flooding to worsen both in water depth, velocity, and extent.

For these reasons along with the additional expense in developing within floodplain areas, the likelihood of induced growth is low. As depicted in **Figures 3-71** and **3-72** approximately 24 percent of the AOI is also in various stages of planned development. **Figure 3-73** illustrates planned developments, including some recently completed, tracked during the development of the DEIS. No planned developments have been identified along Segments C and D within the eastern portion of the AOI.

Figure 3-72: Potentially Developable and Undevelopable Land in the AOI

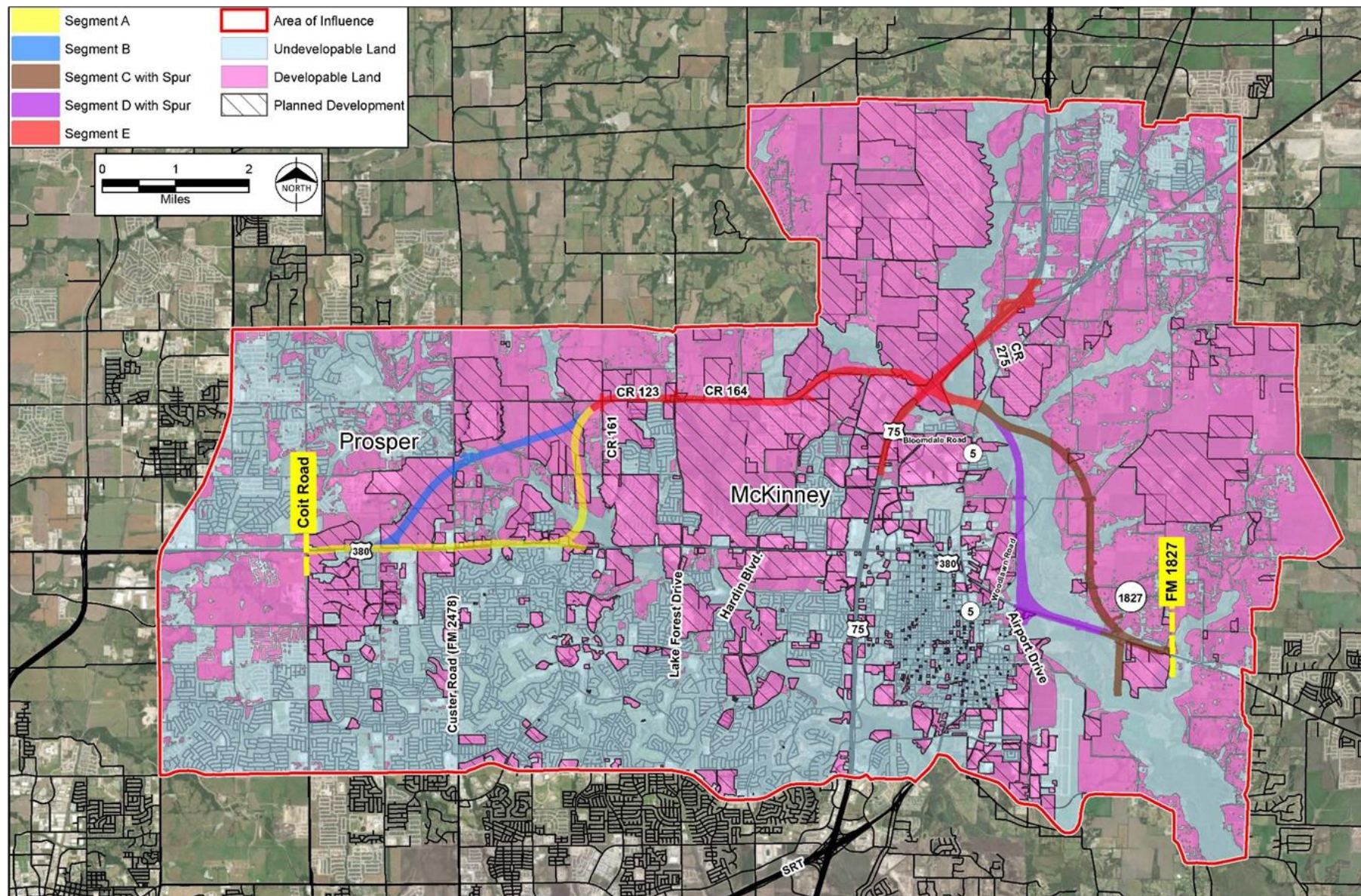
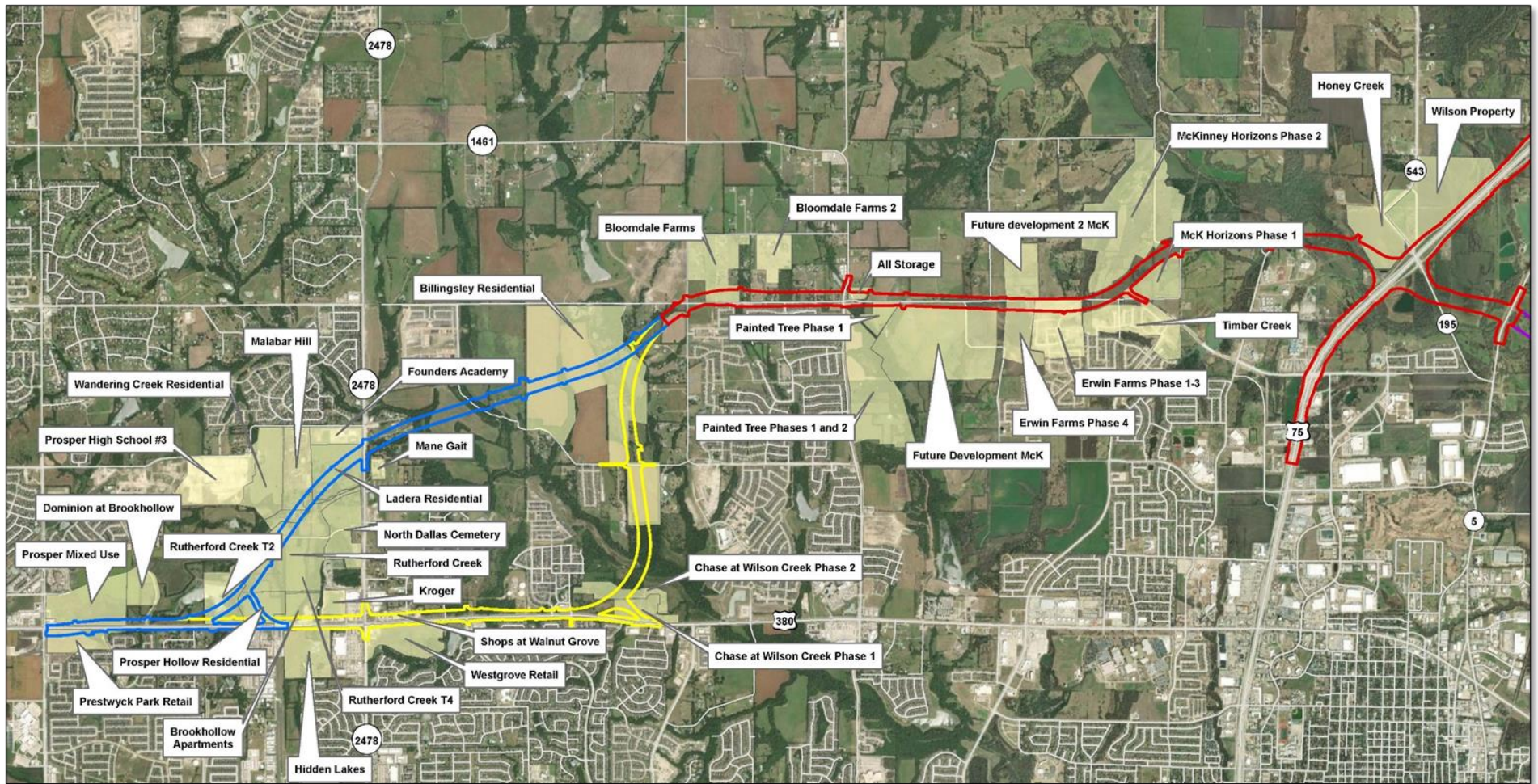


Figure 3-73: Planned and Recent Developments Along Segments A, B, and E



3.15.3.1 Existing Land Use and Future Land Use in the AOI

Most of the jurisdictions within the AOI have adopted comprehensive plans that include land use plans, guiding development patterns and aiding informed decisions related to the timing and phasing of future infrastructure investments. The following future land use plans were reviewed to determine where and when induced development may occur within the AOI. See **Appendix S** for a more detailed summary of land use plans in each jurisdiction.

- **City of McKinney** - ONE McKinney 2040 Comprehensive Plan⁵⁴, the Preferred Scenario⁵⁵, ONE McKinney 2040 Land Use and Development Strategy⁵⁶
- **McKinney National Airport** - The city plans to extend the primary runway north towards existing US 380 and develop a new passenger terminal on the east side of the Airport. The FAA issued a FONSI/ROD for the proposed extension of Runway 18-36 on July 27, 2022. Construction of the southern extension began in December 2022, with construction of the northern extension anticipated to begin in Summer 2023 pending receipt of all approvals.
- **Town of Prosper** - Town's Comprehensive Plan⁵⁷ Town's Future Land Use Plan⁵⁸
- **City of Allen** - 2030 Comprehensive Plan⁵⁹
- **City of Frisco** - Future Land Use Plan⁶⁰
- **Town of Fairview** - Comprehensive Plan's Future Land Use Plan⁶¹
- **Town of New Hope** - The town does not have a future land use plan but does have a zoning map available online⁶²
- **City of Princeton** - Comprehensive plan with a future land use plan and Princeton's Future Land Use Plan map⁶³
- **City of Lowry Crossing** - No comprehensive plan or future land use plan
- **City of Melissa** - 2015 Comprehensive Plan Update, Future Land Use Plan⁶⁴
- **Collin County** - Collin County Mobility Plan⁶⁵

⁵⁴ ONE McKinney 2040 Comprehensive Plan - <https://www.mckinneytexas.org/292/2040-Comprehensive-Plan>

⁵⁵ Preferred-Scenario - <https://www.mckinneytexas.org/DocumentCenter/View/17329/Preferred-Scenario?bidId=>

⁵⁶ Land Use and Development Strategy <https://www.mckinneytexas.org/DocumentCenter/View/17301/2020-Comp-Plan-Amendments-Chapter-3--Spreads?bidId=>

⁵⁷ Town of Prosper Comprehensive Plan - <https://www.prospertx.gov/business/land-development/planning/comprehensive-plan/>

⁵⁸ Town of Prosper Future Land Use Plan - <https://www.prospertx.gov/wp-content/uploads/Plate-2-Future-Land-Use-Plan-Adopted-August-2021.pdf>

⁵⁹ City of Allen 2030 Comprehensive Plan. Chapter 4: Land Use & Design. Adopted October 14, 2014. Accessed January 2022 at <https://www.cityofallen.org/DocumentCenter/View/5681/4-Land-Use-and-Design-final-draft?bidId=>

⁶⁰ City of Frisco Future Land Use Plan - <https://www.friscotexas.gov/DocumentCenter/View/5406/Future-Land-Use-Plan-Map-PDF>

⁶¹ Town of Fairview Comprehensive Plan and Future Land Use Plan (2017). Adopted May 27, 2014. Accessed January 2022 at <https://fairviewtexas.org/pdf/Planning/Documents/Future%20Land%20Use%20Plan%20-%20As%20Adopted%20May%2027.%202014.pdf>

⁶² Town of New Hope Zoning Map. Adopted July 22, 2020. Accessed January 2022 at <https://drive.google.com/file/d/1VIRDVSySikuF-9utMrijijxCJst9WwE/view..>

⁶³ Princeton, Texas Comprehensive Plan. Adopted January 14, 2019. Access January 2022 at <https://www.princeton.tx.gov/DocumentCenter/View/468/Comprehensive-Plan-PDF>.

⁶⁴ Melissa Future Land Use Plan - <https://www.cityofmelissa.com/DocumentCenter/View/110/Chapter-3--Future-Land-Use-Plan-PDF>

⁶⁵ Collin County Mobility Plan (2014). Future Land Use (Build-Out Scenario) Map. Accessed January 2022 at https://www.collincountytx.gov/mobility/Documents/mobility_plan/FutureLandUseMap.pdf.

Based on a review of the future land use plans of the jurisdictions included in the AOI, limited areas in the AOI have the potential for induced growth or would have growth potentially accelerated because of the US 380 McKinney project. The area with the greatest potential for induced growth is along Segment C between SH 5 and existing US 380 and east of Segment C, west of and outside of the Town of New Hope.

3.15.4 Determine if Growth is Likely to Occur in the Induced Growth Areas

Improvements in transportation infrastructure that increase mobility or reduce travel times may attract development, and new roadways can provide access that leads to new development. In addition to transportation improvements, several factors contribute to where growth may occur including suitability of land, available utilities, physical constraints, favorable planning policies, and development trends. This step analyzes the likelihood for induced growth to occur in the areas within the AOI that are subject to induced growth.

3.15.4.1 Regional and Local Growth Trends

According to the TWDB and NCTCOG, all the jurisdictions are projected to increase in population by 2040. 2040 and 2045 employment data were unavailable for Prosper, Lowry Crossing, New Hope, and Melissa; however, because to the rapid growth occurring in Collin County and communities within the AOI, employment is anticipated to increase as population increases. Population and employment estimates and projections for the jurisdictions within the AOI are summarized in **Figure 3-74**.

3.15.4.1 Indirect Impacts Questionnaire Responses

As discussed in Step 1, an *Indirect Effects Questionnaire* was sent via email to planners and city officials within the AOI. Six of the eight jurisdictions provided responses to the questionnaire with the City of McKinney responding to a follow up email resulting in a phone call interview. No responses were received from Collin County and the City of Frisco. The City of McKinney is the only jurisdiction that responded to the questionnaire stating that the US 380 McKinney project would likely induce commercial and industrial development along Segments C and D.

3.15.4.1 Potential for induced Development

Based on the communications received in response to the questionnaire, a phone interview conducted with the City of McKinney, and consideration of existing land and future land uses and development plans, areas within the AOI that may be subject to induced growth are likely confined within the city limits and ETJ of McKinney along Segments C and D and potentially portions of unincorporated Collin County adjacent to the proposed Build Alternatives. The potential for each Build Alternative to induce growth is discussed in detail in **Appendix S**.

Figure 3-74: Historical and Projected Population Growth

Jurisdiction	Estimate		Projections 2040 ^c /2045 ^d	Percent Change (2010-2020)	Percent Change (2019- 2040/2045)
	2010 ^a	2020 ^b			
City of McKinney					
Total Population	131,117	191,197	238,474	48%	51%
Employment	60,251	96,766	119,846	61%	31%
Town of Prosper					
Total Population	8,173	25,887	44,878	217%	99%
Employment	3,774	11,912	-	216%	-
City of Frisco					
Total Population	103,158	188,387	280,000	83%	58%
Employment	52,950	94,824	87,064	79%	-3%
City of Lowry Crossing					
Total Population	1,945	1,205	3,000	-38%	122%
Employment	1,515	625	-	-59%	-
Town of New Hope					
Total Population	614	600	1,195	-2%	102%
Employment	404	282	-	-30%	-
City of Melissa					
Total Population	4,163	10,774	13,216	159%	39%
Employment	1,879	5,160	-	175%	-
Collin County					
Total Population ^(d)	782,341	1,006,038	1,689,168	29%	73%
Employment ^(d)	383,069	525,711	835,342	37%	64%
Dallas-Fort Worth MPA					
Total Population ^(d)	6,417,724	7,235,508	11,246,531	13%	55%
Employment ^(d)	2,700,000	4,584,235	7,024,227	70%	53%

SOURCE: (a) US Census 2010

(b) American Community Survey (ACS) 2016-2020

(c) TWDB 2018

(d) NCTCOG 2022

No-Build Alternative

Capacity and access improvements along existing US 380 and SH 5, already cleared by TxDOT, may encourage limited commercial and industrial growth on vacant parcels and redevelopment of other parcels under the No-Build Alternative. These areas are served by existing utilities that would support redevelopment.

3.15.5 Identify Resources Subject to Induced Growth Impacts

Preferred Alternative - Blue Alternative (A+E+C)

The methodology for assessing induced growth impacts was based on a planning judgment and qualitative analysis approach; therefore, specific resources within the AOI that may be affected because of induced growth are not quantified for the FEIS. The US 380 McKinney project has the potential for encroachment alteration impacts to floodplains and floodways, water features and surface water quality, wildlife habitat, and the visual and aesthetic environment.

Floodplains/Floodways and Water Resources – Due to the presence of several streams (Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, East Fork Trinity River, and Clemons Creek) and their associated floodplains, floodways, riparian habitats, and wetlands, encroachment alteration effects downstream of Lavon Lake could occur. Although Segments C and D are being designed to avoid and minimize the placement of fill materials within WOTUS and the location of pier/bent locations within floodplains/floodways, to the extent practicable, mitigation or compensatory storage would be needed to offset unavoidable ecosystem and downstream flooding effects while avoiding/minimizing impacts on water features. The land adjacent to and south of existing US 380 west of the proposed US 380 McKinney and Spur 399 Extension interchange is in the floodplain, designated as McKinney Future Parkland, and contains a USACE flowage easement to Lavon Lake which would make it not suitable for creating compensatory mitigation.

Vegetation and Wildlife Habitat - Any induced growth occurring along any of the segments, especially along Segments C and D, would increase the amount of impervious cover and contribute to increased runoff rates and negatively affect the water quality of the East Fork Trinity River and potentially Lavon Lake. The water features and riparian and floodplain forests that would be cleared for development beyond the freeway may support protected species known to occur within Study Area that include mussels, the alligator snapping turtle, numerous birds, and bats. Encroachment alteration effects on these habitats and the resident species could occur after construction of the Preferred Alternative and in combination with other areas disturbed to support planned development and development induced by the project.

Visual and Aesthetic Environment – The construction of an elevated 8-lane freeway would create a substantial change in the landscape across the Study Area. Neighborhoods separated by multi-lane at-grade arterial streets would now be separated by a wider and elevated multi-lane facility placed on either earthen fill supported by retaining walls or on a bridge-like structure. The open landscape crossed by Segments C and D would be in stark contrast to the elevated 8-lane freeway. Most of the areas along Segments C and D are relatively open requiring limited clearing except areas of large clusters of trees where each segment crosses the DART/DNGO Railroad. Planned and induced development that may occur along Segments C or D would also contribute to a substantial change to the visual landscape of the area over time with the addition of rooftops, pavement, above-ground transmission lines, overhead street lighting and signage, and traffic signals that would clutter the viewshed.

3.15.6 Identify Mitigation If Applicable

Build Alternatives

As TxDOT and the FHWA do not have the authority to implement zoning or planning regulations, mitigation for indirect effects is within the control of municipal agencies rather than a sponsoring agency. TxDOT and FHWA are obligated to advise state and local agencies with mitigation authority as to what it considers appropriate mitigation. This advice is considered part of the federal agency's National Environmental Policy Act responsibility.

All development (public or private developers) must comply with FEMA flood control regulations and local floodplain administration guidance; the Endangered Species Act; the Migratory Bird Treaty Act; the CWA, including Section 401 Water Quality Certification requirements and Section 404 permits for projects effecting WOTUS; and other regulations requiring mitigation, if there are effects on species habitat.

The proposed US 380 McKinney project could influence future land use changes within the AOI; however, new and planned residential developments are more likely to influence changes in land use patterns and induce growth and traffic within the AOI than construction of any of the roadway segments. The proposed project would support future development in the AOI; however, the proposed project would not be a primary factor in making land use decisions in the area. The proposed project is not anticipated to substantially induce growth; therefore, no mitigation for induced growth effects would be required.

No-Build Alternative

Under the No-Build Alternative, minor areas of induced growth would occur due to the amount of undeveloped land along existing US 380 and the potential for redevelopment elsewhere across the AOI. The planned US 380 improvements that are part of the No-Build Alternative may address safety and property access issues in the short-term for what limited properties would be subject to development and redevelopment.

Preferred Alternative - Blue Alternative (A+E+C)

Segments A and E of the Blue Alternative would result in limited induced growth due to the amount of existing and planned development in the Study Area. Continued population growth and new and planned residential developments (namely in McKinney and Prosper) are influencing and will likely continue to influence changes in land use patterns and induce growth within the AOI to a greater degree than construction of the proposed project alone. According to the City of McKinney, the proposed project would support future commercial and industrial development around Segment C; however, the proposed project would not be the primary factor considered in making land use decisions in the area. The Blue Alternative is not anticipated to substantially induce growth; therefore, no mitigation for induced growth effects is proposed.

3.16 Cumulative Effects

The CEQ defines cumulative effects as the “effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such an action.” Cumulative effects “can result from individually minor but collectively significant actions taking place over a period of time.”⁶⁶

The purpose of a cumulative effects analysis is to view the direct and indirect effects of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but that are likely to affect the same resources in the future. Environmental and social resources are evaluated from the standpoint of relative abundance among similar resources within a larger geographic area.

Broadening the view of resource effects in this way allows the decision maker an insight into the magnitude of project-related impacts considering the overall health and abundance of selected resources.

This section summarizes the potential cumulative effects of the Build Alternatives when considered with the anticipated effects of other current and future actions planned to occur within a broad Study Area. The analysis was based on the data contained in this FEIS and data and inferences gathered on potential effects of the other actions assessed. Most of the other actions considered are in various stages of study, are being designed, or are under construction.

⁶⁶ 40 CFR §1508.1(g)(3)

3.16.1 Resource Study Area, Conditions, and Trends

Scoping for the US 380 McKinney project, including cumulative effects, was conducted through outreach to agencies, stakeholders, and the public through agency, public, and stakeholder meetings; and from information obtained after the distribution of an indirect impact questionnaire (see **Section 3.15.1**) to local planning entities. The scoping process, in addition to the direct and indirect effects analyses, led to the identification of key resources for detailed cumulative effects analysis.

3.16.2 Direct and Indirect Effects on Each Resource From the Proposed Project

Figure 3-75 summarizes the direct and indirect effects of the Build Alternatives (Purple, Blue, Brown, and Gold). The resources assessed for cumulative effects include: Water Resources (floodplains and floodways), Biological Resources (vegetation), Wildlife (endangered, threatened, and candidate species), and the Visual Environment and Aesthetics. More detail on the Indirect and Cumulative Impact Assessment can be found in **Appendix S**.

Figure 3-75: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
Water Resources - Floodplains and Floodways PURPLE ALTERNATIVE (A+E+D) BLUE ALTERNATIVE (A+E+C)	<p>W/O Spur</p> <ul style="list-style-type: none"> - Crosses 262 acres of floodplains/floodways associated with Wilson Creek and East Fork Trinity River and stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. <p>W/Spur</p> <ul style="list-style-type: none"> - Crosses 262 acres of floodplains/floodway of Wilson Creek and the East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. 	<p>Each of the Build Alternatives would encroach into regulatory floodplains and would cause an increase in the amount of impervious surface within watersheds.</p> <p>Potential to indirectly affect sediment and pollutant loading in the FEMA flood hazard areas. However, floodplain management regulations and design standards require the project be designed to not alter base flood elevations and not cause adverse flood effects to upstream or downstream properties unless mitigation in the form of compensatory storage can be accommodated.</p>	<p>Yes</p>	<p>Yes. Coordination with the FEMA local floodplain administrator (W. Kyle Odom, CFM, RS – City of McKinney, TX) is ongoing. A combination of proposed culverts and bridges are being designed to minimize/avoid effects on the floodplains where the proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Other actions in the area have the potential to affect the same systems.</p> <p>The McKinney National Airport may require a CLOMR to modify the floodplain south of existing US 380 between the termini of Segments C and D to accommodate the northward extension of Runway 18-36. The City of McKinney floodplain administrators reviewed the hydraulic model to determine a CLOMR was not warranted..</p>
	<p>W/O Spur</p> <ul style="list-style-type: none"> - Crosses 166 acres of floodplains/floodways associated with Wilson Creek and East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. <p>W/Spur</p> <ul style="list-style-type: none"> - Crosses 262 acres of floodplains/floodways associated with Wilson Creek and the East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. 	<p>Each Build Alternative is designed with sections on structure (elevated) instead of on earthen embankment, over mapped floodplain/floodways and smaller streams. TxDOT will continue to collaborate with the local floodplain administrator on a regional approach to address flooding issues in the vicinity of the proposed project.</p> <p>The hydraulic design and analysis conducted during the design phase for the Preferred Alternative will address encroachment alteration effects to regulatory floodplains.</p>		

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
Water Resources - Floodplains and Floodways BROWN ALTERNATIVE (B+E+C)	<p>W/O Spur</p> <ul style="list-style-type: none"> - Crosses 171 acres of floodplains/floodways associated with Wilson Creek and the East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. <p>W/Spur</p> <ul style="list-style-type: none"> - Crosses 262 acres of floodplains/floodways associated with Wilson Creek and the East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. 	<p>Each of the Build Alternatives would encroach into regulatory floodplains and would cause an increase in the amount of impervious surface within watersheds.</p> <p>Potential to indirectly affect sediment and pollutant loading in the FEMA flood hazard areas. However, floodplain management regulations and design standards require the project be designed to not alter base flood elevations and not cause adverse flood impacts to upstream or downstream properties unless mitigation in the form of compensatory storage can be accommodated.</p>	<p>Yes</p>	<p>Yes. Coordination with the FEMA local floodplain administrator (W. Kyle Odom, CFM, RS – City of McKinney, TX) is ongoing. A combination of proposed culverts and bridges are being designed to minimize/avoid effects on the floodplains where the proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Other actions in the area have the potential to affect the same systems.</p> <p>The McKinney National Airport may require a CLOMR to modify the floodplain south of existing US 380 between the termini of Segments C and D to accommodate the northward extension of Runway 18-36. The City of McKinney floodplain administrators reviewed the hydraulic model to determine a CLOMR was not warranted.</p>
	<p>W/O Spur</p> <ul style="list-style-type: none"> - Crosses 267 acres of floodplains/floodways associated with Wilson Creek and the East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. <p>W/Spur</p> <ul style="list-style-type: none"> - Crosses 262 acres of floodplains/floodways associated with Wilson Creek and the East Fork Trinity River as well as stream branches including Throckmorton Creek, Rutherford Branch, Franklin Branch, Stover Creek, Honey Creek, Jean’s Creek, and Clemons Creek. - Where feasible, the alignment would span the floodway and piers would be spaced to minimize hydraulic impacts on the floodplain. 	<p>Each Build Alternative is designed with sections on structure (elevated) instead of on earthen embankment, over mapped floodplain/floodways and smaller streams. TxDOT will continue to collaborate with the local floodplain administrator on a regional approach to address flooding issues in the vicinity of the proposed project.</p> <p>The hydraulic design and analysis conducted during the design phase for the Preferred Alternative will address encroachment alteration effects to regulatory floodplains.</p>		

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Biological Resources - Vegetation</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">PURPLE ALTERNATIVE (A+E+D)</p>	<p>W/O Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,113.9 acres of proposed ROW, 487.7 acres (43.8%) are developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 626.2 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. <p>W/Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,133.1 acres of proposed ROW, 498.9 acres (44.0%) are developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 634.2 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities were identified within the proposed ROW during field investigations. 	<p>The loss of vegetation may be substantial due to the undeveloped nature of most of the proposed ROW and the presence of pastures, hay meadows, and native grassland remnants to row crops and riparian and hardwood forests.</p> <p>Induced development potential is restricted to the southern-most portion of Segment D due to its proximity to existing US 380 and land development restrictions posed by the presence of the East Fork Trinity River 100-year floodplain.</p>	<p>Yes</p>	<p>Yes. Direct impacts and indirect effects to vegetation are anticipated to be marginal to substantial as the resource is in decline and, in conjunction with other reasonably foreseeable projects, this resource is included in the analysis.</p>

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Biological Resources - Vegetation</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">BLUE ALTERNATIVE (A+E+C)</p>	<p>W/O Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,084.7 acres of proposed ROW, 485.7 acres (44.8%) are developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 599 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. <p>W/Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,099.3 acres of proposed ROW, 492 acres (44.8%) are developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 607.3 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Wilson Creek, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. 	<p>The loss of vegetation may be substantial due to the undeveloped nature of most of the proposed ROW and the presence of pastures, hay meadows, and native grassland remnants to row crops and riparian and hardwood forests.</p> <p>Induced development potential is restricted along the northern portion of Segment C by the presence of the East Fork Trinity River 100-year floodplain. The remainder of the Segment C alignment has the highest potential for induced growth of the project segments studied because of the amount of undeveloped land and access provided to those lands by the proposed project.</p>	<p>Yes</p>	<p>Yes. Direct impacts and indirect effects to vegetation are anticipated to be marginal to substantial as the resource is in decline and, in conjunction with other reasonably foreseeable projects, this resource is included in the analysis.</p>

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Biological Resources - Vegetation</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">BROWN ALTERNATIVE (B+E+C)</p>	<p>W/O Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,056.4 acres of proposed ROW, 406.2 acres (40.2 percent) are developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 627.1 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. <p>W/Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,071.8 acres of proposed ROW, 432.4 acres (40.4 percent) are developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 639.4 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Stover Creek, Franklin Branch, Honey Creek, Clemons Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. 	<p>The loss of vegetation may be substantial due to the undeveloped nature of most of the proposed ROW and the presence of pastures, hay meadows, and native grassland remnants to row crops and riparian and hardwood forests.</p> <p>Induced development potential is restricted along the northern portion of Segment C by the presence of the East Fork Trinity River 100-year floodplain. The remainder of the Segment C alignment has the highest potential for induced growth of the project segments studied because of the amount of undeveloped land and access provided to those lands by the proposed project.</p>	<p>Yes</p>	<p>Yes. Direct impacts and indirect effects to vegetation are anticipated to be marginal to substantial as the resource is in decline and, in conjunction with other reasonably foreseeable projects, this resource is included in the analysis.</p>

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Biological Resources - Vegetation</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">GOLD ALTERNATIVE (B+E+D)</p>	<p>W/O Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,086.8 acres of proposed ROW, 422.5 acres (37.5 percent) is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 664.3 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Stover Creek, Franklin Branch, Honey Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. <p>W/Spur</p> <ul style="list-style-type: none"> - Of the approximately 1,106.0 acres of proposed ROW, 433.7 acres (39.2 percent) is developed as Urban Low Intensity and Urban High Intensity uses, including existing roadways. - Remaining 672.3 acres consists of a mix of Blackland Prairie/grassland, floodplain/riparian forest and herbaceous (associated with Rutherford Branch, Stover Creek, Franklin Branch, Honey Creek, and the East Fork Trinity River and their tributaries), native invasive/deciduous woodland, Edwards Plateau woodlands/savanna grassland, row crops, and some open water. - No protected or rare vegetation communities identified within the proposed ROW during field investigations. 	<p>The loss of vegetation may be substantial due to the undeveloped nature of most of the proposed ROW (Segments B and D) and the presence of pastures, hay meadows, and native grassland remnants to row crops and riparian and hardwood forests.</p> <p>Induced development potential is restricted to the southern-most portion of Segment D due to its proximity to existing US 380 and land development restrictions posed by the presence of the East Fork Trinity River 100-year floodplain.</p>	<p>Yes</p>	<p>Yes. Direct impacts and indirect effects to vegetation are anticipated to be marginal to substantial as the resource is in decline and, in conjunction with other reasonably foreseeable projects, this resource is included in the analysis.</p>

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
Wildlife, Including Threatened, Endangered, and Candidate Species	<p>PURPLE ALTERNATIVE (A+E+D)</p> <p><u>W/Spur and W/O Spur</u></p> <ul style="list-style-type: none"> - Crosses 6 perennial streams providing potential habitat for protected mussels, alligator snapping turtle, and potentially the White-faced Ibis and Wood Stork. - Crosses 30 wooded areas providing potential habitat for SGCN bats and several SGCN reptiles, amphibians, birds, mammals, invertebrates, and plants. - No habitat was identified that would support federally listed species, but the alignment is within the range of and contains suitable habitats for Texas fawnsfoot, alligator snapping turtle, and Louisiana pigtoe, three species proposed for federal listing as threatened; tricolored bat and Texas heelsplitter, both proposed for federal listing as endangered; and the monarch butterfly, a federal candidate species. - May impact 2 state-listed threatened species: White-faced Ibis and Wood Stork. 	<p>Induced growth is not anticipated to be substantial; however, encroachment-alteration could result in additional loss and fragmentation of wildlife habitat with development of adjacent lands.</p> <p>Development in general encroaches on vegetation, and reductions in vegetation typically equate to reduced wildlife habitat.</p> <p>Implementation of TPWD BMPs would occur prior to, during, and after construction to minimize impacts.</p>	<p>Yes</p>	<p>Yes. Although direct impacts and indirect effects to protected species and wildlife are not anticipated to be substantial, the resources are in decline and, in conjunction with other reasonably foreseeable projects on new location in the area, this resource is included in the analysis.</p>
	<p>BLUE ALTERNATIVE (A+E+C)</p> <p><u>W/Spur and W/O Spur</u></p> <ul style="list-style-type: none"> - Crosses 7 perennial streams providing potential habitat for protected mussels, alligator snapping turtle, and potentially the White-faced Ibis and Wood Stork. - Crosses 32 wooded areas providing potential habitat for SGCN bats and several SGCN reptiles, amphibians, birds, mammals, invertebrates, and plants. - No habitat was identified that would support federally listed species, but the alignment is within the range of and contains suitable habitats for Texas fawnsfoot, alligator snapping turtle, and Louisiana pigtoe, three species proposed for federal listing as threatened; tricolored bat and Texas heelsplitter, both proposed for federal listing as endangered; and the monarch butterfly, a federal candidate species. - May impact 2 state-listed threatened species: White-faced Ibis and Wood Stork. 	<p>Induced growth is not anticipated to be substantial (except the high potential along Segment C); however, encroachment-alteration could result in additional loss and fragmentation of wildlife habitat with development of adjacent lands.</p> <p>Development in general encroaches on vegetation, and reductions in vegetation typically equate to reduced wildlife habitat.</p> <p>Implementation of TPWD BMPs would occur prior to, during, and after construction to minimize impacts.</p>	<p>Yes</p>	<p>Yes. Although direct impacts and indirect effects to protected species and wildlife are not anticipated to be substantial, the resources are in decline and, in conjunction with other reasonably foreseeable projects on new location in the area, this resource is included in the analysis.</p>

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
Wildlife, Including Threatened, Endangered, and Candidate Species	<p>BROWN ALTERNATIVE (B+E+C)</p> <p><u>W/Spur and W/O Spur</u></p> <ul style="list-style-type: none"> -Crosses 6 perennial streams providing potential habitat for protected mussels, alligator snapping turtle, and potentially the White-faced Ibis and Wood Stork. - Crosses 32 wooded areas providing potential habitat for SGCN bats and several SGCN reptiles, amphibians, birds, mammals, invertebrates, and plants. - No habitat was identified that would support federally listed species, but the alignment is within the range of and contains suitable habitats for Texas fawnsfoot, alligator snapping turtle, and Louisiana pigtoe, three species proposed for federal listing as threatened; tricolored bat and Texas heelsplitter, both proposed for federal listing as endangered; and the monarch butterfly, a federal candidate species. - May impact 2 state-listed threatened species: White-faced Ibis and Wood Stork. 	<p>Induced growth is not anticipated to be substantial (except the high potential along Segment C); however, encroachment-alteration could result in additional loss and fragmentation of wildlife habitat with development of adjacent lands.</p> <p>Development in general encroaches on vegetation, and reductions in vegetation typically equate to reduced wildlife habitat.</p> <p>Implementation of TPWD BMPs would occur prior to, during, and after construction to minimize impacts.</p>	<p>Yes</p>	<p>Yes. Although direct impacts and indirect effects to protected species and wildlife are not anticipated to be substantial, the resources are in decline and, in conjunction with other reasonably foreseeable projects on new location in the area, this resource is included in the analysis.</p>
	<p>GOLD ALTERNATIVE (B+E+D)</p> <p><u>W/Spur and W/O Spur</u></p> <ul style="list-style-type: none"> - Crosses 5 perennial streams providing potential habitat for protected mussels, alligator snapping turtle, and potentially the White-faced Ibis and Wood Stork. - Crosses 30 wooded areas providing potential habitat for SGCN bats and several SGCN reptiles, amphibians, birds, mammals, invertebrates, and plants. - No habitat was identified that would support federally listed species, but the alignment is within the range of and contains suitable habitats for Texas fawnsfoot, alligator snapping turtle, and Louisiana pigtoe, three species proposed for federal listing as threatened; tricolored bat and Texas heelsplitter, both proposed for federal listing as endangered; and the monarch butterfly, a federal candidate species. - May impact 2 state-listed threatened species: White-faced Ibis and Wood Stork. 	<p>Induced growth is not anticipated to be substantial; however, encroachment-alteration could result in additional loss and fragmentation of wildlife habitat with development of adjacent lands.</p> <p>Development in general encroaches on vegetation, and reductions in vegetation typically equate to reduced wildlife habitat.</p> <p>Implementation of TPWD BMPs would occur prior to, during, and after construction to minimize impacts.</p>	<p>Yes</p>	<p>Yes. Although direct impacts and indirect effects to protected species and wildlife are not anticipated to be substantial, the resources are in decline and, in conjunction with other reasonably foreseeable projects on new location in the area, this resource is included in the analysis.</p>

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
Visual Environment and Aesthetics PURPLE ALTERNATIVE (A+E+D)	<p>W/Spur and W/O Spur</p> <ul style="list-style-type: none"> -Introduces an elevated freeway facility in areas where one does not currently exist, within areas of both existing and planned development (Segments A and E), and across large expanses of open, undeveloped land primarily in agricultural use (Segment D). - Collective bulk and mass of the elevated roadway would alter the visual quality of these areas, creating a more urban rather than suburban character within developed/developing areas and a sharp contrast to the relatively flat topography and open, undeveloped areas along Segment D. - Introduces a multi-level interchange at US 75/SH 5. 	<p>The Purple Alternative is not expected to substantially induce growth because most of the lands adjacent to the proposed alignment are developed or have approved plans to be (Segments A and E) or restricted from development by the presence of the East Fork Trinity River 100-year floodplain (Segment D). Introduction of an elevated freeway within an area where a roadway does not exist would result in encroachment alteration effects to the viewshed.</p> <p>The elevated roadway along Segment E would create a wider, elevated physical and visual barrier between existing and planned neighborhoods compared to the existing roadway network.</p>	Yes	Yes. The proposed project in conjunction with other reasonably foreseeable projects in the area would alter viewsheds and the overall visual and aesthetic character of the Study Area.
Visual Environment and Aesthetics BLUE ALTERNATIVE (A+E+C)	<p>W/Spur and W/O Spur</p> <ul style="list-style-type: none"> - Introduces an elevated freeway facility in areas where one does not currently exist, within areas of both existing and planned development (Segments B and E), and across large expanses of open, undeveloped land primarily in agricultural use (Segment C). - Collective bulk and mass of the elevated roadway would alter the visual quality of these areas, creating a more urban rather than suburban character within developed/developing areas and a sharp contrast to the rolling topography and open, undeveloped areas along Segment C. -Introduces a multi-level interchange at US 75/SH 5. 	<p>The Blue Alternative is not expected to substantially induce growth because the lands adjacent to the proposed alignment are developed or have approved plans to be (Segments A and E). Induced development along Segment C may be more substantial as most of the alignment is outside of the 100-year floodplain.</p> <p>Introduction of an elevated freeway within an area where a roadway does not exist would result in encroachment alteration effects to the viewshed.</p> <p>The elevated roadway along Segment E would create a wider, elevated physical and visual barrier between existing and planned neighborhoods compared to the existing roadway network.</p>	Yes	Yes. The proposed project in conjunction with other reasonably foreseeable projects in the area would alter viewsheds and the overall visual and aesthetic character of the Study Area.

Figure 3-75 continued: Direct Impacts and Indirect Effects of the Build Alternatives

Resource & Alternative	Summary of Direct Impacts	Indirect Effects (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Resource included in the Cumulative Effects Analysis? Yes or No, Reason for Including/Excluding the Resource
Visual Environment and Aesthetics BROWN ALTERNATIVE (B+E+C)	<p>W/Spur and W/O Spur</p> <ul style="list-style-type: none"> - Introduces an elevated freeway facility in areas where one does not currently exist, within areas of both existing and planned development (Segments B and E), and across large expanses of open, undeveloped land primarily in agricultural use (Segment C). - Collective bulk and mass of the elevated roadway would alter the visual quality of these areas, creating a more urban rather than suburban character within developed/developing areas and a sharp contrast to the rolling topography and open, undeveloped areas along Segment C. -Introduces a multi-level interchange at US 75/SH 5. 	<p>The Brown Alternative is not expected to substantially induce growth because most of the lands adjacent to the proposed alignment are developed or have approved plans to be (Segments B and E). Induced development along Segment C may be more substantial as most of the alignment is outside of the 100-year floodplain.</p> <p>Introduction of an elevated freeway within an area where a roadway does not exist would result in encroachment alteration effects to the viewshed.</p> <p>The elevated roadway along Segment E would create a wider, elevated physical and visual barrier between existing and planned neighborhoods compared to the existing roadway network.</p>	<p>Yes</p>	<p>Yes. The proposed project in conjunction with other reasonably foreseeable projects in the area would alter viewsheds and the overall visual and aesthetic character of the Study Area.</p>
	<p>W/Spur and W/O Spur</p> <ul style="list-style-type: none"> - Introduces an elevated freeway facility in areas where one does not currently exist, within areas of both existing and planned development (Segments B and E), and across large expanses of open, undeveloped land primarily in agricultural use (Segment D). -Collective bulk and mass of the elevated roadway would alter the visual quality of these areas, creating a more urban rather than suburban character within developed/developing areas and a sharp contrast to the relatively flat topography and open, undeveloped areas along Segment D. - Introduces a multi-level interchange at US 75/SH 5. 	<p>The Gold Alternative is not expected to substantially induce growth because most of the lands adjacent to the proposed alignment are developed or have approved plans to be (Segments B and E) or restricted from development by the presence of the East Fork Trinity River 100-year floodplain (Segment D).</p> <p>Introduction of an elevated freeway within an area where a roadway does not exist would result in encroachment alteration effects to the viewshed.</p> <p>The elevated roadway along Segment E would create a wider, elevated physical and visual barrier between existing and planned neighborhoods compared to the existing roadway network.</p>	<p>Yes</p>	<p>Yes. The proposed project in conjunction with other reasonably foreseeable projects in the area would alter viewsheds and the overall visual and aesthetic character of the Study Area.</p>

3.16.3 Other Actions – Present and Reasonably Foreseeable and Their Effect on Each Resource

The other present and reasonably foreseeable future actions assessed in this analysis are:

US 380 Prosper-Frisco – Teel Parkway/Championship Drive to West of Lakewood Drive (CSJs 0135-11-024, 0135-10-065, and 0135-02-068) – construct a 6-lane, access-controlled freeway with one-way frontage roads on each side within an anticipated ROW width of between 245 feet and 522 feet depending on location. The freeway facility would include ramps, direct connector roadways, frontage roads, and arterial roadways to support connectivity to the existing roadway network. Grade-separated interchanges would be constructed at major crossroads including the DNT (multi-level interchange) and existing SH 289. The FONSI was issued on July 25, 2023, with the improvements anticipated to be ready to let for construction in 2026.

US 380 Princeton - FM 1827 to CR 560 (CSJs 0135-03-056, 0135-16-002, and 0135-04-036) – reconstruct approximately 11.8 miles of US 380 on a combination of existing and new location alignments. The new location, access-controlled freeway would realign US 380 north of the City of Princeton within an anticipated ROW ranging in width from 320 feet to 400 feet, depending on location. The 8-lane to 10-lane freeway would (4 to 5 mainlanes in each direction) would include continuous 2-lane one-way frontage roads with raised curbs, and 10-foot-wide SUPs located along the outside of the frontage roads. The existing US 380 crossing of Lavon Lake would be reconstructed within the existing ROW to include continuous frontage roads on bridge structures. Proposed grade separated interchanges would be constructed at major cross streets to accommodate connectivity to existing and future roadways and bicycle/pedestrian networks. Existing US 380 through the City of Princeton would remain connected to the new freeway via interchanges on both the east and west sides of the city. Environmental clearance is anticipated in November 2023, with the improvements anticipated to be ready to let for construction in 2027.

US 380 Farmersville - CR 560 to CR 699 (Hunt County Line) (CSJs 0135-04-038, 0135-17-002, and 0135-05-028) – construct a 6-lane divided roadway with continuous, 2-lane one-way frontage roads and a 10-foot-wide SUP on both sides of the roadway within an anticipated ROW width ranging from 322 feet to 384 feet. The new roadway would be constructed on new location spanning approximately 8.5 miles. Existing US 380 through Farmersville would remain and be named Audie Murphy Parkway. The FONSI was issued on June 30, 2023, with the improvements anticipated to be ready to let for construction in 2026.

Spur 399 Extension – US 75 to US 380 (CSJs 0364-04-051, 0047-05-058, and 0047-10-002) - construct an 8-lane freeway with frontage roads primarily on new location connecting US 75 south of McKinney to US 380 east of McKinney within an anticipated ROW ranging in width from 165 feet to 696 feet (average ROW width of approximately 400 feet). The typical freeway section would consist of four 12-foot-wide travel lanes in each direction, one-way frontage roads on either side of the mainlanes (depending on the location), and SUPs built along the outside of the frontage roads. A new multi-level interchange would be constructed at US 75 and SH 5, with other grade-separated interchanges built at major cross-streets. Improvements to a section of existing SH 5 from the junction of Spur 399/US 75/Sam Rayburn Tollway/SH 121 to just south of FM 546/Harry McKillop Boulevard are included in the proposed project. Environmental clearance was issued on March 29, 2023. The Spur 399 Extension is anticipated to be ready to let for construction in 2026.

US 380 Widening from Airport Drive to CR 458 (CSJs 0135-03-046 and 0135-04-033) –widen the existing 4-lane, 7.2-mile-long section of US 380 to a 6-lane divided urban facility with a raised median and new curb and gutter drainage. The improvements would be accomplished with the existing ROW which ranges from 60 feet-wide to 90 feet-wide. The widening would consist of two 12-foot-wide travel lanes and one 14-foot-wide shared-use travel lane and a 5-foot-wide sidewalk along each side of the roadway. Right-turn lanes at intersections would be provided as warranted by traffic analyses. The three existing bridges over the East Fork Trinity River would be widened to two 12-foot-wide travel lanes and one 14-foot-wide travel lane in each direction with a raised median that varies from 5-feet-wide to 14 feet-wide and a 6-foot-wide sidewalk in each direction separated from the travel lanes by a concrete traffic barrier with a pedestrian rail on the outside. This US 380 widening project was environmentally cleared on January 15, 2020, and is anticipated to be ready to let for construction in March 2025. This project is part of the No-Build Alternative.

FM 546 from Airport Drive to CR 393 in Lowry Crossing (CSJ 1013-01-040) - construct a 4-lane divided urban arterial roadway with open median to allow for future expansion to a 6-lane roadway. The eastern portion of the project (CR 324 to CR 393) would reconstruct the existing 2-lane section of FM 546, while the western portion of the project (Airport Drive to CR 324) would realign and construct a new FM 546 corridor. The new FM 546 corridor would include bicycle/pedestrian accommodations. The existing FM 546 bridge and retaining walls across Lavon Lake would be reconstructed. Six new location alternatives have been developed for consideration with the recommended alternative anticipated to be identified in Spring 2023, and environmental clearance anticipated by Fall 2024. No funding for construction of the FM 546 improvements has been identified at this time.

Collin County Outer Loop – A 55-mile planned multi-modal transportation facility extending from the Denton/Collin County line, through Celina, Weston, Anna, Melissa, Farmersville, Josephine and Royce City, to the Rockwall/Collin County line. The facility is planned as a freeway with a wide area in the center reserved for a future rail corridor. Collin County has been planning the facility since 2000, developing the preferred alignment through a series of corridor studies and obtaining approval to acquire ROW through the completion of local environmental documents in coordination with NCTCOG. The corridor averages 500 feet wide with construction of frontage roads as the initial phases to be followed by construction of the freeway mainlanes and grade-separated interchanges in the future as travel demand warrants. The Collin County Outer Loop includes the following segments:

- Segment 1 (US 75 to SH 121) – construction of a 2-lane facility (future westbound service road for the freeway) was completed in 2012.
- Segment 2 (FM 6 between Nevada and Josephine to Rockwall County line east of Royce City) – technically preferred alignment was approved by the County in 2009 with additional studies planned to begin in 2023.
- Segment 3 (Dallas Parkway in Celina to US 75 between Anna and Melissa) - completed a schematic for the future Outer Loop freeway from the Denton/Collin County Line to US 75 and design concepts for future interchanges with US 75, SH 289/Preston Road, and the DNT. Construction of the 2-lane roadway from just east of the Denton/Collin County line to SH 289/Preston Road to be completed in 2022. Construction of the 2-lane roadway from SH 289/Preston Road to FM 2478/Custer Road is anticipated to be completed in late 2022. ROW acquisition is ongoing for the section between FM

2478/Custer Road and US 75. No timeline has been set for construction of the section from FM 2478/N. Custer Road to US 75.

- Segment 4 (US 380 in Farmersville to FM 6 in Josephine) - technically preferred alignment was approved by the County in 2009 with additional studies planned to begin in 2023.
- Segment 5 (SH 121 in between Anna and Melissa to US 380 in Farmersville) - technically preferred alignment was approved by the County in 2006. No other activities have been completed for this section.

FM 2478 (N. Custer Road) Widening from US 380 to North of FM 1461 (CSJs 2351-01-017 and 2351-02-014)

- widen approximately 3.17 miles of the existing 2-lane undivided rural roadway to a 6-lane divided urban roadway and realign the intersection at FM 1461. Construction is being staged to construct an initial 4-lane roadway followed by the expansion to 6-lanes in the future. The improvements were environmentally cleared in September 2017, construction was let in September 2020, and the 4-lane interim improvements were completed in early 2023. The N. Custer Road widening is part of the No-Build Alternative.

SH 121/SH 5 Improvements (CSJs 0047-04-030 and 0549-03-031) south of Melissa - reconstruct and widen

approximately 2.5 miles of SH 5, from south of CR 275 to south of Melissa Road, from a 2-lane rural roadway to a 4-lane initial (6-lane ultimate) divided urban roadway with raised curb and a variable-width median. SH 121, from south of the intersection of SH 121 and CR 338 to the Union Pacific Railroad, would be reconstructed from a 4-lane divided rural roadway with a depressed median to a 4-lane interim (6-lane ultimate) divided urban roadway with a variable-width median. The SH 121/SH 5 intersection would be reconfigured near the northern project limits. SH 5 from CR 338 to SH 121 would be reconstructed as an approximate 0.6-mile new location bypass. Six-foot wide sidewalks would be built along both sides of the improvements throughout the project limits. The project was environmentally cleared in August 2021. The section from south of CR 275 to south of Melissa Road including the bypass section (CSJ 0047-04-030) is anticipated to be ready to let for construction in September 2028, and reconfiguration of the SH 121/SH 5 interchange (CSJ 0549-03-031) is anticipated to be ready to let for construction in September 2027.

City of McKinney Master Thoroughfare Plan Updates - The City of McKinney is updating their Plan to include several local roadway improvements, many of which intersect with the proposed US 380 McKinney project. Alignments, number of travel lanes, and anticipated ROW widths are being updated with many reflected on the US 380 McKinney Design Schematics submitted in July 2022. According to the city, roadways previously indicated as requiring 120 feet of ROW are anticipated to be moved forward as 6-lane urban arterials (e.g., Lake Forest Drive, Ridge Road.) and not as 4-lane arterials as shown in the current Plan. The schedules for local approval, design, and anticipated construction of these roadways vary. Several roadways are under construction requiring modifications to the US 380 McKinney project during schematic design to provide access to these future roadways from the freeway frontage roads.

McKinney National Airport Master Plan Improvements – extend Runway 18-36 1,000 feet to the north and 500 feet to the south; construct a parallel runway east of existing Runway 18-36, and terminal expansion. The FAA and TxDOT Aviation Division issued a FONSI/ROD for the proposed action on July 27, 2022. The Airport received their Section 404 Individual Permit and is reviewing the hydraulic model for the placement of earthen fill below the 100-year water surface elevation of the East Fork Trinity River floodplain with a determination on whether the action requires a CLOMR to be made by the City of McKinney in January 2023. The Airport began

construction of the southern extension in December 2022 and anticipates beginning construction of the northern extension, pending approval, in Summer 2023.

Various Private Developments - numerous developments ranging from single- and multi-family residential to commercial centers are planned or in various stages of development across Prosper and McKinney. In addition, planning, design, and construction of major infrastructure improvements are also ongoing to support current and future growth. These developments include the following with many shown on **Figure 3-68**:

- Within the Town of Prosper: Malabar Hills (residential), Wandering Creek (residential), Prosper High School #3, Dominion at Brookhollow (multi-family residential), Rutherford Creek (residential), Rutherford Creek T2 and T4 (residential), Prosper Mixed Use, Prosper Hollow (residential), Kroger grocery store, North Dallas Cemetery, Ladera (senior living/residential); and three planned parks – Rutherford Creek, Ladera, and Wandering Creek and a planned trail system.
- Within the City of McKinney: Prestwyk Park Retail (commercial), Hidden Lakes (residential), Westgrove Retail (commercial), Shops at Walnut Grove (commercial), Chase at Wilson Creek Phases 1 and 2 (multi-family residential), Billingsley Residential, Bloomdale Farms (residential), Bloomdale Farms 2 (residential), Painter Tree Phases 1 and 2 (residential), All Storage (commercial), McKinney Sports Park (recreational/commercial), Erwin Farms Phases 1 through 4 (residential), McKinney Horizons Phase 1 (medical/mixed-use), Timber Creek (residential), Honey Creek District (mixed-use, municipal management district), and Wilson Property at Laud Howell Parkway and US 75 (multi-use).
- Major Infrastructure – NTMWD and City of Irving waterline extensions, new electrical transmission line development.

3.16.4 The Overall Effects of the Proposed Project Combined with Other Actions

The other reasonably foreseeable actions described in **Section 3.16.3** are proposed to support the current and forecasted growth and transportation needs across Collin County and the region. The other actions considered are in various stages of development, as described in **Section 3.16.3**. The overall cumulative effects of these actions when added to the direct impacts of the US 380 McKinney project, as summarized in **Figure 3-70**, focus on Water Resources (floodplain/floodway encroachment), Biological Resources (land disturbance and effects of vegetation clearing on wildlife species and habitats), and changes to the Visual Environment and Aesthetics. Changes in land use and land cover would result in a cumulative increase in impervious cover leading to an increase in surface runoff, potentially degrading surface water quality, and resulting in more frequent and intense storm events with higher flows occurring over shorter durations. The proposed runway extension at the Airport may require a CLOMR to address hydraulic changes within the East Fork Trinity River, which would affect the ongoing hydraulic modeling being conducted for the Preferred (Blue) Alternative and the potential need for compensatory flood storage north of existing US 380 as part of the US 380 McKinney project. The loss of vegetation also lessens the overall quality of the visual environment and the natural contrast and complement it provides against man-made features to make them potentially less visually disruptive, especially along Segment C of the Preferred Alternative.

3.16.5 Mitigation of Cumulative Effects

No-Build Alternative

No ROW would be acquired nor would land disturbance occur under the No-Build Alternative. The proposed widening of US 380 from Airport Drive to CR 458 (CSJs 0135-03-046 and 0135-04-033) cleared in 2020 and

anticipated to be under construction in early 2024, would be completed within existing ROW. Ongoing pavement and structure maintenance, and slope stabilization and drainage improvements would have the potential to create minimal areas of ground disturbance, vegetation clearing, and short-term effects to localized water quality but at a much lesser magnitude than the other reasonably foreseeable actions. Implementation of appropriate stormwater and erosion control BMPs and limiting the amount of area cleared at any one time before it is restored would mitigate possible negative effects. TxDOT would also implement TPWD BMPs in areas of known habitats or species presence including limiting some construction or operations activities depending on the season (e.g., nesting or spawning) particularly at the existing crossings of Wilson Creek, the East Fork Trinity River, and their respective tributaries.

As development and redevelopment occur along existing US 380 between Coit Road and FM 1827 and areas within Prosper and McKinney, particularly within the Wilson Creek watershed, the resulting changes in land use and loss of land cover will increase the amount of impervious area leading to increases in the quantity and turbidity of surface runoff, and the potential for more frequent and intense storm events with higher flows occurring along the stream channels within the Study Area. The City of McKinney would continue to work with developers to ensure compliance with their development standards⁶⁷ including the Stormwater Management Ordinance and the associated engineering design standards and when applicable, obtaining a Floodplain Development Permit in accordance with the city's floodplain regulations if improvements would occur within a designated floodplain. The Town of Prosper would also work with developers to ensure site development, construction, and maintenance activities maintain compliance with the town's Development Manual.⁶⁸

Preferred Alternative - Blue Alternative (A+E+C)

The Preferred Alternative would result in substantial vegetation clearing due to the length and location of the alignment through undeveloped areas (mainly along Segments A and C) dominated by open agricultural lands, wooded areas, grasslands, and floodplains. Land clearing, stormwater management, and erosion control BMPs would be implemented before and during construction with the incorporation of permanent BMPs given consideration as part of the final design to manage roadway runoff. TPWD BMPs would be implemented before, during, and after construction to address the potential presence of protected species and their habitats. Clearing would be limited to smaller work areas and should be stabilized or restored as quickly as possible. The design of the project, particularly through floodplain areas would avoid and minimize to the extent feasible and practicable floodplain encroachments. The hydraulic analysis conducted for the proposed runway extension and a possible CLOMR for the McKinney National Airport would influence the continued design of the Blue Alternative within the East Fork Trinity River floodplain (east end of Segment E and connection to Segment C) and may affect the amount of compensatory storage required for the project. The design of the Preferred Alternative will comply with TxDOT's Hydraulic Design Manual.

Vegetation clearing would be limited to that necessary for construction with seeding and revegetation plans developed according to TxDOT guidelines. Through context sensitive design solutions, consideration could be given to using materials and features that would make the roadway and bridge components more visually compatible with the surrounding environment.

⁶⁷ NEW CODE McKinney, Installment 3: Development Standards, Public Draft September 2021.

⁶⁸ Town of Prosper Development Manual; Updated December 2017.

3.17 Construction Phase Impacts

Construction of any of the Build Alternatives is anticipated to take 3 to 5 years. Temporary road closures and detours would occur along existing roadways to accommodate the relocation of utilities prior to initiating clearing and grading, and during construction to accommodate equipment and material deliveries and project phasing as different sections of the project would be constructed at different times. Portions of Bloomdale Road, US 75, SH 5, and other roadways would require demolition/removal before construction of certain new components can begin.

The anticipated phasing of construction for the study segments is described below. A summary of the construction phase impacts by Build Alternative is also provided.

Segment A

- Phase 1 – Westbound Frontage Construction
 - From Coit Road to the end of Segment A, construct westbound frontage road and access points to westbound frontage road. Partially construct at-grade intersections at future Independence Parkway, N. Custer Road, and N. Stonebridge Drive to go under US 380 mainlanes from the frontage road. Construct temporary pavement near intersections to allow traffic to flow during construction.
 - From existing US 380 near W University Drive to end of Segment A, construct eastbound frontage road and at-grade intersections at W. University Drive, CR 124/future Wilmeth Road, and future Bloomdale Road West.
- Phase 2 – Eastbound Frontage Road Construction
 - From Coit Road to exit onto existing US 380 near W. University Drive, construct eastbound frontage road, and access points to eastbound frontage road. Complete at-grade intersections partially completed in Phase I. Construct temporary pavement at intersections to allow traffic flow during construction.
 - Along CR 124/future Wilmeth Road, construct median and at-grade intersection with future US 380.
- Phase 3 – Mainlane construction
 - From Coit Road to the end of Segment A, construct mainlanes and all on/off ramps to frontage roads. Build out the remaining portion of at-grade intersections.

Segment B

- Phase 1 – Westbound Frontage Construction
 - From Coit Road to the end of Segment B, construct westbound frontage road. Partially construct at-grade intersections to go under US 380 mainlanes from the frontage road. Construct temporary pavement near intersections to allow traffic to flow during construction.
 - From Future University Drive to the end of Segment B, construct eastbound frontage road and ultimate at-grade intersections at future N. Stonebridge Drive and future Bloomdale Road West. Partially construct at-grade intersections of the frontage roads with N. Custer Road, future University Drive, and future Independence Parkway.

- Phase 2 – Eastbound Frontage Road Construction
 - From Coit Road to exit onto existing US 380 near W University Drive, construct eastbound frontage road, access points to eastbound frontage road, and finish at-grade intersections partially completed in Phase I. Construct temporary pavement at intersections with N. Custer Road and future University Drive.
 - Build out ultimate at-grade intersections of frontage roads with future Independence Parkway, future University Drive, and N. Custer Road.
- Phase 3 – Mainlane Construction
 - From Coit Rd to the end of Segment B, construct mainlanes and all on/off ramps to frontage roads and W. University Drive. Build out the remaining access points required at the intersection of W. University Drive. with existing US 380.

Segment E

- Phase I – Frontage Road Construction Part I
 - From the western end of Segment E (near future Ridge Road) to future CR 1006, construct both frontage roads. Partially build out at-grade intersections with CR 161/future Ridge Road, Lake Forest Drive (FM 1461), and future CR 1006. Construct temporary pavement at the partially built intersections.
 - From Future CR 1006 to Bloomdale Road East, construct eastbound frontage road. From Bloomdale Road East to Community Avenue, construct westbound frontage road. Partially build out intersections at future CR 1006, Bloomdale Road East, and Community Avenue.
 - Along US 75, alter on/off ramps near intersection with Laud Howell Parkway. Expand northbound mainlane from approximately STA 1045+50 to approximately STA 1126+00. Expand southbound mainlane from approximately STA 953+50 to approximately STA 1003+00. Expand northbound and southbound frontage roads.
 - Construct northbound lanes along SH 5.
- Phase 2 – Frontage Road Construction Part II
 - Build out at-grade intersections at CR 161/Future Ridge Road and Lake Forest Drive (FM 1461).
 - From future CR 1006 to Bloomdale Road East, build westbound frontage road. From Bloomdale Road East to Community Avenue, build eastbound frontage road and partially construct CR 164/future Hardin Boulevard.
 - From Community Avenue to SH 5, construct all frontage lanes. Build out intersections at Future Trinity Falls Parkway and SH 5.
- Phase 3 – Mainlane Construction
 - From the eastern bound of Segment E (near CR 161/future Ridge Road) to western bound of Segment E (near SH 5), construct mainlanes and all on/off ramps to frontage roads.
 - Phase 4 – US 380/US 75 Interchange construction
 - Construct remaining roads and bridges to finish interchange between US 380 and US 75.

Segment C

- Phase I – Westbound Frontage Road Construction
 - From the western end of Segment C (approx. Sta 1883+00 for mainline CL) to intersection with FM 1827/New Hope Road, construct eastbound frontage road. Construct temporary roundabout at the intersection of the westbound frontage road with FM 2933 and CR 331. Construct temporary access from westbound frontage road to CR 338 and FM 2933.
 - Build out at-grade intersection of frontage roads with FM 1827/New Hope Road. From FM 1827/New Hope Road to eastern end of Segment C, construct both frontage roads. Construct temporary pavement to accommodate access to existing FM 1827/New Hope Road and existing US 380.
- Phase 2 – Eastbound Frontage Road Construction
 - From the western end of Segment C (approx. STA 1883+00 for mainline centerline) to intersection with FM 1827/New Hope Road, construct westbound frontage road. Construct temporary access to roundabout at the intersection of the westbound frontage road with FM 2933 and CR 331. Construct temporary access from eastbound frontage road to northbound CR 338, CR 335, and FM 2933.
 - Construct temporary access from westbound frontage road to existing US 380 (exits westbound frontage road at approx. STA 4103+00 of westbound frontage road, ties into existing US 380 approximately STA 3095+00 of eastbound frontage road).
 - Widen Existing US 380 to tie into the beginning of the westbound frontage road.
- Phase 3 – Mainlane Construction
 - Construct mainlanes along the entirety of Segment C.
 - Partially build out intersections with future Wilmeth Road, Future Arterial (approx. STA 2030+00 of mainlanes). Build permanent access from westbound frontage road to FM 2933.
- Phase 4 – Access Completion
 - Build out access from intersection of future US 380 and FM 1827 to tie into existing US 380.
 - Complete eastbound frontage road. Segment runs from approximately STA 3095+00 to STA 3099+00. Add access from eastbound frontage road to businesses directly south of existing US 380 near the Future US 380 and FM 1827/New Hope Road intersection.

Segment D

- Phase I – Frontage road construction Part I
 - Construct temporary expansion of McIntyre/future Wilmeth Road from approx. STA 12+00 to approx. STA 26+00
 - Construct eastbound frontage road from Airport Drive and existing US 380 to end of Segment D. Partially construct intersection of US 380 and FM 1827/New Hope Road. (includes some temporary construction). Construct temporary pavement tying eastbound frontage road construction to existing US 380 at both ends of the eastbound frontage road.
- Phase 2 – Frontage road construction Part II
 - From the western end of Segment D, construct both frontage roads out to their tie in to existing US 380. Continue constructing eastbound frontage road to end of segment (approx. STA 6135+00).

- Construct ultimate at-grade intersections at McIntyre/future Wilmeth Road and FM 1827/New Hope Road.
- Build access from both frontage roads to the intersection of existing US 380 and Airport Drive.
- Phase 3 – Mainlane Construction
 - Along entire segment, construct mainlanes and all on/off ramps. Finish constructing intersection at McIntyre/future Wilmeth Road.

The following summarizes the anticipated phasing of construction of each Build Alternative based on the process described above for the component segments.

Purple Alternative (A+E+D)

- **Phase I – Frontage road construction**
 - Segment A
 - From Coit Road to the end of Segment A, construct westbound frontage road. Partially construct at-grade intersections to go under US 380 mainlanes from westbound frontage road. Construct temporary pavement near intersections to allow traffic to flow during construction.
 - From existing US 380 near W. University Drive to end of Segment A, construct eastbound frontage road and ultimate at-grade intersections at W. University Drive, CR 124/future Wilmeth Road, and Future Bloomdale Road West.
 - From Coit Road to exit onto existing US 380 near W. University Drive construct eastbound frontage road, access points to eastbound frontage road, and finish at-grade intersections partially completed in Phase I. Construct temporary pavement at intersections to allow traffic flow during construction.
 - Along CR 124/future Wilmeth Road, construct median and at-grade intersection with future US 380
 - Segment E
 - From the western end of Segment E (near future Ridge Road) to Future CR 1006, construct both frontage roads. Partially build out at-grade intersections with CR 161/future Ridge Road, Lake Forest Drive (FM 1461), and future CR 1006. Construct temporary pavement at the partially built intersections.
 - From future CR 1006 to Bloomdale Road East, construct eastbound frontage road. From Bloomdale Road East to Community Avenue, construct westbound frontage road. Partially build out intersections at future CR 1006, Bloomdale Road East, and Community Avenue.
 - Along US 75, alter on/off ramps near intersection with Laud Howell Parkway. Expand NB mainlane from approximately STA 1045+50 to approximately STA 1126+00. Expand SB mainlane from approximately STA 953+50 to approximately STA 1003+00. Expand northbound and southbound frontage roads.
 - Construct northbound lanes along SH 5.
 - Build out at-grade intersections at CR 161/future Ridge Road and Lake Forest Drive (FM 1461).

- From future CR 1006 to Bloomdale Road East, build westbound frontage road. From Bloomdale Road East to Community Avenue, build eastbound frontage road and partially construct CR 164/future Hardin Boulevard.
- From Community Avenue to SH 5, construct all frontage lanes. Build out intersections at future Trinity Falls Parkway and SH 5.
- Segment D
 - Construct temporary expansion of McIntyre/Future Wilmeth Road from approximately STA 12+00 to approximately STA 26+00
 - Construct eastbound frontage road from Airport Drive. and existing US 380 to end of Segment D. Partially construct intersection of US 380 and FM 1827/New Hope Road. (includes some temporary construction). Construct temporary pavement tying eastbound frontage road construction to existing US 380 at both ends of the eastbound frontage road.
 - From the western end of Segment D, construct both frontage roads out to their tie in to existing US 380. Continue constructing eastbound frontage road to end of segment (approx. STA 6135+00).
 - Construct ultimate at-grade intersections at McIntyre/future Wilmeth Road and FM 1827/New Hope Road.
 - Build access from both frontage roads to the intersection of existing US 380 and Airport Drive.
- **Phase 2 – Mainlane construction**
 - Segment A
 - From Coit Road to the end of Segment A, construct mainlanes and all on/off ramps to frontage roads and W. University Drive. Build out remaining portion of intersection at N. Custer Road.
 - Segment E
 - From the eastern bound of Segment E (near CR 161/future Ridge Road) to western bound of Segment E (near SH 5), construct mainlanes and all on/off ramps to frontage roads.
 - Segment D
 - Along entire segment, construct mainlanes and all on/off ramps. Finish constructing intersection at McIntyre/future Wilmeth Road.
- **Phase 3 – Interchange construction**
 - Segment E
 - Construct remaining roads and bridges to finish interchange between US 380 and US 75.

Blue Alternative (A+E+C)

- **Phase 1 – Frontage road construction**
 - Segment A
 - From Coit Road to the end of Segment A, construct westbound frontage road. Partially construct at-grade intersections to go under US 380 mainlanes from westbound frontage road. Construct temporary pavement near intersections to allow traffic to flow during construction.

- From existing US 380 near W. University Drive to end of Segment A, construct eastbound frontage road and ultimate at-grade intersections at W. University Drive, CR 124/future Wilmeth Road, and future Bloomdale Road West.
 - From Coit Road to exit onto existing US 380 near W. University Drive, construct eastbound frontage road, access points to eastbound frontage road, and finish at-grade intersections partially completed in Phase I. Construct temporary pavement at intersections to allow traffic flow during construction.
 - Along CR 124/future Wilmeth Road, construct median and at-grade intersection with future US 380
- Segment E
- From western end of Segment E (near future Ridge Road) to Future CR 1006, construct both frontage roads. Partially build out at-grade intersections with CR 161/future Ridge Road, Lake Forest Drive (FM 1461), and future CR 1006. Construct temporary pavement at the partially built intersections.
 - From future CR 1006 to Bloomdale Road East, construct eastbound frontage road. From Bloomdale Road East to Community Avenue, construct westbound frontage road. Partially build out intersections at future CR 1006, Bloomdale Road East, and Community Avenue.
 - Along US 75, alter on/off ramps near intersection with Laud Howell Parkway. Expand northbound mainlane from approximately STA 1045+50 to approximately STA 1126+00. Expand southbound mainlane from approximately STA 953+50 to approximately STA 1003+00. Expand northbound and southbound frontage roads.
 - Construct northbound lanes along SH 5.
 - Build out at-grade intersections at CR 161/future Ridge Road and Lake Forest Drive (FM 1461).
 - From future CR 1006 to Bloomdale Road East, build westbound frontage road. From Bloomdale Road East to Community Avenue, build eastbound frontage road and partially construct CR 164/Future Hardin Blvd.
 - From Community Avenue to SH 5, construct all frontage lanes. Build out intersections at future Trinity Falls Parkway and SH 5.
- Segment C
- From the western end of Segment C (approx. STA 1883+00 for mainlane CL) to intersection with FM 1827/New Hope Road, construct eastbound frontage road. Construct temporary roundabout at the intersection of the westbound frontage road with FM 2933 and CR 331. Construct temporary access from westbound frontage road to CR 338 and FM 2933.
 - Build out at-grade intersection of frontage roads with FM 1827/New Hope Road. From FM 1827/New Hope Road to eastern end of Segment C, construct both frontage roads. Construct temporary pavement to accommodate access to existing FM 1827/New Hope Road and existing US 380.
 - From western end of Segment C (approx. STA 1883+00 for mainlane CL) to intersection with FM 1827/New Hope Road, construct westbound frontage road. Construct temporary access to roundabout at the intersection of the westbound frontage road with FM 2933 and CR 331. Construct temporary access from eastbound frontage road to northbound CR 338, CR 335, and FM 2933.

- Construct temporary access from westbound frontage road to existing US 380 (exits westbound frontage road at approx. STA 4103+00 of westbound frontage road, ties into existing US 380 approx. STA 3095+00 of Eastbound frontage road).
- Widen existing US 380 to tie into the beginning of the westbound frontage road.
- **Phase 2 – Mainlane construction**
 - Segment A
 - From Coit Road to the end of Segment A, construct mainlanes and all on/off ramps to frontage roads and W. University Drive. Build out remaining portion of intersection at N. Custer Road.
 - Segment E
 - Construct mainlanes and all on/off ramps to frontage roads from eastbound Segment E (near CR 161/future Ridge Road) to westbound Segment E (near SH 5).
 - Segment C
 - Along the entirety of Segment C, construct mainlanes.
 - Partially build out intersections with future Wilmeth Road, Future Arterial (approx. STA 2030+00 of mainlanes). Build permanent access from westbound frontage road to FM 2933.
- **Phase 3 – Interchange construction**
 - Segment E
 - Construct remaining roads and bridges to finish interchange between US 380 and US 75.

Brown Alternative (B+E+C)

- **Phase 1 – Frontage road construction**
 - Segment B
 - From Coit Road to the end of Segment B, construct westbound frontage road. Partially construct at-grade intersections to go under future US 380 mainlanes from westbound frontage road. Construct temporary pavement near intersections to allow traffic to flow during construction.
 - From future University Drive to end of Segment B, construct eastbound frontage road and ultimate at-grade intersections at future N. Stonebridge Drive and future Bloomdale Road West. Partially construct at-grade intersections of the frontage roads with N. Custer Road, future University Drive, and future Independence Parkway.
 - From Coit Road to exit onto existing US 380 near W. University Drive, construct eastbound frontage road, access points to eastbound frontage road, and finish at-grade intersections partially completed in Phase I. Construct temporary pavement at intersections with N. Custer Road and future University Drive.
 - Build out ultimate at-grade intersections of frontage roads with future Independence Parkway, future University Drive, and N. Custer Road.
 - Segment E
 - From the western end of Segment E (near future Ridge Road) to future CR 1006, construct both frontage roads. Partially build out at-grade intersections with CR 161/ future Ridge Road,

Lake Forest Drive (FM 1461), and future CR 1006. Construct temporary pavement at the partially built intersections.

- From future CR 1006 to Bloomdale Road East, construct eastbound frontage road. From Bloomdale Road East to Community Avenue, construct westbound frontage road. Partially build out intersections at future CR 1006, Bloomdale Road East, and Community Avenue.
- Along US 75, alter on/off ramps near intersection with Laud Howell Parkway. Expand northbound mainlane from approximately STA 1045+50 to approximately STA 1126+00. Expand southbound mainlane from approximately STA 953+50 to approximately STA 1003+00. Expand northbound and southbound frontage roads.
- Construct northbound lanes along SH 5.
- Build out at-grade intersections at CR 161/future Ridge Road and Lake Forest Drive (FM 1461).
- From future CR 1006 to Bloomdale Road East, build westbound frontage road. From Bloomdale Road East to Community Avenue, build eastbound frontage road and partially construct CR 164/future Hardin Blvd.
- From Community Avenue. to SH 5, construct all frontage lanes. Build out intersections at future Trinity Falls Parkway and SH 5.

➤ Segment C

- From the western end of Segment C (approx. Sta 1883+00 for mainlane CL) to intersection with FM 1827/New Hope Road, construct eastbound frontage road. Construct temporary roundabout at the intersection of the westbound frontage road with FM 2933 and CR 331. Construct temporary access from westbound frontage road to CR 338 and FM 2933.
- Build out at-grade intersection of frontage roads with FM 1827/New Hope Road. From FM 1827/New Hope Road to eastern end of Segment C, construct both frontage roads. Construct temporary pavement to accommodate access to existing FM 1827/New Hope Road and existing US 380.
- From the western end of Segment C (approx. Sta 1883+00 for mainlane CL) to intersection with FM 1827/New Hope Road, construct westbound frontage road. Construct temporary access to roundabout at the intersection of the westbound frontage road with FM 2933 and CR 331. Construct temporary access from eastbound frontage road to NB CR 338, CR 335, and FM 2933.
- Construct temporary access from westbound frontage road to existing US 380 (exits westbound frontage road at approx. STA 4103+00 of westbound frontage road, ties into existing US 380 approx. STA 3095+00 of eastbound frontage road).
- Widen existing US 380 to tie into the beginning of the westbound frontage road.

▪ **Phase 2 – Mainlane construction**

➤ Segment B

- From Coit Road to the end of Segment B, construct mainlanes and all on/off ramps to frontage roads and W. University Drive. Build out remaining access points required at the intersection of W. University Drive with existing US 380.

➤ Segment E

- From the eastern bound of Segment E (near CR 161/future Ridge Road) to western bound of segment E (near SH 5), construct mainlanes and all on/off ramps to frontage roads.

➤ Segment C

- Construct mainlanes along the entirety of Segment C.
- Partially build out intersections with future Wilmeth Road, Future Arterial (approx. STA 2030+00 of mainlanes). Build permanent access from westbound frontage road to FM 2933.

▪ **Phase 3** – Interchange construction

➤ Segment E

- Construct remaining roads and bridges to finish interchange between US 380 and US 75.

Gold Alternative (B+E+D)

▪ **Phase 1** – Frontage road construction

➤ Segment B

- From Coit Road to the end of Segment B, construct westbound frontage road. Partially construct at-grade intersections to go under future US 380 mainlanes from westbound frontage road. Construct temporary pavement near intersections to allow traffic to flow during construction.
- From Future University Drive to the end of Segment B, construct eastbound frontage road and ultimate at-grade intersections at future N. Stonebridge Drive and future Bloomdale Road West. Partially construct at-grade intersections of the frontage roads with N. Custer Road, future University Drive, and future Independence Parkway.
- From Coit Road to exit onto existing US 380 near W. University Drive, construct eastbound frontage road, access points to eastbound frontage road, and finish at-grade intersections partially completed in Phase I. Construct temporary pavement at intersections with N. Custer Road and future University Drive.
- Build out ultimate at-grade intersections of frontage roads with future Independence Parkway, future University Drive and N. Custer Road.

➤ Segment E

- From the western end of Segment E (near future Ridge Road) to Future CR 1006, construct both frontage roads. Partially build out at-grade intersections with CR 161/future Ridge Road, Lake Forest Drive (FM 1461), and future CR 1006. Construct temporary pavement at the partially built intersections.
- From future CR 1006 to Bloomdale Road East, construct eastbound frontage road. From Bloomdale Road East to Community Avenue, construct westbound frontage road. Partially build out intersections at future CR 1006, Bloomdale Road East, and Community Avenue.
- Along US 75, alter on/off ramps near intersection with Laud Howell Parkway. Expand northbound mainlane from approximately STA 1045+50 to approximately STA 1126+00. Expand southbound mainlane from approx. STA 953+50 to approx. STA 1003+00. Expand northbound and southbound frontage roads.
- Construct northbound lanes along SH 5.
- Build out at-grade intersections at CR 161/future Ridge Road and Lake Forest Drive (FM 1461).

- From future CR 1006 to Bloomdale Road East, build westbound frontage road. From Bloomdale Road East to Community Avenue, build eastbound frontage road and partially construct CR 164/future Hardin Blvd.
- From Community Avenue to SH 5, construct all frontage lanes. Build out intersections at future Trinity Falls Parkway and SH 5.
- Segment D
 - Construct temporary expansion of McIntyre/future Wilmeth Road from approximately STA 12+00 to approximately STA 26+00.
 - Construct eastbound frontage road from Airport Drive and existing US 380 to end of Segment D. Partially construct intersection of US 380 and FM 1827/New Hope Road. (includes some temporary construction). Construct temporary pavement tying eastbound frontage road construction to existing US 380 at both ends of the eastbound frontage road.
 - From the western end of Segment D, construct both frontage roads out to their tie in to existing US 380. Continue constructing eastbound frontage road to end of segment (approx. STA 6135+00).
 - Construct ultimate at-grade intersections at McIntyre/future Wilmeth Road and FM 1827/New Hope Road.
 - Build access from both frontage roads to the intersection of existing US 380 and Airport Drive.
- **Phase 2 – Mainlane Construction**
 - Segment B
 - From Coit Road to the end of Segment B, construct mainlanes and all on/off ramps to frontage roads and W. University Drive. Build out remaining access points required at the intersection of W. University Drive with existing US 380.
 - Segment E
 - From eastern bound of Segment E (near CR 161/future Ridge Road) to western bound of segment E (near SH 5), construct mainlanes and all on/off ramps to frontage roads.
 - Segment D
 - Along entire segment, construct mainlanes and all on/off ramps. Finish constructing intersection at McIntyre/future Wilmeth Road.
- **Phase 3 – Interchange Construction**
 - Segment E
 - Construct remaining roads and bridges to finish interchange between US 380 and US 75.

3.17.1 Traffic Impacts – Construction Phase

Traffic disruption would be expected during construction of any of the Build Alternatives. A detailed traffic control plan would be developed prior to and implemented during construction to minimize traffic disruption and describe how access would be maintained for vehicles, pedestrians, and bicyclists using existing roadways or neighboring facilities during construction. Temporary increases in traffic congestion would be expected; however, access to adjacent properties would be expected to remain open as much as possible. Changes in traffic patterns would be communicated by roadside signs and displays; and communicated to emergency responders (e.g., police, fire, EMS, and others) and public service providers prior to implementing the change.

Traffic control during construction would proceed in accordance with the Texas Manual on Uniform Traffic Control Devices and TxDOT's Work Zone Standards.

3.17.2 Noise Impacts – Construction Phase

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receptors is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of equipment muffler systems.

3.17.3 Air Quality Impacts – Construction Phase

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel PM from diesel powered construction equipment and vehicles. The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. Considering the temporary and transient nature of construction-related emissions, as well as the mitigative actions to be applied including compliance with applicable regulatory requirements, it is not anticipated that emissions from construction of this project will have a significant impact on air quality in the area.

3.17.4 Biological Resources – Construction Phase

Vegetative communities within and adjacent to the ROW would be removed or disturbed due to construction activities, resulting in habitat loss for resident and migratory species and could result in temporary removal of ground cover that helps prevent erosion. TPWD BMPs would be implemented because of potential impacts to state-listed species and SGCN (see **Section 3.11.2**). Construction activities should disturb only those areas necessary to construct the proposed project, including minimizing disturbance to important microhabitats (e.g., snags, brush piles), if present. Disturbed areas would be restored, re-graded, and reseeded according to TxDOT specifications. BMPs to provide temporary erosion control during construction and permanent erosion control following construction would be employed.

3.17.5 Water Resources – Construction Phase

Minor impacts to water resources during construction may occur, including permanent fill impacts to wetlands and WOTUS. However, controls and BMPs detailed in the stormwater pollution prevention plan (SWP3) will be implemented to minimize, to the extent practicable, the discharge of pollutants in stormwater associated with construction activity and (certain) non-stormwater discharges. Careful refueling practices for construction equipment would limit spills of gasoline and diesel fuels, and oil and other fluid spills should be minimized by frequent checks of construction equipment. The SWP3 will include measures to control erosion and limit the discharge of pollutants to surface waters and groundwater. Erosion control measures may include, but are not limited to, the installation of silt fencing, mulching, erosion control blankets, and berms.

Additional practices to minimize impacts to surface and groundwater resources would include locating and protecting all temporary storage facilities (e.g., petroleum products, other fuels, and chemicals) to prevent accidental spills from entering the streams within the project vicinity. Avoid disposing of cement sweepings, washings, concrete wash water from concrete trucks, and other concrete mixing equipment, treatment chemicals, or grouting and bonding materials into streams, wetlands, or into any location where water runoff will wash pollutants into streams or wetlands.

3.17.6 Hazardous Materials – Construction Phase

It is anticipated that contaminated soil and/or groundwater could be encountered during construction. Special provisions or contingency language would be included in the project's plans, specifications, and estimates (PS&E) to handle hazardous materials and/or petroleum contamination according to applicable federal and state regulations.

Construction contractors should be instructed to immediately stop all subsurface activities if potentially hazardous materials are encountered, an odor is identified, or significantly stained soil is visible. Contractors and maintenance personnel should be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process.

3.17.7 Cultural Resources – Construction Phase

Unknown prehistoric or historic sites may be encountered in areas of deep construction (e.g., drilled shafts, caissons, directional drilling). In the unlikely event the contractor's excavation operation encounters such remains, the contractor or field supervisor will contact the Dallas District and ENV to determine the disposition of the discovered artifacts. When directed by ENV, the contractor will excavate the site in such a manner as to preserve the artifacts encountered and the archeologist or his/her representative will remove the artifacts for delivery to the custody of TxDOT or the THC.

3.17.8 Construction Phase Impacts Summary

No-Build Alternative

The No-Build Alternative includes improvements to existing US 380, SH 5, N. Custer Road, and Lake Forest Parkway, the impacts of which have already been assessed and environmentally cleared. The No-Build Alternative would not include any construction that has not been evaluated under those four projects.

Preferred Alternative - Blue Alternative (A+E+C)

Construction impacts would be managed for the Blue Alternative as described in the above sections. Prior to construction being initiated, utilities would be relocated through close coordination with the utility owner and the adjacent property owners. A Traffic Management Plan would be developed and implemented during construction especially for areas where the new freeway ties into existing roadways and where construction access is needed across public roads. Construction activities would be limited to normal daytime hours to minimize impacts on nearby residences. Short-term and temporary increases in emissions and PM (fuels and dust) would occur during construction and fugitive dust controls and other measures would be employed to manage emissions and airborne debris. TPWD BMPs would be implemented, where appropriate and a SWP3 would be developed, implemented, and monitored throughout construction to address surface water quality.

3.18 Relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity

Transportation improvements are based on comprehensive planning which considers the need for current and future traffic facilities within the context of present and future land use development. The local short-term impacts and use of resources by the proposed action is consistent with the maintenance and enhancement of long-term productivity for the area. Each of the reasonable alternatives identified in **Section 2.2** would involve short-term uses of the environment, as detailed under the previously described resources in this **Chapter 3**. Aside from the construction-phase impacts discussed in **Section 3.17**, which would be temporary, most of the environmental impacts discussed for the reasonable alternatives would be, for purposes of this environmental analysis, permanent in the sense that the various build alternatives would be expected to serve the intended transportation function indefinitely. In other words, each of the reasonable alternatives would permanently convert the pre-existing natural and man-made resources to a transportation use, and such resources would no longer exist, and therefore would no longer contribute to the maintenance and enhancement of the environment's productivity. The reasonable alternatives would, however, enhance the "productivity" of the transportation system, which would have long-term benefits for users, such as connecting and improving mobility across the Study Area and beyond. The reasonable alternatives would also provide additional capacity to address current and future travel demand, reduce congestion along existing US 380, and improve travel times within the region, while also providing resiliency within the roadway network to adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions including incidents and construction projects along existing US 380 and other major RSAs.

Under the No-Build Alternative, no short-term uses of the environment would occur, but neither would any transportation-related benefits. Therefore, the transportation-related problems discussed in **Section 1.1** would persist.

3.19 Irreversible or irretrievable commitments of resources

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. As stated elsewhere in **Chapter 3** of this FEIS, each of the reasonable alternatives identified in **Section 2.2** would irreversibly and irretrievably commit natural and man-made resources to a transportation use. Land used for the project would be considered an irreversible commitment during the period that the land is used for a transportation purpose. This land includes residential and business properties, public parks, actively farmed lands, floodplains, and natural habitats, as well as existing roadway ROW that would be redeveloped as part of the proposed freeway. Additionally, each of the reasonable alternatives would irreversibly and irretrievably commit energy resources, such as the fossil fuels that would be consumed by construction equipment, in addition to human labor and highway construction materials such as cement, aggregate, and bituminous material. Large amounts of labor and natural resources are also used in the fabrication and preparation of construction materials. These materials are generally not retrievable. Construction will also require a substantial one-time expenditure of both state and federal funds, which are also not retrievable. The decision to commit these resources for construction of the proposed project would be based on the concept that residents in the area and others would benefit from the project through improved connectivity and mobility, reduced roadway congestion on existing highways, and improved travel times for commuters and emergency responders.

Under the No-Build Alternative, the irreversible or irretrievable commitment of resources would continue to occur through ongoing maintenance as the existing facility ages and with the implementation of programmed improvements as described in **Section 2.2.1**. Minor transportation-related benefits would result from the planned improvements, but they would not address the needs identified. Therefore, the transportation-related problems discussed in **Section 1.1** would persist.

3.20 Possible conflicts between the proposed action and the objectives of Federal, regional, State, Tribal, and local land use plans, policies, and controls for the area concerned

Only the Brown and Gold Alternatives (Segment B) would conflict with the land use and thoroughfare plans of the Town of Prosper. Input received from the town has indicated the alignment of Segment B does not align with the town's existing and planned roadway network. Since the completion of the Feasibility Study, developers have been platting and obtaining permits to construct new residential developments within the area of the Segment B alignment. These developments are in various stages of planning and construction, with several residences intended to be completed, sold, and occupied by the time the ROD for the US 380 McKinney project is issued. The Purple and Blue Alternatives (Segment A) would not conflict with the objectives of Federal, regional, state, Tribal, or local land use plans, policies and controls for the area concerned.

The No-Build Alternative would be consistent with existing local plans, but the *Mobility 2045 Update* includes the proposed improvement of US 380 across Collin County, including this US 380 McKinney project and the approved Spur 399 Extension. The No Action Alternative would not provide the needed travel capacity to address current and forecasted growth within McKinney and the need for improved east-west mobility across the county. Congestion levels along existing US 380 may eventually affect the rate at which development occurs along the highway as ingress-egress to adjacent properties becomes more congested and difficult. Developments previously described that are in various stages of planning and construction within the Town of Prosper and the City of McKinney are continuing to progress to address growth. The traffic generated by these developments will contribute to long-term congestion.

3.21 Energy requirements and conservation potential of various alternatives and mitigation measures

Each of the reasonable alternatives identified in **Section 2.2** would require the consumption of energy, both in terms of construction and operation of the project. Energy, in the form of various fossil fuels and electricity, would be necessary during construction, maintenance, and future repair of the project. ROW clearing; road base grading and preparation; construction of bridges; and travel lane and ramp installations would require varying levels of energy inputs. Following construction, routine maintenance of the ROW and travel lanes, and roadway repairs conducted on an as-needed basis, would also require energy inputs. Petroleum fuels are currently the primary type of energy required for construction, maintenance, and repair activities. Changing vehicle and fuel technology such as electric or hydrogen fuel options may alter the use of petroleum fuels in the future. Necessary fuel supplies would be expected to be available from fuel storage or vending sources in the area. Electrical demand for the Preferred Alternative would not affect the electrical supply characteristics of the region.

Regarding operations, roadway traffic would likely be the largest contributor to energy consumption over the lifetime of the facility. Energy consumption related to use of the facility would be dependent on vehicle efficiency, which includes such variables as roadway geometry, surface conditions, weather conditions, and traffic flows. Vehicle and fuel technology will likely reduce the need for future petroleum products in operational energy requirements in ways that cannot be accurately estimated now. However, each reasonable alternative would increase energy efficiency over existing conditions by reducing congestion, decreasing travel times, and improving system connectivity and overall mobility within and adjacent to the study area. Energy conservation measures implemented for the Preferred Alternative would include: use of energy-efficient safety lighting and construction of SUPs adjacent to the frontage roads to promote multi-modal transportation.

Under the No-Build Alternative, energy would be used for construction of the improvements noted in **Section 2.2.1**, in addition energy would continue to be expended in the operation and future maintenance and repair of the existing US 380. The No-Build Alternative would not support the realization of transportation-related benefits, therefore the transportation-related problems discussed in **Section 1.1** would persist. Additionally, under the No-Build Alternative, reduced congestion and improved travel times would not be realized. The mobility and connectivity needed across the Study Area would not occur, as delay and additional miles traveled each year by vehicles as they take less-direct routes to reach their desired destinations. The SUPs would not be built along the frontage roads to support multi-modal use.

3.22 Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures

As described in the resource sections above in **Chapter 3**, each of the reasonable alternatives identified in **Section 2.2** would deplete natural and depletable resources, including energy resources, such as the fossil fuels consumed by the construction equipment needed to build the project. Natural or depletable resource conservation requirements that would be implemented include use of newer, fuel-efficient construction equipment, minimizing land clearing to what is needed for construction of the project, implementation and maintenance of effective stormwater BMPs, and use of sustainable materials where feasible and practicable.

Under the No-Build Alternative, small amounts of natural or depletable resources would be used for ongoing maintenance of the existing facility and implementation of planned improvements with minor transportation-related benefits resulting from the planned improvements. The planned improvements would not address the needs identified; therefore, the transportation-related problems discussed in **Section 1.1** would persist.

3.23 Urban quality, historic and cultural resources, and the design of the built environment including the reuse and conservation potential of various alternatives and mitigation measures

The project's impacts on urban quality, historic and cultural resources, and the design of the built environment are addressed in **Section 3.6** (Community Impacts), **Section 3.7** (Visual/Aesthetic Impacts), and **Section 3.8** (Cultural Resources). Mitigation measures relating to these areas are also discussed in those sections.

3.24 Greenhouse Gas Emissions and Climate Change

TxDOT has prepared a *Statewide On-Road Greenhouse Gas Emissions Analysis and Climate Change Assessment* technical report.⁶⁹ The report discloses: (1) an analysis of available data regarding statewide GHG emissions for on-road GHG emissions,⁷⁰ (2) TxDOT actions and funding that support reducing GHG emissions, (3) projected climate change effects for the state of Texas and (4) TxDOT's current strategies and plans for addressing the changing climate. A summary of key issues in this section is provided below.

The Earth has gone through many natural changes in climate over time. However, since the industrial revolution began in the 1700s, the atmospheric concentration of GHG emissions has continued to climb, primarily due to humans burning fossil fuel (e.g., coal, natural gas, gasoline, oil and/or diesel) to generate electricity, heat and cool buildings, and power industrial processes, vehicles, and equipment. According to the Intergovernmental Panel on Climate Change, this increase in GHG emissions is projected to contribute to future changes in climate.⁷¹

3.24.1 Statewide On-Road Greenhouse Gas

TxDOT prepared a GHG analysis for the statewide on-road transportation system and associated emissions generated by motor vehicle fuels processing called "fuel-cycle emissions." EPA's MOVES2014 emissions model was used to estimate emissions. Texas on-road and fuel cycle GHG emissions are estimated to be 186 million metric tons (MMT) in 2050 and reach a minimum in 2032 at 161 MMT. Future on-road GHG emissions may be affected by changes that may alter where people live and work and how they use the transportation system, including but not limited to: (1) the results of federal policy including tailpipe and fuel controls, (2) market forces and economics, (3) individual choice decisions, (4) acts of nature (e.g., pandemic) or societal changes, and (5) other technological advancements. Such changes cannot be accurately predicted due to the inherent uncertainty in future projections related to demographics, social change, technology, and inability to accurately forecast where people work and live.⁷²

3.24.2 Mitigation Measures

Strategies that reduce on-road GHG emissions fall under four major categories:

- Federal engine and fuel controls under the Clean Air Act implemented jointly by EPA and USDOT, which includes Corporate Average Fuel Economy standards.
- "Cash for clunker" programs which remove older, higher-emitting vehicles from roads.
- TSM which improves the operational characteristics of the transportation network (e.g., traffic light timing, pre-staged wrecker service to clear accidents faster, or traveller information systems).

⁶⁹ Texas Department of Transportation, *Statewide On-Road Greenhouse Gas Emissions Analysis and Climate Change Assessment Technical Report*. Environmental Affairs Division, June 2021. Website: <https://ftp.txdot.gov/pub/txdot-info/env/toolkit/725-01-rpt.pdf>. Accessed March 17, 2022.

⁷⁰ Greenhouse gas (GHG) emissions consist of on-road tailpipe emissions and upstream fuel cycle emissions. Upstream fuel cycle emissions are the emissions generated by extracting, shipping, refining, and delivering fuels.

⁷¹ *Climate Change 2007: The Physical Science Basis. Working Group I Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*; S.D. Solomon, et. al.; January 2007; *Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*; T.F. Stocker, et. al.; 2013

⁷² Transportation Research Board Special Report 288 (2007) *Metropolitan Travel Forecasting Current Practice and Future Direction*.

- TDM which provides reductions in VMT (e.g., transit, rideshare, and bicycle and pedestrian facilities) and requires personal choice decisions.

TxDOT has implemented programmatic strategies that reduce GHG emissions including: (1) travel demand management projects and funding to reduce VMT, such as bicycle and pedestrian facilities, (2) traffic system management projects and funding to improve the operation of the transportation system, (3) participation in the national alternative fuels corridor program, (4) clean construction activities, (5) clean fleet activities, (6) CMAQ funding, (7) transit funding, and (8) two statewide campaigns to reduce tailpipe emissions.

3.24.3 TxDOT and Changing Climate

TxDOT has strategies that address a changing climate in accordance with TxDOT and FHWA design, asset management, maintenance, emergency response, and operational policies and guidance. The flexibility and elasticity in TxDOT transportation planning, design, emergency response, maintenance, asset management, and operation and maintenance of the transportation system are intended to consider any number of changing scenarios over time. Additional detail is provided in the *Statewide On-Road Greenhouse Gas Emissions Analysis and Climate Change Assessment* technical report.

4.0 Summary of Submitted Alternatives, Information, and Analyses

4.1 Summary of Alternatives, Information, and Analyses Submitted Prior to Release of the DEIS

This section summarizes the agency, public, and stakeholder outreach conducted before and after release of the US 380 McKinney DEIS for public review.

Figure 4-1: Summary of Agency Coordination Conducted During Preparation of the US 380 McKinney DEIS

Event	Date(s)	Agencies Attending	Number of Comments Received
USACE Fort Worth District Pre-Scoping Meeting (Virtual)	August 19, 2020	USACE Fort Worth District	NA
Agency Scoping Meeting (Virtual)	October 29, 2020	NCTCOG USDA-NRCS DHS/FEMA TCEQ THC TPWD Collin County City of McKinney Town of Prosper Town of New Hope	23
USACE Fort Worth District Coordination Meeting (Virtual)	May 18, 2021	USACE Fort Worth District	NA

Figure 4-2: Summary of Public Outreach Conducted During Preparation of the US 380 McKinney DEIS

Event	Date(s)	Number of Attendees	Number of Comments Received
Public Scoping Meeting Virtual/Online	January 21, 2021 through February 5, 2021	1,503 KeepItMovingDallas Website views 897 YouTube views 2,000 Consultant Website views 408 Virtual Sign-Ins	511
Public Meeting on Reasonable Alternatives In-Person Sheraton McKinney Hotel, McKinney TX	March 22, 2022	435	9,078
Public Meeting on Reasonable Alternatives Virtual	March 22, 2022 through April 21, 2022	9,835 KeepItMovingDallas Website views 1,151 YouTube views	
Elected Officials Briefing DEIS and the Preferred Alternative	January 12, 2023	29 entities represented	NA
Public Hearing #1 on the DEIS Collin County Courthouse, McKinney	February 16, 2023	355	
Public Hearing #2 on the DEIS Rhea's Mill Baptist Church, McKinney	February 21, 2023	207	4,256
Public Hearing on the DEIS - Virtual	February 16 through April 20, 2023	8,007 KeepItMovingDallas Website Views 1,034 YouTube Views	

Figure 4-3: Summary of Stakeholder Outreach Conducted During Preparation of the US 380 McKinney DEIS

Stakeholder	Date(s)
Collin County	4/27/2020, 6/26/2020, 7/6/2020, 9/11/2020, 10/13/2020, 4/22/2021, 10/8/2021
City of McKinney	4/27/2020, 6/26/2020, 7/6/2020, 7/29/2020, 8/25/2020, 9/11/2020, 10/12/2020, 12/8/2020, 7/26/2021, 8/23/2021, 10/25/2021, 11/18/2021, 12/6/2021, 3/7/2022, 3/28/2022, 4/25/2022, 6/6/2022, 6.27.2022, 7/14/2022, 7/25/2022, 8/22/2022, 9/26/2022, 10/24/2022, 11/28/2022
Town of Prosper	4/17/2020, 6/9/2020, 7/15/2020, 10/12/2020, 11/10/2020, 6/1/2021, 7/8/2021, 8/12/2021, 11/18/2021, 2/10/2022, 3/10/2022, 3/28/2022, 7/14/2022, 8/11/2022, 9/8/2022, 10/13/2022, 11/7/2022, 12/8/2022
Town of New Hope	3/5/2021
City of Irving	2/2/2021
NCTCOG	6/12/2020, 9/3/2020, 10/29/2020, 6/22/2021
NTMWD	4/27/2020, 6/18/2020, 8/18/2020
NTTA	6/23/2020
Billingsley Company (land developer)	5/27/2021, 1/25/2022, 4/6/2022, 7/26/2022
ManeGait Therapeutic Horsemanship	4/9/2021, 11/30/2021, 6/15/2021, 4/4/2022
Prosper Founders Academy	4/16/2021
Brook Hollow Apartments	9/30/2021, 10/4/2021
Del La Vega Development Group	5/16/2022
HEB Developer	3/21/2022
Ladera Development	6/27/2022
US 75 Developers	6/25/2021
Wilson Property Owners	4/30/2020, 8/5/2020, 12/2/2020

As described in **Section 2.3.1**, the *Methodology and Level of Detail for Analyzing Alternatives* matrix was shared with agencies and the public during scoping activities conducted in October 2020, and January-February 2021, respectively. The matrix included general need statements, engineering criteria, and environmental criteria based on TxDOT guidance and recommended levels of analysis for the No-Build and Build Alternatives. The alternatives presented during scoping included the four reasonable alternatives (Purple, Blue, Brown, and Gold), the Green Alternative (improve existing US 380 between Coit Road and FM 1827), and the No-Build Alternative. TxDOT indicated the Green Alternative (Segment F/Improve Existing US 380) would not be evaluated in the EIS based on the significant impacts identified during the Feasibility Study.

- Agency scoping comments included: request for U.S. Army Corps of Engineers (USACE)/Texas Commission on Environmental Quality (TCEQ) coordination, inquiry as to the level of Section 404 permitting/Section 401 water quality certification anticipated, reduce fragmentation of riparian habitats by using existing corridors and incorporating wildlife crossings into the design, effects on aquatic species/habitats and consider relocation of aquatic species under Texas Parks and Wildlife Department (TPWD) permit, request to span water crossings, incorporation of dark-sky lighting practices, coordination with utility providers regarding current and planned infrastructure improvements, use of the existing US 380 alignment through the Town of Prosper, and location and design of roadway connections between the proposed freeway and existing US 380 particularly near

the intersection with FM 1827 in New Hope. The summary of agency comments received is included in **Appendix F**.

- Public scoping comments included: air quality and TxDOT required analyses, traffic noise, potential residential displacements, impacts to parks and community facilities including the proximity of the alignments to schools, effects on planned and future development and coordination with municipal plans, potential effects on ManeGait Therapeutic Horsemanship facility, loss of habitat and impacts to wildlife species, and consideration of the “Teal Alignment”. The summary of public comments received is included in **Appendix F**.

Comments received from the public during the Reasonable Alternatives Public Meeting conducted on March 22, 2022, (and online March 22 through April 21, 2022) were primarily focused on Segment A versus Segment B. Numerous commenters noted a preference for Segment A to avoid potential impacts to ManeGait Therapeutic Horsemanship, Prosper’s Founders Academy, and planned/future developments within the Town of Prosper north of existing US 380 and west of N. Custer Road. Proponents for Segment B focused on the avoidance of impacts to Tucker Hill and Stonebridge Ranch, planned development along existing US 380 in Walnut Grove and along the new location alignment through McKinney. Residents along Segment E focused on traffic noise and the need for noise barriers, maintaining access to neighborhoods, and impacts to planned development and utilities. Few comments were received in favor of or in opposition to Segment C versus Segment D. General comments focused on traffic noise, air quality impacts, avoiding impacts to Erwin Park, and the visual impact of an elevated freeway.

4.2 Summary of Alternatives, Information, and Analyses Submitted After Release of the DEIS

This section summarizes the agency, public, and stakeholder outreach conducted after the release of the DEIS.

Figure 4-4: Summary of Stakeholder Outreach Conducted During Preparation of the US 380 McKinney FEIS

Stakeholder	Date(s)
City of McKinney	1/20/2023, 1/23/2023, 1/30/2023, 2/27/2023, 3/27/2023, 4/24/2023, 5/11/2023, 6/26/2023, 7/24/2023, 8/28/2023
Town of Prosper	2/9/2023, 3/9/2023, 4/20/2023
Town of New Hope	2/27/2023, 5/8/2023
Del La Vega Development Group	3/3/2023, 6/13/2023
Jack Harvard	5/30/2023
NTMWD	2/2/2023, 7/28/2023
Bob Thomas (developer)	6/13/2023
Creation Equity/McRae Gomez Team	6/13/2023
Stonebridge Ranch	7/19/2023
Tucker Hill	7/31/2023

TxDOT published the Notice of Availability (NOA) of the DEIS on January 13, 2023, at www.KeepItMovingDallas.com at www.TxDOT.gov, and in the *Dallas Morning News*, *Al Dia*, *Community Impact – McKinney*, *Community Impact – Prosper*, and the *Prosper Press*. The NOA was also published in the Federal Register on January 20, 2023. The NOA was also mailed and emailed to local, state, and federal agencies;

federally recognized Tribes; elected officials; neighborhood and HOA representatives; and the members of the general public on the project mailing list. The notices, published in English, Spanish, and Vietnamese, indicated that two Public Hearings would be held – one on February 16, 2023, at the Collin County Courthouse, Central Jury Room in McKinney from 5:30 pm to 7:30 pm, and the second on February 21, 2023, at the Rhea's Mill Baptist Church Gymnasium in McKinney from 5:30 pm to 7:30 pm. The public comment period was extended twice (ending on April 20, 2023) in response to requests by the public. A virtual public hearing was also conducted between February 16 and April 20, 2023, at www.keepitmovingdallas.com/US380EIS, providing the same information as presented during the in-person public hearing. Copies of the notices are included in the US 380 McKinney Public Hearing Document posted at www.keepitmovingdallas.com/US380EIS.

The Public Hearing presented the Preferred Alternative/Blue Alternative and indicated the following seven proposed changes to the schematic design would be considered in the FEIS:

- Elevate Hardin Boulevard over the future US 380 to minimize construction impacts (Segment E).
- Remove the crossing at Prestwyk Hollow Drive because it is too close to the Coit Road interchange (Segment A).
- Replace the proposed diverging diamond interchange (DDI) at US 380 and N. Custer Road with a traditional interchange design to minimize ROW impacts and improve driveway access to adjacent businesses (Segment A).
- Move the interchange where Segment A departs the existing US 380 alignment (east of Tucker Hill) and add a westbound entrance ramp from Wilmeth Road to minimize impacts to future development (Segment A).
- Relocate the proposed interchange with Wilmeth Road to match the City of McKinney Thoroughfare Plan updates (Segment A).
- Provide a frontage road connection to future CR 2933 (Segment E).
- New multi-level interchange to connect US 380 McKinney and the Spur 399 Extension (Segment C).

The above list of proposed changes to the Blue Alternative Geometric Design Schematic resulted in the design changes listed in **Section 2.4** evaluated in the FEIS.

Comments received in response to publication of the DEIS are summarized below and included in **Appendix G** with responses provided in **Appendix H**.

Public comment themes:

- Address traffic noise and the reasons why noise barriers are proposed in some areas but not in others.
- Concerns over property impacts, changes in property/neighborhood access, and how the project may affect property values.
- Traffic and regional population growth data used to support the need for the proposed improvements.
- Impacts to natural and cultural resources, particularly along Segment C and D, such as floodplains, wetlands and streams, wooded habitats, and possible historic sites.
- Impacts on the environment and human health caused by the proposed project.
- Describe need for major utility relocations.

- Describe the decision-making process behind the selection of the Preferred Alternative.

Agency comments:

- EPA – Recommended that community feedback be reflected in the decision-making process by designing and implementing participation opportunities to engage all members of affect communities, including using a variety of meeting formats, notices and outreach tools, plain/easy to understand language, and translation services where needed. Recommended that TxDOT continue to explore potential noise mitigation solutions to reduce impacts to affected receptors, including making sure affected receptors understand the scope of the issue and have an opportunity to discuss any potential solutions with TxDOT.
- USACE Fort Worth – Based on the analysis provided in the DEIS, the proposed action appears to qualify for coverage under NWP authorization but there is insufficient and conflicting data presented to make that conclusion. A number of wetland areas are not identified, bringing to question the accuracy of the impacts disclosed. The DEIS does not specify how permanent and temporary impacts were determined. Inquiry as to how the project would be constructed – through a design-build process or a traditional design-bid-build process. Requested that the USACE and TxDOT conduct a site visit as soon as possible to review the field delineations. Requested TxDOT develop an alternatives evaluation in conformance with the Section 404 (b)(1) guidelines, and apply it to the screening process to identify a preferred alternative that can also be considered the Least Environmentally Damaging Most Practicable Alternative (LEDPA). Review the need and purpose as it is too similar to the need and purpose presented in the Feasibility Study for the full Collin County freeway alignment. Describe in greater detail how the preferred alternative was developed to a higher level of detail and the resulting impacts captured in the DEIS. Identify where source materials may be acquired for construction of the project and include the impacts to those sites in the EIS.
- NCTCOG – Support for the project. Because of the regional importance of the project, NCTCOG is willing to provide any assistance with the planning, design and implementation of the project.
- TCEQ – Support of the project.
- TPWD – Document agency scoping and the TPWD comment letter submitted on November 23, 2020, and additional recommendations on April 12, 2022, to use existing roadways to minimize resource impacts, discouraged the selection of Segments C or D, with TPWDs preference for Segment D; and consider additional modifications to the preferred alternative to further minimize impacts to natural resources. Use the newer version of the TPWD Form and include the full language of each applicable TPWD BMP. Use site planning and construction techniques to avoid/minimize disturbance to native vegetation, minimize clearing of the understory, and retain natural buffers along streams and wetlands. Although the use of bridges to span water features, avoid multiple crossings of streams and removing large areas of riparian habitat. Requested TxDOT include the Invasive Species BMP Avoiding, Minimizing, and Mitigating Impacts of Transportation Projects on State Natural Resources (September 17, 2021) in the EIS along with the full text of the BMP.

TxDOT made every practicable effort to resolve major, relevant issues identified in the comments received on the DEIS. TxDOT modified the Preferred Alternative/Blue Alternative in the FEIS to address access issues shown at the Public Hearing. These changes and others have been assessed in the FEIS. TxDOT has also made factual corrections in the FEIS based on new data and information, focused on the Preferred Alternative/Blue Alternative. TxDOT has also explained in the public hearing comment-response matrix (**Appendix G**) why comments do not warrant further analysis or response.

The following issues require on-going coordination beyond issuance of the ROD:

- Section 404 permitting and appropriate mitigation based upon the final design of the Preferred Alternative and the regulatory environment at the time the permitting is requested. Resolution of whether to request an Approved Jurisdictional Determination (AJD) from the USACE based on the 2021 delineations conducted within the Environmental Footprint.
- Completion of shovel tests and deep testing in required locations after TxDOT obtains the ROW and coordinate the findings with the THC.

5.0 List of Federal Permits, Licenses, and Other Authorizations Needed for the Preferred Alternative

Figure 5-1 lists the preliminary list of federal permits, licenses, and other authorizations that must be obtained to implement the Preferred Alternative. Coordination with the required federal agencies is ongoing as the final design schematics are developed for the Preferred Alternative.

Figure 5-1: List of Federal Permits, Licenses, and Other Authorizations Needed for the Preferred Alternative

Permit, License, or Authorization	Federal Agency	Reason for Permit, License, or Authorization
Section 404 NWP 14 (w/PCN)	USACE	Placement of fill materials within WOTUS and wetlands.
FEMA No-Rise, CLOMR	FEMA	Inclusion/creation of compensatory storage within the mapped floodplain/floodway.
Air Quality Conformity	FHWA	Determination the proposed project is included in an approved and fiscally constrained transportation plan that is consistent with the state's air quality goals, and to enable the use of federal funds for construction.

6.0 Names and Qualifications of Persons Preparing the EIS or Conducting an Independent Evaluation of the EIS

The following persons prepared the DEIS and/or led the technical analyses and developed the supporting technical documentation used to develop the EIS.

Texas Department of Transportation, Dallas District

Name & Title	Years of Experience	Role
Stephen Endres, P.E., Transportation Engineer	24	Project Manager
Christine Polito, Environmental Program Manager	18	District Environmental Lead
Melissa Meyer, Public Involvement Specialist	15	District Public Involvement Lead
Mark Hull, PhD, Environmental Specialist	26	District Water Resources Specialist
Adam Fouts, Environmental Specialist	12	District Water Resources Specialist
Manuel Trevino, PhD, Environmental Specialist	16	District Traffic Noise Specialist
Daniel Salazar, Environmental Specialist	10	District Traffic Noise Specialist
Leslie Mirise, Environmental Specialist	21	District Biologist

Texas Department of Transportation, Environmental Affairs Division

Name & Title	Years of Experience	Role
Doug Booher, Director of Environmental Affairs	25	Document Approver
Patrick Lee, Environmental Program Manager	13	Document Reviewer
Adrienne Boer, Project Delivery Management Section Director	28	Document Reviewer
Michelle Lueck, Project Delivery Manager	23	Document Reviewer
Ray Umscheid, Traffic Noise Specialist	15	Traffic Noise Analysis Review/Approval
Susan M. Shuffield, Environmental Specialist, Water Team Lead	24	Water Resources Analysis/404 Permitting Review/Approval
Rebekah Dobrasko, Environmental Program Manager	18	Historic Resources Survey and Report Reviewer/Approver
Scott Pletka, Archeology Program Manager	19	Archeological Resources Survey, Permitting, and Report Reviewer/Approver
Nicolle Kord, Community Impacts Specialist	10	Community Impacts Assessment Review/Approval
Spencer Ward, Community Impacts Specialist	3	Community Impacts Assessment Review/Approval
Tim Wood, Air Quality Specialist	10	Air Quality Analysis Review/Approval
Glendora Lopez, Air Quality Specialist	2	Air Quality Analysis Review/Approval
Deborah Nixon, Environmental Specialist	20	Hazardous Materials Specialist
Doug Mack, Environmental Program Manager	24	Hazardous Waste Assessment Review/Approval
Stirling Robertson, Ph.D., Environmental Specialist, Biology Team Lead	28	Biological Resource Analysis Review/Approval

Burns & McDonnell Engineering Company, Inc.

Name & Title	Years of Experience	Role
Josh Robertson, PE, Department Manager	15	Project Manager, Schematic Design Oversight and QA/QC, Purpose & Need and Alternatives Chapter Co-Author
David Williams, PE, Senior Civil Engineer	15	Roadway Task Lead, Schematic Design Lead and QA/QC, Utility Relocation Section Co-Author
Kristen Harper, PE, Staff Civil Engineer	6	Roadway Design Engineer, Schematic Design, Utility Relocation Section Co-Author
Paul Plotas, PE, PTOE, Traffic Department Manager	34	Purpose & Need Traffic Section Author, Alternatives Chapter Co-Author
Shari Cannon-Mackey, CEP, ENV SP, Sr. Project Manager	33	NEPA Process and Documentation Lead, Primary EIS Author, Technical Analyses Peer Review and QA/QC
Tom Allemand, Sr. Project Manager	22	Task Lead and Primary Author: Row/Displacements, CIA, Hazardous Materials ISA, and Induced Growth and Cumulative Impacts
Sarah Holifield, Staff Environmental Scientist	10	Land Use, ROW/Displacements; CIA; Hazardous Materials ISA; Biological Resources, Right-of-Entry Coordination and Tracking
Derek Green, Sr. Environmental Scientist	46	Biological Resources Task Lead and Primary Author: Species Analysis, EMST, Threatened & Endangered Species, TPWD-listed Species, Biological Resources Section
Michael Dyke, Section Manager, Natural & Cultural Resources	18	Documentation Peer Review and QA/QC: Water Features, Surface Water Analysis, 404-10 Impact Table; Biological Resources Section
Amanda Breitling, Regional Practice Leader, Environmental Services	24	Documentation Peer Review and QA/QC: Hazardous Materials ISA
Brandy Harris, Sr. Cultural Resources Specialist	18	Documentation Peer Review and QA/QC: Cultural Resources; Section 4(f) Task Lead, Co-Author Protected Lands Section
Elizabeth Porterfield, Sr. Cultural Resources Specialist	17	Principal Investigator: Historic Resources; Primary Author: PCR, Historic Resources Research Design, Historic Resources Survey Report; Co-Author of Cultural Resources Section
Kenneth Gouvion, Staff Environmental Scientist	11	Conducted Hazardous Materials ISA Site Visit
Teleri Smith, Assistant Environmental Scientist	4	Conducted Hazardous Materials ISA Site Visit
Courtney Bartlett, Assistant Environmental Scientist	2	Technical Report Development Support and Field Data Collection and Analysis - CIA, Land Use, Bike-Ped Facilities

Burns & McDonnell Engineering Company, Inc., continued

Shannon Spurgeon, Staff GIS Specialist	9	Data collection, mapping, and figure development
Chelsey Smith, AICP, Department Manager	21	Public Involvement Lead
Taliyah Clark, Assistant Public Involvement Specialist	4	Public Involvement Support
Sarah Bagwell Rudy, Planning & Policy Project Manager	18	Public Comment-Response

HDR Engineering

Name & Title	Years of Experience	Role
David Sutton, PE, Planning Manager	13	Design Support Manager, Schematic Design Lead for Segments C and D
Dmetrius Wright, PE, Highway Engineer	6	Design Engineer
Matt Deeley, Transportation Designer	25	Model/Design Manager
Pragna Tata, Traffic Engineer	9	Traffic Modeling
Chujun Zhong, Traffic Engineer	7	Traffic Modeling
Fan Gao, Traffic Engineer	6	Traffic Modeling
Kristine Lloyd, Environmental Planner	27	Environmental Task Lead, Noise and Water Resources
Brandon Tate, Environmental Manager	9	Task Lead - Water Resources
Mike Keenan, Environmental Scientist	5	Wetland and Stream Delineation and Impact Analysis
Kelsea Hiebert, Environmental Scientist	4	Wetland and Stream Delineation and Regulatory Document Specialist
Mike Parsons, PE, Traffic Noise Analysis Practice Manager	22	Task Lead - Traffic Noise
Chi Cheung 'Ronald' Ying, PE, Noise Specialist	14	Traffic Noise Modeler
Rodrigo Vizcaino, Sr., PE, Project Manager	21	Hydrology & Hydraulics Technical Lead
Sam Eggleston, Water Resources Coordinator	1.5	Hydrology & Hydraulics Modeler
Pat McNeirney, PE, Water Resources Engineer	22	Hydrology & Hydraulics Modeler
David Ipina, EIT	4	Hydrology & Hydraulics Modeler
Jaxon Sharp, EIT	2	Hydrology & Hydraulics Modeler
Gabriel Ortiz, Transportation Planner	7	Environmental Task Support
Margaret Cowling, GIS Specialist	11	Technical Report Graphics
Mitchell Keller, PE, Design Engineer	8	Schematic Design Segments C and D
Josh Shen, PE, Design Engineer	5	Schematic Design Segments C and D
Christopher Meyer, EIT, Design Engineer	4	Schematic Design Segments C and D
Suraj Minot, EIT, Design Engineer	2	Schematic Design Segments C and D

AmaTerra Environmental, Inc.

Name & Title	Years of Experience	Role
Jill Madden, President	38	NEPA Support, QA/QC
Aaron Norment, MA, RPA, Archeologist Program Manager	17	Archeologist, QA/QC
Sunshine Thomas, PhD, RPA	17	Principal Investigator, Archeology
Katherine A. Seikel, PhD, Laboratory Manager	15	Principal Investigator, Archeology
Dan Rose, GIS Analyst	12	GIS Analyst

Lina T. Ramey & Associates

Name & Title	Years of Experience	Role
Jason Verner, PE	21	Task Lead – Hydrology & Hydraulics; Co-Author Floodplain Section
Amir Norouzi, PhD, PE, CFM	2	Hydrology & Hydraulics Technical Lead, FEMA Crossings

Kimley-Horn

Name & Title	Years of Experience	Role
Dhruva Lahon, Sr. Project Manager	16	Task Lead - Traffic Projections

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Appendices

Appendix A – Project Location Map

Appendix B – Design Schematic – Preferred Alternative/Blue Alternative

Appendix C – Typical Sections

Appendix D – Segment Resource Maps and Potential Displacements Maps

Appendix E – Agency Coordination

Appendix F – Comments Received During Scoping Process

Appendix G – Comments Received from Public Hearing/Notice of Availability of the DEIS

Appendix H – Comment/Response Matrix from Public Hearing/Notice of Availability of the DEIS

Appendix I – Traffic Data

Appendix J – Farmland Protection

Appendix K – Community Impacts

Appendix L – Cultural Resources

Appendix M – Protected Lands

Appendix N – Water Resources

Appendix O – Biological Resources

Appendix P – Air Quality

Appendix Q – Hazardous Materials

Appendix R – Traffic Noise

Appendix S – Indirect and Cumulative Effects