# STATE CATEGORICAL EXCLUSION

## US 380

## FROM: WEST OF CR 26 (DENTON/COLLIN COUNTY LINE)

## TO: CUSTER ROAD (FM 2478)

## COLLIN COUNTY

## CSJ: 0135-11-018,

## 0135-02-049,

## 0135-02-044, and

## 0135-02-050

## TEXAS DEPARTMENT OF TRANSPORTATION

## AUGUST 2012

*This Page Left Blank Intentionally*

# TABLE OF CONTENTS

TABLE OF CONTENTS Continued

# TABLES

## FIGURES



## APPENDICES

## 1 INTRODUCTION

This State Categorical Exclusion (SCE) discusses the social, economic, and environmental impacts that would result from the reconstruction and widening of United States Highway (US) 380 in Collin County. The proposed project is located at the city boundary between the City of Frisco, the City of McKinney, and the Town of Prosper, and serves as a major mode of transportation for Denton and Collin County. The Texas Department of Transportation (TxDOT) is proposing to reconstruct and widen US 380 from west of County Road (CR) 26, also referred to as the Denton/Collin County Line to Farm-to-Market (FM) 2478 (Custer Road). The length of the proposed project is approximately 6.0 miles. The proposed improvements include widening the existing four-lane rural facility to a divided roadway facility/six-lane urban facility. The functional classification of the proposed roadway is urban principal arterial. The following are attached:

- Project Vicinity Map (**Figure 1**)
- USGS Quadrangle Maps (**Figure 2**)
- Project Corridor Maps (**Figure 3**)
- Typical Sections (**Figure 4**)
- Indirect and Cumulative Impacts AOI/RSA (**Figure 5**)
- Cumulative Impacts RSAs – Air Quality (**Figure 6**)
- Photographs (**Figure 7**)

The logical termini are from west of CR 26, also referred to as the Denton/Collin County Line and FM 2478 (Custer Road).

The design schematic encompassing the proposed improvements described above has been prepared by TxDOT and is available for inspection at the TxDOT Dallas District Office, 4777 East Highway 80, Mesquite, Texas, 75150-6643 or at the Collin County Area Office, 2205 S. State Highway 5, McKinney, Texas 75069.

## 2 DESCRIPTION OF THE EXISTING FACILITY

The existing right-of-way (ROW) width ranges from 160 to 170 ft. The current facility is a four-lane divided roadway with 12-foot travel lanes, a 16-foot median and an open ditch drainage system. It is classified by TxDOT as an urban principal arterial. The

posted speed limit is 60 miles per hour (mph). Existing typical sections are provided in **Figure 4.** Photographs of the proposed project area are provided in **Figure 7.**

## 3 NEED AND PURPOSE FOR THE PROPOSED PROJECT

The proposed project is needed to improve traffic mobility, reduce traffic congestion and to improve system linkage with other major arterials surrounding the project area. The existing facility would not provide sufficient capacity for the projected growth in the area. Widening and increasing the number of through-traffic lanes would improve mobility. The purpose of the proposed project is to improve mobility by increasing capacity and reducing traffic congestion.

Northwestern Collin County, including the proposed project area, is experiencing increased growth in population. Growth in population and employment create demands on the existing local and regional transportation network. Continued growth and urbanization in the Dallas/Fort Worth (DFW) region, specifically near the proposed project in Collin County, has resulted in the need for more efficient transportation systems to reduce existing congestion and accommodate future traffic demands. Growth trends in the population and employment would generate a need for increased travel and result in increased traffic and congestion. As a consequence, improved mobility has become an essential need both locally and regionally. The lack of adequate mobility causes citizens to have limited access to job opportunities, and employers are denied full access to the region's pool of skilled workers. Inadequate mobility also results in increasing unproductive time spent moving people and goods from one point to another.

The North Central Texas Council of Governments (NCTCOG) projects that Collin County would have 1,526,634 residents in the year 2040, representing a 200 percent population increase from the Census 2000 population of 492,276. Continuing population growth and urbanization are expected to result in increased traffic demands. The described improvements would bring the existing roadway up to present TxDOT design standards. The populations of Frisco and Prosper along US 380 have grown dramatically in recent years, due largely to suburban development of the Dallas metropolitan area. US 380 functions as a major east-west link for Frisco, Prosper, Little Elm and McKinney.

### 3.1 Traffic Projections

Traffic volumes are expected to increase by approximately 100 percent by 2040 due to increased urbanization in the area. Widening and reconstruction of the roadway is needed to better manage congestion and accommodate continued traffic growth.

The need to accommodate increasing traffic is supported through analysis of future traffic demand that is anticipated to utilize the facility. According to the TxDOT Transportation Planning and Programming Division (TPP), the Average Daily Traffic (ADT) along US 380 is 26,200 vehicles per day (vpd) in 2011 and is projected to increase 100 percent by 2040, resulting in an ADT of 52,400 vpd. Traffic use on the existing facility is expected to remain congested as a result of anticipated traffic and population growth.

Traffic volumes also indicate a high percentage of turning movements at the US 289 and DNT intersections. The proposed project would improve traffic conditions on US 380 and at intersections with major roads, with additional travel lanes and turning lanes to accommodate increasing traffic volumes.

The concept of level of service (LOS) uses qualitative measures to describe operational conditions within a traffic stream, and the perceptions of motorists and passengers. A LOS definition generally characterizes these conditions in terms of such factors as speed, safety, travel time, freedom to maneuver, comfort and convenience, and traffic interruptions. There are six LOS categories and each facility is assigned a LOS based on its traffic conditions. LOS are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. The upper threshold for LOS E is considered the facility's maximum flow rate, or capacity. Traffic volumes above that threshold operate at a LOS F, with a breakdown in vehicular flow. Increasing population and development in northern Collin County have led to higher traffic volumes and increasing traffic congestion on US 380. The current LOS for the proposed project is LOS E and the projected build alternative would be LOS C in 2030. Alternatively the no-build alternative is project to be LOS F in 2030.

There are four major arterials that intersect with US 380 in the project study area: FM 423, DNT, SH 289 (Preston Road), and Coit Road. All four of these north/south roadways are listed for future and/or recent improvements as part of the Congestion Management Process (CMP) in the Metropolitan Transportation Plan. The US 380 corridor serves as an east/west connector for all of these facilities. The proposed improvements evaluated in this SCE would merge with the proposed improvements listed in the CMP to provide a smooth transition through Denton and Collin Counties. For more detailed information on the projects listed in the CMP, refer to the Air Quality section of this SCE.

## 4 DESCRIPTION OF THE PROPOSED FACILITY

The proposed roadway is designed for 45 mph design speed as a divided arterial. The proposed road has at grade intersections at CR 26, Lovers Lane, La Cima Blvd., Coit

Road and Red Bud Road. The proposed road has grade separations at DNT and SH 289 intersections.

The limits of the proposed project are from ¼ mile west of CR 26 (Collin/Denton County Line) to FM 2478 (Custer Road). The proposed project includes 43,312 linear feet of roadway widening and 11,454 linear feet of roadway reconstruction. The proposed widening includes widening the existing four-lane rural roadway with a flush median to a six-lane divided roadway facility with a raised median and curb and gutter. The proposed reconstruction includes a six-lane divided roadway with raised median and curb and gutter, frontage roads, ramp access, and grade separated interchanges. The current roadway functional classification is urban principal arterial within the project limits.

From ¼-mile west of CR 26 to CR 26, the proposed project would involve widening the existing roadway to accommodate six lanes and add a raised median. This section would contain two 14-foot outside shared lanes, four inside 12-foot lanes, 2-foot curb offsets (for both inside and outside lanes) and a 16-foot raised median with curb and gutter. The typical total width of pavement would be 100 ft. The pavement width would increase at each of the intersections to accommodate the left turn lanes and right turn lanes. One major intersection would provide dual left turn lanes and right turn lanes. The ROW width would vary between 160 ft and 172 ft.

From CR 26 to CR 73 (Lovers Lane), the proposed roadway would be reconstructed in a new horizontal alignment. This section would contain six 12-foot lanes, 2-foot curb offsets (for both inside and outside lanes) and a 16-foot raised median with curb and gutter for main lanes. There would be access roads on both sides of the main lanes. The access roads would have one 14-foot outside lane and one 12-foot lane, 2-foot outside curb offset and 1-foot inside curb offset with curb and gutter. The roads would have an additional 12-foot lane added at the exit ramp gore that would drop off at the intersection of DNT with a left turn lane. The pavement width would increase at intersection to accommodate a u-turn lane and a right-turn lane. The access roads are continuous at the BNSF railroad crossing between the DNT and SH 289. Access to US 380 in this segment will be controlled through eight ramps, four in the eastbound direction and four in the westbound direction. There will be two major interchanges at DNT and SH 289. The interchange at DNT will be a three-level interchange with access roads on level one, at grade with DNT frontage roads, US 380 main lanes on level two and DNT main lanes on level three. The interchange at SH 289 will be a three level interchange with access roads on level one, at grade with SH 289 access roads, SH 289 main lanes on level two and US 380 main lanes on level three. The typical total width of pavement for the main lanes would be 100 ft, 27 ft to 63 ft for the access roads and 27 ft to 24 ft for ramps. The ROW width would vary between 172 ft and 303 ft.

From CR 73 to FM 2478, the proposed project would involve widening the existing roadway to accommodate six lanes and add a raised median. This section would contain two 14-foot outside shared lanes, four inside 12-foot lanes, 2-foot curb offsets (for both inside and outside) and a 16-foot raised median with curb and gutter. The typical total width of pavement would be 100 ft. The pavement width increases at each of the intersections to accommodate the left turn lanes and right turn lanes. Two major intersections would provide dual left turn lanes and right turn lanes and one major intersection would provide single left turn lane and right turn lane. The ROW width would vary between 160 ft and 184 ft.

A 14-foot wide shared use lane and a 6-foot wide berm along the frontage road will be created to accommodate bicycle and pedestrian traffic. A 6-foot wide sidewalk will be constructed on both sides of the frontage roads to provide a continuous accessible pedestrian route within the project's limits including applicable ADA curb ramps at all intersecting roadways. Sidewalks would be provided in accordance with TxDOT guidelines on sidewalk construction. The proposed roadway functional classification is Principal Arterial with a design speed of 45 mph for the entire corridor.

TxDOT is committed to plan, design and construct facilities to safely accommodate bicycles and pedestrians on appropriate facilities. This project accommodates bicyclists by having 14-foot wide outside lanes along the proposed corridor.

Starting at the west end, going eastbound, outside lanes are designed as 14-foot lanes with 2-foot curb offsets to accommodate the bicyclists. At the first exit ramp west of DNT, the bicyclists would exit the highway and enter access roads. The bicyclists would continue along US 380 by travelling on 14-foot outside lanes along the access roads. East of SH 289, the bicyclists would merge with US 380 main lanes through the entrance ramp at CR 73. They would continue along US 380 by travelling along the 14-foot outside lane on US 380 between CR 73 and FM 2478.

Starting at the east end, going westbound, outside lanes are designed as 14-foot lanes with 2-foot curb offsets to accommodate the bicyclists. At the first exit ramp, west of CR 73, the bicyclists would exit the highway and enter access roads. The bicyclists would continue along US 380 by travelling on 14-foot outside lanes along the access roads. West of DNT, the bicyclists would merge with US 380 main lanes through the entrance ramp. They would continue along US 380 by travelling along the 14-foot outside lane on US 380 from east of CR 26 to the western project limit.

### 4.1 Local Government Support

A preliminary schematic design encompassing the proposed improvements was provided to the City of Frisco, City of McKinney, Town of Prosper, and Collin County personnel for their review and comments. Numerous meetings were held with city

representatives, Collin County transportation officials, stakeholders, and elected officials to discuss the proposed project. All elected and transportation officials support the proposed project and were integral in the design process.

## 5 RIGHT-OF-WAY/UTILITIES

The existing ROW width varies from approximately 160 ft wide to approximately 303 ft wide at railway and roadway intersections. The proposed ROW width would vary from a minimum of 160 ft to a maximum of 303 ft at intersections. Approximately 14.9 acres of new ROW and approximately 0.8 acres of drainage easements would be acquired.

No relocations or displacements are proposed for the project. Consistent with US DOT policy as mandated by the Surface Transportation and Uniform Relocation Assistance Act of 1987, TxDOT provides relocation resources to all displaced persons without discrimination, if applicable. All property owners, from whom property is needed, are entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property.

Utilities located within the existing ROW include subterranean telephone and television cable, fiber optics, and aerial transmission lines. The adjustment and relocation of any utilities would be conducted so that no substantial interruptions would occur while adjustments are being made. Plans for relocating any utilities would be provided by the appropriate utility provider and would occur according to standard TxDOT procedures.

## 6 ALTERNATIVES

Two alternatives, the No-Build and Build, were analyzed during the development of this environmental document. These alternatives are described below.

### 6.1 No-Build Alternative

The No-Build Alternative would result in no improvements being made. The No-Build Alternative is carried forward in the document as a baseline comparison. The existing US 380 would continue to function as a four-lane roadway. Traffic congestion and operating speeds would continue to decline on US 380 based on anticipated population growth and traffic levels. Increased congestion and slower operating speeds would contribute to a decline in air quality and an increase in fuel usage, because traffic congestion forces vehicles to operate at irregular operating speeds.

With the rapid development and population increases, traffic would continue to increase. Comprehensive plans for the City of Frisco and the Town of Prosper indicate an increase in commercial development in the project vicinity in the future. US 380 also functions as a main route to various cities in Denton and Collin Counties. Along with

increasing residential land uses, this commercial development would lead to an increase in commuters to and from jobs created by these new commercial properties.

With this alternative, traffic congestion would increase along the existing facility and to the connecting arterial roadways such as Preston Road, DNT and Coit Road. This would create longer periods of congestion and therefore lessen the air quality in the surrounding areas. This alternative was not considered viable because it fails to support the future development and mobility plans of Denton County and Collin County.

The No-Build Alternative does not meet the need and purpose of the proposed project.

### 6.2 Build Alternative

The proposed widening includes widening the existing four-lane rural roadway with a flush median to a six-lane divided roadway facility with a raised median and curb and gutter. The proposed reconstruction includes a six-lane divided roadway with raised median and curb and gutter, frontage roads, ramp access and grade separated interchanges. An additional 14.9 acres of ROW and approximately 0.8 acres of drainage easements would be needed for the Build Alternative.

The Build Alternative would meet the need and purpose of the proposed project by increasing capacity of the roadway to meet the existing and anticipated traffic demand, reducing congestion, and improving design deficiencies, which would facilitate traffic conditions for motorists using US 380. The Build Alternative would have a design speed of 45 mph for the roadway and 40 mph for the ramps and access roads. This alternative is consistent with local and regional transportation and land use planning efforts. The proposed typical sections are illustrated in **Figure 4**. The Build Alternative is the preferred alternative.

## 7 PROJECT FUNDING AND PLANNING

The project is programmed into four separate CSJs, ordered west to east, as follows:

a) Project Control Section Job (CSJ) 0135-11-018, from the Denton/Collin County Line to East of SH 289, is State and Locally funded with a total project cost of $62,784,146 as of January 2012. The proposed project is included in the 2011-2014 Transportation Improvement Program (TIP), as amended. The proposed project is scheduled to let in November 2014 with an estimated construction completion date of December 2016.

b) CSJ 0135-02-049, from East of SH 289 to CR 73 (Lovers Lane) is State and Locally funded with a total project cost of $ 14,118,055 as of January 2012. The proposed project is included in the 2011-2014 TIP, as amended. The

proposed project is scheduled to let in November 2014 with an estimated construction completion date of December 2016.

c) CSJ 0135-02-044, from CR 73 (Lovers Lane) to Coit Road, is State and Locally funded with a total project cost of $18,062,500 as of January 2012. The proposed project is included in the 2011-2014 TIP, as amended. The proposed project is scheduled to let in August 2014 with an estimated construction completion date of December 2016.

d) CSJ 0135-02-050 from Coit Road to Custer Road (FM 2478), is currently State and Locally funded for preliminary engineering only. The estimated cost is $1,308,053 as of January 2012. The proposed project is included in the 2011-2014 TIP, as amended. The estimated letting date is August 2014 with an estimated construction completion date of December 2016.

## 8 SURROUNDING TERRAIN AND LAND USE

The surrounding terrain is level to gently rolling within a suburban and rural area. This particular portion of US 380 is an existing facility that serves as a general boundary between undeveloped agricultural areas and pockets of developing residential neighborhoods, existing and developing retail, office, health care, and educational facilities.

Current land use adjacent to the project area is primarily undeveloped agricultural fields and pockets of developing residential neighborhoods. There would be no relocations or displacements of existing facilities as a result of the proposed improvements. Most of this land is undeveloped but is planned for future development. The project is consistent with the local planning efforts listed in the comprehensive plans for the City of Frisco and the Town of Prosper.

According to the Little Elm and Frisco, Texas United States Geological Survey (USGS) 7.5-minute topographic maps for the corridor, the terrain in the project study area is generally flat, ranging in elevation from a minimum of 580 ft to a maximum of 610 ft above mean sea level (MSL) with most topographic relief occurring in the eastern portion of the project. The topography in the project study area is level to slightly rolling.

Collin County is located in the Blackland Prairies subprovince of the Gulf Coastal Plains physiographic province (Diggs et al. 1999). The Blackland Prairie is characterized by chalks and marls that weather to deep, black, fertile clay soils. It typically has gentle, rolling terrain and has been cleared of most natural vegetation for crops (Wermund 2008).

The proposed project is in a developing suburban area with the cities of McKinney, Frisco and Prosper in Collin County. Zoning designations along the proposed project mostly consist of agricultural and planned development, single family residential land uses with pockets of general business, and planned retail zones. Most of the area traversed by the project is currently undeveloped, and a sizable portion of the U.S. 380 facility traverses the Wilson Creek Floodplain. In Frisco, existing land adjacent to the U.S. 380 facility consists largely of undeveloped agricultural land. Prosper existing land adjacent to U.S. 380 is mostly intermittent and developing pockets of single family residential along with large areas of undeveloped agricultural land. Existing land in McKinney consists largely of single-family residential uses, both low- and high-intensity retail establishments, some undeveloped agricultural land, and special trade contractors generally concentrated at or near existing intersections.

# 9 POTENTIAL SOCIAL, ECONOMIC AND ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

## 9.1 Socio-Economic Data

### 9.1.1 Socio-Economic Conditions

A short-term benefit that may be derived from the proposed improvements would be employment for some area residents during construction. No divisions of farm operations would occur as a result of the proposed project. The proposed action would require the removal of portions of properties from the property tax rolls. Approximately 14.9 acres of new ROW and 0.8 acre of drainage easements would be acquired.

The project study area is composed mostly of undeveloped property. There are three commercial properties with operating businesses adjacent to the project study area. These establishments include YC Nursery, Secure RV, and Day Star Landscaping. There are no residences within or directly abutting the ROW. Within a 1,000-foot buffer of the project; there are approximately 31 single-family residences. Only seven single-family residences are within 250 ft of the ROW. It is not anticipated that any of these properties would be affected by the proposed project.

No relocations or displacements of the residential or commercial properties along the project study area are anticipated.

### 9.1.2 Community Cohesion

Community cohesion is a term that refers to an aggregate quality of a residential area. Cohesion is a social attribute that indicates a sense of community, common responsibility, and social interaction within a limited geographic area. It is the degree to

which residents have a sense of belonging to their neighborhood or community or a strong attachment to neighbors or groups over time.

Community cohesion would likely remain intact since US 380 is an existing facility that serves as a boundary between neighborhoods and communities. This particular portion of US 380 is an existing facility that serves as a general boundary between undeveloped agricultural areas and pockets of developing residential neighborhoods, existing and developing retail, office, health care, and educational facilities. The proposed project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. The proposed project would not result in any relocations or displacements, changes in travel patterns, road closures or detours.

The No-Build Alternative would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups because it would not change the existing conditions.

### 9.1.3 Environmental Justice

Executive Order 12898 entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. The Federal Highway Administration (FHWA) has identified three fundamental principles of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations;
- To ensure the full and fair participation of all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or significant delay of the receipt of benefits by minority populations and low-income populations.

A minority population is defined as a group of people and/or a community experiencing common conditions of exposure or impact that consists of persons classified by the U.S. Bureau of the Census as African-American; Hispanic; Asian or Pacific Islander; American Indian, Eskimo, or Aleut; or other non-white persons. A low-income population is defined as one with a median income for a family of four equal to or below the national poverty level of $23,050 in the year 2012.

According to FHWA 6640.23 and United States Department of Transportation (US DOT) Order 5610.2, disproportionately high and adverse effects are defined as adverse effects that "are predominantly borne by a minority population and/or low income population" or "will be suffered by the minority population and/or low-income population and are appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population."

The potential effects of the proposed project were evaluated in accordance with the requirements of EO 12898. This socio-economic analysis uses population data at the census block and census block group levels from *Census 2010.* Census block data provide information at the lowest scale available for race and ethnicity analysis; census block group data provide information at the lowest scale available for household income and poverty population analyses.

The proposed project would directly impact ten census block groups (BG): Census Tract (CT) CT 201.04-BG 3, CT 201.09-BG 1, CT 303.01-BG 1, CT 303.02-BG 1, CT 303.03-BG 1 & BG 2, CT 303.04-BG 1, CT 305.19-BG 1, CT 305.24-BG 1 and CT 305.26-BG 1. The study area for the minority and low-income population analyses differ due to the availability of census data. A total of 53 census blocks are adjacent to the proposed project limits; however, 39of the 53 census blocks have a zero population. The area traversed by the proposed improvements lies within ten census BGs. These ten census BGs comprise the direct impacts study area for household income and poverty populations.

**Table 1** compares the demographic profile of BG data from the 2010 census. The study area for the minority and low-income population analyses differ due to the availability of census data.

## Table 1 Percent Minority Populations

| Geography | Total Population: | Hispanic or Latino: | Not Hispanic or Latino: | Not Hispanic or Latino: | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | White alone | Black or African American alone | American Indian and Alaska Native alone | Asian alone | Native Hawaiian and Other Pacific Islander alone | Some Other Race alone | Two or More Races |
| **Census Tract 201.04** | **3216** | **625** | **2591** | **2341** | **131** | **19** | **26** | **4** | **0** | **70** |
| | | **19.43%** | **80.57%** | **72.79%** | **4.07%** | **0.59%** | **0.81%** | **0.12%** | **0.00%** | **2.18%** |
| Block Group 3 | 788 | 100 | 688 | 559 | 92 | 4 | 12 | 1 | 0 | 20 |
| | | 12.69% | 87.31% | 70.94% | 11.68% | 0.51% | 1.52% | 0.13% | 0.00% | 2.54% |
| **Census Tract 201.09** | **2185** | **314** | **1871** | **1226** | **239** | **17** | **326** | **1** | **3** | **59** |
| | | **14.37%** | **85.63%** | **56.11%** | **10.94%** | **0.78%** | **14.92%** | **0.05%** | **0.14%** | **2.70%** |
| Block Group 1 | 2,185 | 314 | 1,871 | 1226 | 239 | 17 | 326 | 1 | 3 | 59 |
| | | 14.37% | 85.63% | 56.11% | 10.94% | 0.78% | 14.92% | 0.05% | 0.14% | 2.70% |
| Block 1002 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **Census Tract 303.01** | **2874** | **366** | **2508** | **2022** | **320** | **27** | **71** | **1** | **1** | **66** |
| | | **12.73%** | **87.27%** | **70.35%** | **11.13%** | **0.94%** | **2.47%** | **0.03%** | **0.03%** | **2.30%** |
| Block Group 1 | 441 | 43 | 398 | 374 | 6 | 11 | 1 | 0 | 0 | 6 |
| | | 9.75% | 90.25% | 84.81% | 1.36% | 2.49% | 0.23% | 0.00% | 0.00% | 1.36% |
| Block 1047 | 18 | 4 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 22.22% | 77.78% | 77.78% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Block 1048 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0.00% | 100.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **Census Tract 303.02** | **2028** | **101** | **1927** | **1775** | **89** | **8** | **28** | **1** | **0** | **26** |
| | | **4.98%** | **95.02%** | **87.52%** | **4.39%** | **0.39%** | **1.38%** | **0.05%** | **0.00%** | **1.28%** |
| Block Group 1 | 521 | 17 | 504 | 485 | 8 | 2 | 5 | 0 | 0 | 4 |
| | | 3.26% | 96.74% | 93.09% | 1.54% | 0.38% | 0.96% | 0.00% | 0.00% | 0.77% |
| Block 1033 | 14 | 0 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0.00% | 100.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **Census Tract 303.03** | **4642** | **389** | **4253** | **3759** | **245** | **20** | **120** | **1** | **5** | **103** |
| | | **8.38%** | **91.62%** | **80.98%** | **5.28%** | **0.43%** | **2.59%** | **0.02%** | **0.11%** | **2.22%** |
| Block Group 1 | 1,646 | 103 | 1,543 | 1361 | 86 | 2 | 50 | 0 | 5 | 39 |
| | | 6.26% | 93.74% | 82.69% | 5.22% | 0.12% | 3.04% | 0.00% | 0.30% | 2.37% |
| Block 1010 | 131 | 15 | 116 | 96 | 9 | 1 | 4 | 0 | 0 | 6 |
| | | 11.45% | 88.55% | 73.28% | 6.87% | 0.76% | 3.05% | 0.00% | 0.00% | 4.58% |
| Block Group 2 | 1,544 | 196 | 1,348 | 1138 | 117 | 10 | 30 | 1 | 0 | 52 |
| | | 12.69% | 87.31% | 73.70% | 7.58% | 0.65% | 1.94% | 0.06% | 0.00% | 3.37% |
| Block 2002 | 946 | 157 | 789 | 609 | 105 | 6 | 27 | 0 | 0 | 42 |
| | | 16.60% | 83.40% | 64.38% | 11.10% | 0.63% | 2.85% | 0.00% | 0.00% | 4.44% |
| **Census Tract 303.04** | **2468** | **499** | **1969** | **1798** | **88** | **16** | **25** | **0** | **4** | **38** |
| | | **20.22%** | **79.78%** | **72.85%** | **3.57%** | **0.65%** | **1.01%** | **0.00%** | **0.16%** | **1.54%** |
| Block Group 1 | 813 | 261 | 552 | 485 | 32 | 9 | 11 | 0 | 1 | 14 |
| | | 32.10% | 67.90% | 59.66% | 3.94% | 1.11% | 1.35% | 0.00% | 0.12% | 1.72% |
| Block 1037 | 8 | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 75.00% | 25.00% | 25.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Block 1060 | 22 | 14 | 8 | 4 | 0 | 3 | 0 | 0 | 0 | 1 |
| | | 63.64% | 36.36% | 18.18% | 0.00% | 13.64% | 0.00% | 0.00% | 0.00% | 4.55% |
| **Census Tract 305.19** | **1466** | **154** | **1312** | **978** | **183** | **5** | **118** | **1** | **1** | **26** |
| | | **10.50%** | **89.50%** | **66.71%** | **12.48%** | **0.34%** | **8.05%** | **0.07%** | **0.07%** | **1.77%** |
| Block Group 1 | 732 | 68 | 664 | 511 | 71 | 3 | 66 | 0 | 0 | 13 |
| | | 9.29% | 90.71% | 69.81% | 9.70% | 0.41% | 9.02% | 0.00% | 0.00% | 1.78% |
| Block 1002 | 15 | 0 | 15 | 12 | 0 | 3 | 0 | 0 | 0 | 0 |
| | | 0.00% | 100.00% | 80.00% | 0.00% | 20.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Block 1047 | 6 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0.00% | 100.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |

| Geography | Total Population: | Hispanic or Latino: | Not Hispanic or Latino: | Not Hispanic or Latino: | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | White alone | Black or African American alone | American Indian and Alaska Native alone | Asian alone | Native Hawaiian and Other Pacific Islander alone | Some Other Race alone | Two or More Races |
| **Census Tract 305.24** | **2256** | **390** | **1866** | **1445** | **295** | **9** | **60** | **0** | **3** | **54** |
| | | **17.29%** | **82.71%** | **64.05%** | **13.08%** | **0.40%** | **2.66%** | **0.00%** | **0.13%** | **2.39%** |
| Block Group 1 | 1,269 | 221 | 1,048 | 815 | 155 | 5 | 36 | 0 | 0 | 37 |
| | | 17.42% | 82.58% | 64.22% | 12.21% | 0.39% | 2.84% | 0.00% | 0.00% | 2.92% |
| Block 1000 | 30 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0.00% | 100.00% | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Block 1002 | 154 | 16 | 138 | 126 | 5 | 0 | 4 | 0 | 0 | 3 |
| | | 10.39% | 89.61% | 81.82% | 3.25% | 0.00% | 2.60% | 0.00% | 0.00% | 1.95% |
| Block 1003 | 33 | 7 | 26 | 26 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 21.21% | 78.79% | 78.79% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Block 1010 | 532 | 102 | 430 | 326 | 66 | 4 | 10 | 0 | 0 | 24 |
| | | 19.17% | 80.83% | 61.28% | 12.41% | 0.75% | 1.88% | 0.00% | 0.00% | 4.51% |
| **Census Tract 305.26** | **7247** | **572** | **6675** | **5681** | **525** | **33** | **277** | **6** | **6** | **147** |
| | | **7.89%** | **92.11%** | **78.39%** | **7.24%** | **0.46%** | **3.82%** | **0.08%** | **0.08%** | **2.03%** |
| Block Group 1 | 2,441 | 168 | 2,273 | 2006 | 110 | 9 | 97 | 0 | 3 | 48 |
| | | 6.88% | 93.12% | 82.18% | 4.51% | 0.37% | 3.97% | 0.00% | 0.12% | 1.97% |
| Block 1010 | 220 | 13 | 207 | 178 | 8 | 2 | 8 | 0 | 0 | 11 |
| | | 5.91% | 94.09% | 80.91% | 3.64% | 0.91% | 3.64% | 0.00% | 0.00% | 5.00% |

*Source: Census Bureau, Census 2010*

**Table 1** above comprises an approximately similar percentage of racial distribution when compared to their accompanying BGs. The BGs listed in **Table 1** are predominately White but contain Blocks with a relatively high percentage of people of Hispanic/Latino origin. The study area population is relatively homogenous when comparing Blocks to their BGs. Although some Blocks have high minority percentages, the actual number of individuals is very low. For example, CT 201.09, BG 1, Block 1002, has 100 percent minority population, but only 3 individuals live in the block. Overall, minorities account for 32.3 percent of the population area. A windshield survey did not reveal any readily identifiable minority populations. There does not appear to be any disproportionately high and adverse impacts on minority or low-income populations associated with the proposed project.

Because there is a lack of income data at the census block level, the nine census tracts associated with the proposed project area are used for analysis of income. According to Census 2010, median household income of the proposed project area ranged from $67,434 to $145,227. Approximately 7.1 percent of the population in project area is considered below the poverty level. It is not anticipated that there would be any disproportionate impacts to low-income populations. **Table 2** shows the income characteristics for the study area.

**Table 2 Median Household Income and Poverty Status**

| | Total Population | Median household income | Below poverty level | Percent below poverty level |
|---|---|---|---|---|
| Census Tract 201.04 | 2,969 | $ 98,597 | 592 | 19.9% |
| Census Tract 201.09 | 1,359 | $ 101,742 | 114 | 8.4% |
| Census Tract 303.01 | 1,688 | $ 67,717 | 91 | 5.4% |
| Census Tract 303.02 | 1,823 | $ 133,636 | 0 | 0.0% |
| Census Tract 303.03 | 3,547 | $ 121,288 | 58 | 1.6% |
| Census Tract 303.04 | 2,654 | $ 67,434 | 270 | 10.2% |
| Census Tract 305.19 | 786 | $ 145,227 | 0 | 0.0% |
| Census Tract 305.24 | 1,990 | $ 86,412 | 56 | 2.8% |
| Census Tract 305.26 | 5,727 | $ 96,741 | 418 | 7.3% |
| past 12 months (in 2010 inflation-adjusted dollars) | | | | |

*Source: U.S. Census Bureau, 2006-2010 American Community Survey*

A very low percentage of the Census Tracts have minority or low income population and no CTs have a median household income below the poverty level. Users of the US 380 facility would benefit from the proposed improvements. The benefits associated with the proposed US 380 improvements would include increased capacity, reduced traffic congestion, and improved mobility in the region. Access to businesses and residences would be maintained at all times, and no detours are anticipated. Over the long term, the entire corridor and users would benefit from the proposed US 380 improvements as a result of improved system mobility in the area. There would not appear to be any disproportionately high and adverse impacts on minority or low-income populations associated with the proposed project.

Under the No-Build Alternative, no adverse impacts to environmental justice populations are anticipated.

### 9.1.4 Limited English Proficiency

Executive Order (EO) 13166, "Improving Access to Services for Persons with Limited English Proficiency (LEP)," requires federal agencies to examine the services they provide and identify any need for services to those with LEP and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. The EO requires federal agencies to work to ensure that recipients of federal financial assistance provide meaningful access to their LEP applicants and beneficiaries. Failure to ensure that LEP persons can effectively participate in or benefit from federally-assisted programs and activities may violate the prohibition under Title VI of the Civil Rights Restoration Act of 1987 and Title VI regulations.

Census Tract data for "Ability to Speak English" for the population five years and over indicate 3.1 percent of the population within the nine census tracts directly adjacent to the proposed project corridor speak English "Not Well" or "Not at All". **Table 3** contains the percent LEP population for each census tract adjacent to or traversed by the proposed project.

**Table 3 Percentage LEP Population**

| | Population Total: | Speak only English | Other than English | | | |
|---|---|---|---|---|---|---|
| | | | | & English "very well" | & English less than "very well" | |
| Census Tract 201.04 | 2700 | 2423 | 277 | 102 | 175 | 6.48% |
| Census Tract 201.09 | 1144 | 664 | 480 | 398 | 82 | 7.17% |
| Census Tract 303.01 | 1503 | 1410 | 93 | 93 | 0 | 0.00% |
| Census Tract 303.02 | 1680 | 1596 | 84 | 51 | 33 | 1.96% |
| Census Tract 303.03 | 3245 | 2905 | 340 | 315 | 25 | 0.77% |
| Census Tract 303.04 | 2359 | 1794 | 565 | 333 | 232 | 9.83% |
| Census Tract 305.19 | 684 | 671 | 13 | 13 | 0 | 0.00% |
| Census Tract 305.24 | 1786 | 1565 | 221 | 175 | 46 | 2.58% |
| Census Tract 305.26 | 5100 | 4420 | 680 | 638 | 42 | 0.82% |

*Source: U.S. Census Bureau, 2006-2010 American Community Survey*

A windshield survey of the proposed project revealed no billboards, signs, business signs, or road signs in any language other than English. During the preparation for the public meeting, reasonable steps, such as the publication of bilingual (English/Spanish) announcements in local papers (i.e., *Al Dia)* that inform the public of the opportunity to request an interpreter (for language or other special communication needs) to be present at the public involvement meetings, were taken to ensure that such persons have meaningful access to the programs, services, and information that TxDOT provides. Therefore, the requirements of EO 13166 appear to be satisfied.

Under the No-Build Alternative for US 380, LEP individuals would be afforded the opportunity to participate in the decision-making process.

### 9.1.5 Section 4(f) and 6(f)

The proposed project would not require the use of nor substantially impair the purposes of any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands or historic sites of national, state or local significance. There are no publicly owned lands or Land and Water Conservation Fund Act-funded properties in the project vicinity that would require protection under 4(f) or 6(f). Therefore, a Section 4(f) or 6(f) evaluation would not be required.

The No-Build Alternative would not require the use of publicly owned land from historic sites of national, state or local significance.

### 9.1.6 Public Facilities and Services

The proposed improvements would provide increased accessibility for this portion of Collin County to the various religious, educational, medical and recreational facilities in the area (**Table 4**). Emergency public services would have a more efficient facility to use in the performance of their various duties because of less congested roads. These facilities would remain accessible during construction of the proposed facility.

Under the No-Build Alternative for US 380, no impacts to public facilities would be anticipated.

**Table 4 Public Facilities and Services**

| Facility Type | Facility Name | Location | Approximate Distance from Proposed Project (Miles) |
|---|---|---|---|
| Church | Rock Hill Church of Christ | 9426 Rock Hill Road, Frisco, Texas | 1.00 |
| Church | Prosper United Methodist Church | 205 S Church Street, Prosper, Texas | 1.10 |
| Church | First Presbyterian Church | 40 S Coleman Street, Prosper, Texas | 1.01 |
| Church | First Baptist Church | 601 S Church Street, Prosper, Texas | 0.91 |
| Church | Bridgeway Baptist Church | 851 Martin Creek Drive, Prosper, Texas | 0.53 |
| School | Folsom Elementary | 800 Somervile, Prosper, Texas | 0.34 |
| School | Lorene Rodgers Middle | 1001 South Coit Road, Prosper, Texas | 0.26 |
| School | JB Wilmeth Elementary | 901 LaCima Drive, McKinney, Texas | 0.97 |
| School | Judy Rucker Elementary | 402 S Craig Road, Prosper, Texas | 0.89 |
| Fire Station | Prosper Fire Department | 1500 E First Street, Prosper, Texas | 0.99 |

***Source:*** *Google Maps (2011)*

## 9.2 Natural Resources

### 9.2.1 Section 9 Rivers and Harbors Act and Section 10 Rivers and Harbors Act

The proposed project does not cross a navigable waterway. Navigational clearance under the General Bridge Act of 1946 and Section 9 of the Rivers and Harbors Act of 1899 (administered by the U.S. Coast Guard [USCG]) and Section 10 of the Rivers and Harbors Act of 1899 (administered by the United States Army Corps of Engineers

[USACE]) is not applicable. Coordination with the USCG (for Section 9 and the Bridge Act) and the USACE (for Section 10) would not be required.

Under the No-Build Alternative for US 380, there would be no impact to navigable waterways.

### 9.2.2 Waters of the U.S.

A field reconnaissance was performed in June 2011 in addition to a review of the USGS topographic maps, National Wetlands Inventory maps and the National Hydrography Dataset. Several stream crossings and drainage features were observed at culverts within the project area. Based on USACE jurisdictional determination guidance, nine potentially jurisdictional water crossings were identified in the proposed project area. Executive Order (EO) 11990 regarding wetlands does not apply because no wetlands would be impacted within the proposed project area. Stream data forms can be found in **Appendix A.**

The waterways in the project study area are located within the Elm Fork of the Trinity River Watershed. The crossings east of CR 74 drain south towards Parvin Branch of Panther Creek. Parvin Branch of Panther Creek is an intermittent and perennial stream located east and south of the intersection of US 380 and SH 289. Parvin Branch of Panther Creek is intermittent east of SH 289 and perennial south of SH 289. The crossings east of CR 72 drain north into Rutherford Branch of Wilson Creek. Rutherford Branch of Wilson Creek is a perennial stream that flows northeast into Wilson Creek northeast of the proposed project.

Because the roadway would be widened, the impacts associated with the proposed project include lengthening the existing culvert structures. The approximate permanent impacts to waters of the U.S. are listed from west to east in **Table 5**.

**Figure 3** Project Corridor Maps show the locations of these crossings.

## Table 5 Potentially Jurisdictional Waters of the U.S.

| Crossing | Name | Flow Regime | OHWM | Approx. Temp. Impact (acres/ linear feet) | Approx. Perm. Impact (acres/ linear feet) | Existing Structure | Proposed Structure | Associated Riparian Area |
|---|---|---|---|---|---|---|---|---|
| 1 | Tributary of Parvin Branch | Perennial | 11 | 0.015 ac /60 lf | 0.004 ac /16 lf | Culvert | Culvert Extension | N |
| 2 | Tributary of Parvin Branch | Intermittent | 2 | 0.004 ac /96 lf | 0.001 ac /16 lf | Culvert | Culvert Extension | Y |
| 3 | Tributary of Parvin Branch | Intermittent | 3 | 0.006 ac /90 lf | 0.001 ac /16 lf | Culvert | Culvert Extension | Y |
| 4 | Drainage Swale | Ephemeral | 2 | 0.005 ac /110 lf | 0.001 ac /16 lf | Culvert | Culvert Extension | N |
| 5 | Drainage Swale | Ephemeral | 2 | 0.002 ac /40 lf | 0.001 ac /16 lf | Culvert | Culvert Extension | Y |
| 6 | Drainage Swale | Ephemeral | 2 | 0.002 ac /40 lf | 0.001 ac /16 lf | Culvert | Culvert Extension | Y |
| 7 | Rutherford Branch | Perennial | 8 | 0.018 ac /98 lf | 0.003 ac /16 lf | Culvert | Culvert Extension | Y |
| 8 | Tributary of Rutherford Branch | Perennial | 5 | 0.017 ac /139 lf | 0.002 ac /16 lf | Culvert | Culvert Extension | Y |
| 9 | Tributary of Rutherford Branch | Perennial | 7 | 0.012 ac /74 lf | 0.003 ac /16 lf | Culvert | Culvert Extension | Y |

***Source:*** *Field Inspection (June 2011)*

The permit that would be utilized for this project is Nationwide Permit (NWP) Number 14, "Linear Transportation Projects." Notification to the USACE of impacts to jurisdictional waters of the U.S. is required if the project meets certain requirements. NWP Number 14 states that for projects in non-tidal waters, the discharge cannot cause the loss of greater than 0.5 acre of waters of the U.S. The activities at the crossings listed in **Table 5** have been identified as single and complete projects as defined in the NWP program because each crossing is either at a specific location at a single waterbody, or crosses the same waterbody at separate and distant locations, and would therefore be permitted independently. A pre-construction notification (PCN) would be required if any of the single and complete crossings within the project area causes the permanent loss of greater than 0.1 acre of waters of the U.S. None of the nine single and complete crossings within the proposed project would exceed 0.1 acre. There

would be no discharge into special aquatic sites, and there are no endangered species or historic affects; therefore, no PCN would be required for the crossings.

The purpose of the proposed activity is to reconstruct and widen the linear transportation facility at US 380. Appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Temporary fills would consist of materials and be placed in a manner that would not be eroded by expected high flows. Temporary fills would be removed in their entirety and the affected area returned to pre-construction elevations, and revegetated as appropriate. The activity would comply with all general and regional conditions applicable to NWP 14.

The No-Build Alternative would not impact any waters of the U.S. because there would be no construction associated with the No-Build Alternative.

### 9.2.3 Water Quality

#### 9.2.3.1 Watershed/Basin Information

The stream segments crossing the project area are not designated as either threatened or impaired on the 2010 303(d) list. All stormwater drainage from the proposed project would discharge into Parvin Branch, Panther Creek and/or Rutherford Branch of Wilson Creek. Coordination with the Texas Commission on Environmental Quality (TCEQ) is not required for total maximum daily loads.

Parvin Branch and Panther Creek drain into Lewisville Lake, which is a public water supply. Rutherford Branch is a tributary to Wilson Creek and discharges to Lavon Lake. Lavon Lake is also a public water supply. The Build Alternative is not expected to affect the water quality of Lewisville and Lavon Lakes.

Under the No-Build Alternative for US 380, no impacts to water quality would be anticipated.

#### 9.2.3.2 Texas Pollutant Discharge Elimination System

Because this project would disturb more than five acres of surface area, TxDOT would comply with the requirements of the TCEQ Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit No. TXRI50000. A Notice of Intent would be filed with TCEQ stating that TxDOT would have a Storm Water Pollution Prevention Plan (SW3P) in place during construction of this project. The SW3P utilizes the temporary control measures as outlined in TxDOT's manual "Standard Specifications for the Construction of Highways, Streets, and Bridges." Impacts would be minimized by construction equipment avoiding work directly in the stream channels and/or adjacent areas. No permanent water quality impacts are expected as a result of

the proposed project. Every effort would be made for proper soil conservation and preservation during the planning, development, and construction of this project.

### 9.2.4 Section 402 of the Clean Water Act: TPDES, Municipal Separate Storm Sewer System

Within the city limits of Frisco and McKinney, the project is located within the boundaries of a Phase II Urbanized Area Municipal Separate Storm Sewer System (MS4). The Town of Prosper is not required to develop a MS4 program. TxDOT would comply with applicable MS4 requirements.

#### 9.2.4.1 Storm Water Pollution Prevention Plan

To minimize impacts to water quality during construction, the proposed project would utilize temporary erosion and sedimentation control practices (i.e., silt fence, rock berm and drainage swales) from TxDOT's manual "Standard Specifications for the Construction of Highways, Streets, and Bridges." Erosion control would be temporary vegetation and mulch. Sedimentation control would be silt fencing and rock berms.

The NWP Program requires applicants using a NWP 14 to comply with Section 401 of the Clean Water Act. Compliance with Section 401 requires the use of best management practices (BMPs) to manage water quality on construction areas. The SW3P would include at least one BMP from the 401 Water Quality Certification Conditions for NWPs as published by the TCEQ, April 26, 2007. These BMPs would address each of the following categories:

- Category I Erosion Control,
- Category II Sedimentation Control, and
- Category III Post-Construction Total Suspended Solids (TSS) Control.

Category I would be addressed by applying temporary reseeding (TxDOT-approved seeding specifications) and mulch to disturbed areas. Category II would be addressed by installing silt fences combined with rock berms. Category III would be addressed by the use of grass swales and vegetated filter strips in the rural areas enhanced with curb-cut inlets and/or sedimentation traps in urban sections.

As a result of impacts to waters of the U.S. associated with the construction of this project, Erosion Control, Sedimentation Control, and Post Construction TSS Control devices from the TCEQ Section 401 BMP List would be required. Erosion Control devices would be implemented and maintained until construction is complete. Sedimentation Control devices would be maintained and remain in place until completion of the project. Post-Construction TSS Control devices would be implemented upon completion of the project.

#### 9.2.4.2 Floodplain Impacts

Collin County, the City of Frisco, the City of McKinney and the Town of Prosper are participants in the National Flood Insurance Program (NFIP). According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) [Nos. 48085C0230J, 48085C0235J, and 48085C0255J] the project study area does occur within the 100-year floodplain of a tributary of Parvin Branch and Rutherford Creek. **Figure 3** provides the locations of the 100-year floodplains within the study area.

The hydraulic design practices for this project would be in accordance with current TxDOT design policy and standards. The highway facility would permit conveyance of the design-year flood levels, inundation of the roadway being acceptable, without causing substantial damage to the highway, stream or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations or ordinances. Coordination with the local floodplain administrator would be required. The proposed project is not within the Trinity River Corridor Development Regulatory Zone; therefore, a Corridor Development Certificate permit would not be required.

Under the No-Build Alternative for US 380, no impacts to floodplains would be anticipated.

### 9.2.5 Threatened/Endangered Species

The Texas Natural Diversity Database (TxNDD) (Version March 14, 2011), available through the TPWD, was consulted on June 20, 2011 to determine if any federal- or state-listed threatened or endangered species have been sighted within the project area. The search found no records of special species or managed areas inside a 1.5-mile radius of the proposed project area; however areas where Element of Occurrence data are absent do not mean absence of occurrence for threatened, endangered, and rare species. An Element of Occurrence list the TxNDD currently has available, buffered to approximately 10 miles from the requested quad boundaries was provided. The species listed include: Little Bluestem *(Schizachyrium scoparium),* Texas Garter snake (*Thamnophis sirtalis annectens),* and the American elm-chinkapin oak-hackberry series (*Ulmus americana-Quercus muhlenbergia-Celtis spp*.). TPWD disclosed that because of the proportion of public versus private land in the state, the TXNDD does not include a representative inventory of rare resources in the State. As is the case for the proposed project, the data is dependent on the best available data, and some areas may appear not to have data; however, this does not suggest any presence, absence, or condition of special species, natural communities, or other significant features within the area. It also does not substitute for an onsite evaluation by a qualified biologist. None of these species or communities would be impacted by the proposed project. Due

to the limitations of TxNDD information, the results of the database search cannot be interpreted as presence/absence data. There are no managed areas within 1.5 miles of the project.

The TxNDD noted native prairie remnants on the surrounding quadrangle maps. While prairie remnants have no legal protection, they are rare native grasslands and grassland habitats and have been identified from native hay meadows to highway, railroad, and other ROWs. No native prairie remnants have been identified in the project area.

The pertinent U.S. Fish and Wildlife Service (USFWS) and TPWD Annotated County list of Threatened, Endangered, and Rare Species was reviewed' and **Table 6** provides the state-listed and federal-listed threatened (T) and endangered (E) species indigenous to Collin and Denton Counties, Texas. Although the project is entirely within Collin County, the western limits of the project are adjacent to the Denton County line; therefore these species were included.

**Table 6 Federal and State Listed Threatened/Endangered Species, and Texas Parks and Wildlife Department's Species of Concern - Collin and Denton Counties**

| Species | Status | | Description of Suitable Habitat | Habitat Present | Species Effect | Species Impact |
|---|---|---|---|---|---|---|
| | Federal | State | | | | |
| Birds | | | | | | |
| American Peregrine[1,2] Falcon *Falco peregrinus anatum* | — | T | Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in U.S. and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands. | No | - - | No impact. No suitable bodies of water present within the proposed project ROW. |

| Species | Status | | Description of Suitable Habitat | Habitat Present | Species Effect | Species Impact |
|---|---|---|---|---|---|---|
| | Federal | State | | | | |
| Arctic Peregrine Falcon[1,2] *Falco peregrinus tundrius* | — | | Migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands. | No | - - | No impact. No suitable habitat present within the proposed project ROW. |
| Bald Eagle[1,2] *Haliaeetus leucocephalus* | DL | T | Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds. | No | No effect. No suitable habitat present within the proposed project ROW. | No impact. No suitable habitat present within the proposed project ROW. |
| Henslow's Sparrow[1,2] *Ammodramus henslowii* | — | | Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking. | No | - - | No impact. No suitable habitat containing bunch grasses, vines and brambles are present within the proposed project ROW. |
| Interior Least Tern[1] *Sterna antillarum athalassos* | — | E | Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also known to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony. | No | _ _ | No impact. No suitable habitat present within the proposed project ROW. |

| Species | Status | | Description of Suitable Habitat | Habitat Present | Species Effect | Species Impact |
|---|---|---|---|---|---|---|
| | Federal | State | | | | |
| Peregrine Falcon[1,2] *Falco peregrinus* | — | T | Both subspecies migrate across the state from more northern breeding areas in U.S. and Canada to winter along coast and farther south; subspecies (*F. p. anatum*) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, thus the species level shows this dual listing status; because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| Piping Plover[1] *Charadrius melodus* | — | T | Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats. | No | – – | No impact. No suitable open areas with sandy beaches present within the proposed project area. |
| Sprague's Pipit[1,2] *Anthus spragueii* | — | C | Only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly ties to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| Western Burrowing Owl [1,2] *Athene cunicularia hypugaea* | — | | Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| White-faced Ibis [1,2] *Plegadis chihi* | — | T | Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |

| Species | Status | | Description of Suitable Habitat | Habitat Present | Species Effect | Species Impact |
|---|---|---|---|---|---|---|
| | Federal | State | | | | |
| Whooping Crane [1,2] *Grus americana* | E | E | Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio Counties. | No | No effect. No suitable habitat present within the proposed project ROW. | No impact. No suitable habitat present within the proposed project ROW. |
| Wood Stork [1,2] *Mycteria americana* | — | T | Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e., active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960. | No | – – | No impact. No suitable habitat present within the proposed project due to extent of residential and commercial developments near ROW. |
| Crustaceans | | | | | | |
| A crayfish [1] *Procambarus steigmani* | — | | Burrower in long-grass prairie; all animals were collected with traps, thus there is no knowledge of depths of burrows; herbivore; crepuscular, nocturnal. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| Mammals | | | | | | |
| Plains spotted skunk [1,2] *Spilogale putorius interrupta* | — | | Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie. | Yes | – – | Might impact Corridors of wooded habitat are present adjacent to the proposed project; however, these habitats no not cross the proposed project area. The potential for encountering species during construction is low. |

| Species | Status | | Description of Suitable Habitat | Habitat Present | Species Effect | Species Impact |
|---|---|---|---|---|---|---|
| | Federal | State | | | | |
| Red Wolf [1,2] *Canis rufus* | LE | E* | Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, and coastal prairies. | No | No effect. | No impact. |
| Mollusks | | | | | | |
| Fawnsfoot [1,2] *Truncilla donaciformis* | — | | Small and large rivers especially on sand, mud, rocky mud, and sand and gravel, also silt and cobble bottoms in still to swiftly flowing waters; Red (historic), Cypress (historic), Sabine (historic), Neches, Trinity, and San Jacinto River basins. | Yes | – – | May impact. Prior to work in waters, a survey may be needed to determine if suitable habitat is present. |
| Little spectaclecase [1,2] *Villosa lienosa* | — | | Creeks, rivers, and reservoirs, sandy substrates in slight to moderate current, usually along the banks in slower currents; east Texas, Cypress through San Jacinto River basins. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| Louisiana pigtoe [1,2] *Pleurobema riddellii* | — | T | Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| Texas heelsplitter [1,2] *Potamilus amphichaenus* | — | T | Quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins. | Yes | – – | May impact. Prior to work in waters, a survey may be needed to determine if species is present. |
| Wabash pigtoe [1,2] *Fusconaia flava* | — | | Creeks to large rivers on mud, sand, and gravel from all habitats except deep shifting sands; found in moderate to swift current velocities; east Texas river basins, Red through San Jacinto River basins; elsewhere occurs in reservoirs and lakes with no flow. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Reptiles | | | | | | |
| Alligator snapping turtle [1] *Macrochelys temminckii* | — | T | Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October. | No | – – | No impact. No suitable habitat containing deep water within the proposed project ROW. |
| Texas garter snake [1,2] *Thamnophis sirtalis annectens* | — | | Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August. | Yes | – – | May impact. Suitable habitat may be within creeks that would be bridged by the proposed project. The potential for encountering species during construction is low. |
| Texas Horned Lizard [1,2] *Phrynosoma cornutum* | — | T | Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September. | No | – – | No impact. No suitable habitat present within the proposed project ROW. |
| Timber/ Canebrake Rattlesnake [1,2] *Crotalus horridus* | — | T | Swamps, floodplains, upland woodlands, riparian zones, abandoned farmland; prefers dense ground cover, (i.e. grapevines or palmetto). | Yes | – – | May impact. Suitable habitat may be within creeks that would be bridged by the proposed project. The potential for encountering species during construction is low. |

| Plants | | | | | | |
|---|---|---|---|---|---|---|
| Glen Rose Yucca[2] | — | | Texas endemic; grasslands on sandy soil and limestone outcrops; flowering April-June | No | _ _ | No impact. No suitable habitat present within the proposed project ROW. |

| | |
|---|---|
| 1 Listed for Collin County<br>2 Listed for Denton County<br>C - Candidate<br>E – Endangered<br>T – Threatened<br>LE– Listed Endangered<br>LT – Listed Threatened<br>DL – Delisted | "–" – No designation occurring within identified county<br>"blank" – Rare, but with no regulatory listing status<br>"- -" – No determination of effect or impact required because species lacks federal and/or state listing status<br>"*" – TPWD T&E species list indicates species could be present in identified county; however, USFWS T&E species list does not indicate a listing status for the species in the county. |

***Sources:*** *U.S. Fish & Wildlife Service (September 27, 2011) and Texas Parks & Wildlife Department (February 28, 2011); and Field Visit (June 22, 2011)*

The proposed project would have no effect on federally-listed threatened or endangered species, their habitats, or designated critical habitats or any state-listed species or habitat.

Potentially suitable stopover habitat is not present within the proposed project limits for the following listed migratory bird species: American and Arctic Peregrine Falcons (sometimes referred to at the species level as the Peregrine Falcon because making a visual distinction between the two subspecies can be difficult), Bald Eagle, Interior Least Tern, Piping Plover, White-faced Ibis, Whooping Crane, and Wood Stork. For these species and the non-listed species, habitat features that include braided streams, riparian vegetation, and wetland areas provide the most likely stopover habitat in the vicinity of the proposed project area. Noise disturbance to nearby stopover locations during project construction is not anticipated as the proposed project is located in an existing roadway corridor. Accordingly, there would be no direct disturbance to migratory bird species at nearby stopover locations.

Potential habitat could exist outside of the proposed project limits along Rutherford Creek and Parvin Branch for the plains spotted skunk, the Texas garter snake (state species of concern), and the Timber/canebrake rattlesnake (state-listed threatened species). These species were not seen during the reconnaissance surveys by qualified biologists and are not anticipated to utilize areas within the proposed project limits because the areas are located within a maintained roadway ROW.

Suitable habitat could exist within the proposed project ROW for one state-listed mollusk (Texas heelsplitter) and one state species of concern (fawnsfoot). If construction occurs when there is water present in the tributary, then a survey would be

conducted to identify if protected species could be impacted. Appropriate actions would be performed to avoid adverse impacts to protected species, should they be present. Habitat for protected freshwater mussels does not exist at this time and there is no hydraulic connection between the project site and any downstream receiving waters that could contain protected species.

There is no habitat present for one state-listed species of concern (Louisiana pigtoe) and two state species of concern (little spectaclecase, and Wabash pigtoe). The stream systems within the proposed project limits have been previously modified to some extent to better manage the drainage from US 380, upstream farmland, and other developments. The streams within the proposed project limits flow through a culvert or contain concrete or rip rap along the bottom of the stream channel.

Under the No-Build Alternative for US 380, additional ROW would not be acquired; therefore, no impacts to vegetation and wildlife habitat would be anticipated.

### 9.2.6 Wildlife Habitat/Vegetation

According to the TPWD Vegetation Types of Texas publication (McMahan et al. 1984), the project area is designated as Crops (44) and Other Native or Introduced Grasses (45). Vegetation within and surrounding the proposed project area is consistent with the classifications of Crops and Other Native or Introduced Grasses.

The Crops vegetation type is a statewide vegetation category that includes cultivated cover crops and row crops utilized for food and/or fiber for humans or domesticated animals. The Other Native or Introduced Grasses vegetation type includes mixed native or introduced grasses and forbs on grassland locations or mixed herbaceous communities resulting from the clearing of woody vegetation. This is typical of the maintained ROW areas located within the existing and proposed ROW.

The project is located on the Frisco and McKinney West, Texas, USGS quadrangle maps (**Figure 2**). After reviewing habitat requirements and conducting a site visit on June 22, 2011, it was determined that there are no substantial natural plant communities or native prairie remnants that would be impacted by the proposed project.

Several unusual and special habitat features were observed during the site visit. Unusual vegetation in the project area includes the fenceline woodland vegetation areas, riparian woodland areas, and a few large trees associated with these. Special habitat features consist of the various stream crossings and the bridge at Preston Road, where swallow nests were observed.

Vegetation within the ROW is composed of riparian vegetation, fencerow vegetation and common roadside grasses associated with the maintained ROW. Areas outside of the

existing ROW are improved pasture (i.e., livestock grazing), crops, and ornamental landscaping consistent with residential properties. Woodland data forms are located in **Appendix B** and the woodland locations are depicted on **Figure 3.**

#### 9.2.6.1 Upland Vegetation within Existing and Proposed ROW

With the exception of 14.9 acres of proposed ROW and 0.8 acres of drainage easements, the proposed project improvements will occur within existing ROW consisting primarily of maintained ROW grasses. The existing ROW areas are consistent with the TPWD Native and Introduced Grasses vegetation type described above. Common species present include Bermuda grass (*Cynodon dactylon*), switchgrass (*Panicum virgatum*), silver bluestem (*Bothriochloa laguroides*), and Johnson grass (*Sorghum halepense*). Total impacts to the maintained grasses within the upland area of the existing and proposed ROW would be approximately 48 acres. There are no native prairie remnants within or adjacent to the proposed project area. Consequently such areas would not be impacted by the proposed project.

The upland vegetation affected by the acquisition of the 14.9 acres of proposed ROW and 0.8 acres of drainage easement is primarily grassland and agricultural land. This land type consists of native and introduced herbaceous vegetation such as silver bluestem, switchgrass, oats (*Avena sativa*), and Johnson grass. Effects to upland vegetation within the proposed ROW would be approximately 13 acres.

Approximately 0.28 acre of the project area consists of fencerow woodland vegetation. Common species within these upland woodland areas are sugarberry (*Celtis laevigata*), cedar elm (*Ulmus crassifolia*) and black locust (*Robinia pseudocacia*), ranging from 2 to 12 inches diameter at breast height (dbh), with an average canopy height of 15 ft. Impacts to these areas would occur because of clearing to accommodate the widening of the existing roadway. Although these fence line woodland areas would be cleared, they would still remain vegetated with grasses and volunteer species. Trees not within the construction zone would not be removed if possible.

#### 9.2.6.2 Riparian Vegetation within Existing and Proposed ROW

An estimated 1.5 acres of the existing and proposed project ROW is composed of riparian woodland areas associated with the stream crossings that intersect the proposed project. Common species observed at these riparian areas include black willow (*Salix nigra*), osage orange (*Maclura pomifera*), American elm (*Ulmus americana*), cedar elm (*Ulmus crassifolia*), eastern cottonwood (*Populus deltoides*), and Texas mulberry (*Morus rubra*), ranging from 2 to 20 inches dbh, with an average canopy height of 30 ft. Other herbaceous species in these areas include poison ivy (*Toxicodendron radicans*), saw greenbriar (*Smilax bona-nox*) and western ragweed (*Ambrosia psilostachya*). There are only a few trees with a dbh greater than 20 inches

located at woodlands 12 and 13, associated with the crossings at Rutherford Creek and the tributary to Rutherford Creek. These species include American elm (20-45" dbh) and cedar elm (20-35" dbh).

Coordination with TPWD would be required because it is anticipated that mature woody vegetation within the existing ROW would be removed.

Per the TxDOT and TPWD Memorandum of Understanding (MOU) (1999) coordination with TPWD was initiated on January 31, 2012. Coordination with TPWD concluded on March 7, 2012 when TWPD responded with "No Comment" (see **Appendix E**).

9.2.6.3 Wildlife

Wildlife associated with the existing habitat within the proposed project area consists of species that are able to adapt to urban conditions. The project would minimally impact the existing habitat in the general project vicinity. Although vegetation changes would occur within the project limits as discussed in the sections above, areas adjacent to the project area containing woody vegetation and grassy fields would continue to serve as foraging areas for local mammalian species and avian species.

There are no native prairie remnants within or immediately adjacent to the project area. Consequently, such areas would not be affected by the proposed project. In accordance with Provision (4) (A) (ii) of the TxDOT-TPWD MOU, some habitats may be given consideration for non-regulatory mitigation during project planning (at the TxDOT District's discretion). These habitats may include:

- Habitat for federal candidate species if mitigation would assist in the prevention of the listing of the species,
- Rare vegetation series (S1, S2, or S3) that also locally provide habitat for a state-listed species,
- All vegetation communities listed as S1 or S2, regardless of whether or not the series in question provide habitat for state-listed species,
- Bottomlands hardwoods, native prairies, and riparian sites, or
- Any other habitat feature considered to be locally important.

The habitat types located within the proposed project area that would be considered for non-regulatory mitigation are the riparian areas. Impacts to riparian areas would be approximately 1.5 acres. Riparian habitat clearing would be within the existing and proposed ROW. Because impacts are considered minimal, compensatory mitigation would not be offered.

### 9.2.7 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance within the Act's policies and regulations.

Occupied swallows nests were identified under the bridge at Preston Road. A survey of the project area would be conducted prior to construction to determine the presence of any occupied swallow nests. If active nests are detected, the contractor would be prepared to prevent migratory birds from building nests between February 15 and October 1. Therefore, the requirements for the MBTA appear to be satisfied.

Between October 1 and February 15, the contractor would remove all old migratory bird nests from any structures that would be affected by the proposed project, and complete any bridge work and/or vegetation clearing. In addition, the contractor would be prepared to prevent migratory birds from building nests between February 15 and October 1, per the Environmental Permits, Issues, and Commitments (EPIC) plans. Adverse impacts on protected birds, active nests, eggs, and/or young would be avoided.

The No-Build Alternative would not impact any vegetation because there would be no construction associated with this alternative.

### 9.2.8 Fish and Wildlife Coordination Act

Because the project would be authorized under a Section 404 permit, no coordination under the Fish and Wildlife Coordination Act (FWCA) is required.

## 9.3 Cultural Resources

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries, and objects. State laws such as the Antiquities Code of Texas require consideration of cultural resources during project planning. Compliance with these laws often required consultation with the Texas Historical Commission (THC)/Texas State Historic Preservation Officer (SHPO) to identify, protect, and preserve properties listed on the National Register of Historic Places (NRHP) or list of State Archeological Landmarks (SAL). Review and coordination of this project followed approved procedures for compliance with state laws.

### 9.3.1 Historic Resources

Qualified historians determined that there are no NRHP or SAL-listed properties in the project area and the project complies with applicable state laws. No further coordination is anticipated to be required.

### 9.3.2 Archeological Resources

Based on an archeological study, no further archeological work is recommended. The background study found that overall the potential for archeological resources in the proposed project area is low. Much of the APE and the surrounding areas have been previously surveyed through shovel testing and pedestrian inspection, and no sites have been recorded. Furthermore, the proposed new ROW is located almost entirely within previously farmed uplands. Prehistoric resources, if once present would likely have consisted of shallow lithic scatters which would be already disturbed through farming. Historic period archeological sites associated with farming and ranching would likewise be shallow and disturbed. A review of the 1939 Collin County Highway Map indicates that structures were present along this segment of US 380. However these were likely offset from the roadway and would be outside the APE. Current aerial photography suggests very low potential for structures remains within the APE.

Consultation with federally-recognized Native American tribes with a demonstrated historic interest in the area was initiated on August 31, 2011 and no objections or expressions of concern were received within the comment period. TxDOT archeologists completed their review of this project on September 1, 2011 and determined that the project will have no effect or no adverse effect on archeological sites or cemeteries that would be afforded further consideration under cultural resource laws. No consultation with the Texas Historical Commission/Texas State Historic Preservation Officer was required. In addition, no public controversy exists regarding the project's potential impacts on archeological sites or cemeteries.

Section 106 review and consultation will proceed in accordance with the First Amended Programmatic Agreement among the FHWA, the TxDOT, the Texas State Historic Preservation Officer, and the ACHP Regarding the Implementations of Transportation Undertakings (PA-TU), as well as the MOU between the THC and TxDOT's findings and explains the basis for those findings. In the event that 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 under provisions of the PA and MOU.

The No-Build Alternative would not impact any archeological resources because there would be no construction associated with this alternative.

## 9.4 Invasive Species and Beneficial Landscape Practices

Permanent soil erosion control features would be constructed as soon as feasible during the early stages of construction through proper sodding and/or seeding techniques. Disturbed areas would be restored and stabilized as soon as the construction schedule permits and temporary sodding would be considered where large areas of disturbed ground would be left bare for a considerable length of time. In accordance with EO 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, seeding and replanting with TxDOT-approved seeding specifications that is in compliance with EO 13112 would be done where possible. Moreover, abutting turf grasses within the ROW are expected to re-establish throughout the project length. Soil disturbance would be minimized to ensure that invasive species would not establish in the ROW.

## 9.5 Farmland Impacts

According to the Soil Survey of Collin County, three Prime Farmland soils are located within the proposed project area. The proposed ROW that is currently farmland is approximately 13 acres and includes Burleson clay (BcB), Houston Black clay 0 to 1 percent slopes (HoA), and Houston Black clay 1 to 3 percent slopes (HoB). The existing and proposed ROW is either urbanized and/or designated for future development as urban use. This makes the proposed project exempt from the requirements of the Farmland Protection Policy Act (FPPA) and would not require coordination with the Natural Resources Conservation Service (NRCS).

The No-Build Alternative would not impact any prime, unique or special farmland because there would be no construction associated with this alternative.

## 9.6 Air Quality Assessment

The proposed project is located within Collin County, which is part of the Dallas-Fort Worth area that has been designated by the U.S. the Environmental Protection Agency (EPA) as serious nonattainment area for the 8-hour standard for the pollutant ozone. This project is located within Collin County, which has been designated by EPA as a nonattainment area for the 2008 Lead National Ambient Air Quality Standard (NAAQS), effective December 31, 2010. However, this project is not located within the portion of Collin County in nonattainment for the 2008 Lead NAAQS. Transportation conformity is required under CAA section 176 (c) (42 U.S. C. 7506 (c)) to ensure that federally supported highway and transit project activities are consistent with the purpose of the SIP for transportation-related criteria pollutants.

Components of proposed project are included in the area's financially constrained long-range MTP and 2011-2014 TIP, as amended. Detailed information on the project CSJ's and status is provided in Section 7 of this document (Funding and Planning). The entire

proposed project is consistent with the *Mobility 2035 MTP* and 2011-2014 TIP, as amended.

Traffic data for the design year 2040 is 52,400 vpd. A prior TxDOT modeling study demonstrated that it is unlikely that a carbon monoxide standard would ever be exceeded as a result of any project with an average annual daily traffic (AADT) below 140,000 vpd. The AADT projections for the proposed project do not exceed 140,000 vpd; therefore a Traffic Air Quality Analysis (TAQA) was not required. However, this proposed project is adding single occupancy vehicle (SOV) capacity; therefore, a CMP analysis is required.

### 9.6.1 Congestion Management Process

The 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 NCTCOG's operational CMP which meets all requirements of amended 23 CFR 500.109. Regional Transportation Council (RTC) approved the latest CMP in April 2007.

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 NCTOG; 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 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 considered to be beneficial to the proposed US 380 project would consist of Intelligent Transportation System (ITS), traffic signal, and intersection improvement projects. TxDOT, under the Congestion Mitigation and Air Quality Improvement Plan (CMAQ) program, would manage these projects, which are included in the regional CMP and TIP. **Table 7** depicts a list of completed projects in the area.

## Table 7 Congestion Management Strategies

| Location | Improvement Type | Implementation Year | Funding Source | TIP# | Costs ($) |
|---|---|---|---|---|---|
| US 380 AT SH DNT | Traffic Signal improvement | 2007 | City of Frisco | 11447 | 159,612 |
| US 380 AT SH 289/Preston Road | Traffic Signal improvement | 2007 | City of Frisco | 11447 | 159,612 |
| US 380 AT FM 423 | Traffic Signal improvement | 2007 | City of Frisco | 11447 | 159,612 |
| FM 2478/Custer Road at US 380 | Intersection Improvement | 2009 | City of McKinney | 11791 | 3,901,000 |
| US 380 at Custer | ITS | 2007 | City of McKinney | _ | 1,021,500 |
| US 380 at Red Bud Road | ITS | 2007 | City of McKinney | _ | 1,021,500 |
| US 380 at Custer Road (FM 2478) | ITS | 2007 | City of McKinney | _ | 1,021,500 |
| US 380 at Custer Road (FM 2478) | Traffic Signal improvement | 2007 | City of McKinney | _ | 782,652 |
| Custer Road (FM 2478) at Bristol Drive | Traffic Signal improvement | 2007 | City of McKinney | _ | 782,652 |
| Custer Road (FM 2478) at Virginia Parkway | ITS | 2007 | City of McKinney | _ | 1,021,500 |
| Custer Road (FM 2478) at Virginia Parkway | Traffic Signal improvement | 2003 | City of McKinney | _ | 782,652 |
| Custer Road (FM 2478) at Virginia Parkway | Intersection improvement | 2009 | City of McKinney | 11791 | 3,901,000 |

Source: NCTCOG, http://nctcog.org/, Transportation Improvement Program Information System (TIP INS) *(June 2011).*

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 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 TMA is on file and available for review at NCTCOG.

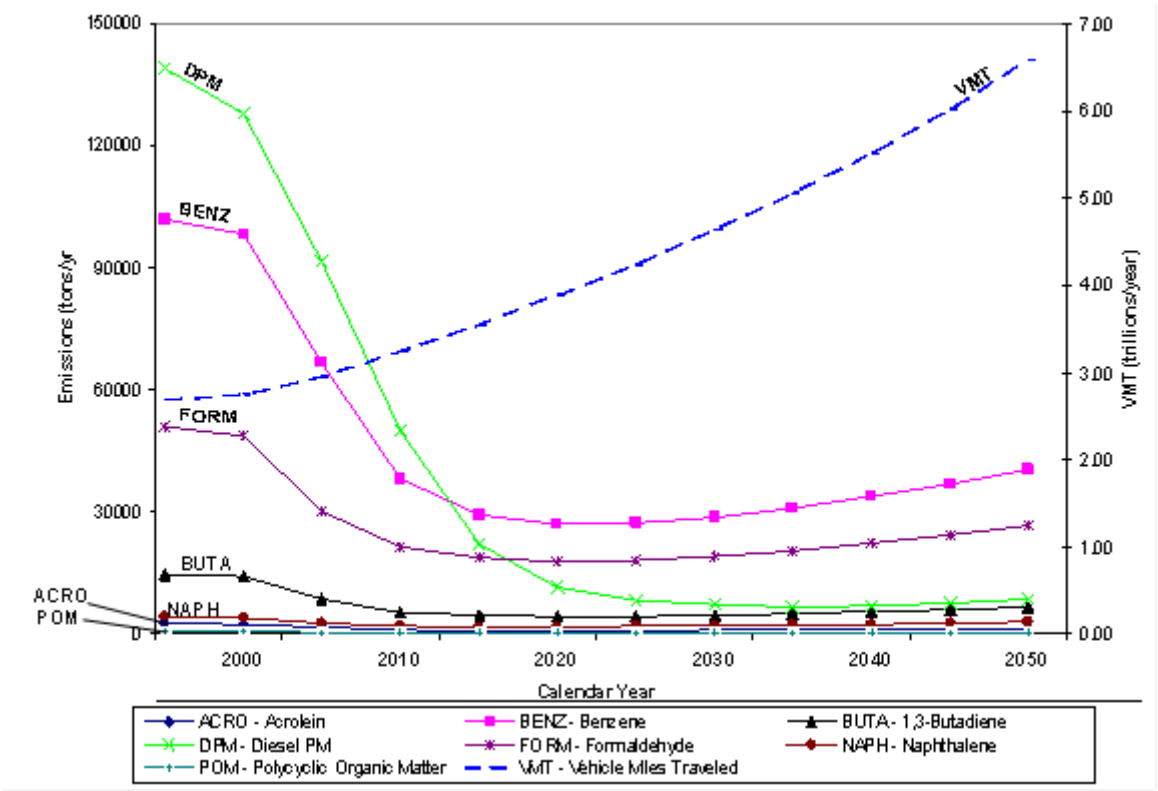
### 9.6.2 Mobile Source Air Toxics

***Background***

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/ncea/iris/index.html). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA Mobile Source Air Toxics (MSAT) rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in **Exhibit 1** and **Table 8.**

## Exhibit 1 National MSAT Emission Trends 1999-2050 for Vehicles Operating on Roadways Using EPA's MOBILE6.2 Model




*Source: **Table 8** below.*

*Note:*
*(1) Annual emissions of polycyclic organic matter are projected to be 561 tons/yr for 1999, decreasing to 373 tons/yr for 2050.*

*(2) Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors*

**Table 8 Projected National MSAT Emissions and Percent Reduction for 1999-2050 for Vehicles Operating on Roadways Using EPA's MOBILE6.2 Model**

| Pollutant/VMT | Pollutant Emissions (tons) and Vehicle-Miles Traveled (VMT) by Calendar Year | | | | | | | Reduction |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 | 1999 to 2050 |
| Acrolein | 2570 | 2430 | 1000 | 775 | 824 | 970 | 1160 | -55% |
| Benzene | 102000 | 98400 | 38000 | 27000 | 28700 | 33900 | 40500 | -60% |
| 1,3-Butadiene | 14400 | 14100 | 5410 | 4360 | 4630 | 5460 | 6520 | -55% |
| Diesel PM | 139000 | 128000 | 50000 | 11400 | 7080 | 7070 | 8440 | -94% |
| Formaldehyde | 50900 | 48800 | 21400 | 17800 | 19000 | 22400 | 26800 | -47% |
| Naphthalene | 4150 | 4030 | 1990 | 1780 | 2030 | 2400 | 2870 | -31% |
| Polycyclic Organic Matter | 561 | 541 | 259 | 233 | 265 | 313 | 373 | -33% |
| Trillions VMT | 2.69 | 2.75 | 3.24 | 3.88 | 4.63 | 5.51 | 6.58 | 145% |

*Source: U.S. Environmental Protection Agency. MOBILE6.2 Model run 20 August 2009*

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the National Environmental Policy Act (NEPA). The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

#### 9.6.2.1 Project Specific MSAT Information

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at:

http://www.fhwa.dot.gov/environmental/air_quality/air_toxics/research_and analysis/mobile source air toxics/msatemissions.pdf

For each alternative in this document, the amount of MSAT emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6.2 emissions model, emissions of all of the priority MSAT except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases would offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models. Under the build alternative, 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 72 percent between 1999 and 2050. 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 nearly all cases.

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternatives than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built along highly developed commercial and residential areas and major intersections, such as the intersections of US 380 and Custer Road (FM 2478), US 380 and Stonebridge Drive and US 380 and Lake Forest. However, the magnitude and the 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. When a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel

regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be lower in the future.

***Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis***

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, http://www.epa.gov/ncea/iris/index.html). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's 2009 Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents, which can be found at the following address: (http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/100109guidmem.cfm ).

This Appendix also discusses a variety of FHWA research initiatives related to air toxics. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease HEI,http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts

- each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's MOVES model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in an NCHRP study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at ten sites across the country - three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with National Ambient Air Quality Standards for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to

determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

### Conclusion

In this document, a qualitative MSAT assessment has been provided relative to the Build and No-Build alternatives and has acknowledged that the Build Alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

## 9.7 Noise Analysis

No-Build Alternative

Highway traffic is the dominate source of noise in developed areas adjacent to US 380. Traffic noise impacts occur in the existing condition for Category B receivers (see **Table 9 and 10** below) due to the existing traffic on US 380. Under the No-Build Alternative, these receivers would continue to experience traffic noise impacts.

Build Alternative

The noise analysis for the proposed project was accomplished in accordance with TxDOT's (FHWA approved) 2011 Guidelines for Analysis and Abatement of Highway Traffic Noise.

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 "dBA."

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 and TxDOT have 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 as described in **Table 9**.

## Table 9 Noise Abatement Criteria

| Activity Category | FHWA (dBA Leq) | TxDOT (dBA Leq) | Description of Land Use Activity Areas |
|---|---|---|---|
| A | 57 (exterior) | 56 (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 | 67 (exterior) | 66 (exterior) | Residential |
| C | 67 (exterior) | 66 (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) | 51 (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) | 71 (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. |

***NOTE**: Primary consideration is given to exterior areas (Category A, B, C or E) where frequent human activity occurs. However, interior areas (Category D) are used if exterior areas are physically shielded from the roadway, or if there is little or no human activity in exterior areas adjacent to the roadway.*

A noise impact occurs when either the absolute or relative criterion is met as described below:

Absolute criterion: the predicted noise level at a receiver approaches, equals or exceeds the FHWA NAC. "Approach" is defined as one dBA below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dBA or above.

Relative criterion: the predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal or

exceed the FHWA NAC. "Substantially exceeds" is defined as more than 10 dBA. For example: a noise impact would occur at a Category B residence if the existing level is 54 dBA and the predicted level is 65 dBA (11 dBA 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) 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.

Existing and predicted traffic noise levels were modeled at receiver locations (**Table 10** and **Figure 3e**) 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.

**Table 10 Traffic Noise Levels (dBA Leq)**

| Receiver | NAC Category | NAC Level | Existing 2011 | Predicted 2030 | Change (+/-) | Noise Impact |
|---|---|---|---|---|---|---|
| R1-Office, US 380 WB | E | 72 | 67 | 68 | +1 | No |
| R2-Residence, US380 WB | B | 67 | 67 | 68 | +1 | **Yes** |
| R3-Residence, N. Red Oak Circle | B | 67 | 62 | 63 | +1 | No |
| R4-Residence, N. Red Oak Circle | B | 67 | 63 | 64 | +1 | No |
| R5-Residence, N. Red Oak Circle | B | 67 | 63 | 63 | -- | No |
| R6-Residence, N. Red Oak Circle | B | 67 | 63 | 63 | -- | No |
| R7-Residence, N. Red Oak Circle | B | 67 | 63 | 63 | -- | No |
| R8-Residence, N. Red Oak Circle | B | 67 | 64 | 65 | +1 | No |
| R9-Residence, Red Bud Drive | B | 67 | 68 | 69 | +1 | **Yes** |
| R10-Commercial Facility, US 380 EB | E | 72 | 67 | 69 | +2 | No |

As indicated in **Table 10**, the proposed project would result in a traffic noise impact and the following noise abatement measures were considered: 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.

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. To be "feasible," the abatement measure must be able to reduce the noise level at greater than 50% of impacted, first row receivers by at least five dBA; and to be "reasonable," it must not exceed the cost-effectiveness criterion of $25,000 for each receiver that would benefit by a reduction of at least five dBA and the abatement measure must be able to reduce the noise level by at least seven dBA for at least one impacted first row receiver.

Traffic management: control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dBA per 5 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.

Noise barriers: this is the most commonly used noise abatement measure. Noise barriers were evaluated for each of the impacted receiver locations with the following results:

R2, R9: these receivers are separate, individual residences. Noise walls that would achieve the minimum feasible reduction of 5 dBA while achieving a 7 dBA noise reduction design goal at each of these receivers would exceed the reasonable, cost-effectiveness criterion of $25,000.

R3 – R8: These receivers represent a total of 6 residences. Noise walls that would achieve the minimum feasible reduction of 5 dB(A) while achieving a 7 dB(A) noise reduction design goal at one of these receivers would exceed the reasonable cost effectiveness criterion of $25,000.

None of the above noise abatement measures would be both feasible and reasonable; therefore, no abatement measures are proposed for this project.

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs should ensure to the maximum extent possible that no new activities are planned or constructed along or within the following predicted (2030) noise impact contours, as indicated in **Table 11**.

**Table 11 US 380 Traffic Noise Contours**

| Land Use | Impact Contour | Distance from ROW |
|---|---|---|
| NAC Category B and C (Residential) | 66 dBA | 125 ft |
| NAC Category E (Commercial facility) | 71 dBA | 40 ft |

***Note:*** *Impact distances are based on an 80-foot ROW from the US 380 centerline.*

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 receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would 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.

A copy of this traffic noise analysis would be made available to local officials. 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 project.

### 9.8 Hazardous Waste/Substance

A visual survey of the proposed project, conducted on June 22, 2011, revealed no evidence of contamination. A regulatory data record search of federal, state and local databases for possible hazardous materials sites and/or impacted areas was ordered on June 23, 2011, to help determine the potential presence of recorded or suspected environmental contamination within the project area. This search was performed using American Society for Testing and Materials (ASTM) standard search radii to comply with TxDOT standards.

The following federal and state standard ASTM databases were reviewed: EPA National Priorities List, EPA NPL Delisted, EPA Comprehensive Environmental Response, Compensation and Liability Information System List, EPA Comprehensive Environmental Response Compensation and Liability Information System Archived Sites, EPA Resource Conservation and Recovery Information System Sites (RCRA COR ACT), EPA RCRA Treatment Storage and Disposal, EPA RCRA Generators, EPA Brownfield Management System, EPA Federal Engineering and Institutional Controls,

EPA National Response System Emergency Response Notification System, Department of Interior (DOI)/Bureau of Indian Affairs (BIA) Indian Lands of the United States, TCEQ State/Tribal Sites, TCEQ State Spills 90, TCEQ State/Tribal Solid Waste Landfills, Transfer Stations and Incinerators (SWL), TCEQ State/Tribal LUST, TCEQ State/Tribal Registered Underground Petroleum Storage Tank list, TCEQ State/Tribal Registered Aboveground Storage Tank list TCEQ Voluntary Cleanup Program, TCEQ/EPA State/Tribal Brownfields, National Radon Database and TCEQ State Other Texas Industrial Hazardous Waste Notice of Registration.

The ASTM radius search of the proposed project area listed 16 hazardous materials sites detected within a one-mile radius of the proposed project area. A summary of the listed sites is in **Table 13**. The locations of the mapped sites are presented in the GeoSearch Radius report located in **Appendix C***.*

Sites listed include: one emergency response notification system (ERNSTX), two facility registry system (FRSTX), one PCB activity database system (PADS), one no longer regulated RCRA generator facilities (NLRRGRAG), one resource conservation and recovery act – generator facilities (RCRAGR06), one spills listing (SPILLS), one industrial and hazardous waste site (IHW), five petroleum storage tanks (PST), one closed and abandoned landfill inventory (CALF), one leaking petroleum storage tank (LPST), and one tier II chemical reporting program facilities.

Sites with known contamination that may present an environmental concern to the proposed project that are located up gradient in relation to the subject property are considered a “higher risk”. Sites are categorized as “low risk” if available information indicates that some potential for contamination exists, but the site is not likely to pose a contamination problem to highway construction due to a barrier or topographic gradient that is away from the proposed project.

## Table 12 Hazardous Waste/Substance Sites

| Site No. | Property Name | Property Location | Database | Gradient | Status | Risk |
|---|---|---|---|---|---|---|
| 1 | Chapman Construction | Hwy 380 and Hwy 2478 | PST | At-gradient | In use. No violation reported. | Low |
| 1 | N/A | W. of McKinney Hwy 380 and FM 2478/ Collin | SPILLS | At-gradient | Spill date 1980. | Low |
| 2 | Murphy USA | 9091 W. University Dr McKinney, TX 75071 | ERNSTX | At-gradient | Listed for a fuel line spill in April 2009. Status listed as cleanup underway. | Medium |
| 2 | Murphy USA | 9091 W. University Dr McKinney, TX 75071 | FRSTX | At-gradient | In use. No violations reported. | Low |
| 2 | Murphy USA | 9091 W. University Dr McKinney, TX 75071 | PST | At-gradient | In use. No violations reported. | Low |
| 3 | McKinney LAB | 9883 W. University Dr #301 McKinney, TX 75070 | PADS | At-gradient | Listed for PCB research. No violations reported. | Low |
| 3 | McKinney LAB | 9883 W. University Dr #301 McKinney, TX 75070 | FRSTX | At-gradient | | Low |
| 4 | HD Supply Construction Supply | 9929 W. University Dr. STE 301 McKinney, TX 75071 | NLRRCRAG | At-gradient | Listed as a small quantity generator (SQG). Hazardous waste treated off site. | Low |
| 4 | HD Supply Construction Supply | 9929 W. University Dr. STE 301 McKinney, TX 75071 | IHW | At-gradient | | Low |
| 5 | 7-ELEVEN | 8885 W. University Dr. McKinney, TX 75071 | PST | At-gradient | In Use. No violation reported. | Low |
| 6 | Wal-Mart Supercenter | 1721 N. Custer Rd. McKinney, TX 75071 | RCRAGR06 | At-gradient | Listed as a (SQG). No violations reported | Low |
| 6 | Wal-Mart Supercenter | 1721 N. Custer Rd. McKinney, TX 75071 | PST | At-gradient | In use. No violations reported | Low |

| Site No. | Property Name | Property Location | Database | Gradient | Status | Risk |
|---|---|---|---|---|---|---|
| 7 | County Boy Convenience Store | 8850 W. University Dr. McKinney, TX 75071 | PST | At-gradient | In use. No violations reported | Low |
| 7 | County Boy Superette | FM 2478 | LPST | At-gradient | No impacts to receptors. Final concurrence issued. | Low |
| 8 | Sunstate Equipment | 10041 W. University Dr. McKinney, TX 75070 | TIERII | Down gradient | No violations reported | Low |
| 9 | Pete Norris | 4 Mi N. of Frisco, TX off HWY 289 Collin, TX 75034 | CALF | Down gradient | Unauthorized landfill listed as closed. | Low |

*Source: GeoSearch, Radius Report June 23, 2011*

A survey of the listed sites in **Table 12** was conducted to assess potential risk of contamination during construction. Most of the sites were listed as a registry and no violations were on file with the databases. Country Boy Superette is listed in the LPST database for a leaking petroleum storage tank; however, final concurrence has been issued with no apparent threats to receptors.

A petroleum spill was listed in the ERNSTX and SPILLS database for Murphy USA (**Site No. 2**), a gas station located adjacent to the proposed project area. The site is listed to have remedial actions underway with the most recent update in 2009. Due to that fact that the site was not listed to have been issued a final concurrence, further investigations would need to be conducted regarding the site status prior to construction at the segment adjacent to the site.

A CALF site was listed south of the project area on Preston Road, however the topographic gradient is away from the project area and thus does not present an environmental concern.

Based up on the generator status, compliance status, distance and/or topographic position to the Build Alternative, none of the UST, LTANKS, AST, VCP, AUL, or LPST site are considered of environmental concern for the build alternative.

As the plans, specifications and estimate are developed, TxDOT would continue to evaluate the potential for these facilities to affect the proposed project construction. If impacted soils and groundwater are encountered, then TxDOT would develop appropriate soils and/or groundwater management plans for activities within the project

area. The management plans would be initiated in accordance with all applicable federal, state and local regulations. Should hazardous materials be discovered as the result of the implementation of this project, they would be removed. The removal and disposal process would comply with applicable federal, state and local laws.

Under the No-Build Alternative for US 380, no impacts to hazardous materials sites are anticipated.

### 9.9 Visual Impacts/Aesthetic

Section 136 of the Federal Aid Highway Act of 1970 (Public Law [P.L.] 91-605) requires consideration of aesthetic values in the highway planning process. Aesthetic values would be emphasized with this proposed project. It has always been the policy of TxDOT to build visually pleasing travel ways, coupling beauty with their functional capability. The aesthetic effect of this proposed project would be influenced due to the addition of the new main lanes and frontage road improvements; however, it is anticipated the aesthetic effect would be equal to or better than the existing roadway.

The No-Build Alternative would not change any existing scenic or aesthetic quality because there would be no construction associated with this alternative.

### 9.10 Construction Impacts

During the construction stages, traffic would follow the existing traffic patterns. Work on US 380 would be phased in such a manner to allow the roadway to remain open during construction. Access to businesses and residences would be maintained at all times, and no detours are anticipated.

Under the No-Build Alternative for US 380, no construction impacts are anticipated.

## 10 INDIRECT IMPACTS

This section describes the indirect impact assessment prepared for the proposed project. The assessment was conducted in accordance with FHWA and Council of Environmental Quality (CEQ) regulations and FHWA guidance documents. TxDOT's updated "*Guidance on Preparing Indirect and Cumulative Impact Analyses*," September 2010 was used as a reference.

The CEQ defines indirect effects as "effects, which are caused by the action and are 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" (40 CFR § 1508.8). Guidance on indirect effects described in the Transportation Research Board's (TRB)

National Cooperative Highway Research Program (NCHRP) Report 25-25, Task 22: *Forecasting Indirect Land Use Effects of Transportation Projects* (TRB, 2007) and NCHRP Report 466: *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* (TRB, 2002) was referenced.

TxDOT's guidance outlines seven steps that should be followed when determining the indirect effects caused by a proposed transportation project. These steps include:

- Scoping
- Identifying the Study Area's Goals and Trends
- Inventory the Study Area's Notable Features
- Identify Impact-Causing Activities of Proposed Action and Alternatives
- Identify Potentially Substantial Indirect Effects for Analysis
- Analyze Indirect Effects and Evaluate Results
- Assess Consequences and Consider/Develop Mitigation (as Appropriate)

**Table 13** depicts the screened potential indirect effects identified to be studied in the indirect effect analysis, separated by the potential type of indirect effect anticipated.

**Table 13 Three General Categories of Indirect Effects**

| Resource | Encroachment/Alteration | | Access Alteration | Project-Influenced Development Effects |
|---|---|---|---|---|
| | Ecological | Socioeconomic | | |
| Waters of the U.S. | Degradation of habitat, Disruption of natural hydrology | N/A | N/A | Additional degradation of habitat, Additional disruption of natural hydrology |
| Water Quality | Pollution effects | N/A | N/A | Additional pollution effects |
| Floodplains | Degradation of habitat, Disruption of natural hydrology | N/A | N/A | Additional degradation of habitat, Additional disruption of natural hydrology |
| Wildlife habitat | Habitat fragmentation, Degradation of habitat | N/A | N/A | Additional habitat fragmentation, Additional degradation of habitat |
| Farmlands | Increased impervious cover | Changes in land use | Reduced access to farmland | Additional changes in land use, Additional reduced access to farmland, Additional increase in impervious cover |

| Resource | Encroachment/Alteration | | Access Alteration | Project-Influenced Development Effects |
|---|---|---|---|---|
| | Ecological | Socioeconomic | | |
| Vegetation | Reduction in diversity, Reduction in vegetation | Change in perceived quality of the natural environment | N/A | Additional reduction in diversity, Additional reduction in vegetation, Additional change in perceived quality of the natural environment |
| Socio-economics | N/A | Changes in local economy, Changes in travel patterns, Changes in neighborhood stability | Changes in access to services | Additional changes in local economy, Additional changes in travel patterns, Additional changes in neighborhood stability, Additional changes in access to services |
| Public Facilities and Services | N/A | Increased use of public facilities and services | Changes in access to services | Additional changes in access to services, Additional increased use of public facilities and services |
| Relocations and Displacements | N/A | Increased relocations and displacements | N/A | Additional increased relocations and displacements |
| Air Quality | Development-induced reduction in air quality | N/A | N/A | Additional development-induced reduction in air quality |
| Land Use | Increased impervious cover | Change in perceived quality of the natural environment | N/A | Additional increased impervious cover, Additional change in perceived quality of the natural environment |
| Employment | N/A | Increased opportunities for employment | Changes in access to employment centers | Additional changes in access to employment centers, additional increased opportunities for employment |
| Mobility | N/A | Changes in travel patterns | Changes in access to services | Additional changes in travel patterns, Additional changes in access to services |
| Population density and residential development | N/A | Changes in neighborhood stability | Changes in access to potential development | Additional changes in neighborhood stability, Additional changes in access to potential development |
| Aesthetics | N/A | Change in perceived quality of the natural environment | N/A | Additional change in perceived quality of the natural environment |
| Tax base | N/A | Changes in local economy | N/A | Additional changes in local economy |

| Resource | Encroachment/Alteration | | Access Alteration | Project-Influenced Development Effects |
|---|---|---|---|---|
| | Ecological | Socioeconomic | | |
| Commercial development | N/A | Increased opportunities for development | Changes in access to potential development | Additional increased opportunities for development, Additional changes in access to potential development |

## 10.1 Step 1: Scoping

The purpose of Step 1 is to establish the context for the indirect effects analysis. Information that has been collected includes:

- GeoSearch Radius Report
- 2008 Draft Clean Water Act (CWA) Segment 303(d) list
- NCTCOG demographic projection data
- NRCS Soil Survey of Collin County, Texas
- NWP 14, Linear Transportation Crossings
- TPDES General Permit No. TXRI50000
- TPWD Vegetation Types of Texas
- US Census data
- USFWS and TPWD threatened and endangered species lists

A review of these documents was conducted to determine the general direction of study and level of effort required to complete the analysis, and the location and extent of the study area. The indirect effects area of influence (AOI) is often a combination of various boundaries to include political or geographic boundaries, watershed or habitat boundaries, and the project's commuteshed. For this study watersheds, vegetation types, census geographies, population growth, roadway networks, land use development patterns, and political jurisdictions were considered. The AOI is shown in **Figure 5**.

When these factors were overlaid onto each other, it was determined that the most appropriate AOI is defined by a combination of these considerations with a strong deference to the anticipated influence of induced development effects within developable land near the project area. The anticipated areas of growth are within the jurisdictional authority of the municipalities to actively manage land use development therein.

The AOI boundary takes into account the potential for development or redevelopment that could be influenced by the proposed project. Because the proposed project is integral to access in the overall transportation network of the area, much of the AOI boundary is comprised of existing roadways.

The logic for setting the AOI boundaries is summarized as follows. FM 1461 is the northern boundary of the AOI. Areas further north of this location would be unaffected by access and homes and businesses north of this would generally be better served by using FM 1461 as a parallel route. Eldorado Parkway is used as a south boundary of the AOI. Areas further south of this location would be unaffected by access and homes and businesses north of this would generally be better served by using Eldorado Parkway as a parallel route. An additional southern boundary south of the proposed project is Virginia Parkway. Areas further south of this boundary are fully developed.

Doe Branch Creek and Wilson Creek are the northwest and northeast boundaries of the AOI. Areas further northeast or northwest would be unaffected by access, and the boundary has limited traffic crossings. The easternmost boundary of the AOI is Lake Forest Drive. Areas further east of this boundary are fully developed. An additional eastern boundary south of the proposed project is Custer Road. Areas further east of this boundary are fully developed. The westernmost boundary of the AOI is FM 423. Areas further west of this location would be unaffected by access and are removed from the project area by several miles.

The temporal boundaries for the indirect effects analysis are from present to 2035 based on readily available population growth and projected population estimates of Collin County and the municipalities of Frisco, McKinney, and Prosper and Mobility 2035 Metropolitan Transportation Plan. The 2035 time frame was also established to correlate with various planning documents that have the year 2035 planning horizon.

## 10.2 Step 2: Identify the Study Area's Goals and Trends

The second step assembles information on the general trends (referred to as "directions" in NCHRP Report 466) and goals (local plans and policies generally spelled out the goals for the area within the study area). These trends and goals are independent of the proposed transportation project and concern social, economic, ecological, and growth-related issues.

### 10.2.1 Goals

#### 10.2.1.1 Identify local entities

The study area goals are identified by first identifying the local government entities that develop goals for the area. These entities include the City of Frisco, the City of McKinney, the Town of Prosper, and Collin County. These entities have readily available data on their respective goals for the area as outlined in **Table 14.**

#### 10.2.1.2 Plans, Policies, and Local Ordinances

The following plans and policies that apply to the indirect effects AOI were developed to promote, guide, and monitor various development activities ranging from regional transportation infrastructure to commercial development aesthetics:

***NCTCOG Mobility 2035: The Metropolitan Transportation Plan***

This plan defines transportation systems and services in the DFW metropolitan area. It serves as a guide for the expenditure of state and federal funds through the year 2035. The plan addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating system alternatives, and selecting those options that best meet the mobility needs of the region.

***City of Frisco Hike and Bike Trail Master Plan***

The City of Frisco has developed a comprehensive Hike and Bike Trail Master Plan to facilitate the movement of pedestrians and cyclists in a safe and efficient manner within the City transportation network of thoroughfares, collector streets, and open spaces. The principal goal of the planning effort was to make Frisco a bicycle and pedestrian friendly community by determining how and where to provide safe trail linkages to schools, businesses, parks and open space. The Trail Master Plan shows the potential development of a citywide, hierarchical system of trails that will achieve the goal of making Frisco a leader in the Metroplex for providing Frisco residents with safe and efficient recreational and commuter hiking and biking trails.

The Trails Master Plan document consists of written guidelines and trail maps. The Trail Master Plan maps show three levels of trails: Open Space Trails, On-Street Bike Routes, and Off-Street Trails and Walks. All Frisco Hike and Bike Trail maps included in this study are based on the City's *2006 Comprehensive Plan*.

***City of Frisco 2006 Comprehensive Plan***

The 2006 Comprehensive Plan is intended to be a dynamic, adaptable guide to help citizens and officials shape Frisco's future on a continual, proactive basis. Preparing for growth can help Frisco's leaders maximize the future benefits of that growth for citizens. The product of this comprehensive planning effort that the City has undertaken will be a *2006 Comprehensive Plan* document that the City can use in the years to come to effectively manage and maximize its ever-changing environment.

***City of McKinney Comprehensive Plan***

According to the City of McKinney's Comprehensive Plan, the plan establishes a basis for continued planning activities designed to produce the best possible decisions about a community's future. The framework for other planning activities, ranging from urban

design plans to public health and safety regulations, are developed from the ideas expressed in the comprehensive plan document for McKinney.

***Town of Prosper Comprehensive Municipal Master Plan***

The *Town of Prosper Comprehensive Master Plan*, May 2005, the planning process included a broad, extensive, and inclusive process of public participation. Public involvement went through several phases with much public debate over changes made to the plan from phase to phase. Public involvement included stakeholder participants including residents, property owners, local businesses, elected officials, Town staff, other consultants to the Town of Prosper, and other jurisdictions influencing and regulating rights of way within the Town and its extra territorial jurisdiction (ETJ).

***Town of Prosper 2007 Parks, Recreation and Open Space Master Plan***

According to this plan, recreation plays an important role in the quality of life in the Town of Prosper by providing a healthier environment, improving the well being of children and young adults, and reducing the potential for crime in the Town. The plan acts to provide guidance for future parks and recreation development by including public input. The *Parks, Recreation and Open Space Master Plan* refers to “parks” as land dedicated to outdoor areas programmed for “recreation,” and “open space” as land dedicated for conservation and preservation due to its ecological value, wildlife habitat quality, cultural significance, and its functional roles to assist with flood management.

#### 10.2.1.3 Stated Goals

Phone, email, and conference communications with the City of Frisco, City of McKinney, Town of Prosper, and Collin County planners and officials have taken place to discuss goals, trends, and growth patterns. The local government of the Town of Prosper supports the proposed project and desires the completion of improvements along US 380. The comprehensive plans of the City of Frisco, the City of McKinney and the Town of Prosper, and communications with city planners have identified the SH 289 expansion project as a component of projected growth goals.

In June of 2011, discussions took place with planning staff for the Town of Prosper and the City of Frisco. The Director of Development Services for Prosper and the Planning and Zoning Manager for Prosper both stated that no conflicts are expected as the Town of Prosper has planned for the future US 380 widening. The proposed project was stated to be vital in meeting the demands of future development for the Town of Prosper.

In June 2011, discussions took place with planning staff of the City of McKinney. It was confirmed that no conflicts are expected related to the future US 380 widening. The

proposed project was stated to be vital in meeting the demands of future development for the surrounding area, and the project would likely spur development in the area.

A summary of the stated goals for the communities of Frisco, McKinney, and Prosper are located in **Table 14**.

**Table 14 Stated Goals of the City of Frisco, City of McKinney, and Town of Prosper**

| ECONOMIC AND LAND DEVELOPMENT GOALS |
|---|
| City of Frisco, Texas 2006 Comprehensive Plan, April 2006<br>• Employ smart growth principles to help ensure the City's future sustainability.<br>• Prioritize potential growth areas within the City and within the City's limited extraterritorial jurisdiction (ETJ).<br>• Establish a population growth model that will help the City meet needs on the basis of an officially calculated and anticipated growth rate and ultimate population.<br>• Encourage the most desirable, efficient use of land while maintaining and enhancing local aesthetics.<br>• Encourage a balance of land uses to serve the needs of citizens and to ensure a diverse economic base.<br>• Ensure that land use recommendations for development and redevelopment respect environmental factors and support innovative development.<br>• Establish land use policies that support the maintenance and enhancement of Downtown.<br>City of McKinney, Texas, Comprehensive Plan, March 2004<br>• Economic Development Vitality for a Sustainable and Affordable Community<br>• Leisure and Recreational Opportunities<br>• Financially Sound City Government<br>• Affordable City Services that Enhance the Quality of Life<br>• Well Planned Future<br>Town of Prosper 2009 Workplan<br>• Aggressively pursue and secure economic development opportunities that will capture the market.<br>• Invest in municipal infrastructure, architecture and development that reflect excellence without compromise and supports the Town of Prosper's purpose.<br>2015 Town of Prosper Council Goals established October 2007<br>• Create partnerships to spur economic opportunity.<br>• Select 200-acre location for college.<br>• Integrate gathering places in retail projects.<br>• Issue permits for the "Gates of Prosper."<br>• Open Farmers Market downtown.<br>• Open big box type of projects including Best Buy, Kohl's, Costco, Lowes, and Grocery Store.<br>• Create partnerships with public and private sectors to develop projects.<br>Town of Prosper Comprehensive Municipal Master Plan<br>• The unique qualities of the Town of Prosper must be maintained so that the future Town can be differentiated in the suburban landscape of a Dallas Metroplex.<br>• Land use policies for US 380 must be established that promote nodal commercial patterns (rather than strip commercial patterns).<br>• Guidelines for the edges of residential developments must be developed so that the identity of the Town of Prosper as seen from SH 289 is preserved as the remaining frontage is developed by residential uses.<br>• Employment centers that remain connected to, and part of, the town center. |

## STEWARDSHIP OF THE ENVIRONMENT GOALS

City of Frisco, Texas 2006 Comprehensive Plan, April 2006

- Support the creation of unique residential properties and retailing to encourage long-term stability and reinvestment.
- Reinforce the vision of Frisco as a City of excellence for residents and businesses.
- Review the City's development standards and examine ways in which such standards can be improved to achieve increased livability and sustainability.
- Encourage the development of quality housing throughout the City that meets a diversity of housing needs, for the full life-cycle of citizens.
- Recognize the importance of existing neighborhoods to the character of Frisco by implementing policies that will support their long-term sustainability and livability.
- Recognize the importance of continually ensuring that Frisco will be a safe community.

City of McKinney, Texas, Comprehensive Plan, March 2004

- Preservation of Historic McKinney
- Attractive Hometown that Promotes McKinney's Character
- Attractive Urban Design Elements (Gateways, Corridor Treatments, Edges, and View Sheds)
- Land Use Compatibility and Mix
- Protect Environmental Resources of McKinney

2015 Town of Prosper Council Goals established October 2007

- Purchase parkland.

Town of Prosper 2007 Parks, Recreation and Open Space Master Plan

- Provide a variety of recreation facilities and programs to meet the ultimate recreational needs and desires of the Town of Prosper's growing population.
- Create a park system that will improve the physical form and appearance of the Town of Prosper.
- Preserve and enhance the Town of Prosper's open space and natural resources, especially areas with topography change and/or indigenous tree cover and land prone to flooding.
- Provide an open space system that links parks, schools, greenbelts and open spaces.
- Provide a tool to coordinate multi-jurisdictional efforts with respect to issues that affect recreational opportunities in the community.
- Continue to maintain all of the Town of Prosper parks and recreational facilities in a superior and sustainable condition.
- Develop other funding mechanisms to help supplement the Town's limited funding resources.
- Include a citizen participation process in all ongoing park planning and design, as well as updating of the Parks Master Plan.
- Conduct periodic citizen surveys to monitor changes in the citizen's attitude and needs.

Town of Prosper Comprehensive Municipal Master Plan

- Care must be given to preservation of the natural assets that make the eastern areas of the Town of Prosper attractive to residential development and they must be made a part of the public realm so that they are not lost to privatization.
- Provisions for open space and trail connections along Doe Branch and its tributaries.

## EFFECTIVE ROADWAY NETWORK AND TRANSIT SYSTEM GOALS

City of Frisco, Texas 2006 Comprehensive Plan, April 2006

- Ensure that the City's transportation system is cost-effective and adequate to meet the needs of the current and projected population.
- Plan for transportation needs according to the type of development that is anticipated to be developed in the future.
- Identify how alternative modes of transportation can be incorporated in Frisco.
- Work with adjacent cities and county and state governmental entities on efforts to maintain and/or expand the transportation system.

City of McKinney, Texas, Comprehensive Plan, March 2004

- Utility and Infrastructure Systems (Water Supply, Wastewater Treatment, Storm Drainage, etc.) Adequately Serving Existing and Future Residents, Businesses, and Visitors
- A Multi-modal Transportation Network that is Clean, Safe, and Efficient
- A Managed Traffic Flow and Thoroughfare System

2015 Town of Prosper Council Goals established October 2007

- Build west service roads to DNT.
- Build transportation infrastructure including west Town of Prosper streets, east Town of Prosper widening, SH 289 expansion.

Town of Prosper Comprehensive Municipal Master Plan

- Future connections between contiguous projects must be accomplished to provide secondary routes that can function as a type of town grid and preserve the rural identity of the Farm to Market roadways.
- The special nature of the historic town center and the dynamic sense of arrival that is created should be preserved and strengthened.
- Future east/west thoroughfares in the Town of Prosper must anticipate the emergence of a development response as the market advancing along SH 289 searches for opportunities to laterally expand.
- Development of the SH 289/US 380 intersection must provide a proper portal and set up the visual entry sequence that includes the natural zone created at the outfall.
- Any road widening of SH 289 north of US 380 should be carefully considered and the rural character of the roadway preserved.
- Future road design must preserve the elements of rural character while functionally serving the traffic demand of future development.
- Planning must be started today to identify a road design that would prevent a widened SH 289 from bisecting a community and encourage a "knitting together" through east/west continuities in its local road network.
- Clear goals needs to be set for the development of SH 289 and US 380 that will establish a relationship to the future of the Town of Prosper and reinforce its Township identity.
- Reinforce the continued residential identity of SH 289 through careful reconsideration of its continued function as a State Highway.
- Enhance safe access to the Town of Prosper schools by such actions as limiting the commercial uses along SH 289, smart traffic signals, reduce SH 289 speed limit, and widening SH 289 intersections to promote safer traffic movement.

***Sources:*** *http://www.ci.frisco.tx.us; http://www.prospertx.gov/; http://www3.mckinneytexas.org*

### 10.2.1.4 Relative Importance of Goals

***Town of Prosper Comprehensive Municipal Master Plan***

The following goals were designated as the highest priority for transportation:

- Implement a thoroughfare plan that identifies the least intrusive traffic routes for higher traffic demand.
- Develop trails along existing ROW and enhance/improve existing ones.
- Encourage, promote, and acquire various means of inter-connecting the development zones of the Town of Prosper.
- Promote pedestrian, vehicular, and visual linkages within the community such as the development of trails and parks.
- Develop a thoroughfare plan that establishes an internal movement system for the Town of Prosper, which is more than an extension of roadways to the south.
- Establish connections to the Town Center and other development zones of the Town of Prosper through many forms of pedestrian/vehicular connection, including the preservations of creek ways as corridors for trails and parkway edges for the public street space.
- Create an alternate route for truck traffic that removes trucks from Broadway to SH 289.
- Identify and encourage development nodal points along the DNT Corridor and discourage continuous frontage development pattern.
- Develop a strategy for encouraging nodal development along US 380 instead of continuous edge development.

***City of Frisco, Texas 2006 Comprehensive Plan, April 2006***

The process of developing the comprehensive plan was predicated on the involvement of Frisco officials and staff, and on the cornerstone of any comprehensive planning process, public participation. A representative body of the public was appointed in December of 2004 to serve as an advisory committee for the planning process. Frisco has a citizenry that desires to be involved in the planning of the City. Twenty-three interested and highly motivated citizens were selected to serve on this representative committee, referred to as the Comprehensive Plan Advisory Committee (CPAC), to serve as the primary public interface with the Consultant Team, and provide input in terms of visioning, proposed Plan Update recommendations, and first drafts of the various Plan elements, prior to their submittal for consideration to the general public, the Planning and Zoning Commission, and the City Council.

### 10.2.1.5 Assumptions

***Assumptions from the City of Frisco 2006 Comprehensive Plan***

The *City of Frisco 2006 Comprehensive Plan* is intended to be a dynamic, adaptable guide to help citizens and officials shape Frisco's future on a continual, proactive basis.

***Assumptions from the City of McKinney 2004 Comprehensive Plan***

The City of McKinney Comprehensive Plan is intended to direct the long-term physical development and growth of the City for the next five to ten years.

**Assumptions from the *Town of Prosper Comprehensive Municipal Master Plan***

The *Town of Prosper Comprehensive Municipal Master Plan* was prepared anticipating that most of the growth in the next 12 to 50 years would be residential due to the restraints put on commercial development by the congestion of US 380. The lack of commercial development would encourage residential development in search of rural environmental qualities in communities such as the Town of Prosper.

Unlike the City of Frisco and the City of McKinney, the Town of Prosper has no substantial development attractors (or development centers) north of their location. This suggests that traffic volumes, which support retail/ commercial development in the City of Frisco, may not be as evident in the Town of Prosper along SH 289. Without substantial neighboring activity, the Town of Prosper would not emerge as a zone of confluence; it would likely be an "edge" community defining the major development zone.

The Town of Prosper lies just inside a "triangle" defined by the boundaries of the Cities of Dallas, Denton, and McKinney. All areas within this triangle have seen dramatic growth over the past three years. Traffic flows along the east-west US 380 would represent trips to work or residential locations away from the Town of Prosper. It is expected that residential development would create a disconnect between place of work and residence. Therefore, new residents of the Town of Prosper would likely work at locations south of the town.

### 10.2.2 Trends

Existing land use in the area is described in **Section 8.** As previously discussed in the Regional Growth and Socioeconomics sections of this document, the North Central Texas region has experienced rapid population and employment growth during the last three decades. It is projected that the City of Frisco, the City of McKinney, and the Town of Prosper would experience a large increase in population and employment from the year 2011 to the year 2035. Trends in the project area suggest a strong trend towards development of undeveloped land. The comprehensive plans of the City of Frisco, the City of McKinney, and the Town of Prosper as well as communications with city planners have identified the US 380 expansion project as a component of that growth.

Available information from NCTCOG, Collin County, the City of Frisco, City of McKinney, and Town of Prosper indicate consistency between the proposed project and current and future land use plans. However, based on growth patterns seen in NCTCOG and LOS data, implementation of the proposed project would likely speed up the rate of development of adjacent areas.

#### 10.2.2.1 Other Indicators of Growth

School District Enrollment

The indirect effects AOI is within the Frisco, McKinney, and Prosper Independent School Districts (ISDs). **Table 15** summarizes the four-year growth rate of these school districts.

**Table 15 School District Enrollment for the City of Frisco, City of McKinney, and Town of Prosper**

| District Name | 2005-2006 Enrollment | 2006-2007 Enrollment | 2007-2008 Enrollment | 2008-2009 Enrollment | 2009-2010 Enrollment | 5-Year Growth | Percent Growth |
|---|---|---|---|---|---|---|---|
| Frisco ISD | 19,765 | 23,649 | 27,256 | 30,584 | 33,757 | 13,992 | 70.8% |
| McKinney ISD | 19,534 | 21,073 | 22,276 | 23,261 | 23,774 | 4,240 | 21.7% |
| Prosper ISD | 1,813 | 2,218 | 2,665 | 3,115 | 3,627 | 1,814 | 72.4% |

***Source**: http://ritter.tea.state.tx.us/cgi/sas/broker*

As shown in **Table 15**, student enrollment in the Frisco ISD increased approximately 71 percent over five years. Enrollment in the McKinney ISD has increased approximately 22 percent over five years. Enrollment in the Prosper ISD has increased approximately 72 percent over five years.

NCTCOG Development Monitoring

The NCTCOG maintains a development monitoring database that tracks developments that exist, are under construction, are announced, or are in the conceptual stages within the 9-County NCTCOG metropolitan planning area. **Table 16** provides a summary of developments that are either under construction or announced within the AOI.

**Table 16 NCTCOG-Identified Developments**

| Map # | Development Name | Type | City | Status | Approximate Size (acres) | Units/Lots |
|---|---|---|---|---|---|---|
| 1 | Alta Cobb Hill | Multi-Family Residential Apartment | Frisco | under construction | 85 | 340 Units |
| 2 | Artesia Development | Single-Family Residential Subdivision | | under construction | 63 | 252 Lots |
| 3 | Brookhollow | Single-Family Residential Subdivision | | announced | 625 | 2500 Lots |
| 4 | Forest City Development | Multi-Family Residential Apartment | Prosper | announced | 75 | 300 Units |

| Map # | Development Name | Type | City | Status | Approximate Size (acres) | Units/Lots |
|---|---|---|---|---|---|---|
| 5 | Forest City Development - Townhomes | Multi-Family Residential Townhome | | announced | 75 | 300 Units |
| 6 | Gates Of Prosper | Retail Commercial Shops | Prosper | announced | 57 | N/A |
| 7 | Grayhawk | Single-Family Residential | Frisco | under construction | 362 | 1446 Units |
| 8 | Miramonte - Sf | Single-Family Residential Subdivision | | announced | 206 | 825 Units |
| 9 | Newman Village | Single-Family Residential Subdivision | Frisco | under construction | 138 | 550 Units |
| 10 | Paloma Creek | Single-Family Residential Subdivision | Prosper | under construction | 1000 | 4,000 Units |
| 11 | Paloma South | Single-Family Residential Subdivision | Frisco | under construction | 1,000 | 4,000 Units |
| 12 | Panther Creek Estates | Single-Family Residential Subdivision | Frisco | under construction | 53 | 209 Units |
| 13 | Prosper Plaza | Retail Commercial Stripcenter | Prosper | announced | 8 | |
| 14 | Ridgecrest (McKinney) | Single-Family Residential Subdivision | McKinney | under construction | 25 | 100 Units |
| 15 | Shops On The Green | Retail Commercial Stripcenter | McKinney | announced | 10 | |
| 16 | Tucker Hill | Single-Family Residential Subdivision | McKinney | under construction | 525 | 2,100 Units |
| 17 | Verona | Single-Family Residential Subdivision | McKinney | announced | 38 | 150 Units |
| 18 | Virginia Hills | Single-Family Residential Subdivision | McKinney | under construction | 163 | 650 Units |
| 19 | West Prosper 150 Development | Single-Family Residential Subdivision | | announced | 226 | 902 Units |
| 20 | Westridge (DR Horton) | Single-Family Residential Subdivision | McKinney | under construction | 1,000 | 4,000 Units |

**assumes a quarter-acre unit size for total size approximation*

***Source:*** *NCTCOG*

## 10.3 Step 3: Inventory of Study Area's Notable Features

### 10.3.1 Inventory of Notable Features

The term "notable features" includes specific valued, vulnerable, or unique elements of the environment. They may include sensitive species habitats, features with relative uniqueness, and valued environmental components (NCHRP 466). **Table 17** provides an inventory of the base-line issues and resources identified as potential notable features with a probability to be indirectly impacted within the defined study area. This inventory provides the potential resources against which the proposed project may be assessed.

**Table 17 Notable Features in the AOI**

| Feature | Description | Location | Sensitive Species and Habitats | Valued Environmental Components | Relative Uniqueness Recovery Time, Unusual Landscape Features | Vulnerable Elements of the Population |
|---|---|---|---|---|---|---|
| Historic Town | Existed between SH 289 and the railroad track. The heart of the Town of Prosper. | Town of Prosper | | | ● | |
| Railroad | Depot established in 1902. The railroad shaped the development of the Town of Prosper. | Town of Prosper, and surrounding areas | | | ● | |
| Farmland | Land settled and the basis for agrarian lifestyle/culture and community development. Majority of land use. | Town of Prosper, and surrounding areas | | | | ● |
| Doe Branch and Wilson Creek | The creeks play an important role in the community for their ecological, floodplain, recreational, and aesthetic values. | Town of Prosper | ● | ● | | ● |

| Feature | Description | Location | Sensitive Species and Habitats | Valued Environmental Components | Relative Uniqueness Recovery Time, Unusual Landscape Features | Vulnerable Elements of the Population |
|---|---|---|---|---|---|---|
| Town Lake Park | Undeveloped city park with well established riparian habitat and vegetation around the lake. | Town of Prosper | ● | ● | ● | |

## 10.4 Step 4: Identify Impact-Causing Activities of Proposed Action and Alternatives

Understanding the project design features, and the activities the project would entail that could affect potential notable features and goals, and the range of impacts that may be caused is the first step toward identifying indirect effects. NCHRP 466 identifies 10 general categories of project impact-causing activities. These are reviewed and considered in light of the proposed project activities.

### 10.4.1 Modification of Regime

The project would disturb roughly 50 acres of land including new pavement, median, etc. and add approximately 22.8 acres of impervious cover in the existing ROW, proposed ROW, and proposed drainage easements. The highest erosion risk period is during construction; however, impacts can occur during the post-construction phase as well. Roadway runoff after construction would have increased levels of roadway pollutants. BMPs would be used during and after construction activities to protect surface water quality.

There are no substantial natural plant communities or native prairie remnants that would be affected by the proposed project. Impacted vegetation within the ROW is composed of riparian vegetation and common roadside grasses associated with the maintained ROW. Areas outside of the existing ROW are improved pasture (i.e., livestock grazing), crops, and ornamental landscaping consistent with residential properties.

The proposed project would not increase the base flood elevation to a level that would violate the applicable floodplain regulations or ordinances.

### 10.4.2 Land Transformation and Construction

From the Denton/Collin County Line to FM 2478 (Custer Road), the proposed project would widen the road from 4 to 6 lanes, and would increase the overall width of the facility by 34 to 50 ft. Select fill (specially graded base materials) material and asphalt would be needed to construct the new lanes and turn lanes. The source of these materials would remain unknown to TxDOT but are almost exclusively from existing commercially available sources. Also, by nature of involving exposed soils, this impact causing activity poses the same risks for water quality, etc. as described in **Section 10.4.1**.

### 10.4.3 Resource Extraction

This impact causing activity poses the same risks for water quality, etc. as described in **Section 10.4.1**.

### 10.4.4 Processing

Temporary storage facilities may be established within the project limits. Appropriate erosion and sedimentation controls would be utilized as needed to protect water quality. Storage of materials would likely occur off-site. If the contractor chooses to use undeveloped land or another location for material storage, impacts to natural resources may increase.

### 10.4.5 Land Alteration

The project would add approximately 22.8 acres of impervious cover in the existing ROW, proposed ROW, and proposed drainage easements. This impact causing activity poses the same risks for water quality, etc. as described in **Section 10.4.1**.

### 10.4.6 Resource Renewal

The project would not involve these activities, although disturbed soils would be revegetated as necessary.

### 10.4.7 Changes in Traffic (including adjoining facilities)

It is anticipated as a result of the project that some people would shift their preferred travel routes to take advantage of the improvements. This is referred to as latent demand. No studies have been performed to estimate the amount of latent demand for this roadway, but it is anticipated such demand would be minimal, based on the public involvement conducted during the planning process. Major changes in traffic patterns are not anticipated.

Travel time and traffic volumes (and perceived/real economic impact) are key transportation measures for estimating impacts on residential and commercial development. Larger volumes that result from transportation improvements could support an increase of demand and prices for retail properties along a corridor, which in turn contributes to the potential for land use changes. Key questions are whether that potential is sufficient to cause property owners and developers to build faster and differently than they would have, and whether the comprehensive plans would have to be changed in any substantial way (e.g., zoning, comprehensive plan designations, city limits, urban growth boundaries) to allow that change in development. Key transportation variables of interest for land use analysis are change in travel time, traffic volumes, and mobility.

### 10.4.8 Waste Emplacement and Treatment; Landfill, Waste Discharge

The contractor, when selected would provide portable sanitary facilities for employees at the field office. No sanitary waste discharge is anticipated. Any sanitary wastes generated at construction field offices would be contained in appropriate waste containers and serviced regularly.

### 10.4.9 Chemical Treatment

Minimal use of fertilizer is anticipated during revegetation. None of the slopes which will be revegetated have been preliminarily designed to be steeper than 3:1 in grade, therefore, no chemical binders are anticipated. Periodic applications of herbicide may occur during the maintenance phase of the project.

Overuse and improper application of fertilizers can pose risks to surface and groundwater quality. Similarly, the runoff of pollutants such as these poses potential risks to water quality. Fertilizers are only used, if at all, during the revegetation phase of TxDOT construction. No fertilizers are used in the ROW after the revegetation phase. TxDOT uses inert sand materials for ice control, and these are only applied on bridges and large culverts as necessary due to weather-related road safety issues.

### 10.4.10 Access Alteration

The introduction of a raised median along US 380 would restrict left turn ingress and egress onto US 380 along the project. This design could affect commercial driveways, residential streets, and residential driveways. Existing and proposed thoroughfares have been accommodated in the proposed design. The raised median is intended to support the overall goals of improved safety and mobility.

## 10.5 Step 5: Identify Potentially Substantial Indirect Effects for Analysis

Based on the information in Steps 1 through 4, indirect effects are identified. Step 5 examines the likelihood for substantial indirect effects associated with the Build Alternative. The potential indirect effects were divided into three primary categories, summarized in **Table 18**.

### Table 18 Types of Indirect Effects

| Indirect Effect | Description |
|---|---|
| Encroachment-alteration effects | Are related to impact-causing activities identified in Step 4.<br>*Ecological effects* - Potential indirect ecological effects include: habitat fragmentation, degradation of habitat, disruption of natural processes, pollution effects on species, and disruption of ecosystem functioning. These effects are interrelated, and must be examined in terms of the interconnections within the ecological organization. Analysis of indirect ecosystem effects must also consider the ability of that ecosystem to respond to change. |
| | *Socioeconomic effects* - The two major types of direct encroachment effects include: 1.) changes in travel patterns and access; and 2.) direct relocation or alteration of homes, businesses, or public facilities/community centers. These impacts may lead to effects on neighborhood cohesion, neighborhood stability, travel patterns, changes in the local economy, changes in access to specific services or products, recreation patterns at public faculties, pedestrian dependency and mobility, perceived quality of the natural environment, personal safety and privacy, and aesthetic and cultural values. |
| Induced growth effects | Transportation projects may provide new or improved access to adjacent land, or may reduce the time-cost of travel, which increases the attractiveness of the surrounding land to developers and consumers. Effects may include changes in accessibility, changes in property value, expected growth, the relationship between land supply and demand, availability of public services, market factors, and public policy. |
| Effects related to induced growth | Effects are similar to encroachment-alteration effects, but occur as a result of induced growth. If induced growth is anticipated, the effects of that growth must be analyzed. |

### 10.5.1 Encroachment-Alteration Effects

#### 10.5.1.1 Encroachment-Alteration Effects (Ecological)

As a result of sediment from the project and increased traffic, minimal water quality and soil degradation is expected during the construction phase and operation phase of the project. Due to the increased distance involved in crossing the road and higher traffic volume, it is possible that there could be a slight increase in the numbers of animals struck by vehicles. However, because the roadway already exists and project improvements are not expected to substantially change the current condition, this type of effect is not carried forward to Step 6.

Increased traffic could result in a higher probability of hazardous material spills, contaminating adjacent soils and waterways. Increased traffic also slightly increases the amount of litter and debris along the roadway. Substantial ecological encroachment-alteration effects are not expected as a result of the project.

#### 10.5.1.2 Encroachment-Alteration Effects (Socioeconomic)

Because US 380 already exists and traverses the City of Frisco, City of McKinney and Town of Prosper, it is not anticipated that substantial socioeconomic encroachment-alteration effects would occur as compared to construction of a new location roadway or bypass. Therefore socioeconomic encroachment-alteration effects are not carried forward to Step 6.

With regard to air quality, The AOI is part of the EPA designated nine-county nonattainment area for ozone. The AOI is currently in attainment for all other NAAQS pollutants. Based on the results of Steps 1 through 4 that evaluated the possible project-related actions that can indirectly impact air, it was determined that the proposed project would not be anticipated to cause indirect air quality impacts in the AOI. No change in attainment status is anticipated within the AOI area as the result of emissions associated with the proposed project. In order for the region to achieve ozone attainment, a variety of point, non-point, and mobile source emission reduction strategies must be implemented for the entire Dallas-Fort Worth area, as outlined in the SIP. Indirect air quality impacts from MSATs are unquantifiable due to existing limitations to determine pollutant emissions, dispersion, and impacts to human health. Emissions would likely be lower than present levels in future years as a result of the EPA's national control regulations (i.e., new light-duty and heavy duty on road fuel and vehicle rules, the use of low sulfur diesel fuel). Even with an increase in VMT and possible temporary emission increases related to construction activities, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions of on road emissions, MSATs, and the ozone precursors VOC and NOx. As the proposed project is not anticipated to result in indirect air quality impacts, further discussion in Steps 6-8 below is not necessary.

### 10.5.2 Induced Growth/Access Alteration Effects

The improved proposed roadway would facilitate and expedite access to other roadways, decreasing congestion and improving mobility throughout the roadway/transportation network of the AOI. Because of improved access, the proposed project would likely benefit existing businesses along US 380. It is expected that there would be a temporary disruption to travelers as a result of construction activities. It is anticipated that some commercial businesses would lose direct left turn lane ingress and egress access as a result of the incorporation of raised medians in the urban

section of the project. Changes in access to the roadway due to the design profile and increased medians could limit access to agricultural fields adjacent to the roadway. Induced land development will be assessed for potentially substantial effects in Step 6.

Improved access coupled with development trends in the City of Frisco, City of McKinney, and Town of Prosper, given their proximity to the Dallas Metroplex, indicate that induced development would occur in the AOI of the planning horizon. Induced growth/access alteration effects will be analyzed in Step 6.

Access to Rodgers Middle School would be affected during construction activities. These effects include pedestrian safety near the school. Current land use suggests very limited pedestrian activity around the middle school. Access to the high school and other schools in the area would be enhanced after completion of the project. Improvements to the roadway are expected to decrease congestion and improve mobility and access to local businesses and attractions. Substantial socioeconomic encroachment-alteration effects are not expected as a result of the project.

#### 10.5.2.1 Economic and Land Development

#### 10.5.2.2 Farmland

According to the Farmland Protection Policy Act of 1981 (FPPA), prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food and other agricultural crops. Unique farmland is defined as land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary of Agriculture.

Indirect impacts of the proposed project would contribute to an effect on the visual character and identity of the town and surrounding area, socio-economic conditions, and historic integrity with the loss of agrarian lifestyles/culture. Development of land used for agriculture is often a consequence of rural roadway projects. As discussed in NCHRP 466, transportation improvements often reduce the time-cost of travel, enhancing the attractiveness of surrounding land to developers and consumers. Including the rural areas, approximately 56 percent of the indirect effects AOI is vacant land available for development, and most of this has areas where row crops were identified and is classified as farmland. This determination was made by the process described in **Section 10.6**. Induced growth effects on farmland will be assessed for potentially substantial effects in Step 6.

### 10.5.3 Effects Related to Induced Growth

**Table 19** summarizes the relationships of the identified goals and notable features and the potential for the project to have a substantial indirect effect.

## Table 19 Summary of Anticipated Substantial Indirect Effects

| Goals and Notable Features | Potential to be Substantially Affected by Land Use Development | Proposed Project's Potential Indirect Effects on Goals and Notable Features | Proposed Project's Potential Effects on Goals and Notable Features due to Induced Land Use Development |
|---|---|---|---|
| Goals | | | |
| Economic and land development | Strong | Improved access, increased tax base from induced growth effects, increased attractiveness to developers | Yes – strong positive potential effect |
| Effective roadway and transportation network | Moderate | Slightly improved connectivity to existing and proposed roadways | No, moderate relationship – slight effect |
| Stewardship of the environment | Weak | Sustainable development, zoning development/planning, incorporation of green space, increase in population effects | No, weak relationship – weak effect |
| Notable Features | | | |
| Grain Elevators, Water Tower, Railroad Depots, Historic Town, and Downtown Square | Weak | Visual character and identity of the town, historic integrity, and socio-economic conditions; disconnect from the fabric of the larger community between new developments. Resources are protected by goals in comprehensive plan. | No, weak relationship – weak effect |
| Farmland | Strong | Effect on the visual character and identity of the town, socio-economic conditions, and historic integrity with the loss of agrarian lifestyles/culture. | Yes – strong potential effect |
| Doe Branch, Parvin Branch, Rutherford Creek, and Wilson Creek | Weak | Loss of ecological diversity and natural settings along with the degradation of water quality. Jurisdictional water features and wetlands would be protected by Sections 401 and 404 of the Clean Water Act and TCEQ regulations. | No, weak relationship - weak effect |
| Town Lake Park | Weak | Loss of riparian habitat and vegetation, and degradation of water quality. The Town of Prosper has identified Town Lake Park as an important feature to the community's opportunities for recreation as well as preserving natural resources and providing open greenspaces and natural viewsheds. | No, weak relationship - weak effect |

### 10.6 Step 6: Analyze Indirect Effects and Evaluate Results

The objective of this step is to assess the effects identified in Step 5 by determining magnitude, probability of occurrence, timing and duration, and degree to which the effect can be controlled or mitigated to determine if those effects have the potential to

be substantial. Because of the strong relationship between highway improvements and economic and land development, the induced growth effects have been identified as potentially substantial. The land use types within most of the AOI were determined using visual interpretations of aerial photography. Areas where large stands of trees were identified were classified as wooded. Areas where sparse vegetation was present with grasslands were classified as pasture. Areas where roads and houses were identified were classified as developed. Areas where row crops were identified are classified as farmlands. Areas inside the 100-year floodplains were classified as floodplains. Areas that are currently wooded, pasture, or farmland were considered to be potentially developable lands. Using this classification system, **Figure 5** depicts the land use types within the AOI.

As a result of Step 5, economic and land development and farmland were identified as potentially substantial indirect effects. Each of these is further analyzed below. Because the analysis assumes certain development timeframes and boundaries and because of the predictive nature of the analysis, there is a degree of uncertainty involved.

### 10.6.1 Economic and Land Development

**Table 20** summarizes the amount of developed and undeveloped land within the AOI. Approximately 56 percent of land within the AOI is undeveloped (**Figure 5**).

**Table 20 Land Development within the AOI**

| Description | Approximate Area (Acres) | Approximate Percentage of AOI |
|---|---|---|
| Developable land currently undeveloped within AOI | 19,697 | 56.1% |
| Currently developed land within AOI | 13,966 | 39.8% |
| Undevelopable land within AOI | 1,432 | 4.1% |
| **Total** | **35,095** | **100.00%** |

**Table 20** demonstrates that there are approximately 19,697 acres of undeveloped land considered to be developable within the AOI.

In evaluating the extent of the economic and land development indirect effects, an assumption was made to consider 75 percent of all remaining developable lands in the AOI to be fully developed by the end of the temporal boundary timeframe (2035). This assumption was developed utilizing the demographic forecasts for Collin County and the respective communities in the AOI. This assumption was also developed in

coordination with local planning representatives and experts. It is assumed that 25 percent of remaining available developable land would be preserved for parks and open space within the community, or be developed farther in the future. It is projected that an additional 14,773 acres would be developed in the AOI by 2035.

### 10.6.2 Farmland

Recent trends indicate that further development is likely and induced growth effects may have the potential to be substantial on farmlands within the AOI. Approximately 39.8 percent of land within the AOI is farmland. Prime and unique farmlands fall under the jurisdiction of the USDA through the FPPA.

Based on growth patterns seen in NCTCOG, roadway LOS data, and input from City/Town representatives, implementation of the proposed project would likely speed up the rate of development of adjacent areas. Much of the land in the AOI is in the process of conversion to another use, and rezoning requests may be in process. Conversion of farmlands to other uses, including developed land uses, development often occurs at a greater rate in tracts of farmland that are nearer the urbanized areas.

Indirect impacts of the proposed project would contribute to an effect on the visual character of the AOI including historic integrity with the loss of agrarian lifestyles/culture.

In evaluating the extent of the farmlands effects, an assumption is made to consider 75 percent all farmlands in the AOI fully developed by the end of the temporal boundary timeframe (2035). It is predicted that 10,078 acres would be converted from existing farmland by 2035 within the AOI.

## 10.7 Step 7: Assess Consequences and Consider/Develop Mitigation

Of the potential indirect impacts on notable goals and features, only two were considered to have a substantial indirect impact. These include farmland, and economic and land development.

### 10.7.1 Farmland

In areas south of the AOI, the suburbs of Plano and Frisco are known to have developed from small farming communities. This land conversion has occurred over many decades of development with the result that very little farmland is available in those areas. This northward growth trend outward from the Dallas Metroplex suggests a similar outcome for the farmland in the AOI of the proposed project.

There are Federal regulations and controls in place to protect farmland and offset impacts of induced development. Prime and unique farmlands fall under the jurisdiction of the U.S. Department of Agriculture (USDA) through the FPPA. The NRCS

administers the regulations and provides guidance for the completion of USDA Form CPA 106 for corridor-type projects with potential impacts to prime and unique farmlands. The FPPA was enacted based on concerns that millions of acres of farmland were being lost to development each year. The issue was identified in the National Agricultural Land Study of 1980-81 resulting in the need for the US Congress to implement policies to protect farmlands and minimize urban sprawl. As a result, prime and unique farmlands are protected by Section 1540(b) of the FPPA 7 USC 4201(b), which proposes to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmlands to non-agricultural uses.

In addition to Federal controls, city and county land use development regulations provide protection for natural resources and farmland as a measure to protect and retain the local historical rural farming character of the area. Indirect impacts to farmland would not conflict with local comprehensive plans. No impacts to sensitive or vulnerable notable features or interference with planned improvement of a notable feature are anticipated. It is anticipated that mitigation for indirect effects to farmland is not warranted.

### 10.7.2 Economic and Land Development

Indirect impacts to land and economic development would be substantial but are considered beneficial and follow the comprehensive plans of the City of Frisco, City of McKinney, and the Town of Prosper. No impacts or conflicts with these local comprehensive plans are anticipated. No impacts to sensitive or vulnerable notable features or interference with planned improvement of a notable feature are anticipated. The projected indirect effects indicate that mitigation for indirect effects to land and economic development is not warranted.

## 11 CUMULATIVE IMPACTS

Cumulative effects are defined as effects "on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (National Environmental Policy Act [NEPA] Section 1508.7, 1978). According to *TxDOT's 2010 Guidance on Preparing Cumulative Impact Analyses*, "NEPA analyses must include useful evaluation of the cumulative impacts of the past, present, and reasonably foreseeable project actions."

In accordance with TxDOT's September 2010 Guidance, the analysis of cumulative effects addresses the following steps in **Table 21.**

## Table 21 Cumulative Impact Analysis Steps

| Step | Description | Explanation |
|---|---|---|
| 1 | Identify the resources to consider in the analysis | Identify the resource(s) to consider in the analysis. |
| 2 | Define the study area for each affected resource | Cumulative impacts are considered within spatial and temporal boundaries. Geographic and temporal boundaries would be defined for each resource. |
| 3 | Describe the current health and historical context for each resource | The current condition and stability of the resource would be described. Historical context would be provided to assist in determining how the resource got to its current state. |
| 4 | Identify direct and/or the indirect impacts that may contribute to a cumulative impact (Analysis is required if either a direct or impact is identified for a particular resource.) | The impacts of the proposed project in combination with impacts of other past, present and reasonably foreseeable projects would be assessed. |
| 5 | Identify other reasonably foreseeable actions that may affect resources | Current and reasonably foreseeable transportation and non-transportation projects within the study area for each resource in the cumulative impacts section would be identified and assessed as to its impact on the resource. |
| 6 | Assess potential cumulative impacts to each resource | Discuss the potential cumulative impacts on a resource resulting from the proposed project and other reasonably foreseeable actions. |
| 7 | Report the results | This summary would include the identification of resources considered in the analysis, the study area for each resource and the conclusions concerning the health and historical context of understanding the resource. Project impacts that might contribute to a cumulative impact, other reasonably foreseeable actions considered in the cumulative impact analysis and the conclusion of the analysis would be presented. |
| 8 | Assess and discuss mitigation issues for all adverse impacts | NEPA regulations call for the consideration of mitigation for all adverse impacts whether direct, indirect or cumulative. If it is not possible to identify a mitigation measure, then the agencies that have regulatory authority over the resource and the actions the agency can take to influence the sustainability of the resource would be presented. |

### 11.1 Step 1: Identification of Resources

The first step in performing the cumulative impact analysis is to identify which resources to consider in the analysis (*TxDOT's 2010 Guidance*). A summary of the potentially impacted resources is provided in **Table 22**.

## Table 22 Impacted Resources and Justification - Cumulative Impacts

| | |
|---|---|
| **EJ, LEP, and Low Income Populations** | |
| Summary of Direct Impacts | Impacts to minority/low-income populations from the proposed project are not anticipated. Although some Blocks have minority percentages, the actual number of individuals is very low. Overall, minorities account for 11.3 percent of the minority population area. Approximately 4.2 percent of the population in the project area is considered below the poverty level. During field reconnaissance, no signage in languages other than English were observed on buildings or other forms of posted information/advertisement adjacent to the proposed project area. The 2010 Census data for "Ability to Speak English" for the population five years of age and over for the project, indicates that 3.1 percent of the population speaks English less than "well". |
| Summary of Indirect Impacts | Induced growth has the potential to create socio-economic effects. However, since the area goals are commensurate with induced growth within the AOI, socio-economic effects related to induced growth will not be carried forward in the analysis. |
| Health of Resource | Good |
| Included in Cumulative Analysis? | No, not substantially impacted by the project. |
| **Land Use and Farmlands** | |
| Summary of Direct Impacts | Land use surrounding the proposed project area is primarily undeveloped fields and pockets of developing residential neighborhoods. The project is consistent with local planning efforts. |
| Summary of Indirect Impacts | Improved access coupled with development trends indicate that induced development would occur in the AOI in the planning horizon. |
| Health of Resource | Good |
| Included in Cumulative Analysis? | Yes, there is potential for substantial impact. |
| **Water Quality and Waters of the U.S**. | |
| Summary of Direct Impacts | Nine potentially jurisdictional water crossings were identified in the proposed project area. Impacts would involve lengthening the existing culvert structures. |
| Summary of Indirect Impacts | Some water quality and soil degradation is expected during the construction phase of the project. |
| Health of Resource | Good |
| Included in Cumulative Analysis? | Yes, there is potential for substantial impact. |

| **Vegetation and Wildlife Habitat** | |
|---|---|
| Summary of Direct Impacts | The total additional ROW and drainage easements for the proposed project is approximately 15.7 acres. Approximately 0.25 acres is within impervious cover. Impacts to upland woodland vegetation would consist of 0.28 acres of sugarberry trees, Cedar elms, and black locust trees within the existing and proposed ROW. An estimated 1.5 acres of existing and proposed project ROW is composed of riparian woodland areas. The proposed project would have no effect on federally listed threatened or endangered species, their habitats, or designated critical habitats or any state listed species or habitat. |
| Summary of Indirect Impacts | Potential loss of habitat would potentially occur in the AOI to habitat already fragmented by urban development, and has the potential to lead to further fragmentation of habitat. |
| Health of Resource | Good |
| Included in Cumulative Analysis? | Yes, there is potential for substantial impact. |
| **Air Quality** | |
| Summary of Direct Impacts | This proposed project is located within Collin County, within part of the Dallas-Fort Worth area that has been designated by EPA as a serious nonattainment area for ozone. |
| Summary of Indirect Impacts | The project is not expected to substantially affect air quality, however, air quality will be carried forward in the analysis because the project and AOI is in a nonattainment area |
| Health of Resources | Poor |
| Included in Cumulative Analysis? | Yes, Air quality was determined to be a resource in poor or declining health. |

## 11.2 Step 2: Define the Study Area

In accordance of Step 2, geographic and temporal boundaries are defined for each resource. Cumulative impacts are considered within spatial (geographic) and temporal boundaries. By defining a specific resource study area (RSA) for each resource, geographic boundaries would be included in the cumulative impact analysis. This must be a customized approach for each project and each resource. These boundaries determine the limit of data and a time frame to be used in the analysis of the issues. The geographic and temporal boundaries are based on accessible data available from NCTCOG, TCEQ, and on readily available population growth and projected population estimates of Collin County, the City of Frisco, the City of McKinney, and the Town of Prosper.

In establishing the temporal boundary for the RSAs, extending the timeframe forward to 2035 for cumulative impacts matches the region's MTP *Mobility 2035* and it provides sufficient data to complete a qualitative or quantitative analysis. In 1980, the introduction of light industry combined with the growth of the Dallas area led to increased growth in the City of Frisco, the City of McKinney, and the Town of Prosper.

This fifty-year period should also be sufficient to capture cumulative impacts resulting from those actions for which construction has been initiated, but not yet completed (see **Table 2**).

The RSA geographic boundary for vegetation land use, wildlife habitat, farmland, water quality, and waters of the U.S. is comprised of portions of the combination of various boundaries to include political or geographic boundaries, watershed or habitat boundaries, and the project's commuteshed. The land use types within the RSA were determined using visual interpretations of aerial photography. Areas where large stands of trees were identified were classified as wooded. Areas where sparse vegetation was present with grasslands were classified as pasture. Areas where roads and houses were identified were classified as developed. Areas where row crops were identified were classified as farmland. Areas inside the 100-year floodplains were classified as floodplains. Areas that were currently wooded, pasture, or farmland were considered to be potentially developable lands. Using this classification system, **Figure 5** depicts the RSA, the watershed boundaries, and land use types within the RSA.

The RSA for land use and farmland is the same as the indirect impacts AOI, which includes the area likely to be impacted by induced development associated with the proposed widening of US 380.

The RSA for Vegetation, Wildlife habitat, Water Quality and Waters of the U.S. is defined utilizing the combination of the Doe Branch and Wilson Creek drainage areas near the proposed project. This RSA provides a suitable study area for examining the availability of vegetation, wildlife habitat, water quality and waters of the U.S, in the surrounding area, and for serving as a baseline for assessing cumulative impacts.

The RSA geographic boundary for evaluating air quality requires looking at three distinct RSAs, as described below (**Figure 6**):

**Ozone** - The RSA for evaluating the ozone NAAQS was designated as the Dallas-Fort Worth eight-hour ozone nonattainment area, which includes: Collin, Dallas, Denton, Tarrant, Ellis, Johnson, Kaufman, Parker, and Rockwall Counties.

**Carbon Monoxide** - The RSA for CO was based on the ROW line, which represents the locations with the highest potential for CO concentrations. However, the nature of the proposed project does not warrant a TAQA. Therefore, CO levels resulting from this project would not be expected to exceed the NAAQS for CO and negatively impact air quality in this area.

**Mobile Source Air Toxics (MSATs)** - The RSA for MSATs is the boundary of Collin County. Unlike the other resources evaluated, air quality impacts from MSATs have been evaluated qualitatively for this proposed project by TxDOT. MSATs are regulated

by EPA on a national basis through requirements for fuels and vehicle technology. The MSAT RSA is qualitatively evaluated regarding emission changes based upon the proposed project and national trends.

The land use RSA is defined by a combination of considerations described in **Section 10.1**. The area is depicted in **Figure 5**.

## 11.3 Step 3: Current Health and Historical Context

### 11.3.1 Vegetation and Wildlife Habitat

The first settlement of Collin County occurred during the early period of the county's history, from 1840 to 1860. The second phase took place during and after the arrival of railroads. The first settlers of Collin County were farmers who produced mostly wheat and corn. Although agriculture, especially developing dairy farming, continued to be an important factor in the county's economy, by 1980 the introduction of light industry, combined with the growth of the Dallas metropolitan area, produced a successful diversified economy. US 380 and SH 289 were improved in 2001.

Since 1970, there has been a gradual conversion of vegetation/wildlife habitat from undeveloped uses to developed uses via construction or development as farmlands.

The current health of the vegetation and wildlife habitat within the RSA can be assessed by considering the vegetation types within the RSA, thereby depicting the amount of land currently available to support wildlife habitat (**Table 23** and **Figure 6**).

**Table 23 Vegetation within the RSA**

| Farmland | | Pasture | | Wooded | |
|---|---|---|---|---|---|
| Approximate Acreage | % within Area | Approximate Acreage | % within Area | Approximate Acreage | % within Area |
| 13,965 | 39.8% | 5,718 | 16.3% | 3,180 | 9.1% |

The conversion of natural land to agricultural and pasture uses is a major cause of the declining health of this resource in the RSA. This land conversion has occurred over many decades of development, and has eliminated much of the habitat diversity in the RSA.

### 11.3.2 Farmland

Areas to the south of the RSA in the cities of Plano and Frisco developed from small towns surrounded by farmland. The historical context for this resource is similar to what

is discussed in **Section 11.3.1**. This land conversion has occurred over many decades of development with the result that very little farmland is available in those areas. This northward growth trend suggests a similar outcome for the farmland RSA.

Although a large portion of the land in the RSA is classified as agricultural use, much of that is awaiting conversion to another use, and rezoning requests may be in process. Conversion of farmlands to other uses including development often occurs at a greater rate in tracts of farmland that are nearer the urbanized areas.

The current declining health of farmland within the RSA can be assessed by considering the amount of land currently in farming production. According to USDA's 2000 Census of Agriculture, Collin County has 150,210 acres of farmland, which is 26 percent of Collin County. As **Table 22** depicts, the current percentage of farmland in the RSA is approximately 39.8 percent.

### 11.3.3 Air Quality

The EPA establishes limits on atmospheric pollutant concentrations through enactment of the NAAQS for six principal, or criteria, pollutants. Collin County is part of a 9-county area that is in nonattainment for ozone. The integration of highway and alternative modes of transportation, cleaner fuels, and improved emission control technologies would collectively increase the chances of improving ozone levels. Even though the number of daily exceedances of the federal standards for ozone has decreased within the past decade, the DFW region remains in non-attainment for ozone. Although there have been year-to-year fluctuations, the ozone trend continues to show improvement. The trend of improving air quality in the DFW region is attributable in part to the effective integration of highway and alternative modes of transportation, cleaner fuels, improved emission control technologies, and NCTCOG's regional clean air initiatives.

The FCAAA authorized EPA to designate areas failing to meet the NAAQS for ozone as nonattainment and to classify them according to severity. The DFW area was classified as a moderate nonattainment area for the one-hour ozone standard, and was required to demonstrate attainment by November 15, 1996. A SIP revision was submitted with controls focused almost entirely on volatile organic compounds (VOC), but the DFW area did not attain the standard by the mandated deadline. Consequently, in 1998 the EPA reclassified the DFW area from moderate to serious, resulting in a new attainment deadline of November 15, 1999.

The DFW area also failed to reach attainment by the November 1999 deadline. In the attainment demonstration SIP revision adopted by the TCEQ in April 2000, the importance of local nitrogen oxides (NOX) reductions as well as the transport of ozone and its precursors from the Houston-Galveston-Brazoria (HGB) area were taken into

account. Based on photochemical modeling demonstrating that transport from the HGB area was impacting DFWs air quality, the TCEQ requested an extension of the DFW attainment date to November 15, 2007, for the one-hour standard. This was the same attainment date as for the HGB area.

On October 16, 2008, the EPA published final notice in the Federal Register, (FR 73 201) that the DFW one-hour ozone nonattainment area is currently attaining the one-hour ozone NAAQS. This determination is based upon certified ambient air monitoring data that show the area has monitored attainment of the one-hour ozone NAAQS for the 2004-2006 monitoring period.

The Clean Air Act of 1970 (CAA) resulted in a major shift in the federal government's role in air pollution control. This legislation authorized the development of comprehensive federal and state regulations to limit emissions from both stationary (industrial) sources and mobile sources. Major regulatory programs affecting stationary sources initiated were the National Ambient Air Quality Standards (NAAQS) and the State Implementation Plans (SIPs). In addition, the enforcement authority was substantially expanded. The adoption of this important legislation occurred at approximately the same time as NEPA that established the EPA. The EPA was created on May 2, 1971 in order to implement the various requirements included in the CAA of 1970.

In 2001, the EPA identified 21 mobile source air toxics (MSATs) and specified six of these 21 substances as priority MSATs. They are benzene, 1,3 butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter (DPM) and diesel organic gases. In 2007, the EPA expanded the priority MSATs to include polycyclic organic matter (POM) and naphthalene. EPA's 2007 rule projects that total MSAT emissions will decline substantially by 2020 due to fuel controls and vehicle standards. The FHWA's interim guidance on MSATs was updated in September 2009 and suggests three options for NEPA documentation: no analysis, a qualitative analysis, or a quantitative analysis, depending upon the project's scope and potential for meaningful MSAT effects. Qualitative assessments should consider project impacts on traffic volumes, speeds, vehicle mix, or traffic routing, and expected changes in MSATs. Qualitative analyses can also discuss the overall downward trend in forecasted MSAT emissions.

### 11.3.4 Water Quality, Floodplains, and Waters of the U.S

There are approximately 3,240 acres of floodplain within the RSA. The floodplains comprise approximately 9.2 percent of the land within the RSA. With increased population growth and the expansion of the transportation network, along with development associated with population growth, water quality is in decline. Unabated

erosion from construction activities would cause a sediment load to nearby streams, which would potentially cause a further decline in water quality.

With regards to the historical integrity of the resource, the water quality in the RSA has been in decline. According to the EPA's Center for Watershed Protection, storm water runoff from urban development typically contains suspended solids, nitrogen, phosphorus, bacteria (fecal coliforms), petroleum hydrocarbons, copper, lead, zinc, pesticides, and herbicides. Increased impervious surface area and the historical conversion of natural land to agricultural purposes have contributed to the decline of the resource.

### 11.3.5 Land Use

As previously discussed in the Need and Purpose section of this EA, the north central Texas region has experienced rapid population and employment growth during the last three decades. According to the NCTCOG demographic forecasts, it is projected that the market area comprising the Town of Prosper, the City of Frisco, and the City of McKinney will experience a large increase in population and employment from the year 2005 to the year 2035. The year 2005 population is projected to increase by 457 percent by the year 2035, and the year 2005 employment is projected to increase by 341 percent by 2035. With population and employment growth, land use in the proposed project area is moving from rural to a more developed condition.

## 11.4 Step 4: Direct and Indirect Impacts

### 11.4.1 Vegetation and Wildlife Habitat

Direct impacts of the proposed project to upland vegetation would be approximately 49 acres in the existing ROW and approximately 15.7 acres in the proposed ROW and drainage easements, for a total impact of 65 acres. Total direct impacts to vegetation are estimated to be approximately 65 acres.

Approximately 56 percent of the AOI is developable land with vegetation. Trends suggest that development of undeveloped land is likely, and if 75 percent of the RSA were developed by 2035, there would be a loss of approximately 14,773 acres of vegetation.

### 11.4.2 Farmland

Direct impacts to farmland would be caused by acquisition of the proposed ROW, and construction of the proposed project. Direct impacts to farmland would be approximately 14.8 acres in the proposed ROW.

Approximately 39.8 percent of vacant land within the AOI is classified as farmland. Trends suggest that development of undeveloped land is likely, and if 75 percent of the RSA were developed by 2035, there would be a loss of approximately 10,078 acres of vegetation.

### 11.4.3 Air Quality

Direct impacts on air quality and MSATs from the project are primarily those associated with the increased capacity, accessibility and the resulting projected increases in VMT. Emission reductions as a result of EPA's new fuel and vehicle standards are anticipated to offset impacts associated with VMT increases.

Indirect impacts on air quality and MSATs are primarily related to any expected development resulting from project's increased accessibility or capacity to the area. Any increased air pollutant or MSAT emissions resulting from the potential development of the area must meet regulatory emissions limits established by the TCEQ and EPA as well as obtain appropriate authorization from the TCEQ and therefore are not expected to result in any degradation of air quality or MSAT levels.

### 11.4.4 Water Quality, Floodplains, and Waters of the U.S

Direct impacts from the disturbance of ground would be caused by the construction of the proposed project. This would result in the disturbance of approximately 62 acres of upland vegetation.

After construction is complete, it is assumed that approximately 50% of the total area within the developable land available within the AOI would be converted to impermeable surface area. This assumption would result in approximately 9,829 acres of impermeable surface area as a result of indirect effects.

### 11.4.5 Land Use

Direct impacts to land use would be converting approximately 14.9 acres in the proposed ROW to transportation use.

Collin County, the City of Frisco, the City of McKinney, and the Town of Prosper are continuing to become more urbanized. The need and purpose of proposed US 380 project as stated is to improve traffic mobility, reduce traffic congestion and stimulate economic development. Anticipated growth in the surrounding area would result in increased land development in the vicinity of the roadway. Direct impacts to land use include impacting/converting approximately 14.9 acres of undeveloped land to transportation use. Induced growth effects are a type of indirect impact to land use that would likely occur as a result of the proposed project. In evaluating the extent of the

economic and land development indirect effects, an assumption was made to consider 75 percent all remaining developable lands inside the RSA as fully developed by the end of 2035. It is assumed that 25 percent of available developable land would be preserved for parks and open space within the community, or would be developed farther in the future. Of the remaining developable lands in the RSA, It is projected that approximately 14,773 acres would be developed by 2035.

## 11.5 Step 5: Reasonably Foreseeable Future Actions

### 11.5.1 Reasonably Foreseeable Transportation Projects

Reasonably foreseeable transportation project descriptions from the NCTCOG MTP are provided as follows:

**Collin County Outer Loop System: DNT to SH 121**

**Description:** The Collin County Outer Loop project will construct a new-location six-lane toll road in Collin County from the DNT east to SH 121. This east/west limited-access facility is being planned to accommodate expected demand in this growing part of the region and will also serve as a reliever route for the congested US 380 corridor to the south.

**Segments:** The eastern sub-region improvements can be divided into two segments: DNT to US 75, and US 75 to SH 121.

**Estimated Completion Date:** Both segments projected to be operational between 2020 and 2030.

**Project length/size:** The entire length of this corridor is recommended for 6 general purpose toll lanes and 4 to 6 continuous frontage road lanes. The proposed project would be approximately 19 miles long.

**Responsible agency/entity:** North Texas Tollway Authority (NTTA)

**DNT Extension: FM 121 to US 380**

**Description:** The planned extension of the DNT project will continue the DNT from its current terminus at US 380 north to FM 121 near the Collin/Grayson County line. The project will construct a new-location, six-lane tollway in the corridor. Additional studies outside the Metropolitan Planning Area may continue the DNT further north into Grayson County.

**Segments:** The improvements can be divided into two segments: FM 121 to FM 428, and FM 428 to US 380

**Estimated Completion Date**: The segment from FM 121 to FM 428 is projected to be operational between 2020 and 2030. The segment from FM 428 to US 380 is projected to be operational between 2010 and 2020.

**Project length/size:** The proposed project would be approximately 13 miles long.

**Responsible agency/entity:** North Texas Tollway Authority (NTTA)

**DNT: SH 121 to Royal Lane**

**Description:** This project involves the expansion of the DNT from six to eight tollway lanes between Royal Lane in Dallas and Sam Rayburn Tollway (SH 121) at the Plano/Frisco boundary in Collin County. The project will add capacity to a corridor experiencing significant population and employment growth.

**Segments:** The improvements can be divided into three segments: Sam Rayburn Tollway (SH 121) to Parker Road, Parker Road to President George Bush Turnpike, and President George Bush Turnpike to Royal Lane.

**Estimated Completion Date:** The segments from Sam Rayburn Tollway (SH 121) to Parker Road and from Parker Road to President George Bush Turnpike are projected to be operational between 2010 and 2020. The segment from President George Bush Turnpike to Royal Lane is projected to be operational between 2030 and 2035.

**Project length/size:** The proposed project would be approximately 13 miles long.

**Responsible agency/entity:** North Texas Tollway Authority (NTTA)

**President George Bush Turnpike: IH 35E to SH 78**

**Description:** The President George Bush Turnpike expansion project will widen this existing toll corridor from six to eight general purpose lanes between IH 35E and SH 78.

**Segments:** The improvements can be divided into three segments: IH 35E in Carrollton to DNT in Plano (Segment III), US 75 in Plano to SH 78 in Garland (Segment I), and DNT in Plano to US 75 (Segment II).

**Estimated Completion Date:** Improvements to Segments I, II, and III are projected to be operational between 2010 and 2020.

**Project length/size:** The proposed project would be approximately 17 miles long.

**Responsible agency/entity:** North Texas Tollway Authority (NTTA)

**Sam Rayburn Tollway (SH 121): US 75 to DNT**

**Description:** This expansion project on the Sam Rayburn Tollway (SH 121) consists of the planned widening of the existing six-lane toll road to eight general purpose lanes between US 75 and the DNT. The route stretches through the Collin County cities of Allen, Frisco, McKinney, and Plano.

**Segments:** The improvements can be divided into three segments: US 75 to Hillcrest Road, Hillcrest Road to SH 289, and SH 289 to DNT.

**Estimated Completion Date:** Improvements are projected to be operational between 2010 and 2020.

**Project length/size:** The proposed improvements would be approximately 11 miles long.

**Responsible agency/entity:** North Texas Tollway Authority (NTTA)

**Sam Rayburn Tollway (SH 121): US 75 to DNT to Business SH 121**

**Description:** This expansion project on the Sam Rayburn Tollway and SH 121 consists of widening the existing six-lane toll road to eight general purpose lanes from the DNT southwest to Business SH 121 West. Continuing from Business SH 121 West to the Tarrant County line, the existing freeway will be widened to ten general purpose lanes.

**Segments:** The improvements can be divided into one segment: DNT to SH 121 (West).

**Estimated Completion Date:** Improvements are projected to be operational between 2010 and 2020.

**Project length/size:** The proposed improvements would be approximately 16 miles long.

**Responsible agency/entity:** North Texas Tollway Authority (NTTA)

**US 75 (North Collin County): County Line Road to SH 121 South**

**Description:** The US 75 – North Collin County project will expand general purpose lanes from County Line Road at the Grayson/Collin County line to SH 121 in southern McKinney. This project will add between one and two general purpose lanes in each direction to help manage the congestion due to enormous population growth throughout Collin County.

**Segments:** The improvements can be divided into four segments: County Line Road to Collin County Loop, Collin County Loop to SH 121 North, SH 121 North to US 380, and US 380 to SH 121 South.

**Estimated Completion Date:** Improvements of all the segments are projected to be operational between 2010 and 2020.

**Project length/size:** The proposed improvements would be approximately 18 miles long.

**Responsible agency/entity:** TxDOT Dallas District

**US 75 (South Collin County): SH 121 South to President George Bush Turnpike**

**Description:** The US 75 – South Collin County project involves the reconstruction of US 75 Central Expressway to add general purpose freeway lanes and convert a section of the existing HOV lanes to an HOV/managed facility. The entire project's limits are from President George Bush Turnpike to Sam Rayburn Tollway (SH 121); the limits on the HOV/managed lanes are from President George Bush Turnpike to Spring Creek Parkway, where the HOV/managed lane will become the inside lane, allowing for an HOV operational transition area extending to Bethany Drive.

**Segments:** The improvements can be divided into six segments: SH 121 South to Exchange Parkway, Exchange Parkway to Bethany Drive, Bethany Drive to Spring Creek parkway, Spring Creek Parkway to 15$^{th}$ Street, and 15$^{th}$ Street to President George Bush Turnpike.

**Estimated Completion Date:** Improvements of all the segments are projected to be operational between 2010 and 2020

**Project length/size:** The proposed improvements would be approximately 11 miles long.

**Responsible agency/entity:** TxDOT Dallas District

### 11.5.2 Reasonably Foreseeable Development Projects

Reasonably foreseeable development projects were determined with consideration to the NCTCOG development website as well as investigating various proposed

development maps from public and private sources. The proposed projects are not intended to be an exhaustive list, but rather an estimate of projects in area. Reasonably foreseeable private development project descriptions total approximately 5,734 acres and are depicted in **Table 16**.

## 11.6 Step 6: Assess Potential Cumulative Impacts

### 11.6.1 Vegetation and Wildlife Habitat

It has been determined that approximately 13,438 acres of farmland, approximately 4,448 acres of pasture, and approximately 1,811 acres of woodlands would be available for development within the RSA. It is assumed that floodplains are not developable. The vegetation considered to be developable was classified as farmland, pasture, and woodland areas. The anticipated total impact is approximately 5,734 acres (**Table 16**) which would be 16% of the total RSA and 34% of the currently available developable land.

### 11.6.2 Farmland

It has been determined that approximately 13,438 acres of farmland would be available for development within the RSA. **Table 16** depicts the anticipated totals for vegetation impacts from reasonably foreseeable projects within the RSA. These acreages were determined by overlaying the reasonably foreseeable project boundaries with the vegetation types within the RSA.

The reasonably foreseeable future action effects to farmland are estimated under the assumption that reasonably foreseeable project would affect a proportionate amount of farmland to the proportion that is currently available for development. This would result in 13% of 5,734, or an impact of 745 acres.

When major transportation corridors are expanded and/or improved, private development follows. Development such as residential subdivisions, commercial and retail and other development that supports growth, would be expected to take place. Conversion of farmlands to other uses including development often occurs at a greater rate in tracts of farmland that are nearer to the urbanized areas.

### 11.6.3 Air Quality

Any increased air pollutant or MSAT emissions resulting from increased capacity, accessibility and development are projected to be more than offset by emissions reductions from EPA's new fuel and vehicle standards or addressed by EPA's and TCEQ's regulatory emissions limits programs. Projected traffic volumes are expected to result in minimal impacts on air quality; improved mobility and circulation may benefit air

quality. Increases in urbanization would likely have a negative impact on air quality; however planned transportation improvements in the project area as listed in the NCTCOG MTP and the 2011-2014 TIP, as amended, coupled with EPA's vehicle and fuel regulations fleet turnover, are anticipated to have a cumulatively beneficial impact on air quality.

### 11.6.4 Water Quality, Floodplains, and Waters of the U.S.

Reasonably foreseeable transportation projects, and other development, have the potential to affect water quality in the study area. Components of Wilson Creek Watershed, Doe Branch Watershed, and Panther Creek Watershed were considered sufficient to capture most cumulative effects of the Build Alternative on water quality because storm water runoff from the RSA primarily drains into these sub-basins.

Direct impacts to waters of the U.S. could include channelization, culvert crossings, dredging, and fill impacts. The amount of storm water runoff from induced development that would impact water bodies would be dependent upon the severity and duration of the precipitation event, type of soil, water holding capacity of the soil, permeability of the soil, and the distances of the water bodies relative to the storm water outfalls. Hydrologic modeling would be required to estimate the volume of storm water that would impact the water bodies. Storm water sampling and chemical analysis would be required to determine the types and concentrations of pollutants in the storm water. Hydrologic modeling, storm water sampling, and chemical analysis are beyond the scope of this water quality indirect effects analysis. Therefore, typical storm water pollutants were discussed in a qualitative manner and the acreage of impervious surfaces was the unit of measurement used to quantify the effects on water quality.

**Table 24 Reasonably Foreseeable Impacts on Water Quality, Floodplains, and Waters of the U.S. within the RSA**

| | Streams Present within the RSA (linear stream miles) | Projected Impacts to Streams* (linear stream miles) | Floodplains Present in the RSA (acres) | Projected Impacts to Floodplains* (acres) |
|---|---|---|---|---|
| Reasonably Foreseeable Projects | 138.2 | 6.9 | 3,240 | 162 |

**Assumes that 5 percent of streams and floodplains would be permanently impacted by fill, dredging, etc. activities during reasonably foreseeable projects.*

As a result of water quality regulations and permitting requirements, it is assumed that approximately 5 percent of streams would be permanently impacted from reasonably and foreseeable actions. **Table 24** summarizes the projected impacts to streams and floodplains from reasonably foreseeable projects.

Approximately 6.9 linear miles of stream and 162 acres of floodplains are projected to be impacted from reasonably foreseeable projects within the RSA. Assuming appropriate implementation of regulation control strategies and policies, future potential impacts to the area's water quality could be expected to be reduced to have a minimum impact.

### 11.6.5 Land Use

With regard to reasonably foreseeable projects, impacts to land use have been determined by approximating the sizes of reasonably foreseeable projects within the developable land within the RSA. As shown in **Table 25**, the anticipated total conversion to developed land from reasonably foreseeable projects within the land use RSA is approximately 5,734 acres.

**Table 25 Reasonably Foreseeable Impacts on Land Use within the RSA**

| | Farmland | Pasture | Woodland |
|---|---|---|---|
| Reasonably Foreseeable Projects | 3,912 | 1,296 | 527 |

Although the proposed project would affect approximately 14.9 acres of proposed ROW and 0.8 acre of drainage easements, other future developments could cumulatively affect the current major land use within the RSA. As the communities of Frisco, McKinney, and Prosper continue to grow, future development would affect agricultural lands that comprise the majority of the RSA. As additional development and expansion occurs, increased demands on transportation routes could occur. New highways or increased capacity (*i.e.*, widening) of existing highways would be required. These highways would be planned, designed, and constructed to accommodate existing and future traffic demands, in accordance with TxDOT and FHWA standards.

## 11.7 Step 7: Results of Cumulative Impact Analysis

### 11.7.1 Vegetation and Wildlife Habitat

Cumulative impacts were determined by analyzing the farmland, pasture, and woodland land uses for transportation and private development reasonably foreseeable projects. Results of the Cumulative Impact Analysis are summarized in **Table 26**.

**Table 26 Cumulative Impacts on Vegetation within the RSA**

| | Approximate Acreage of Farmland Impacted (acres) | Approximate Acreage of Pasture Impacted (acres) | Approximate Woodland Acreage Impacted (acres) | Total Vegetation (acres) |
|---|---|---|---|---|
| Direct impacts | 13 | 0.8 | 1.9 | 15.7 |
| Anticipated indirect impacts* | 10,078 | 3,336 | 1,358 | 5,772 |
| Reasonably foreseeable projects | 3,912 | 1,295 | 527 | 5,734 |
| **Anticipated cumulative impacts** | **14,003** | **4,631** | **1,887** | **20,521** |

**Anticipated indirect impacts assume 75% developed within the RSA by 2035.*

Based upon the results of this analysis, impacts to vegetation and wildlife habitat are not expected to be substantial.

### 11.7.2 Farmland

Results of the cumulative impact analysis are summarized in **Table 27.**

Table 27 Summary of Cumulative Impacts to Farmland

| | Approximate Farmland Acreage |
|---|---|
| Direct Impacts | 13 |
| Anticipated Indirect Impacts* | 10,078 |
| Reasonably Foreseeable Projects | 745 |
| **Anticipated Cumulative Impacts** | **10,836** |

**Anticipated indirect impacts assume 75% developed within the RSA's by 2035.*

Based upon the results of this analysis, impacts to farmland are not expected to be substantial.

### 11.7.3 Air Quality

The cumulative impact on air quality from the proposed project and other reasonably foreseeable transportation projects are addressed at the regional level by analyzing the air quality impacts of transportation projects in the DFW Mobility 2035 and the 2011-2014 TIP, as amended. The proposed project and the other reasonably foreseeable transportation projects were included in the DFW Mobility 2035 and the 2011-2014 TIP, as amended. When combined, planned transportation improvements, revised EPA fuel

and vehicle regulations, and fleet turnover are anticipated to have a cumulatively beneficial impact on air quality.

Based upon the results of this analysis, impacts to air quality are not expected to be substantial.

### 11.7.4 Water Quality and Waters of the U.S

Potential cumulative impacts considered and discussed include direct and indirect impacts to the water quality as a result of implementation of the Build Alternative in combination with the effects of other past, present, and reasonably foreseeable public and private actions.

It is assumed that approximately 60 percent of the total area within the reasonably foreseeable projects would be converted to impermeable surface area. This assumption would result in approximately 3,440 acres of impermeable surface area as a result of reasonably foreseeable actions. Cumulative impacts were determined by analyzing the farmland, pasture, and woodland land uses for transportation and private development reasonably foreseeable projects.

**Table 28 Cumulative Impacts on Waters of the U.S. within the RSA**

| | **Linear Miles of Waters of the U.S.** |
|---|---|
| Direct Impacts | n/a |
| Anticipated Indirect Impacts* | 6.9 |
| **Anticipated Cumulative Impacts** | **6.9** |

**Anticipated indirect impacts assume 5 percent of waters of the U.S. filled within the RSA by 2035.*

Based upon the results of this analysis, impacts to water quality and waters of the U.S. are not expected to be substantial.

### 11.7.5 Land Use

The proposed project would permanently affect approximately 64 acres of agricultural land, pasture lands and developed/disturbed lands. The construction and operation of the roadway would not conflict with known land use plans, and would not substantially alter the availability of farm or pasture lands in the region. Other actions would affect undeveloped, developed, agriculture, and pasture lands. Future development surrounding the RSA would also permanently convert previously disturbed and agricultural lands, regardless of whether the proposed project is implemented. The

amount of land impacted by the proposed project (approximately 64 acres), when combined with other actions, would not cumulatively amount to what would be considered a substantial percent of the total land area within the RSA. Therefore, the proposed project is not expected to result in substantial cumulative adverse effects on land use within the RSA.

Based upon the results of this analysis, impacts to land use are not expected to be substantial.

## 11.8 Step 8: Assess Mitigation Issues

### 11.8.1 Vegetation and Wildlife Habitat

Transportation Code §201.607 directs TxDOT to adopt memoranda of understanding with appropriate environmental resource agencies including TPWD. The responsibilities of TPWD relate primarily to its function as a natural resource agency, including its resource protection functions designated by Parks and Wildlife Code. TPWD acts as the state agency with primary responsibility to protect the state's fish and wildlife resources. The TxDOT/TPWD MOA provides an efficient and consistent methodology for describing habitats, transportation impacts to those habitats after avoidance and minimization efforts and mitigation to be considered as a result of those impacts. The MOA sets forth resources that would give consideration for compensatory mitigation.

Private development impacts to vegetation and habitat are minimized by enforcement of USFWS and TPWD regulations for actions that are subject to state and federal jurisdiction. Municipal governments have the authority to avoid, minimize and mitigate cumulative impacts to vegetation and habitat within their jurisdictions through application of zoning and land use regulations that guide the intensity, type and location of new development. The zoning and land use regulations are designed to minimize the adverse effects of growth and urbanization.

The proposed project's impacts to vegetation and habitat would be avoided and minimized in compliance with the TxDOT/TPWD MOA. Similarly, the impacts to vegetation and habitat of the reasonably foreseeable transportation projects by TxDOT would be avoided, minimized and mitigated in compliance with the TxDOT/TPWD MOA. The impacts of reasonably foreseeable private development to vegetation and habitat would be avoided, minimized, and mitigated through enforcement of applicable municipal zoning and land use regulations. Additionally, USFWS and TPWD regulations protecting vegetation and wildlife habitat would apply to those actions that are subject to state and federal jurisdiction.

### 11.8.2 Farmland

Transportation Code §201.607 directs TxDOT to adopt memoranda of understanding with appropriate environmental resource agencies including NRCS. Prime and unique farmlands fall under the jurisdiction of the USDA through the FPPA. The USDA NRCS administers the regulations and provides guidance for the completion of USDA Form CPA 106 for corridor-type projects with potential impacts to prime and unique farmland.

The FPPA was enacted based on concerns that millions of acres of farmland were being lost to development each year. The issue was identified in the National Agricultural Land Study of 1980-81 resulting in the need for the U.S. Congress to implement policies to protect farmland and minimize urban sprawl. As a result, prime and unique farmlands are protected by Section 1540(b) of the FPPA 7 USC 4201(b), which proposes to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmlands to non-agricultural uses.

Private development impacts to prime and unique farmland are minimized by enforcement of USFWS and TPWD regulations for actions that are subject to state and federal jurisdiction. Municipal governments have the authority to regulate impacts to vegetation and habitat within their jurisdictions through application of zoning and land use regulations that guide the intensity, type and location of new development. The zoning and land use regulations are designed to minimize the adverse effects of growth and urbanization.

### 11.8.3 Air Quality

All projects in the NCTGOG TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR. Energy, environment, air quality, cost, and mobility considerations are addressed in the programming of the TIP.

A variety of federal, state, and local regulatory controls as well as local plans and projects have had a beneficial impact on regional air quality. The CAA, as amended, provides the framework for federal, state, tribal, and local rules and regulations to protect air quality. The CAA required the EPA to establish NAAQS for pollutants considered harmful to public health and the environment. In Texas, the TCEQ has the legal authority to implement, maintain, and enforce the NAAQS. The TCEQ establishes the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general comprehensive plan. Authorization in the Texas Clean Air Act (TCAA) allows the TCEQ to do the following: collect information and develop an inventory of emissions; conduct research and investigations; prescribe monitoring requirements; institute enforcement; formulate rules

to control and reduce emissions; establish air quality control regions; encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities. Local governments having some of the same powers as the TCEQ can make recommendations to the commission concerning any action of the TCEQ that may affect their territorial jurisdiction, and can execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA or the rules or orders of the TCEQ.

The cumulative impact of reasonably foreseeable future growth and urbanization on air quality within this area would be minimized by enforcement of federal and state regulations, including those with EPA and TCEQ oversight. These regulations are designed to ensure that growth and urbanization do not prevent regional compliance with the ozone standard or threaten the maintenance of the other air quality standards.

### 11.8.4 Water Quality and Waters of the U.S

The cumulative impact of these future actions to water quality would be minimized by enforcement of applicable TCEQ, USACE, USFWS, TPWD, and USCG regulations for projects subject to state and federal jurisdiction.

The reasonably foreseeable impacts of both roadway construction and private construction would be required to comply with the TPDES requirements. Impacts to water quality would be reduced by the implementation of BMPs for future construction projects. Regardless of the project type proposed, compliance with the requirements of TCEQ's TPDES General Permit No. TXRI50000 would reduce soil erosion due to construction activities. In order to comply with TPDES General Permit No. TXRI50000 for Construction Activities requirements, a NOI would be filed with TCEQ stating that TxDOT would have a SW3P in place during construction of this project and a construction site notice would be posted. The SW3P utilizes the temporary control measures as outlined in the TxDOT's manual *Standard Specifications for the Construction of Highways, Streets, and Bridges*. Impacts would be minimized by avoiding work with construction equipment directly in the stream channels and/or adjacent areas. No permanent water quality impacts are expected as a result of the proposed project. Every effort would be made for proper soil conservation and preservation during the planning, development and construction of this project.

Implementation of a SW3P would minimize impacts to water quality during construction, the proposed project would utilize temporary erosion and sedimentation control practices (i.e., silt fence, rock berm and drainage swales) from TxDOT's manual

*Standard Specifications for the Construction of Highways, Streets, and Bridges*. The erosion control would be temporary vegetation and mulch. The sedimentation control would be silt fence and rock berms. The post construction TSS control would be grass swales.

### 11.8.5 Land Use

The proposed project would permanently affect approximately 14.8 acres of agricultural lands. The construction and operation of the roadway would not conflict with known land use plans, and would not substantially alter any land use plans in the RSA.

Municipal governments have the authority to avoid, minimize and mitigate cumulative impacts to vegetation and habitat within their jurisdictions through application of zoning and land use regulations that guide the intensity, type and location of new development. The zoning and land use regulations are designed to minimize the adverse effects of growth and urbanization.

Instruments that would control land development involve established comprehensive plans for the City of Frisco, the City of McKinney, and the Town of Prosper, accompanying land use development codes, and the subdivision plat approval process for Collin County. The Collin County Commissioner's Court adopted subdivision regulations to provide minimum standards for land subdivisions and developments and prevent substandard subdivisions in the county. The subdivision regulations provide for the safety, health and well being of the general public. The regulations require subdivision construction standards for streets, drainage, water availability and sewage facilities.

**Table 29 Summary of Cumulative Impacts**

| Resource | Direct Effects | Anticipated Indirect Effects * | Reasonable Foreseeable Actions | Cumulative Effects |
|---|---|---|---|---|
| Vegetation | 15 acres | 5,772 acres* | 5,734 acres | 20,521 acres |
| Farmland | 13 acres | 10,078 acres* | 745 acres | 10,836 acres |
| Waters of the U.S. | n/a | 6.9 linear miles** | n/a | 6.9 linear miles |
| Air Quality | Minimal impacts | Minimal impacts | Minimal impacts | Addressed at a regional level; expected to have a cumulatively beneficial impact |

**Anticipated indirect impacts to Vegetation, Farmland and assume 75% developed within the RSA by 2035.*

***Anticipated indirect impacts to Waters of the U.S. assume 5 percent of waters of the U.S. filled within the RSA by 2035.*

# 12 PUBLIC INVOLVEMENT

The Public Meeting was held at Lorene Rodgers Middle School, 1001 Coit Road, Prosper, Texas on June 28, 2010. Meeting notices were mailed to every home and business within 500 ft of the existing and proposed ROW. In addition to four English newspapers, a Public Meeting Notice for the project was published in the Spanish newspaper, *Al Dia*. The 30-day notice was published in the *Al Dia* on May 28, 2010, and the 10-day notice was published on June 18, 2010. Fifty-five (55) private citizens attended the meeting. Also in attendance were 24 representatives of TxDOT, the municipalities of Frisco, McKinney and Prosper, Collin County, and TxDOT's consultants. Persons who attended the meeting who had special communication or accommodation needs were encouraged to contact the TxDOT Dallas District Public Information Office prior to the meeting to request interpreters. There were staff on-hand to interpret for Spanish-speaking members of the public; however, no non-English speaking persons were encountered at the Public Meeting. The overall reaction to the proposed project were favorable.

In addition, a Meeting of Affected Property Owners (MAPO) was held at Lorene Rodgers Middle School, 1001 Coit Road, Prosper, Texas on June 9, 2011. Meeting notices were mailed to adjacent property owners. Twenty (20) private citizens attended the meeting. Also in attendance were 11 representatives of TxDOT, the municipalities of Frisco, McKinney and Prosper, Collin County, and TxDOT's consultants. There were staff on-hand to interpret for Spanish-speaking members of the public; however, no non-English speaking persons were encountered at the Public Meeting. The overall reaction to the proposed project were favorable.

A future public hearing or a Notice Affording an Opportunity for a Public Hearing would be held to present project alternatives, and to encourage and solicit public comment. A hearing would be held after the environmental studies are considered substantially complete.

# 13 ITEMS OF SPECIAL NATURE

## 13.1 Coastal Zone Management Plan

The proposed project is not located within the Texas Coastal Zone Management Program boundary; therefore, the proposed project is not subject to the guidelines of the associated plan.

### 13.2 Wild and Scenic Rivers

There are no wild and scenic rivers in the project area. Therefore, there would be no impacts to a river designated as a component or proposed for inclusion in the national system of Wild and Scenic Rivers.

### 13.3 Airway-Highway Clearance

The proposed project corridor is within 20,000 ft of Aero Country Airport, located four miles west of McKinney. Aircraft clearance issues are not associated with the proposed project.

The No-Build Alternative would not impact any items of special nature or interest such as navigation or airway-highway clearances, special permits, or agreements involved with this project.

## 14 ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

This section summarizes the elements that constitute the Environmental Permits, Impacts and Commitment (EPIC) Sheet. The EPIC sheet, found in the Environmental Compliance Oversight System (ECOS), documents and communicates permit issues and environmental commitments that must be incorporated into the Plans, Specifications, and Estimates (PS&E). The permits, impacts and commitments relevant to the proposed project are as follows:

### 14.1 Clean Water Act, Section 402 Texas Pollutant Discharge Elimination System (TPDES) Commitments

Since the proposed project would disturb more than five acres, TxDOT would be required to comply with the TCEQ Texas Pollutant Discharge Elimination System (TPDES) General Permit for Large Construction Activity. A Notice of Intent (NOI) would be filed to comply with TCEQ stating that TxDOT would have a SW3P in place during construction of the proposed project. Measures would be taken to prevent or correct erosion that might develop during construction.

### 14.2 Clean Water Act, Section 401 and 404 Compliance Commitments

The project is eligible for NWP 14. No PCN is required.

BMPs may include, but will not be limited to:

- The hydraulic design to limit structure outlet velocities; grading design generally consisting of 4:1 or flatter slopes with permanent vegetative cover; using permanent seeding/block sod to establish vegetative lined channels; and permanent compost manufactured topsoil and seeding.

- Category I Erosion control: Temporary and permanent re-seeding, blankets and matting to stabilize disturbed areas.
- Category II Sedimentation control: Compost logs and berms (low velocity); temporary rock filter dams; temporary rock bedding at the construction exits and silt fence; and,
- Category III Post construction total suspended solids control: Hydraulic design to limit structure outlet velocities; grading design generally consisting of 4:1 or flatter slopes with permanent vegetative cover; using permanent seeding/block sod to establish vegetative lined channels; and permanent compost manufactured topsoil and seeding.

### 14.3 Cultural Resources Commitment

In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area will cease and TxDOT archeological staff will be contacted to initiate post-review discovery procedures.

### 14.4 Vegetation Resources Commitment

Tree trimming maintenance of over-hanging branches could be necessary during construction. Avoidance measures would be used to avoid impacts to mature trees where possible.

### 14.5 Federal Listed and Proposed Threatened and Endangered Species, Critical Habitat, State Listed Species, Candidate Species and Migratory Bird Treaty Act

The project area contains habitat that may be potentially suitable for the Timber/Canebrake Rattle Snake, the Texas Garter Snake and the Plains Spotted Skunk. Since these species may be encountered during construction, the contractor would be notified (via the EPIC sheet, general notes, and/or pre-construction meeting) of this potential and to take the necessary measures to avoid harm to these species.

Suitable habitat could exist within the proposed project ROW for one state-listed mollusk (Texas heelsplitter) and one state species of concern (fawnsfoot). If construction occurs when there is water present in the tributary, then a survey would be conducted to identify if protected species could be impacted. Appropriate actions would be performed to avoid adverse impacts to protected species, should they be present. Habitat for protected freshwater mussels does not exist at this time and there is no hydraulic connection between the project site and any downstream receiving waters that could contain protected species.

Between October 1 and February 15, the contractor would remove all old migratory bird nests from any structures that would be affected by the proposed project, and complete any bridge work and/or vegetation clearing. In addition, the contractor would be prepared to prevent migratory birds from building nests between February 15 and October 1, per the Environmental Permits, Issues, and Commitments (EPIC) plans. In the event that migratory birds are encountered on-site during project construction, adverse impacts on protected birds, active nests, eggs, and/or young would be avoided.

### 14.6 Hazardous Materials or Contamination Issues Commitment

No action required for the proposed project.

### 14.7 Other Environmental Issues Commitment

Measures to control fugitive dust would be considered and incorporated into the final design and construction specifications.

## 15 CONCLUSION

No substantial social, economic, and/or environmental impacts associated with this non-FHWA funded project have been discovered. Therefore, I certify that the proposed action qualifies as a Non-FHWA Categorical Exclusion.

H. Stan Hall

Name (Printed)

Signature (Advanced Project Design Engineer) 8-1-12 Date

I have reviewed this document and certify that the project meets the criteria for a non-FHWA categorical exclusion.

Name (Printed)

Approved (Signature of environmental reviewer) Date

*This Page Left Blank Intentionally*

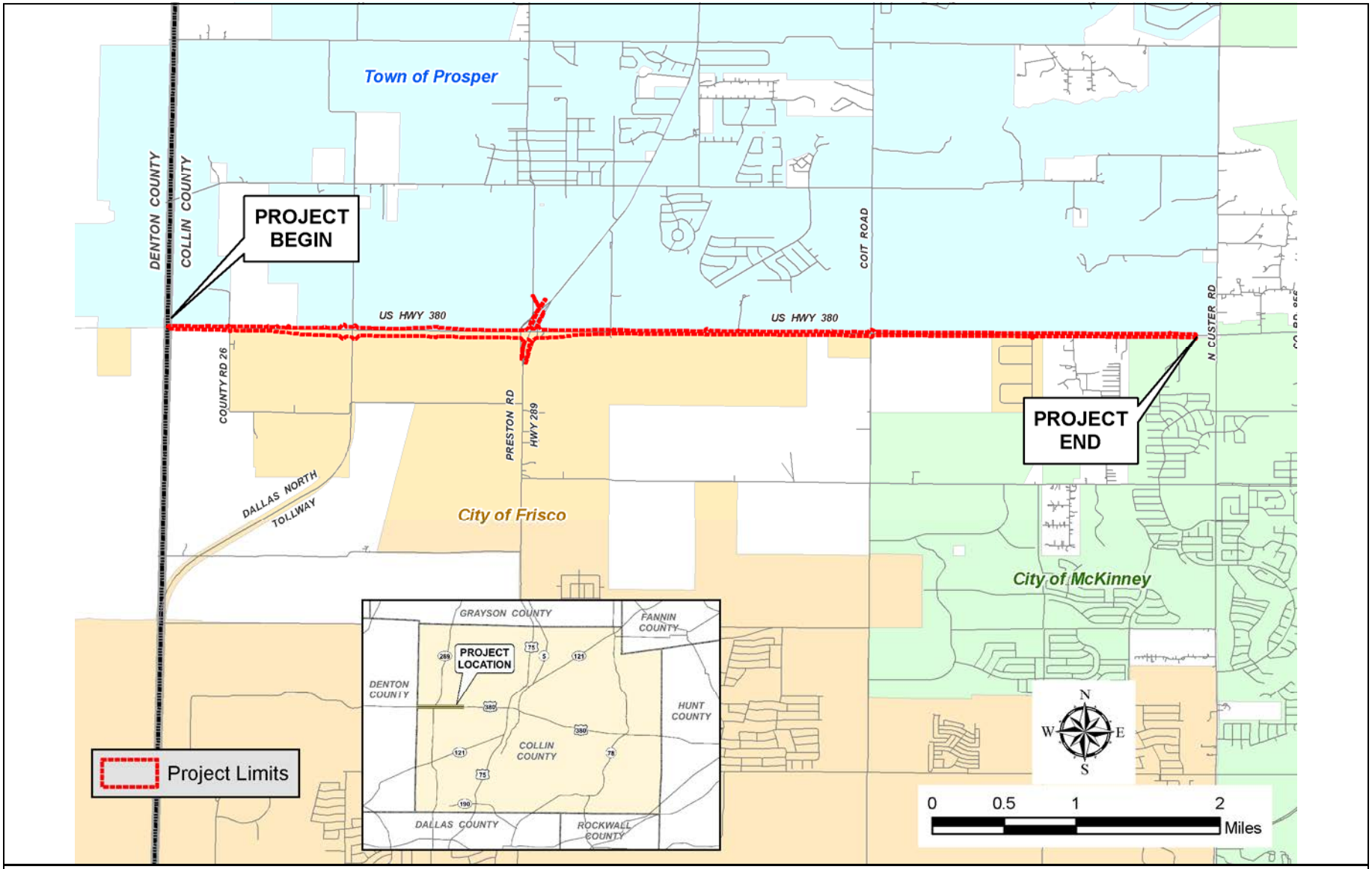



Figure 1
Project Vicinity Map

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

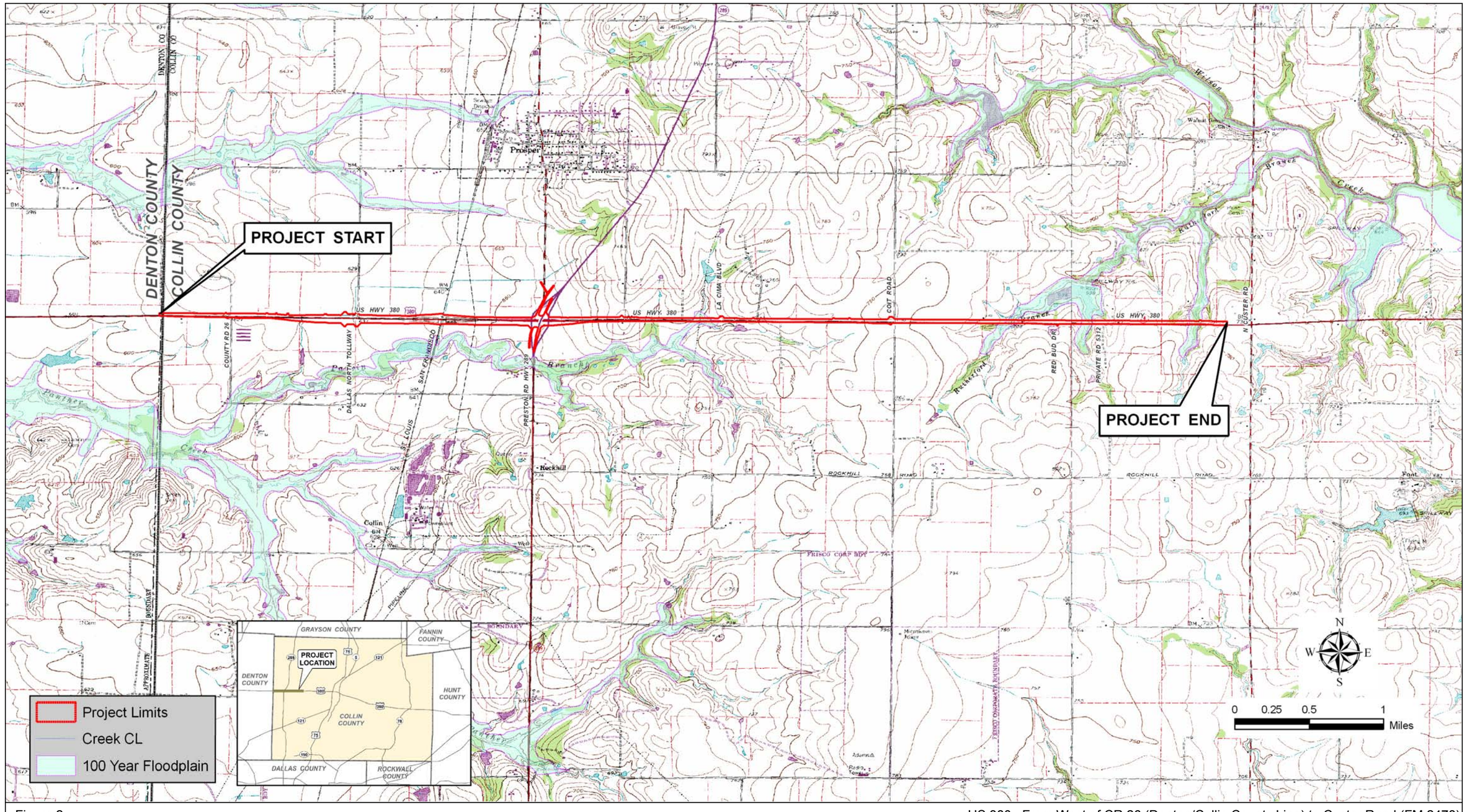



Figure 2
USGS Quadrangle Map
McKinney West (1973)
Frisco (1981)

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050


Figure 3a
Project Corridor Map

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

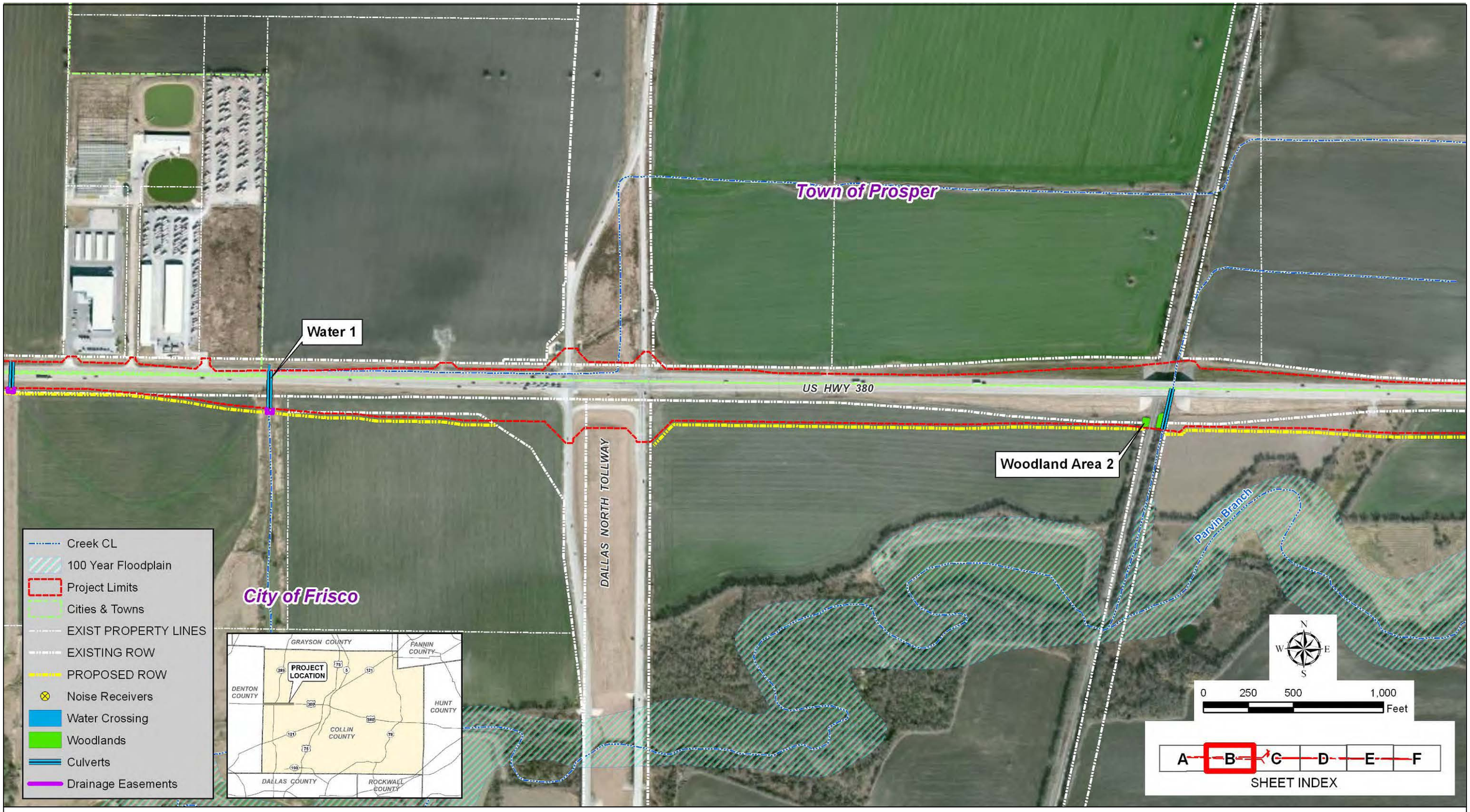



Figure 3b
Project Corridor Map

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

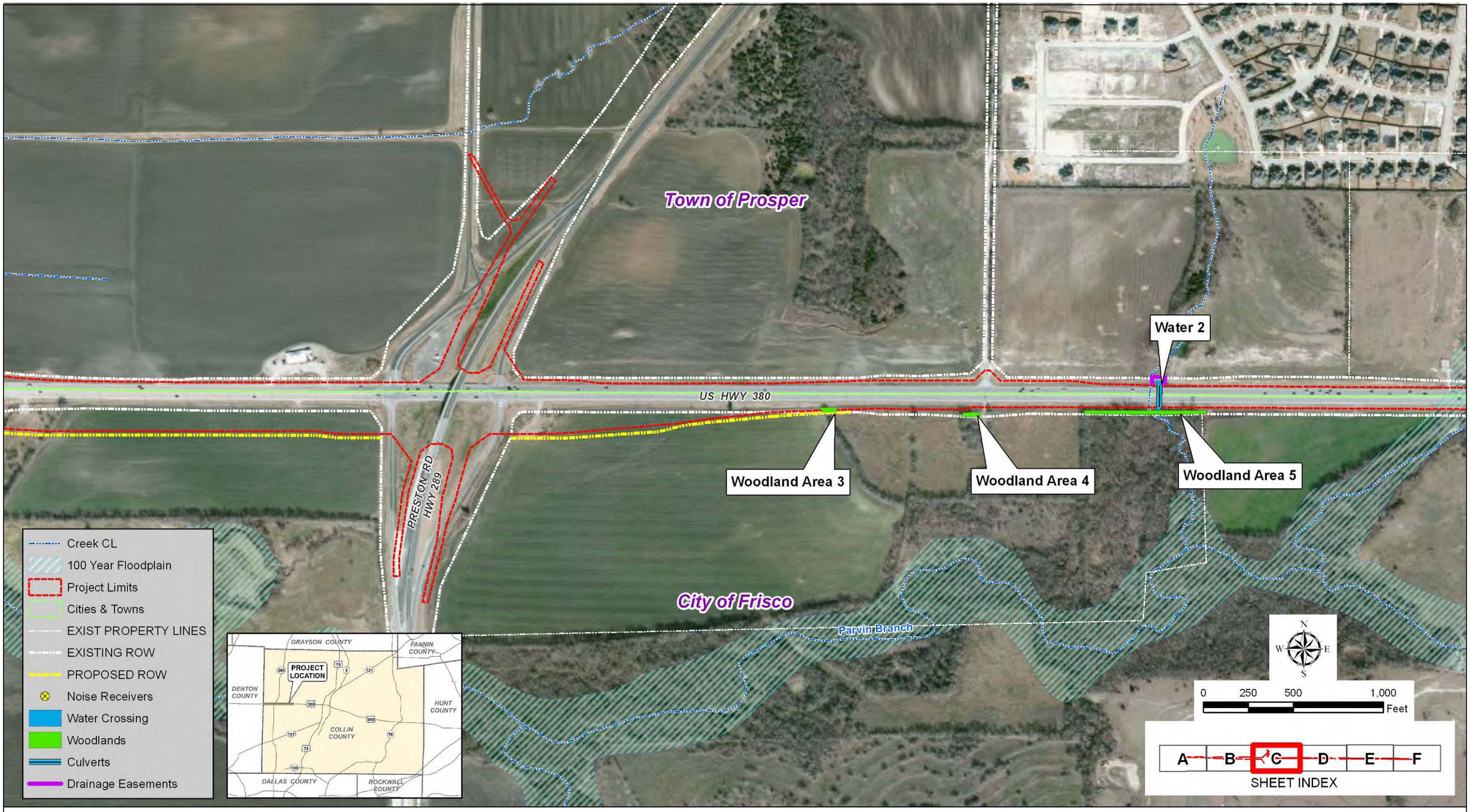



Figure 3c
Project Corridor Map

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

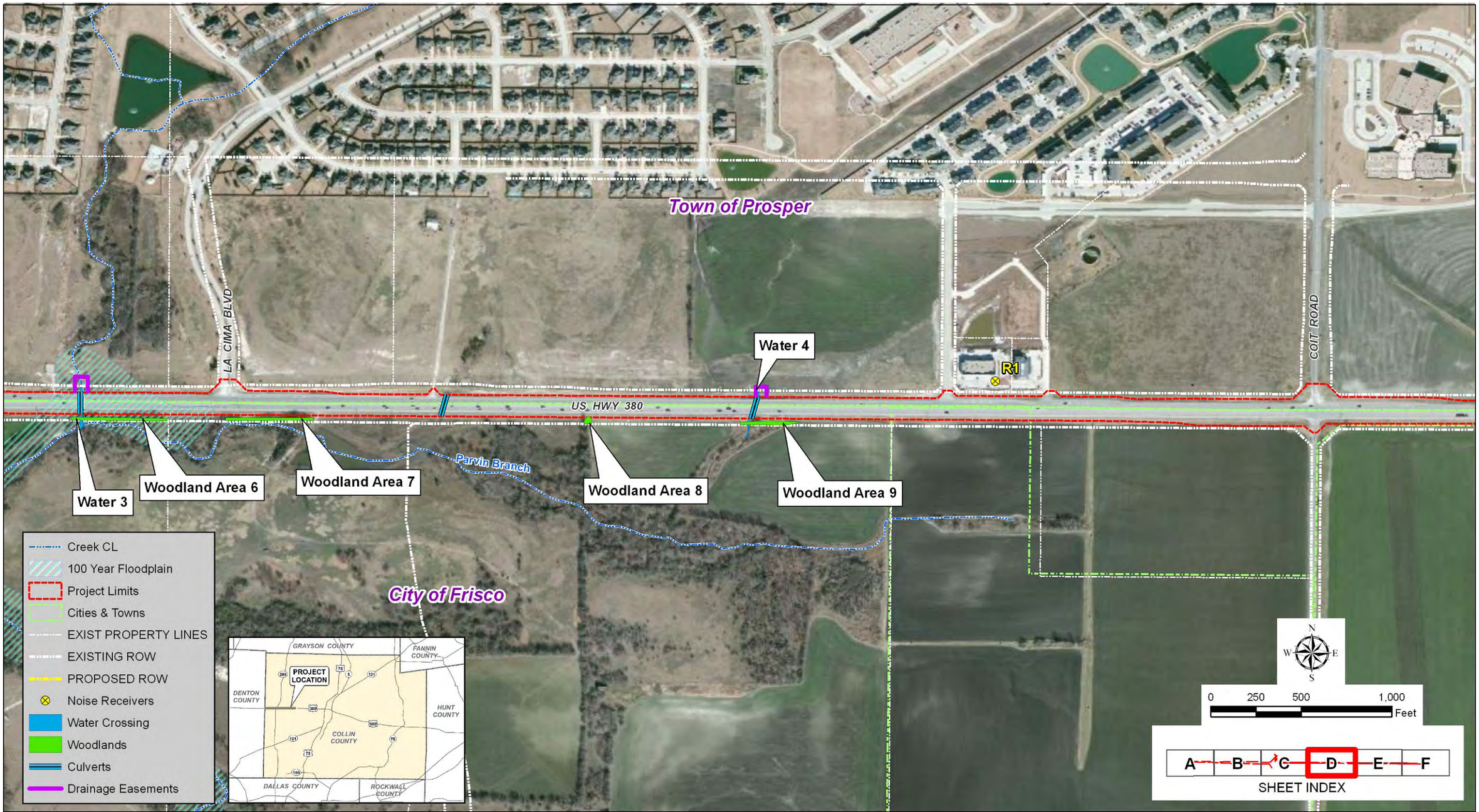



Figure 3d
Project Corridor Map

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

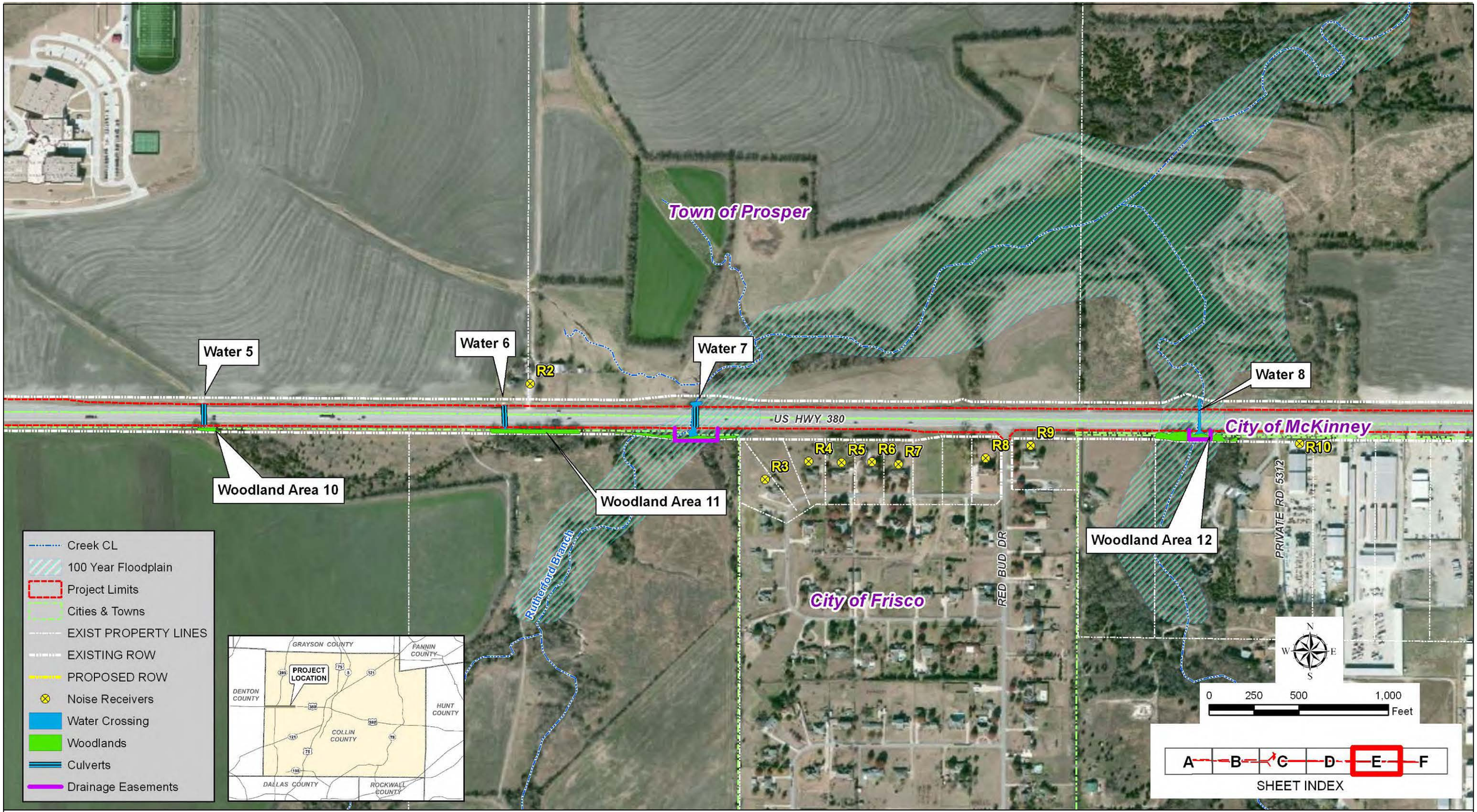



Figure 3e
Project Corridor Map

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

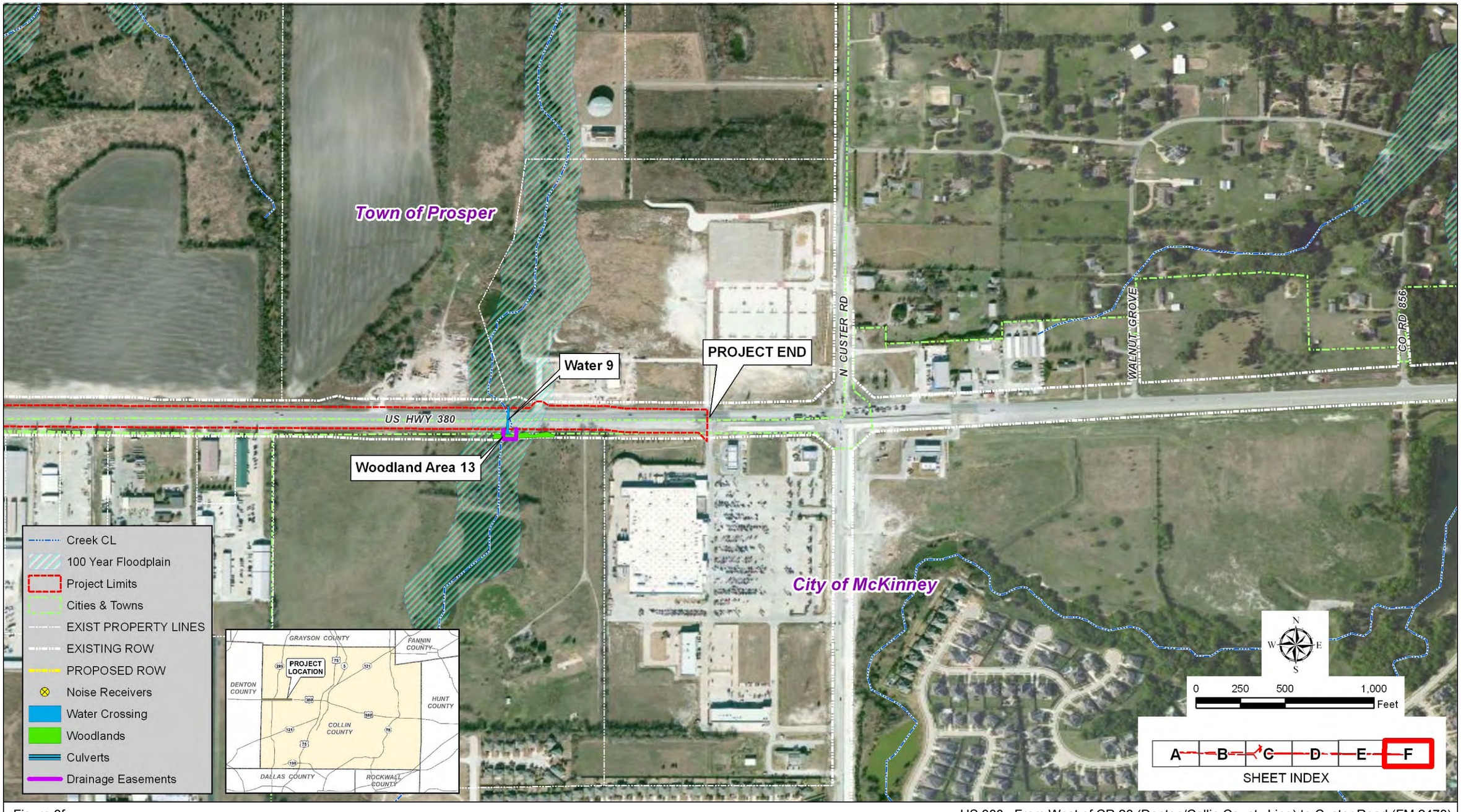
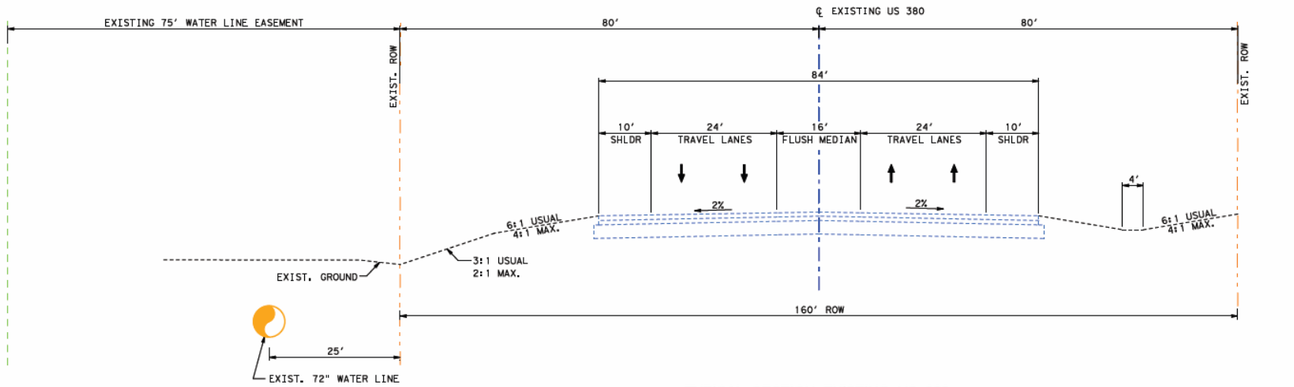
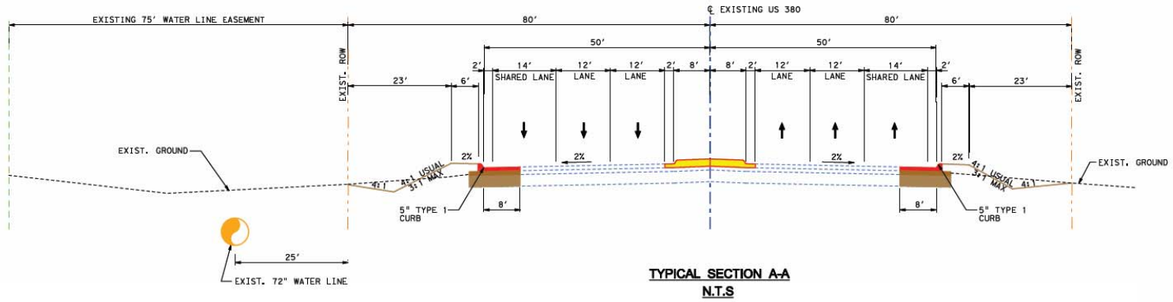



Figure 3f
Project Corridor Map

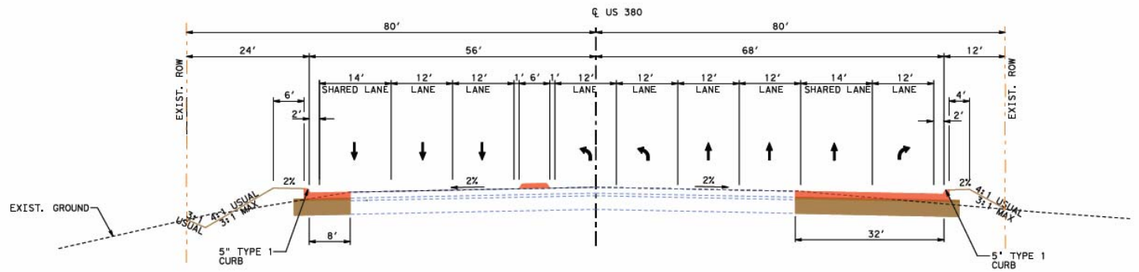
US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050



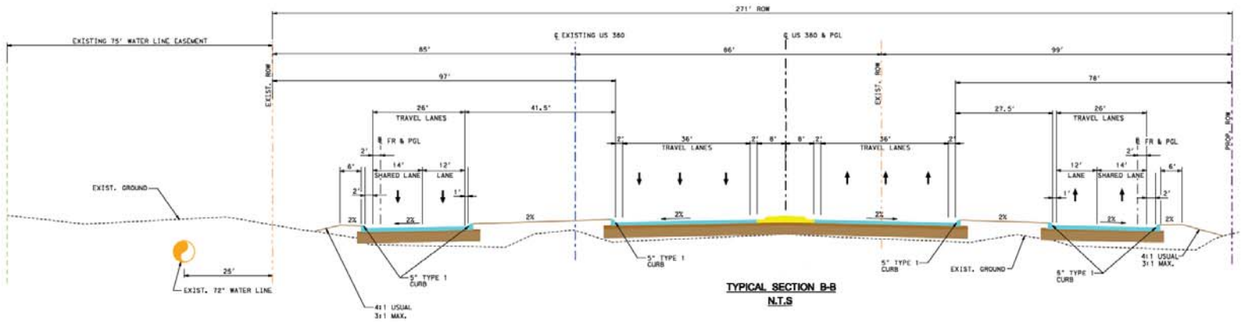

**TYPICAL SECTION EXISTING US 380**
**N.T.S**



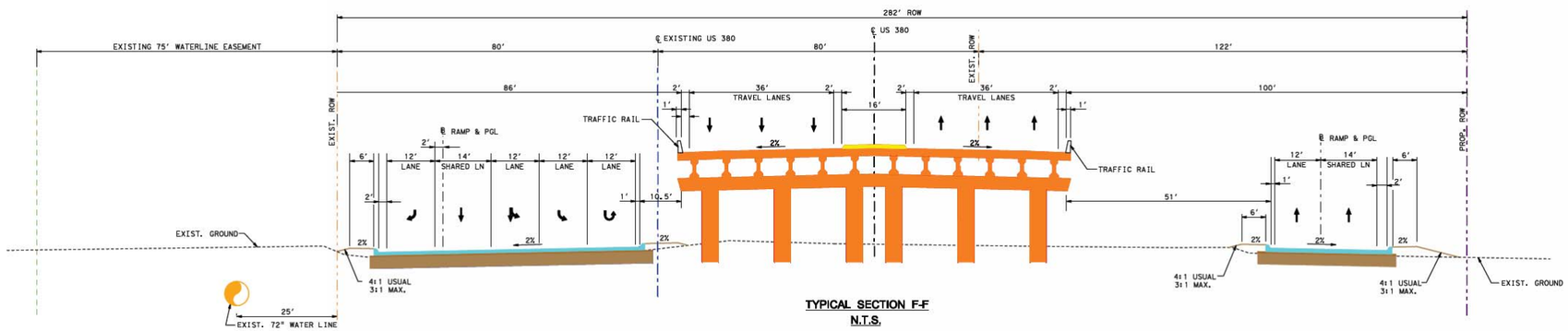

**TYPICAL SECTION A-A**
**N.T.S**




STA. 1302+50 TO STA. 1297+00




**TYPICAL SECTION B-B**
**N.T.S**




**TYPICAL SECTION F-F**
**N.T.S.**

Figure 4b
Typical Section
Proposed

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

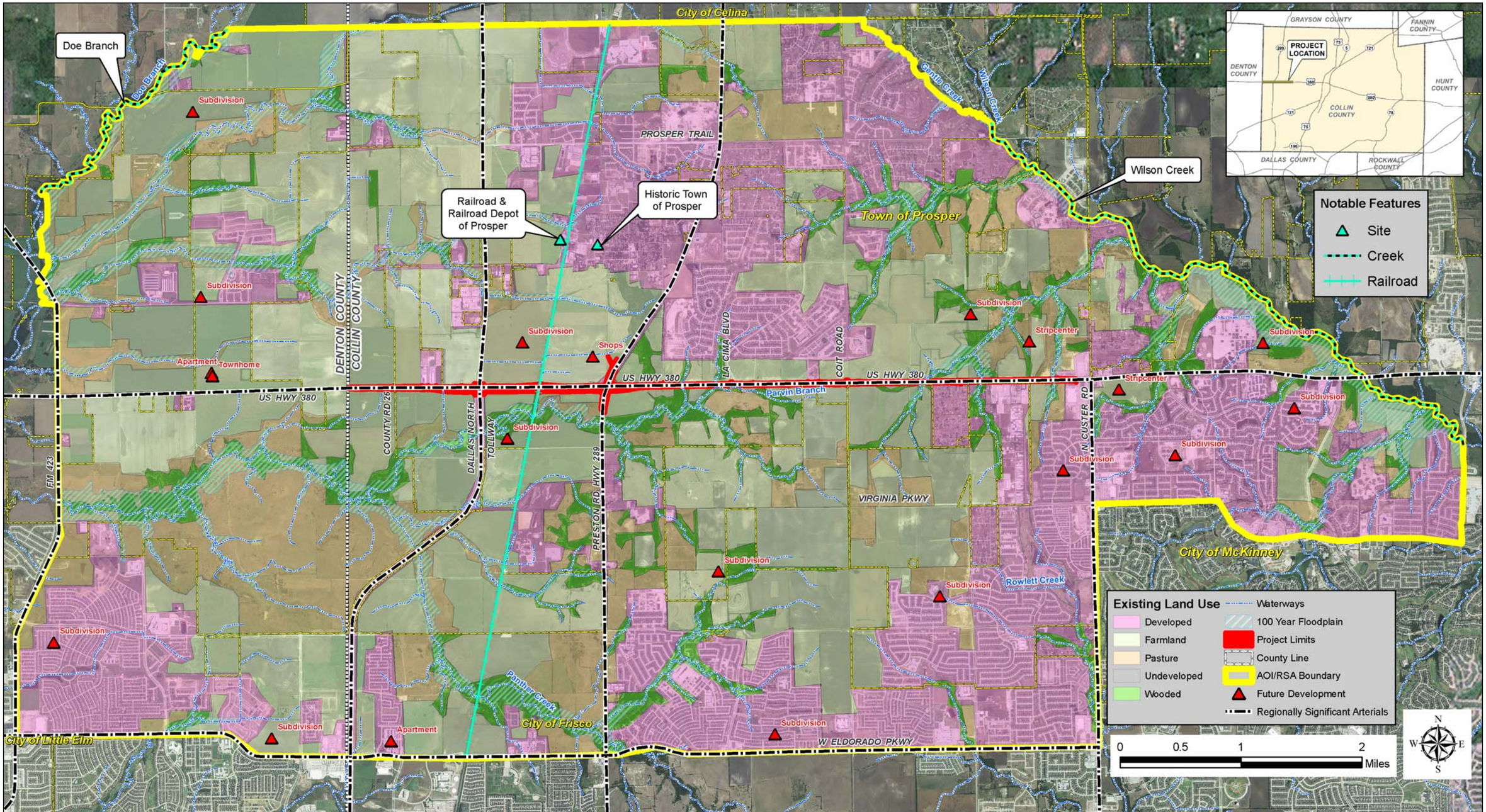



Figure 5
Indirect and Cumulative Impacts AOI/RSA

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

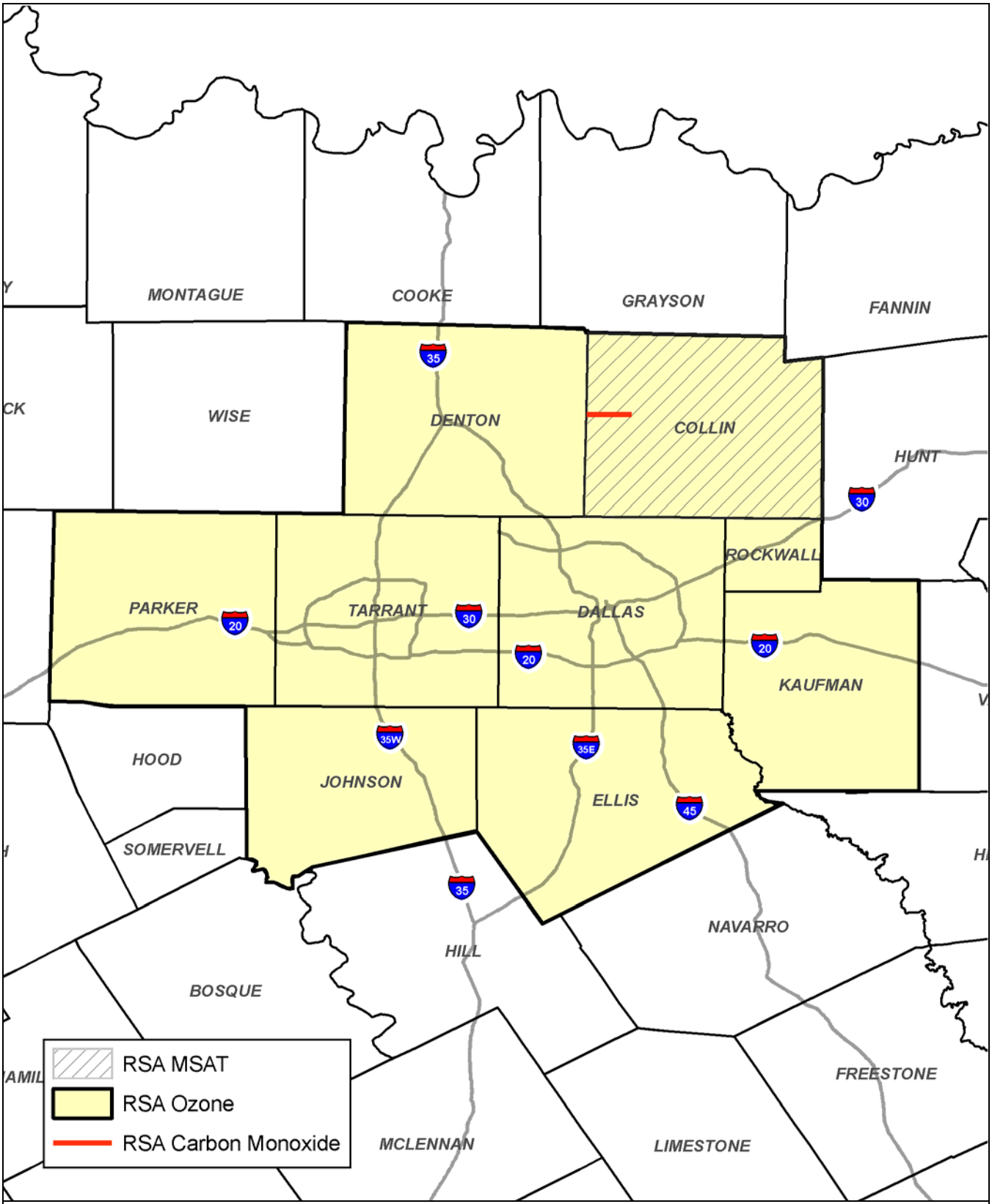



Figure 6 US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
Cumulative Impacts RSAs – Air Quality CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050


Photo 1: View at Denton/Collin County line, facing east


Photo 2: View near BNSF railroad overpass– facing west

Figure 7a
Project Photographs

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050


Photo 3: View from US 380 median facing SH 289 (Preston Road), facing west (June 2011)

Photo 4: View at SH 289 (Preston Road ) Swallow nests were under bridge (June 2011)

Figure 7b
Project Photographs

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050


Photo 5: View from US 380 near Lovers Road, facing east

Photo 6: View of Typical Fencerow Vegetation (US 380 near Coit Road – facing east) (June 2011)

Figure 7c
Project Photographs

US 380: From West of CR 26 (Denton/Collin County Line) to Custer Road (FM 2478)
CSJ: 0135-11-018, 0135-02-049, 0135-02-044, and 0135-02-050

Photo 7: View of Water #6 – Tributary to Rutherford Branch, facing south (June 2011)

Photo 8: View of Water 8 – Tributary to Rutherford Branch Branch, facing south (June 2011)

# APPENDIX A

Project Name: US 380 – DCL to Custer
CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903

# Stream Data Form

**Stream Data Form** #_1_

Surveyor(s):Liz Yanez, Hillary Reynolds Updated  Date of Field Work: 7/9/08, 6/22/11

USGS Stream Name: Tributary of Parvin Branch  County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West  Stream Number (303(d) List):

Associated Wetland(s): N/A  GPS Data: UTM E 0702672 N 3677680

Stream Type: Ephemeral Intermittent (Perennial)

Stream Flow Direction: North

OHWM Width (ft): 11'

OHWM Height (in): 0

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): concrete culvert

Water Quality:

Clear  Slightly Turbid  Turbid  Very Turbid

Color of water if other than clear. No water in channel

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar  Sand/Gravel beach/bar  Mud bar  Gravel riffles

Overhanging trees/shrubs  Deep pool/hole/channel  Aquatic vegetation

Other: N/A

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

N/A

Riparian Vegetation: List species observed.

N/A

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

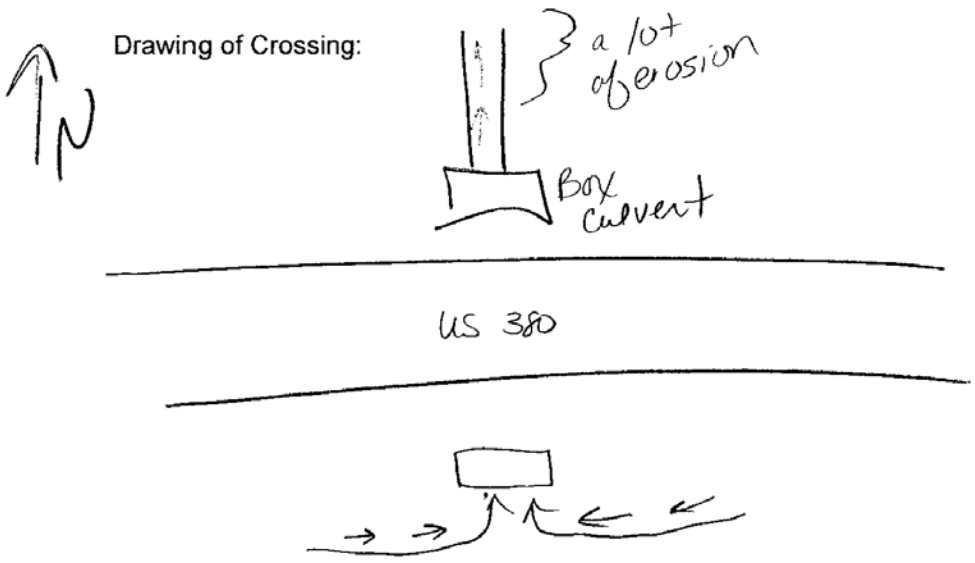
# Stream Data Form (continued)

**Stream Data Form # 1**

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# Stream Data Form

**Stream Data Form** #_2_

Surveyor(s):Liz Yanez, Hillary Reynolds Date of Field Work: 7/9/08, 6/22/11 Updated

USGS Stream Name: Tributary of Parvin Branch County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West Stream Number (303(d) List):

Associated Wetland(s): N/A GPS Data: UTM E 0705795 N 3677712

Stream Type: Ephemeral (Intermittent) Perennial

Stream Flow Direction: South

OHWM Width (ft): 2'

OHWM Height (in): 3"

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): sand/gravel

Water Quality:

Clear (Slightly Turbid) Turbid Very Turbid

Color of water if other than clear.

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar Sand/Gravel beach/bar Mud bar Gravel riffles

Overhanging trees/shrubs Deep pool/hole/channel Aquatic vegetation

Other: N/A

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

N/A

Riparian Vegetation: List species observed.

See Woodland Data Form 5

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

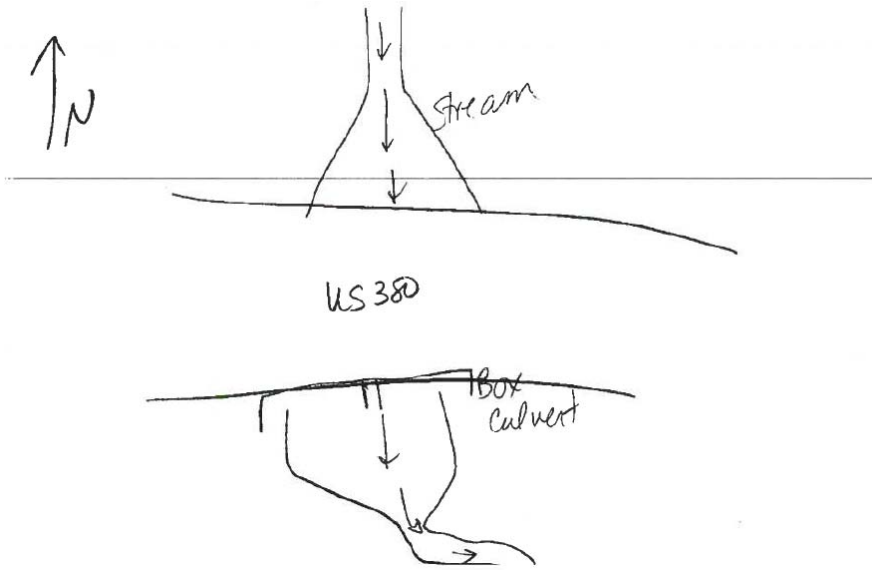
# Stream Data Form (continued)

**Stream Data Form #** 2

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

Project Name: US 380 – DCL to Custer
CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903

# Stream Data Form

**Stream Data Form** #_3_

Surveyor(s):Liz Yanez, Hillary Reynolds Updated  Date of Field Work: 7/9/08, 6/22/11

USGS Stream Name: Tributary of Parvin Branch  County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West  Stream Number (303(d) List):

Associated Wetland(s): N/A  GPS Data: UTM E 0706283 N 367715

Stream Type: Ephemeral (Intermittent) Perennial

Stream Flow Direction: North

OHWM Width (ft): 3’

OHWM Height (in): 2”

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): Gravel

Water Quality:

(Clear) Slightly Turbid Turbid Very Turbid

Color of water if other than clear. _____

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar Sand/Gravel beach/bar Mud bar (Gravel riffles)

Overhanging trees/shrubs Deep pool/hole/channel Aquatic vegetation

Other: _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

N/A

Riparian Vegetation: List species observed.

See Woodland Data Form 6

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

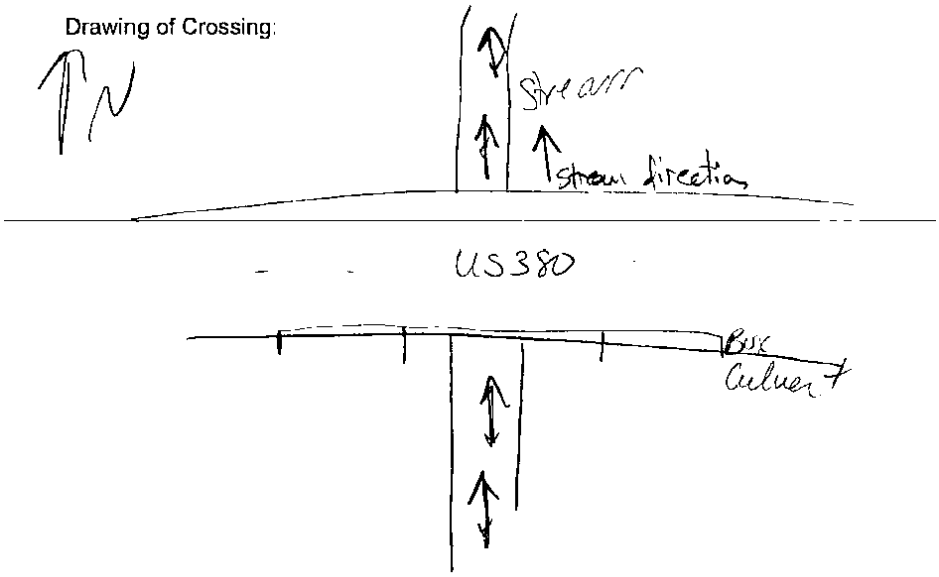
# Stream Data Form (continued)

**Stream Data Form # 3**

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# Stream Data Form

**Stream Data Form** #_4_

Surveyor(s):Liz Yanez, Hillary Reynolds Date of Field Work: 7/9/08, 6/22/11 Updated

USGS Stream Name: Unnamed Drainage Swale County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West Stream Number (303(d) List):

Associated Wetland(s): N/A GPS Data: UTM E 0707251 N 3677728

Stream Type: (Ephemeral) Intermittent Perennial

Stream Flow Direction: South

OHWM Width (ft): 20 ‘ at culvert, 2’ downstream

OHWM Height (in): 4”

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): gravel, sand

Water Quality:

Clear Slightly Turbid Turbid Very Turbid

Color of water if other than clear. No water in channel

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar Sand/Gravel beach/bar Mud bar Gravel riffles

Overhanging trees/shrubs Deep pool/hole/channel Aquatic vegetation

Other: N/A

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None observed

Riparian Vegetation: List species observed.

See Woodland Data Form 9

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

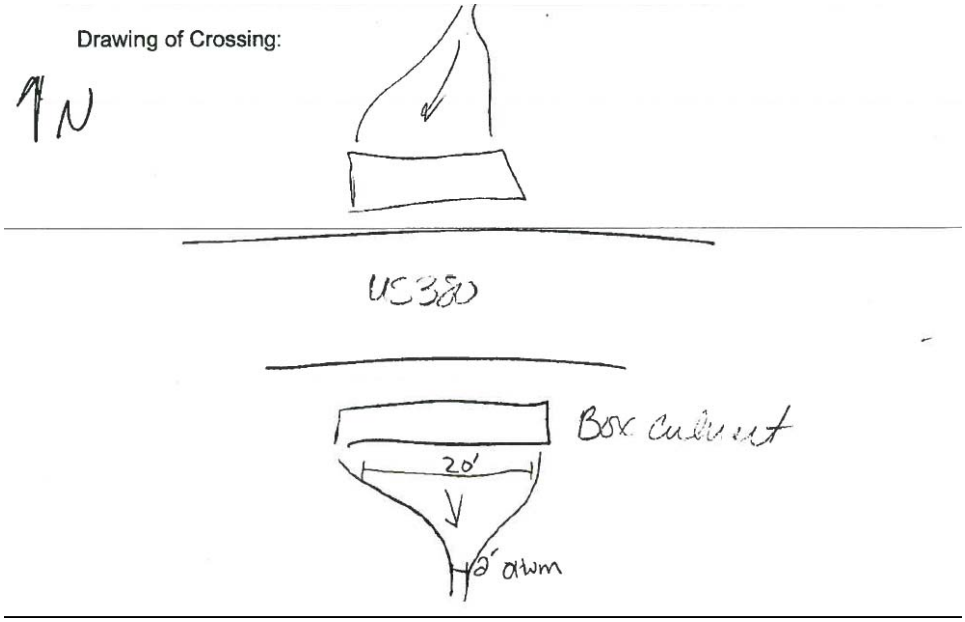
# Stream Data Form (continued)

**Stream Data Form # 4**

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# Stream Data Form

**Stream Data Form** #_5_

Surveyor(s):Liz Yanez Date of Field Work: 6/22/11

USGS Stream Name: Unnamed Drainage Swale County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West Stream Number (303(d) List):

Associated Wetland(s): N/A GPS Data: UTM N 3677749, E 708437

Stream Type: (Ephemeral) Intermittent Perennial

Stream Flow Direction: Southeast

OHWM Width (ft): Culvert silted over, stream channel1-2ft

OHWM Height (in): 6 inch at stream channel

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): Concrete Culvert, sand gravel trib

Water Quality:

Clear (Slightly Turbid) Turbid Very Turbid

Color of water if other than clear. _____

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar Sand/Gravel beach/bar Mud bar (Sand/Gravel riffles)

Overhanging trees/shrubs Deep pool/hole/channel Aquatic vegetation

Other: _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None observed

Riparian Vegetation: List species observed.

See Woodland Data Form 10

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

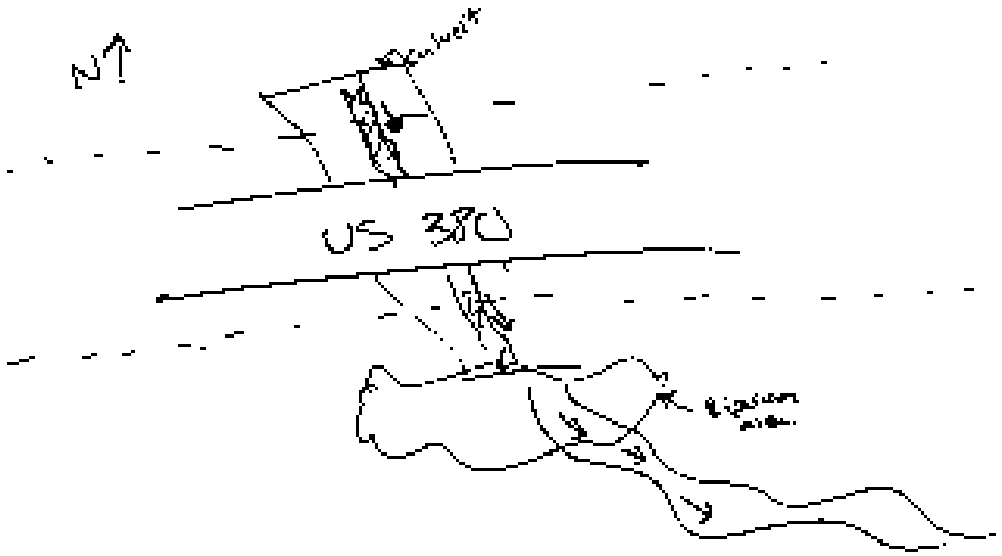
# Stream Data Form (continued)

**Stream Data Form #** 5

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# Stream Data Form

**Stream Data Form** #_6_

Surveyor(s):Liz Yanez, Hillary Reynolds Updated  Date of Field Work: 7/9/08, 6/22/11

USGS Stream Name: Unnamed Drainage Swale  County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West  Stream Number (303(d) List):

Associated Wetland(s): N/A  GPS Data: UTM N 3677750, E 708879

Stream Type: (Ephemeral)  Intermittent  Perennial

Stream Flow Direction: southeast

OHWM Width (ft): culvert width at culvert 2' at channel

OHWM Height (in): 6' at channel; channel 0" at culvert

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): clay

Water Quality:

Clear  ~~Slightly Turbid~~  Turbid  Very Turbid

Color of water if other than clear. _____

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar  Sand/Gravel beach/bar  Mud bar  Gravel riffles

Overhanging trees/shrubs  Deep pool/~~hole~~/channel  Aquatic vegetation

Other: _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None observed

Riparian Vegetation: List species observed.

See Woodland Data Form 11

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

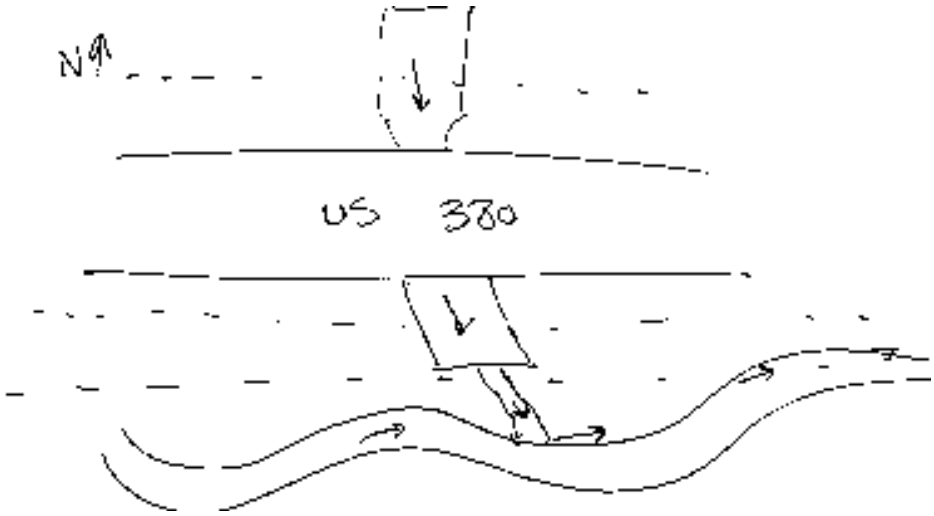
# Stream Data Form (continued)

**Stream Data Form #6**

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

Project Name: US 380 – DCL to Custer
CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903

# Stream Data Form

**Stream Data Form** #_7_

Surveyor(s):Liz Yanez Date of Field Work: 6/22/11

USGS Stream Name: Rutherford Branch County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West Stream Number (303(d) List):

Associated Wetland(s): N/A GPS Data: UTM N 3677749, E 709123

Stream Type: Ephemeral Intermittent (Perennial)

Stream Flow Direction: North

OHWM Width (ft): 6-8 ft at channel, 50 ft at culvert

OHWM Height (in): 1' at culvert, 8" at channel

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic): clay

Water Quality:

Clear Slightly Turbid (Turbid) Very Turbid

Color of water if other than clear. _____

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar Sand/Gravel beach/bar Mud bar Gravel riffles

Overhanging trees/shrubs (Deep pool/hole/channel) Aquatic vegetation

Other: _____

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Small fish, frogs

Riparian Vegetation: List species observed.

See Woodland Data Form11

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

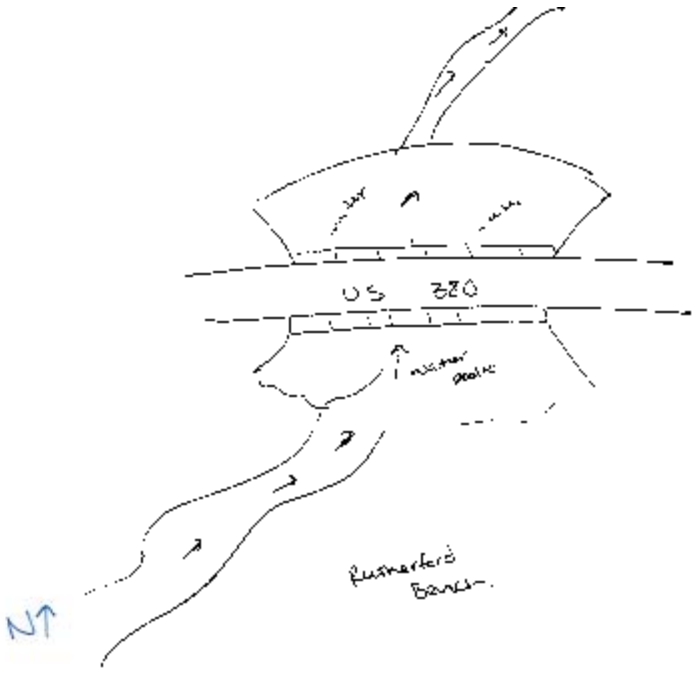
# Stream Data Form (continued)

**Stream Data Form #7**

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# Stream Data Form

**Stream Data Form** #_8_

Surveyor(s):Liz Yanez Date of Field Work: 6/22/11

USGS Stream Name: Tributary of Rutherford Branch County/State: Collin, TX

USGS Topo Quad Name: Frisco, McKinney West Stream Number (303(d) List): N/A

Associated Wetland(s): N/A GPS Data: UTM N 3677760, E 709808

Stream Type: Ephemeral Intermittent (Perennial)

Stream Flow Direction: North

OHWM Width (ft): 5'at channel, 40 ft at culvert

OHWM Height (in): 5-6" at channel

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic):

Water Quality:

Clear Slightly Turbid (Turbid) Very Turbid

Color of water if other than clear.

Aquatic Habitat: Indicate all types present within ROW/project limits.

Sand bar Sand/Gravel beach/bar Mud bar Gravel riffles

Overhanging trees/shrubs Deep pool/hole/channel Aquatic vegetation

Other:

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None observed

Riparian Vegetation: List species observed.

See Woodland Data Form 12

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

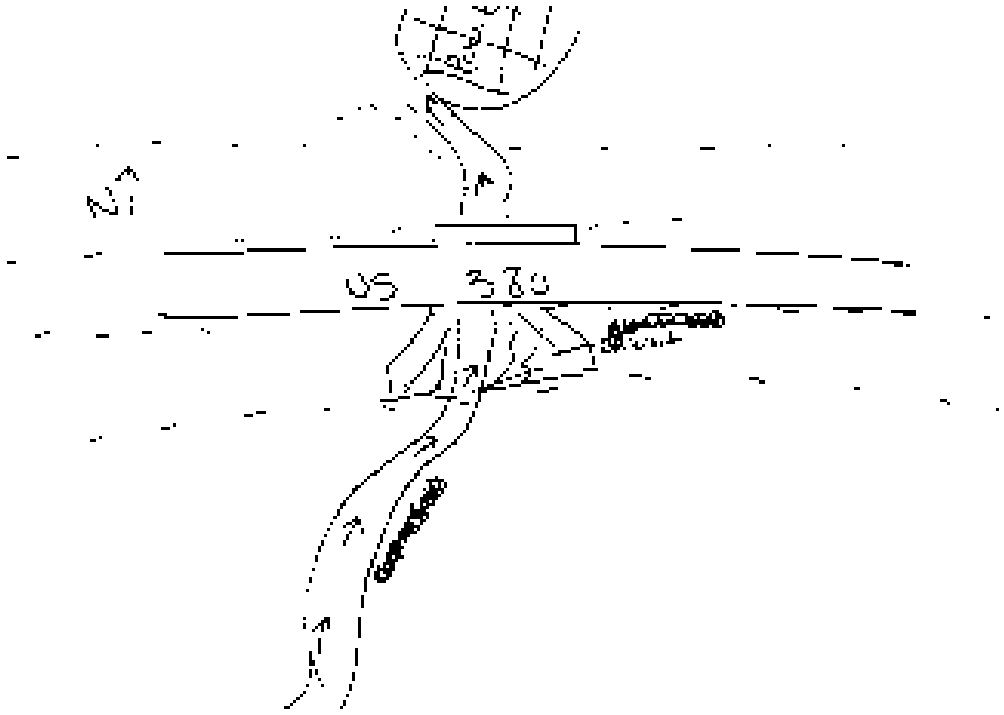
# Stream Data Form (continued)

**Stream Data Form #** 8

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# Stream Data Form

**Stream Data Form** #_9_

Surveyor(s):Liz Yanez Date of Field Work: 6/22/11

USGS Stream Name: Tributary of Rutherford Branch County/State: Collin, TX
USGS Topo Quad Name: Frisco, McKinney West Stream Number (303(d) List):NA
Associated Wetland(s): N/A GPS Data: UTM N 3677771 E 710807

Stream Type: Ephemeral Intermittent (Perennial)
Stream Flow Direction: North
OHWM Width (ft): 5-7'
OHWM Height (in): 6"

Stream bottom composition (bedrock, gravel, sand, silt, clay, organic):

Water Quality:
Clear (Slightly Turbid) Turbid Very Turbid
Color of water if other than clear.

Aquatic Habitat: Indicate all types present within ROW/project limits.
Sand bar Sand/Gravel beach/bar (Mud bar) Gravel riffles
Overhanging trees/shrubs Deep pool/hole/channel Aquatic vegetation
Other:

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None observed

Riparian Vegetation: List species observed.

See Woodland Data Form 13

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

N/A

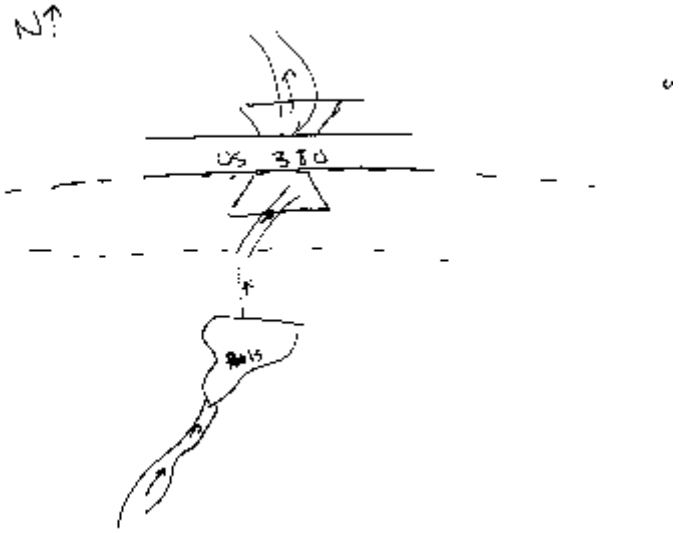
# Stream Data Form (continued)

**Stream Data Form #** 9

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- directional arrow;
- width of channel from top of bank to top of bank; and,
- width of stream from water edge to water edge.

Plan View




Section View

# APPENDIX B

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 1 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Upland Fencerow | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Hackberry | *Celtis laevigata* | 2”-8” |
| Cedar Elm | *Ulmus crassifolia* | 2”-4” |
| Osage Orange | *Maclura pomifera* | 2”-4” |
| Black Locust | *Robinia pseudoacacia* | 2”-3” |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.059 | |
| Density per Acre | 200 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| N/A | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries, Nuts | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| N/A | |
| Remarks | |
| Upland stand on south side of US 380 east of Denton/Collin County line. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 2 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Fencerow | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 2”-10” |
| Cedar Elm | *Ulmus crassifolia* | 2”-8” |
| | | |
| | | |
| | | |
| | | |
| Acreage of Trees to be Removed | .1 | |
| Density per Acre | 200 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| N/A | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | Yes |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| No | |
| Remarks | |
| This site is along the Railroad tracks and an unnamed branch of Parvin Branch. Site surrounded by crops. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 3 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Upland Fencerow | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 2-10” |
| Texas Mulberry | *Morus rubra* | 2-8” |
| Chinaberry | *Melia azedarach* | 3” |
| Mulberry | *Celtis occidentalis* | 4-10” |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.04 | |
| Density per Acre | | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| None | |
| Remarks | |
| Site is a fence line on the south side of US 380 in Collin County. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 4 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Upland | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 2”-12” |
| Black Locust | *Robinia pseudoacacia* | 2-4” |
| | | |
| | | |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.046 | |
| Density per Acre | 200 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| None | |
| Remarks | |
| Site is a stand on the south side of US 380 in Collin County. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 5 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Pecan | *Carya illinoiensis* | 8-12” |
| Sugarberry | *Celtis laevigata* | 4-10” |
| Texus redbud | *Cercis canadensis* | 6” |
| Cottonwood | *Populus deltoids* | 6-8” |
| American elm | *Ulmus americana* | 8-10” |
| | | |
| Acreage of Trees to be Removed | 0.275 | |
| Density per Acre | 200 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | Yes |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries, nuts | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| None | |
| Remarks | |
| Site is on the south side of US 380 in Collin County. Surrounds an unnamed branch of Parvin Branch. Site is surrounded by cropland. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 6 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 2-10” |
| Cedar elm | *Ulmus crassifolia* | 6-8” |
| American elm | *Ulmus americana* | 6-12” |
| Black Locust | *Robinia pseudoacacia* | 2-4” |
| Ash | *Fraxinus sp.* | 4-6” |
| | | |
| Acreage of Trees to be Removed | 0.15 | |
| Density per Acre | 200 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | Yes |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| No | |
| Remarks | |
| Adjacent to south side of US 380 in Collin County. Provides potential connectivity to larger riparian area surrounding Parvin Branch. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 7 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 2-6” |
| Texas mulberry | *Morus rubra* | 4-6” |
| Cedar elm | *Ulmus crassifolia* | 4-8” |
| Black locust | *Robinia pseudoacacia* | 4-6” |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.14 | |
| Density per Acre | 100 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | Yes |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| None | |
| Remarks | |
| Site could provide connectivity to other riparian areas surrounding Parvin Branch. Site is on the south side of US 380 and adjacent to a stock pond. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 8 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 6-12” |
| Black locust | *Robinia pseudoacacia* | 1-2” |
| | | |
| | | |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.03 | |
| Density per Acre | | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| None | |
| Remarks | |
| Very patchy fence line on south side of US 380. Site could provide some connectivity to Parvin Branch riparian area. Surrounded by cropland. | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 9 | | | Date | 14 July 2008 |
| CSJ | | Investigator | H. Reynolds, E. Yañez | County | Collin |
| Filename | US 380 from FM 423 to Coit Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 4-6” |
| Black Willow | *Salix nigra* | 8-12” |
| | | |
| | | |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.12 | |
| Density per Acre | 25 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| None | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | Yes |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| No | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| None | |
| Remarks | |
| | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 10 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 6”-10” |
| Cedar Elm | *Ulmus crassifolia* | 2”-4” |
| Osage Orange | *Maclura pomifera* | 4”-6” |
| Black Locust | *Robinia pseudoacacia* | 2”-4” |
| Black Willow | *Salix nigra* | 10”-15” |
| | | |
| Acreage of Trees to be Removed | 0.04 | |
| Density per Acre | 100 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| N/A | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | Yes- drainage swale |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| N/A | |
| Remarks | |
| | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 11 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Sugarberry | *Celtis laevigata* | 10”-20” |
| Black Locust | *Robinia pseudoacacia* | 3”-6” |
| Mulberry | *Morus rubra* | 8”-10” |
| American Elm | *Ulmus americana* | 2”-3” |
| Black Willow | *Salix nigra* | 3”-4” |
| Cedar Elm | *Ulmus crassifolia* | 4”-5” |
| Osage Orange | *Maclura pomifera* | 12”-16” |
| Acreage of Trees to be Removed | 0.36 | |
| Density per Acre | 100 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| N/A | | |
| | | |
| | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| N/A | |
| Remarks | |
| | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 12 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Black Willow | *Salix nigra* | 10”-20” |
| Cedar Elm | *Ulmus crassifolia* | 3”-5” |
| Sugarberry | *Celtis laevigata* | 8”-15” |
| American Elm | *Ulmus americana* | 20”-45” |
| | | |
| | | |
| Acreage of Trees to be Removed | 0.29 | |
| Density per Acre | 100 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| A few mature American Elms along the existing ROW | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| N/A | |
| Remarks | |
| | |

# TxDOT WOODLANDS DATA FORM

**GENERAL**

| | | | | | |
|---|---|---|---|---|---|
| Project/Site | US 380, Woodland 13 | | | Date | 22 June 2011 |
| CSJ | CSJ: 0135-11-018, 0135-02-XXX, 0135-02-044, 0135-02-903 | Investigator | E. Yañez | County | Collin |
| Filename | US 380 from Denton County Line to Custer Road | | | | |
| Project Scope | | | | | |
| CE for additional capacity improvements to US 380 | | | | | |
| Description of Wooded Site (riparian, upland, fence line, overstory/understory, disturbed, diverse, etc.) | | | | | |
| Riparian and fenceline area | | | | | |
| Is Site Unusual or Typical of Others in the Area? | Typical | | | | |

**SPECIES DESCRIPTION**

| Species by Order of Dominance | | |
|---|---|---|
| Common Name | Taxonomic Name | Range of Sizes (dbh) |
| Black Willow | *Salix nigra* | 3”-5” |
| Cedar Elm | *Ulmus crassifolia* | 4”-35” |
| Sugarberry | *Celtis laevigata* | 10”-12” |
| American Elm | *Ulmus americana* | 2”-4” |
| Texas Mulberry | *Morus rubra* | 2”-4” |
| Black Locust | *Robinia pseudoacacia* | 2”-4” |
| Acreage of Trees to be Removed | 0.15 | |
| Density per Acre | 100 | |
| Remarks, Description of any Unique, Large, or Mature Trees (≥20” dbh) | | |
| A few mature Elms along the existing ROW | | |

**HABITAT VALUE**

| | |
|---|---|
| Is the Site Adjacent to Water? | No |
| Is the Site in a Developed Area? | No |
| Do Plants Produce Nuts, Berries, or Acorns? | |
| Berries | |
| Land Use in the Project Area. | |
| Undeveloped | |
| Evidence or Sightings of Wildlife in the Project Area? | |
| N/A | |
| Remarks | |
| | |

# APPENDIX C

GeoSearch
On time. On target. In touch.™

# *Radius Report*

http://www.geo-search.net/QuickMap/index.htm?DataID=Standard0000030357

*Click on link above to access the map and satellite view of current property*

*Target Property:*

***US 380 CE***
***US Highway 380***
***Collin County, Texas 75078***

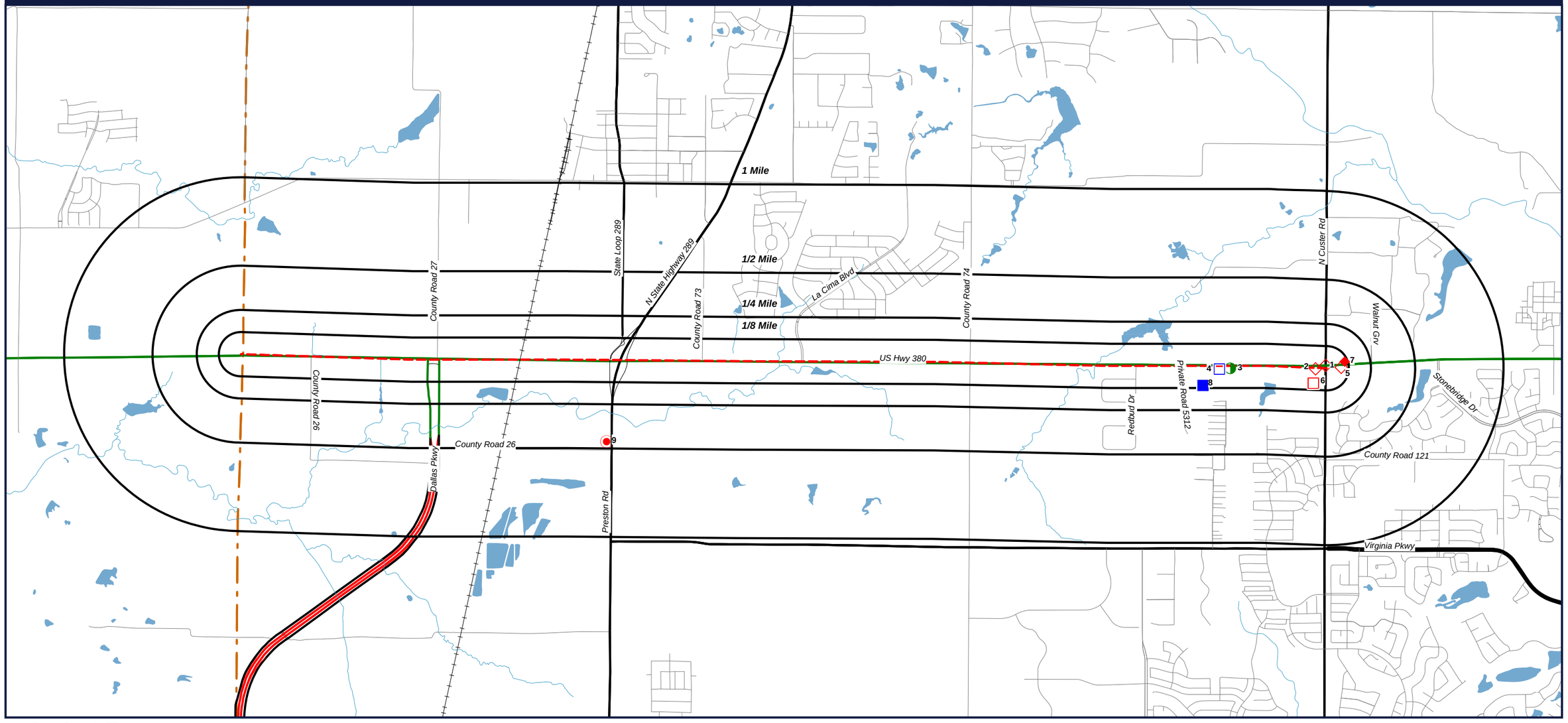
*Prepared For:*

***AECOM - Dallas***

***Order #: 13089***
***Job #: 30357***
***Project #: 60178883.01.999***
***Date: 06/23/2011***

***3006 Bee Caves Rd, Suite A-230 · Austin, Texas 78746 · phone: 888-396-0042 · fax: 512-472-9967 · www.geo-search.net***

# RADIUS MAP




- Target Property (TP)
- PST
- PADS
- NLRRCRAG
- RCRAGR06
- LPST
- TIERII
- CALF

***US 380 CE***
***US Highway 380***
***Collin County, Texas***
***75078***

N
W E
S

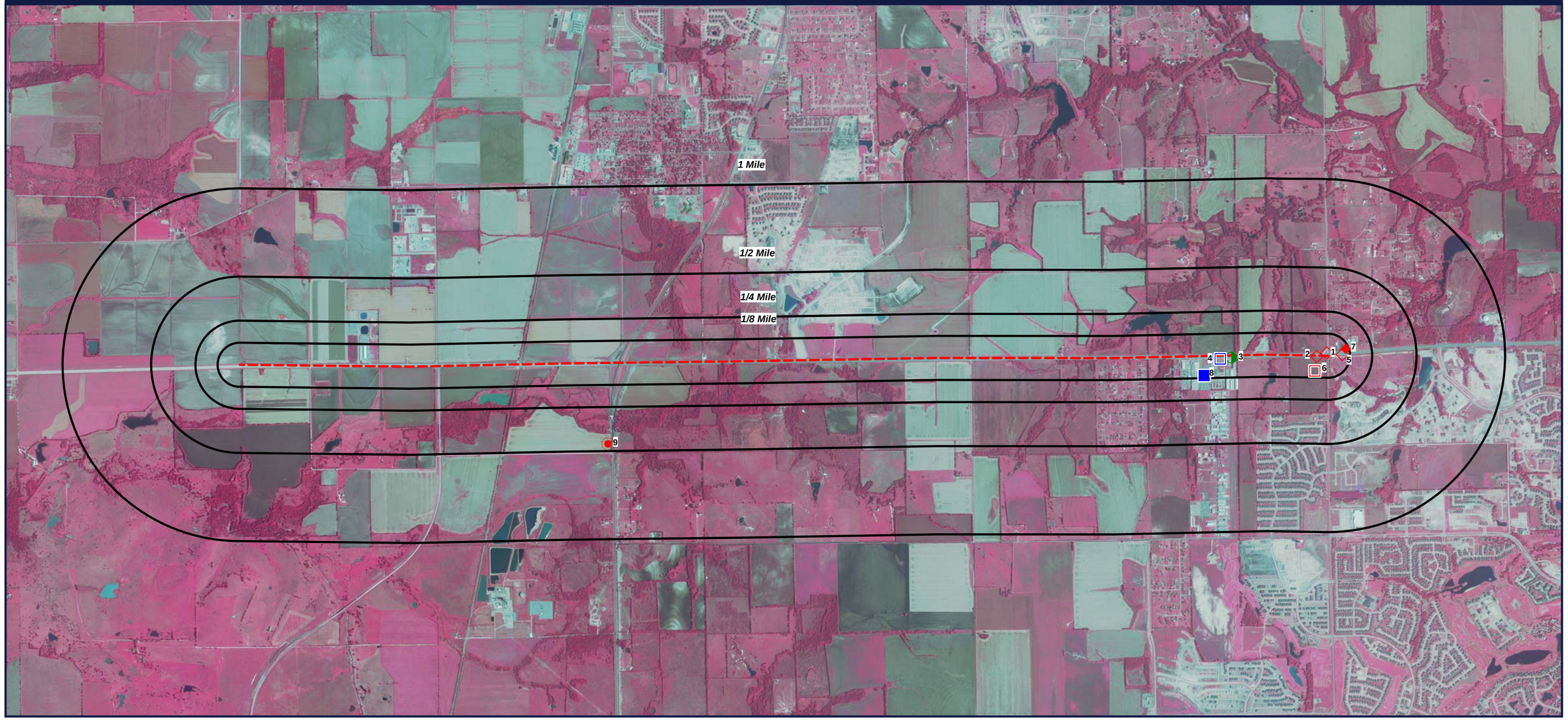
0' 1500' 3000' 4500'

SCALE: 1" = 3000'

GeoSearch *www.geo-search.net - phone: 866-396-0042 - fax: 512-472-9967*

JOB #: 30357 - 6/23/2011

# ORTHOPHOTO MAP




- Target Property (TP)
- PST
- PADS
- NLRRCRAG
- RCRAGR06
- LPST
- TIERII
- CALF

***Quadrangle(s): Frisco, Mc Kinney West***
***Source: USDA (2004)***
***US 380 CE***
***US Highway 380***
***Collin County, Texas***
***75078***

N
W E
S

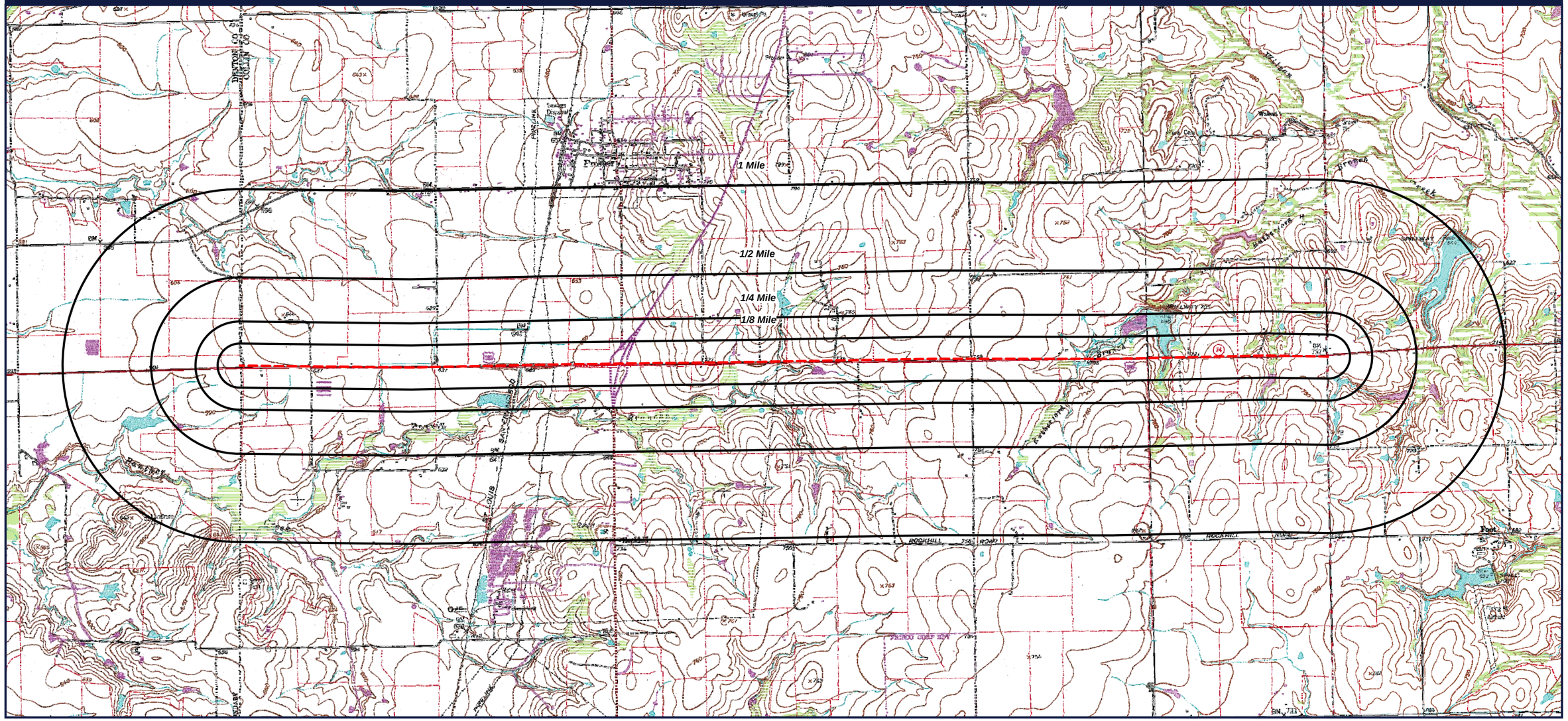
0' 1500' 3000' 4500'

SCALE: 1" = 3000'

GeoSearch *www.geo-search.net - phone: 866-396-0042 - fax: 512-472-9967*

JOB #: 30357 - 6/23/2011

## TOPOGRAPHIC MAP




Target Property (TP)

***Quadrangle(s): Frisco, Mc Kinney West***
***Source: USGS, 1960***
***US 380 CE***
***US Highway 380***
***Collin County, Texas***
***75078***

N
W E
S

0' 1500' 3000' 4500'

*SCALE: 1" = 3000'*

GeoSearch *www.geo-search.net - phone: 866-396-0042 - fax: 512-472-9967*

JOB #: 30357 - 6/23/2011

# APPENDIX D

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | DALLAS | 0095-13-025 | IH 20 | C | BALCH SPRINGS | TXDOT-DALLAS | **$6,223,114** |

LIMITS FROM: IH 635
LIMITS TO: SEAGOVILLE ROAD
TIP DESCRIPTION: CONSTRUCT 2 NEW RAMPS FOR ACCESS MANAGEMENT
REMARKS: REMOVE RTR, ADD CAT 12(S), AND MOVE TO FY2012; CAT 10 IS GREEN RIBBON FUNDING

REV DATE: 02/2012
MPO PROJECT ID: 20038
FUNDING CATEGORY: 10,12(S)
MTP REFERENCE: FT3-007

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $222,345 |
| Right Of Way: | $975,000 |
| Construction: | $6,223,114 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$7,420,459** |

**Cost of Approved Phases:** **$6,223,114**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 12(S): | $4,943,691 | $1,235,923 | $0 | $0 | $0 | $6,179,614 |
| Category 10: | $39,150 | $4,350 | $0 | $0 | $0 | $43,500 |
| **Funding by Share:** | $4,982,841 | $1,240,273 | $0 | $0 | $0 | **$6,223,114** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | DENTON | 0134-09-034 | US 380 | C,E,R | DENTON | TXDOT-DALLAS | **$19,032,920** |

LIMITS FROM: WEST OF BONNIE BRAE ST
LIMITS TO: US 377/US 77
TIP DESCRIPTION: RECONSTRUCT AND WIDEN 4 TO 6 LANE DIVIDED URBAN
REMARKS: CHANGE FUNDING SOURCE, DELAY BY CITY OF DENTON UTILS - BDH 5/6/9; CAT 1 PROVIDING MATCH FOR RTR

REV DATE: 02/2012
MPO PROJECT ID: 11225.1, 11225.2
FUNDING CATEGORY: 1,12(S),3,11
MTP REFERENCE: RSA1-384.2

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $500,000 |
| Right Of Way: | $250,000 |
| Construction: | $18,282,920 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$19,032,920** |

**Cost of Approved Phases:** **$19,032,920**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 1: | $2,560,000 | $640,000 | $0 | $0 | $0 | $3,200,000 |
| Category 12(S): | $9,466,336 | $2,366,584 | $0 | $0 | $0 | $11,832,920 |
| Category 3 - RTR: | $0 | $0 | $1,000,000 | $0 | $0 | $1,000,000 |
| Category 11: | $2,400,000 | $600,000 | $0 | $0 | $0 | $3,000,000 |
| **Funding by Share:** | [illegible] | [illegible] | [illegible] | $0 | $0 | [illegible] |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-02-044 | US 380 | E,R | VARIOUS | TXDOT-DALLAS | **$10,250,000** |

LIMITS FROM: CR 73 (LOVERS LANE)
LIMITS TO: COIT ROAD (CR 72/CR 74)
TIP DESCRIPTION: WIDEN EXISTING 4 LANE DIVIDED TO 6 LANE DIVIDED
REMARKS: REVISE LIMITS AND FUNDING

REV DATE: 02/2012
MPO PROJECT ID: 20012
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.51, RSA1-384.52, RSA1-384.53, IN1-2.526.1

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $1,250,000 |
| Right Of Way: | $9,000,000 |
| Construction: | $7,812,500 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$18,062,500** |

**Cost of Approved Phases:** **$10,250,000**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $9,100,000 | $1,150,000 | $0 | $10,250,000 |
| **Funding by Share:** | $0 | $0 | $9,100,000 | $1,150,000 | $0 | **$10,250,000** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | TOT COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-02-049 | US 380 | E,R | VARIOUS | TXDOT-DALLAS | **$3,805,555** |

LIMITS FROM: EAST OF SH 289
LIMITS TO: CR 73 (LOVERS LANE)
TIP DESCRIPTION: WIDEN HIGHWAY FROM 4 LANES TO 6 LANE DIVIDED WITH TWO LANE ACCESS ROAD
REMARKS: REVISE SCOPE AND FUNDING; RTR 121-CC1

REV DATE: 02/2012
MPO PROJECT ID: 54113
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.52, FT3-007

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $1,250,000 |
| Right Of Way: | $2,555,555 |
| Construction: | $10,312,500 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$14,118,055** |

**Cost of Approved Phases:** **$3,805,555**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $3,300,000 | $505,555 | $0 | $3,805,555 |
| **Funding by Share:** | $0 | $0 | $3,300,000 | $505,555 | $0 | **$3,805,555** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | TOT COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-02-050 | US 380 | E | VARIOUS | TXDOT-DALLAS | **$1,308,653** |

LIMITS FROM: CR 72 (COIT ROAD)
LIMITS TO: FM 2478 (CUSTER ROAD)
TIP DESCRIPTION: WIDEN HIGHWAY FROM FOUR LANES TO SIX LANE DIVIDED
REMARKS: ADD PROJECT TO TIP/STIP

REV DATE: 02/2012
MPO PROJECT ID: 20264
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.60

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $1,308,653 |
| Right Of Way: | $0 |
| Construction: | $5,515,341 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$6,823,994** |

**Cost of Approved Phases:** **$1,308,653**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $1,046,922 | $261,731 | $0 | $1,308,653 |
| **Funding by Share:** | $0 | $0 | $1,046,922 | $261,731 | $0 | **$1,308,653** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | TOT COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-11-018 | US 380 | E,R | VARIOUS | TXDOT-DALLAS | **$7,784,146** |

LIMITS FROM: WEST OF CR 26 (DENTON COUNTY LINE)
LIMITS TO: EAST OF SH 289
TIP DESCRIPTION: WIDEN 4 TO 6 LANES DIVIDED, ADD NEW 4/6 LANE ACCESS ROADS AT GRADE SEPARATION; CONSTRUCT GRADE SEPARATION AT US 380 AND DNT
REMARKS: REVISE FUNDING; RTR 121-CC1

REV DATE: 02/2012
MPO PROJECT ID: 20013
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.50, IN1-21.2.1, TSM2-001

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $2,784,146 |
| Right Of Way: | $5,000,000 |
| Construction: | $55,000,000 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$62,784,146** |

**Cost of Approved Phases:** **$7,784,146**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $6,727,317 | $1,056,829 | $0 | $7,784,146 |
| **Funding by Share:** | $0 | $0 | $6,727,317 | $1,056,829 | $0 | **$7,784,146** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | DENTON | 0081-03-048 | US 377 | C | ROANOKE | TXDOT-DALLAS | **$12,733,749** |

LIMITS FROM: HENRIETTA CREEK RD
LIMITS TO: SH 114 (SECTION 5)
TIP DESCRIPTION: RECONSTRUCT AND WIDEN 2/4 TO 4 LANE DIVIDED URBAN
REMARKS: REVISE LIMITS; RTR 121-DE1 FUNDS

REV DATE: 02/2012
MPO PROJECT ID: 20120
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-368.01, RSA1-368.02

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $125,000 |
| Right Of Way: | $325,000 |
| Construction: | $12,733,749 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$13,183,749** |

**Cost of Approved Phases:** **$12,733,749**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $10,190,999 | $2,542,750 | $0 | $12,733,749 |
| **Funding by Share:** | $0 | $0 | $10,190,999 | $2,542,750 | $0 | $12,733,749 |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-02-044 | US 380 | C | VARIOUS | TXDOT-DALLAS | **$7,812,500** |

LIMITS FROM: CR 73 (LOVERS LANE)
LIMITS TO: COIT ROAD (CR 72/CR 74)
TIP DESCRIPTION: WIDEN EXISTING 4 LANE DIVIDED TO 6 LANE DIVIDED
REMARKS: REVISE LIMITS AND FUNDING

REV DATE: 02/2012
MPO PROJECT ID: 20012
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.51, RSA1-384.52, RSA1-384.53, IN1-2.526.1

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $1,250,000 |
| Right Of Way: | $9,000,000 |
| Construction: | $7,812,500 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$18,062,500** |

**Cost of Approved Phases:** **$7,812,500**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $6,250,000 | $1,562,500 | $0 | $7,812,500 |
| **Funding by Share:** | $0 | $0 | $6,250,000 | $1,562,500 | $0 | **$7,812,500** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-02-049 | US 380 | C | VARIOUS | TXDOT-DALLAS | **$10,312,500** |

LIMITS FROM: EAST OF SH 289
LIMITS TO: CR 73 (LOVERS LANE)
TIP DESCRIPTION: WIDEN HIGHWAY FROM 4 LANES TO 6 LANE DIVIDED WITH TWO LANE ACCESS ROAD
REMARKS: REVISE SCOPE AND FUNDING; RTR 121-CC1

REV DATE: 02/2012
MPO PROJECT ID: 54113
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.52, FT3-007

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $1,250,000 |
| Right Of Way: | $2,555,555 |
| Construction: | $10,312,500 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$14,118,055** |

**Cost of Approved Phases:** **$10,312,500**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $8,250,000 | $2,062,500 | $0 | $10,312,500 |
| **Funding by Share:** | $0 | $0 | $8,250,000 | $2,062,500 | $0 | **$10,312,500** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-11-018 | US 380 | C | VARIOUS | TXDOT-DALLAS | **$55,000,000** |

LIMITS FROM: WEST OF CR 26 (DENTON COUNTY LINE)
LIMITS TO: EAST OF SH 289
TIP DESCRIPTION: WIDEN 4 TO 6 LANES DIVIDED, ADD NEW 4/6 LANE ACCESS ROADS AT GRADE SEPARATION; CONSTRUCT GRADE SEPARATION AT US 380 AND DNT
REMARKS: REVISE FUNDING; RTR 121-CC1

REV DATE: 02/2012
MPO PROJECT ID: 20013
FUNDING CATEGORY: 3
MTP REFERENCE: RSA1-384.50, IN1-21.2.1, TSM2-001

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $2,784,146 |
| Right Of Way: | $5,000,000 |
| Construction: | $55,000,000 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$62,784,146** |

**Cost of Approved Phases:** **$55,000,000**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 3 - RTR: | $0 | $0 | $44,000,000 | $11,000,000 | $0 | $55,000,000 |
| **Funding by Share:** | $0 | $0 | $44,000,000 | $11,000,000 | $0 | **$55,000,000** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR | YOE COST |
|---|---|---|---|---|---|---|---|
| DALLAS | DALLAS | 0918-45-843 | CS | C | DALLAS | DALLAS | **$693,000** |

LIMITS FROM: SCYENE RD; ON UP RR IN DALLAS
LIMITS TO: MUNICIPAL ST
TIP DESCRIPTION: INSTALL FENCING, SIDEWALK, AND STREET CLOSURE AT MACON/UPRR AND SUNDAY/UPRR
REMARKS: CHANGE FUNDING SOURCE

REV DATE: 02/2012
MPO PROJECT ID: 11258.12
FUNDING CATEGORY: 12(S)
MTP REFERENCE: FP2-350

**Project History:**

**Total Project Cost Information:**

| | |
|---|---|
| Preliminary Engineering: | $35,315 |
| Right Of Way: | $0 |
| Construction: | $693,000 |
| Construction Engineering | $0 |
| Contingencies: | $0 |
| Indirects: | $0 |
| Bond Financing: | $0 |
| **Total Project Cost:** | **$728,315** |

**Cost of Approved Phases:** **$693,000**

**Authorized Funding by Category/Share:**

| | Federal | State | Regional | Local | Local Contribution | Funding By Category |
|---|---|---|---|---|---|---|
| Category 12(S): | $554,400 | $0 | $0 | $138,600 | $0 | $693,000 |
| **Funding by Share:** | $554,400 | $0 | $0 | $138,600 | $0 | **$693,000** |

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | DALLAS | 0047-07-212 | US 75 | E | RICHARDSON | RICHARDSON |

LIMITS FROM: AT CAMPBELL RD IN RICHARDSON
LIMITS TO: .
TIP DESCRIPTION: SYSTEM EVALUATION STUDY FOR CONGESTION IMPROVEMENTS
REMARKS: MOVE PROJECT TO FY2015; NON-LETTING; PENDING AGMT/FPAA; PE ONLY

REV DATE: 02/2012
MPO PROJECT ID: 11795
2035 MTP REFERENCE: TSM2-003

**Project History:**

---

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0047-14-069 | US 75 | C | MELISSA/ANNA | TXDOT-DALLAS |

LIMITS FROM: NORTH OF MELISSA RD
LIMITS TO: COLLIN COUNTY OUTER LOOP (CR 366)
TIP DESCRIPTION: RECONSTRUCT AND WIDEN 4 LANE TO 6 LANES AND 2 LANE FRONTAGE ROADS EACH DIRECTION
REMARKS: REVISE LIMITS, DECREASE FUNDS AND MOVE TO APP D; RTR 121-CC2 FUNDS

REV DATE: 02/2012
MPO PROJECT ID: 20198
2035 MTP REFERENCE: FT1-23.20.1

**Project History:**

---

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | DALLAS | 0092-14-080 | IH 345 | E | DALLAS | TXDOT-DALLAS |

LIMITS FROM: EAST OF DOWNTOWN BETWEEN IH 30
LIMITS TO: AND SPUR 366 (WOODALL RODGERS FREEWAY)
TIP DESCRIPTION: BRIDGE RECONSTRUCTION
REMARKS: ADD PROJECT TO APPENDIX D OF TIP/STIP

REV DATE: 02/2012
MPO PROJECT ID: 20266
2035 MTP REFERENCE: M03-002

**Project History:** CHANGE FUNDING SOURCE FROM PROP 12 TO CAT 11

---

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | COLLIN | 0135-02-050 | US 380 | C | VARIOUS | TXDOT-DALLAS |

LIMITS FROM: CR 72 (COIT ROAD)
LIMITS TO: FM 2478 (CUSTER ROAD)
TIP DESCRIPTION: WIDEN HIGHWAY FROM FOUR LANES TO SIX LANE DIVIDED
REMARKS: ADD PROJECT TO TIP/STIP

REV DATE: 02/2012
MPO PROJECT ID: 20264
2035 MTP REFERENCE: RSA1-384.60

**Project History:** CONSTRUCTION IS FOR FY2015

---

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | ELLIS | 0172-03-039 | US 287 | C | ENNIS | TXDOT-DALLAS |

LIMITS FROM: AT ENSIGN ROAD IN ENNIS
LIMITS TO:
TIP DESCRIPTION: CONSTRUCT INTERCHANGE
REMARKS: ADD TO TIP/STIP

REV DATE: 02/2012
MPO PROJECT ID: 11905
2035 MTP REFERENCE: IN1-1.560.1

**Project History:** CONSTRUCTION FUNDED WITH STP-MM IN 2015

---

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | DALLAS | 0353-02-053 | SH 114/US 377 | C | ROANOKE | TXDOT-DALLAS |

LIMITS FROM: AT UP RAILROAD UNDERPASS IN ROANOKE DOT NO 795 342V
LIMITS TO:
TIP DESCRIPTION: REPLACE RAILROAD UNDERPASS
REMARKS: ADD PHASES, REVISE FUNDING, AND ADD TO TIP/STIP; RTR 161-DE2

REV DATE: 02/2012
MPO PROJECT ID: 51060
2035 MTP REFERENCE: MO3-002

**Project History:** CONSTRUCTION FUNDED IN 2015 WITH CAT 6 & RTR 161-DE2 FUNDING

---

| DISTRICT | COUNTY | CSJ | HWY | PHASE | CITY | PROJECT SPONSOR |
|---|---|---|---|---|---|---|
| DALLAS | DALLAS | 0918-45-864 | CS | E | CARROLLTON | CARROLLTON |

LIMITS FROM: ON WHITLOCK RD, FROM IH 35E
LIMITS TO: OLD DENTON RD IN CARROLLTON
TIP DESCRIPTION: RECONSTRUCT 4 LANE UNDIVIDED TO FOUR LANE DIVIDED WITH LEFT TURNS
REMARKS: MOVE PHASE TO FY2015; ROW 100% RESPONSIBILITY OF LOCALS PER AFA

REV DATE: 02/2012
MPO PROJECT ID: 11005
2035 MTP REFERENCE: NRSA1-DAL-8, TSM2-001

**Project History:**

---

# Transportation System Management and Operations

## Policies

| MTP Reference # | Management and Operations Infrastructure Maintenance, Rehabilitation, and Operations |
|---|---|
| MO3-001 | Ensure the efficient operation of the existing multimodal transportation system by evaluating and/or implementing maintenance, rehabilitation, enhancement, and/or operational type projects in order to maintain safe, efficient travel conditions. |
| MO3-002 | Ensure the existing multimodal transportation system operates efficiently by constructing bridge replacements with approaches, new bridges, overpasses, or underpasses for railroads, bicycle/pedestrian facilities, off-system roads, and non-regionally significant facilities. |

| MTP Reference # | Transportation System Management and Operations |
|---|---|
| TSM3-001 | Installation of pedestrian facilities by local agencies as part of intersection improvement and the Traffic Signal Improvement Program shall provide access to usable walkways or sidewalks. |
| TSM3-002 | Require regional partners to coordinate during major special events or planned events to ensure minimal impact on the transportation system for individuals traveling to an event or through an event zone (consistent with RTC Policy, April 2010). |
| ITS3-001 | Priority funding consideration will be given to projects that meet the regional ITS deployment initiatives as outlined in the Dallas-Fort Worth Regional ITS Architecture. |
| ITS3-002 | ITS projects must be consistent with the architecture and standards described in the Dallas-Fort Worth Regional ITS Architecture. |
| ITS3-003 | Encourage, evaluate, and deploy new energy-efficient, low-cost technologies for ITS and TSM projects. |

## Programs

| Intersection Improvement Program | |
|---|---|
| Reference | TSM2-001 |
| Background | Infrastructure improvements, such as turning lanes, grade separations, pavement striping, signage and lighting, bus turnouts, and channelization of traffic, can greatly improve traffic flow operation on arterials and at intersections. |
| Policy Position | Recommend and implement intersection improvement programs during planning, engineering, construction, and operation stages of the corridor implementation. |
| Implementation | Secure funding to develop intersection improvement programs. |
| Performance Measures | Reduction in congestion delay of 37,500 person hours per day. |
| Cost Estimate | $910 million |

## Recommendations: Freeway/Tollway Interchanges

### *TxDOT Dallas District*

Revised July 6, 2011

| MTP ID | Facility | Connection | Staging | Description | Operational Between | Study Reference |
|---|---|---|---|---|---|---|
| IN1-11.21.1 | Dallas North Tollway | SH 121 (Full Interchange) | Phase II | Reconstruct | 2012 - 2020 | SH 121 Collin County Toll Road (0364-04-040) |
| IN1-21.2.1 | Dallas North Tollway | US 380 | | New Interchange | 2012 - 2020 | |
| IN1-30.547.1 | IH 20 | Falcon's Lair | | New Interchange | 2020 - 2030 | (0095-01-024) |
| IN1-30.131.1 | IH 20 | Kleberg Road | | New Interchange | 2012 - 2020 | |
| IN1-19.30.1 | IH 20 | Spur 408/Clark Road | | New Interchange | 2012 - 2020 | |
| IN1-30.38.1 | IH 20 | US 67 | | Reconstruct | 2020 - 2030 | |
| IN1-28.551.1 | IH 30 | Between SH 205 & FM 549 | | New Interchange | 2012 - 2020 | (0009-12-073) |
| IN1-28.550.1 | IH 30 | Erby Campbell Blvd. | | Grade Separation | 2012 - 2020 | |
| IN1-28.548.1 | IH 30 | FM 3549 (FM 549) | | Reconstruct | 2012 - 2020 | |
| IN1-28.549.1 | IH 30 | FM 551 | | Reconstruct | 2012 - 2020 | |
| IN1-28.121.1 | IH 30 | President George Bush Turnpike - Eastern Extension | Partial Interchange | New Interchange | 2012 - 2020 | |
| IN1-15.28.1 | IH 30 | SH 161 | Phase II | New Interchange | 2012 - 2020 | (1068-04-129) |
| IN1-7.576.1 | IH 35E | Dickerson Parkway | | New Interchange | 2012 - 2020 | (0196-03-180) |
| IN1-7.552.1 | IH 35E | FM 407 | | Reconstruct | 2012 - 2020 | |
| IN1-7.28.1 | IH 35E | IH 30 | | Reconstruct | 2012 - 2020 | |
| IN1-3.5.1 | IH 35E | IH 35W | | Reconstruct | 2012 - 2020 | |
| IN1-7.11.1 | IH 35E | SH 121 | | Reconstruct | 2012 - 2020 | |
| IN1-27.554.1 | IH 45 | Fulghum Road | | Reconstruct | 2012 - 2020 | |
| IN1-27.30.1 | IH 45 | IH 20 | | Reconstruct | 2012 - 2020 | |
| IN1-21.130.1 | IH 635 | Dallas North Tollway | | Reconstruct | 2012 - 2020 | |
| IN1-7.130.1 | IH 635 | IH 35E | Phase I (IH 635 Managed Lanes) | Partial Reconstruct | 2012 - 2020 | |
| IN1-7.130.1 | IH 635 | IH 35E | Phase II (Full Interchange) | Reconstruct | 2030 - 2035 | |
| IN1-131.577.1 | IH 635 | Skillman Road | | Reconstruct | 2012 - 2020 | |
| IN1-32.131.1 | IH 635 | US 80 | | Reconstruct | 2012 - 2020 | |
| IN1-23.130.1 | IH 635 | US 75 | | Reconstruct | 2012 - 2020 | |
| IN1-3.100.1 | IH 35 | Loop 288 | | Reconstruct | 2020 - 2030 | |
| IN1-17.12.1 | Loop 12 | SH 114 | | Reconstruct | 2012 - 2020 | (0581-02-121) |
| IN1-6.30.1 | Loop 9 | IH 20 | | New Interchange | 2020 - 2030 | |

| MTP ID | Facility | Connection | Staging | Description | Operational Between | Study Reference |
|---|---|---|---|---|---|---|
| IN1-7.6.1 | Loop 9 | IH 35E | | New Interchange | 2020 - 2030 | |
| IN1-27.6.1 | Loop 9 | IH 45 | | New Interchange | 2020 - 2030 | |
| IN1-1.6.1 | Loop 9 | US 287 | | New Interchange | 2020 - 2030 | |
| IN1-6.38.1 | Loop 9 | US 67 | | New Interchange | 2020 - 2030 | |
| IN1-12.529.1 | SH 114 | FM 156 | | Reconstruct | 2012 - 2020 | |
| IN1-10.12.1 | SH 114 | SH 170 | | Reconstruct | 2012 - 2020 | |
| IN1-11.512.1 | SH 121 | SH 5 | | Reconstruct | 2012 - 2020 | |
| IN1-11.23.2 | SH 121 (South) | US 75 | | Reconstruct | 2012 - 2020 | SH 121 Collin County Toll Road (0364-04-040) |
| IN1-15.30.1 | SH 161 | IH 20 | Phase I | New Interchange | 2012 - 2020 | (2374-04-054) |
| IN1-15.30.1 | SH 161 | IH 20 | Phase II | New Interchange | 2012 - 2020 | |
| IN1-17.22.1 | SH 183 | Loop 12 | | Reconstruct | 2012 - 2020 | (0094-03-101, 0581-02-124) |
| IN1-6.30.1 | East Branch (SH 190) | IH 20 | | New Interchange | 2020 - 2030 | |
| IN1-28.121.1 | East Branch (SH 190) | President George Bush Turnpike/SH 190 | Phase II (Full Interchange) | Reconstruct | 2020 - 2030 | |
| IN1-18.32.1 | East Branch (SH 190) | US 80 | | New Interchange | 2020 - 2030 | |
| IN1-9.1.1 | SH 360 | US 287 | | New Interchange | 2012 - 2020 | |
| IN1-12.42.1<br>IN1-22.42.1 | Spur 482 | SH 114 & SH 183 | | Reconstruct | 2012 - 2020 | (0094-03-060) |
| IN1-34.575.1 | Spur 557 | CR 305 | | New Interchange | 2020 - 2030 | |
| IN1-7.26.1 | Trinity Parkway | IH 35E | | New Interchange | 2020 - 2030 | |
| IN1-27.26.1 | Trinity Parkway | IH 45 | Phase II | New Interchange | 2012 - 2020 | |
| IN1-22.26.1 | Trinity Parkway | SH 183 | | New Interchange | | |
| IN1-26.36.1 | Trinity Parkway | US 175/S.M. Wright/IH 45 | Phase I | New Interchange | 2012 - 2020 | |
| IN1-1.505.1 | US 287 | BU 287/Ennis Parkway | | Reconstruct | 2012 - 2020 | |
| IN1-1.560.1 | US 287 | Ensign Road | | Grade Separation | 2012 - 2020 | |
| IN1-1.561.1 | US 287 | FM 1183/Oak Grove Road | | New Interchange | 2020 - 2030 | |
| IN1-1.562.1 | US 287 | Rudd Road | | New Interchange | 2020 - 2030 | |
| IN1-1.33.1 | US 287 | SH 34 | | Reconstruct | 2020 - 2030 | |
| IN1-2.526.1 | US 380 | SH 289 (Preston Road) | | Reconstruct | 2012 - 2020 | |
| IN1-23.583.1 | US 75 | Eldorado Parkway | | Reconstruct SPUI | 2012 - 2020 | |
| IN1-23.120.1 | US 75 | President George Bush Turnpike | | Reconstruct | 2012 - 2020 | (0047-06-133) |
| IN1-23.120.1<br>IN1-23.130.1 | US 75 | President George Bush Turnpike to IH 635 | | Various Managed Lane Connections | 2012 - 2020 | |

| MTP ID | County | Street Name | From Street Name | To Street Name | 2012 Lanes | 2035 Lanes | Operational Between | C5J_1 | CSJ_2 | COG_1 | COG_2 | YOE Estimated Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RSA1-211.0 | Collin | SH 5 | 0.05 miles N of County Line Road (Grayson County line) | SH 121 | 2 | 4 | 2020-2030 | | | | | $79,934,400 |
| RSA1-210.1 | Collin | SH 5/Greenville Ave. | Stacy Road | Exchange Parkway | 6 | 6 | 2010-2012 | 0047-09-029 | 8016-18-002 | 11001.00 | | |
| RSA1-210.05 | Collin | SH 5/Greenville Ave. | Fairview Avenue | Stacy Road | 2 | 4 | 2012-2020 | | | | | $414,960 |
| RSA1-208.0 | Collin | SH 5/McDonald Street | SH 121 | Tennessee Street | 2 | 4 | 2020-2030 | | | | | $33,808,320 |
| RSA1-230.0 | Collin | SH 66 | FM 1777 | FM 2642 (near Hunt County line) | 2 | 4 | 2020-2030 | | | | | $20,092,800 |
| RSA1-212.0 | Collin | SH 78 | 0.2 miles NE of Williford Road (Dallas Co. line) | Spring Creek Parkway | 4 | 6 | 2012-2020 | 0281-02-060 | | | | $11,334,960 |
| RSA1-212.1 | Collin | SH 78 | Spring Creek Parkway | SH 205 | 2 | 6 | 2012-2020 | 0281-02-039 | | | | $7,076,160 |
| RSA1-213.1 | Collin | SH 78 | FM 6 | SH 205 | 2 | 6 | 2012-2020 | | | | | $5,591,040 |
| RSA1-213.0 | Collin | SH 78 | US 380 ramp | FM 6 | 2 | 6 | 2020-2030 | | | | | $76,789,440 |
| RSA1-214.0 | Collin | SH 78 | Spur 137/BU 78 | US 380 ramp | 2 | 6 | 2020-2030 | | | | | $82,293,120 |
| RSA1-214.1 | Collin | SH 78 | FM 981 | Spur 137/BU 78 | 4 | 6 | 2020-2030 | | | | | $12,055,680 |
| RSA1-214.2 | Collin | SH 78 | SH 160 | FM 981 | 2 | 6 | 2020-2030 | | | | | $42,981,120 |
| RSA1-214.3 | Collin | SH 78 | SH 160 | 0.82 miles E of SH 160 (Fannin County line) | 2 | 4 | 2020-2030 | | | | | $7,163,520 |
| RSA1-218.2 | Collin | Shiloh Road | Park Blvd. | FM 544/14th Street | 2 | 4 | 2012-2020 | | | | | $2,533,440 |
| RSA1-219.1 | Collin | Spring Creek Parkway | Sam Rayburn Tollway (SH 121) frontage | Midway Road | 6 | 6 | 2010-2012 | | | | | |
| RSA1-384.50 | Collin | US 380 | 2.45 miles E of FM 423 (near Denton Co. line) | 0.3 miles E of Dallas North Tollway NB frontage | 4 | 6 | 2012-2020 | | | | | $3,144,960 |
| RSA1-384.51 | Collin | US 380 | 0.3 miles E of Dallas North Tollway NB frontage | 0.4 miles W of SH 289 ramps | 4 | 6 | 2012-2020 | | | | | $414,960 |
| RSA1-384.52 | Collin | US 380 | 0.4 miles W of SH 289 ramps | 0.35 miles W of Coit Road | 4 | 6 | 2012-2020 | | | | | $4,586,400 |
| RSA1-384.53 | Collin | US 380 | 0.35 miles W of Coit Rd. | Coit Road | 4 | 6 | 2012-2020 | | | | | $742,560 |
| RSA1-384.60 | Collin | US 380 | Coit Road | FM 2478/Custer Road | 4 | 6 | 2012-2020 | | | | | $4,411,680 |
| RSA1-384.61 | Collin | US 380 | FM 2478/Custer Road | 0.2 miles W of Hardin Blvd. | 4 | 6 | 2012-2020 | | | | | $8,692,320 |
| RSA1-384.90 | Collin | US 380 | CR 608 | CR 698 (Hunt Co. line) | 2 | 4 | 2020-2030 | | | | | $36,516,480 |
| RSA1-51.2 | Dallas | 2nd Avenue | Commerce Street | IH 30 on ramp WB | 3 | 6 | 2020-2030 | | | | | $1,397,760 |
| RSA1-51.25 | Dallas | 2nd Avenue | IH 30 on ramp WB | IH 30 off ramp EB | 3 | 8 | 2020-2030 | | | | | $524,160 |
| RSA1-51.3 | Dallas | 2nd Avenue | IH 30 off ramp EB | Robert Cullum Blvd./Parry/SH 352 | 3 | 8 | 2020-2030 | | | | | $960,960 |
| RSA1-2.0 | Dallas | Belt Line Road | Duncanville Road | Hampton Road | 6 | 6 | 2010-2012 | | | | | |
| RSA1-8.1 | Dallas | Belt Line Road | Dallas North Tollway frontage NB | Meadowcreek Drive | 8 | 8 | 2010-2012 | 0918-45-707 | 0918-48-940 | 11012.00 | | |

# APPENDIX E

U.S. Department
of Transportation
**Federal Highway Administration**

FEDERAL HIGHWAY ADMINISTRATION
300 EAST 8TH STREET, RM 826
AUSTIN, TEXAS 78701

Texas Department of Transportation

TEXAS DEPARTMENT OF TRANSPORTATION
125 E. 11th STREET
AUSTIN, TEXAS 78701-2483

August 31, 2011

Mr. Leslie Standing, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

RE: CSJ: 0135-11-018 and 0135-02-044; US 380, from the Denton/Collin County Line to Custer Road, Roadway Widening; Collin County, Dallas District

Dear Mr. Standing:

The above referenced transportation project is being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for this project. The purpose of this letter is to contact you in order to initiate Section 106 consultation with your Tribe pursuant to stipulations of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The project is located in an area that may be of interest to your Tribe.

The proposed project would improve a 6.4-mile-long segment of United States Highway (US) 380, from the Denton/Collin County line to Custer Road in Collin County, Texas. A map that shows the project area is enclosed, as well as a map of the state that indicates the location of Collin County.

The existing facility consists of four 12-foot-wide travel lanes, a 16-foot-wide flush median, and 10-foot-wide shoulders. The total roadway width is 84 feet within an existing right of way (ROW) that is typically 160 feet in width. Between the project western terminus and Coit Road, the proposed new facility would have three 12-foot-wide main lanes with 10-foot-wide inside and outside shoulders in each direction, separated by a 2-foot-wide concrete traffic barrier. The new

facility would also feature new access roads with two or three 12-foot-wide travel lanes and 1-foot-wide curb offsets. The total new proposed ROW width would be 284 to 308 feet. A total of 14.88 acres of new ROW would be required for the construction and all new ROW would be taken from the south side of the roadway.

US 380 is an east/west roadway that is a major mode of transportation for Denton and Collin County. The proposed project would widen the existing four-lane divided parkway to a six-lane divided, limited access highway facility with two access roads from the Collin/Denton county line to Coit Road. This portion of US 380 serves as a principal roadway route through the towns of Little Elm and Prosper.

From Coit Road to the project eastern terminus at Custer Road the proposed undertaking would require no new ROW and construction would be limited to widening shoulders by two feet on each side. The area of potential effects (APE) for the archeological survey is the footprint of the proposed improvements to the maximum depth of impact. The proposed footprint covers approximately 231.88 total acres; the existing facility is about 217 acres and the proposed new right of way (ROW) is approximately 14.88 acres. The majority of the roadway would be built at grade, and impacts are anticipated to be less than three feet in depth, based on projects of this type. However, at bridge crossings the piers would extend more than 10 feet into the ground. Bridges are proposed to span the Dallas North Tollway, the Burlington Northern and Santa Fe (BNSF) Railroad, and US 289. For the purposes of this cultural resources review, potential impacts are considered within an area that includes the stated APE, as well as a 50-foot lateral buffer to account for potential alterations to the proposed APE included in the final project design. Consultation would be continued if potential impacts extend beyond this buffer, based on the final design.

The project area setting is mainly rural with land use devoted to agricultural and residential purposes. Most of the land within and surrounding the project area has been under cultivation. Terrain consists of nearly level to gently rolling hills on uplands, except where the project abuts Parvin Branch, near the intersection of US 289, and at Rutherford Branch and its tributaries toward the eastern terminus. Surface visibility is expected to be greater than 60 percent due to active cultivation.

Background research consisted of a records search at the Texas Historical Commission and the Texas Archeological Research Laboratory (TARL) for archeological sites and projects within 1.0 kilometer (0.62 mile) of the proposed project area. The search found no previously recorded archeological sites within the APE. No cemeteries, historical markers or archeological historic properties (36 CFR 800.16(l)) are located within the APE. However, numerous archeological investigations have been conducted that overlap or are in close proximity to the project area. Linear surveys that overlap the entire APE were conducted in 1992 and 1999 by Geo-Marine, Inc. (GMI) for FHWA and the City of Irving, respectively. However, the Texas Archeological Sites Atlas (Atlas) indicates that no sites were recorded. In addition, GMI completed survey work 3078 in 2003 along Preston Road, abutting the APE. Lopez Garcia Group and GMI also conducted surveys along CR 73 (Custer Road) in 2005 and 2009. These surveys also overlap the APE. Halff Associates conducted survey work in 2007 along Parvin Branch. This last project does not overlap with the current APE, but located very close to it. The Parvin Branch survey involved intensive shovel testing and documented a heavily disturbed project area. Finally, ARC

conducted survey work in 2006 as part of the Dallas North Tollway Extension, which would be built from US 380 north to the City of Celina.

The geology of the project area contains primarily Austin Group Chalk Eagle Ford shale, dating to the Upper Cretaceous. The very western edge of the project area is composed of undivided surficial deposits that are Pleistocene in age (Geologic Map of Texas, Bureau of Economic Geology, The University of Texas at Austin, 1988). These deposits are associated with Parvin Creek, which drains into the larger Panther Creek, which, in turn, drains into Lewisville Lake. The majority of soils within the APE are composed of Houston Black clay, and a typical profile includes up to 80 inches of deep clays. These soils are deep clay loams that form on stable upland surfaces (Web Soil Survey, United States Department of Agriculture Natural Resources Conservation Service, http://websoilsurvey.nrcs.usda.gov/app/, accessed July 11, 2011).

Archeologically, the study area falls within the north central Texas region. Prehistoric archeological site types in this area can range from thin debris scatters to deeply buried open campsites. Buried, intact prehistoric archeological sites in north central Texas are commonly found along major drainages and first order streams. However, the proposed project APE contains no large first order waterways.

Overall, the potential for archeological resources in the proposed project area is very low. Any sites in the APE will lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history (36 CFR 60.4). Much of the APE and the surrounding areas have been previously surveyed through shovel testing and pedestrian inspection, and no sites have been recorded. Furthermore, the proposed new ROW is located almost entirely within previously farmed uplands. Prehistoric resources, if once present, would likely have consisted of shallow lithic scatters which would be already disturbed through farming. Historic-age archeological sites associated with farming and ranching would likewise be shallow and disturbed. A review of the 1939 Collin County Highway Map indicates that structures were present along this segment of US 380. However, these structures were likely offset from the roadway and would be outside the APE. Current aerial photography suggests very low potential for structural remains within the APE.

Based on limited potential for archeological resources within the APE, TxDOT provides the following findings and recommendations for this proposed project:

- that no archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.8) would be affected by this project;
- that a buffer zone of 50 feet beyond the APE be considered as part of the cultural resources evaluation;
- that no further archeological investigation is warranted at this time.

According to our procedures and at the request of the FHWA under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed undertaking APE and an area within approximately 50 feet thereof. Please note that no construction activities are currently proposed within the 50-foot buffer area surrounding the ROW and proposed ROW, but we are asking for any concerns that you may have regarding potential impacts within this buffer zone. Any comments you may have on the TxDOT recommendation should also be provided. Please provide your comments within 30 days of receipt of this letter.

Any comments provided after that time will be addressed to the fullest extent possible. If you do not object with a recommendation "no historic properties affected," please sign below to indicate your concurrence. In the event that further investigations by our office disclose the presence of archeological deposits, we will contact your Tribe to continue consultation.

Thank you for your attention to this matter. If you have questions, please contact Jason Barrett (TxDOT Archeologist) at 512/416-2109 (email: Jason.Barrett@txdot.gov) or me at 512/416-2631 (email: Scott.Pletka@txdot.gov). When replying to this correspondence, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Sincerely,

Scott Pletka, Ph.D., Supervisor
Archeological Studies Branch
Environmental Affairs Division

Concurrence by: _____ Date: _____

Attachments

cc w/attachments:
Barbara Maley, Environmental Coordinator FHWA;
Dan Perge, TxDOT Dallas District Environmental Coordinator;
Lindsey Kimmitt, ENV-PD TxDOT;
Jason Barrett, ENV-ARCH TxDOT;
ENV-ARCH Project File

cc w/o attachments: ETS Scan

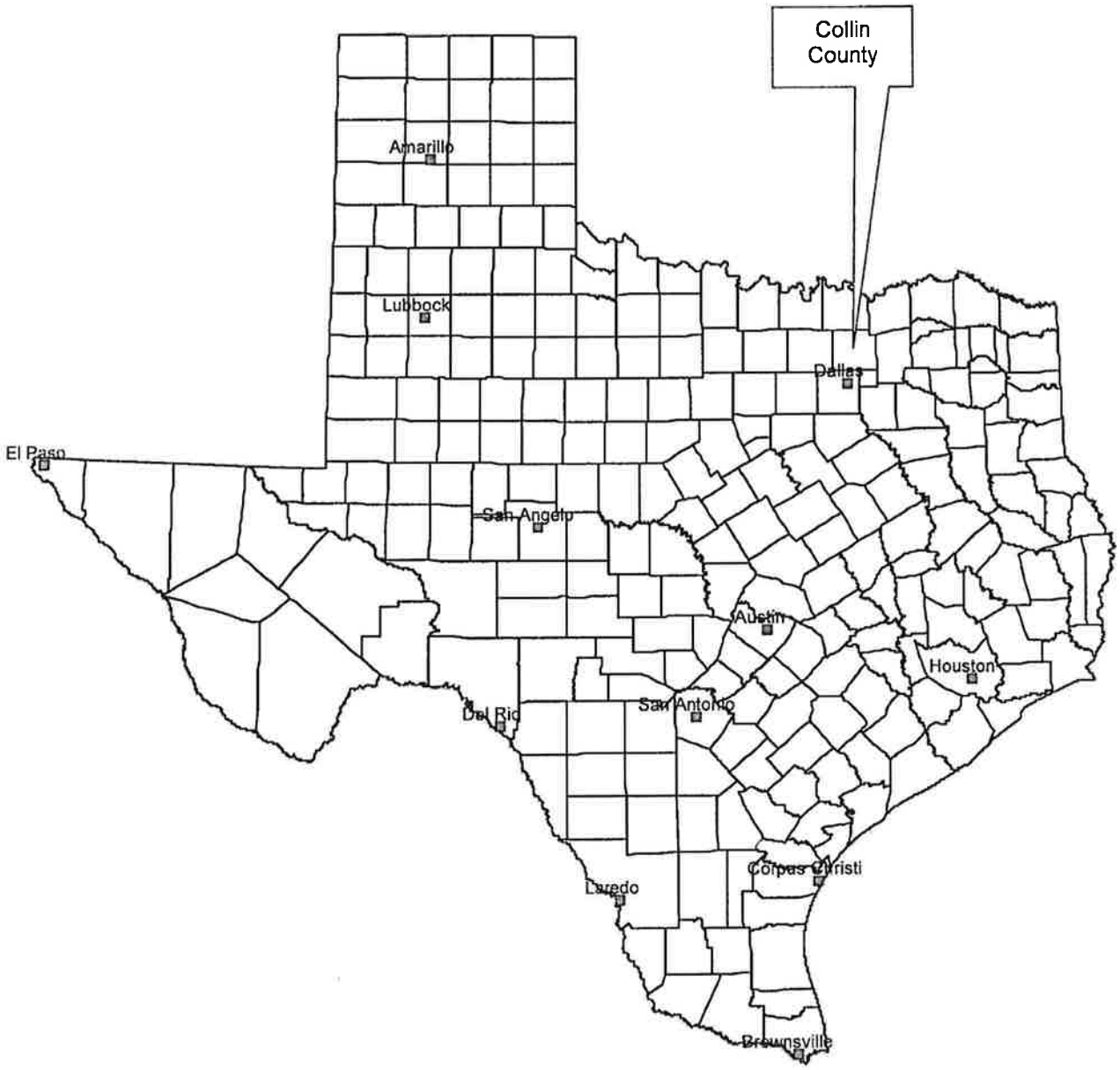
The attached letter was sent to the following tribes on August 31, 2011:

Mr. Leslie Standing, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

# County Location Map

County: Collin Project CSJ: 0135-11-018 and 0135-02-044

Project Name: US 380, from the Denton/Collin County Line to Custer Road, Roadway Widening; Dallas District



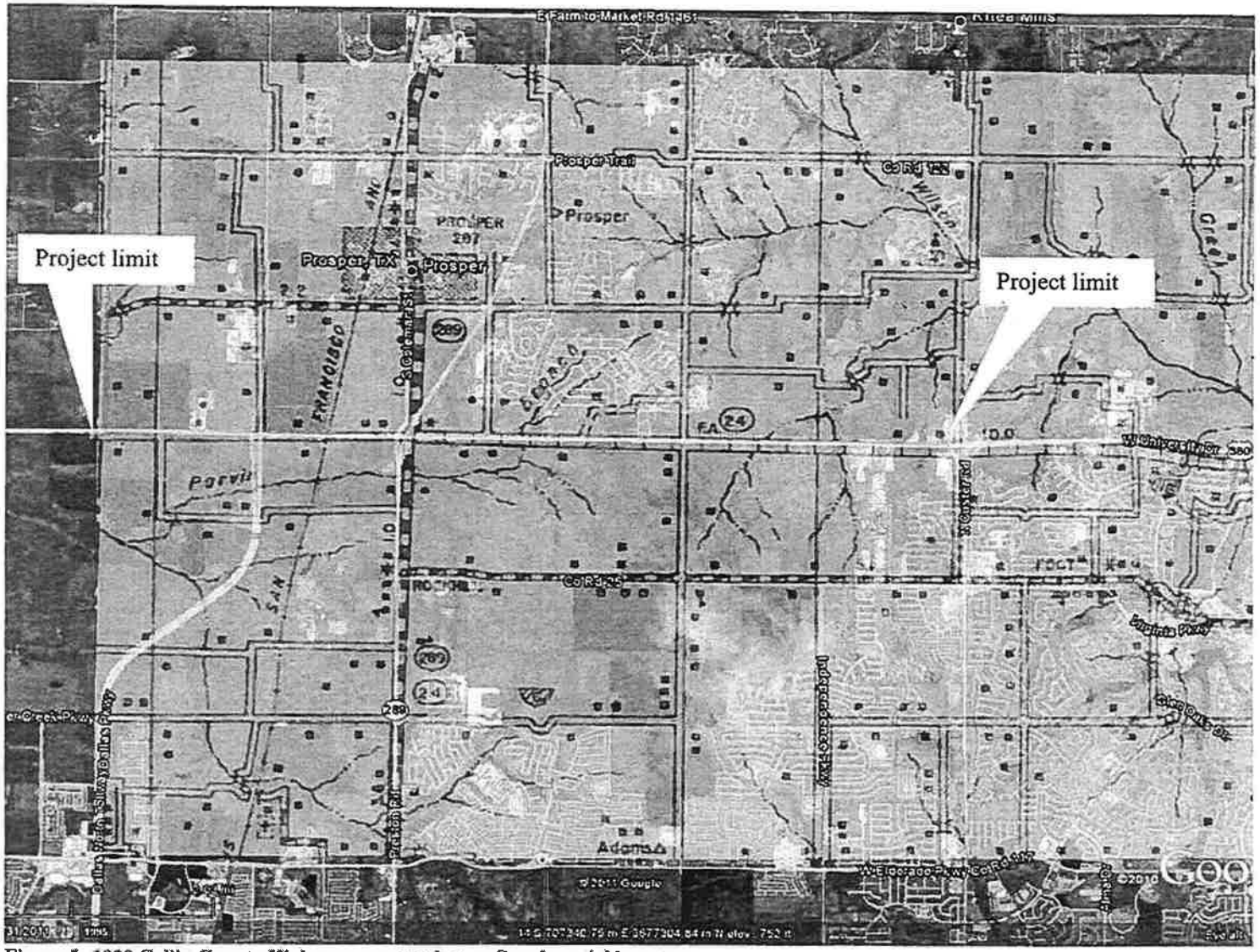



**Figure 5. 1939 Collin County Highway map overlay on Google aerial basemap.**

Scanned + Distributed 9/1/11 ep

# MEMORANDUM

Texas Department of Transportation

**TO:** 850 File, Various Road Projects, Various CSJs, Various Districts

**FROM:** Scott Pletka, Ph.D. **DATE:** August 31, 2011

**SUBJECT:** Internal review under the First Amended Programmatic Agreement Among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU), and internal review under the Memorandum of Understanding (MOU) Between the Texas Historical Commission and the Texas Department of Transportation

---

Attached are the lists of projects reviewed internally by qualified TxDOT archeologists from 8/25/11 to 8/31/11. These projects either do not warrant survey as a result of a low probability of encountering archeological historic properties and State Archeological Landmarks, or the projects were inspected by survey or impact evaluation and do not warrant further work. As provided under the PA-TU, consultation with the Texas State Historic Preservation Officer is not necessary for these undertakings. As provided under the MOU, the proposed projects do not require individual coordination with the Texas Historical Commission.

Signature _____ Date September 1, 2011
For FHWA and TxDOT

Attachment

cc: ETS Data Entry; PM; ENV_ARC; PA File;

t:\ts\arch\internal review memos\clean templates-internal review memos\internal review list memo no properties.doc

# ETS

## ARCHEOLOGICAL COORDINATION

### Projects that do not warrant Archeological Survey

*(Section 106 and ANTIQUITIES CODE OF TEXAS)*

***From : 8/25/2011 To: 8/31/2011***

| COUNTY | DISTRICT | PROJECT | CSJ | *F30/T20 Concur, no further work | *F10/T10 Unable to Concur |
|---|---|---|---|---|---|
| Collin | Dallas | US 380 | 0135-02-044 | | |
| Collin | Dallas | US 380 | 0135-11-018 | | |
| Freestone | Bryan | CR 136 (Local CR 500) | 0917-20-029 | | |
| Harris | Houston | VA | 0912-72-175 | | |
| Lamar | Paris | CR 578-1 | 0901-29-069 | | |
| Lamar | Paris | CR 257-1 | 0901-29-074 | | |
| Polk | Lufkin | Jack Station Road | 0911-04-047 | | |
| Polk | Lufkin | Midway Road | 0911-04-049 | | |
| Sabine | Lufkin | Cedar Grove Road | 0911-29-034 | | |
| San Jacinto | Lufkin | Winfrey Road | 0911-07-037 | | |
| Wichita | Wichita Falls | CR | 0903-03-100 | | |
| Wilbarger | Wichita Falls | CR | 0903-30-032 | | |
| Wilbarger | Wichita Falls | CR | 0903-30-036 | | |

Number of Projects: 13

Signature Scott Plummer Date September 1, 2011

For FHWA and TxDOT

# ETS

## ARCHEOLOGICAL COORDINATION

### Impact Evaluations, No Further Work Recommended

*(Section 106 and ANTIQUITIES CODE OF TEXAS)*

***From : 8/25/2011 To: 8/31/2011***

| COUNTY | DISTRICT | PROJECT | CSJ | *F30/T20 Concur, no further work | *F10/T10 Unable to Concur |
|---|---|---|---|---|---|
| Kerr | San Antonio | Lazy Valley Road | 0915-15-085 | | |

Number of Projects: 1

Signature For FHWA and TxDOT _____ Date 8-31-2011

# ETS

## ARCHEOLOGICAL COORDINATION

### Archeological Surveys, No Further Work Recommended

*(Section 106 and ANTIQUITIES CODE OF TEXAS)*

***From : 8/25/2011 To: 8/31/2011***

| COUNTY | DISTRICT | PROJECT | CSJ | *F30/T20 Concur, no further work | *F10/T10 Unable to Concur |
|---|---|---|---|---|---|
| Red River | Paris | CR 1243-1 | 0901-27-043 | | |

Number of Projects: 1

Signature _____ Date September 1, 2011
For FHWA and TxDOT

District/County DAL/Collin Highway US 380: From Denton C/L to Custer Rd. CSJ: 0135-11-018, 0135-02-044
Contractor Ecological Communications Corp. Submittal Date

| | **PART 3: ENV HIST Determinations**<br>Additional actions required by the District.<br>SOU to be resubmitted with requested information<br>*[DO NOT WRITE on this page; for ENV HIST STAFF ONLY]* | Yes |
|---|---|---|
| 1 | Project information is **insufficient** to determine level of Historic Resource Review and Consultation (see attached comments indicating why information is insufficient). | ☐ |
| 2 | Project information is sufficient to recommend that a **Reconnaissance Survey** be performed.** ENV HIST staff will consult with the District to (1) specify survey needs and (2) develop a scope of work and a timeline for receiving contract deliverables. | ☐ |
| 3 | Project information is sufficient to recommend that an **Intensive Survey** be performed.** ENV HIST staff will consult with the District to (1) specify survey needs and (2) develop a scope of work and a timeline for receiving contract deliverables. | ☐ |
| 4 | **Additional Comments:** | |

** All work must meet appropriate Standards of Uniformity. Please consult ENV HIST if assistance is required through an ENV Scientific Services Contract.

| | **PART 4: ENV HIST Certification**<br>*[TO BE FILLED OUT BY ENV HIST STAFF; TO BE INCLUDED WITH DISTRICT'S SUBMISSION TO THE REC]* |
|---|---|
| 1 | ENV HIST staff determined that the project information is sufficient to record Section 106 actions on HIST screen in ETS. The appropriate NEPA language has been submitted to the District and recorded in ETS. |
| 2 | ENV HIST Reviewer Name: Jennifer Nall Date: 8/22/11 |

**Texas Department of Transportation**
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

January 31, 2012

Environmental Document Coordination
CSJ: 0135-02-044, 0135-02-049, 0135-02-050, 0135-11-018
US 380: From West of CR 26 to Custer Road
Dallas District
Collin County

Texas Parks & Wildlife Dept.
FEB 2 - 2012
Wildlife Habitat Assessment Program

Ms. Kathy Boydston
Texas Parks and Wildlife Department
Wildlife Division – Wildlife Habitat Assessment Program
4200 Smith School Road
Austin, Texas 78744

Dear Ms. Boydston:

Consistent with the Memorandum of Understanding signed by our two agencies, attached is a copy of the environmental document covering the subject project for your review and comment. Any comments you may have on this document will assist the Department in ensuring that the Department's projects are sensitive to the natural resources of the state. Please include the above CSJ number in your correspondence.

Please submit any comments you may have within 45 days from the date of this letter. If you do not have any comments on the document, please sign and date the bottom of this letter and return a copy to the Environmental Affairs Division. If no response is received after the 45 days have expired, we will proceed with project development. If you have any questions regarding this project please contact Robert Hall, Dallas District Environmental Coordinator at (214) 320-6157 or Robert.hall@txdot.gov.

Sincerely,

Stirling J. Robertson, Ph.D.
Ecological Resources Branch
Environmental Affairs Division

Attachment

☒ NO COMMENT: Karen B. Hardy TPWD Project #6649
Wildlife Habitat Assessment Program

DATE: 3/7/2012

RECEIVED - TXDOT
MAR 12 2012
ENVIRONMENTAL