FINAL
Environmental Assessment

Farm-to-Market Road (FM) 148 Bypass
Dallas District

Project Limits: From South of FM 3039 to United States Highway (US) 175

CSJ Number: 0751-05-001 (formerly 0751-02-027)

Kaufman County, Texas

March 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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LIST OF ACRONYMS

AADT – annual average daily traffic
ADT – average daily traffic
AOI – area of influence
APE – area of potential effects
BMP – best management practice
CAA – Clean Air Act
CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
CGP – Construction General Permit
CMP – Congestion Management Process
CO – carbon monoxide
CWA – Clean Water Act
dB(A) – A-weighted decibel
EA – Environmental Assessment
EJ – environmental justice
EMST - Ecological Mapping Systems of Texas
EO – Executive Order
EPA – United States Environmental Protection Agency
EPIC – Environmental Permits, Issues and Commitments
ETJ – extraterritorial jurisdiction
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FM – Farm-to-Market Road
FONSI – Finding of No Significant Impact
FPPA – Farmland Protection Policy Act
FWCA – Fish and Wildlife Coordination Act
GIS – geographic information system
HRSR – Historic Resources Survey Report
ISA – Initial Site Assessment
LWCF Act – Land and Water Conservation Fund Act
LEP – limited English proficiency
Leq – average or equivalent human sound level [used in connection with dB(A)]
MBTA – Migratory Bird Treaty Act
MOU – Memorandum of Understanding
MPO – metropolitan planning organization
MS4 – Municipal Separate Storm Sewer System
MSAT – Mobile Source Air Toxics
MTP – Metropolitan Transportation Plan
NAC – noise abatement criteria
NAAQS – National Ambient Air Quality Standard

NCTCOG – North Central Texas Council of Governments
NEPA – National Environmental Policy Act
NHPA – National Historic Preservation Act
NRCS – Natural Resource Conservation Service
NRHP – National Register of Historic Places
NWP – Nationwide Permit
PA – Programmatic Agreement
PA-TU – Programmatic Agreement among the FHWA, TxDOT, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings
PCN – Pre-construction notice
PM – particulate matter
ROW – right-of-way
RSA – Resource Study Area
PS&E – Plans, Specifications and Estimates
SGCN – Species of Greatest Conservation Need
SH – State Highway
SHPO – State Historic Preservation Officer
SOV – single occupancy vehicle
STIP – Statewide Transportation Improvement Program
SWP3 – Stormwater Pollution Prevention Plan
TAC – Texas Administrative Code
TAQA - Traffic Air Quality Analysis
TCEQ – Texas Commission on Environmental Quality
TERP – Texas Emissions Reduction Plan
THC – Texas Historical Commission
THC MOU – Memorandum of Understanding with the Texas Historical Commission regarding Environmental Review of Transportation Projects
TPDES – Texas Pollutant Discharge Elimination System
TPP – Transportation Planning and Programming Division
TPWC – Texas Parks and Wildlife Code
TPWD – Texas Parks and Wildlife Department
TSS – Total Suspended Solids
TxDOT – Texas Department of Transportation
US – United States Highway
USACE – United States Army Corps of Engineers
USDA – United States Department of Agriculture
USDOT – United States Department of Transportation
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
VMT – Vehicle Miles Traveled
VPD – vehicles per day
WOUS – waters of the United States

1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) proposes to construct a new location two-lane roadway, Farm-to-Market (FM) 148 Bypass, from south of FM 3039 to United States Highway (US) 175 in Kaufman County, Texas (see Project Vicinity Map in **Appendix A**). The total proposed project length is approximately 1.6 miles and is shown on an aerial photograph base map and U.S. Geological Survey (USGS) topographic map in **Appendix A.**

The purpose of this Environmental Assessment (EA) is to study the potential environmental consequences of the proposed project in accordance with the procedural requirements of the National Environmental Policy Act (NEPA), as implemented through regulations promulgated by the Council on Environmental Quality (CEQ).[1] The principal objective in preparing this EA is to determine whether the expected environmental impacts of the proposed project would warrant the preparation of an Environmental Impact Statement.[2] If TxDOT determines that the proposed project would not result in significant adverse effects, it will prepare and sign a Finding of No Significant Impact (FONSI), which will be made available to the public.

As the proposed project would be funded in part by the Federal Highway Administration (FHWA), this EA complies with FHWA's NEPA regulations as well as relevant TxDOT rules for environmental review of projects and guidance for conducting NEPA studies on behalf of FHWA.[3] The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S. Code 327 and a Memorandum of Understanding (MOU) dated December 16, 2014, and executed by FHWA and TxDOT.[4]

2.0 PROJECT DESCRIPTION

2.1 Existing Facility

The existing FM 148 facility consists of two 11-foot wide main lanes (one lane in each direction) with 3-foot outside shoulders. Currently, FM 148 connects to US 175 approximately 1.3 miles northwest of the proposed bypass through the City of Crandall's downtown area. The existing right-of-way (ROW) width varies from 80 – 90 feet. The area within the ROW for

[1] The NEPA statute is codified in 42 U.S. Code (USC) Sections 4331-4375. CEQ's NEPA regulations are in 40 Code of Federal Regulations (CFR) Parts 1500-1508.

[2] An Environmental Impact Statement is required if, upon completing an EA, a federal agency (or a delegated state agency, such as TxDOT) determines that a proposed major federal action would result in impacts that "significantly [affect] the quality of the human environment" (42 USC Section 4332), as that phrase has been interpreted by federal courts.

[3] FHWA's NEPA regulations are in 23 CFR Part 771. TxDOT regulations relevant to preparing an EA and associated public involvement activities are found in Title 43 Texas Administrative Code (TAC), Part 1, Chapter 2. TxDOT also maintains specialized instructional guidance for NEPA studies on the following Website sponsored by the TxDOT Environmental Affairs Division: *http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits.html*. Accessed February 15, 2018.

[4] The FHWA-TxDOT Memorandum of Understanding may be found here: *http://www.fhwa.dot.gov/txdiv/finalnepa-mou.pdf.* Accessed February 15, 2018.

the proposed FM 148 Bypass is predominantly undeveloped land except for single-family residential properties immediately adjacent to the existing FM 148 facility.

There are no dedicated bicycle or pedestrian facilities within project limits. There are no drainage detention ponds or other facilities related to either FM 148 or US 175 within the project area. The project area photographs in **Appendix B** provide representative views of the existing FM 148 and US 175 facilities, as well as representative areas within and surrounding the proposed project limits. Typical existing road cross sections for FM 148 and US 175 are shown in **Appendix D**.

2.2 Proposed Facility

The proposed project involves construction of a new location rural roadway connecting FM 148 with US 175, a distance of approximately 1.6 miles.

The proposed roadway would construct a two-lane facility consisting of two 12-foot wide travel lanes (one in each direction) with turn lanes and 8-foot outside shoulders. The proposed FM 148 Bypass at its southern terminus would require changes to approximately 1,927 linear feet of existing FM 148 just east of the City of Crandall. At its northern terminus, the proposed project would have at-grade connections with US 175 frontage roads, improvements to which have been proposed by others. Approximately 3,850 feet of US 175 would be reconstructed to create an overpass crossing of the FM 148 Bypass. The FM 148 roadway would have a ROW of 164 feet to 230 feet in width to incorporate a left turn lane. Other construction activities would include drainage improvements to manage water crossings of the proposed roadway. The proposed project would require approximately 33.0 acres of proposed ROW and 2.2 acres of proposed permanent drainage easements. The estimated construction cost of the proposed project would be approximately $35 million. The plan view design for the FM 148 Bypass is shown in **Appendix C**, which is a simplified version of the approved engineering design schematic. Representative typical cross sections of the proposed FM 148 Bypass and US 175 are shown in **Appendix D**.

Federal regulations require that federally funded transportation projects have logical termini.[5] Simply stated, this means that a project must have rational beginning and end points. Those end points may not be created simply to avoid proper analysis of environmental impacts. The logical termini for the proposed bypass are FM 148 and US 175, as these are the two roadways that would be connected via a bypass roadway located to the east of Crandall. The specific points on these roadways for termini were selected by evaluating bypass alternatives for a route that minimizes impacts to existing residences and a church to the west, and to the NRCS flood water detention facility to the east (see also **Section 4.3**).

Federal regulations require that a project have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area.[6] This means

[5] 23 CFR Section 771.111(f)(1).
[6] 23 CFR Section 771.111(f)(2).

a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built. The proposed project would provide congestion relief in the downtown Crandall area by creating a new bypass between two parallel arterials. Because the proposed project stands alone, it cannot and does not irretrievably commit federal funds.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements.[7] This means that a project must not dictate or restrict any future roadway alternatives. The proposed project would not dictate or restrict any future roadway alternatives. Ongoing design coordination has occurred to accommodate projects by others in the area, such as the planned improvements to US 175 frontage roads east of Crandall (CSJ 0197-03-054).

The proposed project is consistent with the North Central Texas Council of Government's (NCTCOG) currently effective Metropolitan Transportation Plan (MTP) *Mobility 2045*. The FM 148 Bypass appears as a new minor arterial roadway in the NCTCOG recommended improvements for non-regionally significant arterials. The proposed project is similarly consistent with the description of it in the *FY 2019–2022 Transportation Improvement Program* (TIP) for the Dallas–Fort Worth Metropolitan Planning Organization (MPO) (i.e., NCTCOG). Excerpts from the MTP and TIP can be found in **Appendix E.**

3.0 PURPOSE AND NEED

3.1 Need

The proposed FM 148 project is needed to address safety and mobility issues in the project area and to provide an improved direct connection between FM 148 and US 175. The existing route through the City of Crandall has several sharp turns with narrow lanes that do not meet current design standards, and which impede traffic circulation. In particular, there is a need for a direct link between FM 148 and US 175 east of the City of Crandall to provide an alternative option for through traffic, and particularly heavy truck traffic. The existing facility is insufficient to meet traffic demands and widening or reconstruction within the city limits would be severely constrained by existing land use.

3.2 Supporting Facts and/or Data

Currently, for the residents of the Crandall community to access US 175, drivers must travel the existing FM 148 route through the downtown area that is characterized by low-speed travel with several sharp turns, no dedicated turn lanes in either direction, and no signalized intersections (see Project Area Photographs in **Appendix B**). An alternative to using FM 148

[7] 23 CFR Section 771.111(f)(3).

would require traveling to FM 4104 (shown in the map in **Appendix F-6**) that connects to US 175 approximately 2.8 miles southeast of the FM 148 connection. The existing design also causes congestion due to truck traffic in the area. According to the Transportation Planning and Programming Division (TPP), with the existing condition on FM 148 the Average Daily Traffic (ADT) is expected to increase from 7,600 in 2020 to an estimated 10,300 ADT in 2040 with 7.8 percent truck traffic.

3.3 Purpose

The purpose of the FM 148 project is to improve operations along FM 148, improve mobility and access between FM 148 and US 175, and accommodate future traffic demand on the corridor in a manner compatible with local and regional thoroughfare plans. In addition, a purpose of the proposed project is to create a FM 148 Bypass to the City of Crandall that would both create an efficient connection with US 175 and ultimately continue northward to reconnect with the existing 148.

4.0 ALTERNATIVES

4.1 Build Alternative

The Build Alternative is the project as described in **Section 2.2.**, which would construct a new location roadway creating a bypass connecting FM 148 to US 175 to provide an alternative route for drivers and truck traffic in the area. This alternative was determined to meet the need and purpose because the construction of the bypass would allow traffic a route that would connect to FM 148 without requiring travel through the downtown Crandall area.

4.2 No-Build Alternative

Under the No-Build Alternative, the existing FM 148 would not be modified and the portion of roadway on new location would not be built. The No-Build Alternative assumes that no transportation improvements beyond the continued maintenance of the existing FM 148 facility would occur. This alternative would not improve congestion within the project area and would be inconsistent with regional transportation plans (i.e., MTP and STIP); therefore, it would not meet the need and purpose of the project. The No-Build Alternative will be carried forward as a comparative baseline for evaluating the Build Alternative.

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

The location of the proposed FM 148 Bypass was chosen as it provides a north/south connection between FM 148 and US 175 between two other connections, FM 4104 southeast of the proposed bypass and the existing FM 148 to the northwest of it. The proposed alignment was limited from shifting east/west due to a neighborhood located on the west side

of the project and a Natural Resources Conservation Service (NRCS) easement for a flood control facility and a residential area to the east.

Alternatives were also considered for the US 175/FM 148 Bypass interchange. Earlier schematic design proposed a bridge crossing of the FM 148 Bypass over US 175 connecting to a newly constructed, one-way, westbound US 175 frontage road. After discussions with TxDOT and the City of Crandall, this alternative was eliminated to propose the function class of the frontage road as an urban collector and achieve a 50-mph speed limit. It was also determined that sidewalks would not be recommended at this time for this small stretch of connecting roadway across undeveloped areas. The proposed interchange alternative also requires less ROW which would reduce environmental impacts.

The proposed roadway is not an urban facility and is in an undeveloped area; therefore, the addition of pedestrian or bicycle facilities is not reasonable or feasible for this project.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In support of this EA, the following technical reports and other documentation were prepared and are available for review at the TxDOT Dallas District office, upon request:

- Biological Evaluation Form (TxDOT, 2017a);
- Community Impacts Assessment Technical Report Form (TxDOT, 2017b);
- Archeological Background Study (TxDOT, 2017c);
- Project Coordination Request for Historical Studies Project (TxDOT, 2017d);
- Water Resources Technical Report (TxDOT, 2017e);
- Tier I Site Assessment (TxDOT, 2017f);
- Qualitative Mobile Source Air Toxics Technical Report (TxDOT, 2017g);
- Hazardous Materials Initial Site Assessment (ISA) (TxDOT, 2017h);
- Traffic Noise Analysis Technical Report (TxDOT, 2017i);
- Indirect and Cumulative Impacts Technical Report (TxDOT, 2017j);
- Documentation of Public Meeting (TxDOT, 2017k);
- Report for Archeological Survey (TxDOT, 2018a); and
- Historical Resources Survey Report (TxDOT, 2018b).

These technical reports and the detailed data and maps included within them are incorporated by reference, but are not included in this EA. However, selected graphical information and summaries of data from these technical reports are included in this EA to assist in describing anticipated project-related environmental impacts.

This section examines the direct impacts that result from constructing the facility within the project construction footprint, which includes all areas that would be subject to ground disturbing activities from heavy construction equipment. In this EA, the construction footprint for the proposed project includes all areas in existing and proposed ROW within project limits (51.7 acres).

This section also addresses the indirect effects caused by the proposed project that extend beyond the construction footprint either during or after construction of the facility (i.e., encroachment-alteration indirect effects). Examples of such indirect impacts include the potential sedimentation of streams by soil eroded from construction sites, increases in traffic noise experienced on properties near the project after completion, or the contribution to ambient air quality in local areas near the completed project or throughout the region. Thus, environmental impacts caused by the project have been assessed for both the construction footprint as well as beyond it to the point where indirect impacts attenuate to an insubstantial level. Also addressed in this section are steps taken to ensure compliance with relevant laws and Executive Orders (EO), in addition to mitigation measures where such are warranted.

The information presented in this section and throughout this EA was obtained from a variety of state and federal natural resource agencies, local governments, and from field reconnaissance visits in 2017. The primary tool for assessing environmental aspects of the study area was a geographic information system (GIS) database for which digital shapefiles were acquired to assist with the analyses reported in technical reports and summarized in this EA. Examples of such GIS data are basic geographic features (i.e., roads and local government boundaries), geology and soils, elevation contours and USGS topographic maps, water and floodplain features, vegetation and wildlife habitat, land use, socio-economic characteristics, and historical aerial photographs.

5.1 Right-of-Way/Displacements

The proposed Build Alternative would require displacements and additional ROW. Approximately 33 acres of new ROW and 16.5 acres of existing ROW would be required to construct the proposed FM 148 Bypass. The proposed project would also include 2.2 acres of proposed permanent drainage easements. The proposed project would potentially displace two single-family residences and one commercial business, impacting a total of five structures (see Plan View Map in **Appendix C**). The first displacement is a single-family residence with a detached garage and carport located on the east side of the existing FM 148 roadway. The second displacement is a mobile home with a detached shed located on the east side of the existing FM 148 roadway. It is anticipated that the current property owner could relocate the mobile home and detached shed to another location on the property. The third displacement is a firework stand located adjacent to the existing US 175 roadway. This building is not attached to the ground and it is anticipated that the stand could be moved to another location in the vicinity.

Acquisition and relocation assistance for owners of displaced properties would be in accordance with the TxDOT Right-of-Way Acquisitions and Relocation Assistance Program, which adheres to the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended. The TxDOT relocation office would provide assistance to the displaced business to aid in satisfactory relocation with a minimum of delay and loss in earnings.

It is unknown whether the displaced firework stand would be relocated, but there are vacant lots where the firework stand could relocate within the community. Considering the seasonal nature of business activity for the firework stand and the opportunities for relocation in the vicinity, the relocation of this business to a suitable location within the community is not anticipated to be problematic.

Under the No-Build Alternative, the existing FM 148 would remain as-is and only normal, routine maintenance would be conducted. No ROW acquisition would be required, and no displacements would occur.

5.2 Land Use

The project area is located approximately 27 miles southeast of Dallas, Texas, in a rural area of Kaufman County. Most of the project area is in the City of Crandall extraterritorial jurisdiction (ETJ). Surrounding land use is a mixture of residential areas and agricultural or other rural land use. Located south of the proposed project is an easement held by the NRCS for a flood control facility that is not available for development.

Although the Build Alternative would convert approximately 35.2 acres of land to transportation use (includes 2.2 acres of drainage easements), direct impacts of this conversion of land use would not otherwise substantially alter the existing land use in the area. However, indirect impacts of project-induced land use change would substantially alter land use along the proposed bypass, as discussed in **Section 5.15**.

Under the No-Build Alternative, no impacts to land use would occur. Land use in the project area would remain predominantly agricultural/rural with limited residential development due to a general lack of access roadways.

5.3 Farmlands

The Farmland Protection Policy Act (FPPA) seeks to preserve the agricultural use of soils that are particularly productive.[8] The NRCS implements the FPPA through regulations[9] and by classifying soil series in terms of suitability for farming. According to NRCS classifications of soils within the proposed new ROW/easements for the proposed project, most of this area is prime farmland.[10]

In compliance with FPPA regulations, the portion of the proposed project area that is not already committed to urban land use (i.e., FM 148 and US 175 ROW, and the NRCS flood control facility), was evaluated using the Farmland Conversion Impact Rating Form for Corridor Type Project (NRCS-CPA-106) for the proposed 35.2 acres of new ROW/easements. The total

[8] 7 U.S. Code Sections 4201-4209.
[9] 7 CFR Part 658.
[10] NRCS Web Soil Survey. Online geographic database with descriptive information linked to soil series. The primary soil series within the project area is Houston black clay, with relatively small areas (i.e., less than 5 acres) of Heiden clay and Ferris-Heiden complex. *http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx*. Accessed July 25, 2017.

corridor assessment of impacts totaled 36 points, which is below the 60-point threshold that requires further consideration for protection of farmland (TxDOT, 2017a). Accordingly, based on the results of the farmland analysis and scoring, no further consideration for the protection of farmland is required by the FPPA regulations.

Under the No-Build Alternative, no transportation-related impacts to prime farmland would occur. Undeveloped lands currently used for agriculture would likely continue to be used for crop production or pasture unless the property owner pursues urban site development.

5.4 Utilities/Emergency Services

Implementation of the proposed project may require the relocation and adjustment of utilities such as water lines, sewer lines, gas lines fiber optic lines, overhead electrical and telephone lines, and other subterranean and aerial utilities. The need for relocation and adjustment of any utilities would be determined during the detailed design phase and coordinated with the affected utility provider to ensure that no substantial interruption of service would take place.

Currently, there are no hospitals located within the Crandall city limits. The closest options available in the area is the Southeast Dallas Health Center, located approximately 15 miles northwest in Dallas, and the Texas Health Presbyterian Hospital, located approximately 9 miles southeast of Crandall in Kaufman. Construction of the Build Alternative would enhance the ability of emergency services to move throughout the proposed project area by creating a direct connection to the major highway, US 175. Access throughout the project area would be maintained and emergency services would be minimally affected during the construction phase of the proposed project.

The No-Build Alternative would not affect local utilities. The No-Build Alternative is expected to adversely affect the efficiency of emergency vehicles due to inefficient access to US 175.

5.5 Bicycle and Pedestrian Facilities

Currently, no sidewalks or designated shared use or bicycle lanes exist along FM 148 or the existing facilities that would connect to the proposed FM 148 Bypass. The proposed roadway is not an urban facility and is in an undeveloped area; therefore, the addition of pedestrian or bicycle facilities is not reasonable or feasible for this project. However, it is anticipated that pedestrians and cyclists would benefit from the proposed project through the diversion of most heavy truck traffic and general automobile congestion away from the existing FM 148 and other local streets of residential neighborhoods near downtown Crandall.

Under the No-Build Alternative, pedestrians and cyclists would continue to use the existing transportation network as it is currently provided.

5.6 Community Impacts

This section summarizes the Community Impacts Assessment Technical Report (TxDOT, 2017b) for the project area which is located within a sparsely populated, rural portion of

Kaufman County, Texas. As discussed above, the proposed project is expected to increase mobility by creating a bypass route that would divert heavy truck traffic and other through traffic from the residential neighborhoods near downtown City of Crandall. The proposed bypass is expected to have a positive impact on emergency response times and other public services. Improved mobility to these services is a benefit to all populations, including sensitive elements such as the elderly, children, and persons with disabilities. Improved mobility would also benefit the general population (including environmental justice populations) that utilize public facilities and recreation areas within and beyond the general project vicinity.

The overall impact of the proposed FM 148 facility is expected to be positive within the community. The project would not impact community cohesion because the existing residential neighborhood west of the proposed bypass is already separated from residential areas to the east by the sizeable NRCS flood control facility and the 100-year floodplain associated with Anthony Branch. Creating a north-south corridor west of the neighborhood would open opportunities for urban development to expand eastward. Community cohesion would be enhanced with improved an improved north-south route connecting the Crandall community with US 175 and neighboring cities in the Dallas region. The proposed project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. The potential indirect impacts would include improved vehicular access to employment opportunities, markets, goods, services, residential uses, and public facilities due to increased vehicular mobility (TxDOT, 2017b).

Implementation of the No-Build Alternative would not improve mobility within the project area and Kaufman County. Negative effects to residential neighborhoods would result from increased congestion caused by through traffic traveling through Crandall.

5.6.1 Environmental Justice

An environmental justice (EJ) analysis was completed in accordance with EO 12898.[11] In the area surrounding the proposed project, there are 13 Census blocks, of which only eight blocks reported a population. According to the 2010 Census, there were no census blocks or block groups that reported minority populations above 50 percent (TxDOT, 2017b). None of the three census block groups are considered low-income, based on a comparison of the median household income of project area block groups with the Department of Health and Human Services 2019 guideline for the poverty level annual income for a family of four (i.e., $25,750). Therefore, the Build Alternative would not cause disproportionately high and adverse effects on minority or low-income populations and is consistent with EO 12898. Similarly, the Build Alternative would not adversely affect other vulnerable members of the community, including children, the elderly, or persons with disabilities.

[11] Executive Order 12898 (2/11/1994): Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations; *http://www.archives.gov/federal-register/executive-orders/pdf/12898.pdf*. Accessed February 16, 2018.

The No-Build Alternative is not expected to cause disproportionately high and adverse effects to low-income populations or minority populations. However, the No-Build Alternative would make no beneficial changes to community cohesion or access and travel patterns.

5.6.2 Limited English Proficiency

Based on the data from the 2011-2015 American Community Survey for project area block groups, the percentage of persons with limited English proficiency (LEP) in the project area ranges from approximately two to seven percent (TxDOT, 2017b). Overall, 247 people in the project area block groups are identified as LEP, representing approximately six percent of the project area's total block group population of age five years and older. The language most often spoken by LEP persons in the project area is Spanish. Within the proposed project limits, the street signs and business signs observed are in English.

To comply with EO 13166[12] and to ensure full and fair public participation for the proposed project, meeting notifications and display advertisements for the public meeting held on May 23, 2017 and for the public hearing held on August 23, 2018, were published in both English and Spanish in *The Dallas Morning News* and *Al Dia*. Public involvement information and materials were published and made available in English and Spanish for both events. A project team member was available at both the public meeting and public hearing to accommodate the communication needs of individuals speaking Spanish. No requests for assistance in another language other than English were requested. Any future public involvement efforts would continue to accommodate Spanish speakers in like fashion, and TxDOT would endeavor to accommodate any requests for language assistance, if made in a timely manner. Therefore, these steps comply with the requirements of EO 13166 as applied to the proposed project.

5.7 Visual/Aesthetics Impacts

Although the proposed project consists of constructing FM 148 on a new location, adverse visual impacts are not anticipated as part of the proposed project. The area is currently bordered to the east and west by country roads and a major highway, so the addition of the new roadway is not anticipated to appreciably change the visual environment. However, the planned grade separated intersection between US 175 and the proposed FM 148 Bypass would create a visible structure in this relatively flat to gently sloping environment. A public meeting (May 2017) and a public hearing (August 2018) were held in the community but none of the commenters expressed concern regarding visual impacts of the US 175 overpass or other visual aspects of the project.

Under the No-Build Alternative, the viewshed would not be altered by the introduction of a new transportation facility.

[12] Executive Order 13166 (8/11/2000): Improving Access to Services for Persons with Limited English Proficiency; *https://www.gpo.gov/fdsys/pkg/FR-2000-08-16/pdf/00-20938.pdf.* Accessed February 16, 2018.

5.8 Cultural Resources

This section summarizes efforts to evaluate impacts to cultural resources in accordance with the programmatic agreement regarding transportation undertakings (PA-TU) among FHWA, TxDOT, the Texas State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation,[13] and the MOU between TxDOT and the Texas Historical Commission (THC) relating to environmental review of transportation projects (THC MOU).[14] The evaluations of archeological resources and historic-age cultural resources discussed in the two subsections below were carried out in compliance with the National Historic Preservation Act (NHPA) of 1966, as amended.[15]

5.8.1 Archeology

In July 2017, an archeological background study was prepared and reviewed by TxDOT archeologists in accordance with the PA-TU and THC MOU (TxDOT, 2017c). This was followed by an intensive pedestrian survey of the project area which covered approximately 40.1 acres of the total 58.7 acres in the area of potential effects (APE); the four properties comprising the remaining 18.6 acres were not surveyed because property owners denied right-of-entry for four properties. Within the area surveyed, extensive shovel testing and backhoe trenching failed to produce any archeological sites or artifacts.

After reviewing the Build Alternative's design features, the results of recent archeological field studies, and the history of urban development in the project area, TxDOT archeologists concluded that there is little likelihood for intact prehistoric or historical archeological sites within the APE surveyed, as well as in three unsurveyed properties with denied access at the south end of the APE. The archeological survey report TxDOT's conclusions were coordinated with the SHPO, who concurred on February 1, 2018 (**Appendix G-1**). TxDOT archeologists have determined that project development may proceed with the environmental study and ROW acquisition based on investigate results to date (**Appendix G-1**). Once access is secured to the fourth unsurveyed property, located in the northwest portion of the APE, the archeological investigation will be completed and any coordination required under the PA-TU and THC MOU would be accomplished at that time (TxDOT, 2018a).

The No-Build Alternative would not impact any archeological resources in the APE.

5.8.2 Historic Properties

The evaluation of potential impacts to historic-age cultural resources was initiated for the Build Alternative with the preparation of project coordination request in July 2017 (TxDOT, 2017d). From this, TxDOT determined that a historical studies reconnaissance survey would

[13] PA among the FHWA, TxDOT, the Texas SHPO, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (2015); http://www.achp.gov/docs/TX.fhwa.implementation%20of%20fed-aid%20highway%20program%20in%20TX.%20pa.15may15.pdf. Accessed February 16, 2018.

[14] MOU with the THC regarding Environmental Review of Transportation Projects (effective 5/16/2013), 43 TAC Rule Sections 2.259 – 2.278.

[15] 54 USC Sections 300101 – 307108.

be required, leading to the preparation of a historical studies research design in September 2017. Subsequently, a historic resources survey was conducted of the APE defined for historic-age resources, which was restricted to the existing ROW where project activities were confined to the existing ROW, 150 feet beyond the proposed ROW and easements at locations along existing transportation corridors, and 300 feet beyond the proposed ROW and easements the where project is constructed on new location (see Historic-age Resources Map Detail in **Appendix F-1**). The Historic Resources Survey Report (HRSR) examined 13 historic-age resources (i.e., constructed prior to 1976) that had not been evaluated in studies previously completed and coordinated with the SHPO (TxDOT, 2018b).

The HRSR found that none of the historic-age resources within the APE meet the criteria for potential eligibility to be individually listed on the National Register of Historic Places (NRHP). After reviewing the HRSR, TxDOT architectural historians concurred with the findings and recommendations within the HRSR report for the Build Alternative and concluded that the proposed project would have no direct, indirect, or cumulative effects on historic properties within the API. In compliance with the Section 106 PA-TU, TxDOT historians determined project activities will not affect historic properties. In compliance with the Antiquities Code of Texas and the THC MOU, TxDOT historians determined project activities have no potential for adverse effects (see **Appendix G-2**). Individual project coordination with the SHPO is not required.

The No-Build Alternative would not affect historic resources and no coordination with the SHPO would be required.

5.9 USDOT Act Section 4(f), LWCF Act Section 6(f), and TPWC Chapter 26

Based on a project scoping analysis, it was determined that the project area does not include any public park, recreation area, wildlife or waterfowl refuge, or other properties that are protected by Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966, as amended (hereinafter 'Section 4(f)').[16] Additionally, it was determined that there is no land within the project area protected by Section 6(f) of the Land and Water Conservation Fund Act[17] or Chapter 26 of the Texas Parks and Wildlife Code.[18]

5.10 Water Resources

5.10.1 Clean Water Act Section 404

An analysis of USGS topographic maps, Federal Emergency Management Agency (FEMA) maps, and field reconnaissance in May 2017, indicated one prominent intermittent stream feature (Anthony Branch) and an associated unnamed ephemeral tributary to Anthony Branch

[16] 49 U.S. Code Section 303 and 23 U.S. Code Section 138. Section 4(f) is implemented by FHWA through regulations at 23 Code of Federal Regulations (CFR) Part 774.
[17] 16 U.S. Code Section 460l.
[18] Texas Parks and Wildlife Code Chapter 26, Section 26.001.

(UTAB-1) are crossed by the proposed project (TxDOT, 2017e). One emergent wetland feature located south of FM 148 and adjacent to Anthony Branch was also identified (ABEW-1). These three potential waters of the U.S., including wetlands (WOUS), were evaluated for impacts that may be caused by the proposed project (see Water Features Map in **Appendix F-2**).

The proposed project would impact Anthony Branch where it crosses existing FM 148 due to the replacement and extension of existing box culverts, and grading activity. The emergent wetland adjacent to Anthony Branch would be impacted due to slope grading. The impacts to the unnamed tributary associated with Anthony Branch would be due to placement of the stream channel within new box culverts. The impacts to WOUS are summarized in **Table 1**.

Table 1. Impacts to Waters of the U.S., including Wetlands*

Map ID and Name of Water Feature (Water Features Map Page Location, and associated wetland data point, if applicable)	Existing Structure	Proposed Work or Structure	Permanent Impact		Temporary Impact		NWP #	PCN ? (Y/N)
			Stream (acres & linear ft)	Wetlands (acres)	Stream (acres & linear ft)	Wetlands (acres)		
Anthony Branch, intermittent stream (Page 1 of 9)	box culvert	replacement and extension of culvert, with grading	0.05 acre 432 LF	none	none	none	14	Y
ABEW-1, emergent wetland adjacent to Anthony Branch (Page 1 of 9, DP-1)	none	slope grading	none	0.16 acre	none	none	14	Y
UTAB-1, ephemeral stream (Page 5 of 9)	none	placement of new culvert, with grading	0.01 acre 284 LF	none	none	none	14	N
***Notes:** The stream crossings are listed in the order that each is crossed by the FM 148 Bypass Project from southeast to northwest. The locations of all aquatic features are shown in the **Water Resources Map in Appendix F**. **Abbreviations in Table 1:** UT = Unnamed Tributary; NWP = Nationwide Permit; PCN = Pre-construction Notification (to the USACE).								

It is anticipated that each of the impacts from the proposed project would be authorized under a United States Army Corps of Engineers (USACE) Section 404 Nationwide Permit (NWP) 14: Linear Transportation Projects.[19] That is, each of the crossings would be a single and complete crossing of a separate water body, and each would affect less than 0.50 acre of jurisdictional waters. A preconstruction notification (PCN) and compensatory mitigation would be required for impacts to the wetland area in accordance with NWP-14. Additionally, a PCN and mitigation for impacts to Anthony Branch is required pursuant to Regional Condition 12 of the 2017 NWP Regional Conditions for the USACE Fort Worth District[20] because losses to the stream would exceed 300 linear feet.

[19] USACE Issuance and Reissuance of Nationwide Permits Final Rule under 33 CFR Chapter II, 82 Federal Register 4 (see Page 1987). See also *http://www.swf.usace.army.mil/Portals/47/docs/regulatory/Permitting/Nationwide/NWP14TX.pdf*. Accessed 4/19/2018.

[20] USACE-Fort Worth District, 2017 Nationwide Permit Regional Conditions for the State of Texas. *http://www.swf.usace.army.mil/Portals/47/docs/regulatory/Permitting/Nationwide/NWP14TX.pdf*. Accessed 4/19/2018.

During construction, appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Although temporary fill activity has not been identified at this level of project design, if a temporary fill becomes necessary then the fill material would be placed in a manner that would not be substantially eroded by expected high flows. Additionally, any temporary fill of a water feature that occurs would be removed and affected areas restored to pre-construction elevations and revegetated, as appropriate. Stream channel modifications, including bank stabilization, would be limited to the minimum necessary to construct or protect roads or drainage structures, and would be restricted to the immediate vicinity of the project. The proposed project would comply with all general and regional conditions applicable to NWP-14.

The No-Build Alternative would not result in impacts to WOUS and no permitting would be required by the USACE.

5.10.2 Clean Water Act Section 401

Under Section 401 of the Clean Water Act (CWA), certification of compliance with water quality standards issued by the state water quality agency is required for any discharge of pollutants into waters subject to regulation under Section 404. In Texas, compliance with Section 401 of the CWA is managed by the Texas Commission on Environmental Quality (TCEQ) and requires the use of best management practices (BMPs) to manage water quality on construction sites. The Section 401 certification requirements for NWP-14 would be met by implementing at least one TCEQ-approved BMP for each of the following categories of controls:

- Category I – Erosion Control;
- Category II – Sedimentation Control; and
- Category III – Post-construction Total Suspended Solids (TSS) Control.

Category I could be addressed with temporary vegetation, which would involve re-seeding disturbed areas according to TxDOT-approved seeding specifications. Category II could be addressed by installing silt fences around construction areas prior to commencing work. Category III could be addressed by installing mulch filter socks at drainage inlets. During final design of the proposed project, other TCEQ-approved BMPs may be substituted if necessary using one of the BMPs from the identical control category (TxDOT, 2017e).

The No-Build Alternative is not expected to adversely or beneficially impact water quality.

5.10.3 Executive Order 11990 Wetlands

In addition to the regulation of wetlands that meet the WOUS criteria of Section 404, Executive policy issued as EO 11990[21] addresses a broader range of wetland environments. Unlike Section 404, the definition of wetlands in EO 11990 does not consider the relationship of

[21] EO 11990 – *Protection of Wetlands* (42 Federal Register 26961, May 24, 1977).

wetlands to any WOUS or their tributaries but applies to areas with vegetation adapted to wetland conditions wherever such areas may be found.

During the field investigation for the proposed project, the project construction footprint was examined for areas that would meet the definition of wetlands under EO 11990. Multiple drainage ditches and a single isolated dry agricultural stock pond were identified within the project area. Hydric vegetation was observed within these features due to their function of conveying storm water runoff. The ditches within the project area, through review of historic aerial photographs, were concluded to not be frequently inundated and are entirely constructed within upland areas not influenced by groundwater. Furthermore, the isolated small agricultural stock pond (see Page 5 of the Water Features Map in **Appendix F-2**), which was dry during the field investigation, appears to be hydrologically separated from surface drainage and the local tributary system by recent developments to the west and north of the project area. Impacting the isolated dry stock pond is unavoidable within the project area. Although these features exhibited wetland characteristics at the time of the field investigation, the features should not be considered as wetlands defined under EO 11990 for the reasons noted above. Accordingly, the requirements of EO 11990 have been met.

The No-Build Alternative is not expected to affect wetlands as defined by EO 11990.

5.10.4 Rivers and Harbors Act

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.10.5 Clean Water Act Section 303(d)

The proposed project is within 5 linear miles and within the same watershed of one impaired water quality assessment unit that is monitored pursuant to Section 303(d) of the CWA[22] (TxDOT, 2017e). According to the TCEQ 2014 Texas Integrated Report–303(d) List,[23] East Fork Trinity River Assessment Unit 0819-01 is impaired due to contaminants sulfate and total dissolved solids. To date, the TCEQ has not identified, either through either a total maximum daily load or the review of projects under the TxDOT-TCEQ MOU,[24] a need to implement control measures beyond those required by the Construction General Permit (CGP) on road construction projects. Therefore, compliance with a project's CGP, along with coordination under the TCEQ MOU for certain transportation projects, collectively meets the need to address impaired waters during the environmental review process. Pursuant to the TxDOT-TCEQ MOU, TxDOT coordinated with the TCEQ regarding water quality by providing a copy of the Draft EA (June 2018). The TCEQ's response included a finding that project compliance

[22] See TxDOT Water Resources Companion Viewer. http://txdot.maps.arcgis.com/apps/webappviewer/index.html?id=d5fbb30cb8254bd1b6d4440dd22e7dde. Accessed 4/19/2018.

[23] 2014 Texas Integrated Report of Surface Water Quality for the Clean Water Act Sections 305(b) and 303(d); *https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/14txir/2014_303d.pdf.* Accessed February 16, 2018.

[24] TxDOT-TCEQ MOU regarding Environmental Review of Transportation Projects (approved 5/10/2013), 43 Texas Administrative Code Sections 2.301 – 2.308.

with regulatory permits/regulations and implementation of runoff control BMPs would not result in significant long-term environmental impacts (see **Appendix G-4**).

The No-Build Alternative is not expected to affect water quality from existing conditions.

5.10.6 Clean Water Act Section 402

Pursuant to Section 402 of the CWA, TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination System (TPDES) CGP during construction of the Build Alternative. Since TPDES CGP authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the project. The TxDOT Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a storm water pollution prevention plan (SWP3) be included in the plans of all projects that disturb one or more acres.[25] The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of intent or site notice) be completed, posted, and submitted to the TCEQ and the municipal separate storm sewer system (MS4) operator.[26] It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the "Required Specification Checklists" require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SWP3, and to complete the appropriate authorization documents.

Under the No-Build Alternative, there would be no earth disturbance and compliance with the TPDES CGP and coordination with the MS4 operator would not be required.

5.10.7 Floodplains

Portions of the proposed project are located within a FEMA designated 100-year-floodplain and construction work would occur in the floodplain (shown in Water Features Map in **Appendix F-2**), as it would intersect the Anthony Branch floodplain at three locations (TxDOT, 2017e). Accordingly, this project is subject to and will comply with the federal EO 11988 on Floodplain Management.[27] TxDOT implements EO 11988 on a programmatic basis through its Hydraulic Design Manual, and design of this project will be conducted in accordance with that reference. Adherence to the TxDOT Hydraulic Design Manual ensures that this project will not result in a "significant encroachment" as defined by FHWA's rules implementing EO

[25] See TxDOT PS&E Preparation Manual (revised October 2017); *http://onlinemanuals.txdot.gov/txdotmanuals/pse/pse.pdf*. Accessed 3/21/2019.
[26] As the proposed project is located within the boundaries of the regulated MS4 for the City of Crandall, a notice of intent would be submitted to the MS4 operator and the contractor would be required to comply with applicable MS4 requirements. See TxDOT Construction Contract Administration Manual (August 2015); *http://onlinemanuals.txdot.gov/txdotmanuals/cah/index.htm.* Accessed 3/21/2019.
[27] EO 11988 – *Floodplain Management* (42 Federal Register 26951, 5/24/1977).

11988.[28] The proposed facility would permit the conveyance of the 100-year flood and would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Coordination with the City of Crandall and Kaufman County Floodplain Administrators would be required.

One of the proposed project's three crossings of the Anthony Branch floodplain is included within a federal easement related to flood control. An earthen dam was constructed by the Soil Conservation Service (now Natural Resources Conservation Service, or NRCS) in 1953 to temporarily detain floodwaters to alleviate peak flows downstream during and shortly after storm events (see map feature #43 in **Appendix F-1**: Historic-age Resources Map Detail – Center). The NRCS easement for its flood control facility extends to its flood pool elevation at 401 feet above mean sea level, and the proposed project crosses a small portion of the NRCS easement approximately 2,400 feet south of US 175 (see **Appendix A-3**, and page 5 of **Appendix F-2**). TxDOT has maintained ongoing coordination with the NRCS to ensure that project design will not diminish the storage capacity of the floodwater detention facility (see coordination record in **Appendix G-5**) by offsetting expected fill with earth excavation within the drainage easement that is part of the design schematic.

The No-Build Alternative would not have adverse or beneficial impacts to floodplains.

5.10.8 Wild and Scenic Rivers

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.10.9 Trinity River Corridor Development Certification

The proposed project is not within the Trinity River Corridor Development Regulatory Zone; therefore, a Corridor Development Certificate permit would not be required.

5.10.10 Coastal Barrier Resources

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.10.11 Coastal Zone Management

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.10.12 Edwards Aquifer

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

[28] See 23 CFR Section 650.105(q).

5.10.13 International Boundary and Water Commission

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.10.14 Drinking Water Systems

According to the Texas Water Department Board's Groundwater Viewer,[29] no underground water wells exist within the project area. Accordingly, neither the Build Alternative nor the No-Build Alternative are expected to impact any drinking water systems.

5.11 Biological Resources

5.11.1 Texas Parks and Wildlife Department Coordination

The inventory and evaluation of vegetation and potential impacts on wildlife for TxDOT projects is governed by a MOU with the Texas Parks and Wildlife Department (TPWD),[30] and implementing programmatic agreements (PA).[31] In accordance with the MOU, a Biological Evaluation Form and a Tier I Site Assessment were prepared to facilitate early coordination of the proposed project with TPWD, if necessary (TxDOT, 2017a and 2017f). It was determined that vegetation impacts to the Tallgrass Prairie, Grassland; Disturbed Prairie; and Riparian TPWD Ecological Mapping Systems of Texas (EMST) land cover vegetation types would exceed the acreage thresholds for coordination with TPWD. Early coordination with TPWD was completed in October 2017, and pertinent BMPs for protecting wildlife and vegetation resources were identified (see documentation in **Appendix G-3**). No further coordination with TPWD would be required.

Under the No-Build Alternative, existing vegetation would not be altered and coordination with TPWD would not be required.

5.11.2 Impacts on Vegetation

Field surveys of vegetation within the proposed project area were conducted in May 2017 to identify terrestrial or aquatic communities that could support wildlife or rare plant species. Most of the project area, except for an area identified as Tallgrass Prairie, Grassland, is subject to different degrees of manipulation and/or disturbance. Disturbances in areas outside urban habitats observed during the field investigation includes the following: regular mowing, unimproved roads or trails, hay harvesting, row crop farming, and livestock grazing/ranching activities. There are some areas within the project corridor that are open water ponds or areas subject to flooding; however, marshy areas were not observed within the project corridor.

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[29] TWDB Water Data Interactive Viewer. http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer. Accessed 4/19/2018.

[30] The TxDOT-TPWD MOU was effective as of 9/1/2013 and is in 43 TAC Sections 2.201 – 2.214.

[31] These PAs between TxDOT and TPWD under the 2013 MOU include the Threshold Table PA (2017) and the Best Management Practices (BMPs) PA (2017). See: http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/ecological-resources.html. Accessed February 16, 2018.

Based on field observations and interpretation of recent color aerial photography combined with a GIS overlay of project design features, the proposed project would have the following estimated impacts to habitat (applying EMST land cover categories): 13.9 acres of Tallgrass Prairie, Grassland; 10.0 acres of Disturbed Prairie; 6.9 acres of Agriculture; and 1.6 acres of Riparian; the remaining 19.2 acres are Urban land cover (TxDOT, 2017f).

As set out in TPWD coordination documentation, the project would implement strategies in the form of BMPs to mitigate impacts to vegetation. This includes notifying the construction contractor to avoid impacts, as practicable, to the Topeka purple-coneflower (*Echinacea atrorubens*), minimizing impacts to wetlands, and revegetation of disturbed areas.

Under the No-Build Alternative, no impacts to vegetation would occur.

5.11.3 Executive Order on Invasive Species

This project is subject to and will comply with the comply with EO 13112[32] on Invasive Species. TxDOT implements this EO on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

Under the No-Build Alternative, existing vegetation would not be affected.

5.11.4 Executive Memorandum on Environmentally and Economically Beneficial Landscaping

This project is subject to and will comply with the federal Executive Memorandum on Environmentally and Economically Beneficial Landscaping,[33] in effect since 1994. TxDOT implements this Executive Memorandum on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

Under the No-Build Alternative, existing vegetation would not be affected.

5.11.5 Impacts to Wildlife

The assessment of wildlife species that may be found within the study area is based primarily on published information about species occurrence and habitat preferences. Field observations indicated that a variety of birds such as raptors, vultures, woodpeckers, and many species of songbirds, make use of the habitats available in the project area. The limited availability of stream, pond, and wetland habitats is expected to attract waterfowl to a lesser extent. Within this relatively rural but urbanizing landscape, the study area would also be expected to provide habitat for those ground-dwelling species (i.e., amphibians, reptiles, mammals) known to be adapted to living in proximity to human activity (i.e., "urban" wildlife).

Considering the types of habitat available in the project area, and the quality and quantity of that habitat, a variety of wildlife species are expected to occur. Based on field observations

[32] EO 13112 – Invasive Species (64 Federal Register 6183-6186, February 8, 1999). *http://www.gpo.gov/fdsys/pkg/FR-1999-02-08/pdf/99-3184.pdf.* Accessed February 16, 2018.

[33] Executive Memorandum on Environmentally Beneficial Landscaping (42 Federal Register 26961, 5/24/1977). *http://environment.fhwa.dot.gov/guidebook/documents/042694em.asp.* Accessed February 16, 2018.

of wildlife, including animal tracks and scat, commonly-occurring species in the project area include the following: armadillo (*Dasypus novemcinctus*), bobcat (*Lynx rufus*), common raccoon (*Procyon lotor*), coyote (*Canis latrans*), eastern cottontail rabbit (*Sylvilagus floridanus*), eastern fox squirrel (*Sciurus niger*), feral pig (*Sus scrofa*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*). The number of observed wildlife species during isolated visits to the area is only a fraction of the species that occur within the study area, either year-round or during migratory periods. The conversion of much of the study area to urban land and agricultural uses has increased the importance of local floodplains as corridors for the movement of terrestrial wildlife. With the disturbance of surrounding habitats, riparian forest areas have been shown to promote the movement of wildlife and enhance gene flow within species, as well as provide foraging and nesting habitat. The riparian forest habitat and adjacent grass/scrub rangeland may therefore be expected to provide habitat for a variety of wildlife species, including the foregoing mammals as well as birds, reptiles, and amphibians.

Required vegetation clearing, stream dewatering, and other construction-related activities may affect commonly-occurring animals that reside within or adjacent to the project area, and heavy machinery could harm small, low-mobility animals. More mobile species could avoid construction activities and move to adjacent areas. It is expected that mitigating BMPs for rare and protected species, discussed below in **Section 5.11.11**, would also benefit wildlife species common within the project area.

Under the No-Build Alternative, wildlife species and their habitats would not be impacted.

5.11.6 Migratory Bird Treaty Act

The provisions of the Migratory Bird Treaty Act (MBTA) would apply within the proposed project area (TxDOT, 2017a). This project will comply with applicable provisions of the MBTA and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64 – Birds. It is TxDOT's policy to avoid removal and destruction of active bird nests except through federal or state approved options. In addition, it is TxDOT's policy to, were appropriate and practicable, do the following: (1) use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction; and (2) schedule construction activities outside the typical nesting season.

The No-Build Alternative would not affect migratory birds protected under the MBTA.

5.11.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) of 1958 requires that federal agencies obtain comments from USFWS and TPWD whenever a project involves impounding, diverting, or deepening a stream channel or other body of water. The proposed project would impact WOUS and a wetland, and a Section 404 permit would be required. The project would be covered by a NWP 14 with PCN, with mitigation requirements.

The No-Build Alternative would not impact and stream or water features; therefore, it would not be subject to regulation under the FWCA.

5.11.8 Bald and Golden Eagle Protection Act of 2007

The proposed project area does not contain suitable foraging or nesting habitat for bald or golden eagles (refer to **Sections 5.2** and **5.11.2** for descriptions of land use, vegetation, and habitat). The project corridor does not cross any perennial streams or large water bodies. The East Fork Trinity River is the closest perennial stream proximal to the project area and is located approximately 2.5 miles southeast at its closest approach. Murphy Lake is the only large water body proximal to the project area and is located approximately 0.7 mile southeast of the project area's southernmost point (see **Appendix A-1**). Murphy Lake is located within open agriculture pasture land and would not be conducive to bald and/or golden eagles habitat requirements. Vegetation along and near stream banks within the project area is typically composed of immature hardwood trees, with a dense understory of vines and shrubs. The available habitat within the project corridor is not of sufficient quality or size to attract bald or golden eagles. No evidence of bald or golden eagles (e.g., sightings, nests, or remnant nests) was observed by the biologist during the field biological assessment. Therefore, neither the Build Alternative nor the No-Build Alternative would impact bald or golden eagles.

5.11.9 Magnuson-Stevens Fishery Conservation Management Act

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.11.10 Marine Mammal Protection Act

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No-Build Alternative would have an impact on this resource category or subject matter.

5.11.11 Threatened, Endangered, and Candidate Species

Relatively rare wildlife that may potentially utilize habitat within the project area for foraging or nesting habitat include federal or state-listed threatened or endangered species, along with other TPWD-designated rare species. Field observations and aerial photography analysis of available habitat indicate that there is no suitable habitat for federally-listed threatened, endangered, or candidate species within the project area. The observations and rationale for reaching this and other conclusions regarding potential impacts to rare species are included in a Species Impact Table that is part of the Biological Evaluation Form (TxDOT, 2017a) and Tier I Site Assessment (TxDOT, 2017f). The Species Impact Table includes effect and impact determinations for all federal- and state-listed species, respectively, in addition to Species of Greatest Conservation Need (SGCN) and other TPWD-designated species of concern that could be present within the proposed project area.

The proposed project is within the range of four federally-listed threatened or endangered bird species with the potential of occurring where preferred habitat is found in sufficient quality and quantity to attract these species. These bird species are the piping plover (*Charadrius melodus*), interior least tern (*Sterna antillarum athalassos*), red knot (*Calidris canutus rufa*), and whooping crane (*Grus americana*). Preferred habitat for the piping plover, red knot, and whooping crane is associated with shoreline or marshy areas that are absent from the project

area, and it is expected that no effects would occur to any of these three species for that reason. Preferred habitat for the interior least tern requires sandy to gravelly beaches/bars of rivers or lakes with little to no vegetation for nesting activities, and relatively large water bodies for feeding. Due to the lack of such habitat in the project area, it is expected that the proposed project would result in no effect to the interior least tern. Additionally, USFWS online information indicates the agency's impact concerns for the piping plover and red knot in Kaufman County are limited to wind energy projects, further supporting the effect determination for these species.[34] Accordingly, in light of the type and quantity of habitat inventoried within the project area, suitable habitat for these four federally-protected species is absent within the FM 148 Bypass action area and the proposed project would have no effect on the piping plover, red knot, interior least tern, or whooping crane. Accordingly, consultation with the USFWS under Section 7 of the Endangered Species Act is not required.

Wildlife that may utilize land use types within the project area for food and habitat include state-listed threatened timber rattlesnake (*Crotalus horridus*) and seven SGCNs: southern crawfish frog (*Lithobates areolatus*), Henslow's sparrow (*Ammodramus* henslowii), Sprague's pipit (*Anthus spragueii*), western burrowing owl (*Athene cunicularia hypugaea*), plains spotted skunk (*Spilogale putorius interrupta*), Texas garter snake (*Thamnophis sirtalis annectens*), and Topeka purple-coneflower (*Echinacea atrorubens*). The following BMPs would be implemented to minimize impacts to wildlife and habitat: Species-Specific BMPs adapted for the Topeka purple-coneflower, and for the plains spotted skunk; Species-Specific BMPs, Water Quality BMPs, and Amphibian BMPs adapted for the southern crawfish frog; Bird BMPs adapted for Henslow's sparrow, Sprague's pipit, and western burrowing owl; and Terrestrial Reptile BMPs adapted for the Texas garter snake and timber rattlesnake (TxDOT, 2017f).

As previously mentioned, habitat within the proposed project area is comprised of predominantly agricultural and urban landscapes and is disrupted by frequent human activity. Therefore, any impacts to species would be to individuals and would be incidental in nature. Neither the Build Alternative nor the No-Build Alternative would be expected to adversely impact any protected species or TPWD-designated SGCNs.

5.12 Air Quality

This section reviews the proposed project in relation to various environmental policies affecting air quality, and summarizes the detailed information contained in technical reports. The project is not located within a carbon monoxide (CO) or particulate matter (PM) nonattainment or maintenance area; therefore, a project level hot-spot analysis was not required for these types of pollutants.

[34] See USFWS Information for Planning and Consultation (IPaC) website: *https://ecos.fws.gov/ipac/*. Accessed 5/1/2017.

5.12.1 Transportation Conformity

The proposed project is in Kaufman County, which is designated by the Environmental Protection Agency (EPA) as a moderate nonattainment area for the 8-hour National Ambient Air Quality Standard (NAAQS) for the pollutant ozone; therefore, transportation conformity rules pursuant to the Clean Air Act (CAA) apply. Effective August 3, 2018, the EPA designated Kaufman County as marginal nonattainment for the 2015 ozone NAAQS. In accordance with 40 CFR Section 93.109(c), transportation conformity to this new standard is required by August 3, 2019 (one year after the effective date). Both the *Mobility 2045* MTP and the 2019-2022 DFW TIP were initially found to conform to the TCEQ State Implementation Plan by the FHWA and Federal Transit Administration on November 21, 2018. The proposed project is consistent with the currently conforming MTP and TIP. Copies of pages from the MTP and TIP with information relevant to the proposed project are included in **Appendix E**.

5.12.2 Carbon Monoxide Traffic Air Quality Analysis (TAQA)

The maximum traffic data for the design year of 2040 is 34,500 vehicles per day (VPD) for existing US 175 and 4,700 VPD for the proposed bypass. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that the CO standard would ever be exceeded because of any project with an average annual daily traffic (AADT) below 140,000 VPD. The AADT projections for the project do not exceed 140,000 VPD; therefore, a TAQA is not required.

5.12.3 Mobile Source Air Toxics

Regulation by the EPA of mobile source air toxics (MSAT) focuses on the following nine priority MSAT: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel PM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. The 2007 MSAT rule[35] requires cleaner fuels and cleaner engines to control MSAT emissions, which have decreased and will continue to dramatically decrease MSAT emissions. For example, although the amount of MSAT is proportional to the number of vehicle miles traveled (VMT), implementation of fuel and engine regulations is expected to decrease MSAT emissions by 91 percent at the national level even though an increase of 45 percent in VMT is expected from 2010 to 2050.

Based the predicted decrease in VMT associated with the Build Alternative as compared to the No-Build Alternative, the proposed project would be expected to result in an overall reduction in future MSAT levels within the project area. Despite this, it is possible that the Build Alternative may result in increased exposure to MSAT emissions in certain locations, such as at intersections with other roadways. As there is substantial uncertainty regarding the ability to estimate MSAT concentrations and duration of exposures, the health effects from these emissions cannot be estimated with accuracy at the local level. However, studies by the EPA indicate that MSAT emissions in the future would substantially decrease with

[35] Control of Hazardous Air Pollutants from Mobile Sources, Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007.

continued implementation of EPA's vehicle and fuel regulations, even despite projected increases in VMT (TxDOT, 2017g).

5.12.4 Congestion Management Process

The congestion management process (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The proposed project was developed from the NCTCOG's CMP, which meets all requirements of 23 CFR Sections 450.320 and 500.109, as applicable. The CMP was adopted by the NCTCOG's Regional Transportation Council in 2007 and was updated in July 2013.

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; 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 within the study boundary will consist of frontage road improvements to US 175 and sidewalk construction on local streets in Crandall (see **Table 2**).

Table 2. Congestion Management Process Strategies

Location	Type of Operational Improvements in Travel Corridor	Implementation Year
City of Crandall	US 175 from FM 148 to CR 4106 in Crandall: construct new two-lane frontage roads; convert existing frontage road from two-way to two-lane one-way; and ramp modifications.	2020
City of Crandall	Sidewalk construction along Trinity Rd from Angelina Dr to Martin Elementary School, along Meadowcreek Dr from Creekside Dr to 1st St for Wilson Elementary School, and along Lewis St/FM 3039 from 1st St to Crandall Middle School.	2017
Source: NCTCOG's Revenue and Project Tracking System interactive map (*http://rapts.dfwmaps.com/*). Accessed 5/23/2018.		

To reduce congestion and the need for SOV lanes in the region, TxDOT and NCTCOG will continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality Improvement program, the CMP, and the MTP. The congestion reduction strategies considered for this project would help alleviate congestion in the SOV study boundary but would not eliminate it.

Therefore, the proposed project is justified. The CMP analysis for added SOV capacity projects in the Transportation Management Area is on file and available for review at NCTCOG.

In July 2013, the RTC also adopted a policy that requires the review and application of congestion mitigation strategies to correct corridor deficiencies identified in the CMP when performing corridor and environmental studies and report findings back to NCTCOG. Therefore, NCTCOG has developed a project-level CMP analysis. The analysis requires completion of the Project Implementation Form, and, if warranted, the Roadway Corridor Deficiency Form and Corridor Analysis Fact Sheet. The results of the project level CMP analysis completed for the proposed project followed NCTCOG's procedures and concluded that the corridor was deficient in the alternative roadway infrastructure and modal options categories (see **Appendix F-3**).

5.12.5 Construction Air Emissions

During the construction phase of the Build Alternative, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel PM from diesel-powered construction equipment and vehicles.

The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions.[36]

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement and use of TERP, and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

5.13 Hazardous Materials

Construction of the proposed project would not occur entirely within existing ROW and would include excavation and other earth-moving activities. Project planning includes an assessment of the risk that such activities pose from hazardous materials and substances from past human activities within or near the proposed project. Therefore, the project team conducted a hazardous materials site visit on May 4, 2017 and completed a Hazardous

[36] Information about the TERP program can be found at: *http://ww.tceq.state.tx.us/implementation/air/terp/*.

Materials Initial Site Assessment (ISA) in July 2017, to identify possible sources of hazardous materials and assess the level of potential risk for each site (TxDOT, 2017h). The ISA was prepared in accordance with TxDOT protocols for assessing risks from hazardous materials.

The site visit of the project area and potential hazardous materials sites did not disclose any observable hazardous materials issues. The ISA regulatory database search did not disclose any records of hazardous materials sites that could potentially affect the proposed project. Although the database records for a housing development indicated the issuance of stormwater permits, such records do not indicate any cause for environmental concern.

The proposed project would result in the demolition of one structure within the proposed ROW. In accordance with the Texas Asbestos Health Protection Rules (25 Texas Administrative Code [TAC] 295.61), any structures that would be demolished under the proposed project would be surveyed for asbestos-containing material and lead-containing paint prior to demolition.

The No-Build Alternative would not cause any ground-disturbing activity, thus there would be no expected potential for the release of any hazardous materials.

5.14 Traffic Noise

A traffic noise analysis was performed for the Build Alternative in accordance with TxDOT's (FHWA-approved) guidelines.[37] Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust, and is commonly measured in decibels. Sound occurs over a wide range of frequencies, but the human ear can detect sounds only within a certain range of high and low frequencies. Therefore, traffic noise modelling for roadway projects is adjusted to approximate the way an average person hears traffic sounds, and this adjustment is called A-weighting (expressed as 'dB(A)'). In addition, 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.' These terms are used to report the results of the noise analysis presented in the Traffic Noise Technical Report (TxDOT, 2017i).

The remainder of this discussion of traffic noise impacts summarizes the information contained in the Traffic Noise Technical Report, which is available for review at the TxDOT Dallas District office, upon request, and includes additional detailed data and maps not included in this EA.

The traffic noise modelling analysis first identified land use activity areas adjacent to the existing and proposed ROW for which the FHWA has established Noise Abatement Criteria (NAC), which are shown in **Table 3**.

[37] Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011); *http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/traffic-noise.html*. Accessed February 16, 2018.

Table 3. FHWA Noise Abatement Criteria

Activity Category	FHWA dB(A) Leq	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Residential.
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.
Source: TxDOT's FHWA-approved 2011 *Guidelines for Analysis and Abatement of Roadway Traffic Noise*.		

For the Build Alternative, on-site noise level measurements were collected at 37 sites on July 21, 2017, using an Extech SDL600 Sound Level Meter and Datalogger. The ambient noise monitoring sites were chosen to be geographically distributed and characteristic of the existing ambient noise levels in the vicinity. In addition to the ambient noise level measurements; existing year (2017) traffic volumes were modeled for the existing roadway 4th Street/FM 148. The modeled results and ambient noise measurements were compared and calibrated to best reflect the existing year noise levels at all the 102 designated noise receiver locations.

After the 102 modeled noise receivers were analyzed, that number was pared down to 42 representative noise receivers for mapping and reporting purposes. The resulting 42 representative noise receivers are those with similar noise levels, NAC activity categories, and geographic locations. Representative noise receiver locations are shown in **Appendix F-4**. The existing and future traffic volumes, distances from receivers to roadways, and elevations were also entered into the Traffic Noise Model that was then used to predict existing and future noise levels. The Traffic Noise Model results, shown in **Table 4**, indicated that the proposed project would result in traffic noise impacts at five of the 42 receivers.

Table 4. Traffic Noise Levels [dB(A) Leq]

Receiver ID	Type of Receiver	NAC Category	NAC Level	Predicted Traffic Noise Level [dB(A) Leq]			Noise Impact
				Existing 2017	Predicted 2040	Change (+/-)	
R1	Residential	B	67	54	54	0	No
R2	**Residential**	**B**	**67**	**66**	**71**	**+5**	**Yes**
R3	**Residential**	**B**	**67**	**40**	**53**	**+13**	**Yes**
R4	**Residential**	**B**	**67**	**40**	**55**	**+15**	**Yes**
R5	**Residential**	**B**	**67**	**40**	**54**	**+14**	**Yes**
R6	**Residential**	**B**	**67**	**40**	**53**	**+13**	**Yes**
R7	Residential	B	67	41	51	+10	No
R8	Residential	B	67	41	51	+10	No
R9	Residential	B	67	41	51	+10	No
R10	Residential	B	67	41	49	+8	No
R11	Residential	B	67	43	49	+6	No
R12	Residential	B	67	44	50	+6	No
R13	Residential	B	67	43	48	+5	No
R14	Residential	B	67	43	48	+5	No
R15	Residential	B	67	43	47	+4	No
R16	Residential	B	67	43	45	+2	No
R17	Residential	B	67	43	45	+2	No
R18	Residential	B	67	43	45	+2	No
R19	Residential	B	67	44	45	+1	No
R20	Residential	B	67	44	45	+1	No
R21	Residential	B	67	42	43	+1	No
R22	Residential	B	67	41	41	0	No
R23	Church Baseball Field	C	67	44	46	+2	No
R24	Church Baseball Field	C	67	42	48	+6	No
R25	Church Playground	C	67	44	44	0	No
R26	Church Building**	D	52	23	23	0	No
R27	Church Building**	D	52	34	32	-2	No
R28	Church Building**	D	52	25	26	+1	No
R29	Residential	B	67	51	57	+6	No
R30	Residential	B	67	63	61	-2	No
R31	Residential	B	67	63	61	-2	No
R32	Residential	B	67	63	61	-2	No
R33	Residential	B	67	63	61	-2	No
R34	Residential	B	67	64	62	-2	No
R35	Residential	B	67	63	61	-2	No
R36	Residential	B	67	57	55	-2	No
R37	Residential	B	67	64	60	-4	No
R38	Residential	B	67	63	58	-5	No
R39	Residential	B	67	42	42	0	No
R40	Residential	B	67	60	60	0	No
R41	Residential	B	67	60	60	0	No
R42	Residential	B	67	59	59	0	No

Notes: ** An Interior Noise Reduction Factor of 20 dB(A) was applied to these interior uses.

As the proposed project would result in traffic noise impacts, noise abatement options were considered, and a barrier analysis was conducted. Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible," the abatement measure must be able to reduce the noise level at greater than 50 percent of impacted, first row receivers by at least 5 dB(A); 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 5 dB(A) and the abatement measure must be able to reduce the noise level for at least one impacted, first row receiver by at least 7 dB(A). Results indicated that noise barriers would not be both feasible and reasonable for the five impacted receivers; therefore, no abatement measures are proposed for this project.

Any subsequent project design changes may require a re-evaluation of this preliminary noise barrier proposal.

A copy of the traffic noise analysis will be made available to public officials. On the date of approval of the final version 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.

To avoid noise impacts that may result from future development of properties adjacent to the proposed project, local officials responsible for land use control programs must ensure, to the maximum extent possible, that no new activities are planned or constructed along or within the following predicted (2040) noise impact contours shown in **Table 5**.

Table 5. Traffic Noise Contours dB(A) Leq

Location	Distance from Proposed ROW (feet)	
	NAC Category B & C 66 dB(A)	NAC Category E 71 dB(A)
US 175 westbound frontage road: 1,000 feet West of proposed FM 148 Bypass and US 175 Intersection	150	ROW
US 175 westbound frontage road: 1,000 feet East of proposed FM 148 Bypass and US 175 Intersection	ROW	ROW
US 175 eastbound frontage road: 1,000 feet West of proposed FM 148 Bypass and US 175 Intersection	ROW	ROW
US 175 eastbound frontage road: 1,000 feet East of proposed FM 148 Bypass and US 175 Intersection	ROW	ROW
West FM 148 Bypass: 1,000 feet South of proposed FM 148 Bypass and US 175 Intersection	20	ROW
East FM 148 Bypass: FM 148 Bypass and 4th Street Intersection	ROW	ROW

The No-Build Alternative would not affect noise levels within the project area, but traffic noise levels may increase on FM 148 and US 175 due to future increases in traffic.

5.15 Airway-Highway Clearance

Bennett's Airport (Federal Aviation Administration airport ID #9TX2) is located approximately 1.5 miles northeast of the proposed intersection of the FM 148 Bypass with US 175 (see Bennett's Airport Map in **Appendix F-5**). The highest elevation of the proposed US 175 overpass pavement would be approximately 25 feet above the existing ground level along the proposed FM 148 alignment. The northern end of the proposed FM 148 Bypass project area is intersected by an imaginary line extending the airport's single, grass-covered airstrip that is approximately 2,500 feet in length. However, the proposed project remains outside the Runway Protection Zones (RPZ) and would not penetrate the horizontal and vertical slope requirements[38] for the existing runway of Bennett's Airport. Although the proposed project is outside the RPZ, Bennett's Airport would be notified of project construction activities.

5.16 Induced Growth

In accordance with TxDOT guidance,[39] an analysis was completed to assess whether the Build Alternative would likely result in induced growth impacts project (TxDOT, 2017j). The planning judgment methodology was used as the framework for the analysis. Accordingly, City of Crandall professional planners were consulted to obtain input relevant to defining the Build Alternative's Area of Influence (AOI), as well as current planning documents, and other data relevant to the analysis of the proposed project's indirect impacts and induced growth impacts. This approach was augmented using cartographic techniques that applied various GIS thematic mapping layers to assist in evaluating the AOI, which comprises a total of 2,041 acres. Such thematic overlays included current and historic aerial photography, environmental constraints data such as land use and ownership, cultural resources, natural resources, and socio-economic data. Additionally, knowledge of the project area's planning context, municipal goals, and urban trends in the area facilitated the induced growth indirect impacts analysis.

Input from City of Crandall planners and application of GIS tools indicate that an estimated 52 percent (1,064 acres) of the AOI is considered developable land. Such land is comprised of vacant/unused parcel and property primarily used for agricultural production. City planning experts were asked to specifically identify areas where the amount, type (e.g., commercial, residential, industrial), location, or timing of development would be different because of the proposed FM 148 Bypass. The result of this evaluation of developable land in the AOI identified 323.4 acres of expected project-induced development (see Induced Development Area within Project AOI Map in **Appendix F-6**). As most of the AOI is outside city limits, zoning for areas of project-induced growth has yet to be determined. However, City of Crandall planning experts indicated it would be expected that urbanization of 323.4 acres of project-

[38] These requirements are specified in Federal Aviation Administration regulations in 14 CFR Part 77 (see Section 77.19).
[39] Environmental Handbook for Indirect and Cumulative Impacts (2014); and Guidance: Indirect Impacts Analysis (2015); *http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/impacts.html.* Accessed February 16, 2018.

induced development would be primarily residential developments and some commercial facilities.

The urban growth areas expected to be induced by the proposed project are currently predominantly vacant grasslands, livestock pastures, or agricultural cropland. Additionally, based on review of aerial photography, USGS topographic maps, database searches, and direct impact analyses, it was concluded that there are no known 100-year floodplains, cultural resources, or Section 4(f) and 6(f) properties within the areas of project-induced growth impacts. However, the results of this analysis indicate that vegetation and wildlife habitat would be adversely affected by project-induced growth.

Impacts to vegetation and wildlife habitat total 322.1 acres and are comprised of the following TPWD EMST land cover types: 161.3 acres of Tallgrass Prairie, Grassland; 104.4 acres of Agriculture; 51.0 acres of Disturbed Prairie; and 5.4 acres of Riparian. These impacts total approximately 16 percent of the area in the AOI. Wildlife that could potentially utilize habitat in induced growth areas include the state-listed threatened timber rattlesnake and the seven SGCNs discussed in **Section 5.11.11**. Although these rare species could potentially occur in induced growth areas, it is not expected that urban development would be likely to adversely affect these species. Much of the land subject to induced development is in an urbanized or agricultural environment and subject to periodic disturbance from farm equipment or livestock. These areas are also bordered by or near major roadways and existing urban development. The presence of human activity in the area, in combination with current and historic agricultural practices, make it unlikely that high quality wildlife habitat would be replaced by induced urban development. It is also expected that harm to birds and terrestrial animals would be unlikely as these species would move away from areas that are undergoing construction. Adverse impacts to the Topeka purple-coneflower would not be expected primarily because this relatively rare plant was not observed during the field biological survey of the project

The extent to which mitigation would be warranted for project-induced growth was considered in the indirect impacts analysis. Land development activities that may be induced by the proposed project are most likely to be private ventures regulated by the City of Crandall's land development ordinances, or by Kaufman County policies and practices for unincorporated areas. Such regulation addresses environmental and social impacts by requiring mitigation as part of site design and construction such that development is in accordance with overall city objectives. Any mitigation for project-induced land development impacts, which may arise after construction of the proposed project, would be overseen by the City of Crandall and would be the responsibility of the site developer (TxDOT, 2017j).

Under the No-Build Alternative, project-induced growth impacts would not occur, but private land development could nevertheless occur if access roads are part of development plans.

5.17 Cumulative Impacts

An assessment of potential cumulative impacts of the Build Alternative was made in accordance with TxDOT guidance documents.[40] The purpose of a cumulative impacts analysis is to view the direct and indirect impacts of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but which are likely to affect the same resources in the future. Environmental and social resources are evaluated from the standpoint of relative abundance among similar resources within a larger geographic area. Broadening the view of resource impacts in this way allows the decision maker an insight into the magnitude of project-related impacts considering the overall health and abundance of selected resources.

In essence, a cumulative impacts evaluation first paints a conceptual picture of the existing or 'baseline' condition of each resource which is based on historical information and an assessment of the current condition of the resource. However, if a project does not cause direct or indirect adverse impacts to a resource or social issue, it cannot contribute to a cumulative impact on that resource. Application of the initial step in the cumulative impacts analysis focused on those resources that are substantially affected by the proposed project as a result of direct and/or indirect impacts, resources that are in poor or declining health, or resources that are particularly scarce. Whether a resource is substantially affected by the proposed project is a function of the existing abundance and condition of the resource and includes resources that are at risk, potentially from other actions, even if the proposed project impacts are relatively small. The foregoing criteria were applied individually to all the topics considered throughout the analysis of direct impacts and indirect impacts for the proposed project.

The results of the initial screening step of the cumulative impacts analysis led to the conclusion that vegetation and wildlife habitat, and WOUS, including wetlands, are candidates for a cumulative impacts analysis. The resource study area (RSA) for these natural resources encompasses an area of approximately 10,200 acres and is shown in **Appendix F-7.** The analysis indicated that the cumulative impacts on vegetation and wildlife habitat (non-urban land cover) resulting from 32.5 acres of direct impacts, 322.1 acres of indirect impacts, and 2,365.3 acres of impacts from other reasonably foreseeable actions would total 2,719.9 acres and would affect approximately 30 percent of the non-urban vegetation resources within the RSA. The analysis indicated that the cumulative impacts on WOUS, including wetlands, resulting from 0.22 acre of direct impacts, 1.9 acres of indirect impacts, and 89.2 acres of impacts from other reasonably foreseeable actions would total 91.4 acres and would affect approximately 35.6 percent of the resources within the RSA.

While cumulative impacts would affect approximately 2,719.9 acres of vegetation and wildlife habitat, the predicted cumulative conversion of non-urban land cover to urban development

[40] Guidance: Indirect Impacts Analysis (2016) and Cumulative Impacts Analysis Guidelines (2016); *http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/impacts.html.* Accessed February 16, 2018.

is not expected to substantially impact wildlife populations in the RSA for several reasons. First, the influence of human agricultural and urban activity in recent decades has already dramatically altered the availability of high-quality preferred habitat for wildlife from pre-settlement conditions. Thus, remaining wildlife populations are primarily commonly-occurring species that are resilient to human modifications of habitat (e.g., raccoon, skunk, rabbit, opossum, coyote, squirrel, and armadillo). Second, at present only 11 percent of the RSA is urbanized, so it is expected that terrestrial wildlife would migrate away from construction areas to available habitat in adjacent areas. Third, although the estimates of impacts above assumed a worst-case scenario in terms of impact to existing land cover, it is expected that riparian areas associated with Buffalo Creek and Anthony Branch would retain much of their current habitat values. This is due to municipal and/or county restrictions relating to construction of buildings within floodplains, as well as regulations inhibiting alterations to WOUS, including wetlands, under Section 404. Consequently, it is expected that these riparian areas would remain migration corridors for wildlife despite project-related development and the impacts of reasonably foreseeable projects unrelated to the proposed project.

Mitigation for direct impacts and encroachment alteration indirect impacts of the proposed project are addressed by various BMPs prescribed in a Programmatic Agreement between TPWD and TxDOT. In contrast, effects to wildlife habitat from project-induced development and reasonably foreseeable projects are subject primarily to regulation by city and county governments, which guide the type and location of new development. Generally, municipal land development policies focus on health and safety rather than preservation of ecological values. To the extent that local policies require landscaping as part of site development, some mitigation of impacts to wildlife habitat may occur due to such regulation and to achieve the aesthetic goals of property owners. However, the greatest protection to habitat would be expected in connection with riparian habitat within FEMA floodplain areas. As discussed above, development in flood prone areas is unlikely due to risk to investments as well as municipal controls to prevent impacts to the ability of floodplains to convey flood waters.

Potential cumulative impacts to waters of the U.S., including wetlands, would be avoided or minimized by compliance with regulations pursuant to Section 404 of the CWA. This would apply to direct and indirect impacts of the proposed project, as well as all the reasonably foreseeable projects discussed above. Regulations implementing Section 404 require project-specific mitigation for resource losses that are above specified thresholds for streams, wetlands, and open water features. Such mitigation, as warranted, may be satisfied through purchase of credits from a mitigation bank or by onsite mitigation requirements.

Based on the continued availability of other habitat areas, and assuming that appropriate implementation of regulated avoidance, minimization, and mitigation strategies for vegetation and habitat and WOUS, including wetlands, impacts are maintained, the proposed project would not contribute to substantial cumulative impacts to the area's vegetation and habitat or WOUS, including wetlands (TxDOT, 2017j).

Under the No-Build Alternative, existing vegetation and wildlife habitat and WOUS, including wetlands, would not be impacted.

5.18 Construction Phase Impacts

This section highlights several areas of impacts that are temporary in nature as they would be limited to the period of construction, which is estimated to be approximately two to three years.

5.18.1 Noise Impacts

Heavy machinery is the primary source of noise in during construction and is difficult to quantify because of constantly varying activities. However, construction normally occurs during daylight hours when occasional loud noise is tolerable. None of the noise receivers identified in the traffic noise analysis are expected to be exposed to an excessive amount of construction noise for a long duration. TxDOT will include requirements in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of equipment muffler systems.

5.18.2 Air Quality Impacts

As discussed in Section 5.12.5, construction of the Build Alternative temporary increases in PM (e.g., fugitive dust and diesel PM) and MSAT emissions may occur. The potential impacts of PM emissions would be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate. Considering the temporary and transient nature of construction-related emissions, as well as the mitigation actions to be utilized, it is not anticipated that emissions from construction of this project would have a substantial impact on air quality in the area.

5.18.3 Access and Detours

Construction of the proposed project would not result in substantial changes to existing traffic patterns, and no substantial changes in access to adjacent properties would occur. TxDOT would make every effort to limit the potential for major traffic disruptions during construction. Majority of the proposed project is located on a new location and the existing FM 148 and US 175 would remain open during construction. Lane closures could result in increased travel times, although this condition would be temporary. Access to adjacent properties would be maintained during construction. Inconvenience to the motorists using the roadway during the construction phase would be minimized.

6.0 AGENCY COORDINATION

This section identifies all coordination with agencies outside TxDOT that are required to be conducted for the Build Alternative. The list below identifies the agencies requiring coordination and the status of efforts to coordinate the proposed project.

- The Report of Archeological Survey was coordinated with the SHPO, who concurred with the findings and recommendations of the survey on 2/1/2018 (see **Section 5.8.1**, and **Appendix G-1**). As archeological survey remains to be completed for a property for which entry was denied, coordination with the SHPO will occur regarding that property after ROW acquisition.
- TxDOT determined that no potential effects to historic, non-archeological properties are expected by the proposed project and that, in accordance with applicable agreements, individual project coordination with the SHPO is not required (see **Section 5.8.2** and **Appendix G-2**).
- Early coordination with the TPWD regarding biological resources was completed on 9/28/2017. No further coordination with TPWD (or coordination with the USFWS) would be required (see **Section 5.11.1** and **Appendix G-3**).
- TCEQ coordination for this project was completed with regard to air quality and water quality. The TCEQ concurred with the assessment in the Draft EA regarding conformity relating to air quality plans. With respect to water quality, the TCEQ found that adherence with regulatory requirements and other water quality BMPs during construction would prevent any significant long-term environmental impacts (see Section and **Appendix G-4**).
- Coordination with the NRCS regarding the flood control facility located east of the proposed project has been ongoing throughout preparation of the project design (see discussion in **Section 5.10.7** and correspondence in **Appendix G-5**). Future coordination with the NRCS will occur in connection with receiving agency authorization to cross a portion of the land within the flood pool elevation of its flood control facility. As indicated in prior correspondence with the NRCS and in the approved design schematic, the proposed project includes a drainage easement that will accommodate the need to excavate earth to offset all fill of land within the flood pool elevation.

7.0 PUBLIC INVOLVEMENT

7.1 Early Public Involvement

Public involvement activities for the proposed project began with a project briefing to the Crandall City Council on November 2, 2015. A meeting of affected property owners was held on November 7, 2016 with eight residential property owners that could be affected by the proposed project. The purpose of this meeting was to inform property owners of the proposed project's preliminary design, the project design and planning process, and ROW acquisition

procedures. A few of the attending property owners expressed concern about proposed ROW acquisition and potential displacements.

7.2 Public Meeting

A public meeting for the proposed project was held on May 23, 2017, in the L.F. Raynes Board Room, Crandall ISD, located at 400 West Lewis Street, Crandall, Texas 75114. A total of 82 people attended the meeting, including 64 members of the public and two elected officials. All meeting materials were available in English and Spanish; no requests for assistance in another language other than English was requested (TxDOT, 2017k). Notices for the public meeting were published in English and Spanish in *The Dallas Morning News* on April 23, 2017, and *Al Dia* on April 22, 2017. Notices were also published in the *Kaufman Herald* on April 20, 2017, and *The Communicator* on May 1, 2017. The public meeting was also advertised on the TxDOT Dallas District Website.

Overall, the response to the proposed project at the public meeting and during the comment period (May 23 to March June 7, 2017) was positive. Two residents of the Crandall community indicated their support, and four residents of Creekview Estates expressed opposition primarily because of concerns about an increase in traffic noise. All comments and associated TxDOT response are available in the Documentation of Public Meeting (TxDOT, 2017k).

7.3 Public Hearing

A public hearing for the proposed project was held on August 23, 2018, in the same location as the public meeting. A total of 77 people attended the meeting, including 47 members of the public and two elected officials. All meeting materials were available in English and Spanish; no requests for assistance in another language other than English was requested (TxDOT, 2018c). Notices for the public meeting were published in English and Spanish in *The Dallas Morning News* on July 24, 2018, and *Al Dia* on July 29, 2018. Notices were also published in the *Kaufman Herald* on July 26, 2018, and *The Communicator* on August 1, 2018. The public meeting was also advertised on the TxDOT Dallas District Website.

The response to the proposed project at the public meeting and during the comment period (August 23 to September 7, 2018) was generally positive. Comments were received from seven people. Of the seven total commenters, three expressed unequivocal support for the proposed project; of these, one commenter was the Mayor of the City of Crandall, one was the Kaufman County Judge, and one was a community resident. One commenter represented the NRCS and reiterated matters that had been the topic of ongoing coordination with the NRCS. The remaining three commenters were residents who touched on the following topics: (1) a request for a turn lane for the church on FM 148; (2) request to consider use of FM 4104 as the bypass connection between FM 148 and US 175; and (3) a general request for information about the project. All comments received and TxDOT responses are available in the Documentation of Public Hearing (TxDOT, 2018c).

8.0 ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS

The commitments TxDOT has made to avoid, minimize, or otherwise mitigate adverse impacts of the proposed project will be included in the Environmental Permits, Issues and Commitments (EPIC) sheet, which communicates permit issues and environmental commitments that must be incorporated into the PS&E design (i.e., final detailed design plans). This ensures that any construction contractor bidding on the construction contract for the proposed project is aware of the permits, impacts, and commitments relevant to the proposed project. Moreover, including these commitments in the EPIC sheet ensures that each prospective contractor is contractually obligated to carry out those commitments. After review and approval of the draft EPIC sheet, it would become part of the PS&E design plans.

The standard EPIC sheet includes prescribed commitments for all projects as well as space for project-specific commitments tailored to each project. The list below identifies only the project-specific commitments for the proposed FM 148 Bypass Project.

EPIC Section I. Stormwater Pollution Prevention – Clean Water Act Section 402

1. Required notification to the MS4 operator for the City of Crandall regarding potential storm water discharges from construction activities.
2. Action is required for all four standard control measures listed in the EPIC sheet.

EPIC Section II. Work in or near Streams, Waterbodies and Wetlands – Clean Water Act Sections 401 and 404

1. Nationwide Permit 14 with PCN is required.
2. List the waters of the U.S., including wetlands, noted above in **Table 1**.
3. Recommended BMPs:
    a. Erosion: temporary vegetation.
    b. Sedimentation: silt fence.
    c. Post-Construction TSS: mulch filter berm and socks.

EPIC Section III. Cultural Resources

1. Construction activities on four parcels to which right of entry was denied for the archeological survey may not proceed until the designated parcels are surveyed for archeological sites or artifacts.

EPIC Section IV. Vegetation Resources

1. Action is required, as specified for the various plant and animal species listed in EPIC Section V, below.

EPIC Section V. Federal Listed, Proposed Threatened, Endangered Species, Critical Habitat, State Listed Species, Candidate Species and Migratory Birds

1. Topeka purple-coneflower: This species may occur in the project area. Contractor shall avoid harming this plant species if practicable.
2. Texas garter snake and timber rattlesnake (state-listed threatened species) may be present on-site. Contractor shall avoid harming these snake species if practicable. In addition, implement Terrestrial Reptile BMPs:
    (a) Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible; if such measures are not feasible due to site conditions, utilize erosion control blankets or mats that contain no netting or contain loosely woven, natural fiber netting; plastic netting should be avoided to the extent practicable;
    (b) For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered; visually inspect excavation areas for trapped wildlife prior to backfilling;
    (c) If reptiles are found on the project site, allow the species to safely leave the project area; and
    (d) Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible.
3. Plains spotted skunk may be present on-site. Contractor shall avoid harming this mammal and avoid dens if practicable.
4. Henslow's sparrow, Sprague's pipit, and western burrowing owl may be present on-site. Comply with MBTA requirements and implement Bird BMPs:
    (a) Prior to construction, perform daytime surveys for nests (including under bridges and in culverts) to determine if they are active before removal; nests that are active should not be disturbed;
    (b) Do not disturb, destroy, or remove active nests, including ground-nesting birds, during the nesting season;
    (c) Avoid the removal of unoccupied, inactive nests, as practicable;
    (d) Prevent the establishment of active nests during the nesting season on TxDOT-owned and operated facilities and structure proposed for replacement or repair; and
    (e) Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.
5. Southern crawfish frog may be present on-site. Contractor shall avoid harming this amphibian if practicable. In addition, implement the following adapted Water Quality BMPs and Amphibian BMPs:
    (a) Minimize impacts to wetland habitats, including isolated ephemeral pools; also minimize impacts to temporary and permanent open water features, including depressions, and riverine habitats;

(b) Minimize the use of equipment in streams and riparian areas during construction; when possible, equipment access should be from banks, bridge decks, or paved road surfaces;
(c) When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossings;
(d) Maintain hydrologic regime and connections between wetlands and other aquatic features;
(e) Use barrier fencing to direct animal movements away from construction activities and areas of potential wildlife-vehicle collisions in construction areas directly adjacent, or that may directly impact, potential habitat for the frog;
(f) Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible; if hydromulching and/or hydroseeding are not feasible due to site conditions, using erosion control blankets or mats that contain no netting, or only contain loosely woven natural fiber netting is preferred; plastic netting should be avoided to the extent practicable;
(g) Project specific locations (PSLs) proposed within state-owned ROW should be located in uplands away from aquatic features;
(h) When working directly adjacent to the water, minimize impacts to shoreline basking sites (e.g., downed trees, sand bars, exposed bedrock) and overwinter sites (e.g., brush and debris piles, crayfish burrows) where feasible;
(i) Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter, which may be refugia for terrestrial amphibians, where feasible;
(j) For sections of roadway adjacent to wetlands or other aquatic features, install wildlife barriers that prevent climbing; barriers should terminate at culvert openings to funnel animals under the road; the barriers should be of the same length as the adjacent feature or 80 feet long in each direction, or whichever is the lesser of the two;
(k) For culvert extensions and culvert replacement/installation, incorporate measures to funnel animals toward culverts such as concrete wingwalls and barrier walls with overhangs;
(l) When riprap or other bank stabilization devices are necessary, placement should not impede the movement of terrestrial or aquatic wildlife through the water feature; where feasible, biotechnical streambank stabilization methods using live native vegetation, or a combination of vegetative and structural materials should be used.

EPIC Section VI. Hazardous Materials or Contamination Issues

1. The project involves removal of bridge class culverts at the Anthony Branch crossing of FM 148. TxDOT is responsible for completing asbestos inspection.

2. If asbestos containing materials are found in the culverts described above, then the standard instructions in the EPIC for asbestos abatement must be followed.

EPIC Section VII. Other Environmental Issues

1. Construction contractor is required to employ standard measures to control fugitive dust on construction sites.
2. Construction contractor is required to implement noise abatement measures such as work-hour controls and proper maintenance of equipment muffler systems.

9.0 CONCLUSION

The engineering, social, and environmental investigations conducted thus far indicate that the proposed project would have no significant impact on the quality of the human or natural environment. A FONSI is anticipated for this proposed project.

10.0 REFERENCES

In addition to references placed in footnotes throughout this EA, the project-related TxDOT references listed below were also cited in the EA. These unpublished documents are on file with the TxDOT Dallas District.

TxDOT, 2017a. Biological Evaluation Form (August 2017).

TxDOT, 2017b. Community Impacts Assessment Technical Report Form (August 2017).

TxDOT, 2017c. Archeological Background Study (July 2017).

TxDOT, 2017d. Project Coordination Request for Historical Studies Project (July 2017).

TxDOT, 2017e. Water Resources Technical Report (September 2017).

TxDOT, 2017f. Tier I Site Assessment (August 2017).

TxDOT, 2017g. Qualitative Mobile Source Air Toxics Technical Report (July 2017).

TxDOT, 2017h. Hazardous Materials Initial Site Assessment (ISA) (July 2017).

TxDOT, 2017i. Traffic Noise Analysis Technical Report (October 2017).

TxDOT, 2017j. Indirect and Cumulative Impacts Technical Report (December 2017).

TxDOT, 2017k. Documentation of Public Meeting (July 2017).

TxDOT, 2018a. Report for Archeological Survey (January 2018).

TxDOT, 2018b. Historical Resources Survey Report (March 2018).

TxDOT, 2018c. Documentation of Public Hearing (October 2018).

11.0 LIST OF APPENDICES

Appendix A – Project Location Maps

Appendix A-1. Project Vicinity Map (1 page)
Appendix A-2. Project on Aerial Photograph Map (1 page)
Appendix A-3. Project Area on USGS Topographic Map (1 page)

Appendix B – Project Area Photographs (5 pages)

Appendix C – Plan View Map [Approved Design Schematic] (3 pages)

Appendix D – Existing and Proposed Typical Cross Sections (4 pages)

Appendix E – Plan and Program Excerpts

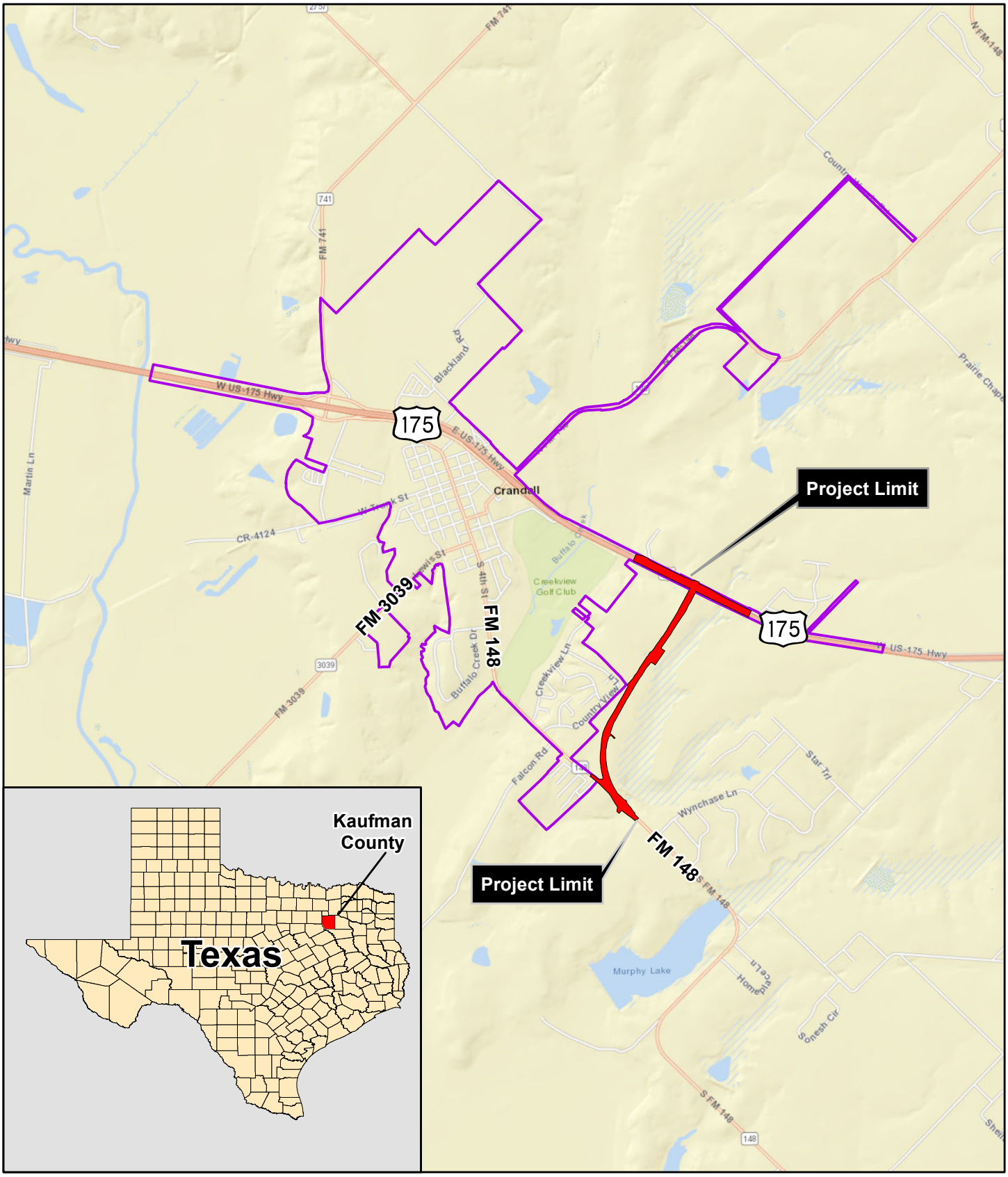
Appendix E-1. Excerpt from MTP: *Mobility 2045* (1 page)
Appendix E-2. Excerpt from DFW TIP [FY 2019 – 2022] (1 page)

Appendix F – Resource-specific Maps and Materials

Appendix F-1. Historic-age Resources Map Detail (3 pages)
Appendix F-2. Map Key and Water Features Map (10 pages)
Appendix F-3. NCTCOG Congestion Management Process Forms (6 pages)
Appendix F-4. Traffic Noise Receiver Location Map (2 pages)
Appendix F-5. Bennett's Airport Map (1 page)
Appendix F-6. Induced Development Areas within Project AOI Map (1 page)
Appendix F-7. Reasonably Foreseeable Projects within Project RSA Map (1 page)

Appendix G – Resource Agency Coordination

Appendix G-1. Archeology: TxDOT Memorandum and SHPO Coordination (6 pages)
Appendix G-2. Historic-age Resources: TxDOT Memorandum (2 pages)
Appendix G-3. TPWD Coordination Emails (4 pages)
Appendix G-4. TCEQ Coordination Emails (2 pages)
Appendix G-5. NRCS Correspondence (6 pages)



Legend

- Project Limits
- Crandall City Limits

Appendix A-1
Project Vicinity Map

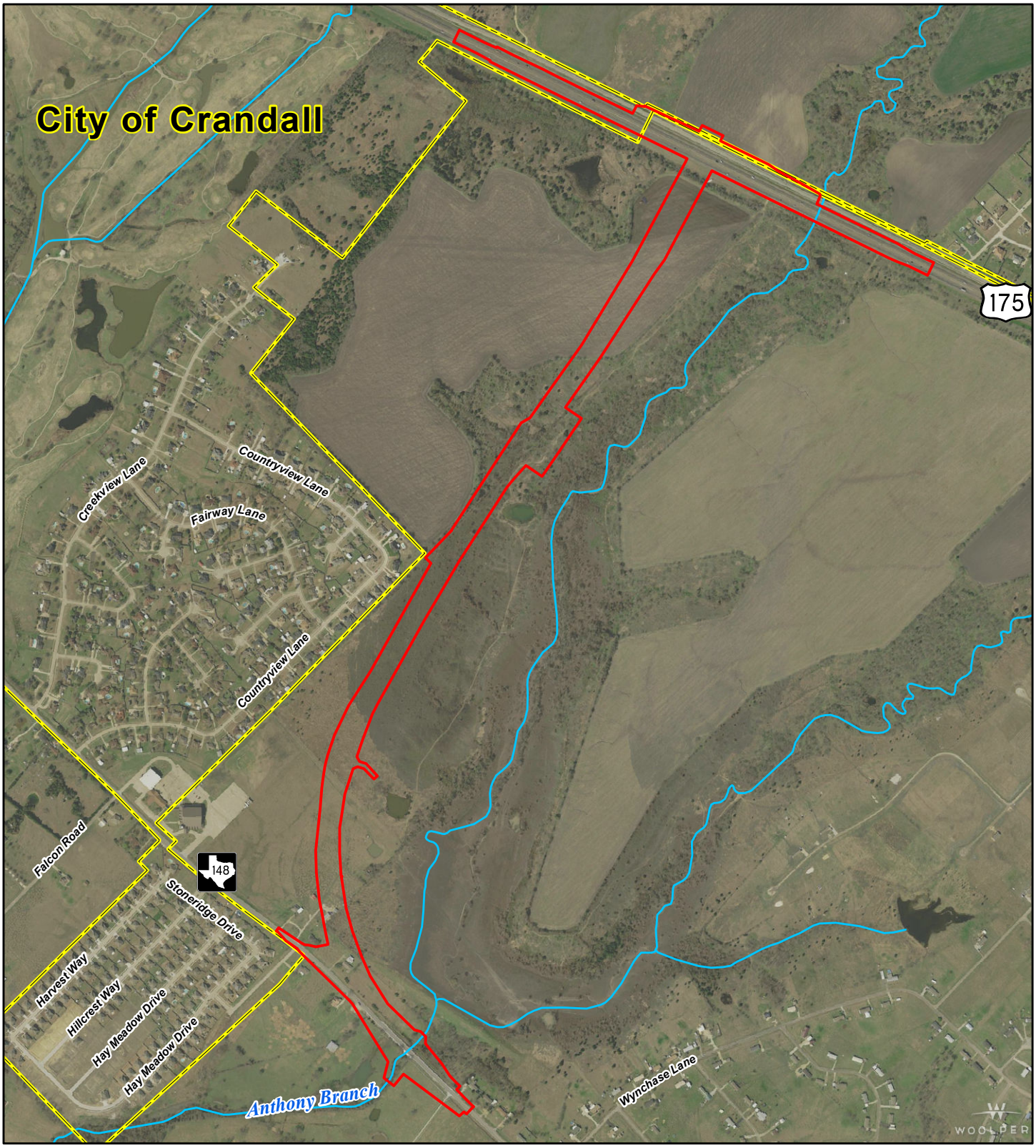
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N
W E
S

0 2,000 4,000 8,000

SCALE IN FEET

Base Map Source: Esri



Legend

- FM 148 Bypass Project Limits
- Crandall City Limits
- Stream

N
W E
S

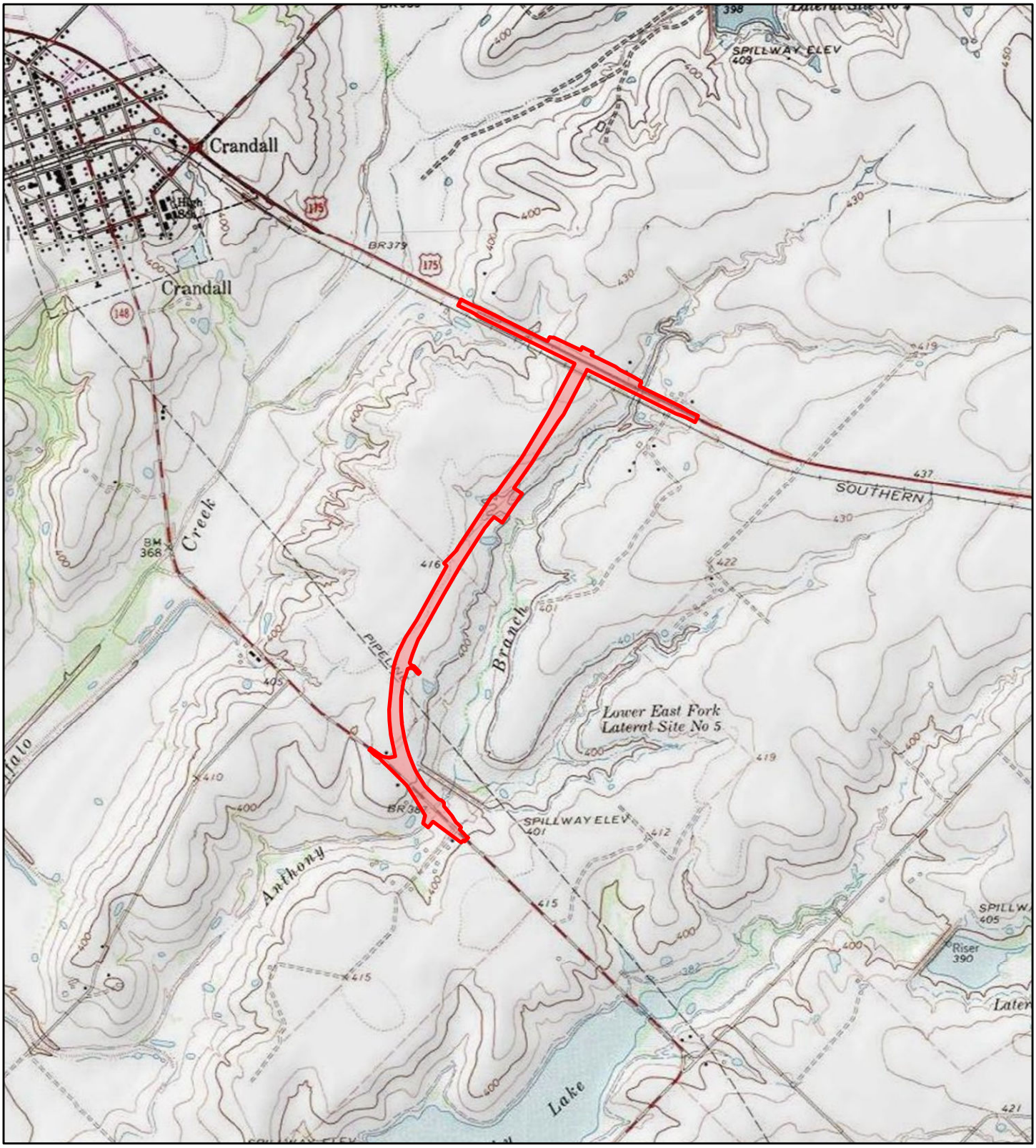
0 1,000 2,000

SCALE IN FEET

Source/Year of Base Map: NCTCOG/2017

Appendix A-2
Project on Aerial Photograph Map

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

FM 148 Bypass Project Area

N
W E
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0 2,000 4,000

SCALE IN FEET

USGS Quadrange Map for : Scurry, TX
Source Base Map: Esri USA Topographic Map

Appendix A-3
Project on USGS Topographic Map

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

Photograph 1: View of intersection of Church Street and 4th Street (FM 148) in the downtown area of Crandall.

Photograph 2: View of the existing FM 148 roadway from the downtown Crandall area headed towards US 175.

Photograph 3: View of the existing FM 148 roadway at the southern project terminus. View is to the northwest.

Photograph 4: View of a floodwater control impoundment associated with the Natural Resource Conservation Service (NRCS) easement adjacent to FM 148. View is to the southeast.

Photograph 5: View of the existing FM 148 roadway and adjacent properties at the proposed bypass road's southern terminus. View is to the southeast.

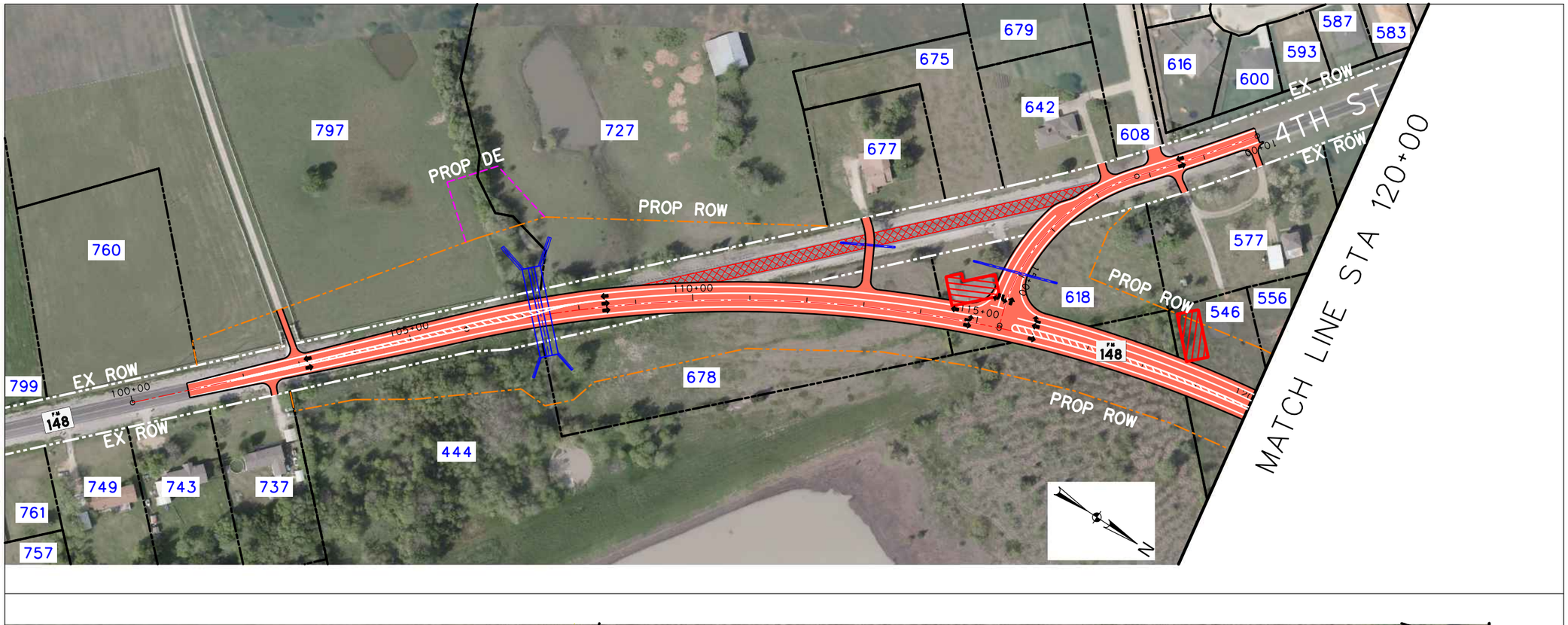
Photograph 6: View of a livestock pasture that the proposed bypass would cross, just north of the southern project terminus. View is to the south.

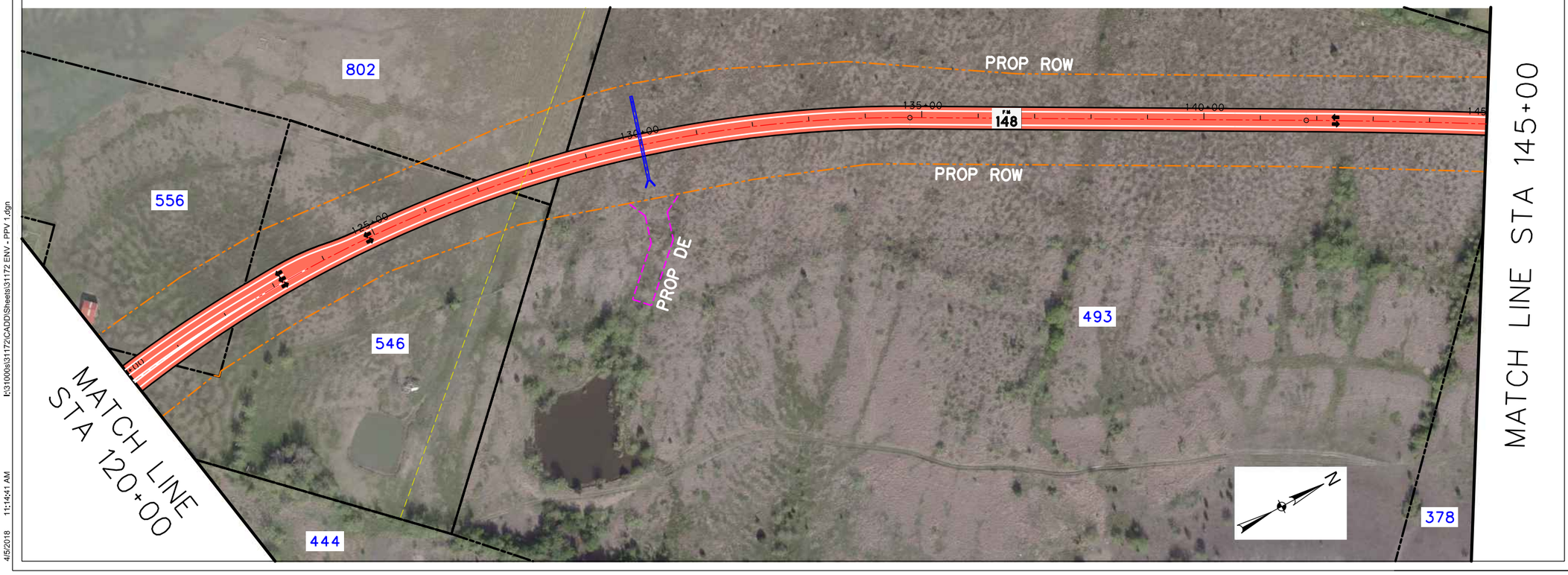
Photograph 7: Representative view of grass-dominated landscape near the middle of the proposed bypass alignment, just east of an existing residential neighborhood. View is to the north.

Photograph 8: View of cropland that would be crossed by the proposed project just south of US 175. View is to the north.

Photograph 9: View of the existing US 175, with a firework stand on the south side of the highway that would be displaced. View is to the southeast.

Photograph 10: View of the existing US 175 two-way frontage road near the proposed US 175 bridge crossing of the FM 148 Bypass. View is to the northwest.





Appendix C

0 100 200 300 400

SCALE: 1"=200'

DATE: 3/5/2019

LEGEND:

- EXISTING ROW
- EXISTING PROPERTY LIMITS
- PROPOSED BASELINE/CENTERLINE
- PROPOSED ROW
- PROPOSED EASEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BRIDGE ABUTMENT
- PROPOSED BRIDGE BENT
- DIRECTION OF TRAVEL
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED PAVEMENT BY OTHERS
- FUTURE EXTENSION BY OTHERS
- POTENTIAL DISPLACEMENTS
- PAVEMENT TO BE REMOVED
- PROPOSED CULVERT
- EXISTING CULVERT
- 123 Parcel I.D.

(SEE APPROVED SCHEMATICS)

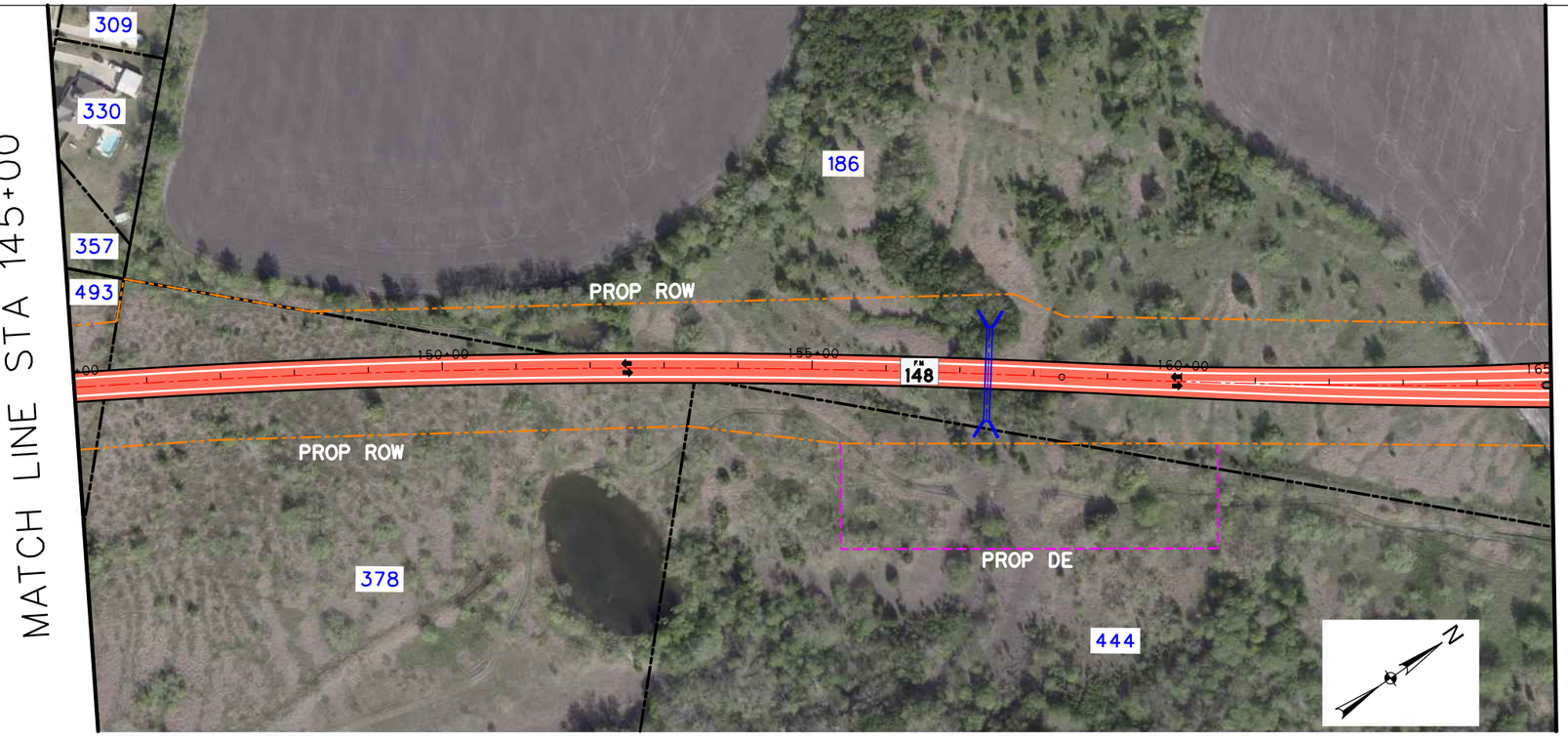
THIS EXHIBIT IS A SIMPLIFIED REPRESENTATION OF THE DESIGN SCHEMATIC

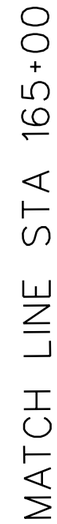
--PRELIMINARY--

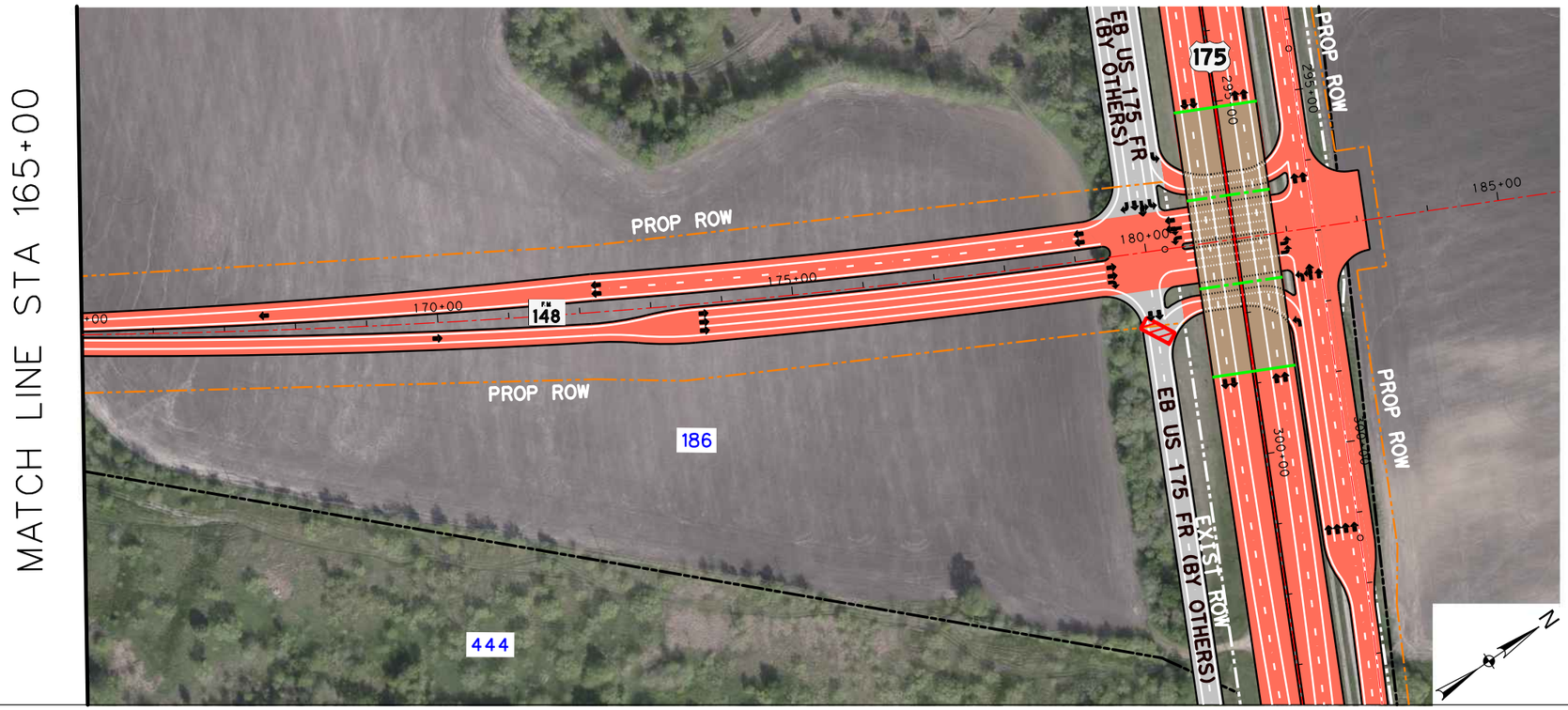
FOR ENVIRONMENTAL DOCUMENT REVIEW ONLY

PLAN VIEW MAP

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)







Appendix C

0 100 200 300 400

SCALE: 1"=200'

DATE: 3/5/2019

LEGEND:

- EXISTING ROW
- EXISTING PROPERTY LIMITS
- PROPOSED BASELINE/CENTERLINE
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- PAVEMENT TO BE REMOVED
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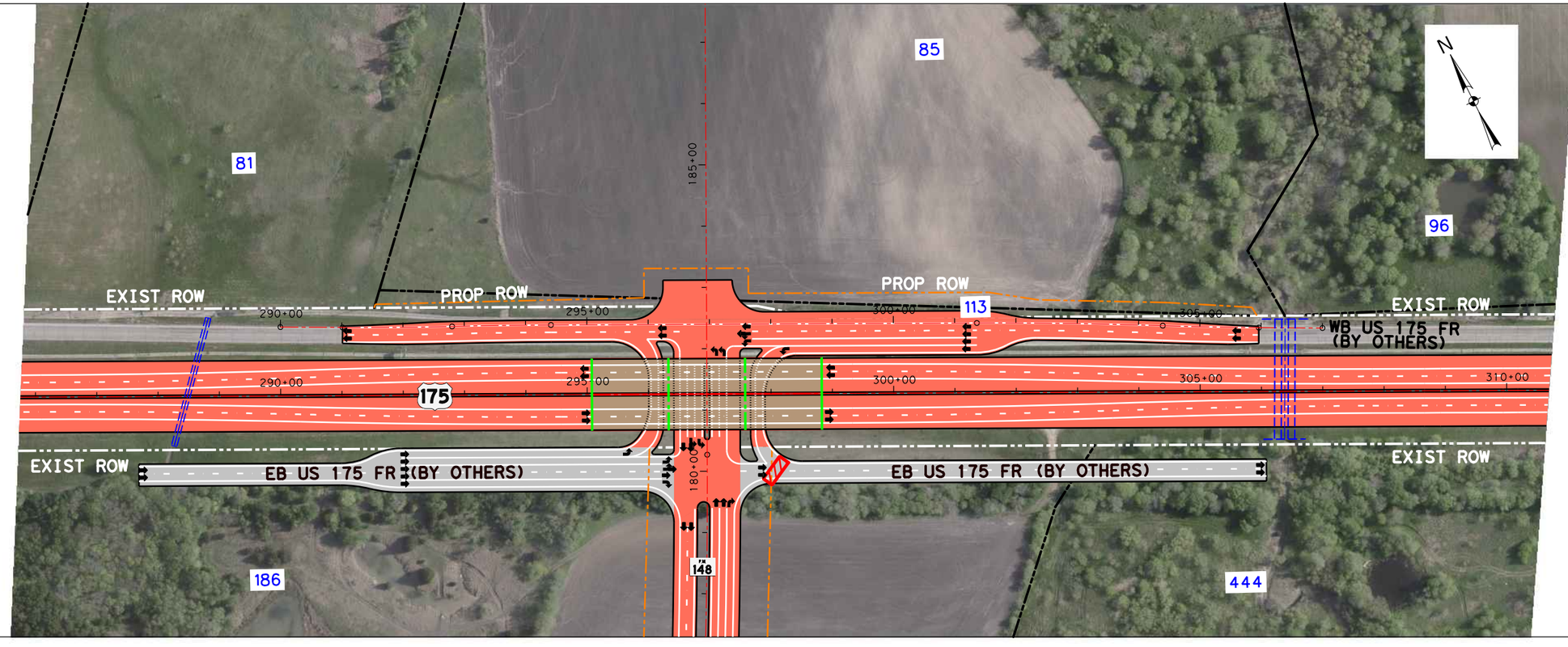
--PRELIMINARY--

FOR ENVIRONMENTAL DOCUMENT REVIEW ONLY

PLAN VIEW MAP

Page: 2 of 3

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Appendix C

0 100 200 300 400

SCALE: 1"=200'

DATE: 3/5/2019

LEGEND:

- EXISTING ROW
- EXISTING PROPERTY LIMITS
- PROPOSED BASELINE/CENTERLINE
- PROPOSED ROW
- PROPOSED EASEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BRIDGE ABUTMENT
- PROPOSED BRIDGE BENT
- DIRECTION OF TRAVEL
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED PAVEMENT BY OTHERS
- FUTURE EXTENSION BY OTHERS
- POTENTIAL DISPLACEMENTS
- PAVEMENT TO BE REMOVED
- PROPOSED CULVERT
- EXISTING CULVERT
- 123 Parcel I.D.

(SEE APPROVED SCHEMATICS)

THIS EXHIBIT IS A SIMPLIFIED REPRESENTATION OF THE DESIGN SCHEMATIC

--PRELIMINARY--

FOR ENVIRONMENTAL DOCUMENT REVIEW ONLY

PLAN VIEW MAP

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

PARCEL OWNER DATA

PARCEL	OWNER	PROPERTY
76	CRANDALL 1357 INVESTORS LP	FM RD 148
81	CRANDALL 1357 INVESTORS LP	HWY 175
85	CRANDALL 1357 INVESTORS LP	HWY 175
86	CRANDALL 1357 INVESTORS LP	HWY 175
96	FACEY ENTERPRISES NV	HWY 175
113	CRANDALL 1357 INVESTORS LP	HWY 175
180	GATEWAY DALLAS GLOBAL LP	HWY 175
186	RIZOS FAMILY PARTNERSHIP	HWY 175
309	PASHIA GREGORY & MARY	304 COUNTRYVIEW LN
330	WILLIAMS GARY D & PAMELA G	302 COUNTRYVIEW LN
357	KIMBLE MORGAN & ALISON	300 COUNTRYVIEW LN
370	GIARRAPUTO PHILLIP T & MARY KAY	240 COUNTRYVIEW LN
378	GATEWAY DALLAS GLOBAL LP	HWY 175
384	SIMONS JURGEN D	238 COUNTRYVIEW LN
394	STEPHENS NESDIRA	236 COUNTRYVIEW LN
403	DIEGAS LEONARDO & GRETA	234 COUNTRYVIEW LANE
413	KING GREG & TRACIE K	232 COUNTRYVIEW LN
425	POTASH MITCH	P O BOX 593
431	DENSMORE JOHN G & MARY L	228 COUNTRYVIEW LN
444	GATEWAY DALLAS GLOBAL LP	HWY 175

PARCEL	OWNER	PROPERTY
493	GATEWAY DALLAS GLOBAL LP	HWY 175
529	CENTRAL BAPTIST CHURCH	P O BOX 416
532	CENTRAL BAPTIST CHURCH	P O BOX 416
539	STAR MOBILE HOMES LP	FM RD 148
546	TINA GRUBBS	S FM RD 148
552	ALTURA HOMES DFW LP	5763 S STATE HWY 205
554	BAKER CHAD W & BRIDGET M	123 STONERIDGE DR
556	CHARLES CODY GRUBBS	FM RD 148
559	OAK NATIONAL HOLDINGS LLC	5763 S ST HWY 205
562	OAK NATIONAL HOLDINGS LLC	5763 S ST HWY 205
568	TOWNSEND KELLI	7477 FM 2451
572	OAK NATIONAL HOLDINGS LLC	5763 S ST HWY 205
577	TINA GRUBBS	1971 S FM RD 148
578	SOLSBERTY JUSTIN & LANEY	111 STONEBRIDGE DR
583	KIRKLAND KELLY	P O BOX 208
587	REDMAN TYLER J & MAGON N	107 STONERIDGE DR
593	BLAIR SEAN & JAMIE	105 STONEWALL DR
600	WILSON GAYLA M	103 STONERIDGE DR
608	ALTURA HOMES DFW LP	FM RD 148
616	STEWART ASHLEY	101 STONERIDGE DR

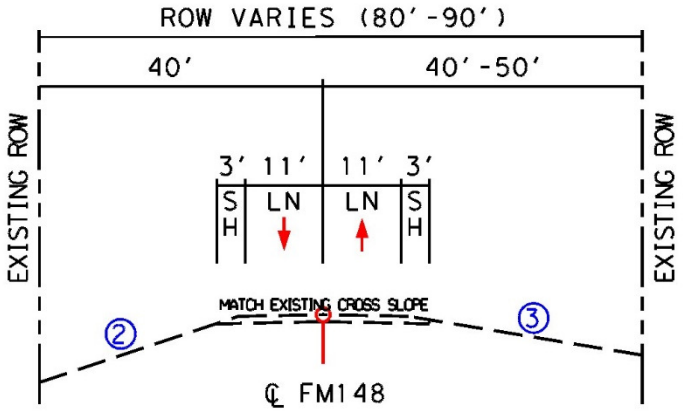
PARCEL	OWNER	PROPERTY
618	SANDRA GRUBBS	2065 FM RD 148
642	LOYD STEVE & TERRI	2030 FM RD 148
675	GRUBBS JOE E SR	FM RD 148
677	GRUBBS JOE E SR	2136 FM RD 148
678	GATEWAY DALLAS GLOBAL LP	HWY 175
679	TINA GRUBBS	KINGSWOOD DR
701	STAR MOBILE HOMES LP	3037 WYNCHASE LN
727	GRUBBS STEVEN C	FM RD 148
731	VEGA JOEL E	WYNCHASE LN
737	ALLEN CHARLES S & TERESA L	2363 S FM RD 148
743	ENGLISH JASON	2377 S FM RD 148
749	SMITH JACK G	2391 S FM RD 148
757	NABORS AFTON & BONNIE	3161 WYNCHASE LN
760	WATT ELDRED JAMES JR	2324 FM RD 148
761	MORGAN DENNIS	2449 S FM RD 148
797	WATT ELDRED JAMES JR	FM RD 148
799	NEWTON RONALD T	FM RD 148
802	TINA GRUBBS	FM RD 148

NOTES:

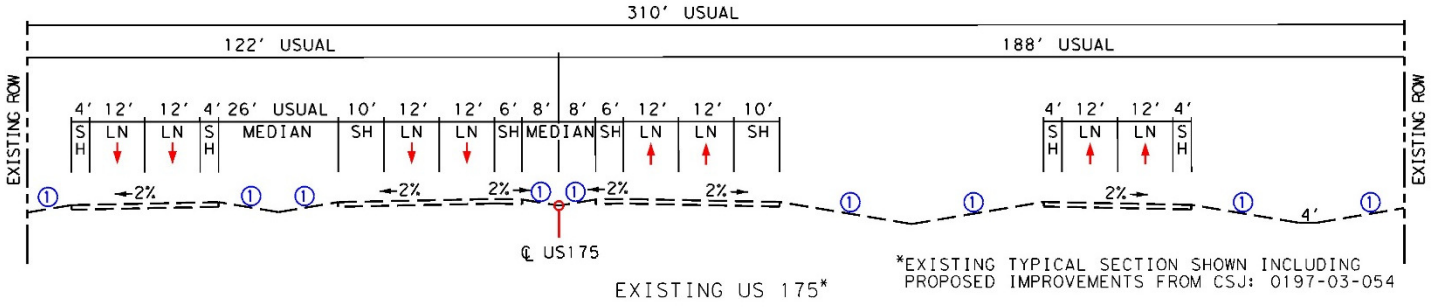
① 6:1 USUAL
3:1 MAX

② 3:1 USUAL

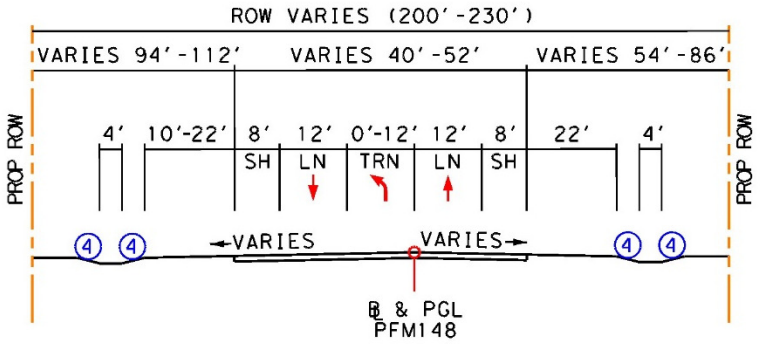
③ 4:1 USUAL



Existing FM 148



Existing US 175



PROPOSED FM 148
STA 101+05.83 TO STA 115+40.60

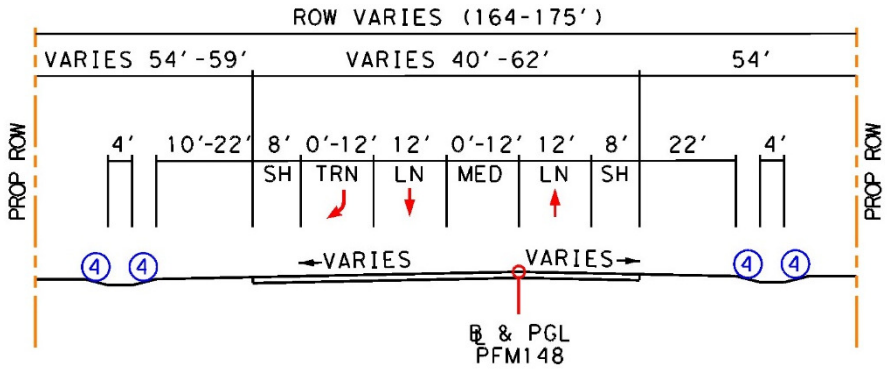
Proposed FM 148: From Existing FM 148 to FM 148 Bypass Connector

Source: FM 148 Approved Design Schematic
Halff Associates, Inc. (06/2017)

– Exhibit Not to Scale –

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly CSJ 0751-02-027)

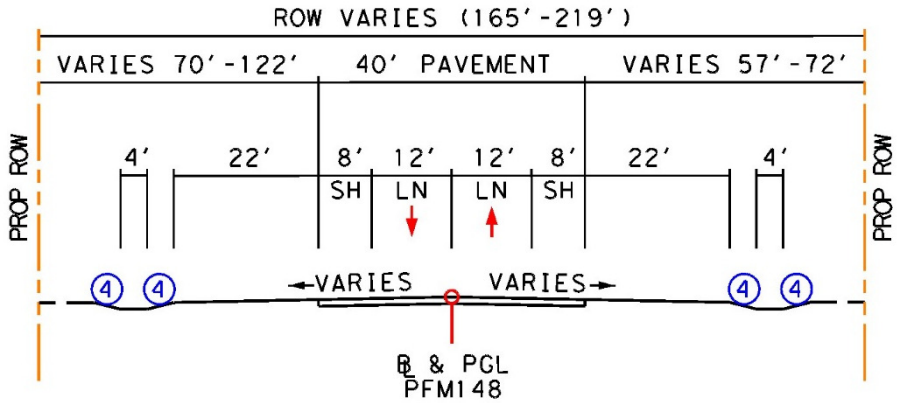
Appendix D
Existing and Proposed Typical Cross Sections



PROPOSED FM 148
STA 115+40.60 TO STA 124+75.17

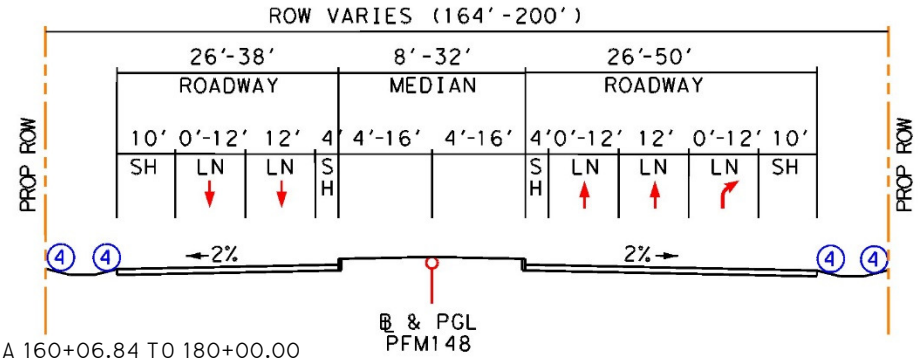
Proposed FM 148: Main Segment of Proposed Bypass Route

NOTES:
④ 4:1



STA 101+00.00 TO STA 101+05.83
STA 124+75.17 TO STA 160+06.84

Proposed FM 148: Main Segment of Proposed Bypass Route

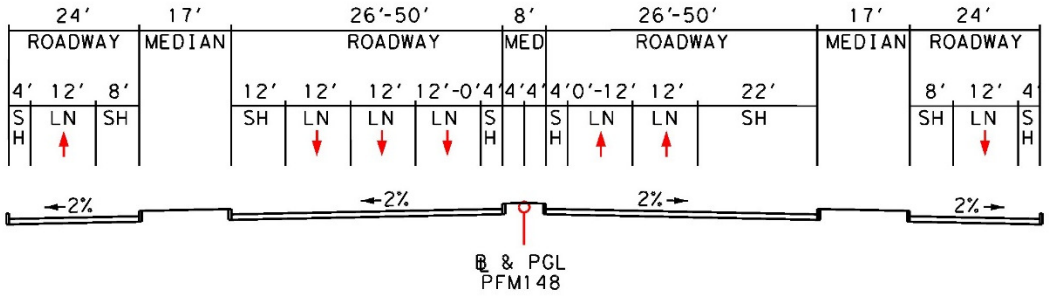


STA 160+06.84 TO 180+00.00

Proposed FM 148: Main Segment of Proposed Bypass Route

Source: FM 148 Approved Design Schematic
Halff Associates, Inc. (06/2017)

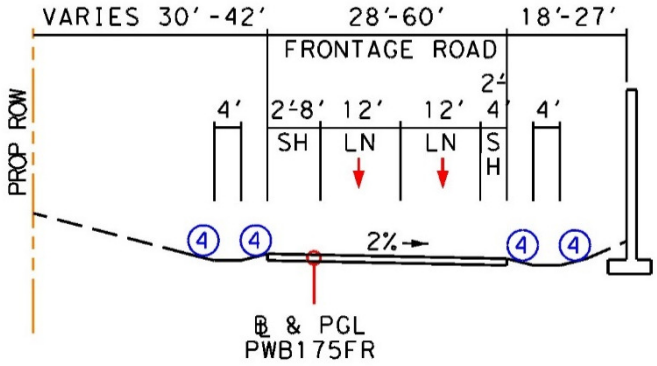
– Exhibit Not to Scale –



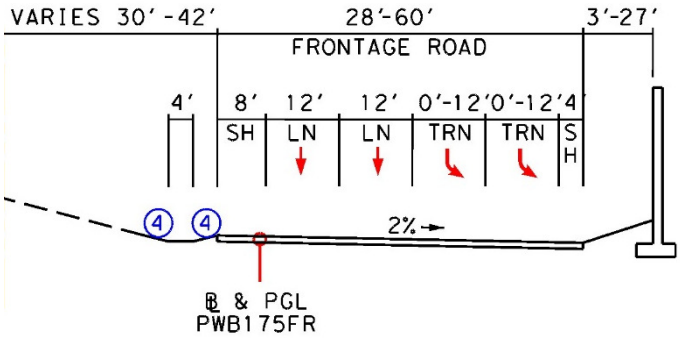
PROPOSED FM 148
STA 180+00.00 TO STA 182+27.88

Proposed FM 148: Within US 175 ROW, near/below Mainlanes Overpass

NOTES:
④ 4:1



PROPOSED WB US 175 FR
STA 291+01.44 TO STA 296+95.30
STA 302+33.82 TO STA 305+96.17



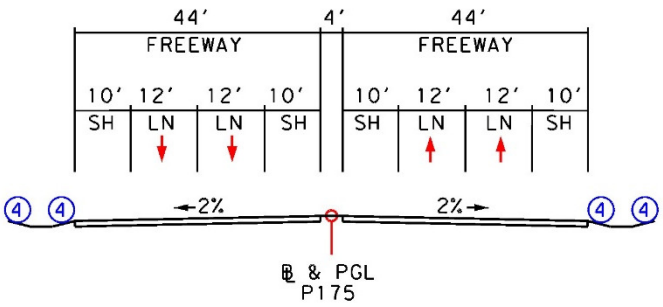
PROPOSED WB US 175 FR
STA 296+95.30 TO STA 302+33.82

Proposed Westbound US 175 Frontage Roads:
West and East of Intersection with FM 148 Bypass Northern Terminus

Source: FM 148 Approved Design Schematic
Halff Associates, Inc. (06/2017)

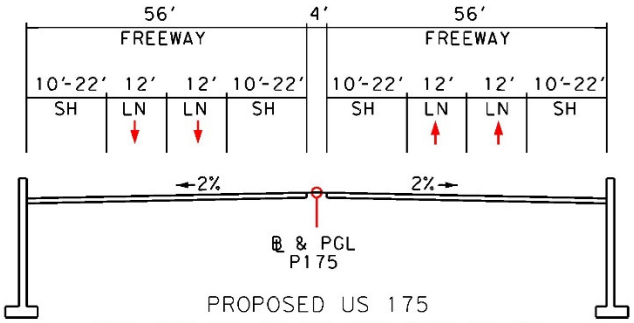
– Exhibit Not to Scale –

NOTES:
④ 4:1



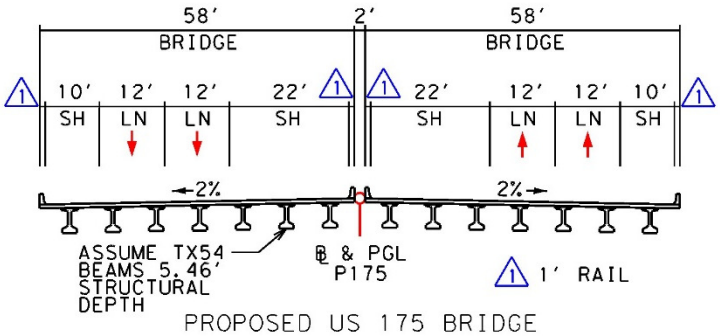
PROPOSED US 175
STA 277+00.00 TO STA 280+00.00
STA 312+50.00 TO STA 315+50.00

Proposed US 175 Mainlane Approaches to FM 148 Bypass Crossing



PROPOSED US 175
STA 280+00.00 TO STA 295+07.77
STA 298+82.77 TO STA 312+50.00

Proposed US 175 Mainlane Approaches (with Retaining Walls) to Bridge Crossing of FM 148 Bypass



PROPOSED US 175 BRIDGE
STA 295+07.77 TO STA 298+82.77

Proposed US 175 Mainlanes Bridge Crossing of FM 148 Bypass

Source: FM 148 Approved Design Schematic
Halff Associates, Inc. (06/2017)

– Exhibit Not to Scale –

Non-Regionally Significant Arterials

MTP ID	District	TIP Code	Project Type	CSJ	Facility	From	To	Description	YOE Total Project Cost	FFCS
NRSA1-DAL- 165	TxDOT Dallas	83030	Addition of lanes	0000-18-071	Hickox Road	Toler Road	Merritt Road	Widen from 2 lanes to 4 lanes (Phase 2)	$3,000,000	Minor Arterial
NRSA1-DAL- 166	TxDOT Dallas	83052	Addition of lanes	0000-18-026	Lawson Road	Milam Road	Clay-Mathis Road	Widen from 2 lanes to 4 lanes	$13,335,000	Minor Arterial
NRSA1-DAL- 167	TxDOT Dallas	83112	Addition of lanes	0000-18-027	Lebanon Road	Coit Road	Independence Parkway	Widen from 2 lanes to 4 lanes	$5,800,000	Major Collector
NRSA1-DAL- 168	TxDOT Dallas	83120	Addition of lanes	0000-18-028	Main Street	FM 423	DNT	Widen from 4 lanes to 6 lanes	$1,200,000	Minor Arterial
NRSA1-DAL- 169	TxDOT Dallas	55111	Addition of lanes	2588-01-017	FM 548	North of US 80	S of SH 205 (Rockwall C/L)	Widen and reconstruct 2 lane rural to 4 lane urban divided (6 lane ultimate)	$109,599,843	Major Collector
NRSA1-DAL- 171	TxDOT Dallas	83144	Addition of lanes	0000-18-033	Chaha Road	Rowlett Road	Kirby Road	Widen from 2 lanes to 3 lanes	$5,016,500	Major Collector
NRSA1-DAL- 173	TxDOT Dallas	83215	Addition of lanes	N/A	Ridgeview Drive	Alma	US 75	Widen from 2 lanes to 4 lanes	$18,979,785	Major Collector
NRSA1-DAL- 175	TxDOT Dallas	83284	New roadway	~~0751-02-027~~ 0751-05-001	FM 148	South of FM 3039	US 175	Construct 0 to 2 rural lane undivided	$8,000,000	Minor Arterial
NRSA1-DAL- 177	TxDOT Dallas	83129.1	New roadway	0000-18-030	Denton Creek Blvd	At Graham Branch		Build new location 0 to 4 lane bridge	$8,967,000	Minor Arterial

Source: North Central Texas Council of Governments

Appendix E-1 Excerpt from MTP: *Mobility 2045*

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DALLAS	0581-02-077	SL 12	E,R	VARIOUS	TXDOT-DALLAS

LIMITS FROM: SP 408
REV DATE: 07/2018
LIMITS TO: SOUTH OF SH 183
MPO PROJECT ID: 11930
TIP DESCRIPTION: RECONSTRUCT & WIDEN 6 TO 8 GENERAL PURPOSE LANES FROM SH 356 TO SH 183; CONSTRUCT 0 TO 2 REVERSIBLE MANAGED LANES, RECONSTRUCT AND WIDEN 4 DISCONTINUOUS TO 4/6 LANE CONTINUOUS FRONTAGE ROADS FROM SP 408 TO SH 183 (ULTIMATE)
MTP REFERENCE: FT1-17.20.1, FT1-17.20.2, FT1-17.30.1
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DALLAS	0581-02-146	SL 12	C,E,R	DALLAS	TXDOT-DALLAS

LIMITS FROM: AT IH 30
REV DATE: 07/2018
LIMITS TO:
MPO PROJECT ID: 13018
TIP DESCRIPTION: CONSTRUCT DIRECT CONNECTORS (PHASE 1)
MTP REFERENCE: IN1-17.28.1
REMARKS:
Project History: 10-YEAR PLAN PROJECT

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	KAUFMAN	0751-05-001	FM 148	E,R	CRANDALL	TXDOT-DALLAS

LIMITS FROM: SOUTH OF FM 3039
REV DATE: 11/2018
LIMITS TO: US 175
MPO PROJECT ID: 83284
TIP DESCRIPTION: CONSTRUCT 0 TO 2 LANE RURAL UNDIVIDED ROADWAY
MTP REFERENCE: NRSA1-DAL-175
REMARKS: ADD PROJECT TO APPENDIX D OF THE 2019-2022 TIP/STIP
Project History: 2013 KAUFMAN COUNTY BOND PROGRAM; RELATED TO TIP 83284/CSJ 0751-05-001

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DALLAS	0918-45-812	CS	C	IRVING	IRVING

LIMITS FROM: ON CONFLANS RD FROM SH 161
REV DATE: 07/2018
LIMITS TO: VALLEY VIEW LANE
MPO PROJECT ID: 11237.2
TIP DESCRIPTION: CONSTRUCT 0 TO 4 LANE DIVIDED FACILITY WITH NEW SIDEWALKS AND SHARED USE PATH
MTP REFERENCE: NRSA1-DAL-11, BP2-002
REMARKS:
Project History: 2017 PE AUDIT PROJECT

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	VARIOUS	0918-48-996	VA	C	VARIOUS	DART

LIMITS FROM: COTTON BELT VELOWEB TRAIL FROM DFW AIRPORT NORTH COTTON BELT STATION
REV DATE: 02/2019
LIMITS TO: SHILOH COTTON BELT STATION
MPO PROJECT ID: 14013.2
TIP DESCRIPTION: DESIGN FOR COTTON BELT VELOWEB TRAIL (26 MILES) AND CONSTRUCTION OF MULTIPLE SECTIONS OF THE TRAIL CORRIDOR (IN COPPELL, CARROLLTON, ADDISON, DALLAS, AND RICHARDSON)
MTP REFERENCE: BP2-002
REMARKS: ADD PROJECT TO APPENDIX D OF TH 2019-2022 TIP/STIP
NOX (LBS/DAY): VOC (LBS/DAY):

PENDING FHWA APPROVAL

Project History: FY2023 FUNDS IN APPENDIX D

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	ROCKWALL	1015-01-024	FM 549	E	ROCKWALL	ROCKWALL CO

LIMITS FROM: SH 205
REV DATE: 07/2018
LIMITS TO: SH 276
MPO PROJECT ID: 83221
TIP DESCRIPTION: WIDEN FROM 2 LANE RURAL TO 4 LANE URBAN
MTP REFERENCE: NRSA1-DAL-127
REMARKS: LOCAL CONTRIBUTION PAID BY ROCKWALL COUNTY
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	ROCKWALL	1016-01-023	FM 551	E	FATE	ROCKWALL CO

LIMITS FROM: IH 30
REV DATE: 07/2018
LIMITS TO: SH 66
MPO PROJECT ID: 53051
TIP DESCRIPTION: RECONSTRUCT 2-LANE TO 3-LANE W/ CONTINUOUS LEFT TURN LANE
MTP REFERENCE: TSMO2-001
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	ROCKWALL	1017-01-015	FM 552	E	ROCKWALL	ROCKWALL CO

LIMITS FROM: SH 205
REV DATE: 07/2018
LIMITS TO: SH 66
MPO PROJECT ID: 55006
TIP DESCRIPTION: WIDEN FROM 2 LANE RURAL TO 4 LANE URBAN SECTION
MTP REFERENCE: NRSA1-DAL-126
REMARKS: LOCAL CONTRIBUTION PAID BY ROCKWALL COUNTY
Project History:

Legend

- Existing ROW
- Proposed Easement
- Proposed ROW
- Project APE
- Property with Historic-age Resource

Appendix F-1: Historic-age Resources Map Detail - North

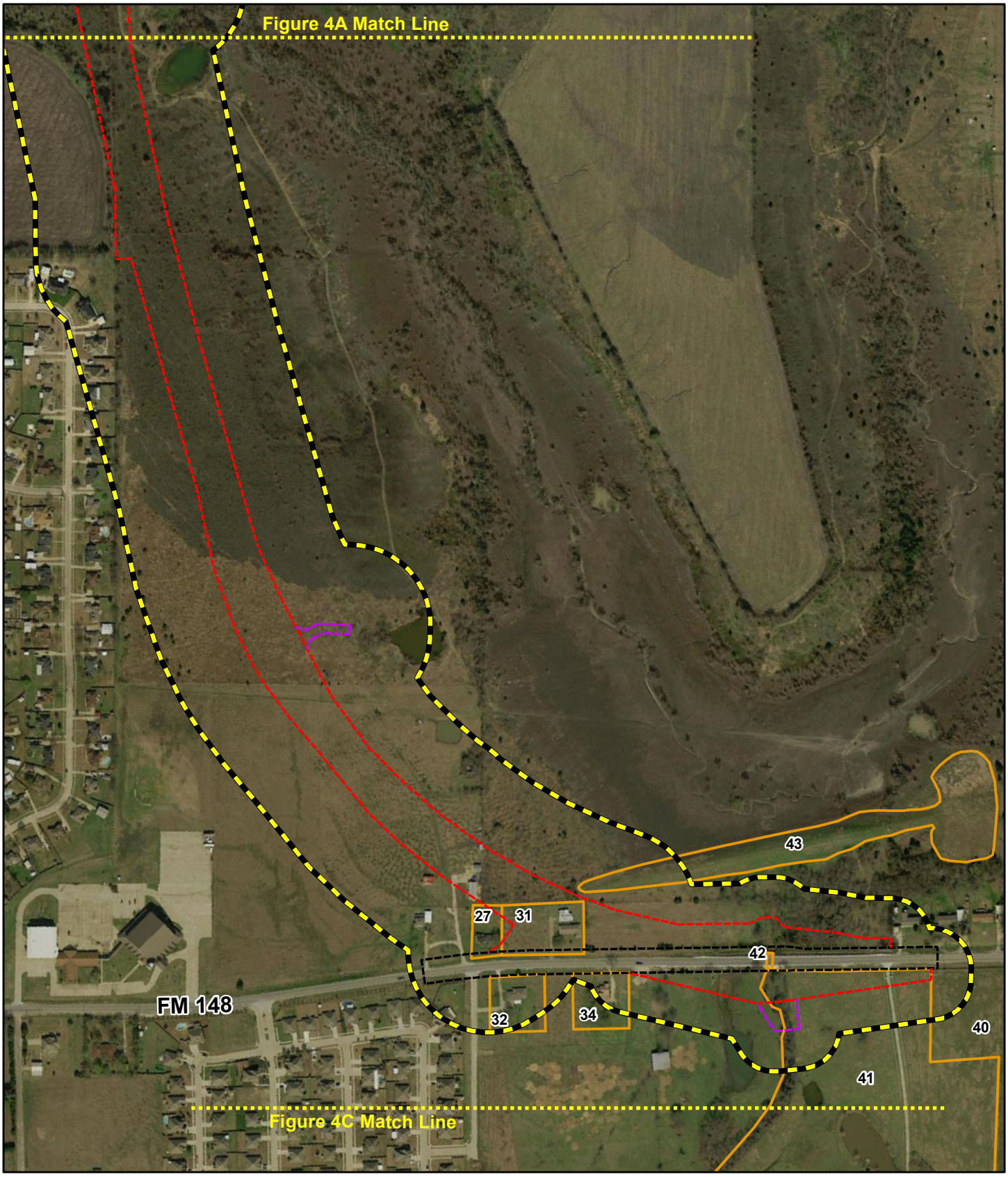
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N E S W

0 500 1,000

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017



Legend

- Existing ROW
- Proposed Easement
- Proposed ROW
- Project APE
- Property with Historic-age Resource

Appendix F-1: Historic-age Resources Map Detail - Center

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

0 500 1,000

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017

Legend

- Existing ROW
- Proposed Easement
- Proposed ROW
- Project APE
- Property with Historic-age Resource

Appendix F-1: Historic-age Resources Map Detail - South

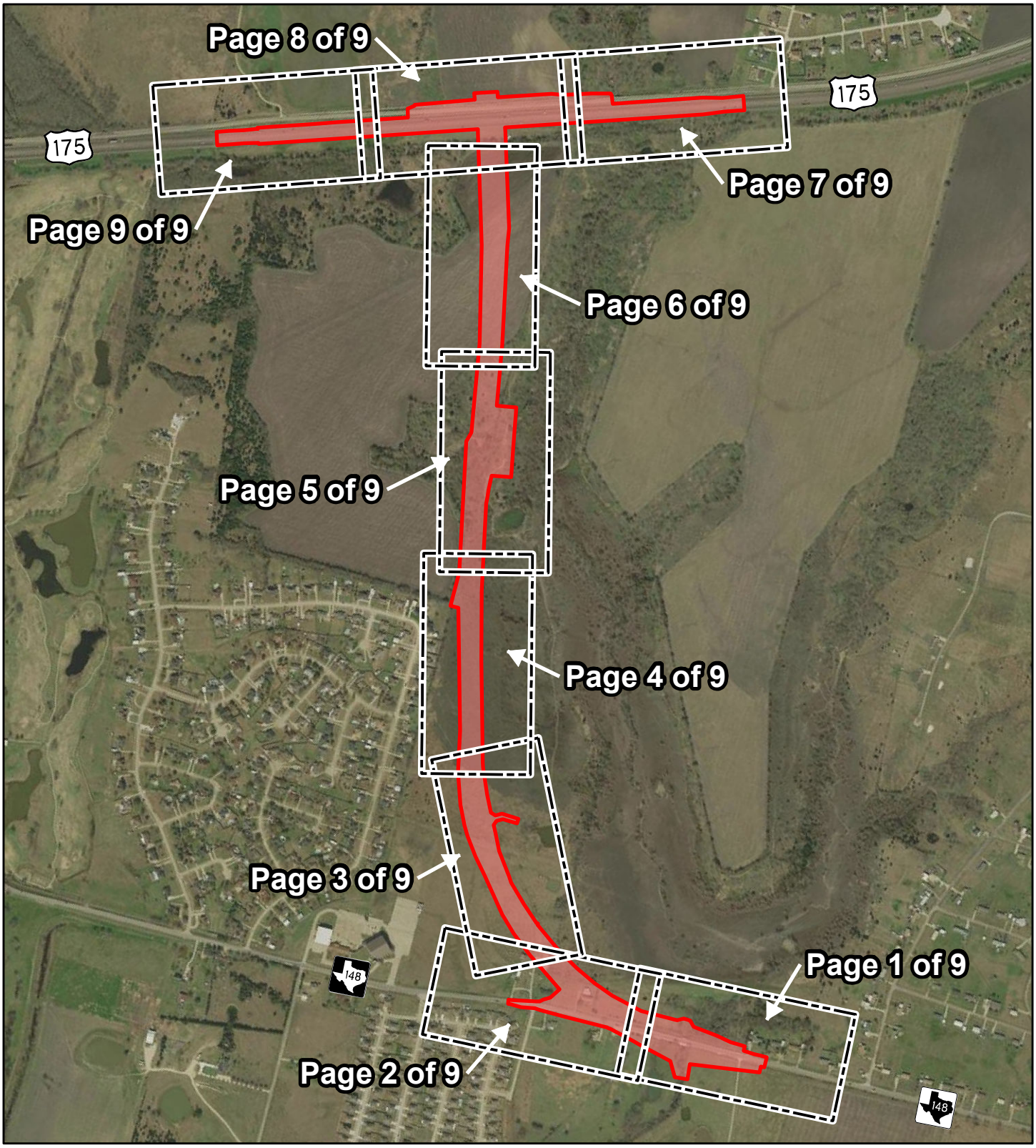
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N E S W

0 500 1,000

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017



Legend

FM 148 Bypass Project Area

Map Key Extent

N E S W

0 1,000 2,000

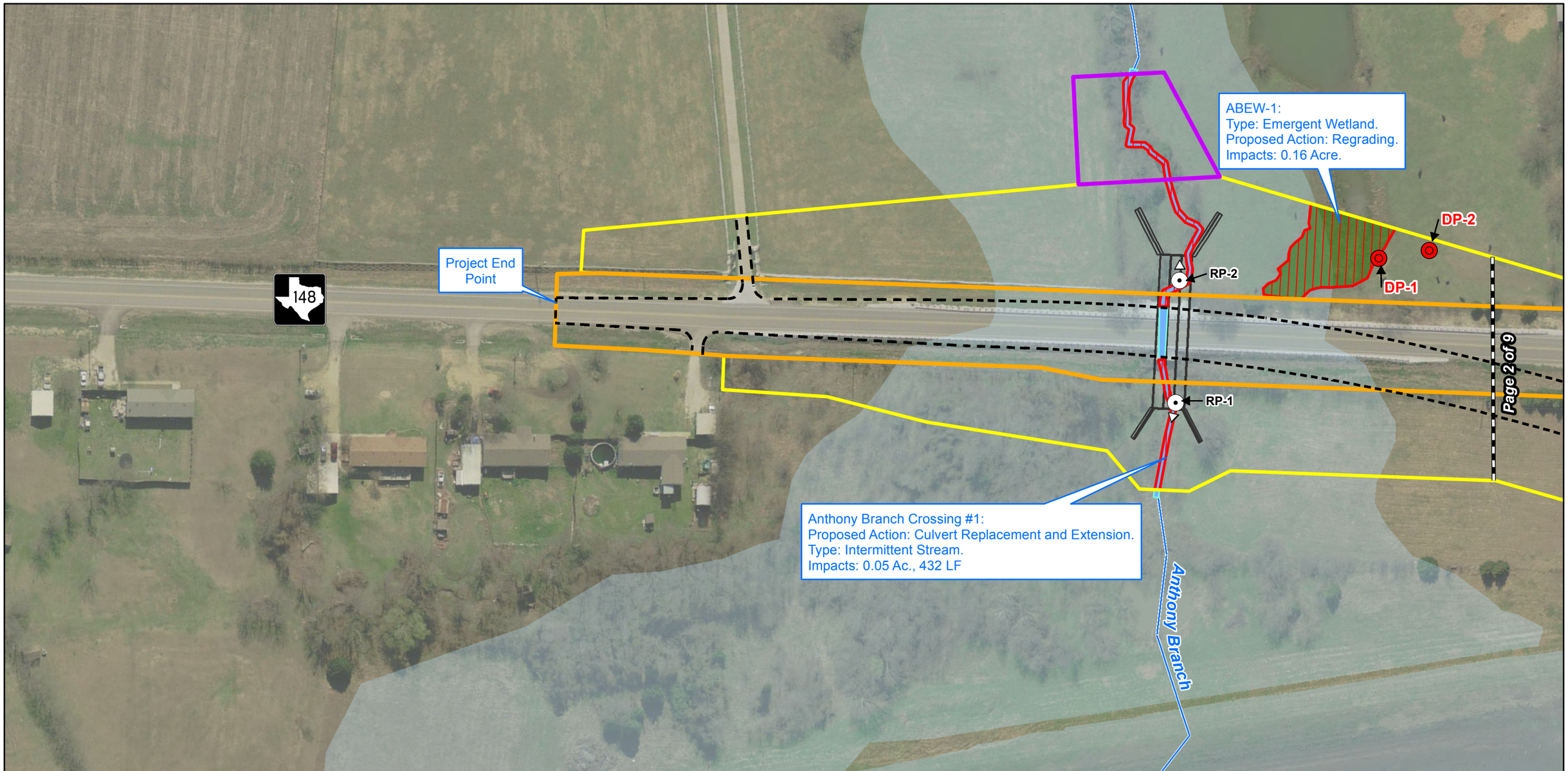
SCALE IN FEET

Source/ Year Aerial Photography: NCTCOG / 2017

Appendix F-2
Key for Water Features Map

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas

CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
1) NHD = National Hydrological Database.

2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N S E W

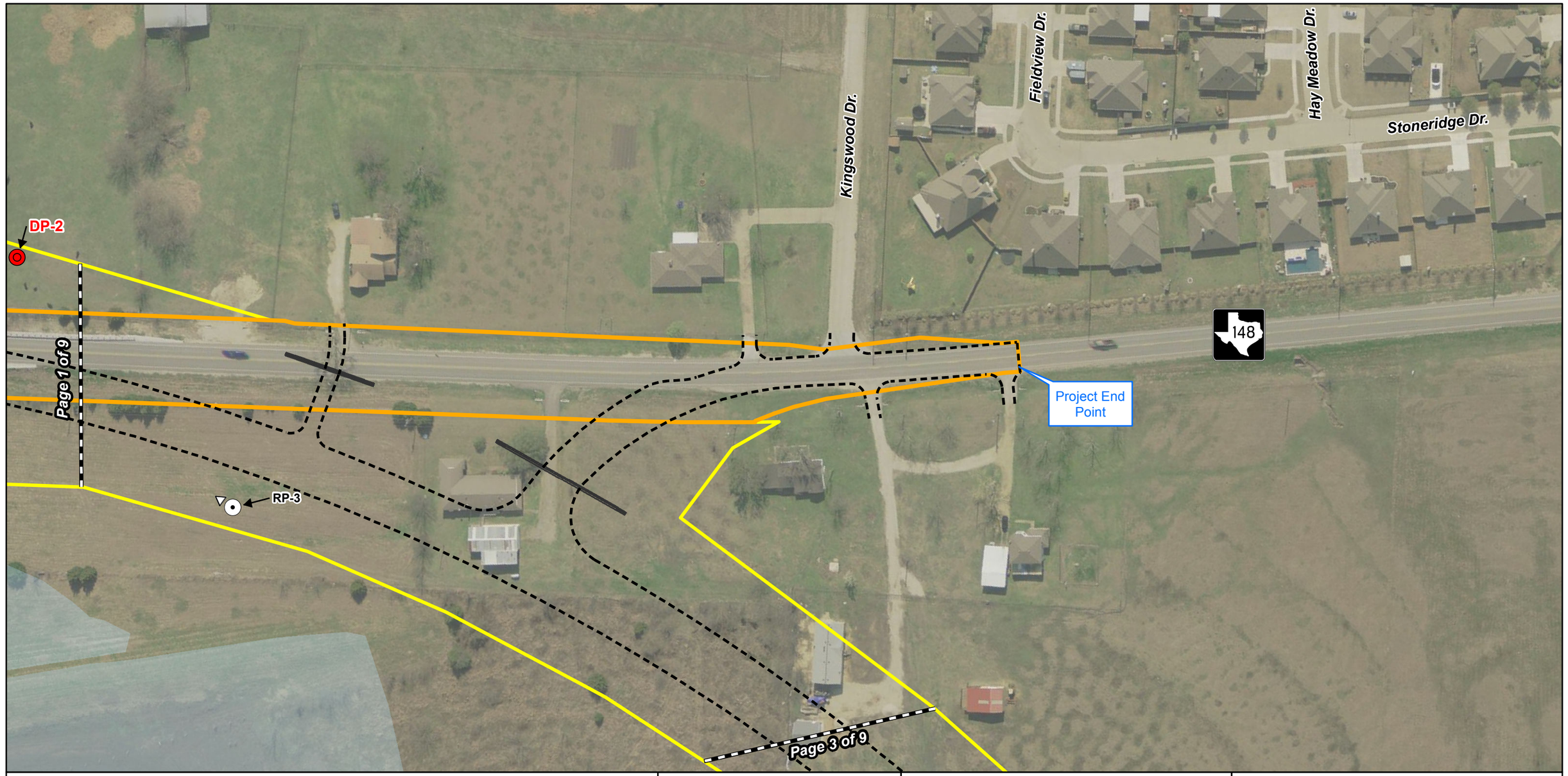
0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 1 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
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* 100-year floodplain derived from digital flood insurance rate map database.

N W S E

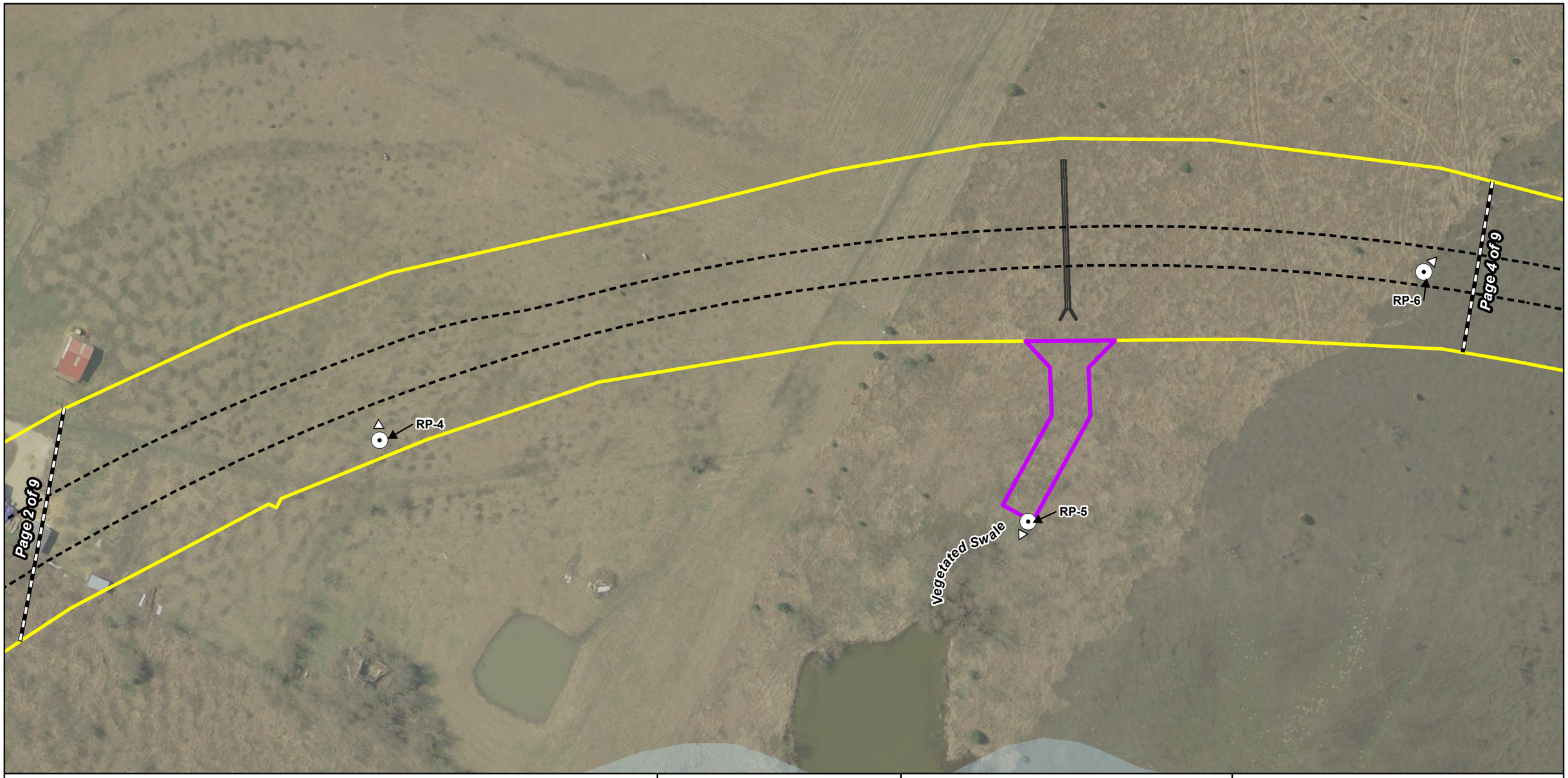
0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 2 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
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2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N W E S

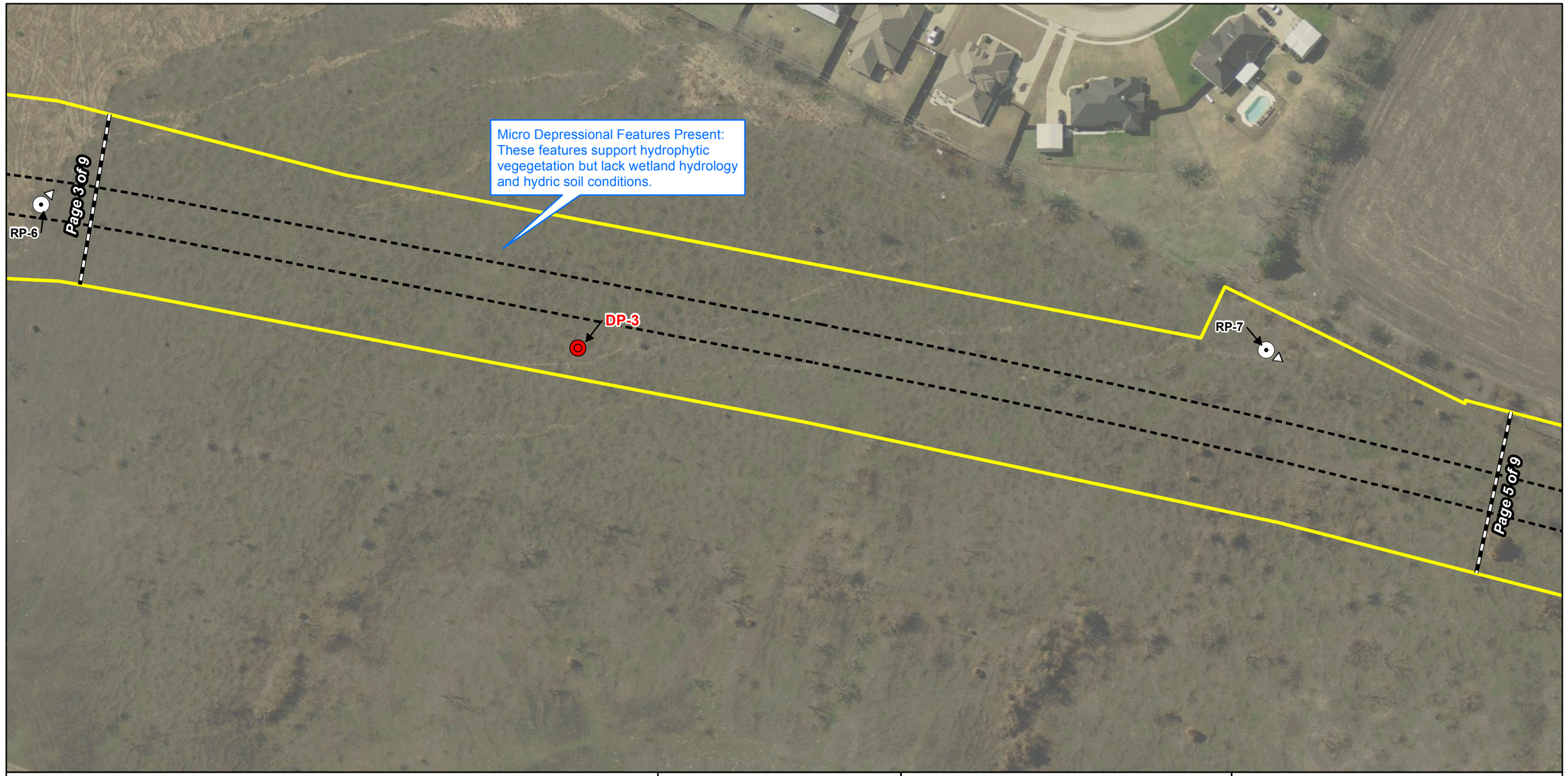
0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 3 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
1) NHD = National Hydrological Database.

2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N W E S

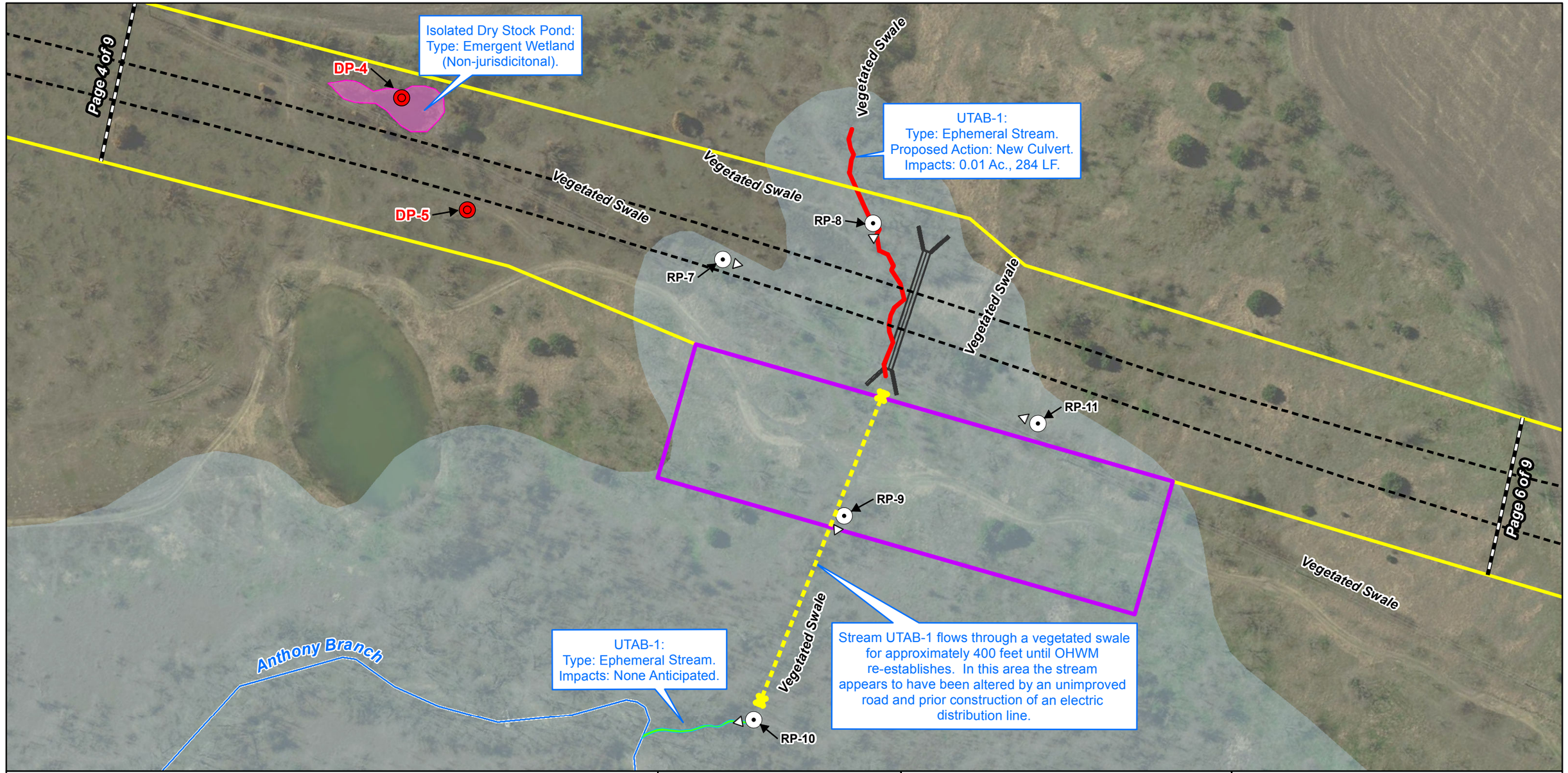
0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 4 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
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2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N W E S

0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 5 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
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- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
1) NHD = National Hydrological Database.

2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N W E S

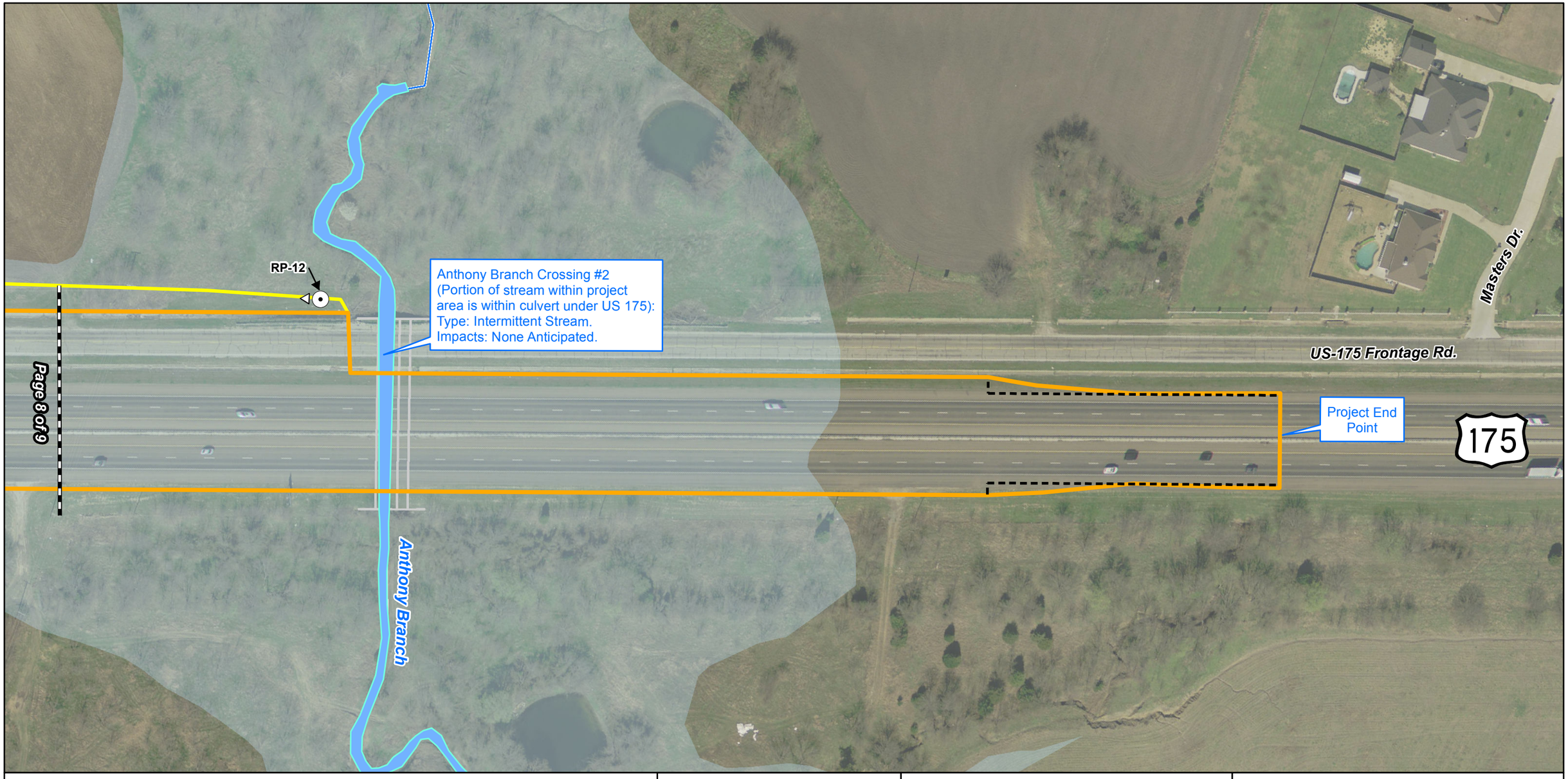
0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 6 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
1) NHD = National Hydrological Database.

2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N E S W

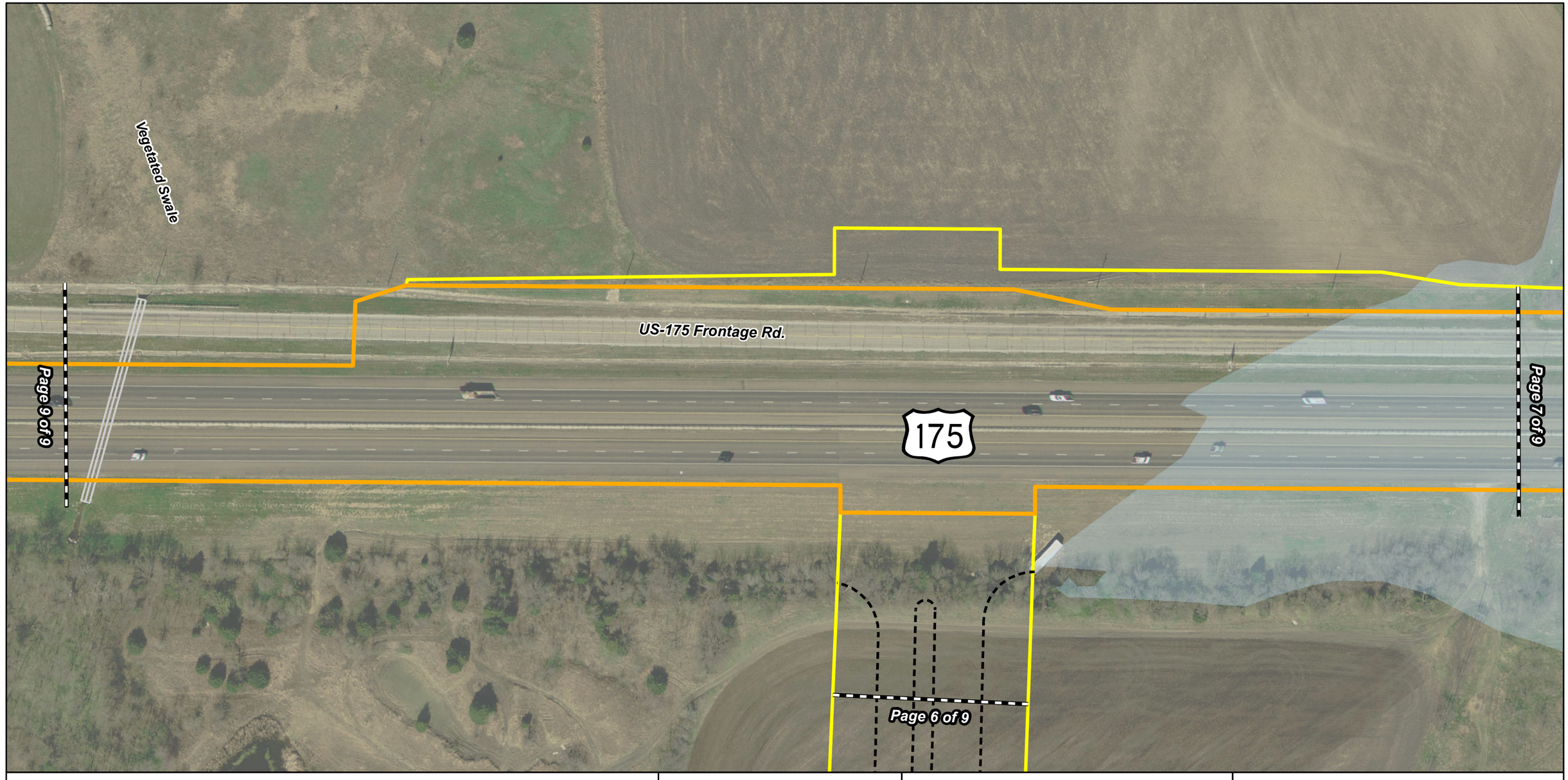
0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 7 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)



Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
1) NHD = National Hydrological Database.

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4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N E W S

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SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 8 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

Legend

- Existing ROW
- Proposed ROW
- Proposed Drainage Easement
- Proposed Culvert Installation
- Proposed Pavement
- Data Point (DP)
- Reference Photograph Point (RP) with View Direction

Aquatic Features

- Emergent Wetland
- Intermittent Stream OHWM Limits
- Ephemeral Stream OHWM Limits
- Permanent Impacts to WOUS
- NHD Stream Centerline
- Non-jurisdictional Feature
- 100-year Floodplain*

Notes:
1) NHD = National Hydrological Database.

2) OHWM = Ordinary High Water Mark

3) WOUS = Water of the United States

4) For reference photograph points refer to Water-related Project Area Photographs.

* 100-year floodplain derived from digital flood insurance rate map database.

N E S W

0 100 200

SCALE IN FEET

Date: 08/22/2017
Source / Year of Aerial Photograph: NCTCOG / 2017

Appendix F-2
Water Features Map
Page 9 of 9

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

NCTCOG CMP
PROJECT IMPLEMENTATION FORM

Submitter Name: Nancy Peron
Agency Name: Texas Department of Transportation
Agency Address: 4777 East Highway 80, Mesquite, TX 75150
Email: nancy.peron@txdot.gov
Telephone Number: (214) 320-6245

Date: 8/15/2017

Please answer the following questions

Project Name Farm-to-Market Road (FM) 148 Bypass
Project Limits (From) South of FM 3039
Project Limts (To) United States Highway (US) 175

2. Does this project add roadway capacity? (IF NOT, THIS FORM IS NOT REQUIRED)

YES

3. Are complementary Travel Demand Management (TDM) or Transportation System Management & Operations (TSM&O) projects within the corridor in the TIP?
If "yes," enter the project name(s), TIP Code(s) and/or CSJ number(s) in table below.
This information can be verified at the following link: Transportation Improvement Program Information System (TIPINS)
*For a list of TDM and TSM&O project types see: Appendix A - TDM and TSM&O Strategies

YES

Project Name	US 175 from FM 148 to FM 4106 in Kaufman County (construct two-lane WB/EB frontage roads)	**TIP Code**	83283	**CSJ#**	0000-18-051
Project Name	US 175 from FM 148 to CR 4106 in Crandall (construct new two-lane frangage roads; convert existing frontage road from two-way to one-way; ramp modifications)	**TIP Code**	51460	**CSJ#**	0197-03-054
Project Name	Sidewalk construction along Trinity Rd from Angelina Dr to Martin ES, along Meadowcreek Dr from Creekside Dr to 1st St for Wilson ES, and along Lewis St./FM 3039 from 1st St to Crandall	**TIP Code**	40035	**CSJ#**	--
Project Name	--	**TIP Code**	--	**CSJ#**	--

3b. Are there any other projects not included in the TIP that may compliment the project?
If "yes," enter the project name(s) and implementing agency in table below.

NO

Project Name	--	**Implementing Agency**	--
Project Name	--	**Implementing Agency**	--
Project Name	--	**Implementing Agency**	--
Project Name	--	**Implementing Agency**	--

4. Are the project limits within a corridor included in the current Metropolitan Transportation Plan?
This information can be verified in the Mobility Options found here: Appendix E of the MTP (pg. 53 - 97 / pg. 102 - 112)
If "yes," enter the MTP Reference #(s) in table below

YES

MTP Reference #	NRSA1-DAL-175
MTP Reference #	--
MTP Reference #	--
MTP Reference #	--

5. Are the project limits within a corridor included in the current CMP Corridor Analysis?
The complete inventory of corridor fact sheets can be found here: Appendix C - CMP Corridor Fact Sheet

NO

*If "yes," please proceed to question six.
*If "no," please evaluate corridor to determine if improvements are needed by completing the Fact Sheet Form in Step 2 in the tab below, before proceeding to question six.

6. Is the corridor identified as deficient in any category?

YES

*If "yes," please proceed to questions seven.
*If "no," please proceed to question 11.

7. Identify corridor deficiencies as specified in the current CMP Corridor Analysis or in the CMP Roadway Deficiency Form. (Check all that apply)

- [x] Alternative Roadway Infrastructure
- [x] Modal Options
- [ ] System Demand
- [ ] System Reliability

8. Review Appendix A of the current CMP or other available resources to identify possible congestion mitigation strategies to correct the deficiency. (Check all that apply)
Appendix A - TDM and TSM&O Strategies

- [ ] Commuter Transportation Options
- [ ] Freight Management Activities
- [ ] Incentive to Use Alternative Modes
- [ ] In-Vehicle System Efficiency Improvements
- [ ] Roadway Incident and Emergency Management Options
- [x] Roadway Infrastructure Improvements
- [ ] Sustainable Development Improvements
- [ ] System Management and Operations Improvements
- [ ] Transit System Efficiency Improvements
- [ ] Traveler Information Services
- [ ] Work Zone/Construction Management Operations

Appendix F-3 (Page 1 of 6)

NCTCOG CMP
PROJECT IMPLEMENTATION FORM

9. Specify deficiency-correcting congestion mitigation strategy that will be implemented as part of the project.

The FM 148 Bypass is proposed as a Roadway Infrastructure Improvement to address safety concerns and design deficiencies arising from the necessity of through traffic (especially heavy trucks) to make a 90-degree turn at a four-way stop intersection with Church Street in downtown Crandall. Secondary concerns related to through traffic is the congestion that the traffic bottleneck at Church Street causes to both through traffic and access by the residents of the single-family homes that flank FM 148 as it passes through the City of Crandall.

10. If not implementing a congestion mitigation stragegy, please explain reason.

Although Modal Options Deficiencies are acknowledged with regard to this segment of FM 148, the proposed project addresses the fundamental infrastructure deficiency described above; however, challenges relating to Modal Options Deficiencies would be somewhat alleviated indirectly by the reduction in the volume of through traffic (particularly heavy truck traffic) that would use the proposed bypass route.

11. Submit completed form to NCTCOG - CMP Team at: CMP@nctcog.org or by clicking SUBMIT below

*Submit button will auto generate email to NCTCOG with completed excel document attached.
Please finalize step by sending the email.

SUBMIT

Appendix F-3 (Page 2 of 6)

CMP CORRIDOR ANALYSIS - FACT SHEET

ROADWAY NAME	FM 148 Bypass

HIGHWAY	LIMITS	LENGTH	DIRECTION	MAINLANES
FM 148	From South of FM 3039 to US 175	1.6	Northeast	2

CORRIDOR FACTS (WITHIN 1 MILE)

Functional Class	Rural Major Collector
HOV Lanes	No
Parrallel Freeways (within 5 miles)	Yes
Shoulders	Yes
Frontage Roads	No
Bike Options	No
Available Transit	Yes (on demand bus service)
Park and Ride	No

Direct Connections	No
Truck Lane Restriction	No
Hazmat Route	No
Population	City of Crandall: Approximately 3,329
Number of Employees	City of Crandall: Approximately 1,482
FIM Training Participants	City of Crandall - Police Department: 5
Crash Rate (Use Most Recent Year)	Kaufman County 2014: 30.13
Construction Status	Anticipated let date is November 2021.

PARRALLEL ARTERIALS (ENTIRE LIMITS)

None

PARRALLEL ARTERIALS (PARTIAL LIMITS)

None

CORRIDOR SCORE (Results from Step 3 - CMP Deficiency Form)

ROADWAY	MODAL OPTIONS	SYSTEM DEMAND	SYSTEM RELIABILITY	SCORE
12	5	18	16	51

CONCLUSIONS/RECOMMENDATIONS

The FM 148 Bypass is needed to address safety and mobility issues in the project area and to provide a more direct connection between FM 148 and US 175. The existing route through the City of Crandall has three sharp turns, one of which is a four-way with narrow lanes that do not meet current design standards and which impede traffic circulation. At this intersection, through traffic of heavy trucks must make a right hand turn with inadequate room to safely and efficiently complete the turn. Thus, there is a need for a direct link between FM 148 and US 175 east of the City of Crandall to provide an alternative option for heavy truck traffic. The proposed improvements would provide a safe and efficient route to meet the stated transportation needs.

PLEASE SEE ATTACHED 'PROJECT ON AERIAL PHOTOGRAPH MAP.'

DEFICIENCY FORM IS REQUIRED WITH THIS SHEET
PLEASE COMPLETE BY GOING TO TAB 3 (STEP 3. DEFICIENCY FORM)
CLICK HERE

Project Name:	FM 148 Bypass
Project Limits (From and To):	South of FM 3039 to US 175
Agency Name:	Texas Department of Transportation
Submitter Name:	Nancy Peron
Telephone:	(214) 320-6245
Email:	nancy.peron@txdot.gov
Date Submitted:	08/15/17

Alternative Roadway Corridor Deficiency

The factors that influence alternative roadway infrastructure include the presence of parallel freeways, frontage roads, parallel arterials, and direct connections or interchanges.

	Click Cell To Select Answer	Score
1. Does the roadway facility have a parallel freeway or toll road within five miles?	Yes	12
2. Does the roadway facility include a frontage road system?	No	0
3. Does the roadway facility have a parallel arterial within two miles?	No	0
4. Does the roadway network include a direct connection or non-signalized interchange to another highway?	No	0
Total Points Received in Alternative Roadway Infrastructure Category		**12**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

Modal Options Deficiency

The factors that influence modal options include the presence of transit options (bus and/or rail), park-and-ride facilities, HOV/Managed Lanes, and bicycle/pedestrian options.

	Click Cell To Select Answer	Score
1. Does the roadway facility have established transit service?	Yes, bus only	5
2. Is a park-and-ride facility located along the roadway corridor?	No	0
3. Are HOV or Managed lanes available along the roadway corridor?	No	0
4. Are bike trails or other bike options available along the roadway corridor?	No	0
Total Points Received in Modal Options Category		**5**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

System Demand (Recurring) Deficiency

The factors that influence system demand include traffic volume, truck volume/percentage, number of employees along the roadway corridor block, and residential population.

	Click Cell To Select Answer	Score
1. Is the peak hour volume capacity above or below the current average Peak V/C of 0.692?	Above the Average	3
2. Is the truck volume percentage along the corridor above or below the current average of 9%?	Below or Equal to the Average	7
3. Is the total number of employees along the corridor above or below the current average of 82,549 (by TSZ)?	Below or Equal to the Average	5
4. Is the population along the corridor above or below the current average of 74,611 (by TSZ)?	Below or Equal to the Average	3
Total Points Received in System Demand Category		**18**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

System Reliability (Non-Recurring) Deficiency

The factors that influence system reliability include facility crash rates, agencies that participate in incident management training, truck lane restrictions, roadway shoulders, and the presence of Intelligent Transportation Systems (ITS) technology.

	Click Cell To Select Answer	Score
1. Is the crash rate for the corridor below or above the current crash rate average of 75.19?*	Below or Equal to the Average	10
2. Does the roadway facility have paved shoulders?	Yes, partial shoulders along the entire limits	3
3. Have emergency response agencies (police and fire) along the corridor participated in Freeway Incident Management (FIM) training?**	Yes, entire limits	3
4. Have truck lane restrictions been implemented along the corridor?	No	0
5. Is Intelligent Transportation Systems (ITS) technology being utilized along the corridor?	No	0
Total Points Received in System Reliability Category		**16**

If total score is 14 or below, then improvements are needed in this category. Please see Appendix A of the current CMP to identify possible congestion mitigation strategies to correct the deficiency.

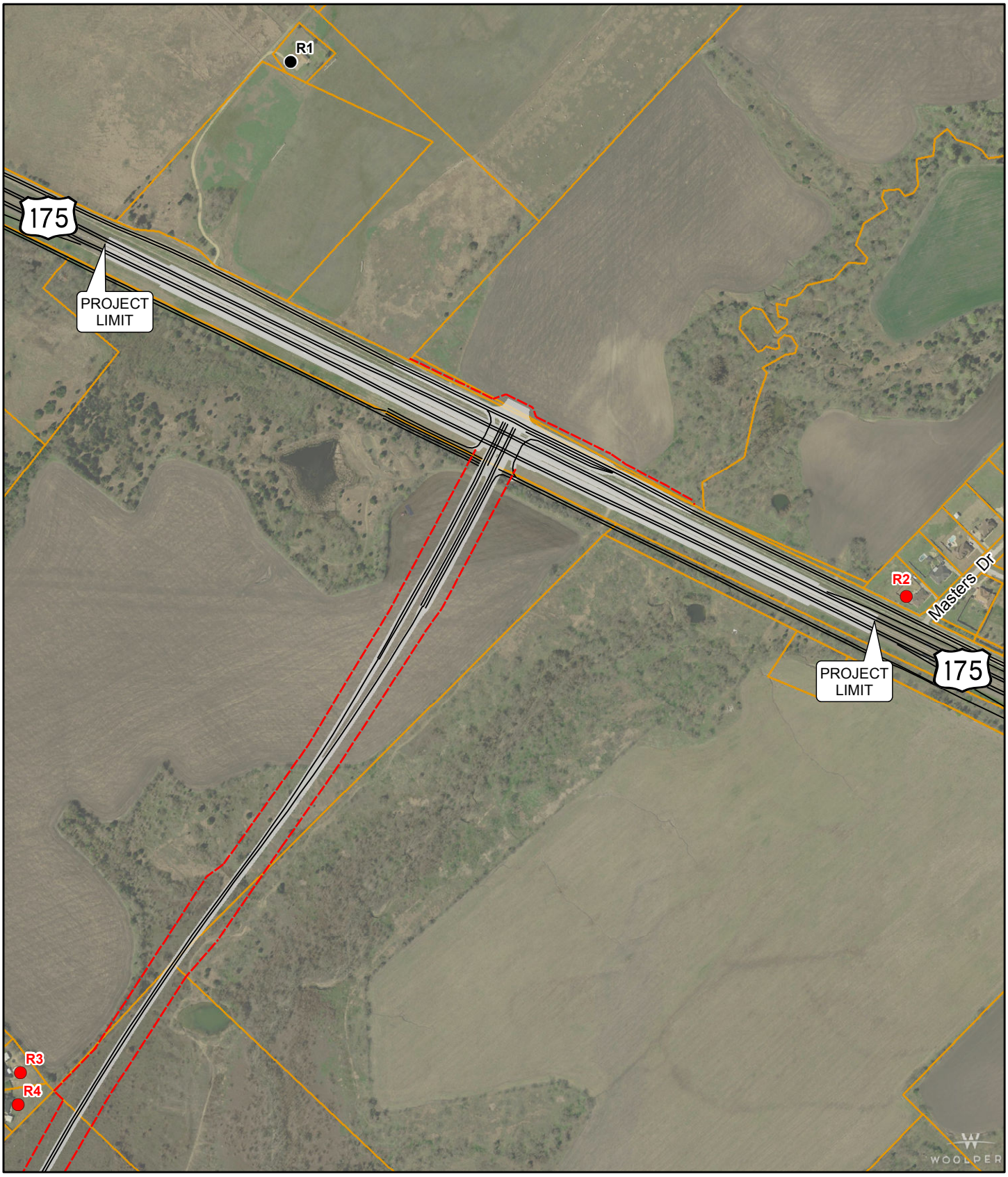
Notes:
*Please use most recent crash year if available.
**FIM attendance information is maintained by NCTCOG Safety staff. Please call 817-695-9245 to request information.
CMP 2013 - Appendix A

Screening Criteria

Construction	Under Construction and Funded Future Construction	This will be used as a screening process when assigning points to a corridor. If the corridor is under/planned construction then it can be exempt from being scored since a solution is currently being proposed.

Points Description	The maximum number of points a corridor can receive is 100. This means that the corridor is functioning at a sufficient level based on the four scoring categories. If the corridor receives a low score, then improvements should be considered in the four scoring categories.

Category	Inventory	Measure	Points	Max Number of Points
Alternative Roadway Infrastructure (Services)	Parallel Freeway/Toll Roads[1] (5 mi)	Yes	12	**25**
		None	0	
	Frontage Roads[1]	Entire Limits	7	
		Partial Limits	3	
		None	0	
	Parallel Arterials[1]	Entire and Partial Limits	4	
		Entire Limits	3	
		Partial Limits	1	
		None	0	
	Direct Connections (Interchanges)[1]	Yes	2	
		None	0	
Modal Options (Services)	Transit[2]	Bus and Rail	10	**25**
		Rail	7	
		Bus	5	
		None	0	
	Park-and-Ride[3]	Yes	7	
		None	0	
	HOV Lanes[1]	Yes	5	
		None	0	
	Bike Options[3]	Entire Limits	3	
		Partial Limits	1	
		None	0	
System Demand (Recurring)	Peak V/C[3]	Below or Average	10	**25**
		Average - 0.692		
		Above	3	
	Truck Volume Percentage[3]	Below or Average	7	
		Average - 9%		
		Above	1	
	Number of Employees (by TSZ)[4]	Below or Average	5	
		Average - 82,549		
		Above	1	
	Population (by TSZ)[4]	Below or Average	3	
		Average - 74,611		
		Above	1	
System Reliability (Non Recurring)	2012 Crash Rate[3]	Below or Average	10	**25**
		Regional Rate Average - 75.19		
		Above	3	
	Shoulders[1]	Full Outside and Inside	6	
		Partial Shoulders	3	
		One Shoulder	1	
		None	0	
	FIM Attendance/Training[3]	Entire Limits	3	
		Partial Limits	1	
		None	0	
	Truck Lane Restrictions[3]	Entire Limits	3	
		Partial Limits	1	
		None	0	
	Intelligent Transportation Systems[3]	Entire Limits	3	
		Partial Limits	1	
		None	0	



Legend

- Non-Impacted Noise Receiver
- Impacted Noise Receiver
- Project Roadway
- Proposed ROW
- Property Boundary

Appendix F-4 (Page 1 of 2)
Traffic Noise Receiver Location Map

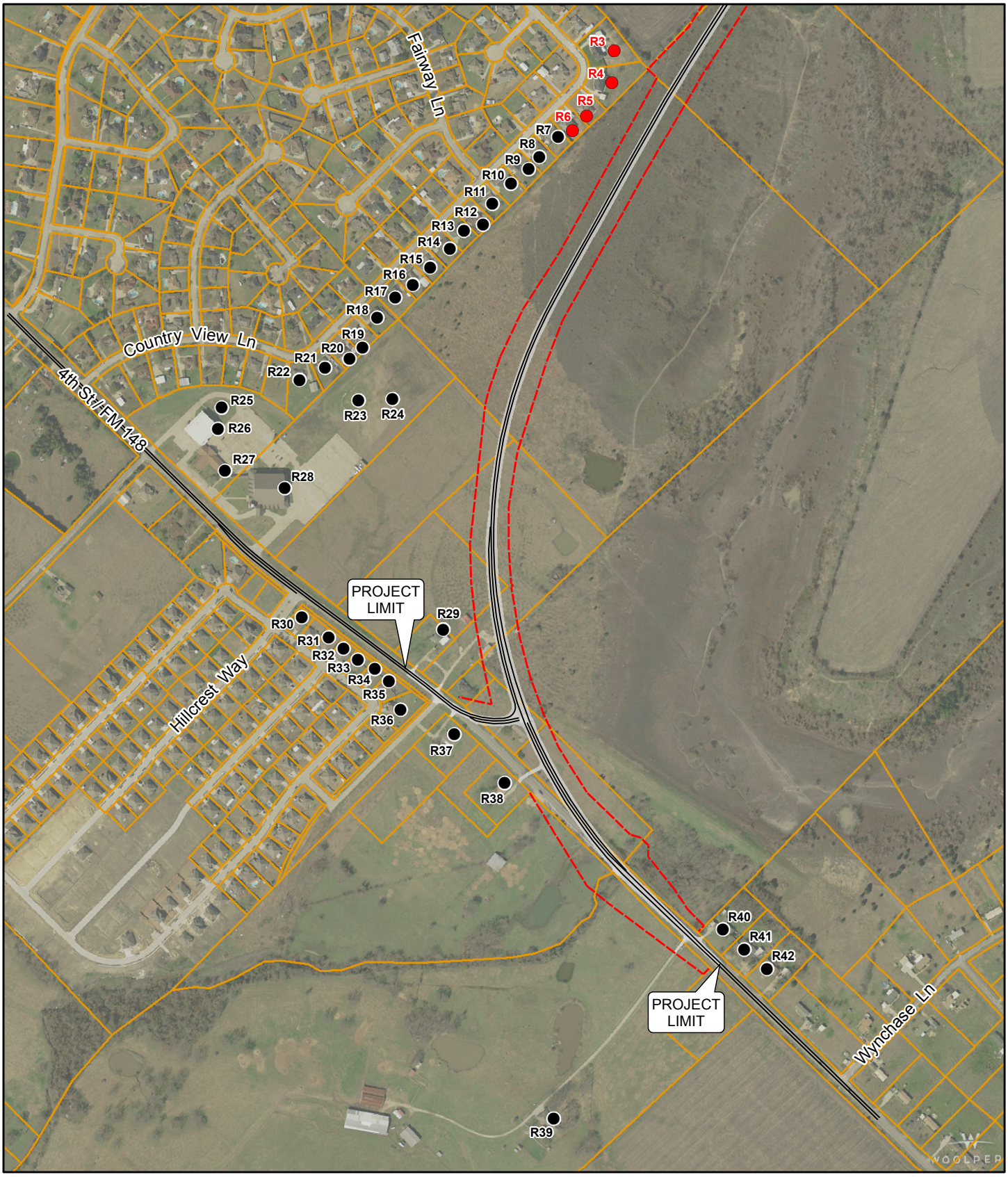
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N
W E
S

0 600 1,200

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017



Legend

- Non-Impacted Noise Receiver
- Impacted Noise Receiver
- Project Roadway
- Proposed ROW
- Property Boundary

Appendix F-4 (Page 2 of 2)
Traffic Noise Receiver Location Map

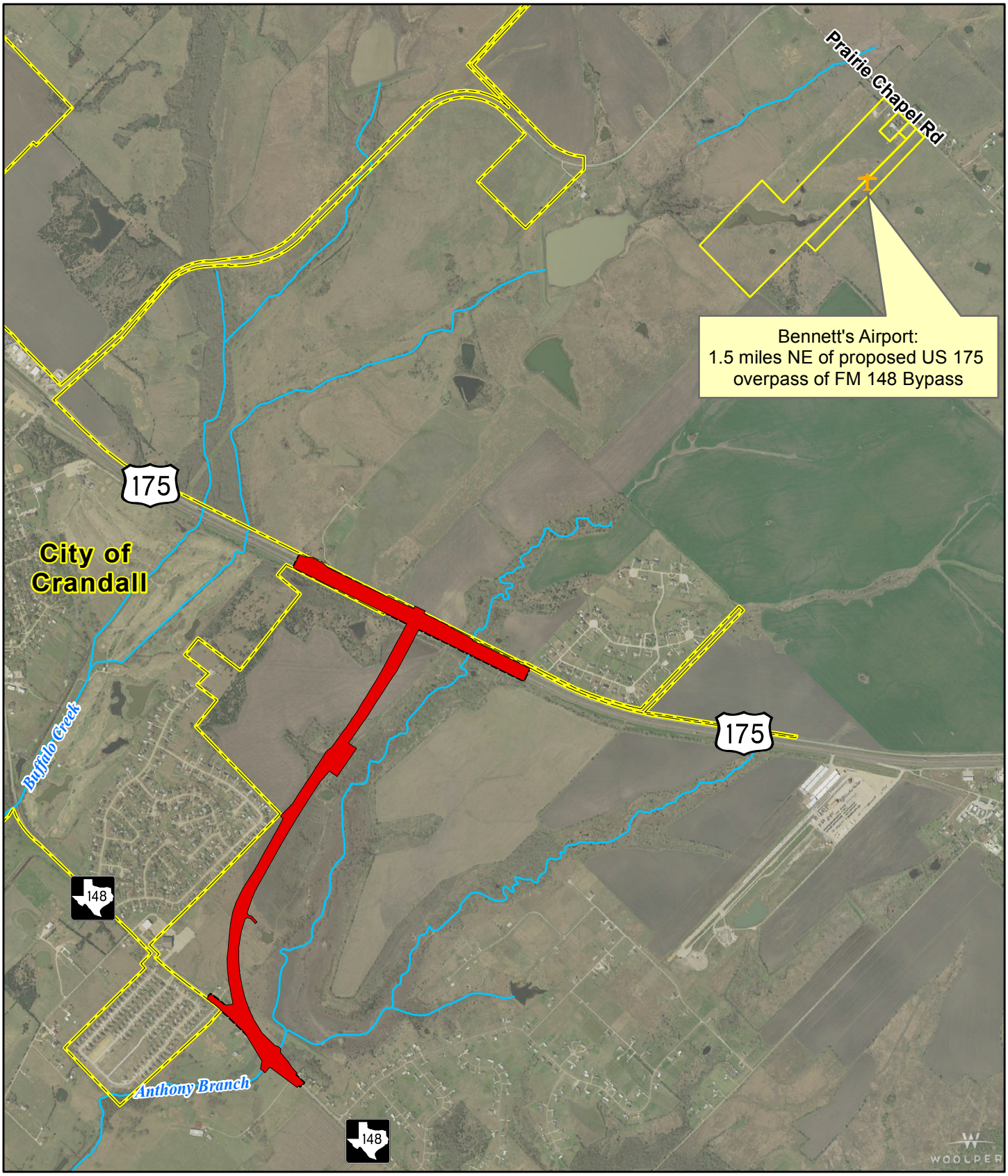
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N
W E
S

0 600 1,200

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017



Legend

- Bennetts Airport (Private)
- Parcels Owned by Ann Elise Bennett
- FM 148 Bypass Project Limits
- Crandall City Limits
- Stream

Appendix F-5
Bennett's Airport Map

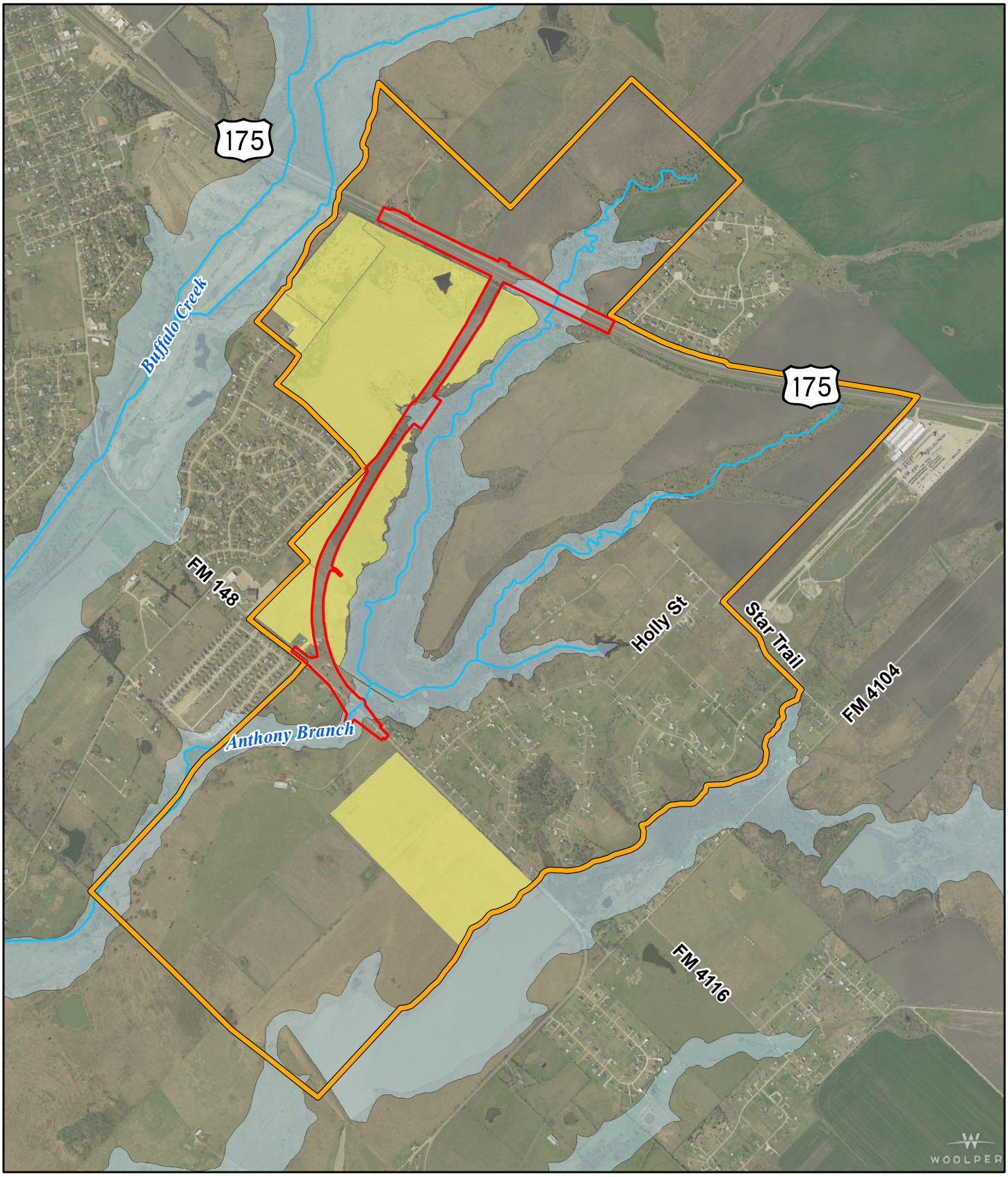
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N
W E
S

0 2,000 4,000

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017



Legend

- Project Limits
- Project Area of Influence (AOI)
- Expected Induced Development Area
- Stream
- 1-Percent Flood Risk Zone (100-Year Floodplain)

Appendix F-6
Induced Development Areas within Project AOI Map

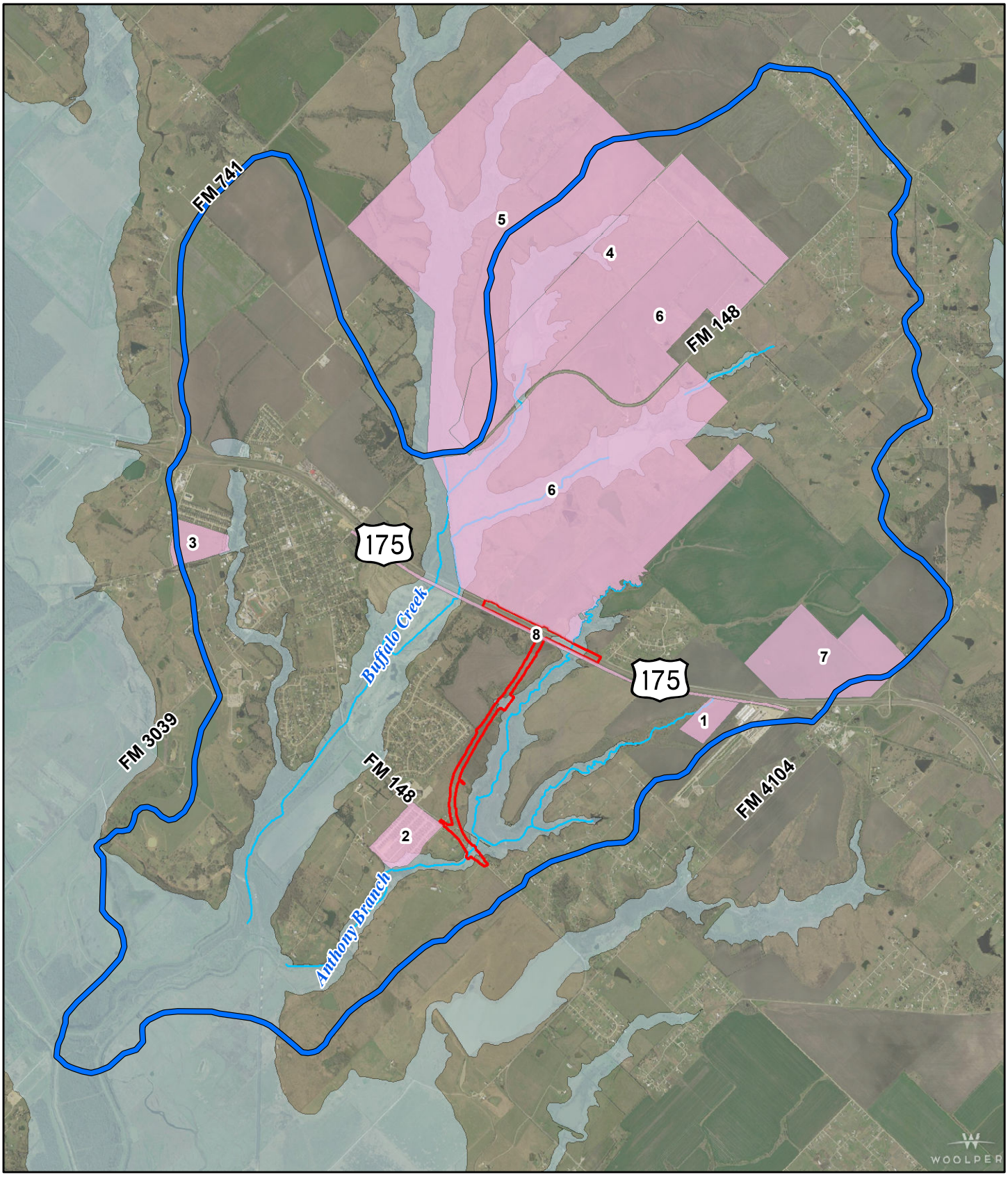
Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N
W E
S

0 2,000 4,000

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017



Legend

- Project Limits
- Project Resource Study Area (RSA)
- Reasonably Foreseeable Project
- Stream
- 1-Percent Flood Risk Zone (100-Year Floodplain)

Appendix F-7
Reasonably Foreseeable Projects within Project RSA Map

Farm-to-Market Road (FM) 148 Bypass
From South of FM 3039 to US 175
Kaufman County, Texas
CSJ: 0751-05-001 (formerly 0751-02-027)

N
W E
S

0 4,000 8,000

SCALE IN FEET

Source/Year of Aerial Photography: NCTCOG/2017

MEMORANDUM

Texas Department of Transportation

TO: 850 File, FM 148, between existing FM 148 and US 175, Kaufman County, Texas
Dallas District, CSJ: 0751-02-027

RE: Denial of Right of Entry

FROM: Kevin Hanselka – Staff Archeologist ENV **DATE:** 02/02/2018

SUBJECT: Internal review under the 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), as well as the Memorandum of Understanding (MOU) between the Texas Historical Commission and TxDOT.

Project Description:

The Texas Department of Transportation (TxDOT) and Federal Highway Administration (FHWA) is proposing to construct a new segment of Farm-to-Market Road (FM) 148, between the existing FM 148 to the south and U.S. Route (US) 175 to the north, in Kaufman County, Texas. The proposed roadway will primarily consist of two 12-foot-wide lanes with 8-foot-wide shoulders. Additional 12-foot-wide turning lanes will be needed at the intersection of the proposed FM 148 connector road between the proposed FM 148 alignment and existing FM 148.

Area of Potential Effects (APE) Definition:

The 1.6-mile-long APE spans about 58.7 acres (existing right-of-way [ROW]: 23.5 acres; proposed ROW: 33 acres; proposed drainage easement: 2.2 acres). Typical depths of impact are anticipated to be restricted to the surface, but specific areas will require mechanical grading, installation of bridge support piers, and placement of box culverts. Areas with the deepest anticipated disturbance include the proposed culverted crossing of Anthony Branch and the US 175 main lane bridge spanning the FM 148 Bypass.

Previous Investigations:

In 2018, SWCA assessed all portions of the APE for which access was granted under Antiquities Code Permit 8246. Right-of-entry (ROE) was denied on 18.59 acres of new ROW. Consequently, the survey covered 40.11 acres of the total 58.7-acre APE. Investigations consisted of an intensive pedestrian survey supplemented with the excavation of ten shovel tests and nine backhoe trenches. The survey failed to identify any archeological sites, and no artifacts were observed. No further work is warranted within the surveyed portion of the APE or within

three small parcels adjacent to existing FM 148 for which access was denied. However, once access is granted, survey is recommended on a proposed survey area on the northern end of the APE to which access is presently denied.

Justification for Further Work:

Despite ROE constraints, SWCA conducted a good faith effort within portions of the APE assessed under permit 8246. No archeological historic properties (36 CFR Part 800.16(1) or State Archeological Landmarks (13 TAC 26.12) are present within the 40.11 acres of APE examined and none will be affected by the proposed undertaking. There is little likelihood of significant or intact prehistoric or historical archeological sites within the APE surveyed and no further archeological investigations are warranted in those areas.

Access was denied on four parcels, comprising about 18.59 acres (see attached map from SWCA survey report, *Intensive Archeological Survey of Farm-to-Market 148 in Kaufman County, Texas*). Three of these have negligible new ROW and minimal potential for intact archeological deposits based on disturbances and proximity to existing FM 148, and no further work is recommended on these parcels (1712, 1717, 43445; 2.25 acres). On the remaining parcel (6147; 16.34 acres), further work is recommended within a proposed survey area on the northern end of the currently inaccessible proposed ROW (**5.69** acres; see attached map), once additional right of entry has been negotiated. This area is recommended for survey based on relatively high potential for prehistoric and historic resources identified during the Archeological Background Study. Based on generally low potential as well as investigations in adjacent accessible portions of the APE, survey is not recommended for the remaining 10.65 acres of inaccessible APE within parcel 6147.

As detailed above, permission to conduct archeological investigations was denied by at least one landowner. Thus, as provided under Stipulation IX.B.3 of the PA, this undertaking may proceed with further project development, including completion of the environmental process and right of way acquisition without the concurrence of the SHPO. After obtaining access to proposed right of way in the parcels designated above, TxDOT will complete the inventory on unsurveyed properties and conclude any additional work that may be required under the terms of the PA and MOU.

Approved by Scott Pletka for TxDOT February 2, 2018

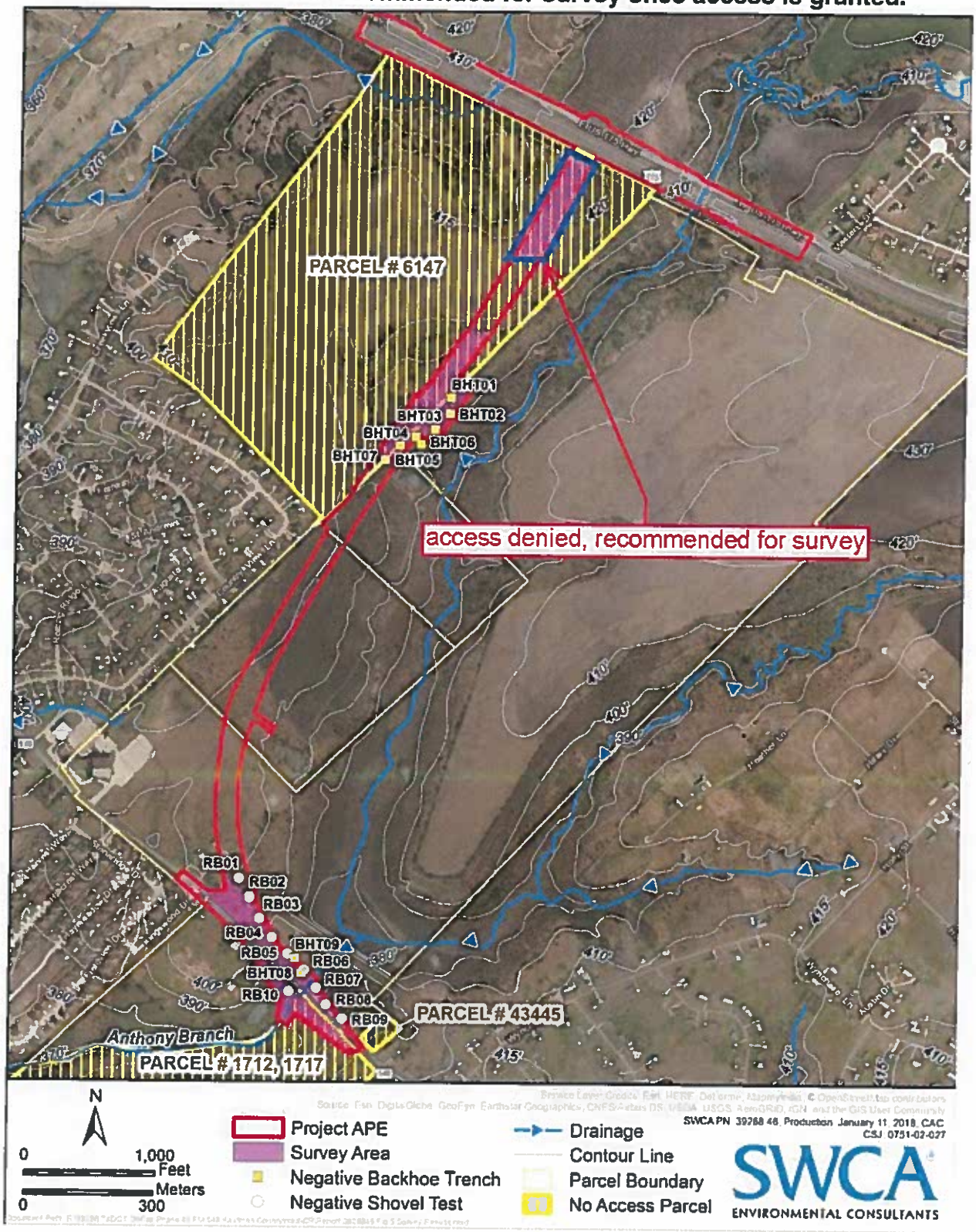
Scott Pletka, Ph.D. Date

Attachments:
Cc w/attachment: Christine Polito, TxDOT Dallas District Environmental Coordinator; Scott Ford, ENV-PD; Kevin Hanselka ENV-Arch TxDOT; ENV Arch Project File

cc w/o attachments: ECOS Scan

Environmental studies are in the process of being conducted for this process. The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Attachment A. Area recommended for survey once access is granted.



Texas Department of Transportation

125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

February 1, 2018

Transmittal of SWCA Environmental Consultants Draft Report: *Report for Archeological Survey: Intensive Archeological Survey of Farm to Market 148 in Kaufman County, Texas.*
Kaufman County, Dallas District, CSJ: 0751-02-027
THC Antiquities Permit No. 8246

Ms. Pat Mercado-Allinger,
Division of Archeology, Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Mercado-Allinger:

The above proposed project will be undertaken with federal and state funds. As required by the Programmatic Agreement (PA, 2015) and the Memorandum of Understanding with your agency, we are continuing consultation with your office on this project and are enclosing for your review and processing a draft report of an archeological survey recently conducted by SWCA Environmental Consultants (SWCA) for the undertaking.

On behalf of the Texas Department of Transportation (TxDOT) Dallas District, SWCA conducted intensive archeological survey within the area of potential effects (APE) of proposed construction of a new segment of Farm-to-Market Road (FM) 148, between the existing FM 148 to the south and U.S. Route (US) 175 to the north, in Kaufman County, Texas. Archeological survey work was performed in compliance with the National Environmental Policy Act, National Historic Preservation Act § 106 and associated federal regulations (36 CFR 800), as well as the Texas Antiquities Code (9 TNRC 191) and associated state regulations (13 TAC 26). The project would construct a new FM 148 alignment that will primarily consist of two 12-foot-wide lanes with 8-foot-wide shoulders. Additional 12-foot-wide turning lanes will be needed at the intersection of the proposed FM 148 connector road that will connect the proposed FM 148 alignment with the existing FM 148 roadway. Approximately 3,850 feet of US 175 would be reconstructed to create an overpass crossing of the FM 148 Bypass. The 1.6-mile-long APE spans about 58.7 acres (existing right-of-way [ROW]: 23.5 acres, proposed ROW: 33 acres, proposed drainage easement: 2.2 acres). Typical depths of impact are anticipated to be restricted to the surface, but specific areas will require mechanical grading, installation of bridge support piers, and placement of box culverts. Areas with the deepest anticipated disturbance include the proposed culverted crossing of Anthony Branch and the US 175 main lane bridge spanning the FM 148 Bypass.

Survey methods complied with applicable standards outlined and defined in 13 TAC 26.15 and policies of the Texas Historical Commission, as well as guidelines of the Council of Texas Archeologists. Investigations entailed intensive pedestrian survey of accessible portions of the

APE, augmented with shovel testing and backhoe trenching in locations most favorable to contain intact cultural resources. Inaccessible properties were assessed from adjacent accessible properties where possible. Trench locations emphasized areas of least disturbance, as well as areas with alluvial deposits and the potential for deeply buried cultural materials. Pedestrian survey, ten shovel tests, and nine backhoe trenches failed to identify new archeological sites, and no artifacts were observed. No further work is warranted within the surveyed portion of the APE or within three small parcels adjacent to existing FM 148 for which access was denied. However, once access is granted, survey is recommended on a proposed survey area on the northern end of the APE to which access is presently denied, based on potential for historic resources.

A TxDOT archeologist has reviewed the report by SWCA and concurs with the results. **TxDOT seeks THC concurrence that:**

1. No archeological historic properties (36 CFR Part 800.16(1) or State Archeological Landmarks (13 TAC 26.12) are present within portions of the APE examined by SWCA; however, additional survey (under a separate Antiquities Permit) will be performed once access is granted to the presently inaccessible property on the north end of the APE to address potential for historic resources in proximity to US 175.

3. Since the survey was conducted under an individual THC Antiquities Permit, we are forwarding the draft for your review and processing in partial fulfillment of THC Antiquities Permit No. 8246. TxDOT finds the report acceptable as a draft and pending any final report review comments from your office, we request your concurrence that the report may proceed toward production.

Thank you for your consideration of this matter. If you have any questions regarding the survey report, please contact Steve Carpenter (512) 476-0891. If you have any other questions or have need of further information, please contact me at (512) 416-2639. Thank you for your consideration in this matter.

Sincerely,

J. Kevin Hanselka, Archeological Studies Program
Environmental Affairs Division

Cc w/attachment: Christine Polito, TxDOT Dallas District Environmental Coordinator; Scott Ford, ENV-PD; Kevin Hanselka, ENV-Arch; ENV Arch Project File

Cc w/o attachments: ECOS Scan

Concurrence By:

for: Mark Wolfe, Executive Director and SHPO
Texas Historical Commission

2/1/18
Date

Environmental studies are in the process of being conducted for this process. The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Texas Department of Transportation

DRAFT REPORT ACCEPTABLE
by
for Mark Wolfe
Executive Director, THC
Date 2/1/18
Track#

Report for Archeological Survey (Draft)

Intensive Archeological Survey of Farm-to-Market 148 in Kaufman County, Texas

Dallas District

Kevin Hanselka, Principal Investigator
Texas Antiquities Permit No. 8246

CSJ: 0751-02-027

January 12, 2018

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 12-16-14, and executed by FHWA and TxDOT.

Appendix G-1 (Page 6 of 6)

Texas Department of Transportation

MEMO

March 15, 2018

TO: Administrative File
From: Carolyn A Nelson

District: Dallas
County: Kaufman
CSJ#: 0751-02-027
Highway: Farm-to-Market (FM) 148 Bypass
Let Date: Nov 2021

Project Limits: South of FM 3039 to US 175
Project Description: Stipulation IX, Appendix 6. Widen two to six lanes divided with phased construction. 33 acres of new ROW and 2.2 acre of drainage easement. No historic properties present.

SUBJECT: Internal review under the Section 106 Programmatic Agreement (Section 106 PA) among the Texas Department of Transportation, Texas State Historic Preservation Officer, Advisory Council on Historic Preservation, and Federal Highway Administration; and the Memorandum of Understanding (MOU) between the Texas Historical Commission and the Texas Department of Transportation.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Proposed Project:
TxDOT Dallas district proposes to construct a 1.6 mile bypass around the City of Crandall's downtown that would connect FM 148 to US 175 in Kaufman County, Texas. The bypass would be a two-lane facility consisting of two 12-ft wide travel lanes with 8-ft wide shoulders and turn lanes. TxDOT would construct an overpass at FM 148 and drainage improvements.

Determination of Eligibility:
TxDOT historians reviewed the National Register of Historic Places (NRHP), the list of State Antiquities Landmarks (SAL), the list of Recorded Texas Historic Landmarks (RTHL), and TxDOT files and found no historically significant resources previously documented within the area of potential effects (APE). The proposed project has a custom APE consisting of

- Current right-of-way (ROW) where no new ROW is needed
- 150 feet beyond the proposed ROW where added capacity or new ROW or easements (temporary or permanent) is needed
- 300 feet beyond the proposed new ROW where new alignment is not part of an existing transportation corridor

A *Historical Resources Survey Report, CSJ 0751-02-027, Farm-to-Market (FM) 148 Bypass, Kaufman County, Dallas District February 9, 2018* evaluated forty-one parcels and two individual structures within the APE (Figure 3, Page 62). TxDOT historians evaluated eleven historic-age resources located on five parcels (ID#s 27, 31, 32, 34 and 41), and two additional individual structures (ID#s 42 and 43). TxDOT historians agree with the recommendations of the report and determine all evaluated historic age properties **not eligible** for the NRHP.

Determination of Effects:
Staff determined that the project poses no direct, indirect or reasonably foreseeable cumulative effects because there are no historic properties in the APE.

Therefore, pursuant to Stipulation IX, Appendix 6 "Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)" of the Section 106 PA and the MOU, TxDOT historians determined that there are no effects to historic, non-archeological properties in the APE. In compliance with the Antiquities Code of Texas and the MOU, TxDOT historians determined project activities have no potential for adverse effects. Individual project coordination with SHPO is not required.

Lead Reviewer RMDobrasko for TxDOT 3/15/2018
Rebekah Dobrasko Date

Approved by _____ for TxDOT 3.16.18
Bruce Jensen Date

Leslie Mirise

From: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Sent: Thursday, September 28, 2017 4:34 PM
To: Leslie Mirise
Cc: Christine Polito; Jan Heady; Dan Perge; Lani Marshall
Subject: RE: 0751-02-027 FM 148 Bypass Project - Request for Early Coordination

Leslie,

Thanks for answering my questions on the phone today and discussing the potential issues with fish kills with a single culvert road through a dry reservoir. It sounds like TxDOT will be ensuring that drainage occurs and impounded water does not result in fish kills. I do not have further questions.

Thank you for submitting the following project for early coordination: FM 148 bypass project (CSJ 0751-02-027). TPWD appreciates TxDOT's commitment to implement the practices listed in the Tier I Assessment form submitted on August 11, 2017. Based on a review of the documentation, the avoidance and mitigation efforts described, and provided that project plans do not change, TPWD considers coordination to be complete. However, please note it is the responsibility of the project proponent to comply with all federal, state, and local laws that protect plants, fish, and wildlife. According to §2.204(g) of the 2013 TxDOT-TPWD MOU, TxDOT agreed to provide TXNDD reporting forms for observations of tracked SGCN (which includes federal- and state-listed species) occurrences within TxDOT project areas. Please keep this mind when completing project due diligence tasks. For TXNDD submission guidelines, please visit the following link: http://tpwd.texas.gov/huntwild/wild/wildlife_diversity/txndd/submit.phtml

Thank you,

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: Leslie Mirise [mailto:Leslie.Mirise@txdot.gov]
Sent: Thursday, September 28, 2017 4:09 PM
To: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Cc: Christine Polito <Christine.Polito@txdot.gov>; Jan Heady <Jan.Heady@txdot.gov>; Dan Perge <Dan.Perge@txdot.gov>; Lani Marshall <Lani.Marshall@txdot.gov>
Subject: RE: 0751-02-027 FM 148 Bypass Project - Request for Early Coordination

Hi Sue,

Do you need any additional information for this project? Please let me know if I can be of assistance.

Thanks,

Leslie Mirise
Environmental Specialist

Dallas District – Advance Planning
Texas Department of Transportation
4777 East Highway 80
Mesquite, Texas 75150
(214) 320-6162 office
(214) 320-4470 FAX

From: Leslie Mirise
Sent: Friday, August 25, 2017 3:20 PM
To: 'Sue Reilly'
Cc: Christine Polito; Jan Heady; Dan Perge; Lani Marshall (Lani.Marshall@txdot.gov)
Subject: RE: 0751-02-027 FM 148 Bypass Project - Request for Early Coordination

Sue,

The Schematic is included within the Attachments (aka Bio Suporting Docs file). This bypass does not cross a typical reservoir as you might envision but rather an easement for NRCS flood control reservoir known as Lower East Fork Lateral Site Number Five, as discussed in the FPPA comments section. As a reference for this easement, please see the Prime Farmland Map (p 57 of 58 in the supporting documents file). The culvert would be located on one "finger" of the easement, where there is no currently standing water.

I hope that helps.

Thanks,

Leslie Mirise
Environmental Specialist
Dallas District – Advance Planning
Texas Department of Transportation
4777 East Highway 80
Mesquite, Texas 75150
(214) 320-6162 office
(214) 320-4470 FAX

From: Sue Reilly [mailto:Sue.Reilly@tpwd.texas.gov]
Sent: Friday, August 25, 2017 3:04 PM
To: Leslie Mirise; Christine Polito; Jan Heady; Dan Perge; Lani Marshall
Subject: RE: 0751-02-027 FM 148 Bypass Project - Request for Early Coordination

Leslie,

Do you have a schematic or KMZ file for this project?

Also I am wondering about there only being one culvert for a project crossing a flood control reservoir. I guess I need to see the schematic first but if you have any additional information on hydrology I would appreciate it.

Thanks,

Sue

From: WHAB_TxDOT
Sent: Tuesday, August 15, 2017 4:23 PM
To: Leslie Mirise <Leslie.Mirise@txdot.gov>; Christine Polito <Christine.Polito@txdot.gov>; Jan Heady <Jan.Heady@txdot.gov>; Dan Perge <Dan.Perge@txdot.gov>; Lani Marshall <Lani.Marshall@txdot.gov>
Cc: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Subject: RE: 0751-02-027 FM 148 Bypass Project - Request for Early Coordination

The TPWD Wildlife Habitat Assessment Program has received your request and has assigned it project ID # 38343. The Habitat Assessment Biologist who will complete your project review is copied on this email.

Thank you,

John Ney
Administrative Assistant
Texas Parks & Wildlife Department
Wildlife Diversity Program – Habitat Assessment Program
4200 Smith School Road
Austin, TX 78744
Office: (512) 389-4571

From: Leslie Mirise [mailto:Leslie.Mirise@txdot.gov]
Sent: Friday, August 11, 2017 12:56 PM
To: WHAB_TxDOT <WHAB_TxDOT@tpwd.texas.gov>
Cc: Christine Polito <Christine.Polito@txdot.gov>; Jan Heady <Jan.Heady@txdot.gov>; Dan Perge <Dan.Perge@txdot.gov>; Lani Marshall <Lani.Marshall@txdot.gov>
Subject: CSJ: 0751-02-027 FM 148 Bypass Project - Request for Early Coordination

Hello,

TxDOT requests early coordination for the FM 148 Bypass Project in Kaufman County, Texas. I have attached the following:

1. The Tier 1 Site Assessment Form, including BMPs to be implemented;
2. The Biological Evaluation Form, for the purpose of reviewing the analyses performed on federally listed species that also share state-listing status;
3. Supporting Documents, including but not limited to, project area map, schematic, species lists from TPWD and USFWS/IPaC, EMST documentation, and site photos;
4. The EMST and observed vegetation Excel spreadsheet; and
5. A separate NDD information file, containing the TPWD NDD Records Map (1.5-mile buffer) and Element Occurrence Records for EOIDs located within a 10-mile buffer of the project area.

These documents, along with other project-related information, are also available in ECOS under the CSJ: 0751-02-027.

Please feel free to contact me with any questions or if you need any additional information.

Thank you,

Leslie Mirise
Environmental Specialist
Dallas District – Advance Planning
Texas Department of Transportation
4777 East Highway 80
Mesquite, Texas 75150
(214) 320-6162 office
(214) 320-4470 FAX

From: NEPA
To: Michelle Lueck
Subject: RE: EA Review - FM 148 Bypass - Kaufman County (CSJ 0751-02-027)
Date: Tuesday, May 08, 2018 10:39:51 AM

Re: Response to Request for TCEQ Environmental Review

The Texas Commission on Environmental Quality (TCEQ) received a request from the Texas Department of Transportation (TxDOT) regarding the following project: EA Review - FM 148 Bypass - Kaufman County (CSJ 0751-02-027).

In accordance with the Memorandum of Understanding between TxDOT and TCEQ addressing environmental reviews, which is codified in Chapter 43, Subchapter I of the Texas Administrative Code (TAC) and 30 TAC § 7.119, TCEQ is responding to your request for review by providing the below comments.

This project is in an area of Texas classified by the United States Environmental Protection Agency as moderate nonattainment for the 2008 ozone National Ambient Air Quality Standard. Air Quality staff has reviewed the document in accordance with transportation and general conformity regulations codified in 40 Code of Federal Regulations Part 93 Subparts A and B. We concur with TxDOT's assessment.

The Office of Water does not anticipate significant long term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits, statutes, and regulations. We recommend that the applicant take necessary steps to ensure that best management practices are used to control runoff from construction sites to prevent detrimental impact to surface and ground water.

TxDOT will still need to follow all other applicable laws related to this project, including applying for applicable permits.

If you have any questions, please feel free to contact the NEPA Coordinator at (512) 239-3500 or NEPA@tceq.texas.gov.

Violet Mendoza
NEPA Coordinator
TCEQ, MC-119
NEPA@tceq.texas.gov

From: Michelle Lueck [mailto:Michelle.Lueck@txdot.gov]
Sent: Thursday, May 3, 2018 8:59 AM
To: NEPA <NEPA@tceq.texas.gov>
Subject: EA Review - FM 148 Bypass - Kaufman County (CSJ 0751-02-027)

TxDOT requests the TCEQ review the FM 148 Bypass project per 43 TAC 2.305. The proposed project would include the construction of a two-lane new location roadway connecting FM 148 with US 175 in Kaufman County, Texas. We are requesting TCEQ review since the project meets MOU triggers related to **water and air quality**.

An electronic version of the Draft Environmental Assessment will be transmitted to your office using our FTP system. Let me know if you have any questions.

Michelle Lueck
TxDOT-Environmental Affairs Division
Project Delivery Section
512-416-2644

CORRESPONDENCE RECORD WITH NRCS
RE PROPOSED FM 148 BYPASS PROJECT (6 PAGES)

From: Marek, Todd - NRCS, Temple, TX [mailto:Todd.Marek@tx.usda.gov]
Sent: Thursday, April 27, 2017 10:23 AM
To: McGahan, Jeremy <JMcGahan@Halff.com>
Cc: Mark Hull <Mark.Hull@txdot.gov>; Travis Owens <Travis.Owens@txdot.gov>; Wenberg, Brian - NRCS, Temple, TX <Brian.Wenberg@tx.usda.gov>; Lubke, Glenn - NRCS, Forney, TX <Glenn.Lubke@tx.usda.gov>; kaufmanvanzandt@swcd.texas.gov; Romanowski, Mike <mromanowski@halff.com>
Subject: RE: Farm to Market Road 148 Bypass - Kaufman County

Mr. McGahan,

Thanks for passing along the 90% design schematic. One thing that needs to be verified is whether or not the elevations shown on the schematic have been correlated to the actual elevations associated with the auxiliary spillway crest and top of dam high point for LEFL#5? I notice in the profile of the bypass, the low point at sta. 157+00 is 0.51 ft. below the as-built top dam high point.

The proposed culvert at this same location is shown to have an invert elevation of approx.. 397.0 and this is 4 ft. below the as-built auxiliary spillway elevation. Please keep in mind LEFL#5 is a floodwater retarding dam and its drawdown time is several days.

It is good to hear that you are proposing additional easement to make a place for borrow within the flood pool to offset the fill from the road bed.

Todd Marek
Civil Engineer
USDA-NRCS
101 South Main St.
Temple, TX 76501
254-742-9916

From: McGahan, Jeremy [mailto:JMcGahan@Halff.com]
Sent: Thursday, April 27, 2017 9:21 AM
To: Marek, Todd - NRCS, Temple, TX <Todd.Marek@tx.usda.gov>
Cc: Mark Hull <Mark.Hull@txdot.gov>; Travis Owens <Travis.Owens@txdot.gov>; Wenberg, Brian - NRCS, Temple, TX <Brian.Wenberg@tx.usda.gov>; Lubke, Glenn - NRCS, Forney, TX <Glenn.Lubke@tx.usda.gov>; kaufmanvanzandt@swcd.texas.gov; Romanowski, Mike <mromanowski@halff.com>
Subject: RE: Farm to Market Road 148 Bypass - Kaufman County

Todd,

Thank you for the information. That is very helpful when we scope out the engineering services for the PS&E. Attached is our draft 95% schematic of the project. We previously sent the 60% schematic to your office and it was reviewed by Brian.

We do anticipate to have some minor fill impacts within your existing SCS easement near Station 157+00. We are proposing an adjacent drainage easement in this area to offset the fill impacts to the SCS easement so that there is a zero net change in overall volume of storage.

Please review and provide any comments you have.

Thanks

Jeremy McGahan, PE
Transportation Team Leader

O: (214) 346-6371
C: (972) 834-9784

HALFF ASSOCIATES, INC.
1201 N. Bowser Road
Richardson, TX 75081-2275

From: Travis Owens [mailto:Travis.Owens@txdot.gov]
Sent: Thursday, April 27, 2017 9:02 AM
To: McGahan, Jeremy <JMcGahan@Halff.com>
Cc: Mark Hull <Mark.Hull@txdot.gov>
Subject: FW: Farm to Market Road 148 Bypass - Kaufman County

Good Morning Jeremy,

Please coordinate with Mr. Marek and get him any of the information he needs.

Mark, just wanted to keep you in the loop. Let me know if you see anything that needs to be addressed.

Thank you,
Travis

From: Marek, Todd - NRCS, Temple, TX [mailto:Todd.Marek@tx.usda.gov]
Sent: Tuesday, April 25, 2017 2:23 PM
To: Travis Owens
Cc: Wenberg, Brian - NRCS, Temple, TX; Lubke, Glenn - NRCS, Forney, TX; kaufmanvanzandt@swcd.texas.gov
Subject: Farm to Market Road 148 Bypass - Kaufman County

Mr. Owens,

Good afternoon,

I received the public meeting notice concerning this construction proposal in the mail yesterday. I am writing to ask you for more detailed information on the layout, drainage and cut and fill activities associated with the proposal. If you can share that with me, I would greatly appreciate it.

Background and Info on dam site known as "Lower East Fork Laterals Site 5" – (LEFL#5)

The United States Department of Agriculture – Natural Resources Conservation Service, USDA-NRCS, planned, designed and constructed the flood water retarding dam LEFL#5 at the south end of the proposed bypass where the tie-in is made with FM148. The dam project was made possible by the cooperation of local sponsors, who operate and maintain the flood water retarding dam site and hold an easement for the dam site, auxiliary spillway and the upstream flood pool. Those local sponsors are the Kaufman-VanZandt Soil and Water Conservation District (KVZ-SWCD) and the Kaufman County Commissioners Court.

The local sponsors have written policies on manipulation or encroachment of improvements/development/modification of the ground surface within their easement that will require review and approval by the sponsor prior to the modification.

LEFL#5 is an inventory sized dam and is subject to the regulatory authority of the State of Texas Dam Safety Rules and Regulations found in the Texas Administrative Code and administered by the TCEQ - Dam Safety Program. One of particular applicability is found at the following link that deals with the structural evaluation of dams as a result of changes or improvements that go on near the dam or auxiliary spillway. If work on the proposal falls within the TX Dam Safety Regulations, then the TCEQ Dam Safety Program will require review and approval of the proposal prior to the activity or modification.

http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=299&rl=16

Thanks in advance for you time and response for more information on this proposal.

Todd Marek, P.E.
Civil Engineer
USDA-NRCS
101 South Main St.
Temple, TX 76501
254-742-9916

From: Wenberg, Brian - NRCS, Temple, TX <Brian.Wenberg@tx.usda.gov>
Sent: Monday, January 09, 2017 5:45 PM
To: McGahan, Jeremy <JMcGahan@Halff.com>
Cc: Mueller, John - NRCS, Temple, TX <John.Mueller@tx.usda.gov>; Lubke, Glenn - NRCS, Forney, TX <Glenn.Lubke@tx.usda.gov>; Marek, Todd - NRCS, Temple, TX <Todd.Marek@tx.usda.gov>
Subject: FM 148 extension (60% design)

Mr. McGahan,

I have reviewed the 60% design that you submitted to John Mueller dated December 12, 2016. The dam was constructed by our agency and is named **Lower East Fork Laterals Site 5**.

It appears that the roadway will have minimal impact on the dam or reservoir. Specifically, there will be a slight reduction in available flood storage around station 157+00. **Question:** Do you think that there is borrow material within the flood pool that could be used to offset this reduction and provide suitable fill material for the roadway project? If so, I would like to discuss it with you.

Since this area is also the lowest point along the roadway upstream of the dam, the road fill in this area could potentially be inundated with floodwater near the road surface. Neither NRCS nor the project sponsors should be held responsible for any flooding that occurs up to the top of dam elevation. Hopefully, your evaluation considered the potential for flooding up to that elevation.

Let me know if you have any questions.

Thanks,
Brian

R. Brian Wenberg, P.E.
Assistant State Conservation Engineer
USDA- Natural Resources Conservation Service
101 South Main St, Temple, TX 76501
254-742-9945

From: Lubke, Glenn - NRCS, Forney, TX [mailto:Glenn.Lubke@tx.usda.gov]
Sent: Friday, December 09, 2016 4:31 PM
To: McGahan, Jeremy <JMcGahan@Halff.com>
Cc: Mueller, John - NRCS, Temple, TX <John.Mueller@tx.usda.gov>
Subject: Prints of Maps of new highway loop

Mr. Jeremy McGahan,

I have reviewed the prints that are referenced in the attachment with the local Soil and Water Conservation Board of Directors (Kaufman – Van Zandt – Rockwall SWCD # 505) at their last regular monthly meeting this last Wednesday. They have responsibility with the Operation and Maintenance of the dam.

Please send John Mueller, State Conservation Engineer, W R Poage Federal Building, USDA-NRCS, 101 S. Main Street, Temple, Texas 76501, copies of the maps that you sent me. He is our Engineer of Record for the Dam Site. He has the technical and engineering responsibility of reviewing any proposed improvements around the dam and any potential impacts that they may have.

Thanks!

Sincerely,

Glenn W. Lubke
Natural Resources Manager
USDA-NRCS
8620 FM 741
FORNEY, TX 75126

HALFF

1201 North Bowser Road
Richardson, Texas 75081
(214) 346-6200
Fax (214) 739-0095

LETTER OF TRANSMITTAL

To: NRCS
8620 FM 741
Forney, TX 75126
Attn: Glenn Lubke

Date: December 2, 2016

From: Jeremy McGahan, PE

AVO: 31172

Email: jmcgahan@halff.com

WE ARE SENDING YOU ☒Attached ☐ Under separate cover via ___ the following:

☐ Shop Drawings ☒ Prints ☐ Plans ☐ Drawings ☐ Specifications
☐ Copy of letter ☐ Report(s) ☐ CD/DVD ☐ Other: _____

VIA: ☐Hand Delivery ☒US Postal Service ☐Courier ☐Overnight Express

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approval as submitted ☐ Resubmit ___ copies for approval
☒ For your review ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review/comment ☐ Other:

ITEMS SENT:

- 1 Copy – Proposed FM 148 bypass

COMMENTS:

Attached is a copy of our proposed FM 148 bypass. Please review and provide comments. Let us know if need more copies. Give me a call at 214-346-6371 if you have any questions.

SIGNED: _____
Jeremy McGahan, P.E.

COPIES:
☒ File ☐ Owner ☐ Contractor ☐ Other: