Draft
Environmental Assessment

SH 46, San Antonio District

From Farhills Drive to FM 3159

CSJ: 0215-07-027, 0215-01-044 & 0215-01-051

Comal County, Texas

June 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 December 16, 2014, and executed by FHWA and TxDOT.

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ACRONYMS

AADT	Annual Average Daily Traffic
APE	Area of Potential Effects
BMP	Best Management Practice
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dB(A)	A-weighted decibel
DHHS	U.S. Department of Health and Human Services
DPS	Department of Public Safety
EA	Environmental Assessment
EJ	Environmental Justice
EMST	Ecological Mapping Systems of Texas
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPIC	Environmental Permits, Issues, & Commitments
ESA	Environmental Site Assessment
ETC	Estimated Time of Completion
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FM	Farm-to-Market Road
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act
ISA	Initial Site Assessment
LEP	Limited English Proficiency
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MPO	Metropolitan Planning Organization
MOU	Memorandum of Understanding
MPH	Miles per Hour
MSA	Magnuson-Stevens Fishery Conservation Management Act
MS4	Municipal Separate Storm Sewer System
MSATs	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHL	National Historic Landmarks
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

NWP	Nationwide Permit
OTHM	Official Texas Historical Markers
PA	Programmatic Agreements
PCN	Pre-Construction Notification
PM	Particulate Matter
PS&E	Plan Specification and Estimates
ROW	Right-of-Way
RTHL	Recorded Texas Historic Landmarks
RTP	Regional Transportation Plan
SAL	State Archeological Landmarks
SGCN	Species of Greatest Conservation Need
SH	State Highway
SHPO	State Historic Preservation Office
SW3P	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TAQA	Traffic Air Quality Analysis
TARL	Texas Archeological Research Laboratory
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TxDOT	Texas Department of Transportation
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USIBWC	U.S. International Boundary and Water Commission
VMT	Vehicle-Miles Traveled
VPD	Vehicles per Day

1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) proposes to widen State Highway (SH) 46 in Comal County, Texas, from two to six lanes with a raised median, beginning at Farhills Drive and continuing east to Farm-to-Market (FM) 3159, approximately 6 miles. The purpose of this Environmental Assessment (EA) is to study the potential environmental consequences of the proposed project and determine whether such consequences warrant preparation of an Environmental Impact Statement (EIS). **Appendix A** provides the project location maps.

This EA has been prepared to comply with both TxDOT's environmental review rules and the National Environmental Policy Act (NEPA). This EA will be made available for public review and following the comment period, TxDOT will consider any comments submitted. If TxDOT determines that there are no significant adverse effects, it will prepare and sign a Finding of No Significant Impact, which will be made available to the public.

The proposed project has been developed in accordance with the procedural provisions of NEPA, the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA*, Code of Federal Regulations (CFR) Title 23 Highways Part 771 *Environmental Impact and Related Procedures*, the Federal Highway Administration's (FHWA) Technical Advisory T 6640.8A and the Texas Administrative Code (TAC) Title 43 Part 1 Chapter 2 *Environmental Review of Transportation Projects*. In addition, all planning, design, and environmental documents are being developed in accordance with applicable State and Federal laws and with TxDOT's Memoranda of Understanding (MOU) and Programmatic Agreements (PA) with the Texas Historical Commission (THC), the Texas Parks and Wildlife Department (TPWD), and the Texas Commission on Environmental Quality (TCEQ).

The project team, which included planners, engineers, natural and social scientists, and NEPA professionals, used a systematic interdisciplinary planning and design approach that integrated natural, social, and environmental sciences. The planning process was based on need and purpose, project objectives, and engineering and environmental constraints in the project area. In addition, public involvement played an integral part in project development, and project cost and funding were considered. These planning strategies were used in the formulation and analysis of the proposed project alternatives.

2.0 PROJECT DESCRIPTION

2.1 Existing Facility

The existing SH 46 facility within the project limits is a two-lane, undivided roadway. Lane widths are approximately 12 feet with shoulders of varying widths. Existing right of way (ROW) is approximately 100 feet. The posted speed limit varies from 35 miles per hour (mph) to 65 mph. Photographs of the existing facility can be found in **Appendix B**.

2.2 Proposed Facility

The proposed SH 46 project would widen the roadway from its existing two-lane highway to two different configurations. The curbed with storm drain configuration, constructed in the more developed areas, would consist of six 11-foot travel lanes with a 16-foot raised median. The

roadway would have 5-foot bike lanes and 6-foot sidewalks to accommodate cyclists and pedestrians. Drainage would be via underground storm sewer. Typical ROW width of the curbed with storm drain configuration would be 130 feet. The other configuration, a curbed with grass-lined open-ditch configuration, would be constructed in less developed areas and would consist of six 11-foot travel lanes with a 16-foot raised median. The roadway would have 5-foot bike lanes and 6-foot sidewalks to accommodate cyclists and pedestrians. Drainage would be via grass-lined open ditches. Typical ROW width for the curbed with grass-lined open-ditch configuration would be 170 feet. Additional ROW would be required for both roadway configurations. A grade-separated intersection would be constructed at SH 46 and FM 3159. The project would transition back to the existing two-lane configuration east of FM 3159. The proposed project speed limit would be posted at 35-45 mph. The proposed project would not be tolled.

Federal regulations require that federally funded transportation projects have logical termini. 23 CFR 771.111(f)(1). 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 proposed project limits serve as logical termini for the project. Farhills Drive and FM 3159 are considered rational end points for the proposed project (traffic generators and major intersecting highways).

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. 23 CFR 771.111(f)(2). This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built. The proposed project would have independent utility (e.g., the facility would function on its own without further construction of an adjoining segment). Because the 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. 23 CFR 771.111(f)(3). This means that a project must not dictate or restrict any future roadway alternatives. Because the project stands alone, it does not dictate or restrict any future roadway alternatives for other reasonably foreseeable transportation improvements.

Currently, two of the three project CSJs (0215-07-027 and 0215-01-044) are is listed in “Mobility 2040,” the Alamo Area Metropolitan Planning Organization’s Metropolitan Transportation Plan (MTP). The listed CSJs include the sections from Farhills Drive to US 281 and from US 281 to Bentwood Drive. The third CSJ (0215-01-051) from Bentwood Drive to FM 3159 is not listed. None of the project CSJs are included in the 2017-2020 Transportation Improvement Program (TIP). Final action will not be taken on this environmental document until the proposed project is consistent with both the current conforming MTP and TIP. The MTP listing is included in **Appendix E.**

Construction cost is estimated at $84,500,000 and would be federally funded.

The proposed SH 46 design layout can be seen in **Appendix C** and typical sections can be seen in **Appendix D**.

3.0 PURPOSE AND NEED

3.1 Need

This project is needed because SH 46 between Farhills Drive and FM 3159 is inadequate to meet current and future traffic volumes, resulting in congestion and reduced mobility.

3.2 Supporting Facts and/or Data

According to the Alamo Area Metropolitan Planning Organization, the population of Comal County is projected to increase from approximately 108,000 in 2010 to approximately 260,000 by 2040, a 140% increase. The Annual Average Daily Traffic (AADT) for SH 46 in the project area ranges from 13,300 to 25,900 vehicles per day (VPD) for the year 2016 and the projected AADT ranges from 22,700 to 44,200 for the year 2039. Based on traffic projections and without improvements, the SH 46 corridor would operate at a Level of Service (LOS) of F by the year 2019. LOS is ranked from A (best) to F (worst).

3.3 Purpose

The purpose of the proposed project is to improve mobility on SH 46 between Farhills Drive and FM 3159 to accommodate current and future traffic volumes.

4.0 ALTERNATIVES

4.1 Build Alternative

The preferred Build Alternative would meet the purpose and need by increasing capacity to meet current and future traffic volumes. In addition, the preferred Build Alternative would provide bike lanes and sidewalks for cyclists and pedestrians, improve sight distances and reduce conflicts of turning and crossing vehicles by constructing raised medians within the project limits.

4.2 No-Build Alternative

The No-Build Alternative would not accommodate current and future traffic volumes. This alternative would not meet the purpose and need of the project. Therefore, the build alternative is the preferred alternative.

4.3 Preliminary Alternatives Considered

Three Build Alternatives (1 through 3) and the No Build Alternative were developed and analyzed at an equal level of detail. Criteria used in the alternatives analysis to eliminate some of the alternatives were ROW requirements, displacement of residences and businesses, other social, economic, and environmental impacts and construction cost. The three Build Alternatives are based on two typical sections described below:

Alternative 1 – Alternative 1 is a curbed with storm drain section consisting of six 11-foot lanes (three in each direction), 5-foot outside bike lanes, a 16-foot raised median and 6-foot sidewalks on each side. Typical ROW width is 130 feet. Roadway drainage would be accomplished using underground storm sewers. This alternative offers the advantage of a smaller footprint which reduces the amount of additional ROW required, impacts to adjacent properties and other environmental impacts. The installation of underground storm sewers results in a higher construction cost.

Alternative 2 – Alternative 2 is a curbed with grass-lined open-ditch section consisting of six 11-foot lanes (three in each direction), 5-foot outside bike lanes, a 16-foot raised median and 6-foot sidewalks on each side. Typical ROW width is 170 feet. Roadway drainage would be accomplished using grass-lined open ditches. This alternative offers the advantage of a lower construction cost (grass-lined open ditches cost less than buried storm sewer) and improved water quality as the grass-lined open ditches provide filtering of pollutants from stormwater. Alternative 2 does require a larger footprint which increases the amount of additional ROW required, impacts to adjacent properties and other environmental impacts

Alternative 3 – Alternative 3 uses a combination of the Alternative 1 and 2 typical sections along the project length. In the more urban and developed portion of SH 46, the curbed with storm drain section would be constructed to minimize impacts to adjacent properties, residences and businesses. In undeveloped portions of the project area, the curbed with grass-line open-ditch section would be constructed to reduce overall construction cost and provide water quality benefits. Typical ROW would vary between 130 and 170 feet.

All three alternatives would meet the stated purpose and need of the project. Alternative 3 maximizes the benefits and minimizes the impacts of Alternatives 1 and 2 and was selected to be carried forward for further study as the preferred build alternative. The preferred build alternative was designed to minimize displacements and other impacts to adjacent properties by taking ROW from the north, the south or both sides of SH 46 depending on adjacent land uses.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In support of this EA, the following technical reports were prepared:

- Archeological Resources Background Study
- Biological Evaluation Form and Tier I Site Assessment
- Biological Technical Report
- Community Impacts Assessment Technical Report Form
- Golden-cheeked Warbler (*Setophaga* [+*Dendroica*] *chrysoparia*) Effect Determination Justification Report
- Hazardous Materials Initial Site Assessment
- Historic Studies Research Design & Survey Report

- Noise Technical Report
- Project Coordination Request for Historical Studies Project
- Public Meeting Summary Report
- Scope Development Tool

These technical reports may be inspected and copied upon request at the TxDOT San Antonio office.

5.1 Right-of-Way/Displacements

The preferred build alternative would require approximately 54 acres of additional ROW and result in one commercial displacement, Comal County Tacos located at 15405 SH 46. In addition to this displacement, the preferred build alternative would require the relocation of two portable greenhouse structures at a nursery adjacent to SH 46, clip the gas pump canopy of the Chevron station located in the southwest corner of the SH 46 and US 281 intersection, and require the relocation of several portable structures located next to Comal County Tacos. These structures are sheds and small storage buildings advertised for sale. The proposed SH 46 design layout can be seen in **Appendix C.**

The acquisition of proposed ROW and any relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended. Relocation resources are available to all residential and business relocatees without discrimination.

The no-build alternative would not require any additional ROW and would leave the existing surrounding area intact. No displacements or relocations would occur.

There are also no temporary or permanent easements required for the preferred alternative and no-build alternative.

5.2 Land Use

The proposed project area is located within the City of Bulverde, within Comal County. The existing ROW is dedicated to transportation use. Land use surrounding the existing ROW consists of a mixture of rural, residential, and commercial uses. Near US 281, the project area is predominantly commercial with large shopping centers, strip centers and individual businesses. Traveling east or west from US 281, commercial development begins to decrease, and large-lot residential subdivisions become more typical interspersed with undeveloped land. There are six schools in the project area:

- Spring Branch Middle School (public, adjacent to SH 46)
- Arlon Seay Elementary School (public, not adjacent to SH 46)
- Bracken Christian School (private, not adjacent to SH 46)
- Bill Brown Elementary School (public, adjacent to SH 46)
- Smithson Valley High School (public, adjacent to SH 46)
- Smithson Valley Middle School (public, not adjacent to SH 46)

There are six churches in the project area:

- Hill Country Christian Church (not adjacent to SH 46)
- Heritage Baptist Church (adjacent to SH 46)
- Riverside Church (not adjacent to SH 46)
- Community Bible Church Bulverde (not adjacent to SH 46)
- Grace Fellowship Baptist Church (not adjacent to SH 46)
- The Church of Jesus Christ of Latter-day Saints (not adjacent to SH 46)

There is one library in the project area:

- Mammen Family Public Library (not adjacent to SH 46)

Project area photographs are included in **Appendix B**. Neither the preferred alternative nor the no-build alternative is expected to have land use impacts.

5.3 Farmlands

The purpose of the Farmland Protection Policy Act of 1981 (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The proposed project would convert farmland subject to the FPPA to a non-agricultural, transportation use, but the combined scores of the relative value of the farmland and the site assessment, as documented on the Natural Resources Conservation Service (NRCS) Form NRCS-CPA-106 and supporting documentation, are such that the site need not be given further consideration for protection and no additional sites need to be evaluated (see **Appendix F**).

The no-build alternative would not require any ROW or convert any farmland to a non-agricultural use.

5.4 Utilities and Emergency Services

Underground or overhead utilities would require adjustment or relocation. The location of utilities would be determined at the detailed design phase and coordination with utility owners would take place at that time. All utility adjustments would be in accordance with TxDOT, City, and County design policy guidelines. The adjustment and relocation of any utilities would be handled so that no substantial interruptions would take place while these adjustments are being made.

The proposed raised median may require emergency responders to drive past their intended destination and make a U-turn at the next median opening in order to access their destination. With improved mobility and less congestion in the project area, this change is travel patterns is not anticipated to significantly impact emergency response times.

The no-build alternative would not require any utility adjustments and there would be no access changes that could affect emergency services. However, increasing congestion could increase emergency response times.

5.5 Bicycle and Pedestrian Facilities

The project proposes to construct 5-foot bike lanes and 6-foot sidewalks along the proposed ROW along each side of SH 46. The project will accommodate bicyclists and pedestrians in compliance with TxDOT's policy and USDOT's policy statement on bicycle and pedestrian accommodation.

The no-build alternative would not provide any accommodations for cyclists or pedestrians.

5.6 Community Impacts

A Community Impacts Assessment Technical Report has been completed and is on file at TxDOT.

The proposed SH 46 project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups as SH 46 is an existing roadway. No impacts to community cohesion are anticipated. TxDOT has and will continue to facilitate communication with the public, adjacent property owners, business owners, residents, the City of Bulverde, and other public agencies with interests along SH 46.

5.6.1 Access and Travel Patterns

The proposed SH 46 project would widen the roadway from its existing two-lane highway to two different configurations. The curbed with storm drain configuration, constructed in the more developed areas, would consist of six 11-foot travel lanes with a 16-foot raised median. The other configuration, a curbed with grass-lined open-ditch configuration, would be constructed in less developed areas and would consist of six 11-foot travel lanes with a 16-foot raised median. Both roadway configurations would have 5-foot bike lanes and 6-foot sidewalks to accommodate cyclists and pedestrians. Access will be maintained to all adjacent properties; however, the raised median will require some modifications to travel patterns as left turns would only be allowed at designated median openings (primarily cross streets and large commercial development driveways). Median openings occur with higher frequency in the more developed areas of the project but are also occur regularly in the less developed areas. The raised median may require some drivers to drive past their intended destination and make a U-turn at the next median opening in order to access their destination. With improved mobility and less congestion, changes in access and travel patterns are not anticipated to have an adverse impact on the community.

5.6.2 Community Cohesion

SH 46 currently exists as an east-west roadway through the City of Bulverde and Comal County. The proposed project would widen SH 46 but is not anticipated to adversely affect community cohesion as the community is already divided by the roadway. While travel patterns may change due to the raised median proposed as part of the proposed project, access to other parts of the community will be maintained. Users will benefit from the improved mobility and less congestion in the project area. The change is travel patterns due to the raised median is not anticipated to adversely impact access to the community or participation in local activities. Sidewalks and bike lanes are part of the proposed project which would improve access for pedestrians and cyclists and their ability to participate in local activities. No adverse impacts to community cohesion are anticipated as a result of the proposed project.

5.6.3 Environmental Justice (EJ)

For this analysis, an environmental justice population is present when the total minority population percentage equals or exceeds 50 percent. The 35 Census Blocks in the study area exhibit minority percentages that range from 0 to 96 percent. Two of the 35 Census Blocks have minority populations that exceed 50 percent. Block 1003 has a population of 50 people, 48 of whom are considered minority (96%). Block 2027 has a population of 4 people, 3 of whom are considered minority (75%). These two Blocks represent less than 4 percent of the total Census Block population in the study area.

The comparisons of Census Block Groups indicate the area encompassing the proposed project is populated largely by non-minority populations. One of the five Census Block Groups in the project area has a total minority population exceeding 50 percent. Census Block Group 3107.04-3 has a population of which approximately 66% identify as Hispanic or Latino. Minorities comprise approximately 16% of the total Block Group population.

None of the project area Census Tracts were reported to have a median household income below $25,100, the 2018 poverty guideline for a family of four set by the U.S. Department of Health and Human Services (DHHS).

Any adjacent EJ populations and all the users of SH 46 would benefit from the proposed improvements to SH 46. No residential displacements and only one commercial displacement would occur because of the proposed project. Although some EJ communities exist within the study area, the proposed project would not result in disproportionately high and adverse impacts to EJ populations.

5.6.4 Limited English Proficiency

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

Of the 16,655 people within the three Census Tracts, approximately 5 percent speak English less than “very well.” Windshield surveys during field visits indicated signage adjacent to SH 46 is presented in English. A public meeting was held on March 3, 2016. Reasonable steps were taken to ensure that all persons have meaningful access to the programs, services, and information TxDOT provides. Public involvement information and/or materials were made available in English and Spanish, and a translator (for language or other special communication needs) was available upon request. LEP persons were provided the opportunity for meaningful involvement in the NEPA process and accommodations for LEP persons will continue to be offered as necessary

throughout the environmental process. Therefore, the requirements of EO 13166 appear to be satisfied.

5.7 Visual and Aesthetic Impacts

Any environmental effects anticipated may result from the proposed SH 46/FM 3159 grade separation, additional highway lighting systems, and other visual elements introduced to the corridor. Elevated lanes may impact visual quality and aesthetics by blocking the line-of-sight for sensitive viewers and by increasing viewer exposure. Roadway lighting systems can sometimes cause disruptions to adjacent neighborhoods by creating higher light levels at night.

Visual and aesthetic resources within the project area were identified through field survey. Most of the visual and aesthetic resources within the project area are undeveloped land and open spaces. Most residences are set back from the roadway. Commercial areas are visible in the urbanized sections of the project area, and individual properties of these types occur occasionally throughout the corridor.

Temporary impacts on the visual character of the surrounding environment related to construction activities include those related to vehicle and equipment activity, construction staging, stockpiling of excavated material, temporary signage, and traffic congestion. Developed and naturally vegetated areas within the existing and proposed ROW may be cleared for the construction of the roadway lanes, and topography would be modified to fill slope and cut slopes for retaining walls. Construction activities would result in increased levels of dust, indirect transfer of dirt between locations, and localized glare from lighting sources assembled to ensure the safety of construction crews and vehicle drivers. Staging areas would be located away from visually sensitive areas where practicable and where land is available. Construction activities would be primarily limited to daylight hours to eliminate the need to use high-wattage lighting sources to operate during nighttime hours. Revegetation would take place in areas disturbed during construction.

The construction of the proposed project would permanently change views and the visual quality of the corridor due to an expanded roadway width and a new grade separation at FM 3159. Removal of vegetation in the form of trees and shrubs along the new ROW would result in a reduction of vegetative screening. Additional light impacts may result from new illumination. Widening of the roadway in new ROW would result in some homes and businesses being located closer to the roadway.

Overall, the proposed SH 46 project would not have substantial impacts on visual quality and aesthetics.

The no-build alternative would not introduce any new visual elements. The roadway would remain in its present condition and there would be no visual or aesthetic impacts.

5.8 Cultural Resources

Cultural resources include structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, NEPA and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. In addition, state laws such as the Antiquities Code of Texas apply to these projects. Compliance with these laws often requires consultation with the THC/Texas State Historic Preservation Officer (SHPO) and/or federally-recognized tribes to determine the project's effects on cultural resources. Review and coordination of this project followed approved procedures for compliance with federal and state laws. Evaluation of impacts to cultural resources has been conducted in accordance with the Programmatic Agreement among FHWA, TxDOT, SHPO, and the Advisory Council on Historic Preservation regarding the Implementation of Transportation Undertakings.

5.8.1 Archeology

An archeological resources background study has been prepared.

A review of the Texas Archeological Sites Atlas maintained by the THC and the Texas Archeological Research Laboratory (TARL) was conducted in order to identify archeological sites, Recorded Texas Historic Landmarks (RTHLs), properties or districts listed on the National Register of Historic Places (NRHP), State Antiquities Landmarks (SALs), cemeteries, or other cultural resources that may have been previously recorded in the Area of Potential Effects (APE), as well as previous surveys undertaken in the area. Based on the review of the background study and the project area, TxDOT archeologists recommended no further work prior to construction.

A request for consultation was sent on August 19, 2016 to the following tribal consulting parties: Apache Tribe of Oklahoma, Caddo Nation of Oklahoma, Comanche Nation of Oklahoma, Kiowa Indian Tribe of Oklahoma, Mescalero Apache Tribe, Tonkawa Tribe of Indians of Oklahoma, and Wichita and Affiliated Tribes. The comment period ended on September 19, 2016 with no objections. A request for consultation was also sent on August 19, 2016 to the following tribal consulting parties: Kickapoo Traditional Tribe of Texas and Kickapoo Tribe of Oklahoma. The comment period ended on September 19, 2016 with no objections/response.

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

The no-build alternative would not require any ground disturbance or potential impacts to archeological resources.

5.8.2 Historic Properties

A search of the Texas Historic Sites Atlas maintained by the THC was conducted in order to identify properties or districts listed on the NRHP, National Historic Landmarks (NHLs), RTHLs, Official Texas Historical Markers (OTHMs), cemeteries, or other cultural resources that may have

been previously recorded in the APE, defined as all parcels intersected by a 150-foot buffer from the existing ROW. No previously identified resources were found within the APE.

A Federal Aid Highway Marker is present on SH 46 just east of US 281. Due to the nature of the project and the potential ROW acquisition, a historic resources survey was performed. No properties listed in or eligible for listing in the National Register of Historic Places were identified within the project limits.

The no-build alternative would not any ROW acquisition or property impacts. The roadway would remain in its present condition and there would be no impacts to historic properties.

5.9 DOT Act Sect. 4(f), LWCF Act Sect. 6(f) and PWC Chapter 26

The proposed project would not require the use or substantially impair the purposes of any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands or historic sites of national, State, or local significance; therefore, a Department of Transportation (DOT) Act Section 4(f) evaluation would not be required. No parks or recreation areas improved through the Land and Water Conservation Fund (LWCF) would be impacted by the proposed project; therefore, LWCF Act Section 6(f) would not apply. No resources protected by Parks and Wildlife Code (PWC) Chapter 26 would be impacted by the proposed project; therefore, PWC Chapter 26 would not apply. Neither the build nor the no-build alternative would have an impact on these resources.

5.10 Water Resources

5.10.1 Clean Water Act, Section 404

The U.S. Army Corps of Engineers (USACE) regulates impacts to jurisdictional waters, including waters of the U.S. and wetlands, under Section 404 of the Clean Water Act (CWA).

Eleven waters were identified within the existing and proposed ROW during field investigations performed in February 2016 and October 2016. These waters are all small ephemeral drainages that flow only after rain events. Each of the 11 drainages is considered a single and complete crossing and impacts at each are less than 0.1 acre. No wetlands were identified within the project limits. Impacts would be limited to replacing and extending existing culverts at each location. Nationwide Permit 14 (Linear Transportation Projects) would cover all impacts associated with the project and no Pre-construction Notification (PCN) would be required. These 11 waters can be seen in **Appendix F** and are summarized in Table 1 below.

Table 1: Waters of the U.S.

Drainage Number	Linear Feet of Impact	Area of Impact (acres)	NWP Number	PCN Required?
1	59	0.01	NWP 14	No
2	110	0.05	NWP 14	No

Drainage Number	Linear Feet of Impact	Area of Impact (acres)	NWP Number	PCN Required?
3	63	0.01	NWP 14	No
4	35	<0.01	NWP 14	No
5	110	0.01	NWP 14	No
6	125	0.01	NWP 14	No
7	118	0.01	NWP 14	No
8	175	0.06	NWP 14	No
9	47	0.01	NWP 14	No
10	58	0.01	NWP 14	No
11	165	0.02	NWP 14	No

The no-build alternative would not involve any construction or impacts to Waters of the U.S. and no Section 404 permitting would be required.

5.10.2 Clean Water Act, Section 401

This project would require a USACE Section 404 Permit; therefore, Section 401 Water Quality Certification would be required.

Each drainage crossing would impact less than 1,500 linear feet of stream and/or 3 acres of waters of the U.S. and would not affect rare/ecologically significant wetlands. The Tier I 401 Certification requirements for NWP 14 would be met by implementing approved erosion controls, sediment controls, and post-construction TSS controls. No long-term water quality impacts are expected because of the proposed project.

The design and construction of the proposed improvements would include construction and post-construction TCEQ 401 Water Quality Best Management Practices (BMP's) to manage storm water runoff and control sediments.

A USACE NWP is required. BMPs would include temporary vegetation, blankets/matting and/or sod for erosion control, vegetative filter strips for post-construction total suspended solids (TSS) controls and silt fencing for sediment control.

No adverse effects to groundwater are expected to occur as groundwater would not be required for this project. The proposed project is not expected to alter rainfall drainage patterns or contaminate or otherwise adversely affect the public water supply, water treatment facilities, or water distribution systems.

The no-build alternative would not require any Section 404 permitting. The roadway would remain in its present condition and there would be no impacts to water quality.

5.10.3 Executive Order 11990 Wetlands

EO 11990 does not apply to the proposed SH 46 project because no wetlands would be impacted. Neither the build nor the no-build alternative would have an impact on wetlands.

5.10.4 Rivers and Harbors Act

The proposed project would not cross a navigable waterway. Therefore, the project would not require a permit from the U.S. Coast Guard under section 9 of the River and Harbors Act or a permit from USACE under Section 10 of the Rivers and Harbors Act. Neither the build nor the no-build alternative would have an impact on navigable waterways.

5.10.5 Clean Water Act, Section 303(d)

The Texas Surface Water Quality Standards (TSWQS), which apply to all surface water features in the State, are promulgated in Title 30, Chapter 307, of the TAC. These standards are approved by the EPA in accordance with Section 303C of the CWA and updated every three years to accommodate new developments or updated information. In the State of Texas, water quality inventory information provided by the TSWQS is assimilated and grouped by river basin. To track water quality and compliance with the standards, the TCEQ's Surface Water Quality Monitoring Program further divides the State's larger surface water features in those river basins into defined (classified) segments and assesses them according to the criteria specified in the TSWQS. Smaller features, although not defined as segments, are likewise monitored, but sufficient data are not available to develop the more conventional criteria.

Formerly called the "Texas Water Quality Inventory and 303(d) List," the 2016 "Texas Integrated Report for CWA Sections 305(b) and 303(d)" or known simply as the "Integrated Report", evaluates the quality of surface waters in Texas, and provides resource managers with a tool for making informed decisions when directing agency programs.

Runoff from this project would not discharge directly into a Section 303(d) listed threatened or impaired water, or into a stream within 5 miles upstream of a Section 303(d) listed threatened or impaired water. The 2016 Texas Integrated Report of Surface Water Quality for Clean Water Act, Sections 305(b) and 303(d) was utilized in this assessment. Neither the build nor the no-build alternative would have an impact on impaired waters.

5.10.6 Clean Water Act, Section 402

Since TPDES Construction General Permit (CGP) authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the project. The Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a storm water pollution prevention plan (SWP3) be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of

intent or site notice) by completed, posted, and submitted, when required by the CGP, to TCEQ and the municipal separate storm sewer system (MS4) operator. 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.

5.10.7 Floodplains

The project crosses the 100-year Federal Emergency Management Agency (FEMA) floodplain associated with a tributary of Lewis Creek immediately east of US 281 (**Appendix A – Exhibit C** and **Appendix F**).

The project is located entirely within Comal County, which is a participant in the National Flood Insurance Program (NFIP). According to FEMA Flood Insurance Rate Maps (FIRM) (Flood Hazard Boundary Map Community Panel Number 48191C0220F, approximately 140 linear feet of the floodplain associated with the tributary would be crossed by the proposed project. EO 11988 "Floodplain Management" requires federal agencies to "identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain." Due to the minimal extent of the floodplain in the project area, there are no practicable routes that would avoid floodplain encroachments.

The hydraulic design for this project would be in accordance with current FHWA and TxDOT design policies. The facility would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the facility or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. The design of the roadway would maintain floodplain connectivity and would minimize impacts to natural and beneficial floodplain values. Any proposed development actions by others would be subject to the permitting and coordination requirements of local floodplain ordinances. Efforts would be made to minimize the permanent impact to the floodplain to the extent practicable during detailed design. As natural and beneficial floodplain values are not anticipated to be affected, no specific measures to restore and preserve these values are proposed. However, construction in this floodplain is regulated by the Comal County Floodplain Administrator. Therefore, coordination with the Administrator would be required before construction.

The no-build alternative would not require any work in floodplains. The roadway would remain in its present condition and there would be no impacts to floodplains.

5.10.8 Wild and Scenic Rivers

This project would not involve work near any designated Wild and Scenic River; therefore, no impacts would occur. Neither the build nor the no-build alternative would have an impact on wild and scenic rivers.

5.10.9 Coastal Barrier Resources

The Coastal Barrier Resources Act (CBRA) established the Coastal Barrier Resources System (CBRS) to protect a defined set of geographic units along the coast of the U.S.

This project is not located within a designated CBRA map unit. Coordination with the U.S. Fish and Wildlife Service (USFWS) is not required. Neither the build nor the no-build alternative would have an impact on coastal barrier resources.

5.10.10 Coastal Zone Management

This project is not located within the Texas Coastal Management Area. Neither the build nor the no-build alternative would have an impact on the coastal zone.

5.10.11 Edwards Aquifer

The proposed project is located within the contributing Zone of the Edwards Aquifer and 2.6 miles north and west of the Recharge Zone. As impacts to water quality could occur during construction and operation phases, the following regulations, permits and requirements apply:

- Coordination with the TCEQ would be required based on the 2013 MOU between TxDOT and the TCEQ.
- A Contributing Zone Plan (CZP) would be required; however, a geologic assessment would not be required.
- The project would comply with stipulations in the Construction General Permit.
- The project would require the development and implementation of a Stormwater Pollution Prevention Plan to address construction-phase impacts.
- BMPs and other design considerations would be implemented to ensure water quality impacts would be avoided or minimized to the extent practicable.
- Disturbed areas would be permanently stabilized, and operation-phase impacts would be addressed through the development of permanent BMPs (e.g. vegetated filter strips).

The no-build alternative would not require any construction or ground disturbance. The roadway would remain in its present condition and there would be no impacts to the aquifer.

5.10.12 International Boundary and Water Commission

This project does not cross or encroach upon the floodplains of any U.S. International Boundary and Water Commission (USIBWC) flood control projects or ROW; therefore, a license or permit from the USIBWC is not needed. Neither the build nor the no-build alternative would have an impact on USIBWC projects or ROW.

5.10.13 Drinking Water Systems

Eight water wells are located within 100 feet of the proposed project; however, there are no water wells located within the proposed project ROW. No source water protection areas were identified within the project area. As discussed in Sections 5.10.2 and 5.10.11, BMPs and other design considerations would be implemented to ensure water quality impacts would be avoided or minimized to the extent practicable and to prevent stormwater runoff from entering groundwater aquifers at wellheads. Neither the build nor the no-build alternative would have an impact on drinking water systems.

5.11 Biological Resources

A Biological Evaluation Form and Technical Report have been completed for the proposed project and are on file at TxDOT. The results are summarized below.

5.11.1 Texas Parks and Wildlife Coordination

A Biological Evaluation Form was completed which contains a Tier I Site Assessment in accordance with TxDOT's 2013 MOU with TPWD to determine whether coordination with TPWD would be required for the proposed project. The result was that the proposed project did require coordination with TPWD. Coordination was initiated and is considered complete (see **Appendix G**). A copy of the Biological Evaluation Form is on file at the San Antonio District Office.

5.11.2 Impacts on Vegetation

The project area was investigated for the presence of special habitat features and unusual vegetation features as identified by the TxDOT-TPWD MOU. Field investigations took place in February and April 2016. Vegetation types observed within the project area are not accurately represented by the Ecological Mapping Systems of Texas (EMST) (MoRAP 2013). The project area is dominated by Low Intensity Urban and Edwards Plateau: Live Oak-Ashe Juniper Woodland EMST vegetation types. The project area also includes relatively small areas best described as Edwards Plateau: Live Oak-Ashe Juniper Shrubland, Edwards Plateau: Live Oak Motte and Woodland, and Edwards Plateau: Savannah Grassland.

No rare plant communities, as identified by the Texas Conservation Action Plan (TCAP), are mapped as occurring within or adjacent to the project area (TPWD, 2012).

Special Habitat Features – Special habitat features can include bottomland hardwoods, caves, cliffs and bluffs, native prairies, seeps or springs, snags or groups of snags, existing bridges with known or observed bird or bat colonies, rookeries, and prairie dog towns. No special habitat features occur within the existing project ROW.

Unusual Vegetation Features – Unusual vegetation features can include unmaintained vegetation, fencerow vegetation, riparian vegetation, significant (historically or ecologically) or locally important trees, or unusual stands or islands of vegetation. Unusual vegetation features identified within the project area include unmaintained vegetation composed of Edwards Plateau Savannah, Woodland and Shrubland, and disturbed prairie vegetation types. Impacts to these vegetation features would be minimized to the extent practicable during the design phase of the project.

The no-build alternative would not require any removal or disturbance of vegetation. The roadway would remain in its present condition and there would be no impacts to vegetation.

5.11.3 Executive Order 13112 on Invasive Species

This project is subject to and will comply with federal Executive Order 13112 on Invasive Species. The department implements this Executive Order on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

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, effective April 26, 1994. The department implements this Executive Memorandum on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

5.11.5 Impacts to Wildlife

Wildlife located within the vicinity of the project area may include those common species normally found in rural and urban areas. The species for this area may include squirrels, rabbits, raccoons, migratory songbirds, and various rodents. Other species could include opossums, frogs, lizards and snakes. Any disturbance beyond the normal conditions of the project area is expected to be limited to the immediate vicinity of construction of the proposed project.

The no-build alternative would not require any removal or disturbance of vegetation or wildlife. The roadway would remain in its present condition and there would be no impacts to vegetation or wildlife.

5.11.6 Migratory Bird Treaty Act (MBTA)

The MBTA states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance within the Act's policies and regulations. A site survey did not identify active nests within the project action area. TxDOT would take all appropriate actions to prevent the take of migratory birds, their active nests, eggs, or young using proper phasing of the project or other appropriate actions. A MBTA appropriate Environmental Permits, Issues, & Commitments (EPIC) will be included in the Plan Specification and Estimates (PS&E).

The no-build alternative would not require any removal or disturbance of migratory birds, their nest or their young. The roadway would remain in its present condition and there would be no impacts to migratory birds.

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. This coordination is required whenever a project involves impounding, diverting, or deepening a stream channel or other body of water. The proposed project is authorized under a Section 404 of the Clean Water Act Nationwide Permit; therefore, no coordination under the FWCA would be required.

The no-build alternative would not require permitting under Section 404. The roadway would remain in its present condition and there would be no impacts to any water bodies.

5.11.8 Bald and Golden Eagle Protection Act of 2007

The Bald and Golden Eagle Protection Act of 2007 applies to project with the potential to take Bald or Golden Eagles. As the project is not within the range and suitable habitat is not present, neither the build nor the no-build alternative would have an impact on Bald or Golden Eagles.

5.11.9 Magnuson-Stevens Fishery Conservation Management Act

Essential fish habitat is defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Tidally influenced waters do not occur within the project action area. Coordination with National Marine Fisheries Service (NMFS) is not required. Neither the build nor the no-build alternative would have an impact on essential fish habitat.

5.11.10 Marine Mammal Protection Act

Marine mammals are protected under the Marine Mammal Protection Act (MMPA). The Texas coast provides suitable habitat and is within range of several marine mammals including the West Indian Manatee (Trichechus manatus), and bottlenose dolphin (Tursiops truncatus). The project area does not contain suitable habitat for marine mammals. Coordination with NMFS is not required. Neither the build nor the no-build alternative would have an impact on marine mammals or their habitat.

5.11.11 Threatened, Endangered and Candidate Species

The Endangered Species Act (ESA) affords protection for federally listed threatened and endangered species and their habitats. State law prohibits direct harm to state-listed species. Species of Greatest Conservation Need (SGCNs) are designated by TPWD and may be either federally listed or state-listed species or have no regulatory listing status.

No suitable habitat was observed for any federally listed species; therefore, there would be no effect on federally listed species. However, measures to avoid harm to any threatened and endangered species would be taken should they be observed during construction of the proposed project. Coordination with the USFWS would not be required. The USFWS IPaC website was accessed on October 10, 2016, and April 26, 2018. A detailed review of the potential for golden-cheeked warbler habitat is documented in the Golden-cheeked Warbler (*Setophaga* [=*Dendroica*] *chrysoparia*) – Effect Determination Justification report. The report concludes that:

- The project area lacks the abundance of old growth Ashe junipers and contiguous habitat void of edge required by the species.
- The Live Oak-Ashe Juniper Woodland vegetation has been highly modified by ranching and has undergone selective Ashe juniper removal.
- The entire corridor is abutted by urban development, creating a long stretch of edge habitat adjacent to SH 46.
- The topography for the project area is characterized by relatively flat to rolling uplands, which are not preferable for the species.

- A very minimal number of potentially mature Ashe juniper trees, that the species requires for nest construction, were observed in the project area.
- No suitable nesting habitat occurs within the project area.

The project is within range of and contains potentially suitable habitat for the following SGCNs: bracted twistflower (*Streptanthus bracteatus*) (also a candidate for federal listing), Buckley tridens (*Tridens buckleyanus*), Glass Mountain coral-root (*Hexalectris nitida*), gravelbar brickellbush (*Brickellia dentata*), Heller's marbleseed (*Onosmodium helleri*), Hill Country wild mercury (*Argythamnia aphoroides*), narrowleaf brickellbush (*Brickellia epatorioides var. gracillima*), Plateau loosestrife (*Lythrum ovalifolium*), Plateau milkvine (*Matelea edwardsensis*), Texas almond (*Prunis minutiflora*), Texas amorpha (*Amorpha roemeriana*), Texas barberry (*Berberis swaseyi*), Texas fescue (*Festuca versuta*), Texas seymeria (*Seymeria texana*), tree dodder (*Cuscuta exaltata*), Edwards Plateau spring salamander (*Eurycea sp. 7*), Texas garter snake (*Thamnophis sirtalis annectens*), cave myotis bat (*Myotis velifer*), Western Burrowing Owl (*Athene cunicularia hypugea*), and plains spotted skunk (*Spilogale putorius interrupta*). The project is in range of the following state-listed threatened species: Cascade caverns salamander (*Eurycea latitans complex*), and Comal blind salamander (*Eurycea sp. 8*). No individuals of these species were identified during field investigations.

In accordance with the Best Management Practices Programmatic Agreement between TxDOT and TPWD Under the 2013 MOU, BMPs have been defined for implementation by TxDOT to minimize impacts to federally and state-listed species and SGCNs. Table 2 lists those BMPs related to species that may have suitable habitat in the proposed project area. There are no BMPs for aquifer dwelling species; however, if a void, which may contain habitat for underground aquatic species, is encountered during the drilling of bore holes or pouring bridge bents, the BMP listed below in Table 2 would be implemented.

Table 2: BMPs for State-Listed Species and SGCNs

Species Name	BMP
Cave myotis bat	• All bat surveys will comply with TPWD recommended white-nose syndrome protocols. • Habitat assessment by a qualified biologist to determine if bats are present. • If bats are present, take appropriate measure as practicable to ensure that bats are not harmed such as exclusion or timing activities. For maternity colonies, exclusion activities should be time to avoid separating lactating females from nursing pups. • If structures used by bats are removed as a result of construction, replacement structures should incorporate bat-friendly design, or artificial roosts should be constructed to replace these features as practicable.
Texas garter snake	• Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.

Western Burrowing Owl	• Not disturbing, destroying or removing active nests, including ground nesting birds, during the nesting season. • Avoiding the removal of unoccupied, inactive nests, as practicable. • Preventing the establishment of active nests during the nesting season on TxDOT-owned and –operated facilities and structures proposed for replacement or repair. • Not collecting, capturing, relocating or transporting birds, eggs, young or active nests without a permit.
Plains spotted skunk	• Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.
Aquifer dwelling species	• For geo-tech bore holes that encountered voids, if the void is less than 3 feet deep it would be filled with bentonite. If the void is more than 3 feet deep it would be filled with pea gravel or the area that traverses the void would be encased with a steel pipe. • For larger drill shafts, if there is a void, the void would be encased from just above its upper limit to just below its lower limit to ensure that concrete or bentonite does not fill the void and potentially adversely affect water quality for species that could use that area as habitat. Steel casings would be used during the process of pouring bridge bents to minimize impacts to voids and then the casings would be removed after the concrete sets. If voids are not encountered based on pilot holes or other information, then the steel casings would not be necessary. • If voids are discovered during construction, work will be stopped immediately, and the voids will be evaluated for the presence of aquifer dwelling species habitat.

The no-build alternative would not require ROW or disturbance to adjacent habitat. The roadway would remain in its present condition and there would be no impacts to any threatened, endangered or candidate species.

5.12 Air Quality

5.12.1 Transportation Conformity

This project is in Comal County which is an attainment or unclassifiable area for all national ambient air quality standards (NAAQS); therefore, the transportation conformity rule does not apply.

5.12.2 CO Traffic Air Quality Analysis (TAQA)

Traffic data for the proposed 2039 design year is estimated to range from 22,700 to 44,200 VPD. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that a carbon monoxide standard would ever be exceeded because of any project with an AADT below 140,000. The AADT projections for the project do not exceed 140,000 vehicles per day; therefore, a Traffic Air Quality Analysis was not required.

5.12.3 Mobile Source Air Toxics (MSATs)

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA) (https://www.epa.gov/national-air-toxics-assessment). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010.

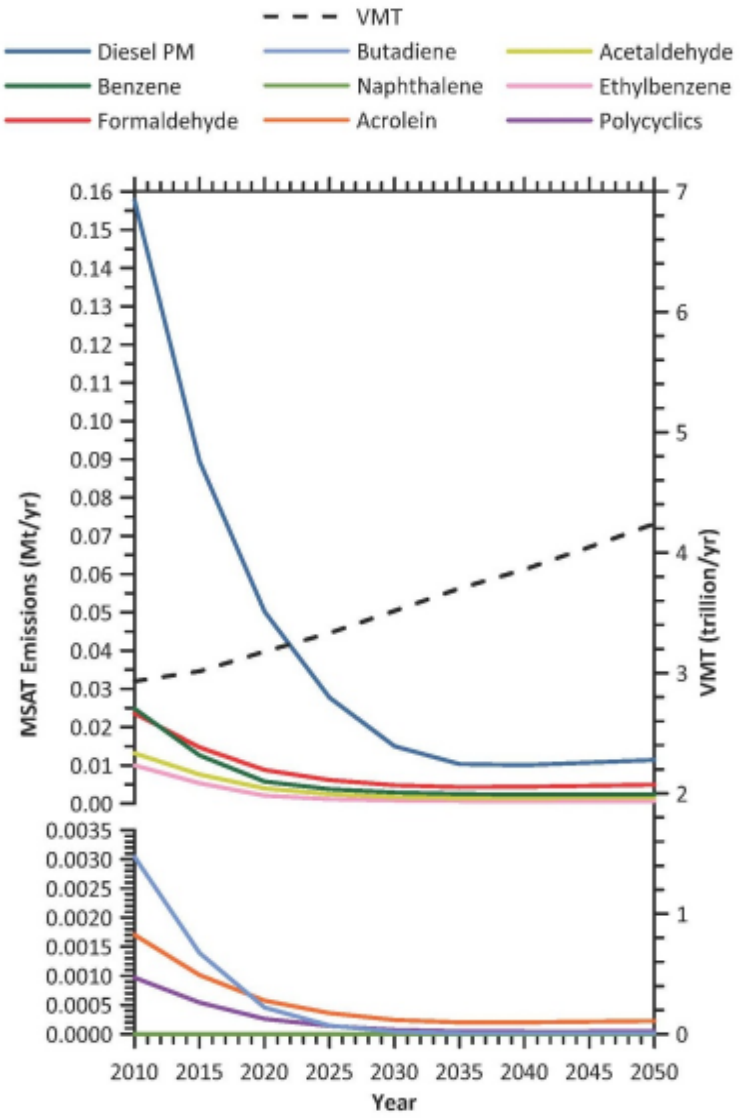
These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010.

These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344).

Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015 MOVES2014a Questions and Answers Guide (https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NNR0.txt), EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

Using EPA's MOVES2014a model, as shown in Figure 1, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Figure 1:
PROJECTED NATIONAL MSAT EMISSION TRENDS 2010 – 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA's Moves2014a Model



Source: EPA MOVES2014a model runs conducted by FHWA, September 2016.
Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorological, and other factors.

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

MSAT Research

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

Project Specific MSAT Information

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.cfm .

For each alternative in this document, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2014 model, emissions of all of the priority MSAT decrease as speed increases. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent between 2010 and 2050 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016 –

http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections in the vicinity of US 281. However, the magnitude and the duration of these potential increases compared to the No Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region- wide MSAT levels to be significantly lower than today.

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

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

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

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA

Documents (http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm). Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (EPA IRIS database, Diesel Engine Exhaust, Section II.C. https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642.htm#quainhal)."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks

from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf).

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

Conclusion

In this document, a qualitative MSAT assessment has been provided relative to the various alternatives of MSAT emissions and has acknowledged that the build alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

5.12.4 Congestion Management Process (CMP)

This project is within an attainment or unclassifiable area for ozone and CO; therefore, a project level CMP analysis is not required.

5.12.5 Construction Air Emissions

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

The potential impacts of particulate matter emissions would be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: http://www.tceq.texas.gov/airquality/terp/.

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance

with applicable regulatory 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

A Hazardous Materials Initial Site Assessment (ISA) for the proposed project has been completed and filed with TxDOT. The site assessment was conducted for the proposed project to identify sites within the project area that may have experienced soil and/or groundwater contamination by hazardous materials. The assessment consisted of a regulatory/governmental agency database records review and an onsite investigation. ROW is required from the 7-11 gas station locate at SH 46 at US 281 and proposed ROW will encroach on the Underground Storage Tanks (USTs). There is no documentation indicating that there have been any leaks or contaminate soil associated with the USTs. The impact to the tanks has been taken into effect in the parcel appraisal. The tanks would be relocated, and any potentially contaminated soil remediated. No other hazardous materials concerns were identified as a result of the ISA performed for the proposed action.

During any construction project, there exists the potential to encounter contaminated soil or water. Included in the contract would be the TxDOT standard specifications for construction that require the contractor to be familiar with and comply with all federal, state, and local laws, ordinances, and regulations related to the treatment and disposal of hazardous materials. Should hazardous materials/substances be encountered, the TxDOT San Antonio District Office would be notified, and steps would be taken to protect personnel and the environment.

The contractor would respond appropriately to prevent, minimize, and control the spill of hazardous materials in the construction staging area. The use of construction equipment, particularly the storage of fuels and chemicals, within sensitive areas, including water resources such as floodplains and streams, would be minimized or eliminated. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal, state, and local regulations per TxDOT Standard Specifications. All construction materials used for this project would be removed as soon as work schedules permit.

The no-build alternative would not require ROW or disturbance to adjacent properties. The roadway would remain in its present condition and there would be no hazardous materials impacts.

5.14 Traffic Noise

A traffic noise analysis was accomplished in accordance with TxDOT's (FHWA approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011). This analysis is documented in the Noise Technical Report which is on file at TxDOT.

As indicated in Table 3, the proposed project would result in traffic noise impacts.

Table 3: Traffic Noise Levels dB(A)Leq

Receiver	NAC Category	NAC Level	Existing 2016	Predicted 2039	Change (+/-)	Noise Impact
R4 – Residence	B	67	58	61	3	No
R5 – Residence	B	67	60	60	0	No
R6 – Residence	B	67	57	58	1	No
R7 – Residence	B	67	58	58	0	No
R8 – Residence	B	67	58	58	0	No
R9 – Residence	B	67	57	60	3	No
R10 – Restaurant	E	72	66	68	2	No
R11 – School	C	67	58	62	4	No
R12 – Residence	B	67	59	59	0	No
R13 – Residence	B	67	54	57	3	No
R14 – Residence	B	67	56	59	3	No
R15 – Residence	B	67	55	58	3	No
R16 – Residence	B	67	55	58	3	No
R17 – Restaurant	E	72	66	69	3	No
R18 – Residence	B	67	53	56	3	No
R19 – Residence	B	67	53	56	3	No
R20 – Residence	B	67	54	56	2	No
R21 – School	C	67	55	59	4	No
R22 – Restaurant	E	72	62	65	3	No
R23 – Residence	B	67	58	60	2	No
R24 – Residence	B	67	60	63	3	No
R25 – Residence	B	67	60	63	3	No
R26 – Residence	B	67	55	59	4	No
R27 – Medical Facility (interior)	D	52	44	47	3	No
R28 – Residence	B	67	62	62	0	No
R29 – Residence	B	67	59	60	1	No
R30 – Residence	B	67	57	59	2	No
R31 – Residence	B	67	58	60	2	No
R32 – Residence	B	67	58	62	4	No

Receiver	NAC Category	NAC Level	Existing 2016	Predicted 2039	Change (+/-)	Noise Impact
R33 – Residence	B	67	57	61	4	No
R34 – Residence	B	67	60	63	3	No
R35 – Residence	B	67	60	60	0	No
R36 – Residence	B	67	59	59	0	No
R37 – Residence	B	67	59	59	0	No
R38 – Residence	B	67	58	59	1	No
R39 – Residence	B	67	62	64	2	No
R40 – Residence	B	67	58	61	3	No
R41 – Residence	B	67	54	58	4	No
R42 – Residence	B	67	64	65	1	No
R43 – Residence	B	67	61	65	4	No
R44 – Residence	B	67	62	65	3	No
R45 – Residence	B	67	64	66	2	Yes
R46 – Residence	B	67	64	66	2	Yes
R47 – Residence	B	67	65	68	3	Yes
R48 – Church	C	67	62	61	-1	No
R49 – Church	C	67	62	61	-1	No
R50 – Residence	B	67	54	58	4	No
R51 – Residence	B	67	67	66	-1	Yes
R52 – Residence	B	67	68	67	-1	Yes
R53 – Residence	B	67	56	59	3	No
R54 – Restaurant	E	72	71	70	-1	No
R55 – Residence	B	67	56	59	3	No
R56 – Residence	B	67	61	63	2	No
R57 – Residence	B	67	53	54	1	No
R58 – Residence	B	67	56	58	2	No
R59 – Residence	B	67	51	53	2	No

Note: Results start with R4 because the project is phased and only results from Phase I (Farhills Drive to FM 3159) are presented in this EA.

The following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers.

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible," the abatement measure must be able to reduce the noise level at greater than 50% of impacted, first row receivers by at least five 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 five dB(A) and the abatement measure must be able to reduce the noise level at least one impacted, first row receiver by at least seven dB(A).

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

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within noise impact contours that are reported in Table 3 of the Noise Technical Report. Table 4 below summarizes the noise impact contours that are in Table 3 of the Noise Technical Report.

Table 4: Summarized 2039 Noise Impact Contours

Land Use	Impact Contour	Minimum – Maximum Distance to Nearest Proposed Travel Lane
North and South of SH 46 within the proposed project limits		
NAC Category B & C	66 dB(A)	60 – 220 feet
NAC Category E	71 dB(A)	0 – 59 feet

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of this traffic noise analysis will be available to local officials. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

If the No-Build Alternative were implemented, noise levels would be expected to increase with an associated increase in traffic volumes.

5.15 Induced Growth

Induced growth is type of indirect impact. Indirect impacts are defined as those caused by an action and are later in time or farther removed in distance, but still reasonably foreseeable. Indirect impacts are not directly associated with the construction and operation of the roadway and are often caused by related development and growth. This, in turn, can result in a variety of related impacts such as changes in land use, population density or growth rate, economic vitality, and impacts on air and water and other natural resources. Under the federal CEQ regulations, an indirect impacts analysis must identify and eliminate issues which are not significant, or which have been covered by prior environmental review, while determining which issues should be analyzed in-depth.

Based on TxDOT guidance and the Scope Development Tool prepared for this project, an indirect impacts analysis is not required for the proposed SH 46 project.

5.16 Cumulative Impacts

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. According to the CEQ's "Considering Cumulative Effects under the National Environmental Policy Act," an analysis of cumulative impacts generally includes scoping, identifying reasonably foreseeable actions, describing the effected environment, and determining the environmental consequences.

The proposed project would not have substantial direct or indirect impacts on any resource. The proposed project area has no resources in poor or declining health. According to the TxDOT Cumulative Impacts Decision Tree, if the proposed project meets these two criteria then a cumulative impact analysis is not required.

5.17 Construction Phase Impacts

The proposed project construction would require traffic control. A traffic control plan would be implemented to assure uninterrupted traffic flow during construction. Signs would be strategically placed as a method of controlling traffic during the construction activities. Ingress and egress to any affected private, governmental, commercial, or retail establishments would not be impacted and therefore would be maintained throughout the construction period. Every effort would be made to preserve as much vegetation as possible within the ROW.

During the construction phase of the proposed project, due to operations normally associated with road construction, there is a possibility that noise levels would be greater than normal in the areas adjacent to the ROW. Construction is normally limited to daylight hours when occasional loud noises are better tolerated. Due to the relatively short-term exposure periods imposed on any one receiver, extended disruption of normal activities is not considered likely. Reasonable efforts would be made to minimize construction noise.

During the construction phase of this proposed project, temporary increases in air pollutant emissions may occur from construction activities. The primary construction–related emissions are particulate matter (fugitive dust) from site preparation. These emissions are temporary in nature (only occurring during actual construction); it is not possible to reasonably estimate impacts from these emissions due to limitations of the existing models. However, the potential impacts of particulate matter 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.

The construction activity phase of this proposed project may generate a temporary increase in MSAT emissions from construction activities, equipment and related vehicles. The primary MSAT construction related emissions are particulate matter from site preparation and diesel particulate matter from diesel powered construction equipment and vehicles.

However, 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 proposed project would have any significant impact on air quality in the area.

Reasonable measures would be taken to minimize the inconvenience to the vehicles using the roadway during the construction phase. Residential and business properties would be accessible during and after construction. The proposed project would improve the safety, efficiency, and operations of the roadway.

During project development, TxDOT would design, use, and promote construction practices that minimize adverse effects on both regulated and unregulated wildlife habitat. Existing vegetation, especially native trees, would be avoided and preserved wherever practicable.

The no-build alternative does not include construction within the proposed project area. Maintenance activities would continue.

6.0 AGENCY COORDINATION

6.1 Texas Parks and Wildlife Department Coordination

A Biological Evaluation Form was completed which contains a Tier I Site Assessment in accordance with TxDOT's 2013 MOU with TPWD to determine whether coordination with TPWD would be required for the proposed project. The result was that the proposed project did require coordination with TPWD. Coordination was initiated and is considered complete (see **Appendix G**). A copy of the Biological Evaluation Form is on file at the San Antonio District Office.

7.0 PUBLIC INVOLVEMENT

TxDOT conducted a public meeting concerning the proposed SH 46 project on March 3, 2016, at the Smithson Valley High School located at 14001 SH 46 in Spring Branch, Texas.

The Notice of Public Meeting was published on February 1, 2016 in The Front Porch News, on February 17, 2016, in the Spanish-language newspaper La Prensa, and on February 18, 2016,

in the San Antonio Express News. The notice was posted on the TxDOT project website on February 11, 2016. A copy of the notice in English and Spanish was mailed to 144 adjacent property owners and businesses who had expressed interest about the proposed project. E-mail notifications were sent to 344 stakeholders on February 5, 2106. Two additional reminder e-mails were sent to 365 stakeholders on February 16, 2016, and to 378 stakeholders on February 29, 2016. TxDOT placed mobile message boards within the project limits from February 25, 2016 through March 3, 2016, with meeting details.

The public meeting was held from approximately 5:30 p.m. to 7:30 p.m. in an open house format. Registration desks were located at the entrances of the room where attendees were invited to sign-in. Each person was provided with a pre-addressed comment form to share their thoughts regarding the proposed project. Over 220 members of the public signed in at the public meeting.

Three copies of the proposed project schematic were displayed on tables. Large scale exhibits showing project information, environmental constraints, existing and proposed typical sections, etc. were also displayed. A PowerPoint presentation ran on a continuous loop to provide information about the project. Project team members were available at each station to answer questions. Representatives of the TxDOT Right-of-Way Division were present to answer questions. A court reporter was also present to record any verbal comments attendees wished to make. All verbal questions and comments were immediately responded to at the meetings.

Comment forms and e-mails were received during the comment period following the public meetings. Many comments stated support for the proposed project. Most of the concerns and issues raised were regarding access to adjacent properties and impacts to business and personal property.

A Public Meeting Summary Report for the proposed project containing all the public comments and TxDOT responses has been completed and filed with TxDOT.

In addition to the public meeting, multiple stakeholder meetings and meetings with affected property owners have been conducted and continue to be conducted. A public hearing is planned for the proposed project.

8.0 ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

8.1 Mitigation and Monitoring Commitments

Construction inspectors would monitor the construction phase of this proposed project. Table 5 provides a list and brief explanation of the mitigation and monitoring activities that are part of the recommended Preferred Alternative.

Table 5: Mitigation and Monitoring Commitments

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
ROW Acquisition	Relocations	ROW acquisition and relocation would be conducted in accordance with the Federal Uniform Relocation and Real Property Acquisition Policies Act of 1970 (Uniform Act).
Noise	Traffic Noise Levels Would Impact Residential Areas	Noise barriers were not found to be feasible and reasonable.
Pedestrians and Bicycles	Additional Pedestrian Traffic	Five-foot bike lanes and 6-foot sidewalks are proposed as part of the SH 46 project to accommodate cyclists and pedestrians.
Water Quality	Storm Water Runoff from Construction	At least one BMP from each of the three categories of onsite water quality management (erosion control, post-construction TSS control, and sedimentation control) would be used on the proposed project. Other approved BMPs may be substituted, if necessary, using one of the BMPs from the same category.
Storm Water	Storm Water Runoff from Construction	The construction contractor would take appropriate measures to prevent, minimize and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. BMP's would be implemented in accordance with the SW3P.
Texas Pollutant Discharge Elimination System	No Long-Term Water Quality Impacts	This project would include five or more acres of earth disturbance. TxDOT would comply with the TCEQ-TPDES-CGP. A SW3P would be implemented, and a construction site notice would be posted on the construction site. A NOI would be required.
Floodplains	Construction Impacts within the 100-year floodplain	The project crosses the 100-year FEMA floodplain associated with a tributary of Indian Creek near Bulverde Road and a tributary of Lewis Creek near US 281. Coordination with the local Floodplain Administrator would be required.

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
Edwards Aquifer	Impacts to Groundwater	• Coordination with the TCEQ would be required based on the 2013 MOU between TxDOT and the TCEQ. • A Contributing Zone Plan (CZP) would be required; however, a geologic assessment would not be required. • The project would comply with stipulations in the Construction General Permit. • The project would require the development and implementation of a Stormwater Pollution Prevention Plan to address construction-phase impacts. • BMPs and other design considerations would be implemented to ensure water quality impacts would be avoided or minimized to the extent practicable. • Disturbed areas would be permanently stabilized, and operation-phase impacts would be addressed through the development of permanent BMPs (e.g. vegetated filter strips).
Migratory Birds	Best Management Practices to Avoid Impacts to Migratory Birds	TxDOT would take all appropriate actions to prevent the take of migratory birds, their active nests, eggs, or young using proper phasing of the project or other appropriate actions. A MBTA appropriate Environmental Permits, Issues, & Commitments (EPIC) will be included in the Plan Specification and Estimates (PS&E).

State-Listed Species and SGCNs	Best Management Practices to Avoid Impacts to Species	Cave myotis bat • All bat surveys will comply with TPWD recommended white-nose syndrome protocols. • Habitat assessment by a qualified biologist to determine if bats are present. • If bats are present, take appropriate measure as practicable to ensure that bats are not harmed such as exclusion or timing activities. For maternity colonies, exclusion activities should be time to avoid separating lactating females from nursing pups. • If structures used by bats are removed as a result of construction, replacement structures should incorporate bat-friendly design, or artificial roosts should be constructed to replace these features as practicable. Texas garter snake • Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered. Western burrowing owl • Not disturbing, destroying or removing active nests, including ground nesting birds, during the nesting season. • Avoiding the removal of unoccupied, inactive nests, as practicable. • Preventing the establishment of active nests during the nesting season on TxDOT-owned and –operated facilities and structures proposed for replacement or repair. • Not collecting, capturing, relocating or transporting birds, eggs, young or active nests without a permit. Plains spotted skunk • Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered. Aquifer dwelling species • For geo-tech bore holes that encountered voids, if the void is less than 3 feet deep it would be filled with bentonite. If the void is more than 3 feet deep it would be filled with pea gravel or the area that traverses the void would be encased with a steel pipe. • For larger drill shafts, if there is a void, the void would be encased from just above its upper limit

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
		to just below its lower limit to ensure that concrete or bentonite does not fill the void and potentially adversely affect water quality for species that could use that area as habitat. Steel casings would be used during the process of pouring bridge bents to minimize impacts to voids and then the casings would be removed after the concrete sets. If voids are not encountered based on pilot holes or other information, then the steel casings would not be necessary. • If voids are discovered during construction, work will be stopped immediately, and the voids will be evaluated for the presence of aquifer dwelling species habitat. SGCN plants and the bracted twist flower • After TxDOT obtains legal right-of-entry to the properties where ROW is needed, TxDOT biologist will conduct surveys for rare plants that may be found in the project area including SGCN species and the bracted twist flower, a candidate for federal listing. • If any of the rare plants are found, TxDOT will contact the TxDOT WHAB e-mail address immediately to determine what protections may be used for them or if possible to salvage plant cultivars from the area. • Survey information will be forwarded to TPWD.
Hazardous Materials	Accidental Disturbance of Hazardous Materials	The contractor would take appropriate measures to prevent, minimize, and control spillage of hazardous materials in the construction staging area(s). All material being removed or disposed of by the contractor would be done in accordance with applicable State and Federal laws as not to degrade ambient water quality. All these measures would be enforced under appropriate specifications in the plan, specification and estimate stage of project development.
Archeological	Discovery During Construction	In the unlikely event that significant cultural resources are discovered during construction of the proposed project, TxDOT would immediately initiate cultural resource discovery procedures. All work in the vicinity would immediately cease until a specialist from TxDOT and/or the THC could arrive on site and assess the discovery's significance and the potential need for additional investigation (if necessary).

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
Invasive Species and Beneficial Landscaping	Beneficial	RE-vegetation of disturbed areas would be in compliance with EO 13112 on Invasive Species. Regionally native and non-invasive plants will be used to the extent practicable. No landscaping would be part of the proposed project. Disturbed areas would be re-vegetated according to TxDOT's standard practices for rural areas, which to the extent practicable, is in compliance with Executive Memorandum on Beneficial Landscaping.
Construction	Traffic Detouring, Temporary Noise and Dust, etc.	Plans to ensure safe and efficient traffic flow during construction would be developed as part of the detailed construction plans for the proposed improvements. Other construction-related impacts (such as temporary air and noise effects) would be addressed in compliance with standard TxDOT policies and procedures.

9.0 CONCLUSION

TxDOT recommends the Build Alternative as the Preferred Alternative and a Finding of No Significant Impact (FONSI).

The analysis of alternatives for the proposed project determined that the Preferred Alternative would meet the need and purpose of the proposed project.

The engineering, social, economic, and environmental investigations conducted thus far on the proposed improvements to SH 46, as proposed by the Build Alternative (the Preferred Alternative); indicate that the proposed project would result in no significant impacts of a level that would warrant an Environmental Impact Statement. Alternative selection would be finalized after completion of the public review period, which includes a public hearing. Unless significant impacts are identified because of public review or at the public hearing, a FONSI would be prepared for this proposed project as a basis for Federal-aid corridor location approval.

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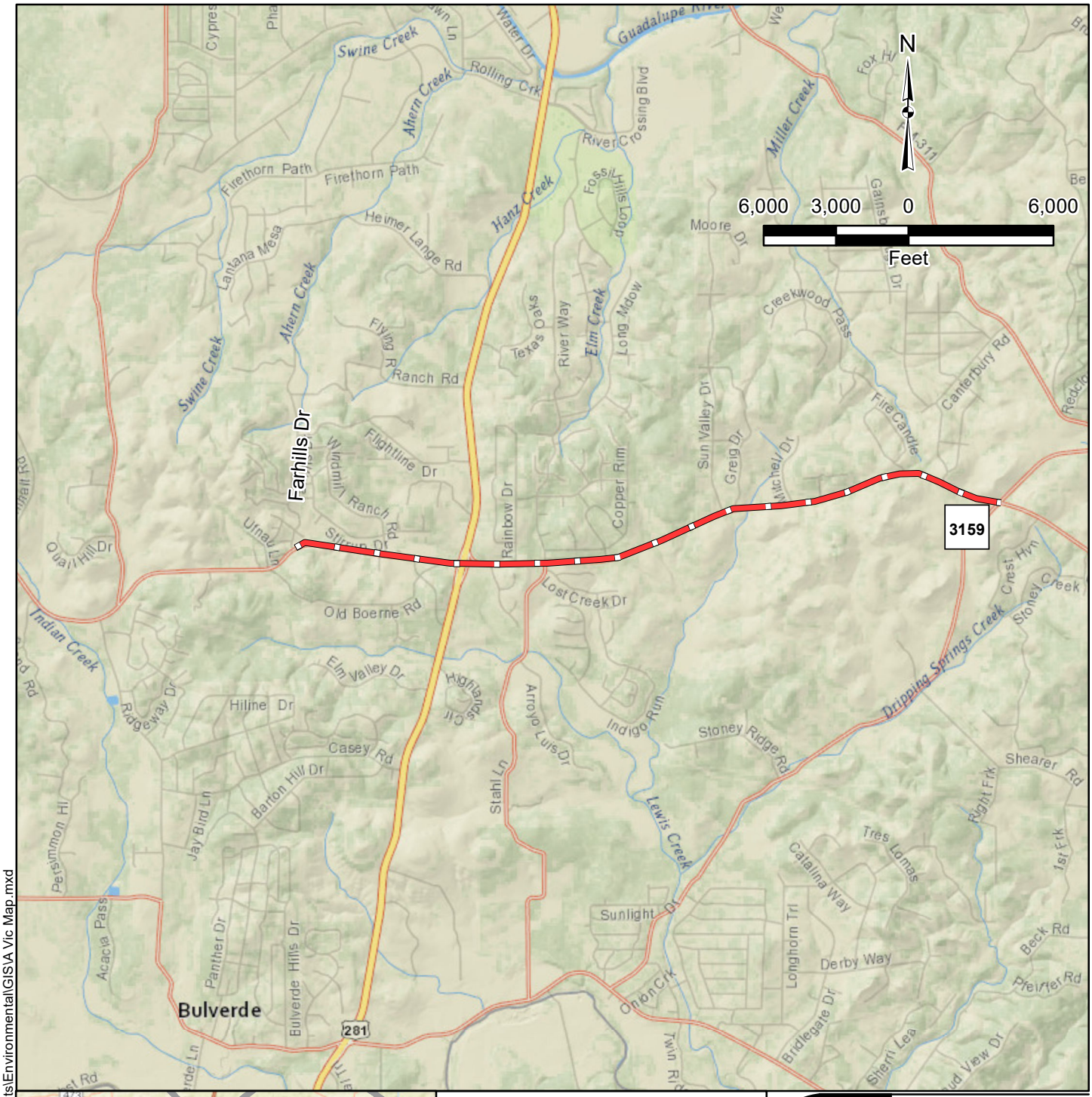
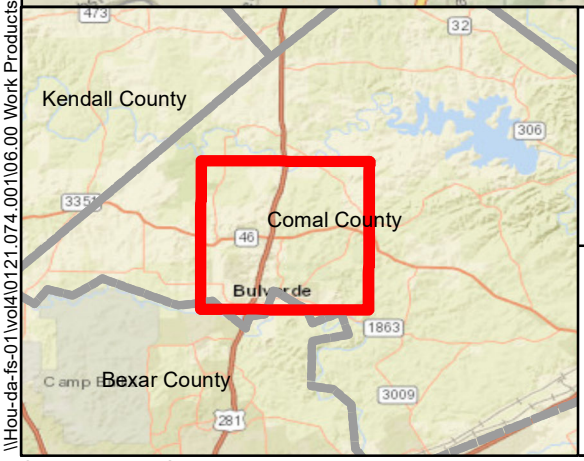
Appendix A
Project Location Maps





Legend

Project Limits

RPS klotz associates

1160 Dairy Ashford, Suite 500, Houston, Texas 77079
T 281.589.7257 • email@klotz.com • Texas PE Firm Reg. #F-929

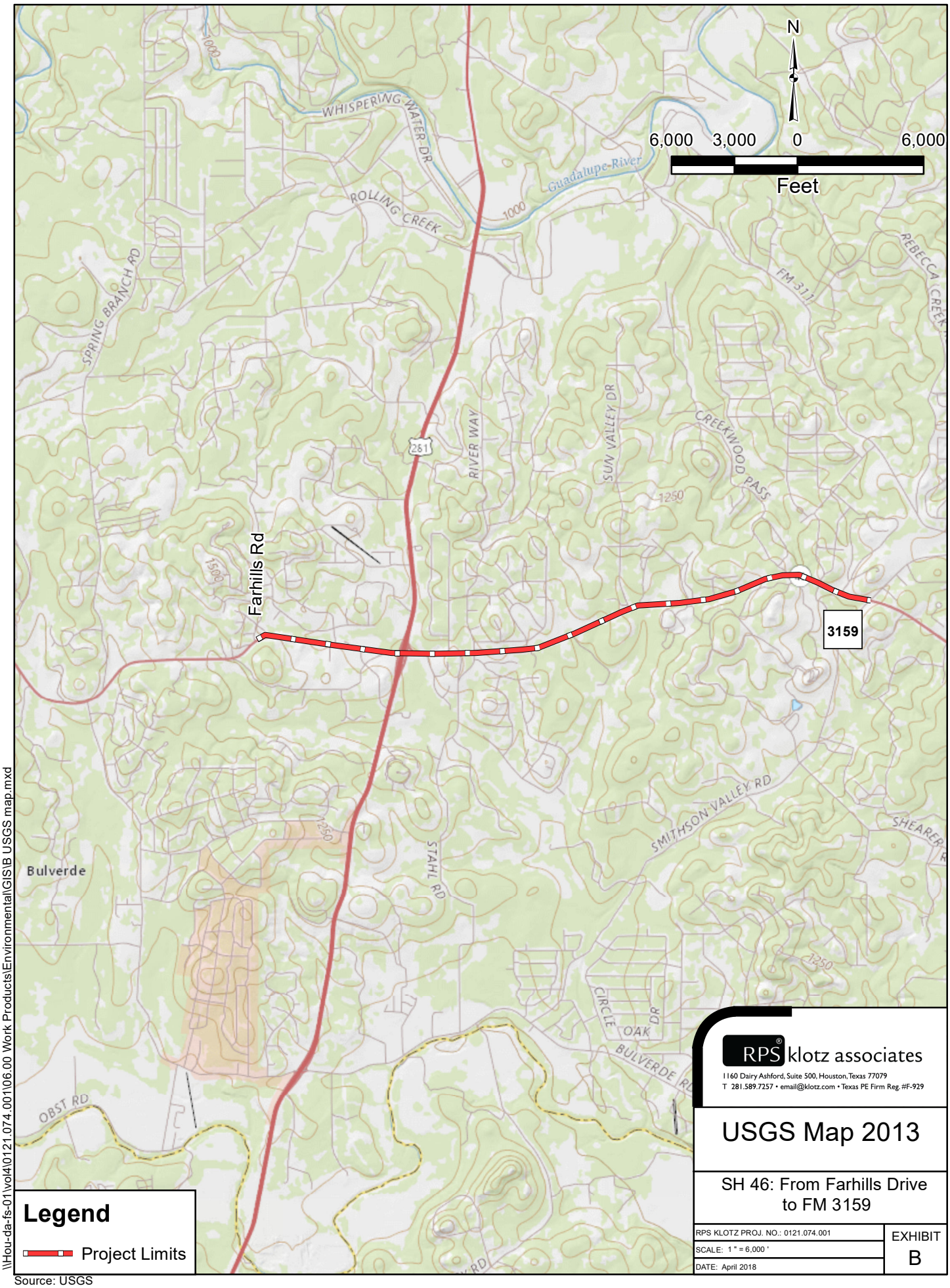
Project Location Map

SH 46: From Farhills Drive to FM 3159

RPS KLOTZ PROJ. NO.: 0121.074.001	EXHIBIT
SCALE: 1 " = 6,000 '	A
DATE: April 2018	

\\Hou-da-fs-01\vol4\0121.074.001\06.00 Work Products\Environmental\GIS\A Vic Map.mxd

Source: National Geographic



Legend

Project Limits

Source: USGS

RPS klotz associates

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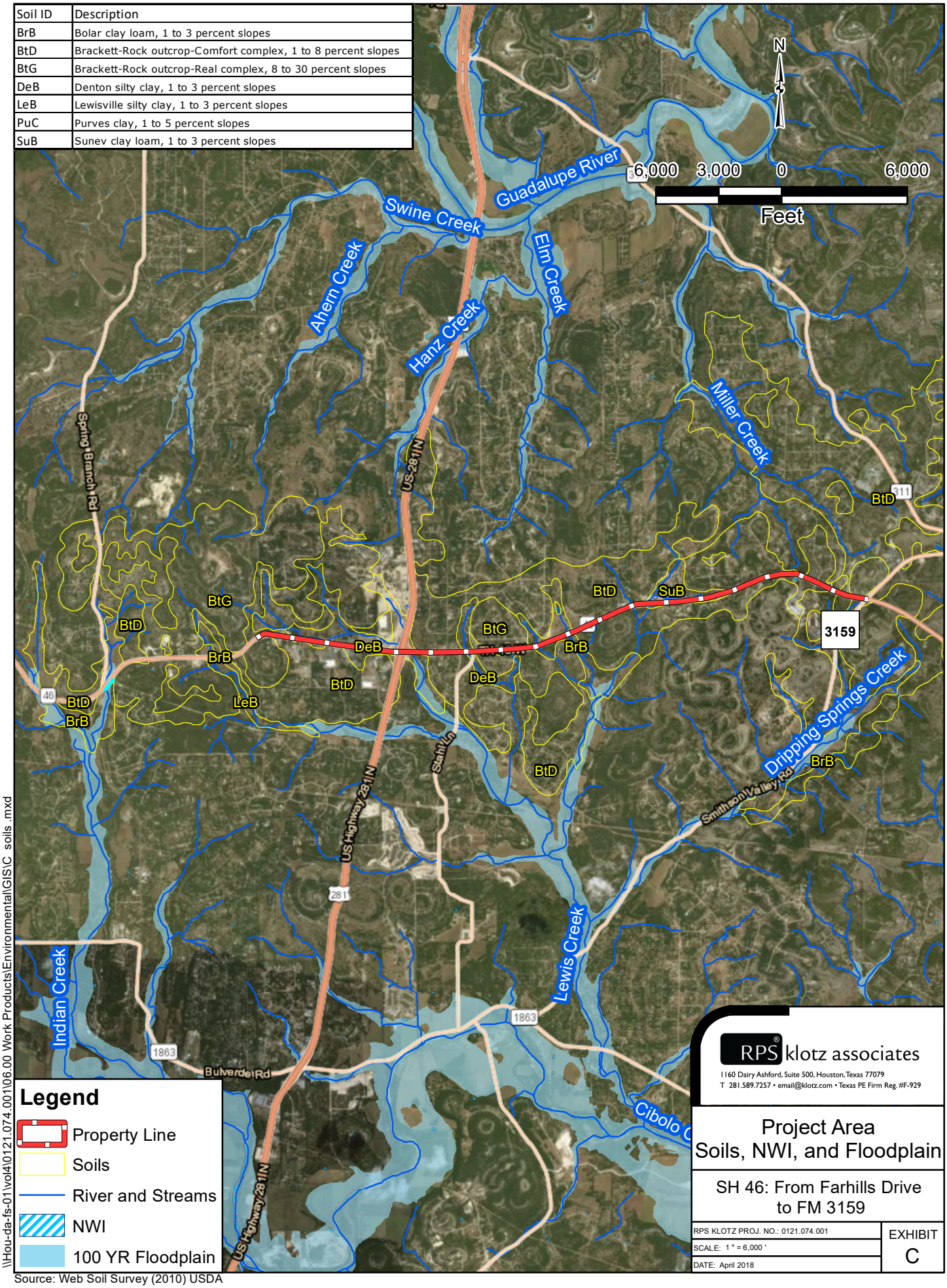
USGS Map 2013

SH 46: From Farhills Drive to FM 3159

RPS KLOTZ PROJ. NO.: 0121.074.001	EXHIBIT B
SCALE: 1 " = 6,000 '	
DATE: April 2018	

\\Hou-da-fs-01\vol4\0121.074.001\06.00 Work Products\Environmental\GIS\B USGS map.mxd

Soil ID	Description
BrB	Bolar clay loam, 1 to 3 percent slopes
BtD	Brackett-Rock outcrop-Comfort complex, 1 to 8 percent slopes
BtG	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes
DeB	Denton silty clay, 1 to 3 percent slopes
LeB	Lewisville silty clay, 1 to 3 percent slopes
PuC	Purves clay, 1 to 5 percent slopes
SuB	Sunev clay loam, 1 to 3 percent slopes



RPS klotz associates
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Project Area
Soils, NWI, and Floodplain

SH 46: From Farhills Drive to FM 3159

RPS KLOTZ PROJ. NO.: 0121.074.001
SCALE: 1 " = 6,000 '
DATE: April 2018

EXHIBIT C

\\Hou-da-fs-01\vol4\0121.074.001\06.00 Work Products\Environmental\GIS\C_soils.mxd

Source: Web Soil Survey (2010) USDA

Appendix B
Project Photos

SH 46 Project Area Photographs

Typical undeveloped land near Bulverde Road at western end of proposed project

Typical undeveloped land near Bulverde Road at western end of proposed project

SH 46 Project Area Photographs

Neighborhood near Farhills Drive

Spring Branch Middle School near the main entrance

SH 46 Project Area Photographs

Bill Brown Elementary School

Typical commercial development near US 281

SH 46 Project Area Photographs

Gas station at intersection of SH 46 and US 281

Commercial development west of US 281 at Berry Oaks Drive

SH 46 Project Area Photographs

Back side of large lot residential development near Stahl Lane

Restaurant at Sun Valley Drive

SH 46 Project Area Photographs

Faithville commercial development (Heritage Baptist Church visible in the background)

Mailboxes in front of residential area (primarily mobile homes) south of Faithville commercial area (According to the Census, this block is greater than 50% minority)

SH 46 Project Area Photographs

Undeveloped land near FM 3159 at eastern end of proposed project

Undeveloped land near FM 3159 at eastern end of proposed project (Smithson Valley High School is in the background)

Appendix C
Schematics

TEXAS DEPARTMENT OF TRANSPORTATION
SCHEMATIC LAYOUT
SH 46 - COMAL COUNTY
OFFICE OF THE DISTRICT ENGINEER
SAN ANTONIO, TEXAS

CONTROL: 0215 SECTION: 07 JOB: 027
FROM FARHILLS DRIVE TO US 281
CONTROL: 0215 SECTION: 07 JOB: 044
FROM US 281 TO BENTWOOD DRIVE
CONTROL: 0215 SECTION: 07 JOB: 151
FROM BENTWOOD DRIVE TO FM 3159

ROADWAY	DESIGN SPEED	FUNCTIONAL CLASS
SH 46		
US 281 NB RAMP	45 MPH	URBAN ARTERIAL
US 281 SB RAMP	40 MPH	COLLECTOR
FM 3159/SMITHSON VALLEY ROAD	40 MPH	URBAN ARTERIAL
SH 46 WB RAMP	40 MPH	COLLECTOR
SH 46 EB RAMP	40 MPH	COLLECTOR
CROSS STREETS	35 MPH	LOCAL

APPROVED: 2016
JONATHAN SEAL, P.E.
DIRECTOR OF TRANSPORTATION PLANNING AND DEVELOPMENT
TXDOT SAN ANTONIO DISTRICT

APPROVED: BY DESIGN DIVISION LETTER DATED

APPROVED: 201-3
CLAYTON RIPPS, P.E.
DIRECTOR OF TRANSPORTATION PLANNING
TXDOT SAN ANTONIO DISTRICT

APPROVED: BY F.O.W.A. LETTER DATED

APPROVED: 2016
MANO JORGE, P.E.
DISTRICT ENGINEER
TXDOT SAN ANTONIO DISTRICT

RPS
1100 Dove, Antonio, Suite 300
Helotes, Texas 78023
T 281 589 7207

Texas Registered Engineering Firm F-14309

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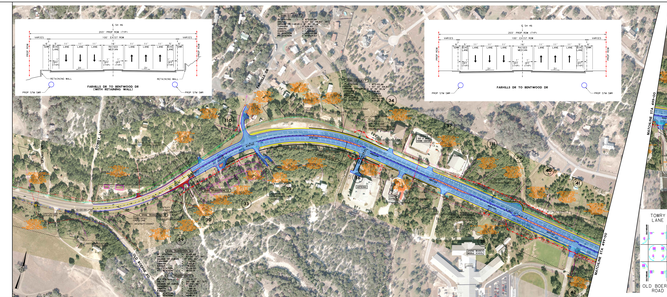
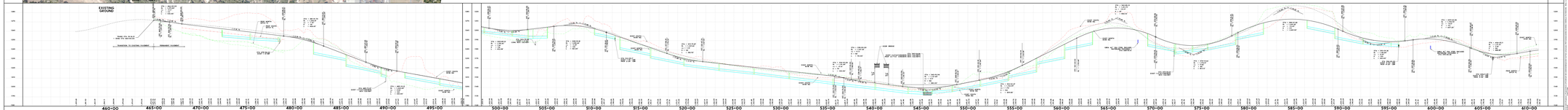
SH 46 GEOMETRIC SCHEMATIC - ROLL 1 OF 3





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SH 46 EB RAMP	40 MPH	COLLECTOR
CROSS STREETS	35 MPH	LOCAL

APPROVED:

_______________, 2018

JONATHAN BEAN, P.E.
DIRECTOR OF TRANSPORTATION PLANNING AND DEVELOPMENT
TXDOT SAN ANTONIO DISTRICT

APPROVED: BY DESIGN DIVISION
LETTER DATED

APPROVED:

_______________, 2018

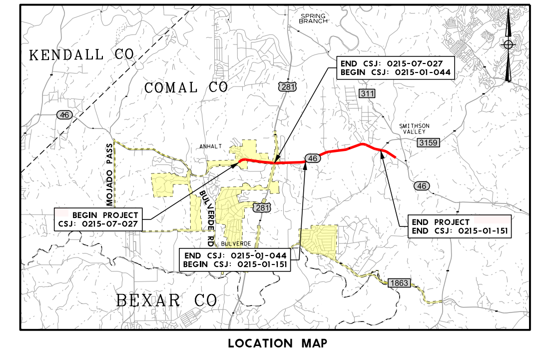
CLAYTON RIPPS, P.E.
ADVANCED TRANSPORTATION PLANNING
TXDOT SAN ANTONIO DISTRICT

APPROVED: BY F. H. W. A.
LETTER DATED

APPROVED:

_______________, 2018

MARIO JORGE, P.E.
DISTRICT ENGINEER
TXDOT SAN ANTONIO DISTRICT



LOCATION MAP
N.T.S.
SCALE: H: 1" = 100' V: 1" = 10'

RPS
1160 Dairy Ashford, Suite 500
Houston, Texas 77079
T 281 589 7257
Formerly Klotz Associates, Inc.
Texas PE Firm Reg. #F-929

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4/26/2018

SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:
DAVID C. BALMOS, P.E.
TEXAS REG. NO. 86857
4/26/2018
DATE
DOCUMENT IS FOR REVIEW ONLY AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

PAVEMENT SLOPE TABLE

REMARKS	LEFT PAVEMENT SLOPE	SH 46 CENTERLINE STATION	RIGHT PAVEMENT SLOPE	REMARKS
	-2.0%	367+00.00	-2.0%	
BEGIN TRANSITION	-2.0%	452+56.78	-2.0%	
END TRANSITION	+2.0%	456+16.79	-2.0%	
BEGIN TRANSITION	+2.0%	456+94.80	-2.0%	
END TRANSITION	-2.0%	460+54.80	-2.0%	
	-2.0%	475+40.00	-2.0%	BEGIN TRANSITION
	-2.0%	479+00.00	+2.0%	END TRANSITION
	-2.0%	487+00.00	+2.0%	BEGIN TRANSITION
	-2.0%	491+00.00	-2.0%	END TRANSITION
	-2.0%	502+73.78	-2.0%	BEGIN TRANSITION
	-2.0%	507+33.78	+2.0%	END TRANSITION
	-2.0%	521+79.65	+2.0%	BEGIN TRANSITION
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	-2.0%	528+98.53	+2.0%	END TRANSITION
	-2.0%	530+60.24	+2.0%	BEGIN TRANSITION
	-2.0%	533+60.24	-2.0%	END TRANSITION
		535+39.27	-2.0%	BEGIN TRANSITION
BEGIN TRANSITION	-2.0%	536+89.27		
END TRANSITION	-0.5%	538+39.27	+0.5%	END TRANSITION
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END TRANSITION	-2.0%	750+57.43	-2.0%	
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NOTE:
PAVEMENT SLOPING DOWN FROM THE ROADWAY CENTERLINE TO THE OUTSIDE IS DENOTED BY A NEGATIVE VALUE. PAVEMENT SLOPING UP FROM THE ROADWAY CENTERLINE TO THE OUTSIDE IS DENOTED BY A POSITIVE VALUE.

LEGEND

- EXISTING TRAFFIC DIRECTION
- PROPOSED TRAFFIC DIRECTION
- PROPOSED EDGE OF PAVEMENT
- PROPOSED RETAINING WALL
- EXISTING PARCEL LINE
- EXISTING ROW
- EXISTING EASEMENT
- PROPOSED ROW
- CITY LIMIT
- ROW TO BE ACQUIRED
- ROW IMPACT STRUCTURE
- PAVEMENT
- BRIDGE
- SIDEWALK
- MEDIAN
- TEMPORARY PAVEMENT
- FUTURE USE PAVEMENT
- STORMWATER QUALITY BMP
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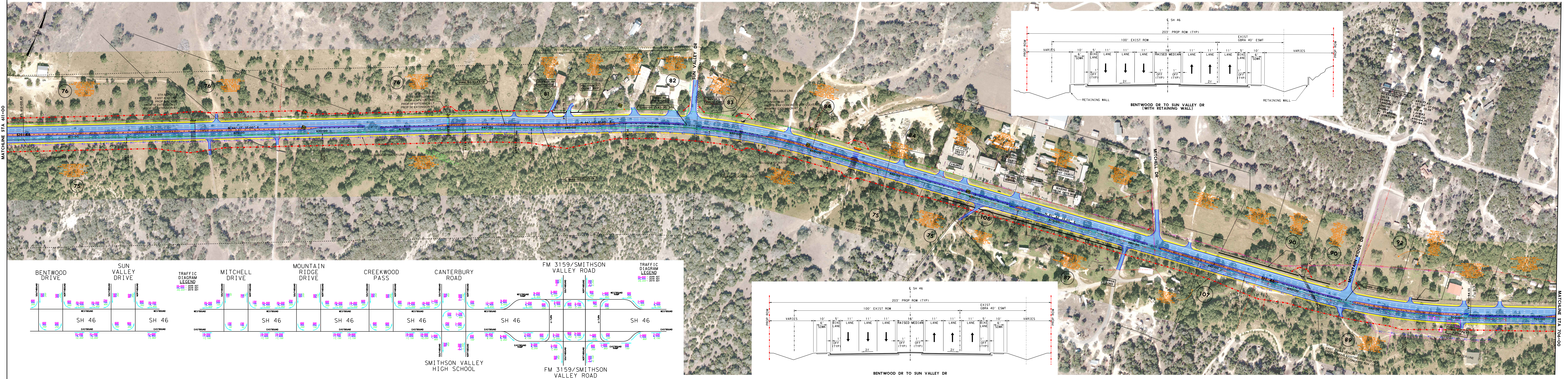

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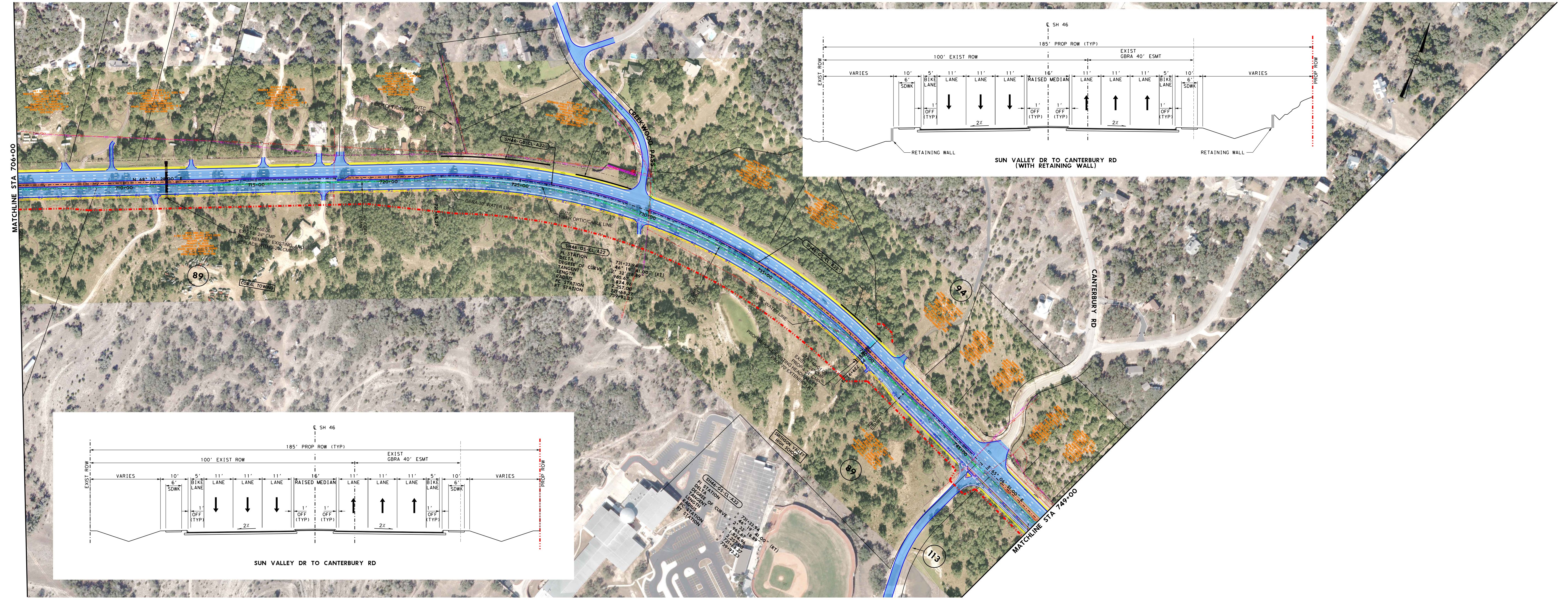

SH 46 GEOMETRIC SCHEMATIC - ROLL 3 OF 3

TEXAS DEPARTMENT OF TRANSPORTATION
SCHEMATIC LAYOUT
SH 46 - COMAL COUNTY
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SAN ANTONIO, TEXAS

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APPROVED:

______________, 2018

JONATHAN BEAN, P.E.
DIRECTOR OF TRANSPORTATION PLANNING AND DEVELOPMENT
TXDOT SAN ANTONIO DISTRICT

APPROVED: BY DESIGN DIVISION
LETTER DATED

APPROVED:

______________, 201 8

CLAYTON RIPPS, P.E.
ADVANCED TRANSPORTATION PLANNING
TXDOT SAN ANTONIO DISTRICT

APPROVED: BY F. H. W. A.
LETTER DATED

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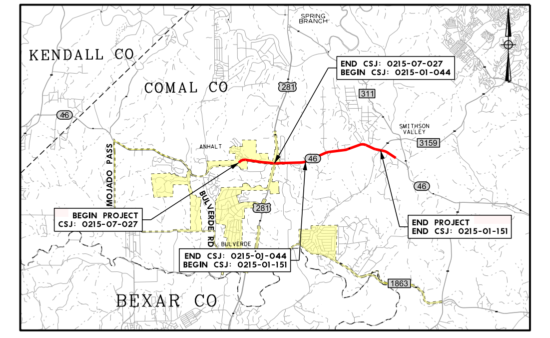
TXDOT SAN ANTONIO DISTRICT



LOCATION MAP
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RPS
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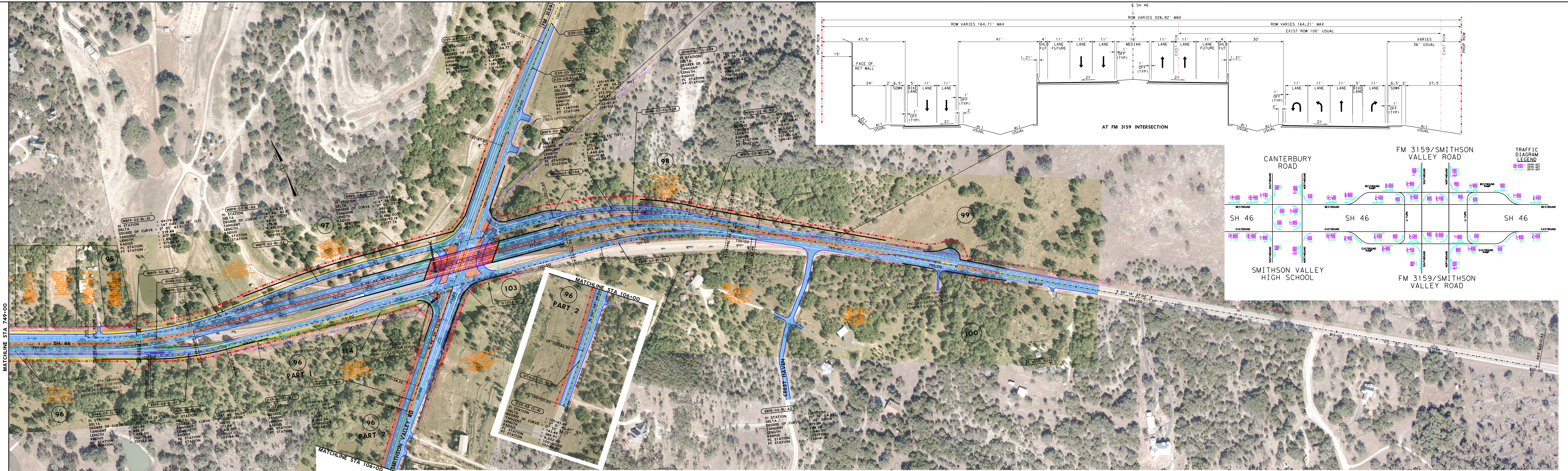

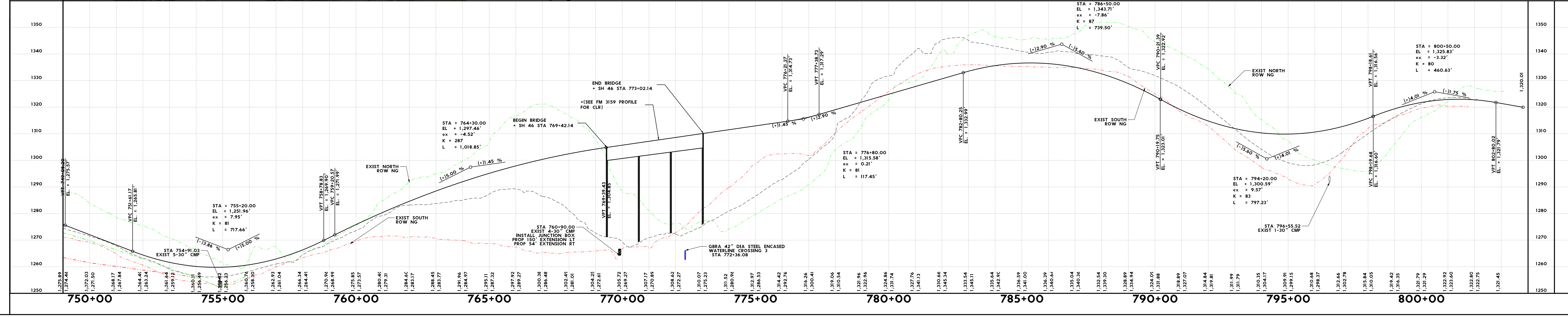

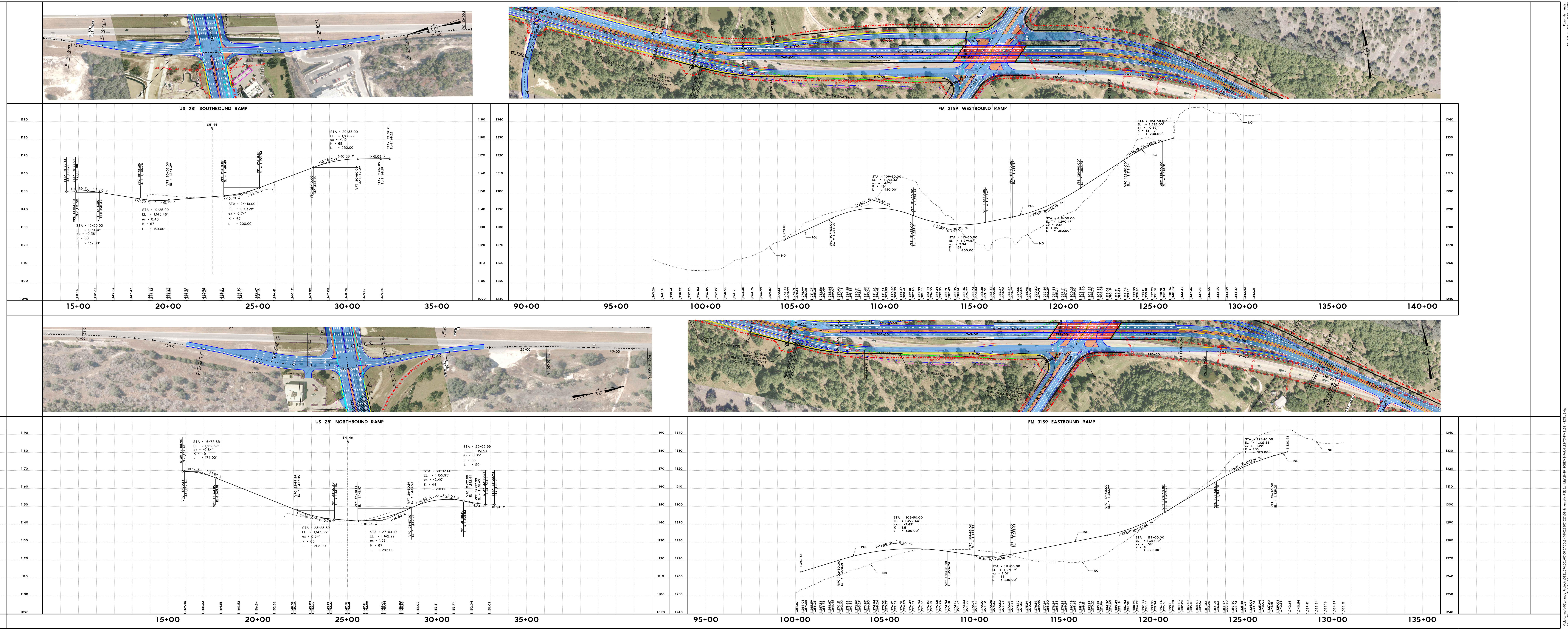

4/26/2018 2:34:37 PM
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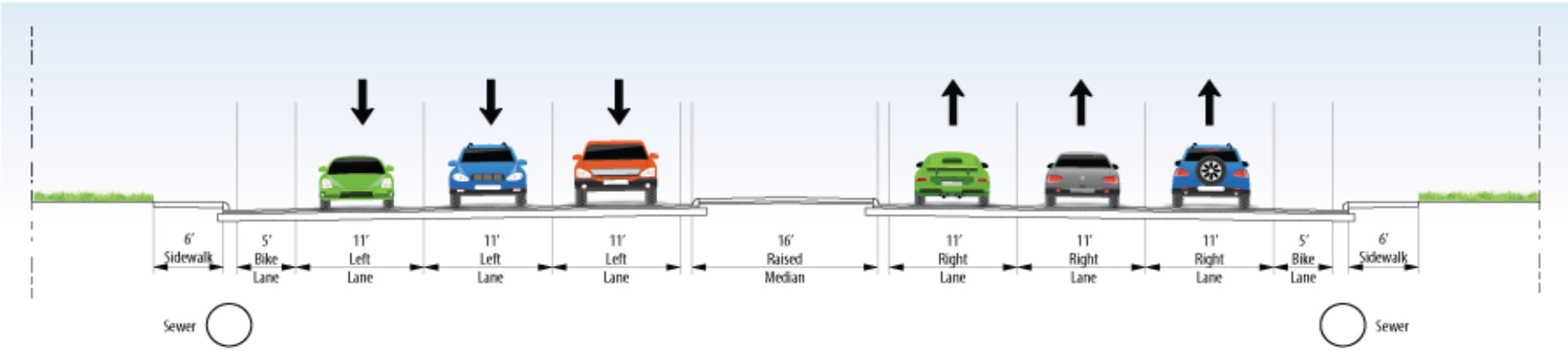
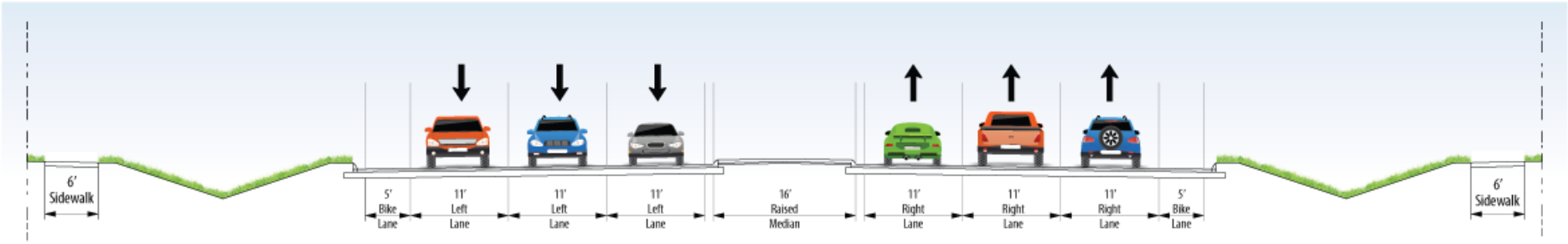
Appendix D
Typical Sections

Curbed with Storm Drain Section



Curbed with Grass-Lined Open Ditch Section



Appendix E
Plan and Program Excerpts

TxDOT District	County	CSJ	Hwy	Phase	City	Project Sponsor	MPO Proj ID No.	Year of Expenditure Cost
15 - San Antonio	Comal	0215-01-044	SH 46	C	Other	TxDOT	9114.2	$14,000,000

Limits From: US 281
Limits To: Bentwood Dr
Last Revision Date: 2/2018
Description: Expand from 2 lanes to 6 lanes with raised median or CLTL
Project History: 3/18 - move from FY 2020 to FY 2022 and revise funding distribution; 4/17 - revise limits and funding; added w/ 12/8/14 adoption of the MTP

Total Project Cost Information (TxDOT %):

Preliminary Engineering:	$686,000
ROW Purchase:	$0
Construction Cost:	$14,000,000
Construction Engineering	$560,000
Contingencies:	$980,000
Indirect Costs:	$280,000
Other Field	$560,000
Total Project Cost:	$17,066,000

Cost of Approved Phases: $14,000,000

Type of Work: Added Capacity: Non - Toll Status: Add Cap

Authorized Funding by Category/Share

Funding Categories	Federal	State	Local	Local Contrib	Total
4 - Connectivity	$11,200,000	$2,800,000	$0	$0	$14,000,000
Other	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0
Totals	$11,200,000	$2,800,000	$0	$0	$14,000,000

15 - San Antonio	Comal	0215-07-027	SH 46	C	Other	TxDOT	9114.1	$26,000,000

Limits From: Farhills Dr
Limits To: US 281
Last Revision Date: 2/2018
Description: Expand from 2 lanes to 6 lanes with raised median or CLTL
Project History: 3/18 - move from FY 2020 to FY 2022 and revise funding distribution; 4/17 - revise limits and funding; added w/ 12/8/14 adoption of the MTP

Total Project Cost Information (TxDOT %):

Preliminary Engineering:	$1,274,000
ROW Purchase:	$0
Construction Cost:	$26,000,000
Construction Engineering	$1,040,000
Contingencies:	$1,820,000
Indirect Costs:	$520,000
Other Field	$1,040,000
Total Project Cost:	$31,694,000

Cost of Approved Phases: $26,000,000

Type of Work: Added Capacity: Non - Toll Status: Add Cap

Authorized Funding by Category/Share

Funding Categories	Federal	State	Local	Local Contrib	Total
4 - Connectivity	$20,800,000	$5,200,000	$0	$0	$26,000,000
Other	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0
Totals	$20,800,000	$5,200,000	$0	$0	$26,000,000

15 - San Antonio	Guadalupe	0215-09-029	FM 725	C	New Braunfels	TxDOT	5308.0	$10,600,000

Limits From: Comal/Guadalupe County Line
Limits To: Zipp Rd
Last Revision Date: 7/2016
Description: Expand from 2 to 4 lanes with median, sidewalks and bike lanes
Project History: 4/16 - funded through STP-MM project selection process

Total Project Cost Information (TxDOT %):

Preliminary Engineering:	$519,400
ROW Purchase:	$0
Construction Cost:	$10,600,000
Construction Engineering	$525,760
Contingencies:	$210,940
Indirect Costs:	$608,440
Other Field	$396,440
Total Project Cost:	$12,860,980

Cost of Approved Phases: $10,600,000

Type of Work: Added Capacity: Non - Toll Status: Add Cap

Authorized Funding by Category/Share

Funding Categories	Federal	State	Local	Local Contrib	Total
7 - STP-MM	$8,480,000	$2,120,000	$0	$0	$10,600,000
Other	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0
Totals	$8,480,000	$2,120,000	$0	$0	$10,600,000

Appendix F
Resource Specific Documents & Maps

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 12/15/16	4. Sheet 1 of 1
1. Name of Project SH 46: Bulverde Road to FM 3159	5. Federal Agency Involved FHWA	
2. Type of Project Roadway Widening (2 to 6 lanes)	6. County and State Comal County, Texas	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐		4. Acres Irrigated / Average Farm Size
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment _____			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		69			
B. Total Acres To Be Converted Indirectly, Or To Receive Services		0			
C. Total Acres In Corridor		152			
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*					
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	6			
2. Perimeter in Nonurban Use	10	5			
3. Percent Of Corridor Being Farmed	20	1			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	5			
6. Creation Of Nonfarmable Farmland	25	0			
7. Availablility Of Farm Support Services	5	0			
8. On-Farm Investments	20	8			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	0			
TOTAL CORRIDOR ASSESSMENT POINTS	160	25	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	0	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	25	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	25	0	0	0

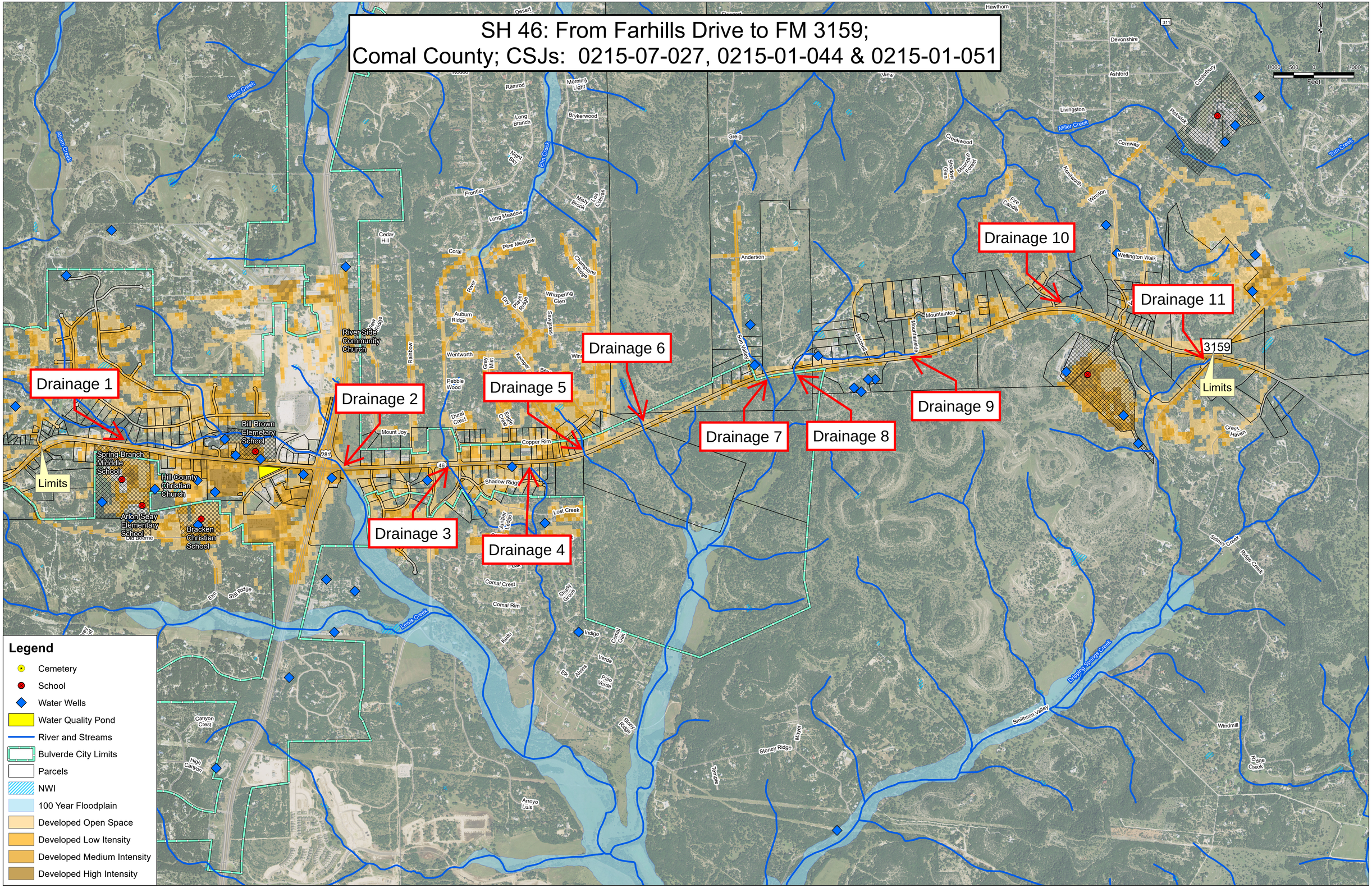
1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

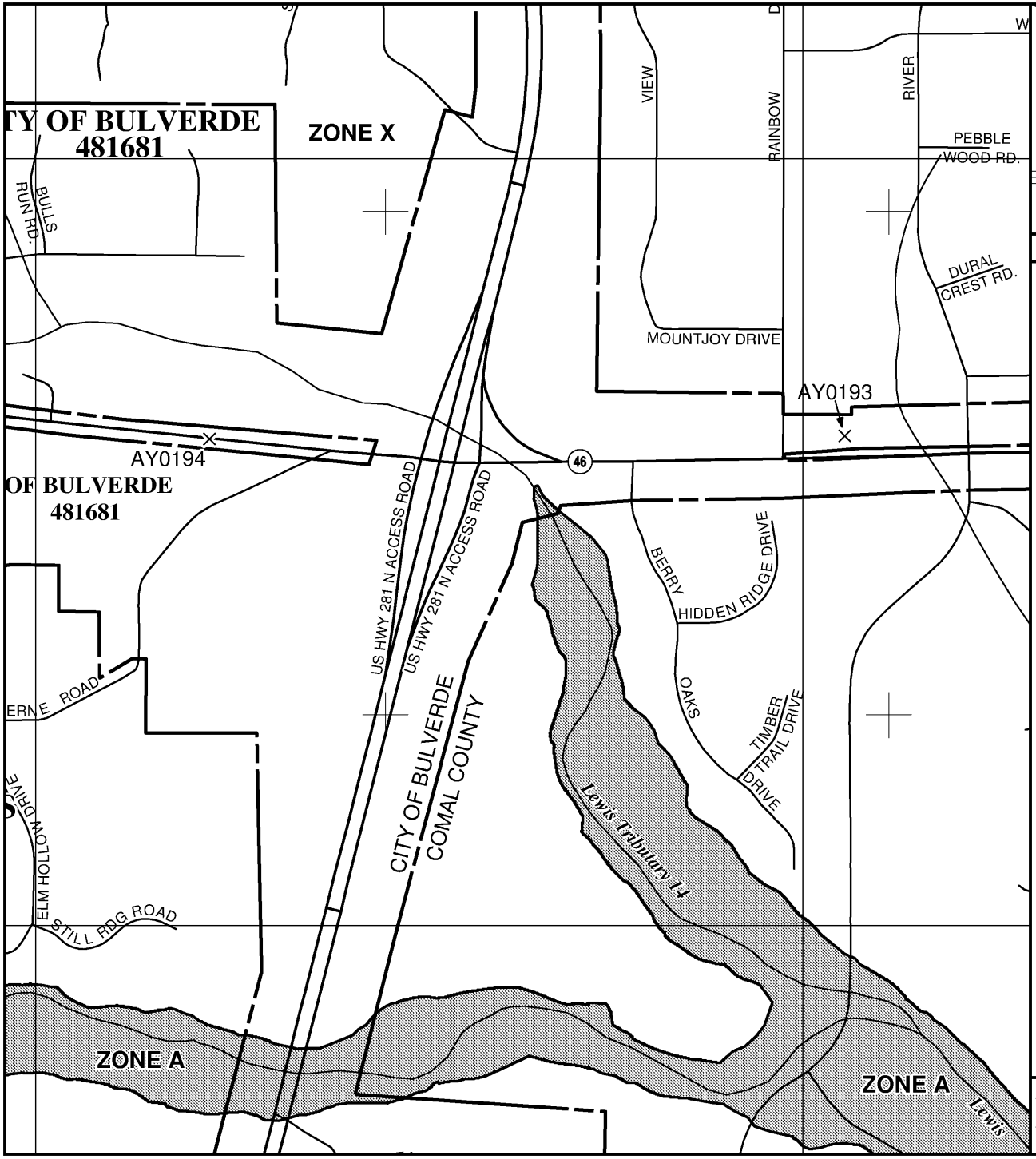
5. Reason For Selection:

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

SH 46: From Farhills Drive to FM 3159;
Comal County; CSJs: 0215-07-027, 0215-01-044 & 0215-01-051





MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0220F

FIRM

FLOOD INSURANCE RATE MAP

COMAL COUNTY, TEXAS

AND INCORPORATED AREAS

PANEL 220 OF 505

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COMAL COUNTY	485463	0220	F
BULVERDE, CITY OF	481681	0220	F

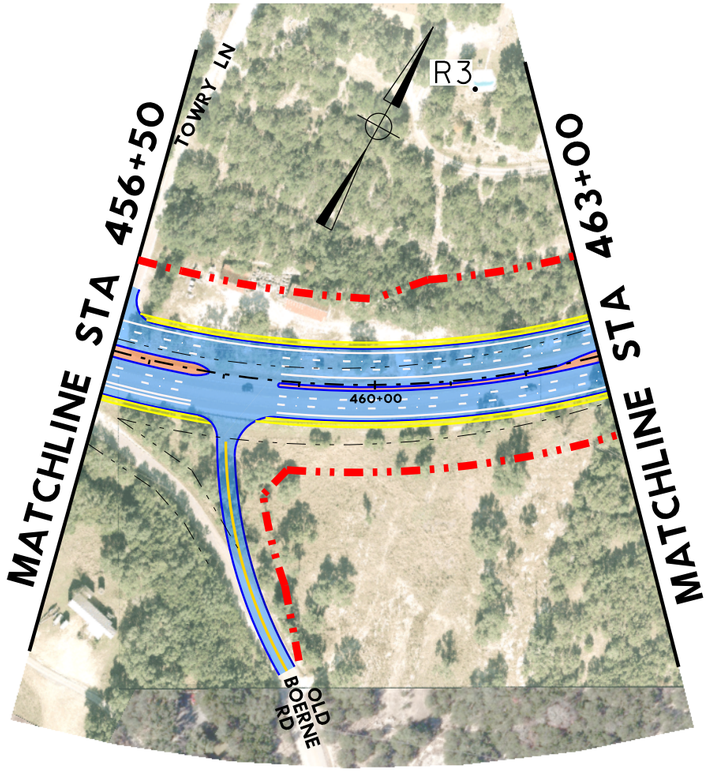
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

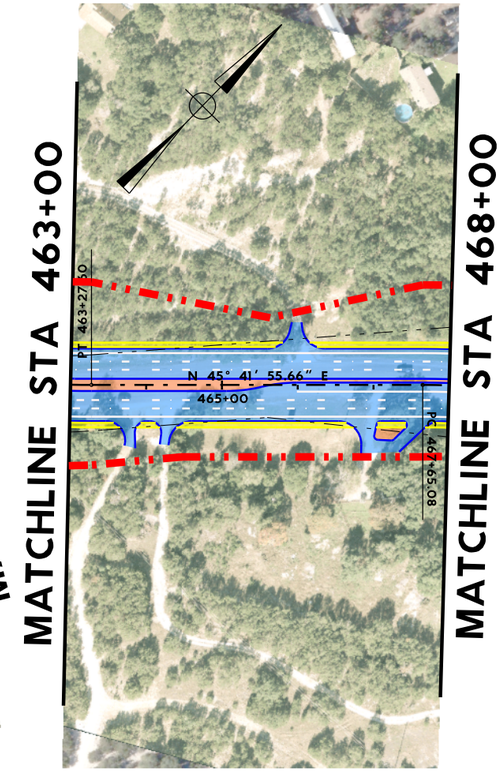
MAP NUMBER
48091C0220F

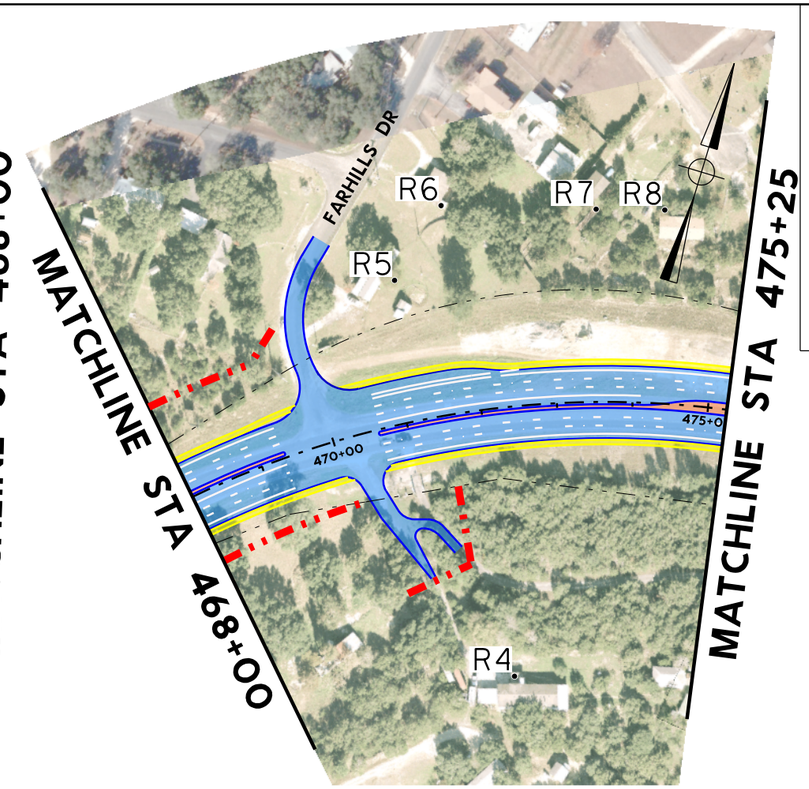
EFFECTIVE DATE
SEPTEMBER 2, 2009

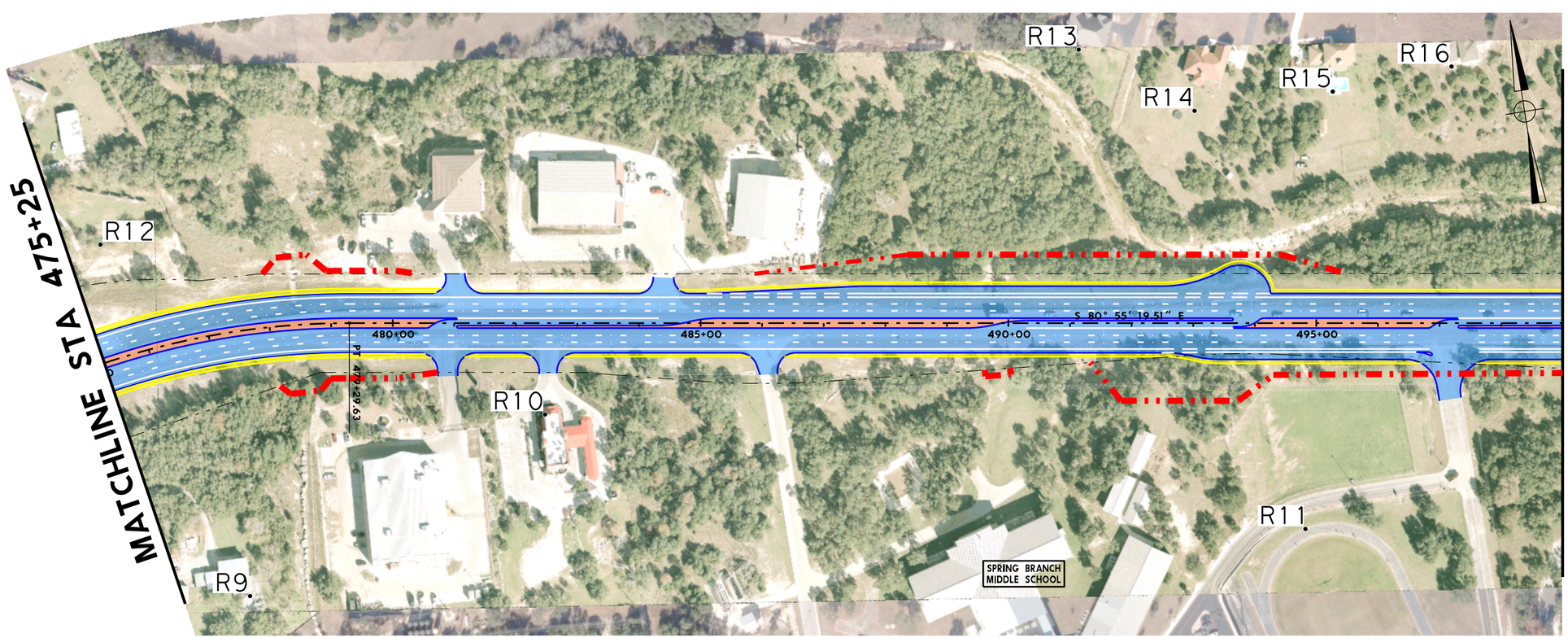
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov









LEGEND

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NOISE RECEIVERS

SH46
FROM BULVERDE ROAD TO FM 3159
COMAL COUNTY

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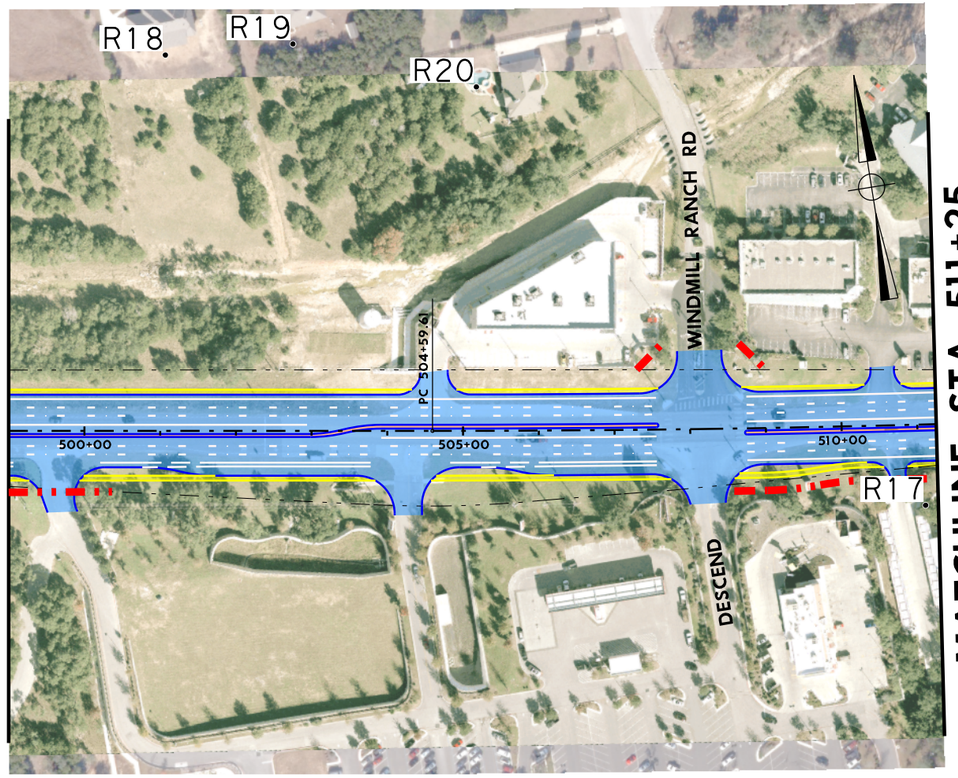

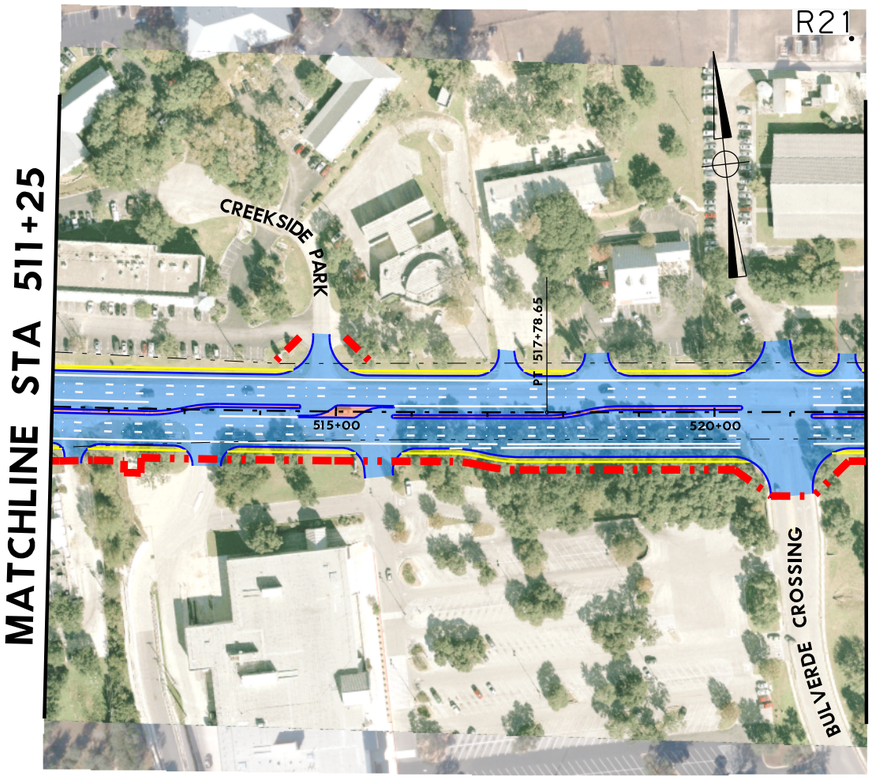

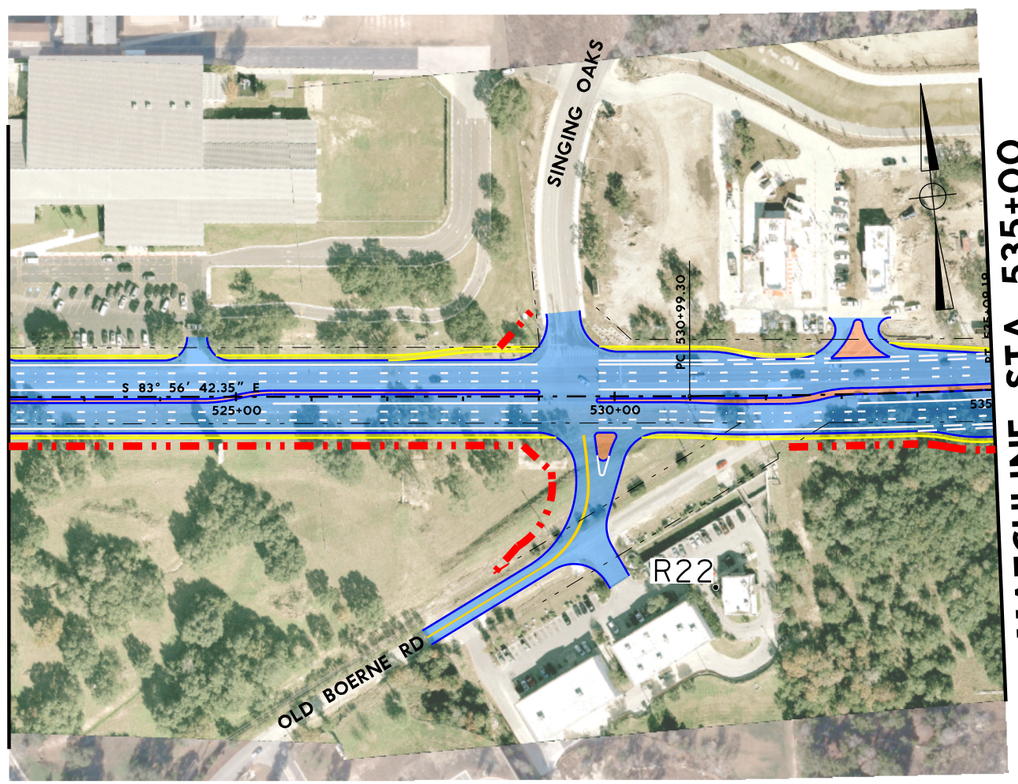

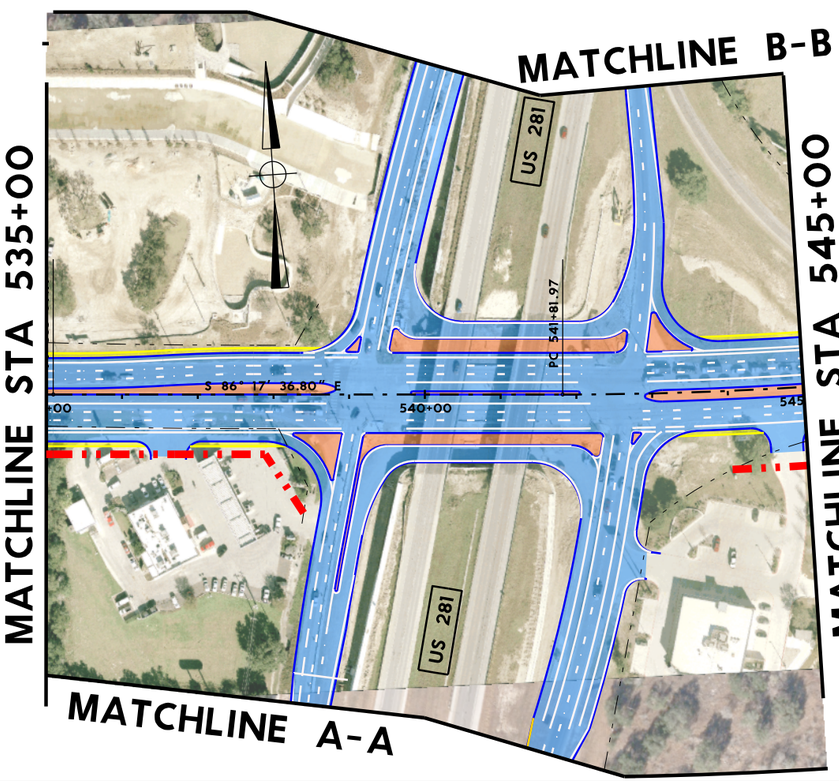

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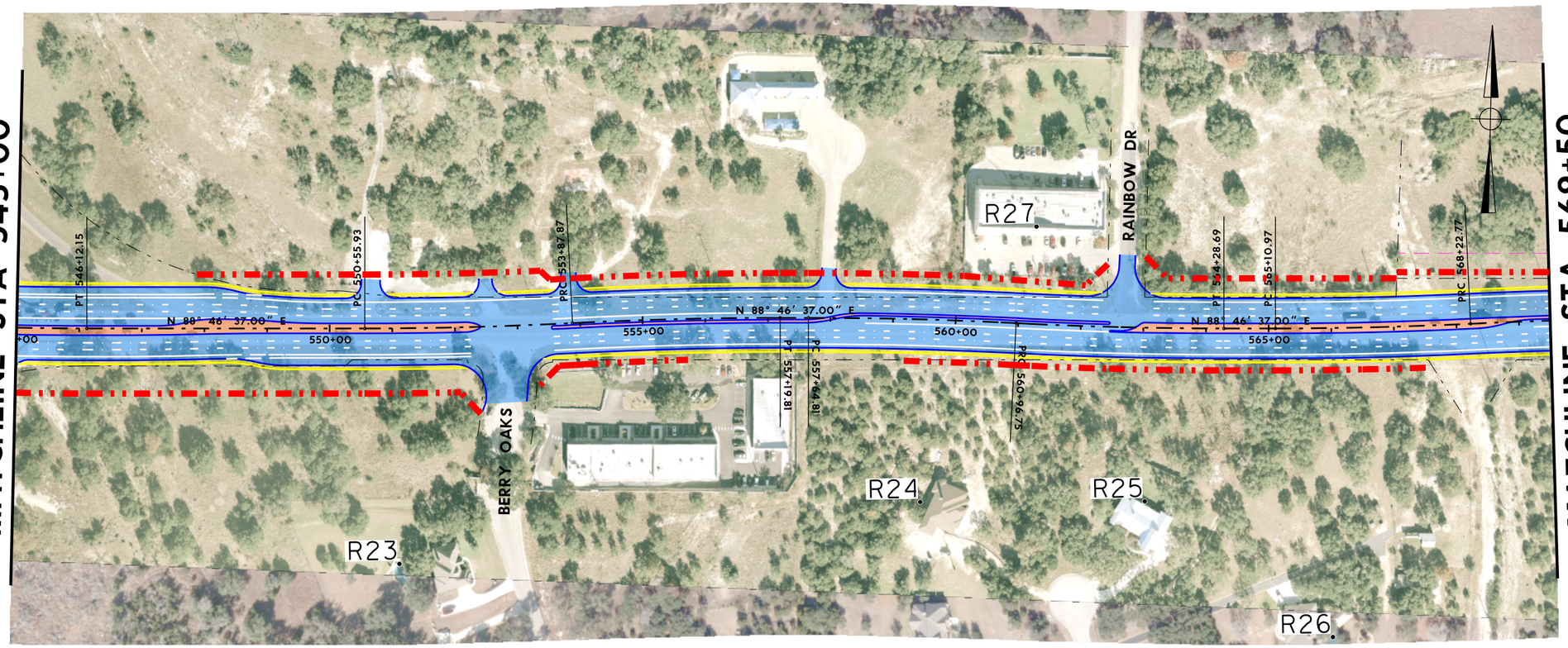

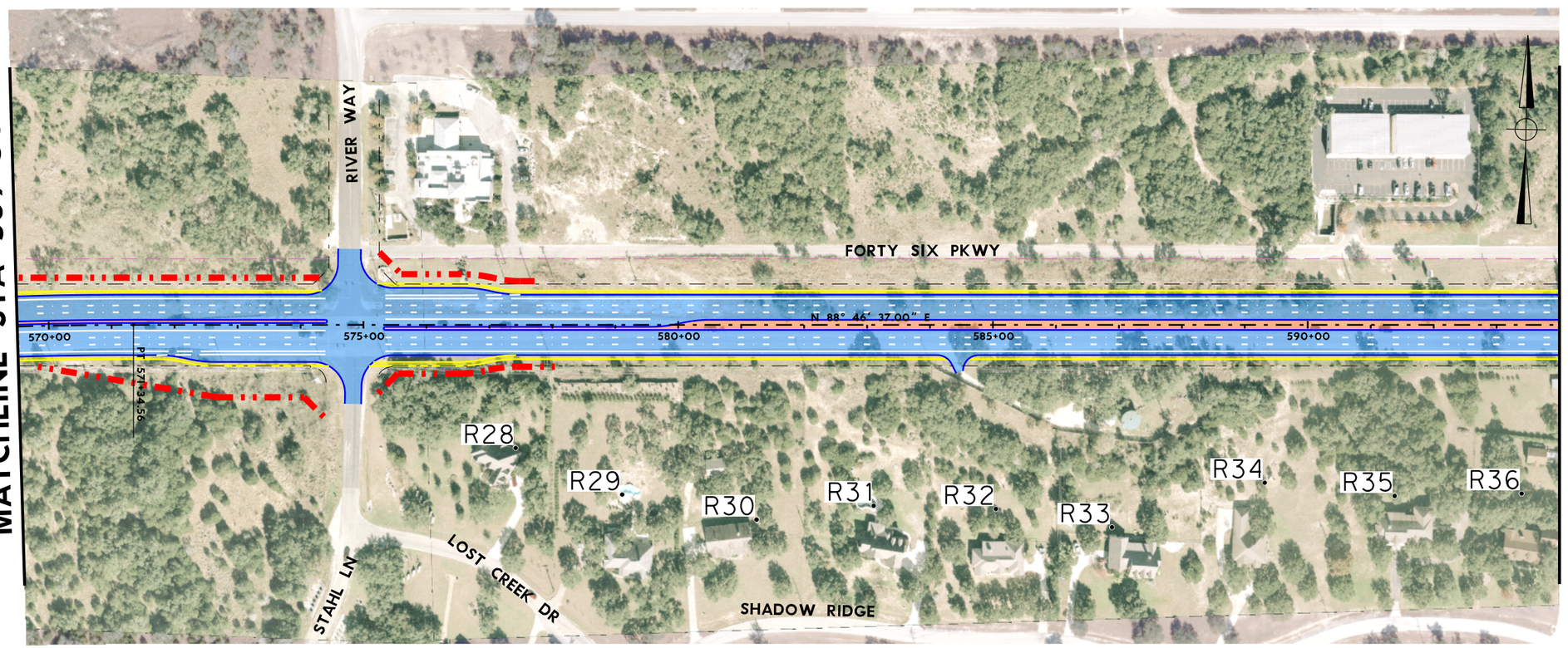

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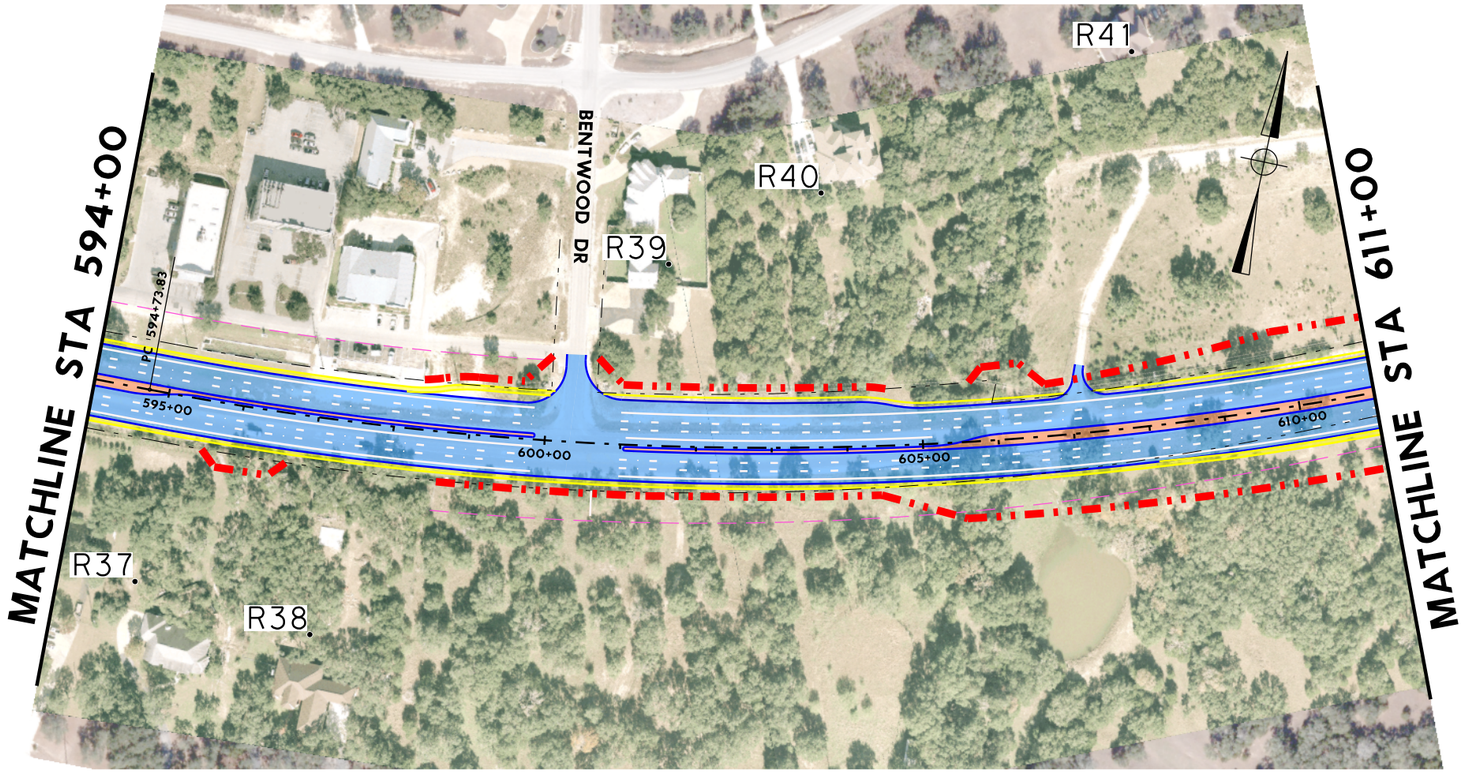

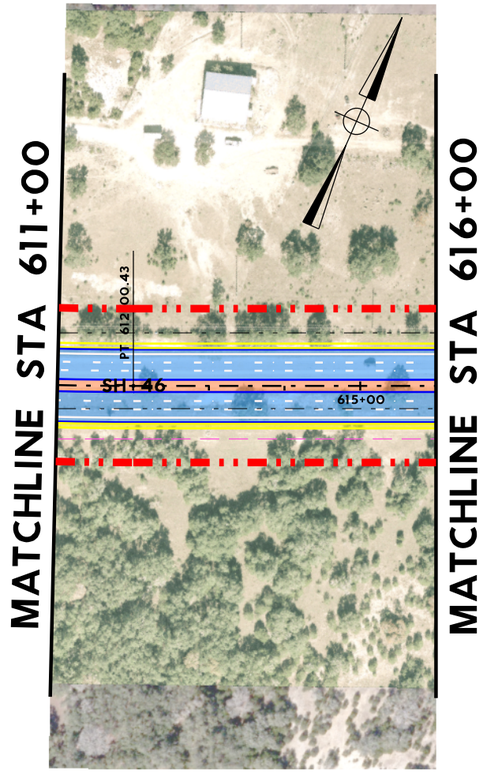

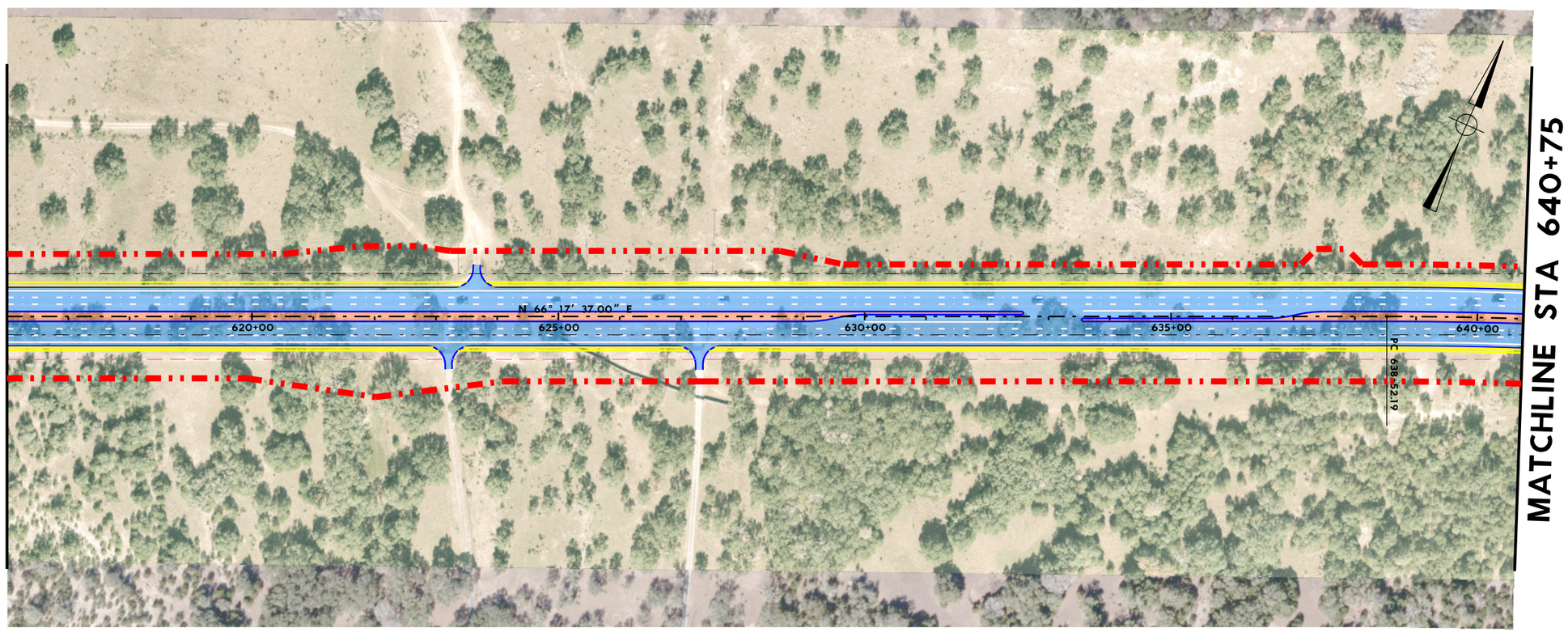

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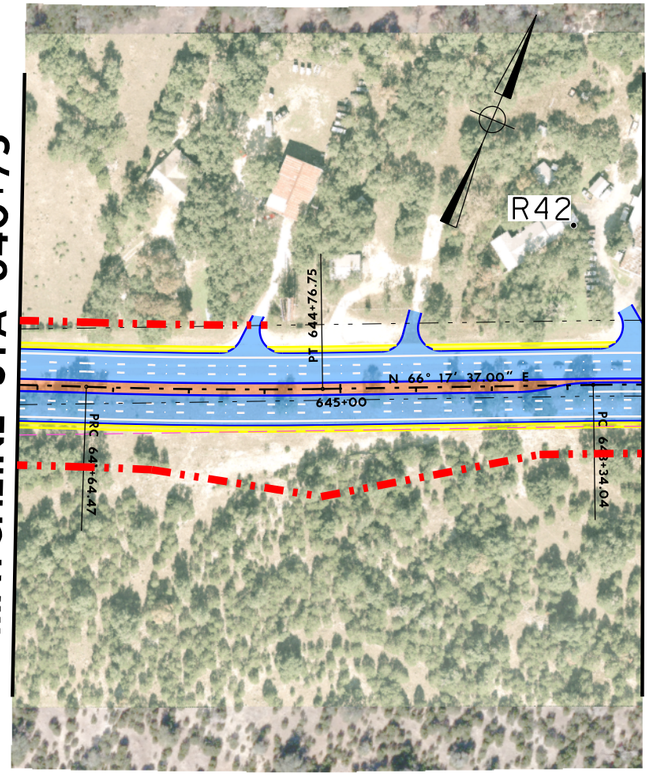

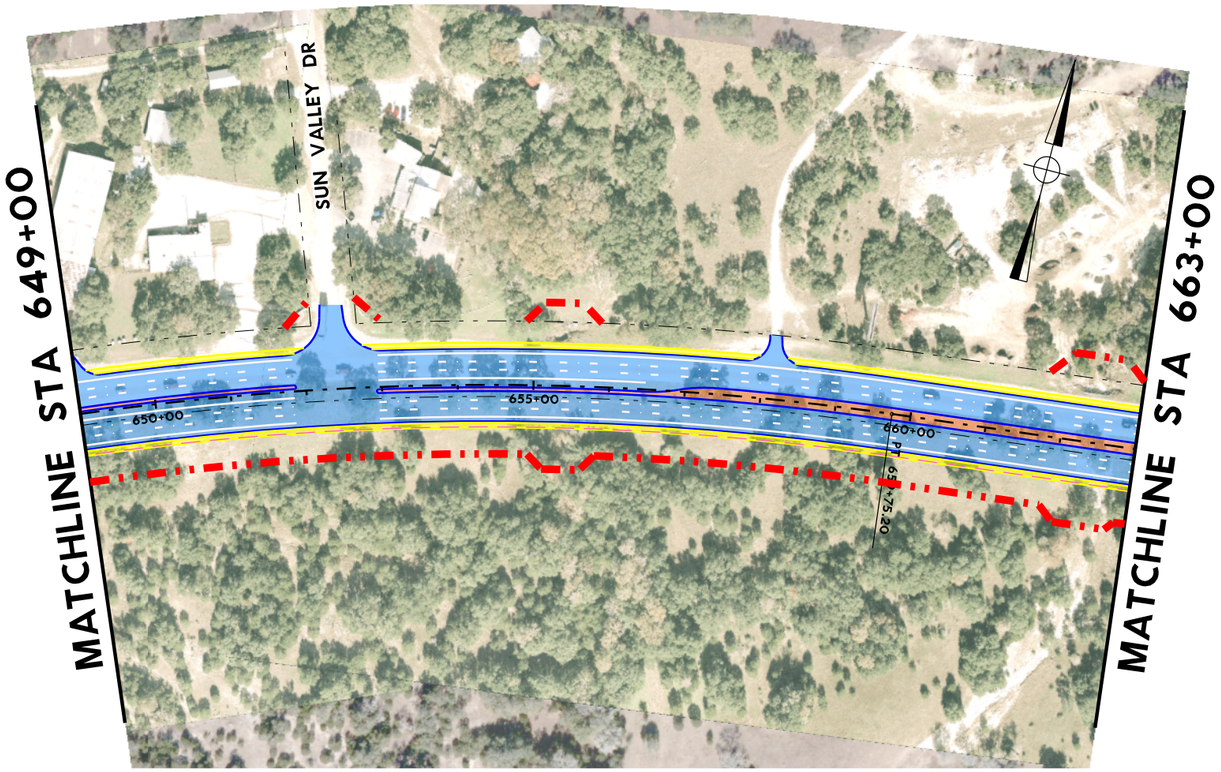

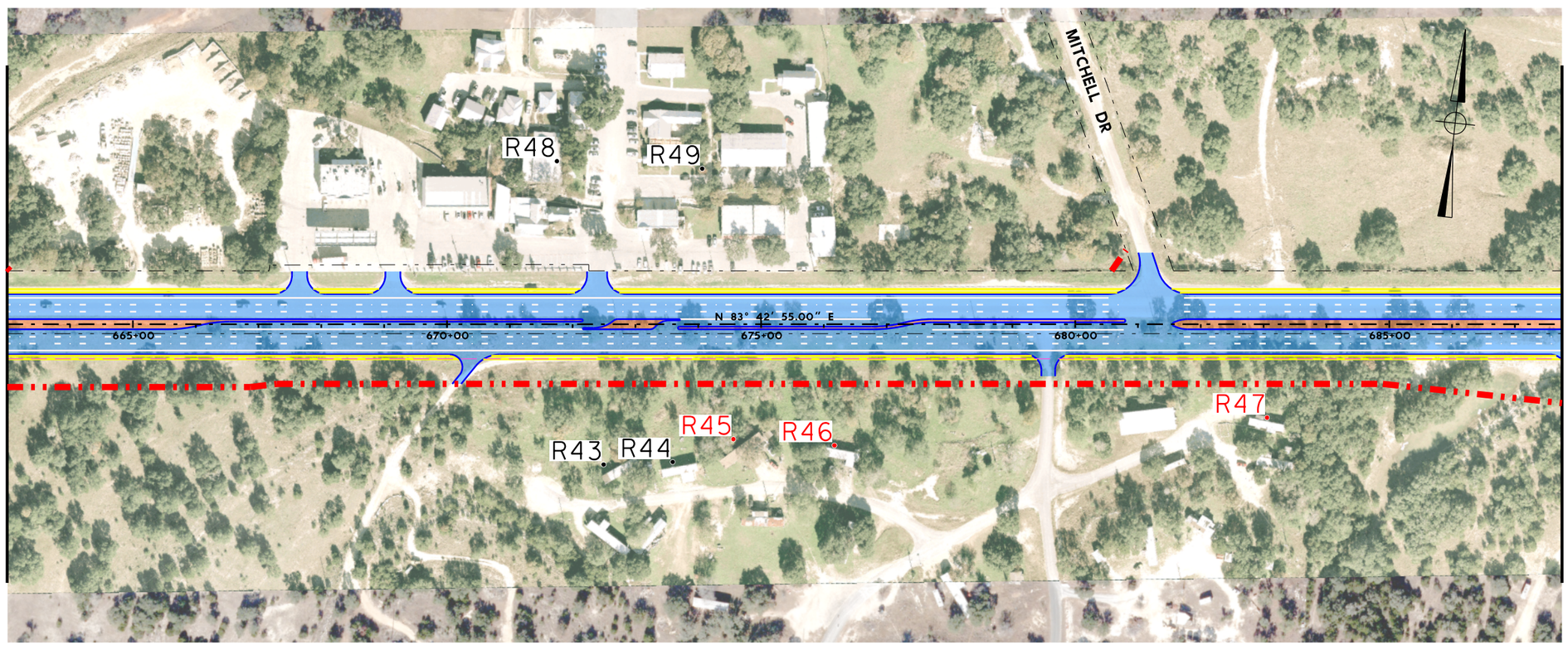

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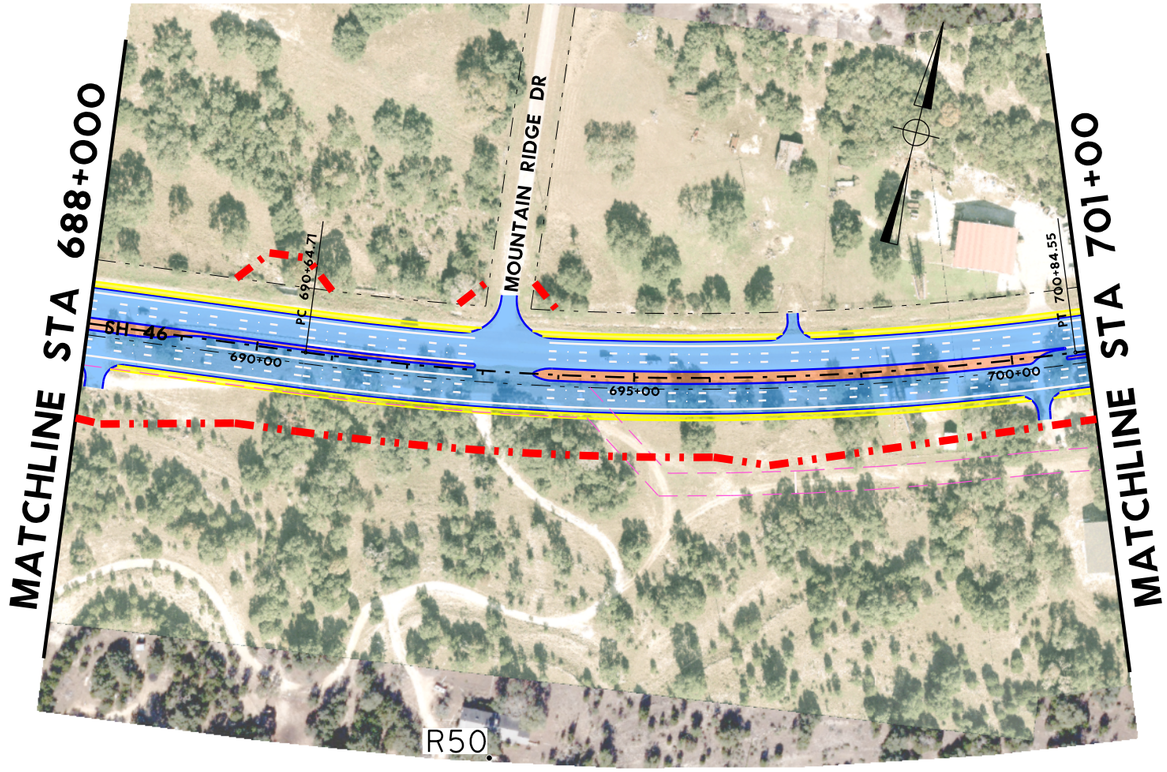

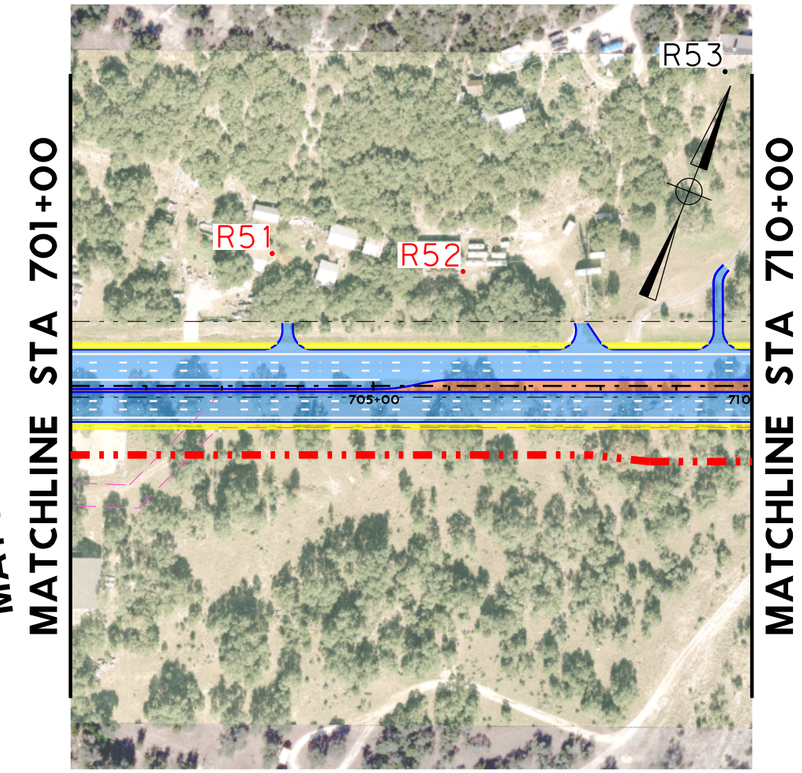

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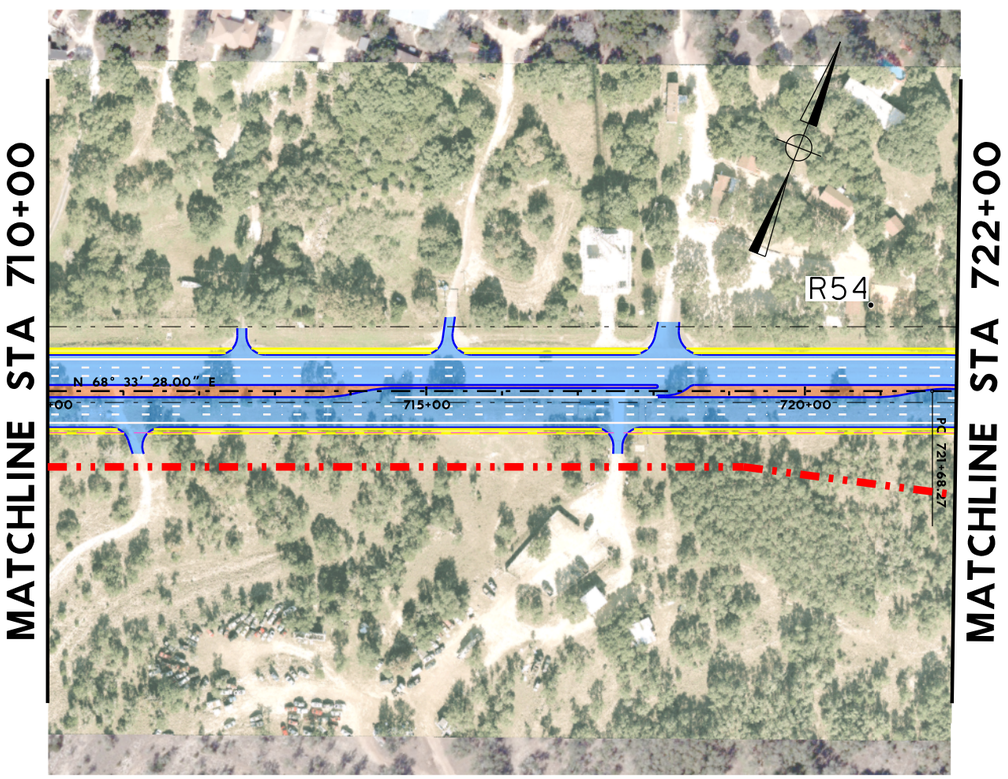

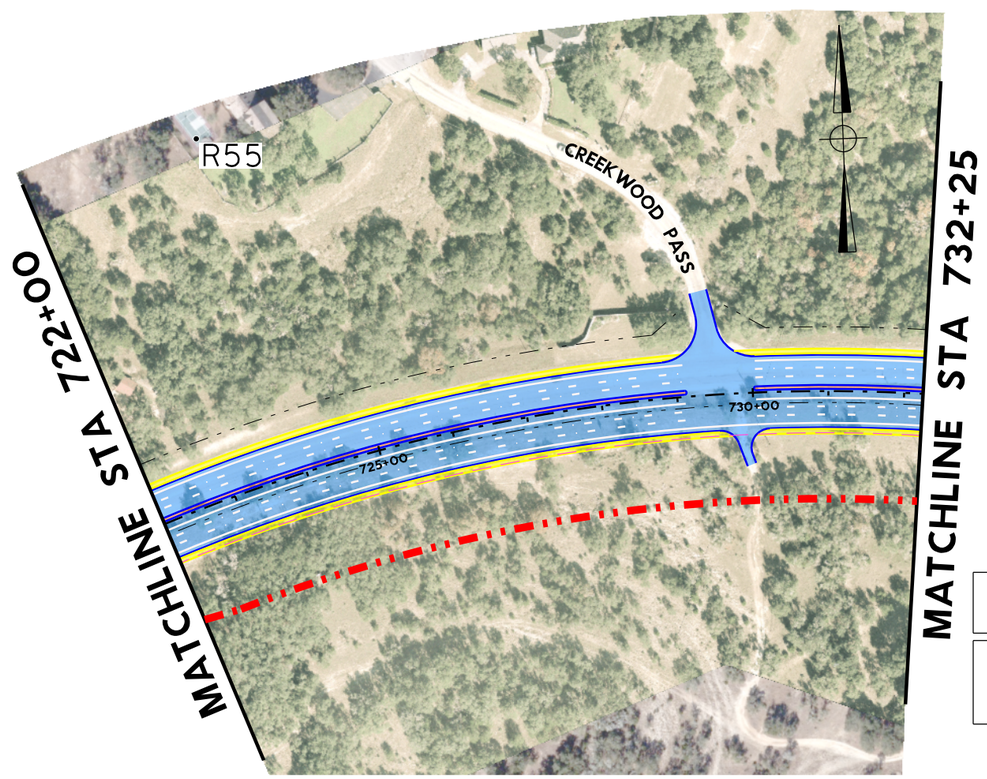

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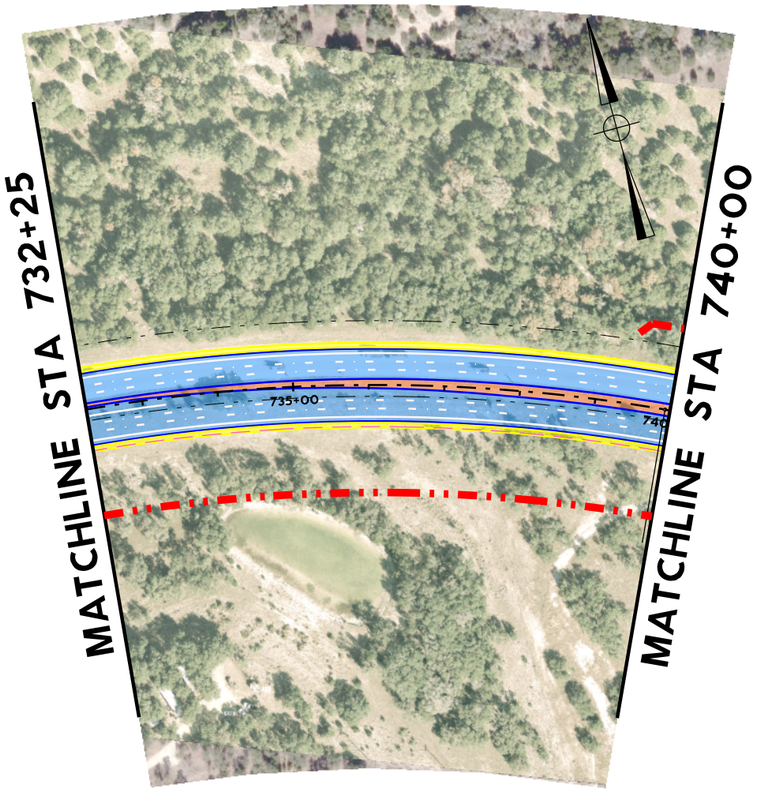

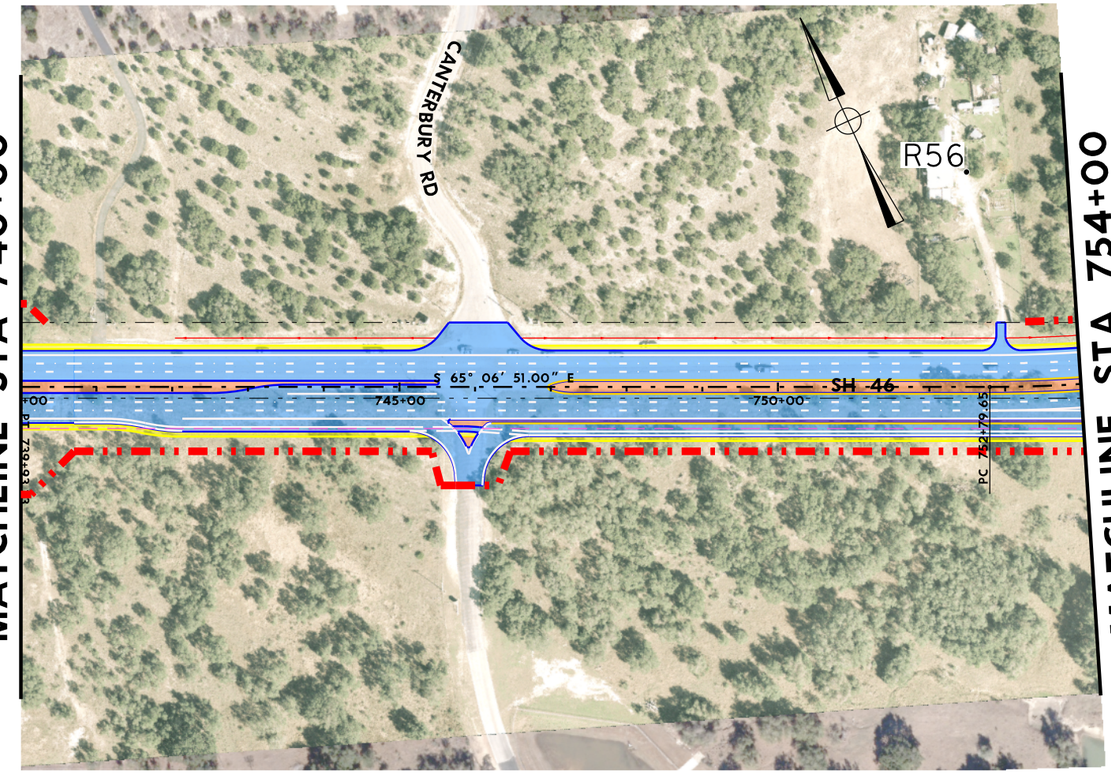

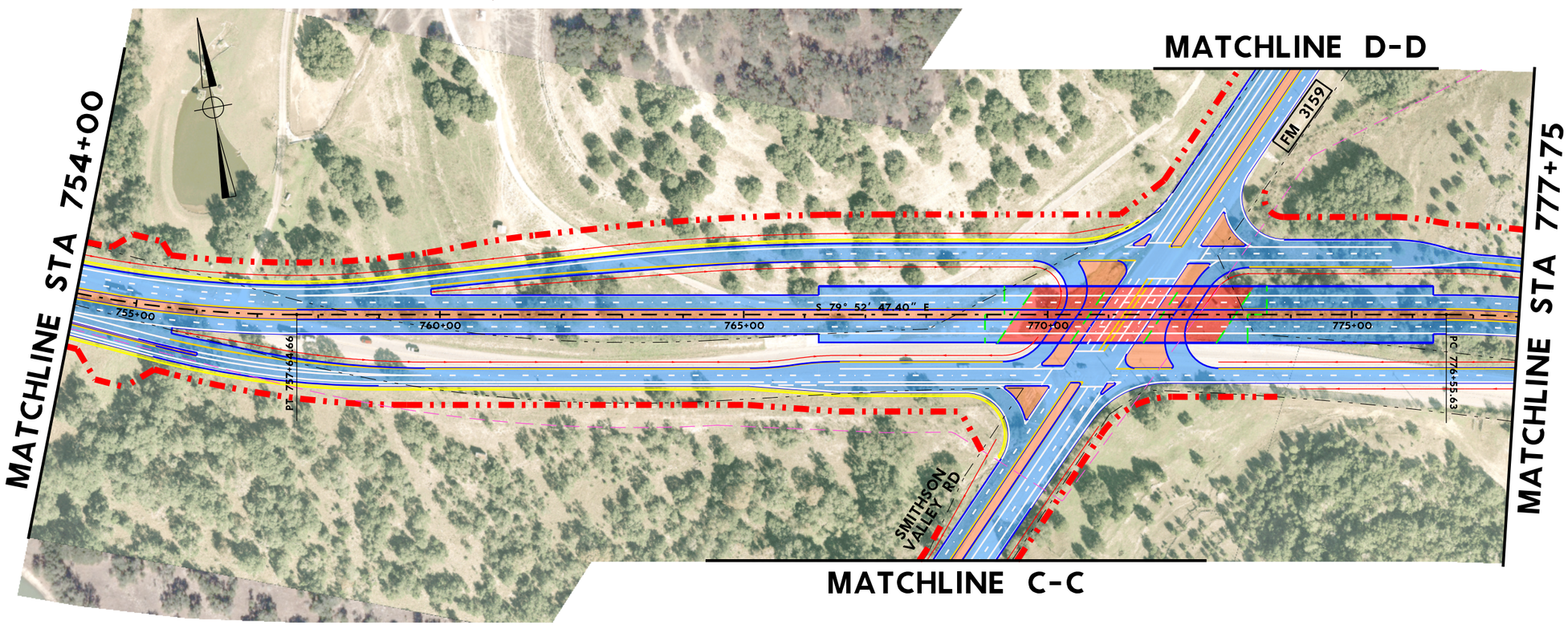

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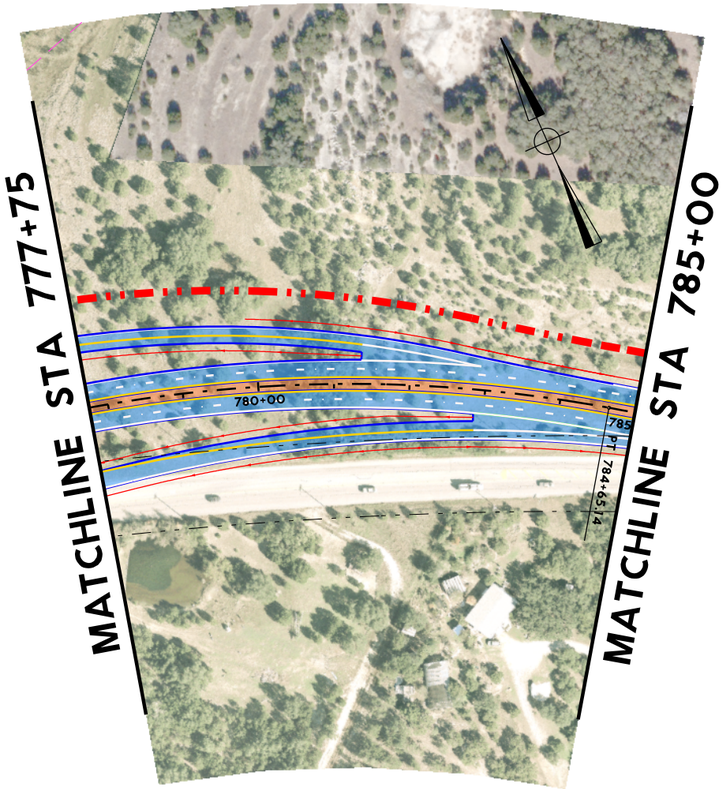

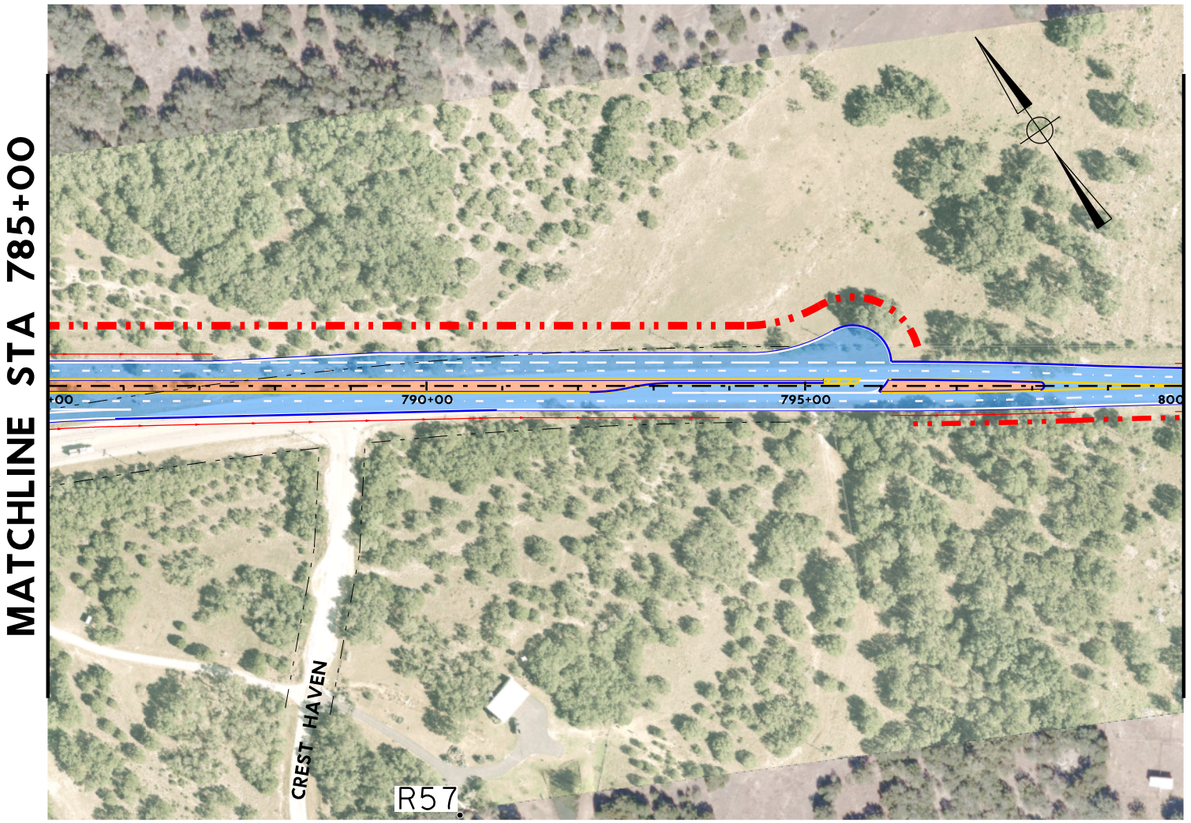

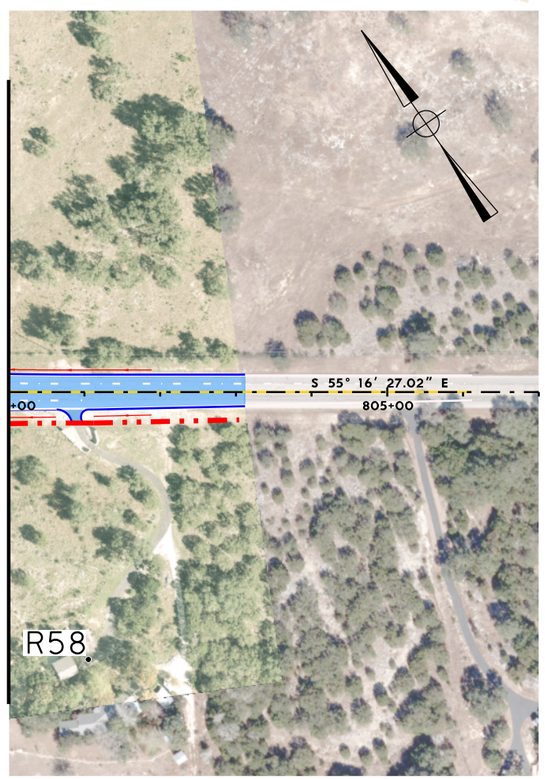

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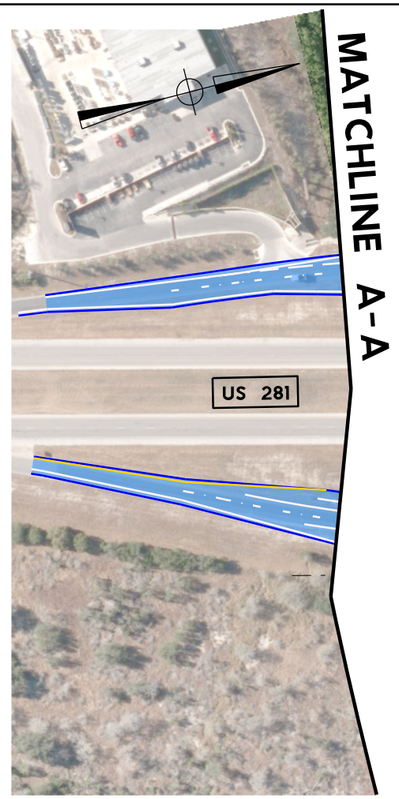
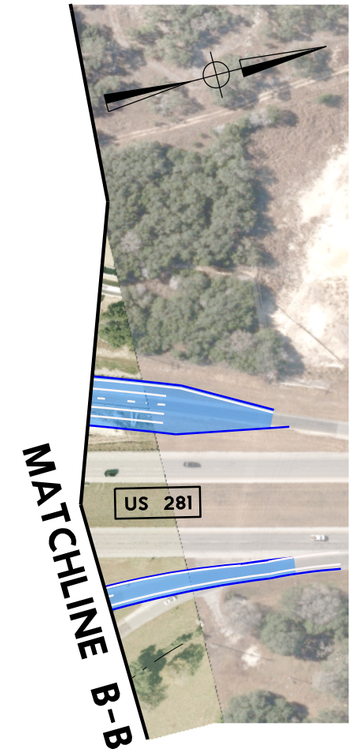
FROM BULVERDE ROAD TO FM 3159
COMAL COUNTY

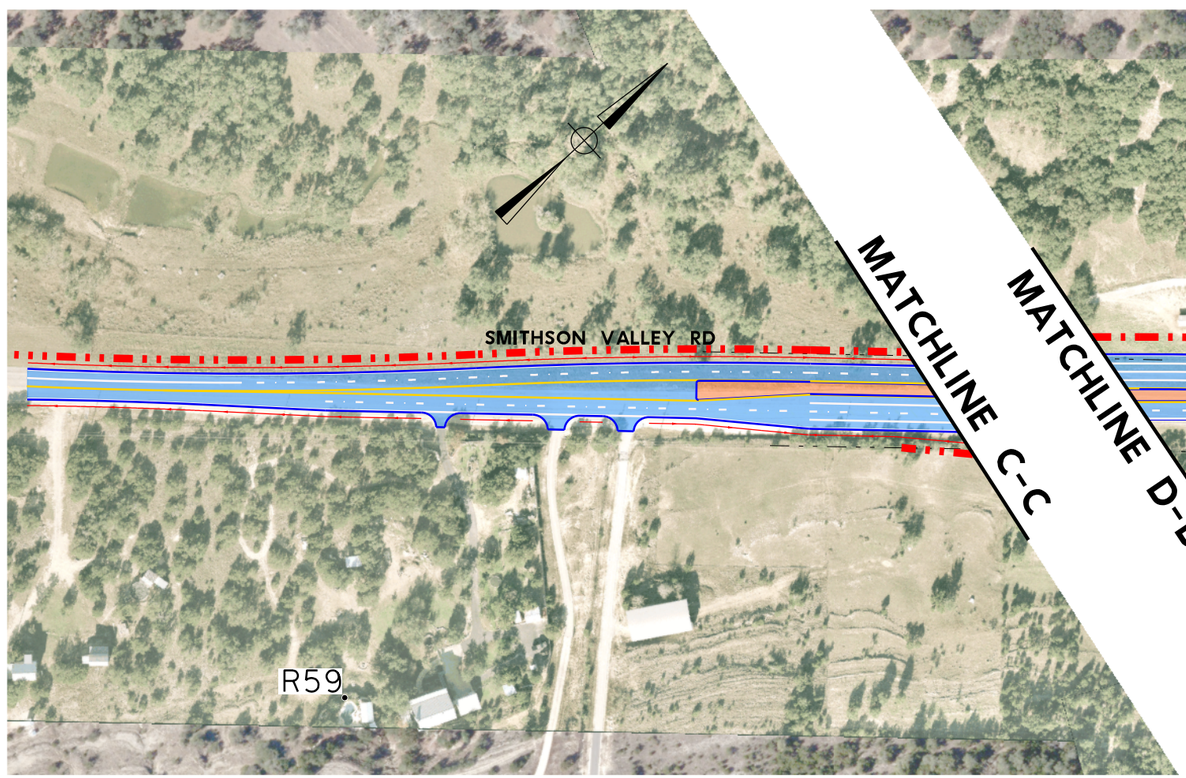
RPS Klotz Proj. No: 0121.077.001	Exhibit A
Scale: 1"=200'	
Date: OCTOBER 2016	

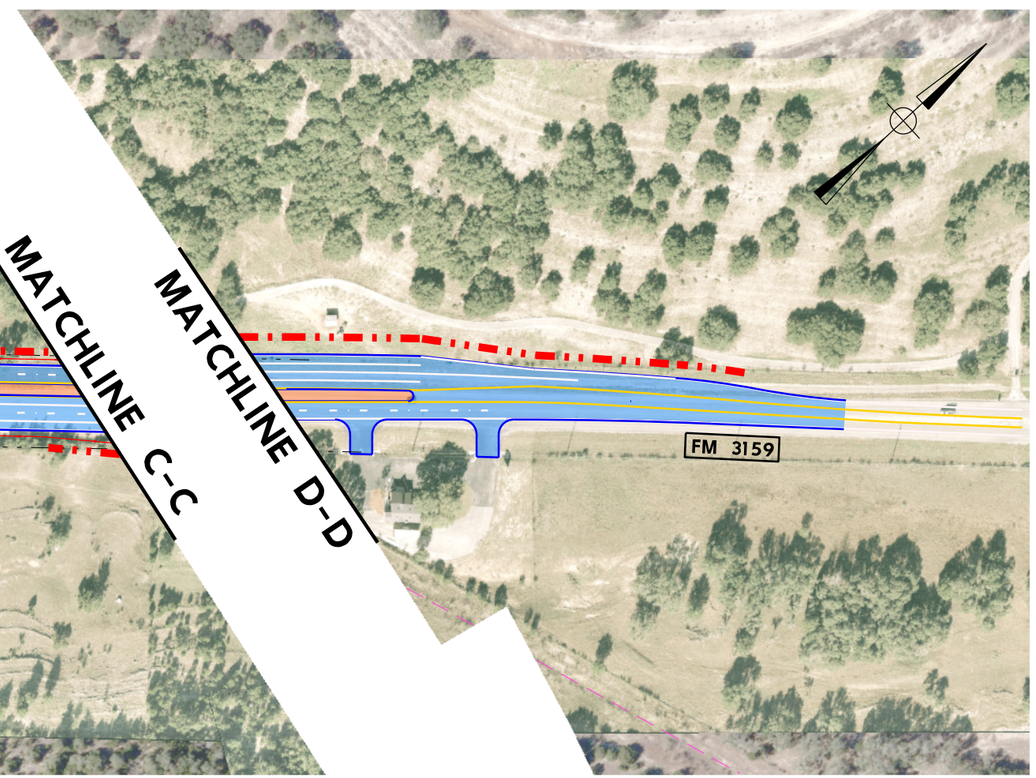
11/29/2016 1:55:55 PM
J:\0121.074.001\07.00 CADD\SH46\021507.027\10-Environmental Issues\Klotz.SH46_NOISE_EXIST_10.dgn

KA_pdf_COLOR-11X17.pltcfg
Charles.Gauzer









LEGEND

- PROPOSED EDGE OF PAVEMENT
- EXISTING PARCEL LINE
- EXISTING ROW
- EXISTING EASEMENT
- PROPOSED ROW
- PAVEMENT
- BRIDGE
- SIDEWALK
- MEDIAN
- R#• NON IMPACTED NOISE RECIEVERS
- R#• IMPACTED NOISE RECIEVERS

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NOISE RECEIVERS

SH46
FROM BULVERDE ROAD TO FM 3159
COMAL COUNTY

RPS Klotz Proj. No: 0121.077.001	Exhibit
Scale: 1"=200'	A
Date: OCTOBER 2016	

6/15/2017 2:34:39 PM
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Appendix G
Resource Agency Coordination

Theresa Canales

From: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Sent: Tuesday, June 06, 2017 5:01 PM
To: Theresa Canales
Subject: RE: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Theresa,

Thank you for the thorough reply. I appreciate the proposed BMP for the salamander and the surveys for rare plants.

Thank you for submitting the following project for early coordination: SH 46 widening from Bulverde Road to FM 3159 (CSJ 0215-01-044). TPWD appreciates TxDOT's commitment to implement the practices listed in the Biological Evaluation Form submitted on January 26, 2017 and in subsequent emails (below). 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: Theresa Canales [mailto:Theresa.Canales@txdot.gov]
Sent: Tuesday, June 06, 2017 1:48 PM
To: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Subject: RE: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Hi Sue,

Thank you for your comments on SH 46, in Comal County, CSJ 0215-01-044, 0215-07-027. After speaking with Andy Blair, ENV Division biologist about your recommendation to consult with USFWS we concluded we will not consult for this project. We consult with USFWS for impacts to karst species in Bexar County only. There are no federally listed karst species in Kendall County.

The Comal blind salamander (EOID 2679; was recorded within 1.5 mile of the project, west of Bulverde Road and also more than 1.5 mile south of the project limits along Smithson Valley Road (EOID: 478, 3948, 10954). The Comal blind salamander is a State threatened underground aquatic species found in springs, and in waters of caves. No known springs or caverns with water have been found in the project limits and impacts to the aquifer are not anticipated.

Since there are several NDD records for the Comal blind salamander in the vicinity of the project, and there are no BMPs in the PA for aquifer dwelling species a BMP is proposed. In the event that a void, which may contain habitat for underground aquatic species, is encountered during drilling bore holes or pouring bridge bents, this BMP would minimize potential adverse impacts to the species.

No habitat was documented for the Black-capped vireo because there are no oak-juniper woodlands with distinctive, patchy, two-layered aspect that the vireo requires. The Golden-cheeked warbler requires mature ash-juniper trees for nesting material, and there are no mature juniper-oak woodlands in the project area. The project area shows evidence of recent clearing of ash juniper, since this species of trees are all immature in the project area.

After TxDOT obtains a legal right-of-entry to the properties where ROW is needed, TxDOT biologists will conduct surveys for rare plants that may be found in the project area including SCGN species and the Bracted Twist flower, a candidate for federal listing. They will obtain more photographs and characterize the vegetation to ascertain whether it is songbird habitat. If any of the rare plants are found, we will contact the TxDOT WHAB email address immediately to determine what protections may be used for them or if possible to salvage plant cultivars from the area. Otherwise, we will forward the survey information to you.

Thank you for the opportunity to explain further. I hope this information is helpful to you.

Theresa Canales
Environmental Section
TxDOT San Antonio District
210-615-6308
Theresa.Canales@txdot.gov

From: Sue Reilly [mailto:Sue.Reilly@tpwd.texas.gov]
Sent: Thursday, May 11, 2017 5:25 PM
To: Theresa Canales
Subject: RE: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Theresa,

I would recommend consulting with USFWS for songbirds and karst species. The project is adjacent to what looks like golden-cheeked warbler or black-capped vireo habitat. The fact that you are proposing karst BMPs seems to illustrate that there is a potential to impact species in the aquifer or in the karst. Even if you do not initiate Section 7 consultation with USFWS, I recommend that they review the project to determine if consultation is needed.

Has TxDOT already performed surveys for plants with habitat in the project area as listed in the material submitted? If not, I recommend performing surveys for all SGCN plants that may be found within the project area, including bracted twistflower. If individuals or populations of any SGCN plants are found, please contact the TxDOT WHAB email address immediately to determine what protections may be used for them, and if it is possible to salvage plant cultivars from the area.

Thank you,

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

From: Theresa Canales [mailto:Theresa.Canales@txdot.gov]
Sent: Tuesday, May 02, 2017 3:10 PM
To: Sue Reilly
Subject: RE: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Sue,

I missed your March 7 email. asking if we are consulting with USFWS. We are coordinating with TPWD only; there would be no potential effect to any Federally listed species. The documents that I just sent to you on April 27 are the same as the ones sent in January. There have been no updates to the documents, but I could not confirm that I sent the BE form and associated documents to you when I first initiated coordination in January, so I re-sent them.

Apologies for the confusion, please let me know if you need anything else for your review.

Thank you,

Theresa Canales
Environmental Section
TxDOT San Antonio District
210-615-6308
Theresa.Canales@txdot.gov

From: Sue Reilly [mailto:Sue.Reilly@tpwd.texas.gov]
Sent: Tuesday, May 02, 2017 11:15 AM
To: Theresa Canales
Subject: FW: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Theresa,

I got your email requesting coordination for SH 46. You had attached documents in January, and I had sent you the email below asking about USFWS consultation. I haven't looked at the documents that you sent today. Did you update information since the January BE Form?

Thank you,

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

From: Sue Reilly
Sent: Tuesday, March 07, 2017 5:24 PM
To: Theresa Canales
Subject: RE: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Theresa,

Does TxDOT plan to consult with USFWS on any species for this project?

Thank you,

Sue

From: WHAB_TxDOT
Sent: Thursday, January 26, 2017 3:43 PM
To: Theresa Canales
Cc: Sue Reilly
Subject: RE: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

The TPWD Wildlife Habitat Assessment Program has received your request and has assigned it project ID # 37543. 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: Theresa Canales [mailto:Theresa.Canales@txdot.gov]
Sent: Thursday, January 26, 2017 12:31 PM
To: WHAB_TxDOT <WHAB_TxDOT@tpwd.texas.gov>
Subject: Early Coordination: SH 46 (0215-01-044, 0215-07-027)

Hello,

I'm requesting Early Coordination for SH 46 (0215-01-044, 0215-07-027). The project description is found in Section 2.1 of the Biological Technical Report (SH 46 BioTech Report.pdf).

I will send the Biological Technical Report, Biological Evaluation Form, BE Form Attachments, and EMST.xls report by drop-box following this email.

Please let me know if you require additional information.

Thank you,

Theresa Canales
Environmental Section
TxDOT San Antonio District
210-615-6308
Theresa.Canales@txdot.gov

January 26, 2017

#EndTheStreakTX

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