



Draft Environmental Assessment Loop 1604

From Potranco Road to FM 471
Bexar County, Texas
CSJ# 2452-01-056

September 2015

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



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LIST OF ACRONYMS

AADT – Average Annual Daily Traffic
ACS – American Community Survey
ACM – Asbestos Containing Material
AOI – Area of Influence
APE – Area of Potential Effect
BMP – Best Management Practice
CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
CHU – Critical Habitat Unit
CWA – Clean Water Act
DHHS – Department of Health and Human Services
DOT – Department of Transportation
DPM – Diesel Particulate Matter
EA – Environmental Assessment
EO – Executive Order
EPA – Environmental Protection Agency
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FONSI – Finding of No Significant Impact
FM – Farm-to-Market
FWCA – Fish and Wildlife Coordination Act
ISA – Initial Site Assessment
LEP – Limited English Proficiency
MBTA – Migratory Bird Treaty Act
MOU – Memorandum of Understanding
MPO – Metropolitan Planning Organization
MSAT – Mobile Source Air Toxics
MTP – Metropolitan Transportation Plan
NAAQS – National Ambient Air Quality Standards
NEPA – National Environmental Policy Act

NOI – Notice of Intent

NRHP – National Register of Historic Places

NWP – Nationwide Permit

PCB – Polychlorinated Biphenyls

PCN – Preconstruction Notification

POM – Polycyclic Organic Matter

RSA – Resource Study Area

RTHL – Recorded Texas Historic Landmark

TAC – Texas Administrative Code

TCEQ – Texas Commission on Environmental Quality

THC – Texas Historical Commission

TIP – Transportation Improvement Program

TMDL – Total Maximum Daily Load

TPDES – Texas Pollutant Discharge Elimination System

TPWD – Texas Parks and Wildlife Department

TSS – Total Suspended Solids

TxDOT – Texas Department of Transportation

SAL – State Antiquities Landmark

SGCN – Species of Greatest Conservation Need

SH – State Highway

SHPO – Texas State Historic Preservation Officer

SW3P – Stormwater Pollution Prevention Plan

USACE – United States Army Corps of Engineers

USFWS – United States Fish and Wildlife Service

VMT – Vehicle Miles Traveled

1.0 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

The San Antonio District of the Texas Department of Transportation (TxDOT) proposes an expansion of Loop 1604 from Potranco Road (Farm-to-Market [FM] 1957) to FM 471 (Culebra Road) in San Antonio, Bexar County, Texas (see **Figure 1**). Improvements would include the construction of the southbound Loop 1604 main lanes and frontage road, entrance and exit ramps, and three grade separations; the existing roadway would be converted to a four-lane expressway. This Environmental Assessment (EA) has been developed in order to study the potential environmental consequences of construction of the proposed project. This project was initially evaluated with a State EA; however, based on the recent inclusion of federal funding, this document has been prepared in accordance with the procedural provisions of the National Environmental Policy Act (NEPA); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); Environmental Impact and Related Procedures (23 CFR Part 771); and Environmental Review of Transportation Projects (Texas Administrative Code [TAC] Title 43, Part 1, Chapter 2).

1.2 PUBLIC REVIEW OF THE ENVIRONMENTAL ASSESSMENT

Notice of the availability of the EA will be made through notices published in both English and Spanish in the *San Antonio Express News* and *La Prensa*. Following the comment period, TxDOT will thoroughly consider all comments submitted. Based on information contained in this EA and any comments submitted, TxDOT will determine whether environmental effects are sufficiently substantial to warrant preparation of an Environmental Impact Statement. If TxDOT determines that there are no significant adverse effects, it will prepare and sign a Finding of No Significant Impact (FONSI), which will be made available to the public.

2.0 PROJECT DESCRIPTION

2.1 EXISTING FACILITY

The existing roadway is a four-lane divided roadway with two 12-foot lanes in each direction and shoulders ranging in width from four feet to ten feet (see **Figure 2**). The width of the existing facility ranges from approximately 38 to 44 feet with a total right of way width ranging from 340 to 400 feet.

2.2 BUILD ALTERNATIVE

The Build Alternative would convert the existing roadway to a four-lane expressway, and would include the construction of the southbound Loop 1604 main lanes and frontage road, entrance and exit ramps, and three grade separations. The length of the proposed project is approximately 4.1 miles. The proposed improvements would be constructed primarily within existing right of way and to the north of the existing roadway. Approximately 3.7 acres of new right of way would be required, between Kilmarnoch Road and Reed Road. The proposed construction limits extend from approximately 4,500 feet south of Potranco Road to State Highway (SH) 151.

The proposed action would reconstruct the main lanes of Loop 1604 slightly north of their current alignment, retaining two 12-foot lanes in each direction. The proposed improvements also include the construction of two-lane, one-way northbound and southbound frontage roads, with auxiliary lanes and turn lanes at intersection locations (see **Figure 3**). The frontage roads would include a 15-foot outside lane and 12-foot inside lane(s). The inside shoulder width would range from four feet to nine feet and the outside shoulder would be 15 feet wide with a six-foot wide sidewalk. The 15-foot outside, shared-use lane would accommodate bicyclists. The typical section would match that of the Loop 1604 expansion project currently under construction directly to the north of the project area.

At the intersection of Loop 1604 with Potranco Road, West Military Drive, and Wiseman Boulevard, Loop 1604 would be elevated to span the intersections with the east-west roadways. With the exception of the northbound lanes over Potranco Road, the proposed bridge sections would have two 12-foot travel lanes and an auxiliary lane in each direction with inside shoulder widths of four feet and typical outside shoulder widths of six feet. At the Potranco Road bridge, there would be two northbound travel lanes and no auxiliary lane.

The logical termini for the proposed project include Potranco Road and FM 471, major east-west thoroughfares connecting to Loop 1604. The proposed project would have independent utility, serving to improve mobility in the project area, regardless of other improvements. Based on the findings of this EA, the Build Alternative is recommended as the preferred alternative.

2.3 NO BUILD ALTERNATIVE

Under the No Build Alternative, the proposed project would not be constructed. The No Build Alternative would not require the conversion of approximately 3.7 acres from existing land uses to transportation use. However, the No Build Alternative would not result in increased mobility. Selection of the No Build Alternative would be expected to result in worsening traffic congestion. Although this alternative does not meet the need and purpose of the proposed project, the No Build Alternative was considered for comparison purposes.

3.0 NEED AND PURPOSE FOR THE PROPOSED PROJECT

3.1 NEED FOR THE PROPOSED PROJECT

Transportation improvements for Loop 1604 are needed between Potranco Road and FM 471 due to high traffic counts and congestion along Loop 1604. According to the City of San Antonio Department of Planning and Community Development, the population of San Antonio increased by about 16 percent between 2000 and 2010; the population grew from 1.1 million people to 1.3 million people. The project area spans City Council Districts 4 and 6, where the population is growing more rapidly than in the city as a whole. The population of these two districts combined increased 21 percent from 2000 to 2010. Loop 1604 is currently the outermost loop around the City of San Antonio and provides access for project area neighborhoods and commercial development as well as a route for regional travelers.

The mobility needs are substantiated by the growing traffic volumes on Loop 1604 within the project limits. Based on data collected by TxDOT, at the intersection of Loop 1604 and FM 471, the Annual Average Daily Traffic (AADT) counts have increased from 40,000 to 85,000 AADT between 2007 and 2012. Traffic counts at the intersection of Loop 1604 and Potranco Road have increased from 22,000 to 34,000 AADT during the same period. The demand for travel on Loop 1604 within the project limits is also expected to increase in the future. The projected AADT for the section of the proposed project containing the FM 471 intersection would increase to 95,700 and 155,400 in 2017 and 2037, respectively, while the section of the roadway containing the Potranco Road intersection would increase to 36,600 and 59,700 AADT.

The 2012 statewide crash rate per 100 million vehicle miles traveled (VMT) for urban facilities with four or more lanes (divided) was 125.01. There were 246 crashes reported to have occurred along Loop 1604 within the project limits in 2012. As the estimated 2012 VMT for the project limits is 357,000, this crash rate is substantially higher than the rate for similar facilities statewide. Approximately 35 percent of the TxDOT-recorded crashes within the project limits between 2008 and 2012 were reported to be intersection-related. Of these intersection-related crashes during this time period, approximately 68 percent occurred at intersections that would be improved with grade separations under the proposed project (Potranco Road, West Military Drive, and Wiseman Boulevard).

3.2 PURPOSE OF THE PROPOSED PROJECT

The purpose of the proposed project is to improve mobility and maintain safety for the traveling public. By converting the roadway to a freeway and building grade separations at major intersections within the project limits, the proposed project would increase mobility and limit the interaction of high volume traffic traveling along Loop 1604 and turning traffic from Potranco Road, West Military Drive and Wiseman Boulevard.

4.0 PLANNING AND PROGRAMMING STATUS

The proposed action is consistent with the San Antonio-Bexar County Metropolitan Planning Organization's (MPO) 2040 Metropolitan Transportation Plan (MTP), Mobility 2040, and the 2015–2018 Transportation Improvement Plan (TIP), May 2015 revision, (see **Appendix B**). The estimated total project cost is \$98,000 as of May 2015.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The project objectives and environmental issues were a primary focus in the planning, design, and environmental analysis processes. In support of this EA, the following technical reports were prepared and are available for review at the TxDOT San Antonio District office:

TxDOT, 2014a. Socioeconomic Impacts Technical Report.

TxDOT, 2014b. Indirect and Cumulative Impacts Analysis Report.

TxDOT, 2014c. Archeological Resources Background Study.
TxDOT, 2014d. Historical Resources Project Coordination Request.
TxDOT, 2014e. Hazardous Materials Technical Report.
TxDOT, 2015a. Water Resources Technical Report.
TxDOT, 2015b. Quantitative MSAT Analysis.
TxDOT, 2015c. Traffic Noise Technical Report.
TxDOT, 2015d. Biological Resources Technical Report.

Based on the above technical studies, scoping, and thorough analysis, it was determined that the proposed project would have no impact on the following resource categories: Farmland; Groundwater; Wetlands; Navigable Waters; Wild and Scenic Rivers; Coastal Coordination; Section 6(f) Properties; and Section 4(f) Properties. Resource categories with the potential to be affected by the implementation of the proposed project are summarized in the following sections.

5.1 RIGHT OF WAY/DISPLACEMENTS SUMMARY

The proposed project would require approximately 3.7 acres of new right of way, none of which has been previously acquired through early acquisition (TxDOT 2014a). The proposed project would require new right of way from four parcels, according to data obtained from the Bexar County Appraisal District.

Two of the parcels are zoned as residential. The other two parcels from which right of way would be acquired are undeveloped. One of the parcels is zoned for multifamily residential use; approximately 3.4 acres would be acquired from the 22-acre site. The other undeveloped parcel is zoned as commercial; approximately 0.13 acres of the 0.89-acre site would be acquired.

All right of way acquisition would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The proposed project would not require the displacement of any residences or businesses.

Under the No Build Alternative, no additional right of way would be acquired.

5.2 LAND USE SUMMARY

The project area is located on the far northwest side of the city of San Antonio; in the project area, the city limits extend just to the west of Loop 1604. The project area vicinity was annexed by the city beginning in the 1980s, and most development dates from this period or later. Land in the project area is characterized by a mixture of residential, commercial, and vacant land.

The proposed project was evaluated for consistency with local plans, including the City of San Antonio's West/Southwest Sector Plan and Major Thoroughfare Plan/Map. The proposed project is not anticipated to alter the current trend of suburban development in the project area (TxDOT 2014b). The conversion of the existing roadway to a four-lane expressway under the proposed project would be consistent with the City's current Major Thoroughfare Plan.

The implementation of the No Build Alternative would not directly affect land use and would not be inconsistent with local plans.

5.3 GROWTH SUMMARY

The City of San Antonio grew by about 16 percent between 2000 and 2010, for a 2010 population of 1,326,528 (TxDOT 2014a). The project area, including some areas outside of San Antonio's city limits, is also growing rapidly. According to the City of San Antonio Department of Planning and Community Development, the City's population increased by about 16 percent between 2000 and 2010 while the two City Council Districts encompassing the project area experienced an increase in population of 21 percent during the same period. The growth rate in Bexar County was even higher than the City of San Antonio, suggesting that growth in Bexar County is concentrated outside of the city limits. The proposed project would accommodate continued growth in the project area by improving mobility for increasing AADT within the project limits.

The selection of the No Build alternative would not directly influence growth patterns, but the project area may become less attractive to development if the roadway congestion continues to increase as the population and AADT grow over time.

5.4 SOCIOECONOMIC IMPACTS SUMMARY

5.4.1 Economic Impacts

The construction of the proposed project would have a positive impact on the local and regional economies. The investment in the construction industry would result in additional jobs (short-term) and income benefits. Estimations of the proposed project's economic effects can be made using the U.S. Department of Commerce Bureau of Economic Analysis RIMS II Multipliers. When multiplied by the proposed project's estimated construction cost of approximately \$69.1M, the RIMS II multipliers produce an estimated direct household earnings effect of \$24M and an estimated 486 jobs (TxDOT 2014a). As these positions would be related to the investment in the construction sector, employment effects are expected to last about as long as the construction period for the project. The proposed improvements would also increase mobility, a benefit to project area businesses; however, as discussed in **Section 5.11.1**, the proposed project would not create or increase access along the roadway when compared to the existing condition.

If the No Build Alternative is selected, the predicted economic impacts of the proposed project construction on the local and regional economies would not occur. The household earnings and employment effects expected to be directly supported by the proposed project would also not be realized.

5.4.2 Community Impacts

The proposed project would not require any displacements and would not separate or divide neighborhoods. The existing Loop 1604 facility predates most development in the area. The proposed project alignment would be similar to the current condition relative to the location of existing neighborhoods and would not introduce a new barrier or affect neighborhood connectivity or cohesion (TxDOT 2014a). Crossings at major intersections would be maintained, and the proposed project would provide bicycle accommodations and new sidewalks in the project area.

Under the No Build Alternative, community cohesion would also not be affected. New bicycle and pedestrian accommodations would not be constructed.

5.4.3 Environmental Justice

An environmental justice analysis was completed in accordance with Executive Order (EO) 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” All transportation projects conducted by recipients of federal funds are required to study community impacts for compliance with Title VI, including addressing environmental justice. As TxDOT is a recipient of federal funding from the Federal Highway Administration (FHWA), TxDOT projects address these topics following FHWA procedures. There are no low-income populations in the project area, based on a comparison of the median household income of project area block groups as reported in the 2008-2012 American Community Survey (ACS) to the 2014 Department of Health and Human Services (DHHS) poverty guideline for a family of four (TxDOT 2014a). The median household income is also above the 2015 DHHS poverty guideline for a family of four, which is \$24,250. According to the 2010 Census, minority populations in project area blocks range from 36.9 percent to 100 percent, and 14 of the total 18 populated blocks have a minority population of 50 percent or more (TxDOT 2014a). These blocks are considered minority populations for the purposes of the environmental justice analysis.

Although there are minority populations in the project area, the project would not have adverse community impacts—no displacements, no major changes in access, and no effects to community cohesion. Therefore, the Build Alternative would not cause disproportionately high and adverse effects on minority populations and is consistent with EO 12898.

The No Build Alternative would also not cause disproportionately high and adverse effects on minority populations or low-income populations.

5.4.4 Limited English Proficiency

Based on data from the 2008-2012 ACS for project area block groups, the percentage of persons with limited English proficiency (LEP) in the project area ranges from 1.1 percent to 16.0 percent. Overall, 2,486 persons in the project area block groups are considered LEP, representing 12.7 percent of the project area’s total block group population over five years old. The language most often spoken by LEP persons in the project area is Spanish (83 percent); 6.3 percent speak Other languages, 5.4 percent

speak Asian and Pacific Island languages, and 5.0 percent speak Other Indo-European languages (TxDOT 2014a).

To ensure full and fair public participation, meeting notifications for the open house held March 18, 2014, and the public hearing held October 8, 2014 were published in both and English and Spanish and Spanish-speaking TxDOT and project team representatives were available at the meeting and hearing.

5.5 UTILITIES/EMERGENCY SERVICES SUMMARY

The proposed project may require the relocation of underground or overhead utilities. At this stage of the project, the locations of utilities potentially requiring adjustment or relocation have not been identified. Subsurface and overhead utility locating would be an element of the detailed design, and coordination with the utility owners on possible relocation options would take place at that time. Utility relocations and adjustment would be accomplished with the minimum practicable disruption in service to customers.

The project area is served by City of San Antonio Fire Station 45, located east of Loop 1604, off State Highway (SH) 151, at 3415 Rodgers Road. The proposed project would not affect the Loop 1604 interchange with SH 151, and emergency access would be preserved.

The No Build Alternative would not affect utilities or the provision of emergency services.

5.6 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES SUMMARY

There would be minor changes in travel patterns as a result of the proposed project. Traffic from adjacent parcels and intersecting roadways would utilize the frontage roads to access the main lanes of Loop 1604 rather than accessing the main lanes directly. The grade separations at the intersections of Loop 1604 with Potranco Road, Military Drive, and Wiseman Boulevard would make traffic movements more efficient, as through-traffic on Loop 1604 would not have to stop at the intersections.

Route 620 and Route 64 of the San Antonio Metropolitan Transit VIA utilize Loop 1604 and have stops along the roadway. The existing bus service would be maintained along the proposed Loop 1604 frontage roads.

The proposed project would comply with the March 2011 TxDOT “Guidelines Emphasizing Bicycle and Pedestrian Accommodations” and the March 11, 2010, U.S. Department of Transportation (DOT) Policy Statement on Bicycle and Pedestrian Accommodations, Regulations and Recommendations. The proposed project would include 6-foot wide sidewalks on the outside of the proposed frontage roads and would accommodate bicycle traffic with a 15-foot outside, shared-use lane on the frontage roads.

There would be no changes in access under the No Build Alternative; new bicycle and pedestrian accommodations would not be constructed.

5.7 VISUAL/AESTHETICS SUMMARY

The proposed project would generally follow the existing alignment of Loop 1604 and would primarily be contained within the existing right of way corridor. The construction of grade separations at Potranco Road, West Military Drive, and Wiseman Boulevard could potentially make portions of the roadway more visible from the surrounding area, although the line of sight would likely be below existing utility lines and the tree line. The relationship between the transportation facility and the surrounding environment under the Build Alternative would not be substantially different visually or aesthetically than the existing condition.

The No Build Alternative would not change the existing visual and aesthetic qualities in the project area.

5.8 CULTURAL RESOURCES SUMMARY

Evaluation of cultural resources for the proposed project have been conducted in accordance with TxDOT's Memorandum of Understanding (MOU) with the Texas Historic Commission (THC) (13 Texas Administrative Code §26.25) and the First Amended Programmatic Agreement among FHWA, TxDOT, the Texas State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU).

5.8.1 Archeological Resources

Based on the results of the archeological background study, the proposed project will have no effect on archeological historic properties and no further archeological investigations are needed. An archeological background study of the area of potential effect (APE) determined it is unlikely any archeological historic properties are in the APE (TxDOT 2014c). A finding of No Effect on archeological historic properties was issued on April 9, 2014, under terms of the MOU between TxDOT and the THC. The proposed project will not affect any cemeteries. Based upon the results from public involvement, there is no controversy regarding project effects on archeological sites and cemeteries.

The No Build Alternative would have no impacts on archeological resources in the project area.

5.8.2 Historic Resources

Based on the results of a Historical Studies Project Coordination Request (TxDOT 2014d), which included a review of the National Register of Historic Places (NRHP), the list of State Archeological Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL), no historically significant resources have been previously documented within the APE. It has been determined that the APE for the proposed project is the current right of way and 150 feet beyond the right of way. A site visit and subsequent investigation has determined that there are no historic properties located within the project APE.

A finding of No Effect on historic properties was issued on March 3, 2014, under terms of the MOU between TxDOT and the THC. Individual project coordination with the State Historic Preservation Officer (SHPO) is not required.

The No Build Alternative would not affect historic properties listed on or eligible for listing on the National Register of Historic Places.

5.9 PHYSICAL ENVIRONMENT SUMMARY

5.9.1 Water Quality

Sections 404 and 401 of the Clean Water Act: Waters of the U.S. and Water Quality Certification

As detailed in the Water Resources Technical Report (TxDOT 2015a), no potential wetland sites were observed in the field; however, two potential waters of the U.S. were identified within the proposed project limits. These include Caracol Creek and an unnamed tributary to Caracol Creek. Preliminary drainage design indicates that Caracol Creek would be channelized from the existing culvert at Loop 1604 west to a point downstream of Potranco Road matching a channel improvement project being implemented by Bexar County independent of the Loop 1604 project. The new proposed southbound frontage road and main lanes would then be bridged over the channelized portion of Caracol Creek. The drainage design at the unnamed tributary to Caracol Creek would include the expansion of the existing box culverts under the proposed southbound frontage road and main lanes.

As also detailed in the Water Resources Technical Report (TxDOT 2015a), approximately 503 linear feet and 0.46 acre of Caracol creek and 267 linear feet and 0.33 acre of the unnamed tributary to Caracol Creek would be permanently impacted by the construction of the proposed project. The placement of permanent dredge or fill material into potentially jurisdictional waters of the U.S. would be authorized under a United States Army Corps of Engineers (USACE) Nationwide Permit (NWP) 14. Temporary fills, if necessary, would be removed in their entirety and the affected area returned to pre-construction elevations, and revegetated as appropriate. Because the proposed permanent impacts would exceed 0.10 acre, a preconstruction notification (PCN) for NWP 14 would be required for each feature.

The proposed project would be authorized under a USACE Section 404 NWP; therefore construction activities would require compliance with the State of Texas Water Quality Certification Program. Compliance with Section 401 of the Clean Water Act requires the use of Best Management Practices (BMPs) to manage water quality on sites affecting jurisdictional waters. The 401 Certification requirements for a NWP 14 would be met by implementing BMPs from the Texas Commission on Environmental Quality's (TCEQ) 401 Water Quality Certification Conditions for NWPs. These BMPs would address each of the following categories: 1) erosion control, 2) post construction total suspended solids (TSS) control, and 3) sedimentation control. Water quality BMPs that would be implemented include the following:

- Approved temporary vegetation
- Blankets/matting or mulch filter berms
- Vegetated filter strips
- Silt fence, sand bag and/or compost filter berms and socks

Under the No Build Alternative, there would be no fill impacts to waters of the U.S. or project-related erosion, sedimentation, or runoff impacts to project area waterways.

Section 303(d) of the Clean Water Act

The State of Texas is required, under Sections 305(b) and 303(d) of the federal Clean Water Act (CWA), to prepare biennial statewide water quality assessments that identify the status of use attainment for water bodies, and to identify water bodies for which effluent limitations are not stringent enough to implement water quality standards. Based on the assessments, the areas of potential effect are accounted for on the 303(d) list. According to the provisions of the TxDOT-TCEQ MOU, coordination with TCEQ is required for environmental review documents if all or part of the project is within five miles of an impaired assessment unit and in the same watershed as the project.

The proposed project is within five miles and within the same watershed of impaired assessment unit 1906_05 in Segment 1906, Lower Leon Creek (TxDOT 2015a). This unit is listed as threatened/impaired for depressed dissolved oxygen and polychlorinated biphenyls (PCBs) in edible tissue on the 2012 303(d) list. This impaired assessment unit does not have an Environmental Protection Agency (EPA)-approved Total Maximum Daily Load (TMDL). The project and associated activities would be implemented, operated, and maintained using the BMPs described above to control the discharge of pollutants from the project site.

As the project is within five miles of, and within the same watershed as, an impaired assessment unit, coordination with TCEQ was conducted. This coordination concluded on September 4, 2014; TCEQ did not have any comments on the proposed project.

Under the No Build Alternative, there would be no impacts to the project area impaired assessment unit.

5.9.2 Floodplains

As detailed in the Water Resources Technical Report (TxDOT 2015a), portions of the proposed project are located within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain. 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, stream or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Coordination with the local Floodplain Administrator would be required.

The No Build Alternative would not affect the 100-year floodplain.

5.9.3 Hazardous Materials

A review of environmental regulatory databases and an Initial Site Assessment (ISA) was performed in November and December 2013 to identify sites or facilities that might pose a potential for hazardous materials impacts to the proposed project (TxDOT 2014e). A total of 19 records at eight sites were identified in the regulatory database search. An evaluation of the sites in the project area that were identified in the database searches found that all of the site-specific hazardous materials issues are expected to have a low potential for impacts. Two leaking underground storage tanks were identified, but the sites are located at least 0.5 mile outside the right of way and the TCEQ has issued final concurrence on the closure of the cases. The other sites are also outside of the right of way and are considered low-risk types of sites (for example, Resource Conservation and Recovery Information System Generators).

During the field visit for the ISA, several trash dump locations were identified along the vehicle access road that exists along the western limit of the existing right of way. At least 24 trash dump locations were identified during the field survey (TxDOT 2014e). The materials in the dump sites generally consist of household demolition material (tile, roofing shingles, counters, fencing materials, PVC piping, sheet rock, shower enclosures, concrete, brick, and wood), household trash, paint cans, brick, and brush. All trash and debris would require proper transportation and disposal during right of way clearing activities. Asbestos-containing material (ACM) may be present within some materials within the dump sites. A survey for the presence of ACM is recommended for the materials within the dump sites prior to relocation or disposal.

No impacts to potential hazardous materials sites would occur from construction if the No Build Alternative were selected.

5.9.4 Air Quality

The project is located in Bexar County, which is in an area in attainment or unclassifiable for all national ambient air quality standards (NAAQS); therefore, the transportation conformity rules do not apply. As the proposed project is not adding capacity in a nonattainment or maintenance area of the state, coordination with TCEQ for air quality is not required.

A quantitative analysis provides a basis for identifying and comparing the potential differences among mobile source air toxics (MSAT) emissions, if any, from the various alternatives. The quantitative assessment (TxDOT 2015b) presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at:

http://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemiissions.pdf.

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 the Build Alternative is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would not lead to higher MSAT emissions for the Build Alternative relative to the No Build in this case because the VMT increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES 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 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

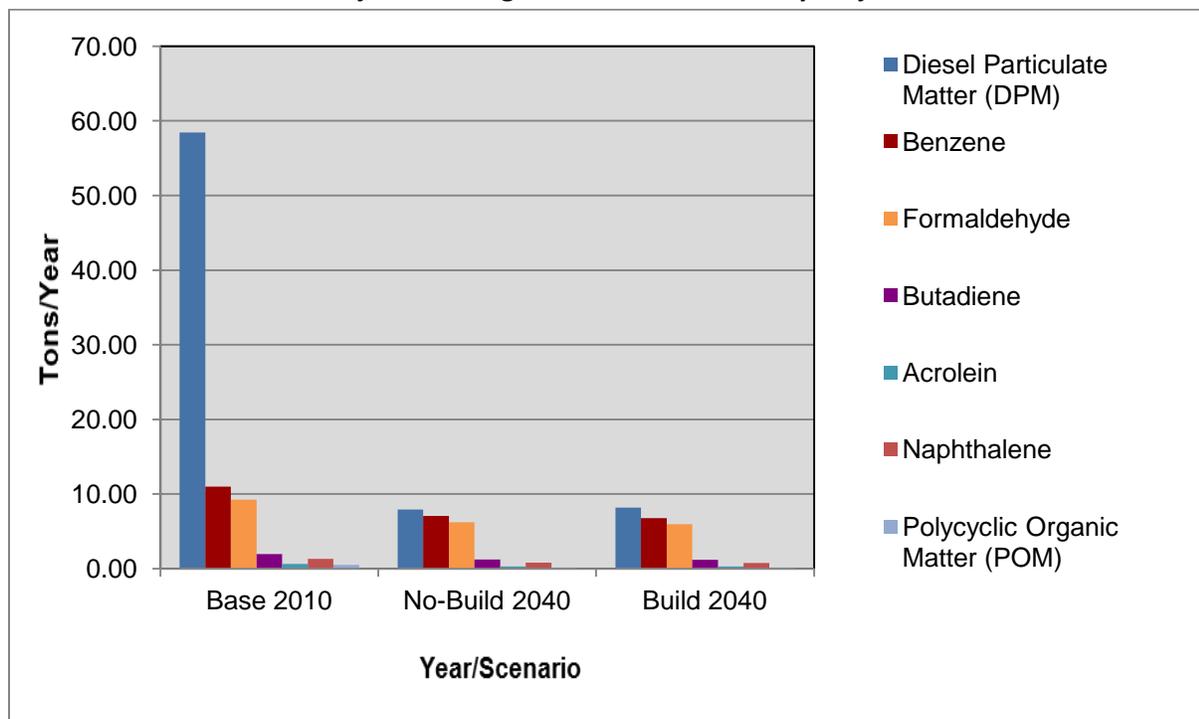
The additional travel lanes contemplated as part of the Build Alternative will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be constructed for the Build Alternative along Loop 1604 north of SH 151 to FM 471. 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.

For the Loop 1604 project MSAT modeling, a base year of 2010 and a design year of 2040 were used; no interim year was chosen for analysis. The numeric results of the MSAT modeling are shown below in **Table 5.9-1**. These results are represented graphically in **Illustration 1**, which shows emissions for each primary MSAT for each affected network (i.e., base year and design year for Build and No Build scenarios), and **Illustration 2**, which shows total MSAT emissions as compared to total vehicle VMT for each affected network.

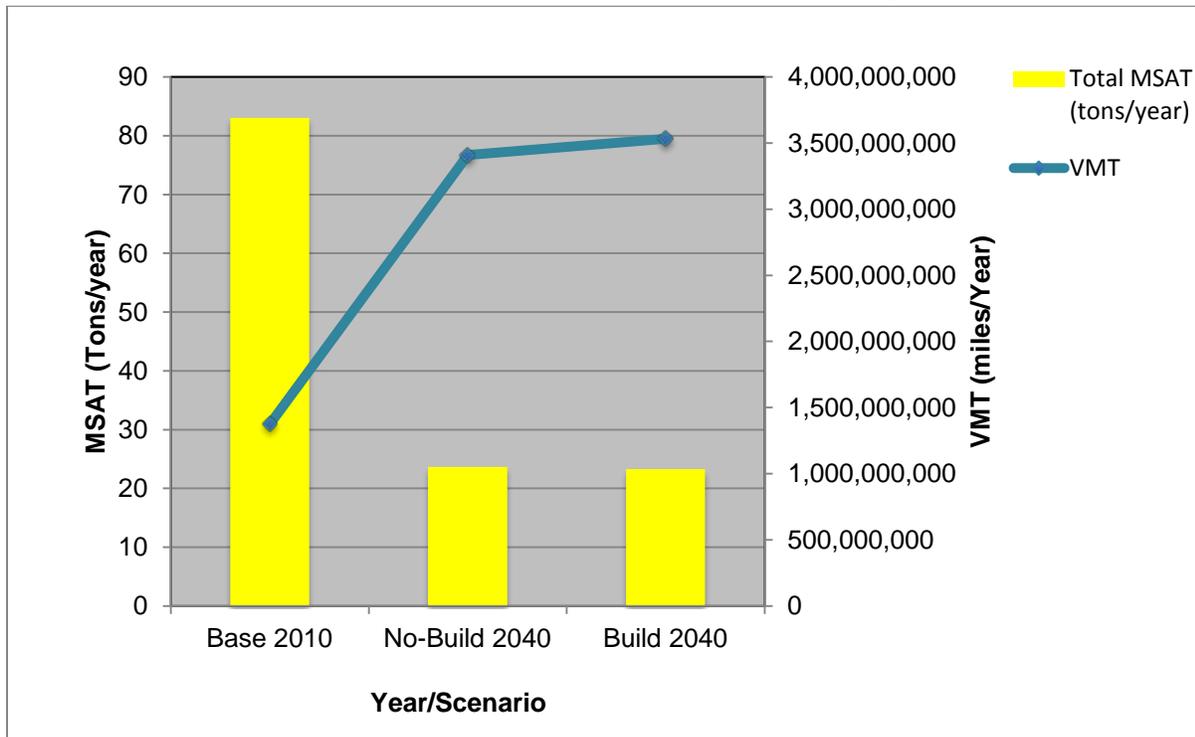
| Table 5.9-1 MSAT Emissions by Alternative (Tons/Year) | | | | | |
|---|----------------------|----------------------|----------------------|--------------------------|-------------|
| Compound | Year/Scenario | | | Percent Change 2010-2040 | |
| | 2010 Base Year | 2040 Design Year | | No Build | Build |
| | | No Build | Build | | |
| Diesel Particulate Matter (DPM) | 58.448 | 7.929 | 8.190 | -86% | -86% |
| Benzene | 10.981 | 7.074 | 6.775 | -36% | -38% |
| Formaldehyde | 9.224 | 6.219 | 5.957 | -33% | -35% |
| Butadiene | 1.953 | 1.199 | 1.158 | -39% | -41% |
| Acrolein | 0.629 | 0.281 | 0.269 | -55% | -57% |
| Naphthalene | 1.309 | 0.774 | 0.737 | -41% | -44% |
| Polycyclic Organic Matter | 0.478 | 0.165 | 0.158 | -65% | -67% |
| Total MSAT (Tons) | 83.022 | 23.640 | 23.244 | -72% | -72% |
| Total VMT (Miles/Year) | 1,377,966,766 | 3,408,762,986 | 3,533,279,764 | 147% | 156% |

Source: Alamo Area MPO data and Loop 1604 EA Study Team 2015.

ILLUSTRATION 1: Projected Changes in MSAT Emissions By Project Scenario Over Time



Source: Alamo Area MPO data and Loop 1604 EA Study Team 2015.

ILLUSTRATION 2: Total MSAT Emissions and Vehicle Miles Traveled By Alternative (Tons/Year)

Source: Alamo Area MPO Data and Loop 1604 EA Study Team 2015.

The analysis indicates a decrease in total MSAT emissions can be expected for both the Build and No Build Alternatives (2040) relative to the base year (2010). Emissions of total MSAT are predicted to decrease by approximately 72% in the 2040 Build Alternative compared with 2010 levels.

Of the seven priority MSAT compounds, DPM contributes the most to the emissions total in 2010 as well as in 2040 (see **Table 5.9-1** and **Illustration 1**). In future years, a substantial decline in DPM is anticipated (86% reduction from 2010 to 2040 Build and No Build Alternatives). The amount of benzene is expected to decrease by 38% for the 2040 Build Alternative and 36% for the 2040 No Build.

When total emissions are plotted over time, a substantially decreasing level of MSATs can be seen (**Illustration 2**) while overall VMT continues to rise. The 2040 Build Alternative is expected to generate a 72% decrease in total MSAT emissions while the total VMT increases by 156%; the 2040 No Build Alternative has a similar 72% decrease in total MSAT and a 147% increase in VMT.

Traffic Air Quality Analysis

Design year (2037) traffic for this project is 155,400 vehicles per day therefore triggering the need for a traffic air quality analysis (TxDOT 2015b). Topography and meteorology of the area in which the project is located would not seriously restrict dispersion of the air pollutants. The traffic data used in the analysis was obtained from TxDOT's Transportation Planning and Programming Division for the

estimated time of completion year (2017) and design year (2037); 2017 traffic is estimated to be 95,700 vehicles per day while 2037 traffic is estimated to be 155,400 vehicles per day. These traffic volumes correspond to the section between SH 151 and FM 471, which is projected to be the highest volume portion of the project area.

Carbon monoxide concentrations for the proposed action were modeled using the CALINE3 and MOVES2010B models and factoring in adverse meteorological conditions and sensitive receptors at the right of way line in accordance with the TxDOT Air Quality Guidelines. Local concentrations of carbon monoxide are not expected to exceed national standards (see **Table 5.9-2**).

| Table 5.9-2 Projected Carbon Monoxide Concentrations | | | | |
|---|--------------------------------------|-----------------------|-------------------------------------|-----------------------|
| Year | 1-hour CO Standard 35 ppm | 1-hour % NAAQS | 8-hour CO Standard 9 ppm | 8-hour % NAAQS |
| 2017 | 2.5 | 7.1% | 1.6 | 17.8% |
| 2037 | 2.5 | 7.1% | 1.6 | 17.8% |

Note: The National Ambient Air Quality Standard (NAAQS) for CO is 35 ppm for one-hour and 9 ppm for eight hours. Analysis includes a one-hour background concentration of 1.7 ppm and an 8-hour background concentration of 1.1 ppm.

5.9.5 Traffic Noise

A traffic noise analysis was conducted for the proposed project in accordance with TxDOT's (FHWA approved) 2011 *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (TxDOT 2015c). The traffic noise analysis determined that there would be traffic noise impacts at six modeled receivers, representing 22 impacted receivers.

Three of the impacted receivers represent ten impacted single-family residences within the Westcreek Oaks subdivision located on the west side of Loop 1604 between West Military Drive and Potranco Road. Two separate noise walls were modeled along the Loop 1604 right of way at a height of eight feet. These noise walls would be both feasible and reasonable and are therefore proposed for incorporation into the project. The other three impacted receivers represent 12 impacted receivers within the Westover Hills Apartments located on the east side of Loop 1604, south of Wiseman Boulevard. A noise wall was modeled along the Loop 1604 right of way at a height of 16 feet. This wall would be acoustically feasible, however, the construction of this wall is not practicable and is not proposed for inclusion in the project for several reasons: 1) the proximity of underground utilities, 2) an existing retaining wall and 3) foundations for the Westover Hills Apartment complex.

A traffic noise workshop was held on February 5, 2015, with the property owners adjacent to the proposed walls to determine whether the adjacent owners would, by majority vote, opt for the walls to be incorporated into the final design. The adjacent property owners in the Westcreek Oaks subdivision by simple majority vote have elected to have noise walls constructed and TxDOT would include these as part of the project.

Under the No Build Alternative, the proposed project would not be constructed. Traffic noise levels at modeled receiver locations would be expected to increase due to the increase in traffic volumes.

5.10 BIOLOGICAL ENVIRONMENT SUMMARY

5.10.1 Vegetation

The Biological Resources Technical Report (TxDOT 2015d) describes thirteen different vegetation communities that were mapped within and adjacent to the proposed project area. These are shown below in **Table 5.10-1**.

| Table 5.10-1 Vegetation Within the Proposed Project Area | | | | |
|---|---|--|--|---------------------------|
| Vegetative Community | MOU Vegetation Type¹ | Vegetation Within the Existing Right of way (acres) | Vegetation Within the Proposed Right of way (acres) | Total Area (acres) |
| Barren | Agriculture | 0.00 | 0.00 | 0.00 |
| Agriculture Total | | | | 0.00 |
| Disturbance Grassland | Disturbed Prairie | 63.17 | 0.00 | 63.17 |
| Disturbed Prairie Total | | | | 63.17 |
| Floodplain: Disturbance Grassland | Floodplain | 0.01 | 0.00 | 0.01 |
| Floodplain Total | | | | 0.01 |
| Live Oak/Ashe Juniper Savannah | Edwards Plateau Savannah, Woodland, and Shrubland | 1.03 | 0.00 | 1.03 |
| Live Oak/Ashe Juniper Woodland | Edwards Plateau Savannah, Woodland, and Shrubland | 21.49 | 0.00 | 21.49 |
| Mesquite/Live Oak Savannah | Edwards Plateau Savannah, Woodland, and Shrubland | 26.19 | 0.00 | 26.19 |
| Mesquite/Live Oak Woodland | Edwards Plateau Savannah, Woodland, and Shrubland | 1.10 | 0.00 | 1.10 |
| Edwards Plateau Savannah, Woodland, and Shrubland Total | | | | 49.81 |
| Mixed Brush | Scrub, Thornscrub, Shrubland | 0.14 | 3.57 | 3.71 |
| Scrub, Thornscrub, Shrubland Total | | | | 3.71 |
| Riparian Herbaceous | Riparian | 2.29 | 0.00 | 2.29 |
| Riparian Hardwood | Riparian | 1.86 | 0.00 | 1.86 |
| Riparian Total | | | | 4.15 |
| Mowed and Maintained Right of Way | Urban | 98.48 | 0.00 | 98.48 |
| Urban High Intensity | Urban | 87.34 | 0.00 | 87.34 |
| Urban Low Intensity | Urban | 4.82 | 0.13 | 4.95 |
| Urban Total | | | | 190.77 |

Source: Loop 1604 EA Study Team 2015.

Additionally, unusual vegetation features or special habitat features occurring within the proposed project area were identified and described during field investigations in accordance with the 2013 TxDOT-Texas Parks and Wildlife Department (TPWD) MOU. Unusual vegetation features identified during field investigations include unmaintained vegetation, fencerow vegetation, trees that are ecologically significant or locally important and riparian vegetation. Special habitat features identified during field investigations include bottomland hardwoods, water bodies, and a bluff. These features are described in detail in the Biological Resources Technical Report (TxDOT 2015d).

Impacts to vegetation would be avoided or minimized by limiting disturbance to only that which is necessary to construct the proposed project. The removal of native vegetation, particularly mature native trees and shrubs, would be avoided to the greatest extent practicable. An approved seed mix would be used in the landscaping and revegetation of disturbed areas.

The Threshold Table Programmatic Agreement groups vegetation types into broader MOU types and sets a disturbance threshold for each type by ecoregion that, if met or exceeded, triggers coordination with the TPWD. For projects that have vegetation impacts in multiple ecoregions and the thresholds differ between these regions for a single MOU type, the average of the thresholds for that MOU type is used to determine coordination requirements with the TPWD. A review of the Threshold Table Programmatic Agreement determined that vegetation within the proposed project falls into six MOU types:

- Disturbed Prairie
- Floodplain
- Edwards Plateau Savannah, Woodland, and Shrubland
- Scrub, Thornscrub, Shrubland
- Riparian
- Urban

As shown above on **Table 5.10-1**, Disturbed Prairie consists of the disturbance grassland vegetation type; Floodplain consists of the floodplain: disturbance grassland vegetation type; Edwards Plateau Savannah, Woodland, and Shrubland consists of the live oak/Ashe juniper savannah, live oak/Ashe juniper woodland, mesquite/live oak savannah and mesquite/live oak woodland vegetation types; Scrub, Thornscrub, Shrubland consists of the mixed brush vegetation type; Riparian consists of the riparian herbaceous and riparian hardwood vegetation types; and Urban consists of the mowed and maintained right of way, urban high intensity and urban low intensity vegetation types. Based on an average of the Edwards Plateau and the Blackland Prairies Ecoregions disturbance thresholds, the Threshold Table Programmatic Agreement sets a disturbance threshold of 2.5 acres for Disturbed Prairie; 0.5 acre for Floodplain; 2.0 acres for Edwards Plateau Savannah, Woodland, and Shrubland; 2.0 acres for Scrub, Thornscrub, Shrubland; and 0.1 acre for Riparian. There is no threshold for Urban. Vegetation impacts quantified on **Table 5.10-1** show that the proposed project would exceed the relevant threshold for all MOU types except Floodplain. Coordination between TxDOT and TPWD was initiated on October 8, 2014, and TPWD responded on November 20, 2014.

If the No Build Alternative were implemented, the proposed project would not be constructed. No effects to vegetation and wildlife habitat related to the construction of the project would occur. Existing land use and activities, including periodic mowing and cultivation, would continue to periodically affect vegetation communities.

5.10.2 Wildlife

Migratory Bird Treaty Act (MBTA)

Migratory birds were observed during November 21, 2013, field investigations and may arrive in the project area to breed during construction of the proposed project. Appropriate measures would be taken to avoid adverse impacts on migratory birds (see **Section 8.1**).

Migratory birds protected under the Migratory Bird Treaty Act would not be impacted by the No Build Alternative.

Fish and Wildlife Coordination Act (FWCA)

The proposed project would be authorized under a USACE Section 404 NWP; therefore, no coordination under the FWCA would be required.

5.10.3 Threatened and Endangered Species

Federally-listed Species

As detailed in the Biological Resources Technical Report (TxDOT 2015d), desktop analysis and field investigations conducted in November/December 2013 indicate that potential habitat for four federally-listed endangered species occurs in the vicinity of the proposed project. Two of these are karst invertebrates, the Bracken Bat Cave meshweaver (*Cicurina venii*) and a ground beetle (*Rhadine infernalis*). Additionally, designated critical habitat for *R. infernalis* occurs directly adjacent to the proposed project and within the existing right of way of Loop 1604 in Caracol Creek Coon Cave. This area has been designated as Critical Habitat Unit (CHU) 16 by the US Fish and Wildlife Service (USFWS). In addition to the two karst invertebrates, potential habitat for two federally-listed endangered birds, the Black-capped Vireo (*Vireo atricapilla*) and the Golden-cheeked Warbler (*Setophaga chrysoparia*), occurs in the vicinity of the proposed project.

Karst Invertebrates

In accordance with USFWS regulations for projects proposed in potential habitat for listed karst species (USFWS 2011), a karst feature survey was performed within the proposed right of way to identify species habitat in late December 2013, early January 2014 and Spring 2015. Previous surveys of the existing right of way were conducted in 2010.

The project area is within the range of the unnamed ground beetle, *R. infernalis* and this species is known to occur in Caracol Creek Coon Cave adjacent to the project area; however, the species was not

documented in any of the other features surveyed. An unidentified immature eyeless Cicurina was collected from Feature 1604-Z01 and may represent *C. venii* (Zara 2014). Although direct impacts resulting from excavation activities are restricted to areas outside of the subsurface drainage basin of known occupied features and CHU 16, previously undetected karst voids containing listed karst invertebrate species or habitat may be encountered during ground disturbing activities. Other direct impacts are anticipated within the cricket foraging area (345 feet) surrounding Feature 1604-Z01. Because of this, the project **may affect, and is likely to adversely affect**, *R. infernalis* and *C. venii*. The proposed project would not adversely modify CHU 16. A Biological Assessment for these species is being developed and will be submitted to the USFWS to initiate formal consultation under Section 7 of the Endangered Species Act.

There is a possibility to encounter unknown karst voids containing listed karst invertebrates during proposed excavation activities within Karst Zones 1 and 2. If this occurs, direct adverse impacts are expected. Should previously unknown voids be discovered during construction they will be assessed by a permitted scientist to determine if they contain potential habitat for listed karst invertebrates using the current USFWS survey protocol. If potential habitat or listed species are discovered, then work in the area will cease and consultation with USFWS will be initiated.

Black-capped Vireo

Marginal habitat for this species occurs in the vicinity of the proposed project. Habitat within the proposed project area is generally of low quality in part due to the urbanization, fragmentation and past and present land uses (see the Biological Resources Technical Report [TxDOT 2015d] for detailed habitat descriptions). Presence/absence surveys for this species was conducted in 2009 and 2010 along the entire length of the proposed project area, including a 500 foot buffer on either side, where potential habitat areas were identified (Blanton and Associates 2010). A single migratory male was heard within the project area during presence/absence surveys in 2009. No Black-capped Vireos were observed during 2010 surveys. TxDOT conducted an additional presence/absence survey during the 2015 breeding survey. No Black-capped Vireos were detected. Given the low quality of potential habitat, urbanization of the area and the negative findings of three years of recent surveys, the proposed project **may affect, but is not likely to adversely affect**, this species. A Biological Assessment for this species has been developed and submitted to the USFWS for review.

The No Build Alternative would not result in effects to any federally-listed threatened, endangered, or rare species.

State-listed Species

Potential habitat for one state-listed threatened reptile species, the Texas horned lizard (*Phrynosoma cornutum*), was identified within the proposed project area. In accordance with TPWD regulations and the BMPs Programmatic Agreement between TxDOT and TPWD, contractors would be advised of the potential occurrence of this species in the project area and care would be taken to avoid direct harm. Additionally, this species' primary food source is harvester ants. Though no harvester ant mounds were

observed during field investigations, they should also be avoided to the extent practicable if they are observed during the selection of Project Specific Locations and construction-related activities.

Species of Greatest Conservation Need

Additionally, there is suitable habitat within the project area for eight other species that are considered Species of Greatest Conservation Need (SGCN) by the State of Texas. The TPWD tracks these species as rare resources, though they have no formal regulatory status. These include three plant species, big red sage (*Salvia pentstemonoides*), Correll's false dragon-head (*Physostegia correllii*), and Hill country wild-mercury (*Argythemnia aphoroides*); two reptile species, the spot-tailed earless lizard (*Holbrookia lacerata*) and the Texas garter snake (*Thamnophis sirtalis annectens*) and three mammal species, the cave myotis bat (*Myotis velifer*), ghost bat (*Mormoops megalophylla*) and plains spotted skunk (*Spilogale putorius interrupta*).

In accordance with the BMPs Programmatic Agreement between TxDOT and TPWD, contractors would be advised of the potential occurrence of the spot-tailed earless lizard, Texas garter snake and plains spotted skunk in the project area and care would be taken to avoid direct harm to these species as well as unnecessary impacts to skunk dens, if encountered. Impacts to the cave myotis and ghost bats would be avoided or minimized by implementing the following BMPs:

- During construction, appropriate measures, including exclusion or timing of activities in the immediate vicinity of a colony, would be implemented as practicable. For maternity colonies, exclusion activities would be timed to avoid the spring/summer breeding season to the extent practicable to avoid separating lactating females from nursing pups.
- Structures or features used by bats that would be removed as a result of construction would be replaced by structures that incorporate bat-friendly design or artificial roosts would be constructed to replace these structures as practicable.

State-listed threatened, endangered, or rare species would not be impacted by the No Build Alternative.

5.11 INDIRECT AND CUMULATIVE IMPACTS SUMMARY

The indirect and cumulative impacts analysis for the proposed project was developed using TxDOT's September 2010 *Revised Guidance on Preparing Indirect and Cumulative Impact Analyses*, which is based on the 2002 National Cooperative Highway Research Program (NCHRP) Report 466 entitled *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects*. A separate technical report has been developed to document the analysis of the potential indirect and cumulative effects of the proposed project. This separate technical report (TxDOT 2014b) is on file at the TxDOT San Antonio District office.

5.11.1 Indirect Impacts

The indirect effects of the proposed project were identified using a planning judgment approach supported by the planning assumptions and predictions made by the San Antonio-Bexar County MPO in

the 2035 MTP. The proposed project is not intended to serve an explicit economic development purpose, nor is it planned to serve a specific land development. The proposed improvements include construction of the southbound Loop 1604 main lanes and frontage road, entrance and exit ramps, and three grade separations. These improvements would serve to improve mobility and maintain safety for the traveling public. However, when compared to the existing condition, no new access would be created and no major changes in access to adjacent land uses (either developed or undeveloped) would result from the proposed project.

The Area of Influence (AOI) for the proposed project is bounded to the west by the San Antonio city limits (see **Figure 4**). This boundary was delineated based on the development plans described in the City of San Antonio's Comprehensive Plan Framework (2011, A-25) and Master Plan Policies (1997, 9), which cite goals to encourage future growth to occur inside the city limits. The AOI boundary is also consistent with the San Antonio-Bexar County MPO's combined transit-oriented development/infill development growth scenario, in which the majority of future growth is anticipated to occur within the city limits. The western boundary of the AOI also encompasses the North San Antonio Hills neighborhood and Alamo Ranch Market toward the northern project terminus. The boundary then turns east to follow the southern bank of Culebra Creek, incorporating the commercial development located directly north of the proposed project terminus. The eastern portion of the AOI follows Rogers Road to encompass the Culebra Market shopping center and continues south to Wiseman Boulevard, after which it follows the eastern boundary of the Oak Creek Estates neighborhood. From here, the AOI follows the boundaries of residential and commercial developments with direct access to Loop 1604, incorporating undeveloped land along a tributary to Medio Creek. South of the project area, the AOI boundary follows the creek west across Loop 1604 to meet with the city limits on the west side of the roadway.

The temporal boundary for the indirect effects analysis extends from 2015 (the year construction would begin) to 2035, the planning horizon for the San Antonio-Bexar County MPO's current MTP.

Encroachment-Alteration Effects

Potential encroachment-alteration effects to socioeconomic resources were evaluated based on changes to the condition of the local and regional economies, to employment, and to community resources. The indirect effects analysis determined that no substantial encroachment-alteration effects to socioeconomic resources would be anticipated to occur as a result of the proposed project (TxDOT 2014b).

Encroachment-alteration effects to ecological resources were evaluated in terms of potential impacts to water resources and wildlife habitat and vegetation, including habitat for threatened and endangered species. Surface and ground water resources would potentially undergo encroachment-alteration effects as a result of increased impervious cover within the project area, which could lead to increased non-point source (vehicle-related) pollution from runoff during rain and flooding events. In addition, increased localized erosion as a result of roadway placement and vegetation removal could contribute

to minor increases in sediment loads within project area watersheds. The 2012 303(d) list approved by the TCEQ indicates that one impaired assessment unit is located within five miles of the AOI and within the same watershed: unit 1906_05 in Segment 1906, Lower Leon Creek. However, the proposed project would contribute a relatively minor amount of impervious cover within the project area, and implementation of appropriate BMPs would control constituents of concern at these locations. In addition, appropriate implementation of state and federal regulatory controls (including the Texas Water Code and Clean Water Act) would further minimize impacts to water resources. Portions of the AOI are located over the Artesian Zone of the Edwards Aquifer (considered by the EPA as a sole-source aquifer for Region 6). However, the AOI is not located within the Edwards Aquifer Recharge, Contributing, or Transition Zones as defined and monitored by the TCEQ and Edwards Aquifer Protection Program. The indirect impacts analysis determined that encroachment-alteration effects to surface and ground water resources would not be substantial (TxDOT 2014b).

The majority of the proposed project would be constructed within the existing right of way, with a total of 3.7 acres of new right of way required for construction. Encroachment-alteration effects to vegetation and to wildlife habitat in the form of habitat fragmentation during vegetation clearing would be expected to be minimal. These minimal effects could occur in areas that serve as habitat for threatened and endangered species, including the state-listed threatened Texas horned lizard and nine federally-listed endangered karst invertebrates (see **Section 5.10.3**). However, when considered within the context of the carrying capacity of the ecosystem, encroachment-alteration effects to potential habitat for the Texas horned lizard would not be substantial (TxDOT 2014b). Karst features surveys conducted in 2014 indicated that potential habitat for two federally listed karst species, the Bracken Bat Cave meshweaver and *R. infernalis*, exists within the project area and therefore within the AOI. However, the proposed project would not adversely modify critical habitat for these species.

Potential habitat for the federally-listed Black-capped Vireo occurs in the vicinity of the proposed project area within the AOI. However, no instances of the species were recorded during presence/absence surveys conducted in 2010 and 2015 along the entire length of the proposed project area, including a 500-foot buffer on either side (Blanton and Associates 2010). Moreover, as discussed in the Biological Resources Technical Report (TxDOT 2015d), habitat in the project area is considered to be of low quality and has been previously affected by urbanization of the area, and no direct effects are anticipated to occur as a result of the proposed project. Therefore, no encroachment-alteration effects are anticipated to occur with regard to potential habitat for the Black-capped Vireo.

Induced Growth Effects

The proposed improvements to the existing facility may serve to further increase attractiveness within the AOI by improving mobility; however, the proposed project would not create or increase access to adjacent land uses when compared to the existing condition. Ongoing development in west and northwest San Antonio demonstrates that the condition of the existing facility does not prevent continued development from occurring. When considered within the context of recent growth, the proposed project would not change the course of development trends in this area. The nature of the

proposed project (modifications to an existing highway in an already-developing area) indicates that the proposed improvements would not induce growth within the AOI.

5.11.2 Cumulative Impacts

Resources included in the cumulative effects analysis were identified based on the direct and indirect impacts identified as a result of the proposed project; the current health of each resource; and past, present, and reasonably foreseeable future actions anticipated to occur within the area. Following consideration of these criteria, it was determined that analysis of the cumulative effects to water resources and threatened and endangered species (including the state-listed threatened Texas horned lizard and nine federally-listed endangered karst invertebrates) was warranted. These potential effects were analyzed within specific Resource Study Areas (RSAs), defined as the Leon Creek and Lower Medina River Watersheds for water resources, the two watersheds traversed by the project area and underlain by the Edwards Aquifer (see **Figure 5**), and Bexar County for threatened and endangered species (see **Figure 6**). Bexar County provides a large enough RSA to account for potential project effects and coincides with the boundaries for which threatened and endangered species information is collected and distributed by the USFWS and TPWD. This also allows for the use of a general RSA to account for all threatened and endangered species potentially affected by the proposed project. The temporal boundaries for these RSAs extend from 1980, the approximate date in which development began to spread into the west and northwest portions of San Antonio toward Loop 1604, to 2035, the planning horizon year for the San Antonio-Bexar County MPO's 2035 MTP.

As detailed in the Indirect and Cumulative Impacts Analysis Report (TxDOT 2014b), cumulative effects on water resources would be primarily related to increases in impervious cover and altered hydrology associated with construction of the proposed project as well as future transportation and development projects. The TCEQ reports two impaired stream segments within the RSA on its 2012 303(d) List: Segment 1903, the Medina River below Medina Diversion Lake; and Segment 19806, lower Leon Creek. Both of these impaired segments are currently being monitored and further decline of the health of these resources is not anticipated. While the health of these specific resources (impaired segments) is considered to be impaired, water resources within the much larger RSA are not considered to be in decline (e.g., stable) and are in good health overall.

Increased runoff into receiving waters as a result of increased impervious cover and altered hydrology could negatively affect both surface and ground water quality; however, the proposed project would contribute a relatively minor amount of impervious cover within the RSA, and it is not anticipated that the proposed project would alter the currently stable condition of water resources. Anticipated shifts in development trends, such as the transit-oriented/infill development scenario adopted by the San Antonio-Bexar County MPO, would encourage maximization of existing infrastructure and, as a result, would be expected to temper increases in impervious cover and altered hydrology resulting from construction of new transportation facilities and development independent of the proposed improvements. In addition, the proposed project would be constructed in full compliance with state and federal requirements, and BMPs would be implemented to further minimize potential degradation

of water resources. In light of the stable health of the water resource within the RSA and the minimization measures discussed above, cumulative impacts to water quality would not be expected to be substantial (TxDOT 2014b).

Within the threatened and endangered species RSA, a total of 225,700 acres of vegetation could serve as potential habitat for the Texas horned lizard. Cumulative impacts to this species could include habitat fragmentation as well as loss and other alteration of vegetation cover types. While conversion of potential habitat for this species is likely to occur in areas slated for future development, considering the large quantity of habitat within the RSA and the species' larger range, the cumulative impacts to this species would not be substantial (TxDOT 2014b). Moreover, contractors working on the project would be educated on identifying the Texas horned lizard as part of the pre-construction conference and would be instructed not to harm any individuals encountered.

Cumulative effects to federally-listed karst invertebrates in Bexar County could potentially occur due to increases in impervious cover associated with construction of the proposed project and other future projects. However, the proposed project would not adversely modify critical habitat for federally-listed karst species and would not be expected to result in a "tipping point" scenario in which an individually minor action results in collectively significant impacts to karst invertebrates in Bexar County. Additionally, these species fall under the regulatory authority of the USFWS, the federal authority responsible for enforcing the Endangered Species Act of 1973 and its subsequent amendments. Also, the presence of CHU 16 within the AOI and RSA would require any activities that involve a federal permit, license, or funding and are likely to destroy or adversely affect the area of a CHU to work with USFWS to protect the resource of concern. These regulations, along with the City of San Antonio regulations aimed at protecting karst features and their inhabitants, would be expected to aid in minimization of any cumulative effects that would potentially occur to these species.

5.12 CONSTRUCTION IMPACTS SUMMARY

5.12.1 Noise Impacts—Construction Phase

Noise associated with the construction of the proposed 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 are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

5.12.2 Air Quality Impacts—Construction Phase

The construction activity phase of this project may generate a temporary increase in air pollutant emissions. However, considering the temporary and transient nature of construction-related emissions,

as well as the mitigation actions to be utilized (TxDOT 2015b), it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

5.12.3 Biological Impacts—Construction Phase

Temporary impacts to natural resources due to construction could result from the implementation of the proposed project and include disturbances to wildlife and vegetative communities. Implementation of the Build Alternative would involve the removal of grasses and shrubs during the construction phase, affecting the natural, erosion-inhibiting ground cover and resulting in the loss of habitat for both resident and migratory species. Disturbed areas would be restored, reseeded, and recontoured as necessary according to TxDOT specifications, making these effects largely temporary.

5.12.4 No Build Alternative

As there would be no construction under the No Build Alternative, there would be no construction phase effects.

6.0 COMMENTS AND COORDINATION

Public involvement for the proposed project consisted of a public meeting as well as a public hearing for the State EA. A public open house meeting was held on March 18, 2014, and accommodated affected property owners. Approximately 142 people attended the meeting, and attendees were generally supportive of the project. A public hearing for the State EA was held on October 8, 2014, and accommodated affected property owners and elected officials. Approximately 110 people attended the hearing. The hearing began in an open-house format followed by a formal presentation. The court reporter recorded five verbal comments of the attendees; nine written comments were recorded. None of the comments required modifications to the design of the proposed project. A summary of the hearing is available for public review at the TxDOT San Antonio District office. A notice affording the opportunity for a public hearing will be published for the current federally funded project.

The proposed project includes work within a FEMA-designated 100-year floodplain; therefore, coordination with the local Floodplain Administrator would be required.

Coordination with the TPWD was conducted because the proposed project would disturb habitat in areas equal to or greater than the areas of disturbance indicated in the TxDOT-TPWD Threshold Table Programmatic Agreement. Preliminary drainage design indicates that the proposed project would be authorized under a USACE Section 404 NWP with a PCN. Additionally, the proposed project would include the channelization of approximately 503 linear feet of Caracol Creek. Coordination between TxDOT and TPWD was initiated on October 8, 2014, and TPWD responded on November 20, 2014.

A Biological Assessment for the project has been developed and submitted to the USFWS to initiate formal consultation under Section 7 of the Endangered Species Act.

7.0 PERMITS AND APPROVALS NEEDED

The placement of temporary or permanent dredge or fill material into potentially jurisdictional waters of the U.S. would be authorized under NWP 14. Because the proposed permanent impacts would exceed 0.10 acre, a PCN for NWP 14 would be required for each feature.

The 401 Certification requirements for a NWP 14 would be met by implementing BMPs from the TCEQ's 401 Water Quality Certification Conditions for NWPs. These BMPs would address each of the following categories: 1) erosion control, 2) post construction TSS control, and 3) sedimentation control. Water quality BMPs that would be implemented include the following:

- Approved temporary vegetation
- Blankets/matting or mulch filter berms
- Vegetated filter strips
- Silt fence, sand bag and/or compost filter berms and socks

8.0 COMMITMENTS

8.1 Vegetation and Wildlife Habitat

Impacts to vegetation and wildlife habitat would be avoided or minimized by limiting disturbance to only that which is necessary to construct the proposed project. The removal of native vegetation, particularly mature native trees and shrubs, would be avoided to the greatest extent practicable. An approved seed mix would be used in the landscaping and revegetation of disturbed areas.

Upon completion of earthwork operations, disturbed areas would be restored and reseeded in accordance with TxDOT's Vegetation Management Guidelines and in compliance with the intent of Executive Order 13112 on Invasive Species and the FHWA Executive Memorandum on Environmentally and Economically Beneficial Landscape Practices.

Appropriate measures would be taken to avoid adverse impacts on migratory birds and would include the following:

- The removal or destruction of active migratory bird nests (nests containing eggs and/or young) at any time of the year would be prohibited until the nests become inactive, usually between October 1 and February 15.
- If colonial nesting (i.e. swallows) occurs on or in structures, nests would not be removed until all nests in the colony become inactive.
- Measures would be utilized, to the extent practicable, to prevent or discourage migratory birds from building nests within portions of the project area scheduled for immediate construction.

- Inactive nests would be removed from the project area to minimize the potential for reuse by migratory birds.
- When practicable, construction or demolition activities would be scheduled outside the typical nesting season (February 15 to October 1), noting that the prohibitive provisions of the MBTA apply year-round.

8.2 Threatened and Endangered Species

An unidentified immature eyeless Cicurina was collected from Feature 1604-Z01 and may represent the federally listed endangered Bracken Bat Cave meshweaver (Zara 2014). Potential adverse effects to this species would be offset by temporary and permanent BMPs such as diversion of run-off, silt fencing, rock berms, and detention ponds which will reduce the potential to adversely impact karst habitat near the project area.

A portion of CHU 16 lies within the right of way and this area would be delineated with silt fencing or other means to prevent construction or construction staging activities from occurring in this area.

There is a possibility to encounter unknown karst voids containing listed karst invertebrates during proposed excavation activities within Karst Zones 1 and 2. If this occurs, direct adverse impacts are expected. Should previously unknown voids be discovered during construction they will be assessed by a permitted scientist to determine if they contain potential habitat for listed karst invertebrates using the current USFWS survey protocol. If potential habitat or listed species are discovered, then work in the area will cease and consultation with USFWS will be initiated.

In accordance with the BMPs Programmatic Agreement between TxDOT and TPWD, contractors would be advised of the potential occurrence of the spot-tailed earless lizard, Texas garter snake and plains spotted skunk in the project area and care would be taken to avoid direct harm to these species as well as unnecessary impacts to skunk dens, if encountered. Additionally, care would be taken to avoid harvester ant mounds, the Texas horned lizard's primary food source, to the extent practicable if they are observed during the selection of Project Specific Locations and construction-related activities. Impacts to the cave myotis and ghost bats would be avoided or minimized by implementing the following BMPs:

- During construction, appropriate measures, including exclusion or timing of activities in the immediate vicinity of a colony, would be implemented as practicable. For maternity colonies, exclusion activities would be timed to avoid the spring/summer breeding season to the extent practicable to avoid separating lactating females from nursing pups.
- Structures or features used by bats that would be removed as a result of construction would be replaced by structures that incorporate bat-friendly design or artificial roosts would be constructed to replace these structures as practicable.

8.3 Water Quality

Water quality BMPs would be implemented and include the following:

- Approved temporary vegetation
- Blankets/matting or mulch filter berms
- Vegetated filter strips
- Silt fence, sand bag and/or compost filter berms and socks

Because this proposed project would disturb more than one acre, the contractor would be required to comply with the TCEQ-Texas Pollutant Discharge Elimination System (TPDES) General Permit for Construction Activity. The proposed project would disturb more than five acres; therefore, a Notice of Intent (NOI) would be filed and posted on site and a Stormwater Pollution Prevention Plan (SW3P) would be in place during construction of proposed project. This SW3P would utilize the temporary control measures as outlined in TxDOT's manual "Standard Specifications for the Construction of Highways, Streets, and Bridges."

The TPDES requirements would be met by implementing approved erosion controls, sediment controls, and post-construction total suspended solids controls. All temporary erosion controls, such as silt fences and rock berms, would be in compliance with TxDOT Standard Specifications and would be in place, according to the construction plans, prior to commencement of construction related activities and inspected on a regular basis.

8.4 Archeological Resources

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).

8.5 Hazardous Materials

Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal and state regulations per TxDOT Standard Specifications. Section 6.10 of the "General Provisions of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges," which applies to all highway projects, includes guidelines addressing the contractor's responsibilities regarding the discovery of hazardous materials.

During the field visit for the ISA, several trash dump locations were identified along the vehicle access road that exists along the western limit of the existing right of way. At least 24 trash dump locations were identified during the field survey (TxDOT 2014e). The materials in the dump sites generally consist of household demolition material (tile, roofing shingles, counters, fencing materials, PVC piping, sheet rock, shower enclosures, concrete, brick, and wood), household trash, paint cans, brick, and brush. All

trash and debris would require proper transportation and disposal during right of way clearing activities. ACM may be present within some materials within the dump sites. A survey for the presence of ACM is recommended for the materials within the dump sites prior to relocation or disposal.

8.6 Construction

The contractor would observe proper maintenance and idling of construction equipment to control emissions of particulate matter. The contractor would control the generation of dust by site watering.

Disruptions would be minimized to the extent possible by the timely notification of affected residents and business owners through posted notices, personal contact, or other notification procedures. These procedures could include rerouting the traffic, barricading, using traffic cones, or any other measures deemed necessary and prudent by TxDOT and the construction contractor to comply with all local, state, and federal traffic and safety regulations.

Signage and barrier placement should be alert to the inevitable reordering of travel patterns, both during construction and in the long term, as drivers find cut-through routes to shorten travel times. During construction, procedures to minimize traffic congestion, noise, dust and risk to public safety should be specifically adapted to the circumstances of the proposed project.

Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

REFERENCES

- Blanton & Associates. 2010. Habitat Assessments and Presence/Absence Surveys for the Golden-cheeked Warbler and Black-capped Vireo within the Study Area of Proposed Improvements to Loop 1604 from IH 35 to US 90 in Bexar County, Texas.
- Texas Department of Transportation (TxDOT), 2014a. Socioeconomic Impacts Technical Report.
2014b. Indirect and Cumulative Impacts Analysis Report.
2014c. Archeological Resources Background Study.
2014d. Historical Resources Project Coordination Request.
2014e. Hazardous Materials Technical Report.
2015a. Water Resources Technical Report.
2015b. Quantitative MSAT Analysis.
2015c. Traffic Noise Technical Report.
2015d. Biological Resources Technical Report.
- U.S. Fish and Wildlife Service (USFWS) 2011b. Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys for endangered karst invertebrate species. Revised September 8, 2011. USFWS Ecological Services Field Office, Austin, Texas.
- Zara Environmental, LLC (Zara). 2014. Karst invertebrate technical report Loop 1604 from Potranco Road to Culebra Road, Bexar County, Texas. Report prepared for Texas Department of Transportation. 125 East 11th Street, Austin, Texas 78701. Dated 24, January 2014.

APPENDIX A

FIGURES

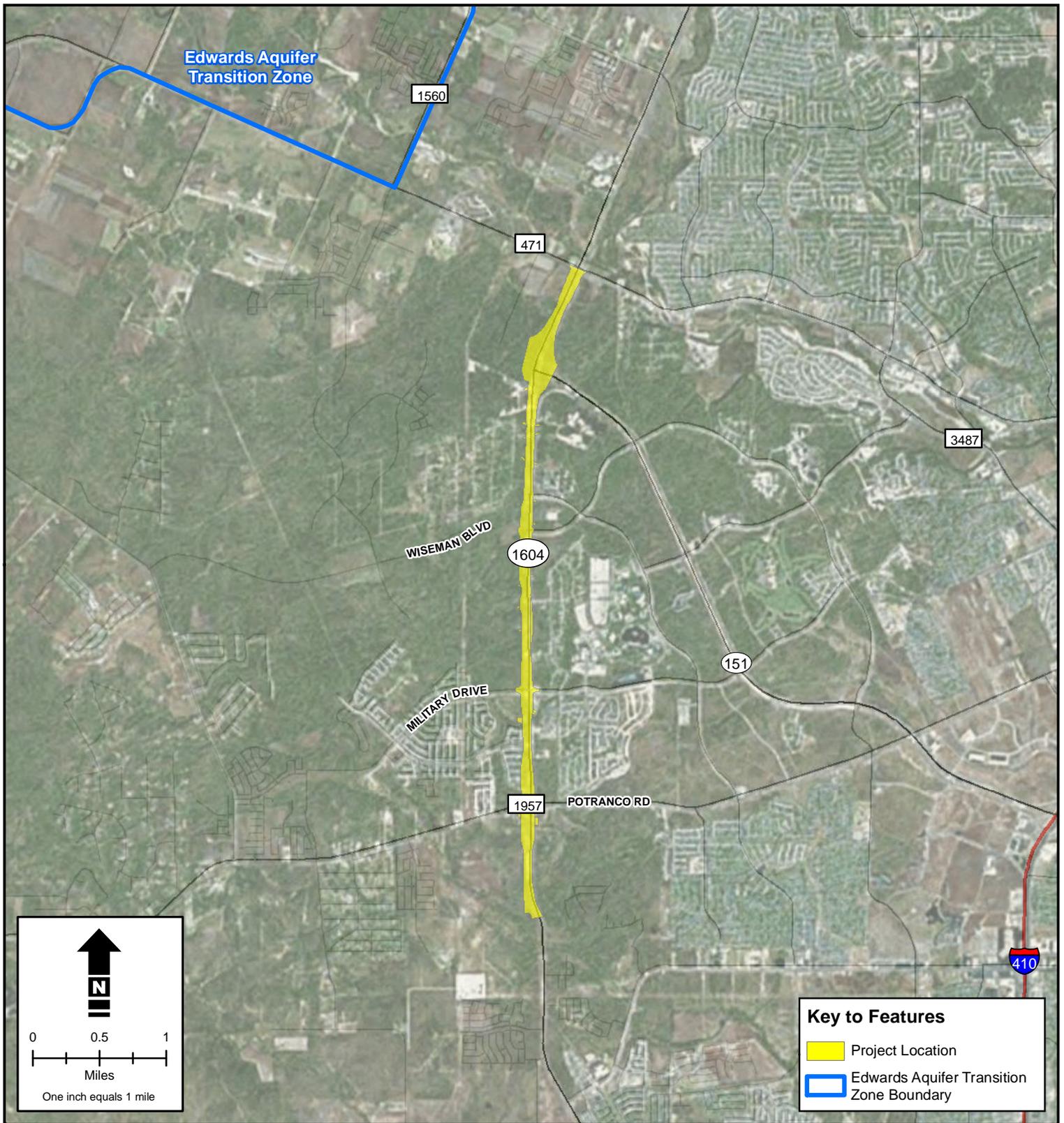


Figure 1

Project Location

Loop 1604 - Potranco Road to FM 471
CSJ# 2452-01-056



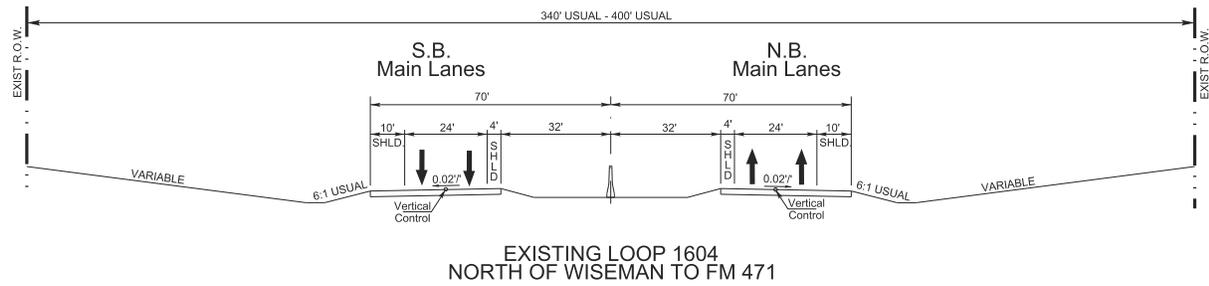
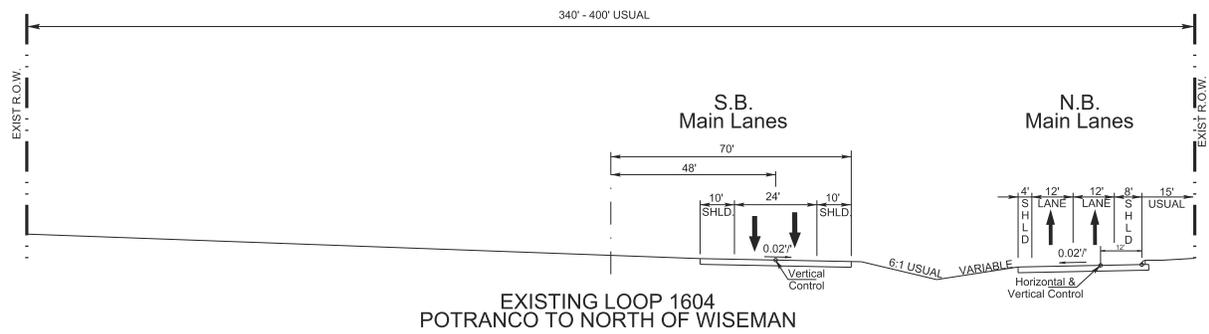


Figure 2
 Existing Typical Sections
 Loop 1604 - Potranco Road to FM 471
 CSJ# 2452-01-056

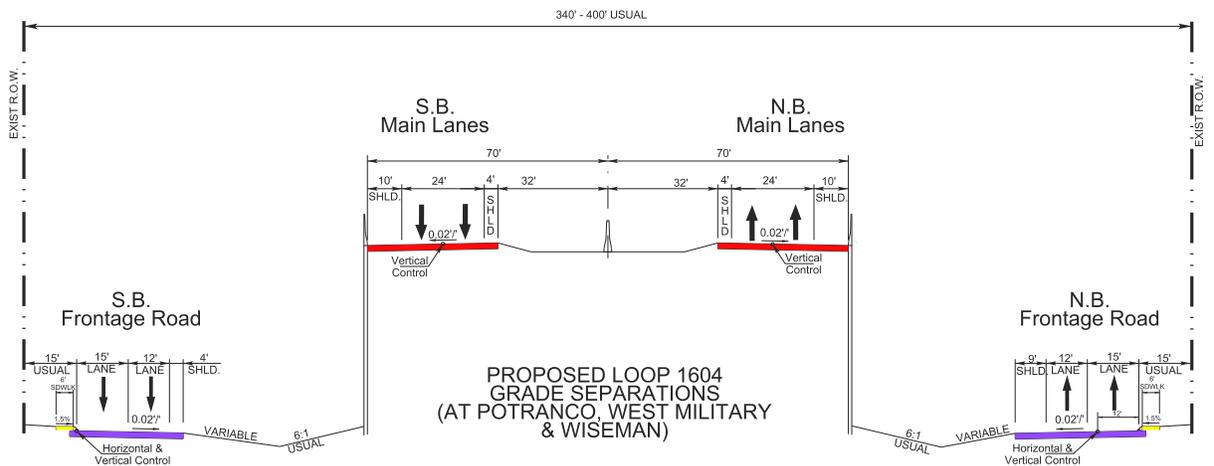
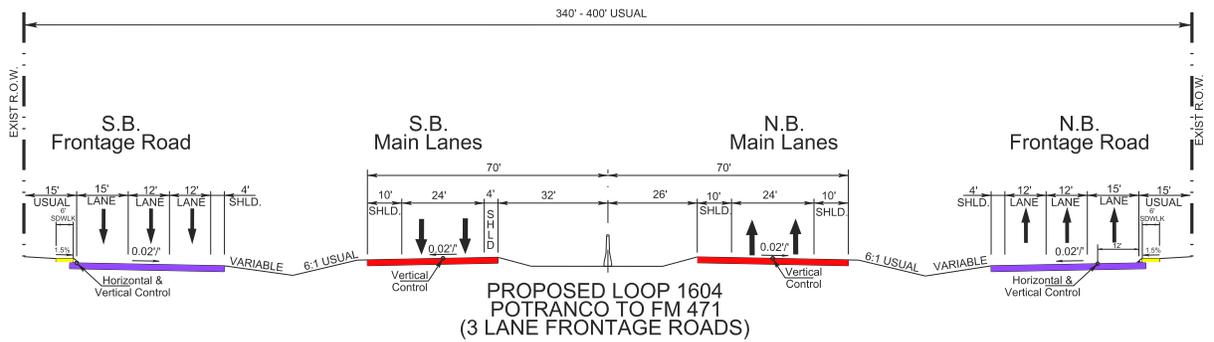
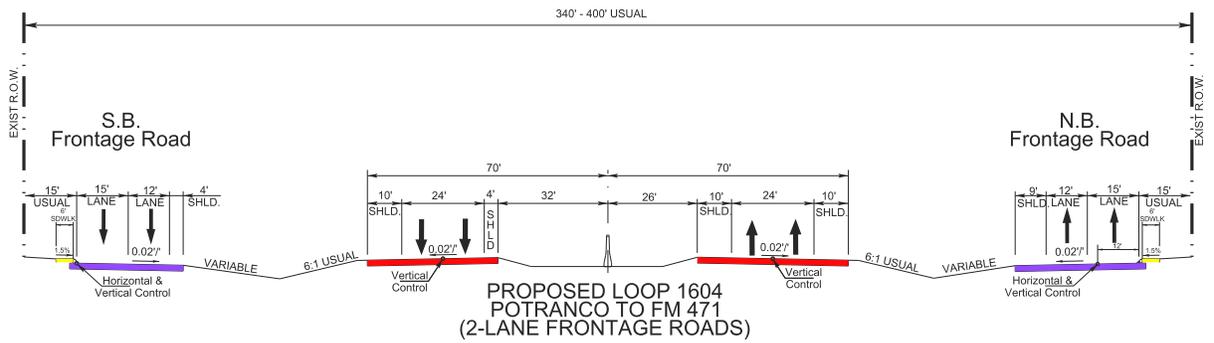


Figure 3
Proposed Typical Sections
Loop 1604 - Potranco Road to FM 471
CSJ# 2452-01-056

- Frontage Roads Construction
- Main Lanes Construction

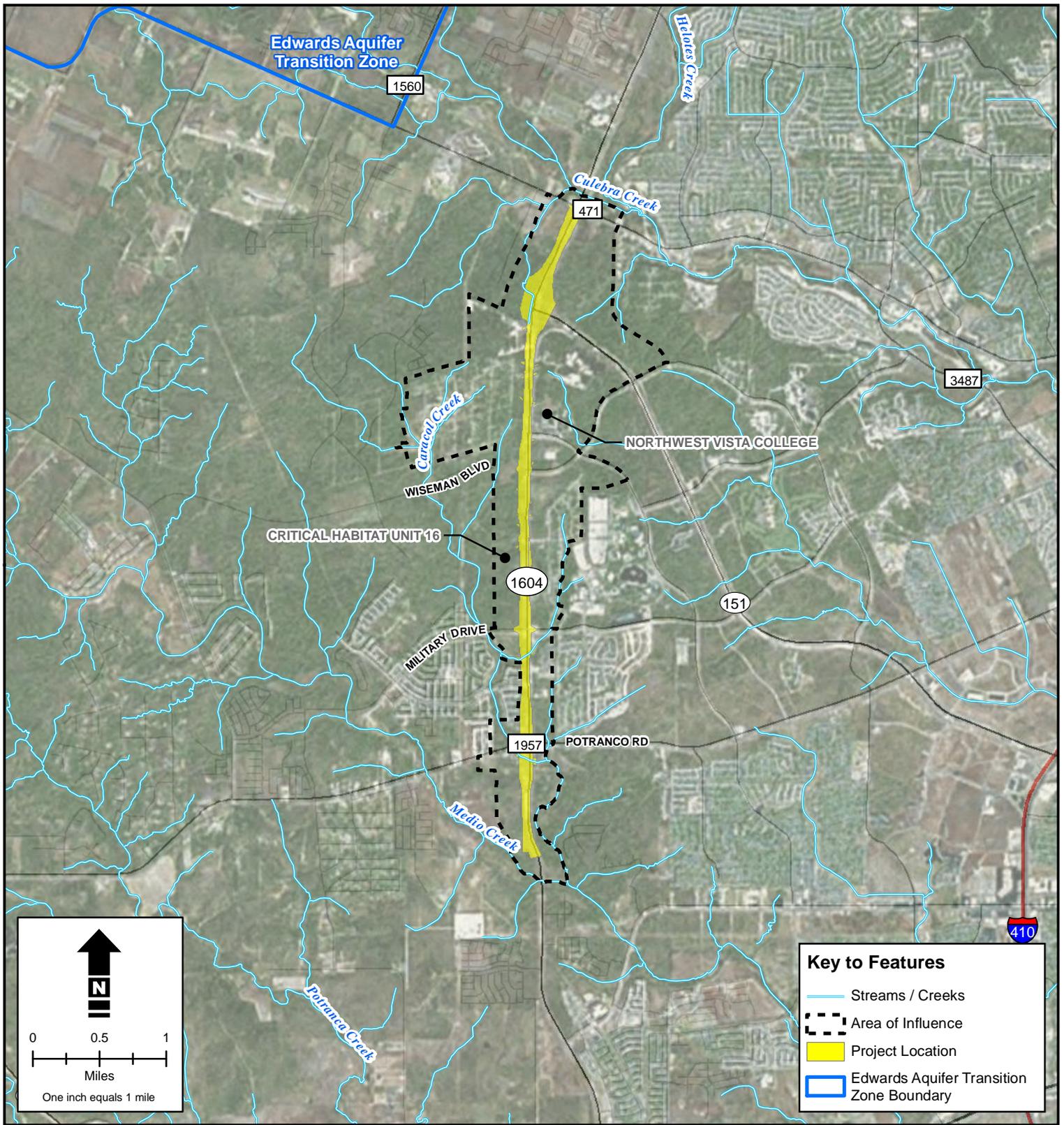


Figure 4
Area of Influence

Loop 1604
Potranco Road (FM 1957) to FM 471 (Culebra Road)
CSJ# 2452-01-056



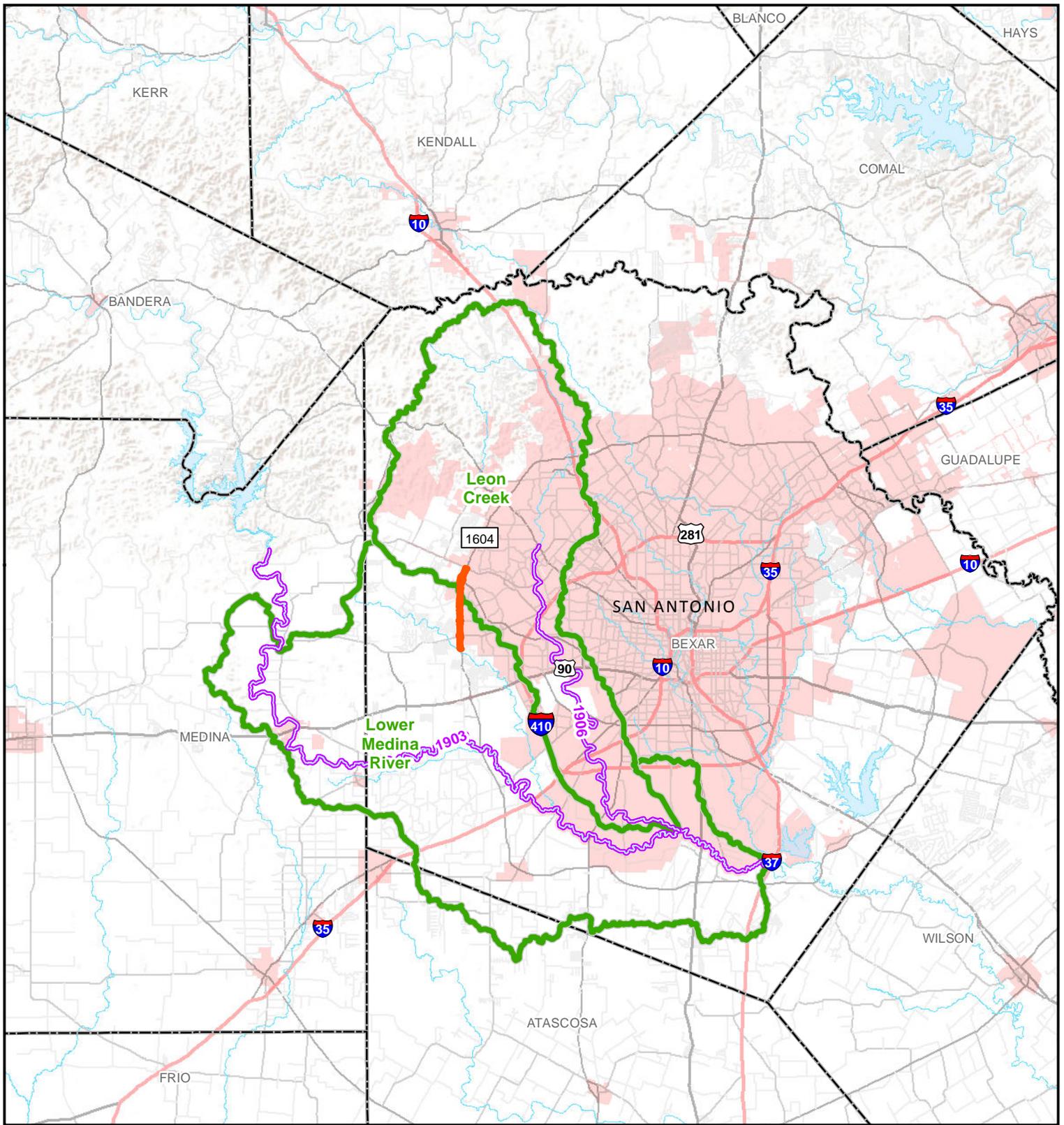
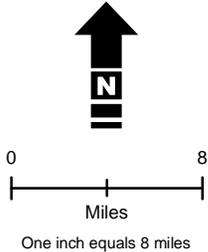


Figure 5
Water Resources Study Area
 Loop 1604
 Potranco Road (FM 1957) to FM 471 (Culebra Road)
 CSJ# 2452-01-056

Key to Features

-  303d Impaired Streams
-  Major Rivers / Streams
-  Water RSA (Lower Medina River & Leon Creek Watersheds)
-  Project Location
-  County Boundaries
-  City Boundaries



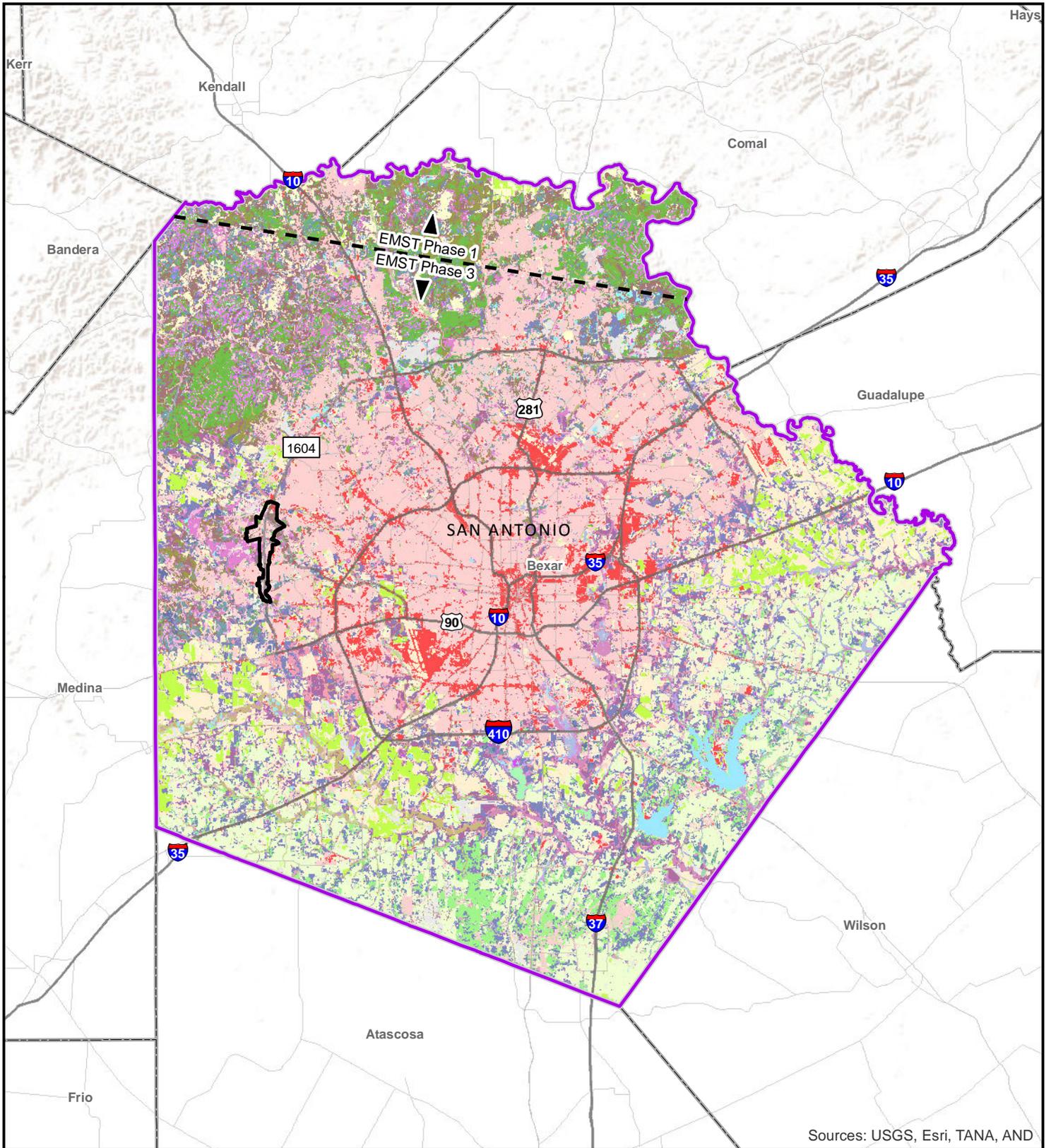


Figure 6

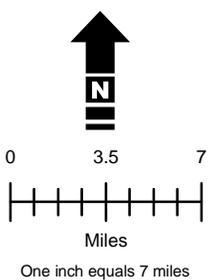
Threatened & Endangered Species
Resource Study Area

Loop 1604
Potranco Road (FM 1957) to FM 471 (Culebra Road)
CSJ# 2452-01-056

Key to Features

- - EMST Phase Boundary
- ▭ Area of Influence
- ▭ Bexar County Boundary (RSA)

EMST - Phases 1 & 3 Vegetation Types - See next page



Key to Features

Ecological Management Systems of Texas (EMST)

Vegetation Types (Phases 1 & 3)

-  Barren
-  Blackland Prairie: Disturbance or Tame Grassland
-  Central Texas: Floodplain Deciduous Shrubland
-  Central Texas: Floodplain Evergreen Forest
-  Central Texas: Floodplain Evergreen Shrubland
-  Central Texas: Floodplain Hardwood / Evergreen Forest
-  Central Texas: Floodplain Hardwood Forest
-  Central Texas: Floodplain Herbaceous Vegetation
-  Central Texas: Floodplain Herbaceous Wetland
-  Central Texas: Floodplain Live Oak Forest
-  Central Texas: Riparian Deciduous Shrubland
-  Central Texas: Riparian Evergreen Shrubland
-  Central Texas: Riparian Hardwood / Evergreen Forest
-  Central Texas: Riparian Hardwood Forest
-  Central Texas: Riparian Herbaceous Vegetation
-  Central Texas: Riparian Herbaceous Wetland
-  Central Texas: Riparian Live Oak Forest
-  Edwards Plateau: Ashe Juniper / Live Oak Shrubland
-  Edwards Plateau: Ashe Juniper / Live Oak Slope Shrubland
-  Edwards Plateau: Ashe Juniper Motte and Woodland
-  Edwards Plateau: Ashe Juniper Slope Forest
-  Edwards Plateau: Deciduous Oak / Evergreen Motte and Woodland
-  Edwards Plateau: Floodplain Ashe Juniper Forest
-  Edwards Plateau: Floodplain Ashe Juniper Shrubland
-  Edwards Plateau: Floodplain Deciduous Shrubland
-  Edwards Plateau: Floodplain Hardwood / Ashe Juniper Forest
-  Edwards Plateau: Floodplain Hardwood Forest
-  Edwards Plateau: Floodplain Herbaceous Vegetation
-  Edwards Plateau: Floodplain Herbaceous Wetland
-  Edwards Plateau: Floodplain Live Oak Forest
-  Edwards Plateau: Live Oak Motte and Woodland
-  Edwards Plateau: Live Oak Slope Forest
-  Edwards Plateau: Oak / Ashe Juniper Slope Forest
-  Edwards Plateau: Oak / Hardwood Motte and Woodland
-  Edwards Plateau: Oak / Hardwood Slope Forest
-  Edwards Plateau: Post Oak Motte and Woodland
-  Edwards Plateau: Riparian Ashe Juniper Forest
-  Edwards Plateau: Riparian Ashe Juniper Shrubland
-  Edwards Plateau: Riparian Deciduous Shrubland
-  Edwards Plateau: Riparian Hardwood / Ashe Juniper Forest
-  Edwards Plateau: Riparian Hardwood Forest
-  Edwards Plateau: Riparian Herbaceous Vegetation
-  Edwards Plateau: Riparian Herbaceous Wetland
-  Edwards Plateau: Riparian Live Oak Forest
-  Edwards Plateau: Savanna Grassland
-  Edwards Plateau: Shin Oak Shrubland
-  Edwards Plateau: Shin Oak Slope Shrubland
-  Grass Farm
-  Marsh
-  Native Invasive: Deciduous Woodland
-  Native Invasive: Huisache Woodland or Shrubland
-  Native Invasive: Juniper Shrubland
-  Native Invasive: Juniper Woodland
-  Native Invasive: Mesquite Shrubland
-  Open Water
-  Post Oak Savanna: Live Oak Motte and Woodland
-  Post Oak Savanna: Live Oak Slope Forest
-  Post Oak Savanna: Oak / Hardwood Slope Forest
-  Post Oak Savanna: Post Oak / Live Oak Motte and Woodland
-  Post Oak Savanna: Post Oak / Yaupon Motte and Woodland
-  Post Oak Savanna: Post Oak Motte and Woodland
-  Post Oak Savanna: Sandyland Grassland
-  Post Oak Savanna: Sandyland Woodland and Shrubland
-  Post Oak Savanna: Savanna Grassland
-  Row Crops
-  South Texas: Calcareous Dense Shrubland
-  South Texas: Calcareous Shrubland
-  South Texas: Calcareous Sparse Shrubland
-  South Texas: Clayey Blackbrush Mixed Shrubland
-  South Texas: Clayey Mesquite Mixed Shrubland
-  South Texas: Disturbance Grassland
-  South Texas: Floodplain Deciduous Shrubland
-  South Texas: Floodplain Evergreen Forest and Woodland
-  South Texas: Floodplain Evergreen Shrubland
-  South Texas: Floodplain Grassland
-  South Texas: Floodplain Hardwood Forest and Woodland
-  South Texas: Ramadero Dense Shrubland
-  South Texas: Ramadero Evergreen Woodland
-  South Texas: Ramadero Shrubland
-  South Texas: Ramadero Woodland
-  South Texas: Sandy Mesquite Dense Shrubland
-  South Texas: Sandy Mesquite Savanna Grassland
-  South Texas: Sandy Mesquite Woodland
-  Urban High Intensity
-  Urban Low Intensity

APPENDIX B
MTP/TIP PAGES

METROPOLITAN TRANSPORTATION PLAN "Mobility 2040"

ALAMO AREA METROPOLITAN PLANNING ORGANIZATION

Updated:
December 8, 2014

FY 2015

| TxDOT District | County | CSJ | Hwy | Phase | City | Project Sponsor | MPO Proj ID No. | Year of Expenditure Cost |
|------------------|--------|---|---------|----------------------------|-------------|-----------------|-----------------|--------------------------|
| 15 - San Antonio | Bexar | 2230-01-013 | FM 1560 | C | San Antonio | TxDOT | 3997.0 | \$12,100,000 |
| Limits From: | | SH 16 | | | | | | |
| Limits To: | | Loop 1604 | | Last Revision Date: 7/2013 | | | | |
| Description: | | Expand from 2 to 4 lanes with raised median, bike lanes & sidewalks | | | | | | |
| Project History: | | 4/12 - funded through STP-MM project selection process | | | | | | |

| Total Project Cost Information (TxDOT %): | | Cost of Approved Phases: | Type of Work: | | Authorized Funding by Category/Share | | | | | |
|---|--------------|--------------------------|----------------------------|-------------|--------------------------------------|---------|-------|--------------|---------------|-------|
| | | | Added Capacity: Non - Toll | | Funding Categories | Federal | State | Local | Local Contrib | Total |
| Preliminary Engineering: | \$592,900 | \$12,100,000 | 7 - STP-MM | \$8,856,000 | \$2,214,000 | \$0 | \$0 | \$11,070,000 | | |
| ROW Purchase: | \$0 | | 12S - Strat Priority | \$824,000 | \$206,000 | \$0 | \$0 | \$1,030,000 | | |
| Construction Cost: | \$12,100,000 | | Other | \$0 | \$0 | \$0 | \$0 | \$0 | | |
| Construction Engineering | \$600,160 | | Other | \$0 | \$0 | \$0 | \$0 | \$0 | | |
| Contingencies: | \$693,330 | | Totals | \$9,680,000 | \$2,420,000 | \$0 | \$0 | \$12,100,000 | | |
| Indirect Costs: | \$828,850 | | | | | | | | | |
| Other Field | \$0 | | | | | | | | | |
| Total Project Cost: | \$14,815,240 | | | | | | | | | |

| | | | | | | | | |
|------------------|-------|--|-----------|----------------------------|-------------|-------|--------|--------------|
| 15 - San Antonio | Bexar | 2452-01-056 | Loop 1604 | E,R,C | San Antonio | TxDOT | 4012.0 | \$98,000,000 |
| Limits From: | | FM 1957 (Potranco Road) | | | | | | |
| Limits To: | | FM 471 (Culebra Road) | | Last Revision Date: 5/2014 | | | | |
| Description: | | Expand to 4 lane expressway (4 non-toll lanes) | | | | | | |
| Project History: | | 4/14 - rev cost; 1/13 - rev limits, cost & fund cats | | | | | | |

| Total Project Cost Information (TxDOT %): | | Cost of Approved Phases: | Type of Work: | | Authorized Funding by Category/Share | | | | | |
|---|--------------|--------------------------|----------------------------|-----|--------------------------------------|---------|--------------|--------------|---------------|-------|
| | | | Added Capacity: Non - Toll | | Funding Categories | Federal | State | Local | Local Contrib | Total |
| Preliminary Engineering: | \$3,820,441 | \$77,968,174 | 3 - ATD | \$0 | \$0 | \$0 | \$98,000,000 | \$98,000,000 | | |
| ROW Purchase: | \$1,444,213 | | Other | \$0 | \$0 | \$0 | \$0 | \$0 | | |
| Construction Cost: | \$77,968,174 | | Other | \$0 | \$0 | \$0 | \$0 | \$0 | | |
| Construction Engineering | \$3,703,488 | | Other | \$0 | \$0 | \$0 | \$0 | \$0 | | |
| Contingencies: | \$2,151,922 | | Totals | \$0 | \$0 | \$0 | \$98,000,000 | \$98,000,000 | | |
| Indirect Costs: | \$3,765,863 | | | | | | | | | |
| Other Field | \$5,145,899 | | | | | | | | | |
| Total Project Cost: | \$98,000,000 | | | | | | | | | |

| | | | | | | | | |
|------------------|-------|--|-----------|----------------------------|-------------|-------|--------|--------------|
| 15 - San Antonio | Bexar | 2452-01-057 | Loop 1604 | E,R,C | San Antonio | TxDOT | 3398.0 | \$31,104,199 |
| Limits From: | | at SH 151 | | | | | | |
| Limits To: | | - | | Last Revision Date: 7/2013 | | | | |
| Description: | | Construct interchange (Phase IA - SH 151 MLs) | | | | | | |
| Project History: | | 11/14 - revise funding categories; 7/13 - add project to TIP/MTP | | | | | | |

| Total Project Cost Information (TxDOT %): | | Cost of Approved Phases: | Type of Work: | | Authorized Funding by Category/Share | | | | | |
|---|--------------|--------------------------|-------------------------|-----|--------------------------------------|---------|-------|--------------|---------------|-------|
| | | | Interchange: Non - Toll | | Funding Categories | Federal | State | Local | Local Contrib | Total |
| Preliminary Engineering: | \$1,524,106 | \$31,104,199 | 12 - Strategic Priority | \$0 | \$18,000,000 | \$0 | \$0 | \$18,000,000 | | |
| ROW Purchase: | \$0 | | 3 - Prop 12 | \$0 | \$15,000,000 | \$0 | \$0 | \$15,000,000 | | |
| Construction Cost: | \$31,104,199 | | 3 - Prop 14 | \$0 | \$5,000,000 | \$0 | \$0 | \$5,000,000 | | |
| Construction Engineering | \$1,458,787 | | Other | \$0 | \$0 | \$0 | \$0 | \$0 | | |
| Contingencies: | \$2,326,594 | | Totals | \$0 | \$38,000,000 | \$0 | \$0 | \$38,000,000 | | |
| Indirect Costs: | \$1,586,314 | | | | | | | | | |
| Other Field | \$0 | | | | | | | | | |
| Total Project Cost: | \$38,000,000 | | | | | | | | | |

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM
SAN ANTONIO MPO - HIGHWAY PROJECTS
FY 2016

| 2015-2018 STIP | | 05/2015 Revision: Pending Approval | | | | | | |
|---|-----------------------|---|---|----------------------|-----------------|--------------|-----------------------|-----------------------|
| DISTRICT | MPO | COUNTY | CSJ | HWY | PHASE | CITY | YOE COST | |
| SAN ANTONIO | SAN ANTONIO | BEXAR | 0915-12-509 | CR | C | OTHER | \$ 8,097,480 | |
| LIMITS FROM Bulverde Road from Marshall Road | | PROJECT SPONSOR BxCo | | | | | | |
| LIMITS TO Wilderness Oak | | REVISION DATE 05/2015 | | | | | | |
| PROJECT Reconstruct and widen to 4 lanes with shoulder, pedestrian ramps, curb, bridge c | | MPO PROJ NUM 3988 | | | | | | |
| DESCR onstruction and drainage improvements | | FUNDING CAT(S) 7 | | | | | | |
| REMARKS 3rd Qtr 15 - move from FY 2015 to FY 2016 and updat P7 e description | | PROJECT HISTORY 4/15 - move from FY 2015 to FY 2016 and update descriptio n; 1/14 - move from FY 14 to FY 15; 4/13- move from FY 13 to FY 14 and revise funding categories; 4/12 - funded th rough STP-MM project selection process | | | | | | |
| TOTAL PROJECT COST INFORMATION | | | AUTHORIZED FUNDING BY CATEGORY/SHARE | | | | | |
| PREL ENG \$ | 396,777 | CATEGORY | FEDERAL | STATE | REGIONAL | LOCAL | LC | TOTAL |
| ROW PURCH \$ | 0 | 7 | \$ 6,477,984 | \$ 0 | \$ 0 | \$ 1,619,496 | \$ 0 | \$ 8,097,480 |
| CONSTR \$ | 8,097,480 | TOTAL | \$ 6,477,984 | \$ 0 | \$ 0 | \$ 1,619,496 | \$ 0 | \$ 8,097,480 |
| CONST ENG \$ | 401,635 | COST OF APPROVED PHASES | | | | | | |
| CONTING \$ | 463,986 | \$ 8,097,480 | | | | | | |
| INDIRECT \$ | 554,677 | | | | | | | |
| BOND FIN \$ | 0 | | | | | | | |
| PT CHG ORD \$ | 0 | | | | | | | |
| TOTAL CST | \$ 9,914,555 | | | | | | | |
| 2015-2018 STIP | | 05/2015 Revision: Pending Approval | | | | | | |
| DISTRICT | MPO | COUNTY | CSJ | HWY | PHASE | CITY | YOE COST | |
| SAN ANTONIO | SAN ANTONIO | BEXAR | 2452-01-056 | Loop 1604 | C,E,R | SAN ANTONIO | \$ 98,000,000 | |
| LIMITS FROM FM 1957 (Potranco Road) | | PROJECT SPONSOR TxDOT | | | | | | |
| LIMITS TO FM 471 (Culebra Road) | | REVISION DATE 05/2015 | | | | | | |
| PROJECT Expand to 4 lane expressway (4 non-toll lanes) | | MPO PROJ NUM 4012 | | | | | | |
| DESCR | | FUNDING CAT(S) 3LC | | | | | | |
| REMARKS 3rd Qtr 15 - move from FY 2015 to FY 2016 P7 | | PROJECT HISTORY 4/15 - move from FY 2015 to FY 2016; 4/14 - rev cost; 1/1 3 - rev limits, cost & fund cats | | | | | | |
| TOTAL PROJECT COST INFORMATION | | | AUTHORIZED FUNDING BY CATEGORY/SHARE | | | | | |
| PREL ENG \$ | 3,820,441 | CATEGORY | FEDERAL | STATE | REGIONAL | LOCAL | LC | TOTAL |
| ROW PURCH \$ | 1,444,213 | 3LC | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 98,000,000 | \$ 98,000,000 |
| CONSTR \$ | 77,968,174 | TOTAL | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 98,000,000 | \$ 98,000,000 |
| CONST ENG \$ | 3,703,488 | COST OF APPROVED PHASES | | | | | | |
| CONTING \$ | 2,151,922 | \$ 98,000,000 | | | | | | |
| INDIRECT \$ | 3,765,863 | | | | | | | |
| BOND FIN \$ | 0 | | | | | | | |
| PT CHG ORD \$ | 5,145,899 | | | | | | | |
| TOTAL CST | \$ 98,000,000 | | | | | | | |
| 2015-2018 STIP | | 05/2015 Revision: Pending Approval | | | | | | |
| DISTRICT | MPO | COUNTY | CSJ | HWY | PHASE | CITY | YOE COST | |
| SAN ANTONIO | SAN ANTONIO | BEXAR | 0253-04-146 | US 281 | C | SAN ANTONIO | \$ 224,000,000 | |
| LIMITS FROM Loop 1604 | | PROJECT SPONSOR TxDOT | | | | | | |
| LIMITS TO Stone Oak Parkway | | REVISION DATE 05/2015 | | | | | | |
| PROJECT Expand to 6 lane expressway (4 non-toll lanes & 2 managed lanes) & non-toll nort | | MPO PROJ NUM 4010 | | | | | | |
| DESCR hem interchange connectors at Loop 1604 | | FUNDING CAT(S) 11,2M,3LC | | | | | | |
| REMARKS 3rd Qtr 15 - move from FY 2015 to FY 2016 and revis P7 e funding distribution | | PROJECT HISTORY 4/15 - move from FY 2015 to FY 2016 and revise funding di stribution; 4/14 - revise description; project has \$86M i n Cat 2 (years 2015-2016); Cat 3 incl \$48M in ATD; \$26M C oSA, \$22.25M in LC, \$6M Prop 12 | | | | | | |
| TOTAL PROJECT COST INFORMATION | | | AUTHORIZED FUNDING BY CATEGORY/SHARE | | | | | |
| PREL ENG \$ | 9,277,529 | CATEGORY | FEDERAL | STATE | REGIONAL | LOCAL | LC | TOTAL |
| ROW PURCH \$ | 0 | 2M | \$ 73,100,000 | \$ 12,900,000 | \$ 0 | \$ 0 | \$ 0 | \$ 86,000,000 |
| CONSTR \$ | 189,337,319 | 3LC | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 35,750,000 | \$ 35,750,000 |
| CONST ENG \$ | 9,391,130 | 3LC | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 48,000,000 | \$ 48,000,000 |
| CONTING \$ | 3,767,813 | 3LC | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 26,000,000 | \$ 26,000,000 |
| INDIRECT \$ | 9,144,993 | 3LC | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 22,250,000 | \$ 22,250,000 |
| BOND FIN \$ | 0 | 11 | \$ 0 | \$ 6,000,000 | \$ 0 | \$ 0 | \$ 0 | \$ 6,000,000 |
| PT CHG ORD \$ | 7,081,216 | 11 | \$ 3,200,000 | \$ 800,000 | \$ 0 | \$ 0 | \$ 0 | \$ 4,000,000 |
| TOTAL CST | \$ 228,000,000 | TOTAL | \$ 76,300,000 | \$ 19,700,000 | \$ 0 | \$ 0 | \$ 132,000,000 | \$ 228,000,000 |



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION FEDERAL HIGHWAY ADMINISTRATION
819 TAYLOR STREET, ROOM 8A36 300 E. 8TH STREET, ROOM 826
FORT WORTH, TEXAS 76102-9003 AUSTIN, TEXAS 78701

June 24, 2015

Refer to: HPP-TX

Joint Approval of May 2015 quarterly revisions to the FY 2015-2018 Statewide Transportation Improvement Program (STIP)

Lt.Gen Joe Weber (Ret)
Executive Director
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Attention: Marc Williams

Dear General Weber:

We have reviewed the May 2015 quarterly revisions to the FY 2015-2018 STIP transmitted with your June 18, 2015 letter and approved by the Honorable Greg Abbott, Governor of Texas on June 23, 2015. Based upon our review, these revisions to the STIP are hereby approved subject to the enclosed comments.

Should you have any questions or concerns, please contact either Ms. Genevieve Bales of the FHWA Texas Division at (512) 536-5941 or Ms. Lynn Hayes of the FTA Region VI office at (817) 978-0565 for additional information.

Sincerely yours,

Donald R. Koski, Director
Planning and Program Development
Federal Transit Administration
Region VI

Michael T. Leary, Director
Planning and Program Development
Federal Highway Administration
Texas Division

Enclosure

cc: Lynn Hayes, FTA, Region VI
John Stott, TxDOT Design
Alison McMillan, TxDOT Design
Lillie Salas, TxDOT Design
Jack Foster, TxDOT TPP
Lori Morel, TxDOT TPP
Kelly Kirkland, TxDOT PTN
Karen Dunlap, TXDOT PTN
FHWA: HA-TX, HB-TX, HAM-TX, HPP-TX

2015-2018 STIP
May 2015
Quarterly Revisions

| # | MPO / District | CSJ Number | STIP comment |
|----|---------------------|-------------|--|
| 1 | AAMPO / San Antonio | 0915-00-172 | Not Approved. The phase of work (Construction) does not match the project description (Right-of-Way/Engineering/Construction). Please take action to address this project inconsistency in the AAMPO planning documents. |
| 2 | AAMPO / San Antonio | 0915-00-173 | Not Approved. The phase of work (Construction) does not match the project description (Right-of-Way/Engineering/Construction). Please take action to address this project inconsistency in the AAMPO planning documents. |
| 3 | AAMPO / San Antonio | 0915-12-559 | Not Approved. The FY 2016 project does not appear to be listed in the MTP. Please take action to resolve this TIP/MTP inconsistency. |
| 4 | AAMPO / San Antonio | 0915-12-560 | Not Approved. The FY 2015 project does not appear to be listed in the MTP. Please take action to resolve this TIP/MTP inconsistency. |
| 5 | AAMPO / San Antonio | 0915-12-561 | Not Approved. The FY 2016 project does not appear to be listed in the MTP. Please take action to resolve this TIP/MTP inconsistency. |
| 6 | CAMPO / Austin | 0265-05-067 | Not approved. The project description provided does not indicate the number of overpass, main and frontage road lanes to be constructed. Approval of this revision is withheld pending clarification of the proposed project's scope of work. |
| 7 | CAMPO / Austin | 0265-05-078 | Not approved. The project information provided indicates the proposed improvement to be located near the intersection of SH 72 and SH 95 in Bastrop, Texas. However, this project location could not be verified. Approval of this revision is withheld pending clarification of the proposed project's location and limits. |
| 8 | EPMPO / El Paso | 0924-06-460 | Not Approved. For purposes of the STIP this project was never officially approved by FHWA & FTA into the 2015-2018 STIP. |
| 9 | EPMPO / El Paso | 0924-06-461 | Not Approved. For purposes of the STIP this project was never officially approved by FHWA & FTA into the 2015-2018 STIP. |
| 10 | LMPO / Lubbock | 0905-06-089 | Not Approved. The project does not appear to be listed in the MTP. Please take action to resolve TIP/MTP inconsistencies. |

2015-2018 STIP
May 2015
Quarterly Revisions

| # | MPO /District | CSJ Number | STIP comment |
|----|-----------------|-------------|--|
| 11 | LMPO / Lubbock | 0905-06-102 | Not Approved. The project does not appear to be listed in the MTP. Please take action to resolve TIP/MTP inconsistencies. |
| 12 | NCTCOG / Dallas | 0442-02-088 | Not Approved. The project is not consistent with Mobility 2035-2014; specifically the provision for 8-lane FRs. |
| 13 | NCTCOG/Dallas | 0918-47-136 | Approved. Based on additional information provided by NCTCOG staff (email 6/22/2015), and additional review, this project is approved. |
| 14 | NCTCOG/Dallas | 0918-47-142 | Approved. Based on additional information provided by NCTCOG staff (email 6/22/2015), and additional review, this project is approved. |
| 15 | Rural/Laredo | 0276-06-010 | Approved. Please work with the TXDOT Design Division to verify the funding level and correct the Federal amount in the STIP. |

