



Final Environmental Assessment

SH 105, Houston District

SH 105 (From 10th Street in Conroe to Business 105)

Control-Section-Job (CSJs): 0338-04-060, 0338-04-065, 0338-04-066, 0338-05-028, 0338-06-011 and 0338-07-019

Montgomery, San Jacinto, and Liberty Counties, Texas

February 2020

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

LIST OF ACRONYMS

-A-

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AIRSAFS	Aerometric Information Retrieval System/Air Facility Subsystem
AJD	Approved Jurisdictional Determination
ALU	Aquatic Life Use
AOI	Area of Influence
APE	Area of Potential Effects
ASTM	American Society for Testing and Materials

-B-

BMPs	Best Management Practices
BNSF	Burlington Northern Santa Fe

-C-

CBRA	Coastal Barrier Resources Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMAQ	Congestion Management Air Quality
CMP	Congestion Management Process
CO	Carbon monoxide
CR-3	Texas Peace Officer's Crash Reports
CSJ	Control-Section-Job
CWA	Clean Water Act

-D-

dB(A)	A-weighted decibel
dbh	diameter at breast height

-E-

EA	Environmental Assessment
EC	Federal Engineering Institutional Control Sites

EIS	Environmental Impact Statement
EJ	Environmental Justice
EMST	Ecological Mapping Systems of Texas
ENV	TxDOT Environmental Affairs Division
EO	Executive Order
EPICS	Environmental Permits, Issues, and Commitments
ETJ	Extraterritorial Jurisdiction
-F-	
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FRSTX	Facility Registry System of Texas
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
FWCA	Fish and Wildlife Coordination Act
-G-	
GLO	General Land Office
GWCC	Groundwater Contamination Cases
-H-	
H-GAC	Houston-Galveston Area Council
-I-	
ICIS	Integrated Compliance Information System [formerly DOCKETS]
IH	Interstate Highway
IHW	Industrial and Hazardous Waste Corrective Action
IP	Individual Permit
IPaC	Information for Planning and Consultation
ISA	Initial Site Assessment
-J-	
-K-	
-L-	
LEP	Limited English Proficiency

LIENS	TCEQ Liens
LOS	Level of Service
LPG	Liquefied Petroleum Gas
LPST	Leaking Petroleum Storage Tank
LWCF	Land and Water Conservation Fund
-M-	
MBTA	Migratory Bird Treaty Act
MMPA	U.S. Marine Mammal Protection Act
MOU	Memorandum of Understanding
mph	miles-per-hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxics
MTP	Metropolitan Transportation Plan
-N-	
NA/MA	Nonattainment or Attainment-Maintenance Area
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPL	National Priorities List
NOA	Notice of Availability
NOI	Notice of Intent
NOV	Notice of Violations
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
-O-	
-P-	
PA	Programmatic Agreement
PALM	Potential Archeological Liability Map
PCSR06	Permit Compliance System
PJD	Preliminary Jurisdictional Determination

PM	Particulate Matter
PS&E	Plans, Specifications, and Estimates
PST	Petroleum Storage Tank
PWC	Parks and Wildlife Code
-Q-	
-R-	
R	receiver
RCRANGR06	Resource Conservation and Recovery Act- Non-Generator
RODS	Record of Decision System
ROW	right-of-way
RSA	Resource Study Area
RTP	Regional Transportation Plan
-S-	
SEMS	Superfund Enterprise Management System
SFLIENS	CERCLIS (Superfund) Liens
SGCN	Species of Greatest Conservation Need
SH	State Highway
SHNF	Sam Houston National Forest
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOV	Single Occupancy Vehicle
STAA	Surface Transportation Authorization Act
SW3P	Stormwater Pollution Prevention Plan
-T-	
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TDPS	Texas Department of Public Safety
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Loads
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSS	Total Suspended Solids

TTS	Texas Trunk System
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
-U-	
US	U.S. Highway
USACE	U.S. Army Corps of Engineers
USC	U. S. Code
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USIBWC	U.S. International Boundary and Water Commission
UST	Underground Storage Tanks
-V-	
vmt	vehicle miles traveled
vpd	vehicles per day
-W-	
WOTUS	waters of the U.S., including wetlands
-X-	
-Y-	
-Z-	

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Houston Galveston Area Council

Sam Houston National Forest

Texas Historical Commission

United States Coast Guard

Texas Commission on Environmental Quality

U.S. Fish and Wildlife Service

Texas Parks and Wildlife

U.S. Army Corps of Engineers

1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) Houston District proposes to reconstruct and widen State Highway (SH) 105 from 10th Street in Conroe to Business 105 near Cleveland. The proposed project is located in Montgomery, San Jacinto, and Liberty counties, Texas (**Appendix A**). The proposed project is approximately 20 miles in length, passing through the cities of Conroe and Cut and Shoot, the unincorporated communities of Security and Fostoria, and the extraterritorial jurisdiction (ETJ) of the city of Cleveland. Approximately 45 acres of additional right-of-way (ROW) would be required to construct the proposed project with a typical proposed ROW width ranging from 130 to 180 feet and a maximum proposed ROW width of 280 feet at Peach Creek. The proposed project location can also be seen on a U.S. Geological Survey (USGS) topographic map in **Appendix A**.

This Environmental Assessment (EA) has been developed in order to study the potential environmental consequences of constructing the proposed project and determine whether such consequences warrant preparation of an Environmental Impact Statement (EIS). The EA is organized to provide concise information drawing from technical memoranda that support the findings within the EA. Currently the proposed project is identified as having State funding per the 2040 Regional Transportation Plan (RTP); however, TxDOT is considering other funding sources for the proposed project, including federal funds. This document has been prepared to comply with TxDOT's environmental review rules and the National Environmental Policy Act (NEPA) (42 U.S. Code [USC] 4321 et seq.), as the proposed project may utilize federal funding. This document is also prepared pursuant to the requirements of the Council on Environmental Quality (CEQ) regulations in *Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508), the Federal Highway Administration (FHWA) regulations *Environmental Impact and Related Procedures* (23 CFR Part 771), and Texas Administrative Code (TAC) Title 43, Part 1, Chapter 2, *Environmental Review of Transportation Projects*.

The Notice of Availability (NOA) of the availability of the Draft EA and notification of the Public Hearing were published on the TxDOT's website on January 22, 2019. Copies of this notice can be found at:

<https://www.txdot.gov/inside-txdot/get-involved/about/hearings-meetings/houston/022119.html>.

Interested parties and stakeholders, including the applicable Metropolitan Planning Organization (MPO), which is the Houston-Galveston Area Council (H-GAC) for this proposed project, were notified via email about the availability of the document and how to access it.

2.0 PROJECT DESCRIPTION

2.1 Existing Facility

Within the proposed project limits, SH 105 generally consists of a two-lane undivided facility (one 12-foot lane in each direction) with 11-foot outside shoulders. A small section of the existing facility, located at the western terminus of the proposed project, approximately 0.66-mile from 10th Street to Farm-to-Market Road (FM) 1314, typically consists of four 11-foot travel lanes (two lanes in each direction), no shoulders and a 12-foot continuous two-way turn lane, which transitions into four 12-foot travel lanes (two lanes in each direction), no shoulders and a 14-foot continuous two-way turn lane.

The existing ROW width ranges from 80 feet at the western project boundary in Conroe but is typically 120 to 150 feet throughout the length of the proposed project. The posted speed limit varies from 30 to 55 miles-per-hour (mph) in the urban sections (10th Street to Penny Road) and 55 to 65 mph in the rural sections (Penny Road to Business 105).

Project photographs can be seen in **Appendix B** and the existing typical section can be seen in **Appendix D**.

2.2 Proposed Facility

The Build Alternative (**Alternative 6**), which is recommended as the Preferred Alternative, would reconstruct and widen the existing two-lane undivided facility to a four-lane facility with a continuous two-way turn lane. SH 105, from 10th Street in Conroe to Business 105 near Cleveland, would be reconstructed and widened to the north and south. The proposed project would provide sidewalks and bicycle accommodations within the wide outside shoulders, along the north and south sides of SH 105 for the entire length of the proposed project. The proposed project includes a curb and gutter system along approximately 75 percent of the proposed project from 10th Street in Conroe to Lee Turner Road. From Lee Turner Road to Business 105, an open ditch system will be used. The length of the project, including all transitions is approximately 20 miles. Approximately 45 acres of new ROW would be required with 25 potential displacements. The proposed project is described in further detail below. The proposed project location maps, schematic, and typical sections can be seen in **Appendix A, C, and D**, respectively.

From 10th Street in Conroe to Farm-to-Market Road (FM) 1485:

- Four travel lanes; one 12-foot inside lane in each direction and one 15-foot outside shared use lane in each direction;
- A 16-foot continuous two-way turn lane;
- A 6-foot sidewalk along the north and south sides of SH 105;
- Bicycle accommodations within the 15-foot shared use lane along the north and south sides of SH 105.

From FM 1485 to 0.50-mile west of Lee Turner Road:

- Four travel lanes; two 12-foot inside lanes in each direction;
- One 12-foot outside shoulder in each direction;
- An 18-foot continuous two-way turn lane;
- A 2-foot curb and gutter system along the north and south side of SH 105;
- A 5-foot sidewalk along the north and south sides of SH 105;
- Bicycle accommodations within the 12-foot outside shoulder along the north and south sides of SH 105.

From 0.50-mile west of Lee Turner Road to Business 105 near Cleveland:

- Four travel lanes; two 12-foot inside lanes in each direction;
- One 12-foot outside shoulder in each direction;
- A 16-foot continuous two-way turn lane;
- An open ditch system along the north and south sides of SH 105;
- A 5-foot sidewalk along the north and south sides of SH 105;
- Bicycle accommodations within the 12-foot outside shoulder along the north and south sides of SH 105.

Typically, 20 feet of additional ROW width would be required from the north and south sides of SH 105 to implement the proposed project (approximately 45 acres of additional ROW in total). TxDOT would be responsible for the ROW acquisition.

The proposed speed limit would vary from 45 mph to 60 mph. The proposed project would not be tolled. The construction would be phased and is anticipated to begin in 2021. The proposed SH 105 project is estimated to be open for traffic in 2027.

The SH 105 roadway, within the proposed project limits, is listed with a functional classification of Category 3-Principal Arterial. According to FHWA, a Principal Arterial roadway can include freeways, multilane highways, and other important roadways that supplement the Interstate Highway (IH) system. They connect, as directly as practicable, the Nation's principal urbanized areas, cities, and industrial centers. Arterial roadways deliver traffic from a collector road to freeways or expressways, and between urban centers at the highest level of service (LOS) possible.

Federal regulations require that federally funded transportation projects have a logical termini. 23 CFR 771.111(f)(1). Simply stated, this means that a project must have rational beginning and end points. Those end points may not be created simply to avoid proper analysis of environmental impacts. Logical termini for the proposed project are 10th Street in Conroe (west end of the project) and Business 105 near Cleveland (east end of the project). The proposed project limits can be seen in **Appendix A**.

Federal regulations require that a project have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area. 23 CFR 771.111(f)(2). This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built.

SH 105 traverses through the heart of the city of Conroe, is a travel route to Lake Conroe west of the proposed project and would be a route for travelers to the future (under construction) Grand Texas Theme Park, which is located south of the proposed project. In Conroe, 10th Street has a functional classification of Urban Minor Arterial. Business 105 has a functional classification of Rural Principal Arterial. The terminus of 10th Street was also selected for the following reasons: the proposed project improvements extend west of FM 1314 with 10th Street as the next cross street that connects to a larger road to the north (Airport Road) and SH 105 west of 10th Street splits into a one-way pair roadway with no median and traverses through the city of Conroe, then the one-way pairs merge together west of North Frazier Street to provide a four-lane roadway (two-lanes in each direction) to IH 45. The terminus of Business 105 was also selected, as there are minimal traffic generators between Business 105 and U.S. Highway (US) 59 in Cleveland. This area is rural in nature, containing one church east of Business 105, wooded areas, and pastureland. The review of direct environmental impacts was conducted within the proposed project limits; however, indirect and cumulative impacts were analyzed

beyond the proposed project limits. Because the project stands alone, it cannot and does not irretrievably commit federal funds for other, future transportation projects.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements. 23 CFR 771.111(f)(3). This means that a project must not dictate or restrict any future roadway alternatives.

The proposed project between 10th Street and Business 105 would provide an effective transportation facility with independent utility in that the proposed project would meet all aspects of the purpose and need without having to construct any additional improvements at either project terminus. Furthermore, the proposed project would not restrict the consideration of other foreseeable transportation improvements in the region.

Additionally, a portion of SH 105, from FM 1484 to Business 105, has been designated a Texas Highway Trunk System (TTS). The TTS is a network that connects all points of entry and all cities with a population of 20,000 or more with a four-lane divided facility. The TTS will include and complement the Federal highway system. The completion date of the TTS is subject to the availability of funding but is targeted for the year 2020. Portions of the SH 105 facility east and west of the proposed project and portions of US 59 and IH 69 are also designated as TTS highways. A map of the TTS within the project area can be seen in **Appendix F**.

The proposed project was found to be in conformity for air quality by the FHWA on February 7, 2020. The proposed project is listed on pages 146, 161 and 180 of the 2045 RTP (RTP Update 10/25/2019). The proposed project is also included in H-GAC's 2019-2022 Transportation Improvement Program (TIP) (Appendix D-pages 26, 27, and 30, and the January 2020 Administrative Modifications, 01/08/2020, page 1 of 1) and the Statewide Transportation Improvement Program (STIP). Based on the 2045 RTP, the total project cost, including ROW acquisition and utility relocation costs, is \$244.86 million. As seen in Section 1.0, the 2045 RTP identifies the State as the funding source; however, other funding sources are being considered, including federal funds. This document has been prepared to comply with TxDOT's environmental review rules and NEPA, as the proposed project may utilize federal funding. The plan and program excerpts that list the proposed project can be seen in **Appendix E**.

3.0 PURPOSE AND NEED

The purpose of the proposed project describes the solutions that the project is trying to achieve. The need for the project describes the problems that the project is trying to address.

3.1 Need

The proposed project is needed because increased and projected growth in the area has caused traffic demand to exceed the capacity of the existing roadway. The two-lane undivided roadway does not provide adequate mobility to accommodate the population growth or alleviate growing congestion, resulting in an increased number of serious and fatal accidents along the proposed project corridor (according to the Texas Department of Public Safety [TDPS]), and there is a lack of sufficient and safe turning refuge for motorists.

3.2 Supporting Facts and/or Data

Traffic Demand

The traffic data analyzed for this document was obtained from TxDOT in 2016. The traffic projections reflect growth in the project area. Due to past residential and business expansion within the proposed project area, traffic demands along SH 105 have greatly increased to date to a poor LOS. In examining projected traffic volumes, the demands will only worsen.

The proposed project was split into four sections for traffic purposes due to substantial differences in traffic volumes throughout the project corridor. **Table 3-1** identifies the Average Daily Traffic (ADT) for SH 105 within the proposed project limits. The highest ADT volume occurs in Section 3 of **Table 3-1**: 20,230 vehicles per day (vpd) for 2015 and 30,521 vpd for 2040.

Table 3-1: Average Daily Traffic

Section	Location	Year 2015 (vehicles per day)	Year 2040 (vehicles per day)
1	10 th Street to FM 3083	16,105	24,365
2	FM 3083 to Loop 336	9,908	14,933
3	Loop 336 to Crockett Martin Road	20,230	30,521
4	Crockett Martin Road to Business 105	10,517	15,652

Source: Jacobs/TxDOT, 2016.

Roadway Capacity

The existing SH 105 facility is an east-west facility that serves the cities and communities of Conroe, Cut and Shoot, Cleveland, Security, and Fostoria. SH 105 also serves the surrounding cities of Willis, Panorama Village, Montgomery, Woodloch, and The Woodlands Township. The SH 105 roadway, within the proposed project limits, is listed with a functional classification of Category 3-Principal Arterial.

Traffic volume/capacity ratios are used to define the LOS of a roadway. Categories range from ratings of A through F. The range describes a progressive deterioration from A (free traffic flow; 0 to 35 percent of capacity) through F (forced or breakdown traffic flow). According to TxDOT's *Directional Two-Lane Highway Segment Worksheet* prepared on October 28, 2016, the existing SH 105 roadway from 10th Street to Business 105 is currently functioning at a LOS E (unstable flow, operating at capacity; flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to maneuver in the traffic stream and speeds rarely reach the posted limit). The existing SH 105 roadway does not meet current traffic demands and would not meet future traffic demands if improvements are not implemented.

Population Growth

Table 3-2 presents population trends from 2015 to 2040 for counties and cities in and around the proposed project limits. As is the case in the SH 105 corridor, population growth often leads to increased traffic volumes and demand both regionally and locally.

Table 3-2: Regional Growth Forecast

Geographic Area	2015			2040			2015-2040 Change (Percent)		
	Population	Households	Employment	Population	Households	Employment	Population	Households	Employment
Montgomery County	554,986	206,540	169,158	1,272,206	518,602	278,482	129.2	151.1	64.6
San Jacinto County	29,386	-	-	45,924	-	-	56.3	-	-
Liberty County	73,275	26,387	14,348	171,284	69,214	27,287	133.8	162.3	90.2
City of Conroe	68,854	24,723	32,399	105,616	40,650	34,695	58.0	64.4	7.1
City of Cleveland	7,059	2,635	4,203	9,844	3,871	4,410	39.5	46.9	4.9

Source: H-GAC, 2015 Q2 Regional Growth Forecast (2015 and 2040). Accessed May 2016.
<http://www.h-gac.com/community/socioeconomic/2040-regional-growth-forecast/default.aspx>.

Source: Texas State Data Center. Assumes 2000-2010 Growth Scenario.
<http://osd.texas.gov/Data/TPEPP/Projections/Tool?fid=BB0F46F1125A4D92A24E954DBBEE9A29>

Note: San Jacinto County is not in the H-GAC planning area. Texas State Data Center data was used for San Jacinto County and only contained total population data.

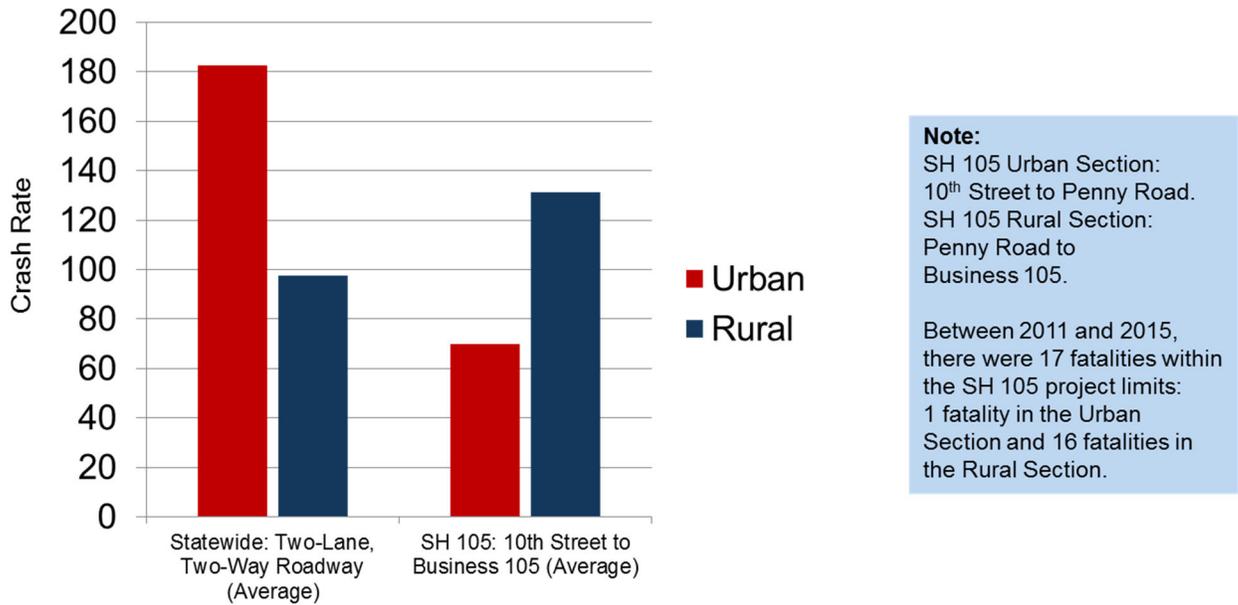
From a regional perspective, Liberty and Montgomery counties are projected to experience the largest population growth from 2015 to 2040 (in terms of percent increase); however, San Jacinto County and the cities of Conroe and Cleveland would also experience a moderate rate in population growth. With the exception of San Jacinto County, where data is unavailable, this trend extends to household and employment growth rates for the same areas. The overall population growth regionally, particularly within the counties and cities noted above, currently contributes to and will continue to increase travel demand along SH 105 within Montgomery, San Jacinto, and Liberty counties.

Safety

Highway safety plays a major role in determining the need for highway improvements. According to traffic crash rates obtained from TDPS, SH 105 has experienced a substantial number of accidents and is anticipated to continue to do so in its current design. Unlike other sections of SH 105, the section east of Conroe and just west of Cleveland is a two-lane roadway. This section has narrow shoulders with open ditches on either side.

Figure 3-1 below identifies traffic crash rate data along the statewide highway system and within the proposed project limits. The information was obtained by TxDOT from the Texas Peace Officer's Crash Reports (CR-3). Although the traffic crash rates are lower in the urban areas of SH 105 than the statewide average for a comparable roadway, the traffic crash rates are higher than the statewide average for the rural areas of SH 105.

Figure 3-1: Traffic Crash Rates (2011 to 2015)



Source: Jacobs, 2018.

Note: Traffic crash rates are based on the number of crashes per 100 million vehicle-miles-traveled. Information represents reportable data collected from Texas Peace Officer’s Crash Reports (CR-3).

Table 3-3 below presents traffic fatality numbers along SH 105 within the proposed project limits per H-GAC and CR-3 reports. It should be noted that the H-GAC report identifies traffic fatalities between Loop 336 and US 59 in Cleveland, which does not include 10th Street to Loop 336 and extends east of the project terminus from Business 105. As seen in **Table 3-3**, there have been 54 fatalities between 2003 and 2015, with 17 of the fatalities occurring between the period from 2011 through 2015.

Table 3-3: Traffic Fatalities

*SH 105: Loop 336 to US 59 in Cleveland	
Facility Year	Total Fatalities
2003	2
2004	7
2005	3
2006	3
2007	5
2008	9

**SH 105: Loop 336 to US 59 in Cleveland	
2009	3
2010	5
2011	8
2012	2
2013	4
2014	0
2015	3
TOTAL	54

Source: *2003-2008 data obtained from H-GAC April 14, 2010 letter as seen in **Appendix G**.
 **2009-2015 data obtained from TxDOT from the Texas Peace Officer's Crash Reports (CR-3).

3.3 Purpose

The purpose of the proposed project is to improve safety, operational efficiency, and travel times; to accommodate growth along SH 105 from 10th Street in Conroe to Business 105 near Cleveland; and reduce the number of traffic accidents and fatalities. Along many sections in the proposed project area, SH 105 is experiencing considerable traffic congestion and a substantial number of accidents, which are anticipated to increase in future years. **Table 3-4** summarizes the purpose and need of the proposed project.

Table 3-4: Summary of Purpose and Need

SH 105: 10th Street in Conroe to Business 105 near Cleveland	
Desired Outcome (Purpose)	Condition to be Addressed (Need)
Improve safety, operational efficiency, and travel times along SH 105	Increased and projected growth in the area has caused traffic demand to exceed the capacity of the existing roadway
Accommodate growth along SH 105	The two-lane undivided roadway does not provide adequate mobility to accommodate the population growth or alleviate growing congestion
Reduce the number of traffic accidents and fatalities	Current roadway lacks sufficient and safe turning refuge for motorists

Source: Jacobs, 2018

4.0 ALTERNATIVES

The process used to develop the proposed project alternatives followed the procedural provisions of NEPA, the CEQ Regulations, 23 CFR 771, and the FHWA Technical Advisory 6640.8A in developing appropriate alternatives along SH 105 from 10th Street in Conroe to Business 105 near Cleveland. The alternative analysis included the development and understanding of existing conditions and features based on color infrared and traditional aerial photography review, environmental records review, topographic map reviews, review of National Wetland Inventory (NWI) maps, review of soils, and site visits to identify the presence of environmental and engineering constraints.

Using a systematic, interdisciplinary approach, TxDOT used the purposes of the proposed project, public input, and environmental impact considerations to develop and evaluate the following six alternatives.

- Alternative 1: No Build Alternative
- Alternative 2: Create New Location Roadway
- Alternative 3: Widen to Four-Lane Undivided Roadway
- Alternative 4: Widen Primarily to the North to Four-Lane Divided Roadway
- Alternative 5: Widen Primarily to the South to Four-Lane Divided Roadway
- Alternative 6: Widen to the North and South to Four-Lane Divided Roadway

As explained below, Alternative 6 is the Preferred Alternative and, along with the No Build Alternative, is the alternative that is further evaluated in the EA. Alternatives 2-5 were eliminated from further consideration for reasons stated below in Section 4.3.

4.1 Build Alternative

Alternative 6: Widen to the North and South to a Four-Lane Divided Roadway (the preferred Build Alternative) would meet the proposed project's purpose and need for increased capacity, mobility, and safety of the roadway.

The proposed project consists of a four-lane roadway with a continuous two-way turn lane. SH 105, from 10th Street in Conroe to Business 105 near Cleveland, would be reconstructed and widened to the north and south. Since there is development along the corridor, which is anticipated to continue, sidewalks are needed for pedestrian safety. A sidewalk is proposed on both sides of SH 105 for the entire length of the proposed project. The proposed project includes a curb and

gutter system along approximately 75 percent of the proposed project with outside shoulders and open ditches along the remaining easternmost length of the proposed project. Bicycles would be accommodated for within the 15-foot shared use lanes along the north and south sides of SH 105 from 10th Street to Loop 336. From Loop 336 to Business 105, bicycles would be accommodated within the wide outside shoulders.

The proposed speed limit is separated into three sections as seen below.

1. 10th Street to FM 1484 (Urban Street): 45 mph
2. FM 1484 to west of the Burlington Northern Santa Fe (BNSF) Railroad Bridge (Urban Roadway): 50 mph
3. West of the BNSF RR Bridge to Business 105 (Multi-Lane Rural Highway): 60 mph

Due to substantial differences in traffic volumes, the proposed project was split into four sections for traffic purposes. **Table 3-1** identifies the ADT for SH 105 within the proposed project limits. The highest ADT volume is 30,521 vpd for 2040.

Typically, 20 feet of additional ROW width would be required from the north and south sides of SH 105 to implement the proposed project (approximately 45 acres of additional ROW in total). TxDOT would be responsible for the ROW acquisition.

The proposed project schematic can be seen in **Appendix C**. The proposed typical sections can be seen in **Appendix D**.

4.2 No Build Alternative

Under the No Build Alternative (**Alternative 1**), the existing roadway would not be reconstructed or widened. Normal routine maintenance would continue. Typical maintenance that would occur includes seal coats and overlays (asphalt layer followed with rock aggregate), minor rehabilitation (reworking the top of the roadway surface followed by an overlay), pavement edge repair, and other activities, such as signing, striping, and patchwork.

The No Build Alternative is typically used as a baseline condition for comparison purposes. The No Build Alternative would not address existing or increased traffic demands or regional connectivity. This alternative would not meet the purpose and need of the proposed project; therefore, based on this and the remaining alternatives considered but eliminated from further consideration, **Alternative 6** is the recommended Preferred Alternative.

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

In 2003, Alternatives 2 and 3 were considered and eliminated from further detailed analysis early in the process. The reasons were based on the principal design requirements, desired design benefits, and environmental protection and enhancement requirements identified for the proposed project.

Alternative 2: Create a New Location Roadway was eliminated from further detailed analysis because it did not avoid or minimize impacts. Creating a new location roadway would result in substantially greater adverse social, economic, and environmental impacts than the other Build Alternatives that utilize the existing roadway.

Alternative 3: Widen to a Four-Lane Undivided Roadway was eliminated from further detailed analysis because it did not meet the desired design benefit of improved safety.

4.4 Alternatives Studied in Further Detail

In 2003, three additional conceptual alignment alternatives (**Alternatives 4, 5, and 6**) were investigated based on the known constraints at that time. The primary focus of the preliminary engineering studies was the identification of a preferred Build Alternative that would avoid known constraints to the greatest extent possible and satisfy the purpose and need of the proposed project. The alternatives that did not avoid known constraints nor satisfy the purpose and need of the proposed project were eliminated from detailed analysis. Public meetings were held in 2003 and 2004 to present **Alternatives 4, 5, and 6**. A comparison of the 2004 alternatives studied in further detail can be seen below in **Table 4-1**.

Alternative 4: Widen Primarily to the North to a Four-Lane Undivided Roadway was eliminated from consideration because it would impact greater resources than Alternative 6: greater residential and commercial displacements, greater roadside picnic sites displacements, the acquisition of one public park/parkland site, greater areas of potential wetlands, and greater acreage of woody vegetation. Alternative 4 would require ROW from the Cut and Shoot Town Park (Public Park). The portion of Cut and Shoot Town Park, which would be impacted, consists of a five-foot wide strip of maintained vegetation along the southern boundary of the park. Impacts to the public park would require a property that qualifies as Section 4(f) and would require a Section 4(f) analysis. Section 4(f) states that land from a publicly owned park, recreation area, wildlife or waterfowl refuge, or land of a historic site can be used for a transportation project only if 1) there are no feasible and

prudent alternatives to the use of these resources, and 2) all possible planning has been taken to minimize harm to the resource. As there were alternatives that did not impact Section 4(f) property, Alternative 4 was eliminated from consideration.

Alternative 5: Widen Primarily to the South to a Four-Lane Divided Roadway was eliminated from consideration because it would impact greater resources than Alternative 6: greater number of residential and commercial displacements, greater roadside picnic sites displacements, greater areas of potential wetlands, and greater acreage of woody vegetation.

Alternative 6: Widen to the North and South to a Four-Lane Divided Roadway was chosen as the preferred Build Alternative in 2004 because it would impact less resources than Alternatives 4 and 5: lesser number of residential and commercial displacements, lesser number of roadside picnic site displacements, no ROW acquisition from public parkland, lesser potential wetland areas, and lesser acreage of woody vegetation. Alternative 6 met the purpose and need of the proposed project.

Table 4-1: 2004 Comparison of Potential Impacts for Alternatives Studied in Further Detail

COMPARISON OF POTENTIAL IMPACTS ¹				
SH 105: 10 TH STREET TO BUSINESS 105 ALTERNATIVES				
ITEM	ESTIMATED ITEM VALUES			
	Alternative 4 (North) Impacts	Alternative 5 (South) Impacts	Alternative 6 (North & South) Impacts	Alternative 1 No-Build Impacts
Displacements (sites)	26	25	17	0
Residential (sites)	11	9	5	0
Commercial (sites)	11	12	9	0
Churches (sites)	2	2	2	0
Roadside Picnic Sites	2	2	1	0
Parkland (Sites)	1	0	0	0
Wetland (NWI mapped areas)	36	33	32	0
Woody Vegetation (Acres)	19	22	7.4	0

Jacobs, 2018-Derived from 2003 Alternatives Analysis taken from the 2004 SH 105 Environmental Assessment.
1: Impacts were determined analyzing the new additional ROW.

Note: Alternatives were seen at the 2003 and 2004 Public Meetings and documented in the associated Public Meeting Summary Reports.

From 2004 to 2015, the proposed project was delayed twice due to funding constraints.

In 2015, the proposed project design presented at the December 1, 2015 Public Meeting included reconstructing and widening the existing two-lane undivided roadway to a four-lane divided roadway with shared use lanes, sidewalks, and a raised median from 10th Street to Penny Road. The remaining roadway would have typically consisted of a four-lane roadway with outside shoulders, sidewalks, and a center depressed median from Penny Road to Business 105 near Cleveland. **Alternative 6** was modified, as a result of comments from the December 1, 2015 Public Meeting.

Due to concerns from the public, the Cut and Shoot Volunteer Fire Department, and Montgomery County concerning the raised medians and divided roadway, the proposed project design was revisited and replaced with the current Build Alternative (6) as seen in **Section 4.1**.

From 2015 to 2018, the environmental process was on hold due to design revisions.

In 2018, comprehensive reviews of the proposed project were conducted. Although the surrounding area of the proposed project is growing rapidly, development within the proposed project limits has not been substantial.

The previously presented 2004 alternatives eliminated from detailed analysis, (**Alternatives 4 and 5**) were evaluated again. The picnic areas that were previously identified as displacements were removed from the roadway during the 2015-2018 delay. The picnic areas were removed at the request of local and state government officials, as they were not being used for their intended purpose. Further information on removal of the picnic areas can be seen in Section 5.1.

Alternatives 4, 5, and 6 are discussed below and can be seen in **Table 4-2**.

Alternative 4: Widen to the North to a Four-Lane Undivided Roadway was eliminated from consideration because it would impact greater resources than Alternative 6: greater commercial displacements, the acquisition of one public park/parkland site, greater impacts to potential wetland areas, and greater woody vegetation impacts. Alternative 4 would require ROW from the Cut and Shoot Town Park (Public Park). The portion of Cut and Shoot Town Park, which would be impacted, consists of a five-foot wide strip of maintained vegetation along the southern boundary of the park. Impacts to the public park would require a property that qualifies as Section 4(f) and would require a Section 4(f) analysis. Section 4(f) states that land from a publicly owned park, recreation area, wildlife or waterfowl refuge, or land of a historic site can be used for a transportation project only if 1) there are no feasible and prudent alternatives to the use of these

resources, and 2) all possible planning has been taken to minimize harm to the resource. As there are alternatives that do not impact Section 4(f) property, Alternative 4 was eliminated from consideration.

Alternative 5: Widen to the South to a Four-Lane Divided Roadway was eliminated from consideration because it would impact greater resources than Alternative 6: greater commercial displacements, including a structure from the Tennessee Gas Pipeline Company, the displacement of one Spanish language church; the Iglesia Bautista Ind El Calvario church, and greater woody vegetation impacts.

Alternative 6: Widen to the North and South to a Four-Lane Divided Roadway is chosen as the preferred Build Alternative because it would impact less resources than **Alternatives 4 and 5**: lesser commercial displacements, including no ROW acquisition from the Tennessee Gas Pipeline Company, no church displacements, no ROW acquisition from public parkland, and lesser impacts to woody vegetation. Alternative 6 met the purpose and need of the proposed project.

Table 4-2: 2018 Comparison of Potential Impacts for Alternatives Studied in Further Detail

COMPARISON OF POTENTIAL IMPACTS ¹				
SH 105: 10 TH STREET TO BUSINESS 105 ALTERNATIVES				
ITEM	ESTIMATED ITEM VALUES			
	Alternative 4 (North) Impacts	Alternative 5 (South) Impacts	Alternative 6 (North & South) Impacts	Alternative 1 No-Build Impacts
Displacements (sites)	18	27	25	0
Residential (sites)	1	6	6	0
Commercial (sites)	17	17	14	0
Ancillary (shed, signs, etc.)	0	3	5	0
Churches (sites)	0	1	0	0
Parkland (sites)	1	0	0	0
Wetlands (NWI mapped areas)	47	44	46	0
Woody Vegetation (acres)	15	16	4.6	0

Jacobs, 2018: 1: Impacts were determined analyzing the new additional ROW.

Notes:

The roadside picnic areas listed in Table 4-1 were removed by TxDOT from the roadway and will not be replaced. The woody vegetation was calculated using the Ecological Mapping Systems of Texas (EMST) which was not available in the 2004 comparison seen in Table 4-1.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Project objectives, environmental issues, and public involvement were a primary focus in the planning, design, and environmental analysis process. In support of this EA, **Table 5-1** lists the technical reports that have been submitted and are available for public review at TxDOT's Houston District office. The proposed project was evaluated for both direct and encroachment-alteration (indirect) effects and no encroachment-alteration effects were identified for any subject area.

Table 5-1: List of Technical Reports Cited

Technical Report
Air Quality Technical Report
Biological Resources Technical Report
Community Impacts/Risk Assessment Forms
Indirect and Cumulative Technical Report
Report for Historical Studies Survey
Archeological Background Study Technical Report
Hazardous Materials Technical Report
Traffic Noise Technical Report
Water Resources Technical Report
Wetland Assessment Technical Report
Source: Jacobs, 2018

Copies of the submitted technical reports are available for review and copy at TxDOT's Houston district office located at 7600 Washington Avenue, Houston, TX 77007.

Based on these reports, project scoping efforts, and project analysis, it was determined that the Build Alternative would have no impacts on the following resource categories: farmlands, groundwater, wild and scenic rivers, coastal areas, Section 4(f) properties, Section 6(f) properties, and Chapter 26 properties. However, the Build Alternative could affect a number of other resources as detailed in the noted technical reports and summarized in the following sections. For the purpose of this EA and unless otherwise noted, the project area for evaluating proposed project impacts is defined as both the existing and proposed ROW that extends throughout the proposed project limits.

5.1 Right-of-Way/Displacements

Build Alternative

There are no permanent or temporary easements required as part of the proposed project at this time.

Approximately 45 acres of additional ROW would be required to construct the proposed project. There is a total of 25 potential displacements associated with this proposed project: Six (6) residential properties, 14 commercial properties, and five (5) ancillary structures. In addition, there are three (3) commercial properties where acquisition of the majority of the parking area is required and there are 24 encroachments into the existing TxDOT ROW, including five (5) locations with memorial markers. During the ROW acquisition process, all encroachments would be removed from TxDOT's existing and proposed ROW. The schematic can be seen in **Appendix C**. The ROW requirements are detailed below and can be seen in **Appendix F**.

Potential Residential Displacements

1. Single family structure
2. Mobile home structure
3. Single family structure
4. Single family structure
5. Mobile home structure
6. Mobile home structure-abandoned

Potential Commercial Displacements

1. Audio Autos-auto-oriented (formerly S&L BBQ and JJ's 24/7 Towing)
2. R&R Salvage-auto-oriented
3. Weisinger Water Well Yard No. 2-auto-oriented
4. Evan's Transmissions-auto-oriented
5. Weisinger Water Well-auto-oriented
6. All-Star Commercial/ACR Custom Granite-real estate sales
7. Nixon Mobile Homes-mobile home business
8. It's Muffler Time-auto-oriented
9. King's Fuel Gas Station-oil and gas related
10. Inspection Plus-auto-oriented
11. Universal Equipment Repair-auto oriented
12. CG's Beauty Retail Shop-home retail

13. Shell gas station-fuel pumps only-oil and gas-related
14. Equine Equipment-equestrian equipment

Potential Ancillary Displacements

1. Carport-associated with residential mobile home
2. Shed-associated with residential mobile home
3. Shed-associated with residential mobile home
4. Shed-associated with Video Madness
5. Church sign-located at Iglesia Bautista Ind El Calvario Church

Encroachments onto the ROW that Will Be Removed

1. Garza's Tire Shop & Repair-business
2. Shed-associated with businesses
3. Complete Mobile Homes-business
4. Quality Used Furniture-business
5. Trading Center New & Used Furniture-business
6. Carpet Warehouse-business
7. Nixon Mobile Homes-business
8. Leeland Sheds (demos)-business
9. Residential-Single Family
10. Fuel Maxx/Exxon Gas Station (fuel pumps only)-business
11. Sno Cone business-business
12. CNS Discount Tobacco-abandoned-business
13. Flea Market stand-business
14. Shed associated with single family residential
15. Taqueria-business
16. Tires & More-business
17. AT&T-underground cable utility box-business
18. Residential-Mobile Home-abandoned
19. Residential-Mobile Home-abandoned
20. Memorial marker
21. Memorial marker
22. Memorial marker
23. Memorial marker
24. Memorial marker

Additional Potential ROW Acquisition from Commercial Parking Lots

1. Dependable Auto/Sergio's Lawn Service & Landscaping (entire parking lot)
2. Crystal Creek Strip Center (entire parking lot)
3. T. D. Hideaway (restaurant) (entire parking lot) -closed-for sale

It should be noted that there are two noise receivers (Section 5.14-Traffic Noise-Receiver [R]6-residences) that are located between the existing BNSF RR ROW and the existing TxDOT ROW. The parking area is located within the existing TxDOT ROW. The proposed roadway would construct a sidewalk in front of these receivers. There is no parking area behind the receivers due to the BNSF RR. Also, the metal ceiling connected to a porch associated with one of the receiver's overhangs into the existing TxDOT ROW.

Memorial markers are located throughout the proposed project on both sides of SH 105 within the existing TxDOT ROW. All memorial markers will be removed from TxDOT ROW.

Two TxDOT roadside picnic areas were identified as potential displacements within the proposed project. The first picnic area was located east of FM 1484 and west of Walker Road. The picnic area included tables and benches on the north and south sides of SH 105 at Cagle Branch. This picnic area location was counted as one potential displacement. The second picnic area was located east of Fostoria Road and west of Business 105. The picnic area included tables and benches on the south side of SH 105. However, in 2016, a request was made from local and state government officials to close the picnic area located between FM 1484 and Walker Road. The picnic area was no longer being used for the comfort and convenience of the traveling public, but rather was being used for dumping trash and other unsavory activities. TxDOT concurred with the request and closed the picnic area. In addition, TxDOT also closed the second picnic area located east of Fostoria Road and west of Business 105 to discourage the same type of activity. The two TxDOT roadside picnic areas were removed from the roadway and will not be replaced or relocated with the implementation of the proposed project. The request to close the TxDOT roadside picnic area located between FM 1484 and Walker Road can be seen in **Appendix G**.

The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4201-465, P.L. 91-646), as amended by the Uniform Relocation Act Amendments of 1987 (P.L. 100-17), known as the Uniform Act, contains specific requirements that determine the manner in which a government entity acquires private property for public use when federal funds are used for any phase of a project. TxDOT would follow the Uniform Act for the acquisition of ROW.

Consistent with the U.S. Department of Transportation (USDOT) policy, as mandated by the Uniform Act, as amended, TxDOT would provide relocation resources to all displaced persons without discrimination. TxDOT would also provide payment and services to aid in movement to a new location through its Relocation Assistance Program. All property owners from whom property is needed are entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property. It should be noted that the 23 encroachments listed previously would not receive relocation benefits or compensation.

A Community Impacts Assessment Technical Report Form, which includes information on potential displacements, has been completed for this proposed project and is available for public review at the TxDOT Houston District office.

All determinations regarding displacements are preliminary, and subject to change upon final design.

No Build Alternative

The No Build Alternative would not require the acquisition of ROW and, therefore, would not result in any potential displacements.

5.2 Land Use

Land use within the proposed project area is consistent with an urbanized area comprised of residential subdivisions, scattered, single residential properties, commercial properties (strip centers, gas stations, retail establishments, car dealerships, feed stores, and garden centers), light industrial businesses, and vacant land. Approximately 45 acres of additional ROW would be converted to highway ROW. Land use adjacent to the proposed project is detailed below.

- Schools adjacent to the proposed project include Stephen F. Austin Elementary School.
- There are no child or elderly care centers adjacent to the proposed project;
- There is one cemetery located adjacent to the proposed project. The Oakwood Cemetery, with an associated historical marker, is located adjacent to the proposed project at the corner of North 10th Street and SH 105.
- Churches adjacent to the proposed project include Iglesia del Nombre del Jesucristo, Centro Cristiano Libertad, First Baptist Church Groceville, Lifestyle Community Church, Security First Baptist Church, Cowboy Church, Open Range Cowboy Church, and Iglesia Bautista Ind El Calvario.

- Fire stations adjacent to the proposed project include Cut and Shoot Volunteer Fire Stations #21 and #22. These fire stations are both considered part of Montgomery County Emergency Service District #12.
- There are no hospitals or emergency care facilities located adjacent to the proposed project.
- The Cut and Shoot Post Office, Town Hall, and Community Park are located adjacent to the proposed project on the north side of SH 105 in Cut and Shoot.
- The BNSF RR is located parallel to the proposed project.
- The Conroe Creosoting Company “Superfund Site” is located adjacent to the proposed project in the city of Conroe. The U.S. Environmental Protection Agency (USEPA) has been monitoring clean up on the property since 2005 and completed their last review in 2013, with an update in July 2015. Detailed information can be seen in Section 5.13.
- There is one privately owned airport located in close proximity to the proposed project limits. The privately-owned airport is the Cut and Shoot Airport, which is located on the south side of SH 105 in the city of Cut and Shoot, approximately 0.88-mile south of SH 105. Based on current design, no airway-highway clearances are anticipated to be impacted by the proposed SH 105 project. Coordination with the Federal Aviation Administration (FAA) is not required, as coordination is required for public use airports. In addition, the public-use Lone Star Executive Airport is located 1.52 miles north of the proposed SH 105 project. Due to the distance of the airport to the proposed project, no airway-highway clearances would be impacted by the proposed SH 105 project.
- The Sam Houston National Forest (SHNF), one of four National Forests in Texas, is located 50 miles north of Houston. The forest contains 163,037 acres of land between Huntsville, Conroe, Cleveland, and Richards, Texas. Although some maps identify the SHNF as being located on either side of SH 105 within the proposed project limits, this identification is a *Proclamation Boundary* and includes land that is privately owned. Land owned by the SHNF in the vicinity of the proposed project area consists of one compartment that is located approximately 513 feet north of the proposed project. There would be no impacts to the SHNF as a result of the proposed project. The SHNF map can be seen in **Appendix F** and the coordination letter with the SHNF can be seen in **Appendix G**.

5.3 Farmlands

The purpose of the Farmland Protection Policy Act (FPPA), Subtitle I of Title XV of the Agricultural and Food Act of 1981 (Pub. L. 97-98), is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of prime, unique, and other farmlands of statewide or local importance to non-agricultural uses.

Build Alternative

Projects considered exempt under the FPPA include those that require no additional ROW or require ROW that is developed, urbanized, or zoned for urban use. The proposed project would require additional ROW; therefore, the project is not exempt under the FPPA. The project was scored using Form AD-1006. The project scored below 60, which is the threshold for consultation with the Natural Resources Conservation Service (NRCS); therefore, it was not submitted to the NRCS for review. Further details can be found in the Biological Evaluation Form, which is available for public review at the TxDOT Houston District office.

No Build Alternative

Under the No Build Alternative, the existing infrastructure would remain as is and only normal routine maintenance would be conducted. No impacts would occur to farmlands; therefore, no coordination with the NRCS is required.

5.4 Utilities/Emergency Services

Build Alternative

Utilities such as water lines, sewer lines, gas lines, telephone cables, electrical lines, and other subterranean and aerial utilities may require minor adjustments or relocations. Aerial and/or underground utility construction would be adjusted. The required utility adjustments may or may not be provided for by the affected utility company. The extent of utility adjustments is not known at this time and would be determined during final design. Coordination of any utility adjustments would take place during the design phase and/or before construction begins. All utility adjustments would be in accordance with TxDOT, city, and county design policy guidelines. The adjustment and relocation of any utilities would be handled so that no substantial interruptions would take place while these adjustments are being made.

There would be no permanent changes in access within the proposed project limits; therefore, there would be no changes to current emergency service providers' routes. The location of emergency

service providers adjacent to project corridor are identified in Section 5.2 – Land Use. In addition, the Build Alternative would improve the safety, operational efficiency, and travel times of the roadway, and increase capacity to accommodate growth in the project area. As such, the Build Alternative would not adversely affect emergency response times, but would rather provide a safer, more efficient facility for emergency service providers to use in the performance of their various duties.

No Build Alternative

The No Build Alternative would not require any utility relocations or adjustments within the proposed project corridor and would not change current emergency service providers' routes.

5.5 Bicycles and Pedestrian Facilities

Build Alternative

The existing project corridor does not contain sidewalks or bicycle accommodations. The Build Alternative would provide a typical five-foot-wide sidewalk on both sides of SH 105, for the entire length of the proposed project. Bicycle accommodations would be located in the shared use lanes, and the outside shoulders of the proposed project, and would be of sufficient width to accommodate bicycles per TxDOT guidance.

The sidewalks and bicycle accommodations comply with TxDOT's policy for bicycle and pedestrian accommodations, are in accordance with the USDOT *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*, signed on March 11, 2010, Titles II and III of the Americans with Disabilities Act (ADA) of 1990 revised regulations *2010 ADA Standards for Accessible Design*, and are in accordance with the minimum requirement set by the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*.

No Build Alternative

Proposed pedestrian and bicycle accommodations do not currently exist within the proposed project corridor and would not be implemented under the No Build Alternative.

5.6 Community Impacts

A Community Impacts Assessment Technical Report was prepared for the proposed project. The technical report is available for public review at the TxDOT Houston District office. The findings are described below.

The community resources analyzed included the general characteristics of the community, community facilities, local and regional demographics and economies, access, travel patterns, traffic patterns, potential residential and commercial displacements, community cohesion, Environmental Justice (EJ), and persons with Limited English Proficiency (LEP).

SH 105 traverses through the heart of the city of Conroe in an east-west direction. It is also the primary route to Lake Conroe, which is an important regional destination to the west. The businesses in the proposed project area are predominantly small and most serve the local market. Many businesses along the corridor are auto-oriented (repair, sales/rental, services, and parts). Other adjacent businesses include convenience/discount stores, restaurants/fast food, gift shops, boutiques and beauty, and hardware/home and garden businesses. There are several adjacent businesses that serve the oil and gas industry. In addition, the Grand Texas theme park is anticipated to open in April 2020. The theme park encompasses 632 acres at the junction of IH 69 (formerly US 59) and SH 242, which is south of the proposed project. The theme park would include Houston's largest amusement park, the Big Rivers Waterpark, The Grove Factory Outlets, Speedsportz Racing Park, Grand Texas Sportsplex, Grand Texas RV Resort, and a promenade featuring numerous dining, shopping, and entertainment venues. The businesses are predominantly accessed by car.

Build Alternative

There is a total of 25 potential displacements associated with this proposed project: Six (6) residential properties, 14 commercial properties, and five (5) ancillary structures. In addition, there are three (3) commercial properties where acquisition of the majority of the parking area is required and there are 24 encroachments into the existing TxDOT ROW, including five (5) memorial markers. The properties/structures can be seen in more detail below.

Potential Residential Displacements: six (6) residential properties would potentially be displaced and relocated within the proposed project corridor. Of the six (6) residential properties, three (3) are single family residences, two (2) are occupied mobile home residences, and one (1) is an abandoned mobile home residence.

Potential Residential Ancillary Displacements: three (3) ancillary structures would be potentially displaced; a carport, and two (2) sheds.

Residential Encroachments onto the ROW that Will Be Removed: four (4) residential properties contain structures that are encroaching into the existing TxDOT ROW. The enforcement of existing TxDOT ROW boundaries could impact the four (4) properties, which include a single-family residence with an associated shed, and the abandoned mobile home residences. With regard to the single-family residence, a sliver of the eastern portion of the residence is located within the existing TxDOT ROW. There is no proposed ROW within this location. The remaining three (3) structures could possibly be relocated outside of the existing TxDOT ROW and onto the respective residential properties.

Potential Commercial Business Displacements: most of the businesses (8 of 14) identified for potential displacement and relocation are auto-oriented, followed by two (2) utility/oil and gas-related businesses, two (2) mobile home/real estate sales businesses, one (1) home retail businesses, and one (1) equestrian equipment provider.

Potential Ancillary Displacements: there are two (2) ancillary structures associated with potential displacements and relocations. The structures include 1) a shed associated with a video store (Video Madness), and 2) a church sign associated with Iglesia Bautista Ind El Calvario Church (details pertaining to the church can be seen below). While these structures would need to be removed from the proposed TxDOT ROW, they could potentially be relocated onto their respective properties, as there appears to be available land.

Commercial Encroachments onto the ROW that Will Be Removed: there are 15 commercial structures and five (5) locations containing memorial markers that are currently encroaching upon the existing TxDOT ROW.

The enforcement of existing TxDOT ROW boundaries could impact eight (8) of the 15 business encroachments. The eight (8) businesses include 1) Garza's Tire Shop & Repair, 2) a shed next to Complete Mobile Homes, 3) Complete Mobile Homes (mobile home vendor), 4) Quality Used Furniture, 5) Trading Center New & Used Furniture, 6) Carpet Warehouse, 7) Fuel Maxx/Exxon Gas Station (gas pumps only), and 8) AT&T-underground cable utility box. The existing TxDOT ROW is currently being utilized as customer parking for Garza's Tire and Repair Shop, Complete Mobile Homes, Quality Used Furniture, Trading Center New & Used Furniture, and Carpet Warehouse. It should be noted that there is a shed that is located within this complex that is also encroaching into

the existing TxDOT ROW. Upon enforcement of the existing TxDOT ROW boundaries, there would be no land available for customer parking due to constraints from the roadway to the north and the railroad to the south.

The remaining seven (7) business encroachments include; 1) Nixon Mobile Homes, 2) Leeland Sheds (demos), 3) Sno Cone business, 4) CNS Discount Tobacco-abandoned, 5) a flea market stand, 6) a Taqueria, and 7) Tires and More. These businesses are either movable structures that could possibly be relocated on the respective properties or include small sections of parking lots.

The five (5) memorial markers will be removed from the existing TxDOT ROW.

Additional Potential ROW Acquisition from Commercial Parking Lots: the proposed project's ROW acquisition could impact the majority of the parking lots of three (3) businesses including 1) Dependable Auto/Sergio's Lawn Service & Landscaping (an auto/landscaping business), 2) Crystal Creek Strip Center (a shopping center with an associated gas station), and 3) a restaurant (T.D. Hideaway). It should be noted that the restaurant (T.D. Hideaway) is closed and for sale. Coordination with these businesses would be needed to determine how the reduction in parking would impact their ability to conduct business.

Three (3) Spanish language churches are located adjacent to the proposed project where ROW acquisition is proposed: 1) Iglesia Del Nombre del Jesucristo, 2) Centro Cristiano Libertad, and 3) Iglesia Bautista Ind El Calvario. The Iglesia del Nombre del Jesucristo church is located in the front portion of Antoni's Auto on the north side of SH 105. Approximately 10 feet of ROW width would be taken at this location. The ROW acquisition would not impact the church or the church parking. The Centro Cristiano Libertad church is located on the north side of SH 105. Approximately 10 feet of ROW width would be taken at this location. The ROW acquisition would not impact the church or the church parking. The Iglesia Bautista Ind El Calvario church is located on the south side of SH 105. Approximately 15 feet of ROW width would be taken at this location. The ROW acquisition would not impact the church or the church parking; however, the ROW acquisition would impact the church sign.

Based on research, there are sufficient replacement properties for all displacements within the general project corridor.

In conclusion, the six (6) residential displacements/relocations are not clustered in one neighborhood but are instead located throughout the proposed project corridor; as such, they will not result in an adverse impact to a particular community or effect community cohesion. In addition,

adequate comparable replacement housing is present within the corridor so displaced residents could relocate within the corridor and be afforded the same amenities and access that they currently have.

The 14 commercial displacements/relocations are located throughout the corridor, so they would not adversely impact one community more than another. None of the affected businesses are major employers and none serve a specific population. There are available properties within the proposed project corridor that are appropriately zoned so affected businesses could relocate within the proposed project corridor. If the businesses chose not to relocate within the project corridor, it is unlikely that employment would be adversely impacted because there are other comparable business types in the proposed project area.

In addition, the proposed project would enhance community cohesion by providing a safer roadway and facilities for pedestrians and cyclists, while maintaining access to adjacent properties, cross streets, and community services and facilities.

No Build Alternative

The No Build Alternative would not result in displacements or change community cohesion from the existing condition.

5.6.1 Environmental Justice

Build Alternative

Environmental Justice as defined by Executive Order (EO) 12898, means identifying and addressing disproportionately high and adverse effects of the agency's programs, policies, and activities on minority populations and low-income populations to achieve an equitable distribution of benefits and burdens.

Environmental Justice is important because it helps to ensure full and fair participation by potentially affected communities in every phase of the transportation decision-making process. When this is accomplished, the development, construction, operation and maintenance of transportation projects should reflect an equitable distribution of benefits and burdens.

There are 849 census blocks in the study area and 181 of those report minority populations of 50 percent or more. Minority populations live throughout the study area; however, these populations are concentrated in the block groups that include the communities of Conroe and Cut and Shoot. There are no Block Groups considered as EJ based on income. The Department of Health and

Human Services poverty level for a 4-person household in 2018 is \$25,100. All Census Tracts adjacent to the proposed project have populations that speak English less than very well. Overall, most Limited English Proficiency (LEP) speakers (99 percent) speak Spanish. See the Community Impacts Technical Report, which is available for public review at TxDOT's Houston District office, for more details about minority, low-income, and LEP populations.

The community cohesion impacts of the proposed project would be beneficial and would be experienced by all people, including EJ and non-EJ populations alike. These benefits include the provision of sidewalks and accommodations for bicycles and mobility improvements. Crash statistics and input from the public demonstrated that safety is an important issue that needs to be addressed by the proposed project. In addition, the public expressed a desire for safety improvements that would not diminish access. There are no permanent access or travel pattern impacts associated with the proposed project. The inclusion of a continuous two-way turn lane throughout the length of the proposed project, as opposed to the originally proposed raised medians, would separate eastbound and westbound traffic and provide a safe location from which to turn, while maintaining access to all adjacent land uses, driveways, and cross streets. Travel patterns would be maintained as the proposed project is the widening of the existing roadway with no proposed street closures.

Minority and low-income populations would be impacted by the displacement of residential and commercial properties. More residential displacements are located in non-EJ areas than EJ areas, and more commercial displacements are located in EJ areas than non-EJ areas.

In summary, there would be no disproportionately high and adverse human or environmental effects on minority or low income populations per EO 12898 because: there is available comparable replacement properties to accommodate relocations; employment is not likely to be adversely affected as the displaced businesses are not major employers, do not serve a specific population, and the local economy includes similar types of industries/job types; and displacements would not occur in a concentrated area that would impact one community more than another. Also, the proposed project would result in community benefits (improved safety, multimodal access, and community cohesion) which would be experienced by all people.

Executive Order 13045, entitled "Protection of Children from Environmental Health Risks and Safety Risks," mandates that Federal agencies identify and assess environmental health and safety risks that may disproportionately affect children as a result of the implementation of Federal policies, programs, activities, and standards (62 FR 19883-19888, April 23, 1997). No middle

schools, high schools, or day-care facilities are located adjacent to the proposed project. However, Stephen F. Austin Elementary School is located adjacent to the proposed project.

There are no adult care facilities, assisted living facilities, or adult community centers located adjacent to the proposed project.

Direct impacts on air quality and Mobile Source Air Toxics (MSAT) from the project are primarily those associated with the increased capacity and accessibility, as well as the resulting projected increases in vehicle miles traveled (VMT). The USEPA's fuel and vehicle standards are projected to reduce emissions of air pollutants and MSAT, offsetting the impacts resulting from the increases in VMT. These net emissions reductions are expected to contribute to continued maintenance and improvement of air quality and MSAT levels in the area (see Section 5.12 - Air Quality, for more specific information on the evaluation of air quality impacts).

The potential indirect impacts on air quality and MSAT are primarily related to any expected development/redevelopment resulting from project's increased accessibility or capacity to the area. However, any increased air pollutant or MSAT emissions resulting from the potential development or redevelopment of the area must meet regulatory emissions limits established by the Texas Commission on Environmental Quality (TCEQ) and USEPA, as well as obtain appropriate authorization from the TCEQ. Regulatory emission limits set by TCEQ and USEPA are established to attain and maintain the National Ambient Air Quality Standards (NAAQS) (which is protective of public health, including sensitive populations such as children and the elderly) by assuring any emissions sources resulting from new development or redevelopment will not cause or contribute to a violation of those standards.

Therefore, because the project's potential direct and indirect impacts on air quality and MSAT are projected to be offset by federal fuel and vehicle control programs or state and federal regulatory programs, negative impacts on air quality are not anticipated.

In summary of EO 13045, no disproportionate environmental health and safety risks to children or the elderly are anticipated as a result of the implementation of the proposed project.

No Build Alternative

The No Build Alternative is not expected to influence demographic characteristics within the project area or contribute to increased growth.

5.6.2 Limited English Proficiency

Limited English Proficiency is defined as having limited ability to read, write, speak or understand English. Title VI of the Civil Rights Act of 1964 and EO 13166 require projects to provide meaningful access to services and communications to ensure LEP persons are not discriminated against on the basis of national origin.

Build Alternative

Most LEP speakers within the proposed project area (99 percent) speak Spanish; the remaining one (1) percent of LEP speakers, in order of number of speakers, speak Chinese, Portuguese, Tagalog, Korean, French, other Slavic languages, and Urdu. Public meetings were held in 2003, 2004, and 2015. Due to the large number of Spanish speakers in the project area, accommodations for Spanish speakers were planned for at all public meetings. Accommodations for other languages were not requested at past meetings but were available upon request. A public hearing was conducted on February 21, 2019. Materials such as agendas, handouts, and comment cards were translated into Spanish and Spanish interpreters were present and available to the public during the public hearing. Interpreters for other language accommodations were made available upon request; however, there were no requests.

No Build Alternative

The No Build Alternative is not expected to influence LEP populations within the project area.

5.7 *Visual/Aesthetics Impacts*

Build Alternative

Visual and aesthetic impacts may result from additional highway lighting systems, noise barriers, and other visual and aesthetic elements introduced into the proposed project area. The use of lighting will be determined in the detailed Planning, Specifications, and Estimates design stage. Any proposed lighting would be designed to minimize disruptions to adjacent residents. Noise barriers may also block lines of sight both to and from the SH 105 corridor. Any structure added to the existing SH 105 infrastructure may create visual and aesthetic contrast if not designed to match or complement the appearance of existing structures.

A field evaluation was done to determine the potential visual and aesthetic impacts resulting from the proposed Build Alternative. Because SH 105 is an existing transportation corridor and the proposed Build Alternative includes a limited number of additional elevated structures (e.g., the bridge over the BNSF RR), visual and aesthetic impacts are likely to be minimal. No adverse visual

and aesthetic effects to any population or resources are anticipated. In addition, approximately 0.5 percent of the total project cost for the proposed project, or \$1,562,650., will be dedicated to landscaping. Site photographs can be seen in **Appendix B**.

No Build Alternative

The No Build Alternative would leave the existing visual setting unchanged.

5.8 Cultural Resources

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries, and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, NEPA and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. In addition, state laws such as the Antiquities Code of Texas apply to these projects. Compliance with these laws often requires consultation with the Texas Historical Commission (THC)/Texas State Historic Preservation Officer (SHPO) and/or federally-recognized tribes to determine the project's effects on cultural resources.

Evaluation of impacts to cultural resources was conducted in accordance with the Programmatic Agreement (PA) among FHWA, TxDOT, the Texas SHPO, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings. Review and coordination of this project followed approved procedures for compliance with federal and state laws.

5.8.1 Archeology

Build Alternative

An evaluation of potential impacts of the proposed project to archeological resources was conducted under Section 106 of the NHPA. A cultural resource survey investigation was conducted for the proposed project from August 19, 2004 to March 4, 2005. As per TxDOT requirements, no survey was conducted in segments for which the Potential Archeological Liability Map (PALM) recommends no survey. The sections of the proposed project alignment outside of the PALM map were covered by pedestrian survey. A total of 155 shovel tests were excavated. Additional tests could not be excavated due to limited property access and the high densities of unmarked utilities in the narrow easements.

A single artifact was recovered from the shovel tests. The failure of subsequent shovel testing adjacent to this location to recover additional artifacts determined it was an isolated find. No evidence of archeological or historic remains was identified in any of the other areas within the project properties. Subsequently, no further archeological investigations were recommended. Judged to be an isolated find, the single artifact was curated as part of a comparative type collection. In the event that archeological deposits or features should be encountered during construction, work would cease in the immediate vicinity and the THC would be contacted for further consultation. TxDOT agreed with the archeological findings and coordinated with the SHPO at the THC on June 16, 2005. The THC concurrence letter was received on June 23, 2005. Subsequent coordination with the THC resulted in completion of the permit requirements for the proposed SH 105 project (THC Permit No. 3372). The completed permit letter is dated February 14, 2007 and can be seen in **Appendix G**.

Due to proposed design changes, an archeological resources background study was prepared in February 2017. The recommendation states that the majority of the Area of Potential Effects (APE) has been previously surveyed and only a small fraction of the corridor was inaccessible at that time. Most of the proposed new ROW is in areas that do not require surface survey, and there are no anticipated deep impacts in those areas that occur in Map Units 1, 3, and 3a where deep survey would be recommended for deep impacts. The results of the previous survey indicated that the APE is in an area of low potential for containing archeological deposits. Most of the new proposed ROW consists of slivers no more than ten feet wide along portions of the roadway, and most of those areas fall in map units of the PALM where survey would not be required or are in areas that have been previously surveyed. Therefore, no additional archeological survey is recommended prior to construction. TxDOT agreed with the findings on April 20, 2017. The archeological resources background study report is available for review by qualified individuals at the TxDOT Houston District office. The coordination approval email can be seen in **Appendix G**.

Early coordination for Section 106 consultation with federally-recognized tribes was initiated on January 6, 2017. No response has been received at this time. In the event that buried human remains and/or artifacts are discovered during the development or construction of the proposed project the tribes would be notified immediately. The early coordination letter can be seen in **Appendix G**.

No further consultation for archeological resources or other actions are required under Section 106 of the National Historic Preservation Act.

No Build Alternative

Under the No Build Alternative, no potential archeological sites would be impacted and no coordination with the THC would be required.

5.8.2 Historic Properties

Build Alternative

A reconnaissance survey was conducted within the APE, which was defined as 150 feet from the proposed ROW in sections where new ROW would be required and the existing ROW in areas where work would be within the existing ROW. In all, 230 historic-age resources (constructed before 1976) located on 123 parcels were documented. Additionally, 161 non-historic-age resources associated with historic-age resources were documented in the inventory. None of the documented resources are recommended eligible for the National Register of Historic Places (NRHP) as a result of the survey. Therefore, the proposed project would have no effect on historic properties. Detailed information on the historical resources can be seen in the Report for Historical Studies Survey, which is available for public review at the TxDOT Houston District office.

In accordance with 36 CFR 60 and 36 CFR 800.11, the criteria of effect were not applied since there are no properties within the APE that are eligible for listing in the NRHP. Furthermore, the USDOT Act Section 4(f) regulations (23 CFR 774) pertaining to historic sites are not applicable to this project. No further work to complete the Historic Resources Survey Report is recommended.

No further consultation for historic resources or other actions are required under Section 106 of the National Historic Preservation Act.

No Build Alternative

Under the No Build Alternative, no potential historical resources would be impacted and no coordination with the THC would be required.

5.9 DOT Act Section 4(f), LWCF Action Section 6(f) and PWC Chapter 26

Build Alternative

The proposed project would not require the use or substantially impair the purposes of any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands, or historic sites of national, state, or local significance. The Cut and Shoot Town Park is located adjacent to SH 105; however, no additional ROW would be required from this park. Therefore, USDOT Section 4(f), Land and Water Conservation Fund (LWCF) Section 6(f), and Parks and Wildlife Code (PWC)

Chapter 26 resources would not be impacted. In addition, based on the project scoping analysis, it was determined that the Build Alternative would not have impacts on Section 4(f), Section 6(f), or Chapter 26 land or properties.

No Build Alternative

The No Build Alternative would not have impacts on Section 4(f), Section 6(f), or Chapter 26 land or properties.

5.10 Water Resources

5.10.1 Clean Water Act Section 404

Qualified biologists conducted site visits in July, August, September, and October of 2016, and January, February, March, and April of 2017 to determine the existence and extent of waters of the U.S., including wetlands (WOTUS). Right-of-entry was requested for parcels crossed by the proposed project. The site visits were limited to the existing ROW and those parcels where right-of-entry was granted.

Build Alternative

Wetland determinations were performed using the current federally accepted procedures contained in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* dated November 2010 and the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual, Technical Report Y-87-1, January 1987, Final Report (1987 Manual)*. Normal environmental conditions were present along the approximate 20 miles of the proposed project and no atypical or problem areas were encountered.

TxDOT submitted a request to the USACE for an Approved Jurisdictional Determination (AJD) on July 14, 2017 for WOTUS determinations/delineations within the existing ROW and portions of the proposed ROW where right-of-entry was granted.

TxDOT also requested a Preliminary Jurisdictional Determination (PJD) on October 12, 2017 for specific aquatic features.

The USACE approved the AJD/PJD on February 26, 2018. The USACE approved AJD/PJD can be seen in **Appendix G**.

Based on review of federal regulations, a September 28, 2017 site visit, and a December 14, 2017 desk review, the USACE determined that the WOTUS within the review area equate to approximately

4,358 linear feet of tributaries and approximately 4.615 acres of wetlands and that these WOTUS are subject to Section 404 of the Clean Water Act (CWA) via the PJD.

Based on a review of federal regulations, a September 28, 2017 site visit, a December 14, 2017 desk review, and coordination with the USEPA beginning on December 21, 2017, one wetland, totaling approximately 0.051-acre, was determined to be an “isolated” wetland that lacks any known nexus to interstate commerce. As such, the wetland is not a WOTUS and a USACE permit will not be required to conduct work, place structures, and/or discharge dredged and/or fill material into this wetland.

Alternatives were reviewed as required by EO 11990 (see Section 4.0-Alternatives). Since the proposed project would result in the placement of over 0.50-acre of fill material into jurisdictional WOTUS, an Individual Permit (IP) is required. An IP application is being prepared for the proposed project and will be submitted to the USACE.

Compensatory mitigation would be required as part of the IP for permanent impacts to potentially jurisdictional WOTUS. Compensatory mitigation ensures that losses to jurisdictional WOTUS, result only in minimal adverse effects to the aquatic environment. The IP will contain a statement describing how temporary losses of WOTUS would be avoided and/or minimized to the maximum extent practicable.

Best Management Practices (BMPs) would be utilized to minimize impacts to WOTUS, and to comply with the TCEQ water quality certification requirements. The BMPs would include temporary vegetation and/or sod for erosion control, vegetative filter strips for post-construction Total Suspended Solids (TSS) controls and silt fencing for sediment control.

Detailed information on the wetland determinations can be seen in the Wetlands Assessments Technical Report, which is available for public review at the TxDOT Houston District office.

No Build Alternative

The No Build Alternative would not affect waters of the U.S., including wetlands.

5.10.2 Clean Water Act Section 401

Build Alternative

The proposed project would require a USACE Section 404 Permit. Therefore, Section 401 Water Quality Certification would also be required.

Since the proposed project would result in a direct impact of greater than three acres of waters of U.S. and/or greater than 1,500 linear feet of streams, the required water quality certification is the Tier II 401 Certification Questionnaire and Alternative Analysis Checklist. The Tier II water quality certification package will be prepared and submitted with the IP. The previously discussed BMPs would be utilized to minimize impacts to waters of the U.S., including wetlands, and to comply with the TCEQ water quality certification requirements.

Also, because a Tier II individual certification will be required, this project has been coordinated with TCEQ under TxDOT's Memorandum of Understanding (MOU) with TCEQ. The coordination correspondence, dated May 18, 2018, is included in **Appendix G**.

No Build Alternative

The No Build Alternative would not affect any surface waters or overall water quality in the project area.

5.10.3 Executive Order 11990 Wetlands

Build Alternative

To the extent feasible, EO 11990 directs federal agencies to avoid the short and long-term impacts associated with the destruction or modification of wetlands. The EO also directs federal agencies to avoid direct or indirect support of new construction in wetlands wherever there is a feasible alternative.

Wetlands were identified within the proposed project corridor. Alternatives were reviewed as required by EO 11990 (see Section 4.0 – Alternatives). The proposed project was selected as the Build Alternative, as it meets the project's purpose and need for increased capacity, mobility, and safety of the roadway. The previously discussed BMPs would be implemented in order to minimize

harm to wetlands. The potential jurisdictional wetland impacts are anticipated to be covered by an IP, which includes discussion of avoidance, minimization, and compensation.

No Build Alternative

The No Build Alternative would not affect waters of the U.S., including wetlands.

5.10.4 Rivers and Harbors Act

Build Alternative

The General Bridge Act of 1946 (formerly Section 9 of the Rivers and Harbors Act) directs the U.S. Coast Guard (USCG) to regulate the construction of bridges and causeways within or across waterways defined as navigable by that agency. Section 10 of the Rivers and Harbors Act allows the USACE to regulate all work on structures in or affecting the course, condition, or capacity of the navigable waters of the U.S.

Coordination with the USCG was initiated on October 12, 2016, for a determination on whether or not navigable waters are located within the proposed project limits. A response was received on March 24, 2017. TxDOT determined that bridge project questionnaires were required. The bridge project questionnaires were submitted to the USCG on May 25, 2017 for review. The USCG determined on June 6, 2017 that the subject bridges within the proposed project met the criteria for the Surface Transportation Authorization Act (STAA) and qualified for exemption from USCG bridge permit requirements. The FHWA concurred with the USCG findings on June 14, 2017.

Coordination with the USCG was initiated on July 11, 2017, for a determination on whether or not bridge lighting is required for the bridges identified in the previously-mentioned bridge project questionnaires. The USCG determined on July 18, 2017 that the subject bridges within the proposed project qualify for exemption from USCG bridge lighting requirements.

The USCG coordination can be seen in **Appendix G**.

No Build Alternative

The No Build Alternative would not involve construction activities; therefore, USCG and USACE Section 9 and 10 permits are not required.

5.10.5 Clean Water Act Section 303(d)

Build Alternative

Section 303(d) of the CWA requires entities ensure that they do not contribute certain pollutants to specific waters considered impaired, above a total maximum daily load, to avoid impacting water quality in these waters. TxDOT is required to evaluate impacts of all transportation projects to waters identified as impaired and implement measures to reduce pollutants leaving project sites to ensure transportation activities are not negatively impacting these waters. The TCEQ is the agency responsible for maintaining the 303(d) list of impaired waters, setting and implementing water quality standards, and reporting the status of the state's waters to the USEPA (30 TAC 307).

The proposed project is located within five (5) miles upstream of three impaired waters. The three impaired waters are part of the San Jacinto River Basin, as described below:

1. Segment 1003-East Fork San Jacinto River: Freshwater Stream; Perennial Stream; Aquatic Life Use (ALU) Designation-High. This segment was identified as impaired on the 2014 303(d) List due to bacteria levels in the following areas:
 - 1003_01: From the Caney Creek confluence upstream to US 59;
 - 1003_02: From US 59 to a point 40 kilometers upstream (just upstream of Clear Creek confluence);
 - 1003_03: From a point 40 kilometers upstream (just upstream of Clear Creek confluence) to US 190 (upper segment boundary).

The USEPA-Total Maximum Daily Loads (TMDLs) for these segments are underway, scheduled, or will be scheduled.

2. Segment 1004-West Fork of the San Jacinto River: Freshwater Stream; Perennial Stream; ALU Designation-High. This segment was identified as impaired on the 2014 303(d) List due to bacteria levels in the following areas:
 - 1004_01: From the Spring Creek confluence upstream to the Stewart Creek confluence;
 - 1004_02: From the Stewart Creek confluence upstream to the Lake Conroe Dam.

The USEPA-TMDLs for these segments are underway, scheduled, or will be scheduled.

3. Segment 1010C-Spring Branch: Freshwater Stream; Perennial Stream; ALU Designation-High. This segment was identified as impaired on the 2014 303(d) List due to depressed oxygen levels in the following areas:

- 1010C_01: From the Caney Creek confluence to a point 0.54 kilometer (0.34-mile) upstream of SH 105.

Additional data or information will be collected and/or elevated for one or more parameters before a management strategy is selected.

The above-referenced impaired waters do not currently have approved USEPA-TMDLs; therefore, the proposed project will be implemented, operated, and maintained using BMPs to control the discharge of pollutants from the project site.

To date, TCEQ has not identified (through either a TMDL or the review of projects under the TCEQ MOU) a need to implement control measures beyond those required by the Construction General Permit (CGP) on road construction projects. Therefore, compliance with the project's CGP, along with coordination under the TCEQ MOU for certain transportation projects, collectively meets the need to address impaired waters during the environmental review process. As required by the CGP, the project and associated activities will be implemented, operated, and maintained using best management practices to control the discharge of pollutants from the project site.

TxDOT ENV coordinated with TCEQ on May 16, 2017 under TxDOT's MOU with TCEQ. The TCEQ responded in an email dated May 18, 2017 that they do not anticipate significant long-term environmental impacts from the proposed project with stipulations identified in the email. The coordination emails can be seen in **Appendix G**.

No Build Alternative

The No Build Alternative would not affect any surface waters or overall water quality in the project area.

5.10.6 Clean Water Act Section 402

Build Alternative

The proposed project would include five or more acres of earth disturbance. TxDOT would comply with the TCEQ Texas Pollution Discharge Elimination System (TPDES) CGP. The proposed project is considered a "large construction activity" under the CGP.

Since TPDES CGP authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the projects. The Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a storm water pollution prevention plan (SW3P) be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of intent [NOI] or site notice) be completed, posted, and submitted, when required by the CGP, to TCEQ and the municipal separate storm sewer system (MS4) operator. It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the “Required Specification Checklists” require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SW3P, and to complete the appropriate authorization documents.

The proposed project will obtain coverage by preparing and implementing a SW3P, posting a construction site notice, submitting a NOI and associated fee to TCEQ, submitting the NOI to the operator of any MS4 into which stormwater will be directly discharged, and otherwise complying with the permit terms. The construction and maintenance of the proposed project would not create conditions that would violate state or federal water quality standards. Portions of the proposed project are located within the boundaries of the city of Conroe’s MS4. All other portions of the proposed project are not located within the boundaries of a regulated MS4.

No Build Alternative

The No Build Alternative would not involve construction activities; therefore, a TPDES permit would not be required.

5.10.7 Floodplains

Build Alternative

According to the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRM) for Montgomery, San Jacinto, and Liberty counties, a portion of the proposed project is located within a FEMA designated 100-year floodplain (**Appendix F**). The FEMA FIRM panel numbers for the proposed project within Montgomery County are 48339C0380G, 48339C0385G, 48339C0390G, 48339C0425G, and 48339C0450G; within San Jacinto County is 48407C0450C;

and within Liberty County is 48291C0125C. Approximately 42 acres of the proposed project are located within the 100-year floodplain.

The hydraulic design for the Build Alternative would be in accordance with current FHWA and TxDOT design policies. The Build Alternative would also permit the conveyance of the 100-year flood (inundation of the roadway being acceptable) without causing substantial damage to the facility, stream, or other property. The Build Alternative would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. The cities of Conroe, Cut and Shoot, and Cleveland, and the counties of Montgomery, San Jacinto, and Liberty are participants in the National Flood Insurance Program. Coordination with the local Floodplain Administrator would be required.

Executive Order 11988 requires federal agencies to avoid, to the extent possible, long and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

This project is subject to and will comply with federal EO 11988 on Floodplain Management. The department implements this EO on a programmatic basis through its Hydraulic Design Manual. Design of this project will be conducted in accordance with the department's Hydraulic Design Manual. Adherence to the TxDOT Hydraulic Design Manual ensures that this project will not result in a "significant encroachment" as defined by FHWA's rules implementing EO 19988 at 23 CFR 650.105(q).

No Build Alternative

Under the No Build Alternative, the existing infrastructure would remain as is and only normal routine maintenance would be conducted. No impacts to floodplains would occur; therefore, coordination is not required with the local Floodplain Administrator.

5.10.8 Wild and Scenic Rivers

Build Alternative

There are no rivers or river segments listed on the U.S. Department of Interior's National Inventory of River Segments in the National Wild and Scenic River System in the vicinity of the proposed project. No impacts would occur.

No Build Alternative

The No Build Alternative would not affect any wild and scenic rivers of the U.S.

5.10.9 Trinity River Corridor Development Certification

Build Alternative

The proposed project would not occur within the Regulatory Zone for the Trinity River Corridor; therefore, a permit is not required for construction of the proposed project.

No Build Alternative

The No Build Alternative would not involve any construction activities; and therefore, would not require a permit.

5.10.10 Coastal Barrier Resources

Build Alternative

The proposed project is located within Montgomery, San Jacinto, and Liberty counties, which are not located within a Coastal Barrier Resources Act (CBRA) map unit. Coordination with the U.S. Fish and Wildlife Service (USFWS) is not required for the CBRA.

No Build Alternative

The No Build Alternative would not require coordination with the USFWS for the CBRA.

5.10.11 Coastal Zone Management

Build Alternative

The proposed project is located within Montgomery, San Jacinto, and Liberty counties, which are not located within the jurisdictional boundary of the Texas Coastal Zone Management Program; therefore, consultation with the Texas General Land Office (GLO) is not required.

No Build Alternative

The No Build Alternative would not require consultation with the Texas GLO for the Texas Coastal Zone Management Program.

5.10.12 Edwards Aquifer

Build Alternative

The proposed project would be constructed in Montgomery, San Jacinto, and Liberty counties, which are not located within counties that are over the recharge or contributing zones of the Edwards Aquifer. Therefore, the proposed project is not subject to regulation under TCEQ's Edwards Aquifer rules.

No Build Alternative

The No Build Alternative is not subject to regulation under TCEQ's Edward Aquifer rules.

5.10.13 International Boundary and Water Commission

Build Alternative

The proposed project does not cross or encroach upon the floodplains of the U.S. International Boundary and Water Commission (USIBWC); therefore, a license or permit is not required.

No Build Alternative

The No Build Alternative does not require a USIBWC license or permit.

5.10.14 Drinking Water Systems

Build Alternative

A search of water well database records and published groundwater reports was conducted in July 2016. A copy of the water well report (excerpt) is included in the Water Resources Technical Report, which is available for public review at the TxDOT Houston District office. The search results indicated that a total of 299 water supply wells, listed in five databases, are located within a 0.50-mile radius of the proposed project area. Thirty-three (33) water wells are located within the existing or proposed ROW. Twenty-five (25) water wells are located adjacent to or within 150 feet of the project area. Based on the current schematic, it is not anticipated that these water wells would be impacted by the proposed project.

In accordance with TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (Item 103, Disposal of Wells), any drinking water wells would need to be properly removed and disposed of during construction of the project.

No Build Alternative

The No Build Alternative would not affect groundwater resources in the proposed project area.

5.11 Biological Resources

A Biological Survey Technical Report, including a Biological Evaluation Form, has been completed for the proposed project, which is available for public review at the TxDOT Houston District office. Coordination between TxDOT and Texas Parks and Wildlife Department (TPWD) is triggered per Section 2.206 (6 and 7) of the September 2013 MOU between TxDOT and TPWD. The coordination documentation can be seen in **Appendix G**.

5.11.1 Texas Parks and Wildlife Coordination

Build Alternative

The proposed project is within range and suitable habitat for 19 species: nine state threatened species, and ten Species of Greatest Conservation Need (SGCN). Best Management Practices would be implemented for eight of these species, but no BMPs are provided in the BMP PA for 11 species: southern crawfish frog (*Lithobates areolatus*), “a mayfly” (*Tricorythodes curvatus* and *Plauditus gloveri*), Gulf Coast clubtail (*Gomphus modestus*), Texas emerald dragonfly (*Somatochlora margarita*), Plains spotted skunk (*Spilogale putorius interrupta*), northern scarlet snake (*Cemophora coccinea copei*), timber rattlesnake (*Crotalus horridus*), bristle nailwort (*Paronychia setacea*), Correll’s false dragon-head (*Paronychia setacea*), and Florida pinkroot (*Spigelia texana*). Because the proposed project is in the range and suitable habitat for the above-listed species, coordination with TPWD was initiated on August 4, 2017. A response was received from TPWD on November 30, 2017, the correspondence stated that with consideration of proposed avoidance and mitigation efforts as described, TPWD considers coordination to be complete. The coordination documentation can be seen in **Appendix G**.

No Build Alternative

The No Build Alternative would not require any removal or disturbance of wildlife.

5.11.2 Impacts on Vegetation

Build Alternative

The vegetation inventory was conducted using the Ecological Mapping Systems of Texas (EMST). **Table 5-2** summarizes the potential permanent impacts to vegetation that could result from the proposed project. Permanent impacts include areas that would be covered by new pavement.

Table 5-2: Ecological Mapping Systems of Texas Vegetation Impacts

EMST Vegetation Type (Common)	TPWD Ecological System Type	MOU Habitat Type	Acres of Permanent Impacts
Urban			
Urban Low Intensity	Urban	Urban	173.325
Urban High Intensity	Urban	Urban	93.559
Total Impacts			266.884
Mixed Woodlands and Forest			
Pineywoods: Hardwood Flatwoods	West Gulf Coastal Plain Pine – Hardwood Flatwoods	Mixed Woodlands and Forest	7.159
Pineywoods: Pine Forest or Plantation	West Gulf Coastal Plain Pine – Hardwood Forest	Mixed Woodlands and Forest	10.997
Pineywoods: Longleaf or Loblolly Pine – Hardwood Flatwoods or Plantation	West Gulf Coastal Plain Pine – Hardwood Flatwoods	Mixed Woodlands and Forest	0.151
Pineywoods: Longleaf or Loblolly Pine – Flatwoods or Plantation	West Gulf Coastal Plain Pine – Hardwood Flatwoods	Mixed Woodlands and Forest	0.018
Pineywoods: Pine – Hardwood Forest or Plantation	West Gulf Coastal Plain Pine – Hardwood Forest	Mixed Woodlands and Forest	5.548
Pineywoods: Upland Hardwood Forest	West Gulf Coastal Plain Pine – Hardwood Forest	Mixed Woodlands and Forest	55.343
Total Impacts			75.217
Disturbed Prairie			
Pineywoods: Disturbance or Tame Grassland	Disturbance Grassland	Disturbed Prairie	44.948
Native Invasive: Deciduous Woodland	Native Invasive Shrub and Woodland	Disturbed Prairie	2.797
Total Impacts			48.258

EMST Vegetation Type (Common)	TPWD Ecological System Type	MOU Habitat Type	Acres of Permanent Impacts
Riparian			
Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest	West Gulf Coastal Plain Small Stream and River Forest	Riparian	12.387
Open Water	Open Water	Riparian	0.959
Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed Forest	West Gulf Coastal Plain Small Stream and River Forest	Riparian	0.294
Total Impacts			13.640
Wet Savanna, Swamp, Baygall			
Pineywoods: Hardwood Flatwoods	West Gulf Coastal Plain Pine – Hardwood Flatwoods	Wet Savanna, Swamp, Baygall	0.424
Pineywoods: Herbaceous Flatwoods Pond	West Gulf Coastal Plain Flatwoods Pond	Wet Savanna, Swamp, Baygall	6.114
Pineywoods: Longleaf or Loblolly Pine Flatwoods or Plantation	West Gulf Coastal Plain Pine – Wet Hardwood Flatwoods	Wet Savanna, Swamp, Baygall	0.254
Pineywoods: Wet Hardwood Flatwoods	West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods	Wet Savanna, Swamp, Baygall	0.243
Total Impacts			7.035
TOTAL ACRES			411.034

Source: Jacobs Project Team (August 2016); TPWD EMST (2016); TXDOT Dallas District Version of EMST (2015).

The proposed project would impact 75.217 acres of Mixed Woodlands and Forest MOU habitat type which is greater than the three (3) acres threshold in the Threshold Table PA for this MOU Habitat Type. The proposed project would impact 48.258 acres of Disturbed Prairie MOU habitat type which is greater than the three (3) acres threshold in the Threshold Table PA for this MOU Habitat Type. The proposed project would impact 13.640 acres of Riparian MOU habitat type which is greater than the 0.10-acre threshold in the Threshold Table PA for this MOU Habitat Type. The proposed project would impact 7.035 acre of Wet Savanna, Swamp, Baygall MOU type which is greater than the 0.10-acre threshold in the Threshold Table PA for this MOU Habitat Type. Therefore, coordination between TxDOT and TPWD is triggered per Section 2.206 (6 and 7) of the September 2013 MOU between TxDOT and TPWD. Further details concerning the EMST can be found in the TxDOT Biological Evaluation Form and its associated supporting biological data located in the

Biological Survey Technical Report, which is available for public review at the TxDOT Houston District office.

The vegetation BMPs listed in the 2013 TxDOT/TPWD MOU BMP PA between TxDOT and TPWD would be followed to the extent practicable for the anticipated impacts resulting from the proposed project.

No Build Alternative

The No Build Alternative would not affect vegetation within the proposed project.

5.11.3 Executive Order 13112 on Invasive Species

Build Alternative

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

No Build Alternative

The No Build Alternative would not affect vegetation in the proposed project area.

5.11.4 Executive Memorandum on Environmentally and Economically Beneficial Landscaping

Build Alternative

This project is subject to and will comply with the federal Executive Memorandum on Environmentally and Economically Beneficial Landscaping, effective April 26, 1994. The department implements this Executive Memorandum on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual.

No Build Alternative

The No Build Alternative would not affect vegetation in the proposed project area.

5.11.5 Impacts to Wildlife

Build Alternative

A field investigation was performed in August 2016 by qualified biologists. Wildlife species typical to the proposed project area may include those common species normally found in rural and urban areas. The species for this area may include squirrels, rabbits, raccoons, migratory songbirds, and various rodents. Other species may include opossums, frogs, lizards, and snakes. Swallow nests

were observed during field investigations on bridges in the proposed project area, most abundant at the Caney Creek Bridge (Exhibit 5; Photograph 12; Page 5 of 6 located in the Biological Survey Technical Report). For more detailed information on wildlife resource impacts and BMPs, see the Biological Survey Technical Report, which is available for public review at the TxDOT Houston District office.

No Build Alternative

The No Build Alternative would not affect wildlife in the proposed project area.

5.11.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) states that it is unlawful “by any means or manner, to pursue, hunt, take, capture, [or] kill” any migratory birds except as permitted by regulation (16 U.S.C. 703-704).

Build Alternative

Migratory birds are known to nest on bridges under existing roadways. As previously mentioned, Swallow nests were observed during field investigations on bridges in the proposed project area, most abundant at the Caney Creek Bridge.

This project will comply with applicable provisions of the MBTA and TPWD Code Title 5, Subtitle B, Chapter 64 Birds. It is the department’s policy to avoid removal and destruction of active bird nests except through federal or state approved options. In addition, it is the department’s policy to, where appropriate and practicable:

- Use measures to prevent or discourage birds from building nests on mad-made structures within portions of the project area planned for construction, and
- schedule construction activities outside the typical nesting season.

No Build Alternative

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

5.11.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) of 1958 requires that federal agencies obtain comments from USFWS and TPWD. applies to projects that result in the control or modification of a natural stream or body of water and require a Section 404 CWA permit.

Build Alternative

Since a Section 404 CWA IP would be required for the proposed project, the FWCA requirements are applicable, but would be met through the Section 404 CWA permitting process.

No Build Alternative

The No Build Alternative would not affect fish and wildlife protected under the FWCA.

5.11.8 Bald and Golden Eagle Protection Act of 2007

The Bald and Golden Eagle Protection Act (*Haliaeetus leucocephalus* and *Aquila chrysaetos*, respectively) enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” eagles, including their parts, nests, or eggs. The act defines criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or any manner, any Bald Eagle (or any Golden Eagle), alive or dead, or any part, nest, or egg thereof.”

Build Alternative

According to the Texas Natural Diversity Database (TXNDD), two element occurrence records for Bald Eagle territories are located within ten miles of the proposed project; however, none were located within 1.5 miles. No Bald Eagles, eagle nests, or suitable habitat was observed during the site investigations. Therefore, no protected habitat would be impacted by the proposed project.

No Build Alternative

The No Build Alternative would not affect Bald or Golden Eagles protected under the Bald and Golden Eagle Protection Act of 2007.

5.11.9 Magnuson-Stevens Fishery Conservation Management Act

Build Alternative

The Magnuson-Stevens Fishery Conservation and Management Act, as amended on October 11, 1996, directs that all Federal agencies, whose actions would impact essential fish habitat, must consult with the National Marine Fisheries Service regarding potential adverse impacts to essential fish habitat. No tidally influenced waters exist in the proposed project area; therefore, no essential fish habitat would be impacted. Since there are no tidally influenced waters, there is no requirement to address essential fish habitat.

No Build Alternative

The No Build Alternative would not affect essential fish habitat protected under the Magnuson-Stevens Fishery Conservation and Management Act.

5.11.10 Marine Mammal Protection Act

Build Alternative

The U.S. Marine Mammal Protection Act (MMPA) protects all marine mammals, including cetaceans (whales, dolphins, and porpoises), pinnipeds (seals and sea lions), sirenians (manatees and dugongs), sea otters, and polar bears within the waters of the U.S. No tidally influenced waters exist in the proposed project area; therefore, no marine mammals would be impacted. Since there are no tidally influenced waters, there is no requirement to address marine mammals.

No Build Alternative

The No Build Alternative would not affect marine mammals protected under the MMPA.

5.11.11 Threatened, Endangered, and Candidate Species

A review of the USFWS Information for Planning and Consultation (IPaC) official species list indicated that the proposed project is in the range of the following species: endangered Least Tern (*Sterna antillarum*), threatened Piping Plover (*Charadris melodus*), and threatened Red Knot (*Caladris canutus rufa*). The proposed project does not contain critical habitat for the Least Tern, Piping Plover, and Red Knot. In addition, according to the IPaC, these species are only given consideration for wind energy projects. Therefore, an analysis of effects of these species was not carried forward. An analysis of effects for species carried forward can be seen below.

Build Alternative

Federally-Listed Threatened, Endangered, and Candidate Species:

The federally and state endangered Red-cockaded Woodpecker (*Picoides borealis*) was identified in the TPWD Annotated County List for Montgomery, San Jacinto, and Liberty counties, Texas, the USFWS IPaC Trust Resources Report, and the TXNDD report.

The federally and state endangered Houston toad (*Anaxyrus houstonensis*) was identified in the TPWD Annotated County List for Liberty County, Texas. The Houston toad is not listed in the USFWS IPaC Trust Resources Report and is not listed on the TXNDD report.

The Red-cockaded Woodpecker and Houston toad are described in further detail below, including a discussion of potential effects of the proposed project to these species, which are also discussed in the Biological Technical Report, which is available for public review at the TxDOT Houston District office.

Red-cockaded Woodpecker

A review of TPWD TXNDD identified 37 element occurrence records for the Red-cockaded Woodpecker within 10 miles of the proposed project, one of which was within the proposed project (observed in 1991) and one of which was within 1.5-miles of the proposed project (listed as observed from 1979-1980). The most recent element occurrence record observation date between 1.5 and 10 miles of the proposed project was in 1995. The remaining 34 element occurrence records for the Red-cockaded Woodpecker between 1.5 and 10 miles of the proposed project, were observed in 1979-1980, 1988, and 1991. In addition, populations of Red-cockaded Woodpecker are known to occur to the north of the proposed project in the SHNF.

During an initial site investigation of all species on the USFWS and TPWD lists in 2016 it was reported that, there were no older pine trees (60+ years) or cavity trees present for nesting within the proposed project area but that suitable foraging habitat for Red-cockaded Woodpecker was considered present in the project area and that consultation with USFWS was necessary for concurrence that the project may effect but is not likely to adversely affect the Red-cockaded Woodpecker. As an initial step in responding to this suggested need for USFWS consultation, TxDOT sought technical assistance on the Red-cockaded Woodpecker from the USFWS. USFWS biologists were not aware of any Red-cockaded Woodpecker in the project area. TxDOT biologist visited the project site in the spring of 2018 and determined the understory in the area of pine trees was too thick to support suitable foraging habitat for Red-cockaded Woodpecker. Based on the 2018 observations that the understory was too thick to support suitable foraging habitat and that there are no suitable >10-inch diameter at breast height (dbh) pine trees in the project area to support a nesting colony, this project will have no effect on the federally endangered Red-cockaded Woodpecker. The *Basis for No Effect Determinations* letter, that includes documentation of the coordination between TxDOT and USFWS, can be seen in **Appendix G**.

Contractors will be advised of the potential presence of transient Red-cockaded Woodpecker(s) within the proposed project area and to avoid harming the species if encountered. In addition, Bird BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species.

Houston Toad

Although the Houston toad is identified in the TPWD Annotated County List for Liberty County, the species is not identified in the USFWS IPaC Official Species List. No element occurrence records were noted in the TXNDD report, and the species was not observed within the proposed project while conducting on-site surveys, as identified by a qualified biologist.

While initial surveys of the project area identified sandy soils and canopy cover consistent with habitat requirements for the Houston toad, the species is considered extirpated from the project area. Initial reviews relied on the Houston toad being on the Texas Parks and Wildlife Department's (TPWD) Annotated County List of Rare Species for Liberty County, TX. The USFWS does not include Houston toad on their IPaC list of federally Endangered or Threatened species for any of the counties in the project area. Subsequent coordination with TPWD, including TPWD's information page on the Houston toad (<https://tpwd.texas.gov/huntwild/wild/species/htoad/>) confirm that Liberty County is not currently habitat for the Houston toad, and therefore this project will have no effect on the species. The *Basis for No Effect Determinations* letter, that includes documentation of the coordination, can be seen in **Appendix G**.

Contractors will be advised that in the very rare event a Houston toad is encountered in the project area, they are to avoid harming it.

U.S. Fish and Wildlife Service Consultation

An Official Species List was generated for the proposed project on July 26, 2016 through the Environmental Conservation Online IPaC system for the USFWS Texas Coastal Ecological Services Field Office in Houston, Texas. This memo lists the threatened and endangered species that may occur in or be affected by the proposed project and indicates that no critical habitats are located within the proposed project. This memo along with the Official Species List containing further information on the listed species can be found in the supporting biological data attached to the Biological Evaluation Form in **Appendix G**. Because the project will have no effect on any threatened or endangered species or critical habitat for such species, no consultation with the USFWS under Section 7 of the Endangered Species Act is required.

State-Listed Threatened, Endangered Species:

The Houston toad and Red-cockaded Woodpecker are federally and State-listed endangered species and are discussed above.

The nine State-listed threatened species with suitable habitat within the proposed project are as follows: 1) Bachman's Sparrow (*Aimophila aestivalis*), 2) Swallow-tailed Kite (*Elanoides forficatus*), 3) Wood Stork (*Mycteria americana*), 4) creek chubsucker (*erimyzon oblongus*), 5) Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), 6) sandbank pocketbook (*Lampsilis satura*), 7) Texas pigtoe (*Fusconaia askewi*), 8) northern scarlet snake (*Cemophora coccinea copei*), and the 9) timber rattlesnake (*Crotalus horridus*). These species are described in further detail below, including a discussion of the potential impacts of the proposed project to these species, and in the Biological Technical Report, which is available for public review at the TxDOT Houston District office.

Bachman's Sparrow

Although the proposed project area does provide habitat, mostly in the pine timber plantations and the pinewoods with scattered bushes and a grassy understory in the Pineywoods region, the proposed project area does not provide the remaining habitat as seen in the Biological Technical Report on Table 3-2 and Exhibit 5; Photographs 3, 5 - 8, and 12.

There is no element of occurrence records listings of the Bachman's Sparrow in the TXNDD within 10 miles of the proposed project, and the Bachman's Sparrow was not observed or heard during the site investigation. Bird BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. As such, the Bachman's Sparrow is not expected to occur within the proposed project area and the proposed project may impact, but is not likely to adversely impact the species.

Swallow-tailed Kite

Although the proposed project area does provide open woodland, pines, and various deciduous trees, the proposed project area does not provide the remaining habitat listed in the Biological Technical Report on Table 3-2 and Exhibit 5; Photographs 3 - 10, and 12.

There is no element of occurrence records listings of the Swallow-tailed Kite in the TXNDD within 10 miles of the proposed project, and the Swallow-tailed Kite was not observed during the site investigation. Bird BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. As such, the Swallow-tailed Kite is not expected to occur within the proposed project area and the proposed project may impact but is not likely to adversely impact the species.

Wood Stork

Although the proposed project area contains suitable habitat per the TPWD county list(s) in ditches, wetlands, and other shallow standing water, the Wood Stork was not spotted while conducting onsite surveys (Biological Technical Report- Exhibit 5; Photographs 3, 9, 10, and 11). In addition, the proposed project area does not contain salt water, tall snags, or mud flats.

There is no element of occurrence records listings of the Wood Stork in the TXNDD within 10 miles of the proposed project. The Wood Stork formerly nested in Texas, but there have been no breeding records since 1960. Bird BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. Based on the above, the Wood Stork is not expected to occur within the proposed project area and the proposed project may impact, but is not likely to adversely impact the species.

Creek Chubsucker

Although creeks that are tributaries of the San Jacinto River exist within the proposed project area, these creeks are not at headwaters (Biological Technical Report-Exhibit 5; Photographs 2 and 11). There are no confirmed sightings of the creek chubsucker (TXNDD) within the proposed project vicinity, and the creek chubsucker was not observed while conducting onsite surveys. In addition, the design and construction of the proposed project would include construction and post-construction BMPs to manage storm water runoff and control sediments; thereby protecting any creek chubsucker habitat. In addition, the Fish BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. The creek chubsucker is not expected to occur within the proposed project area and the proposed project may impact, but is not likely to adversely impact the species.

Rafinesque's Big-eared Bat

The proposed project area includes suitable habitat in concrete culverts, bridges, and various abandoned man-made structures within and adjacent to the proposed project area but does not include cavity trees in bottomland hardwood forest (Biological Technical Report-Exhibit 5; Photographs 9 and 10). Since the proposed project area contains some suitable habitat, the Rafinesque's Big-Eared bat could occur within the proposed project area.

There is no element of occurrence records listings of the Rafinesque's big-eared bat in the TXNDD within 10 miles of the proposed project and the species was not observed during the site investigation. Tree Bat BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. As such, the Rafinesque's big-eared bat is

not expected to occur within the proposed project area and the proposed project may impact but is not likely to adversely impact the species.

Sandbank Pocketbook

Suitable habitat for this species exists in the perennial streams within the proposed project area (Biological Technical Report-Exhibit 5; Photograph 15). However, observations of the sandbank pocketbook were not reported within 10-miles of the proposed project area in the TXNDD and the species was not observed during the site investigation.

Mussel BMPs would be implemented, as listed in the BMP PA between TxDOT and TPWD per the 2013 TxDOT/TPWD MOU, eliminating the requirement to coordinate for this species. Per the Mussel BMPs, on-site mussel survey would also be conducted to verify the presence or absence of the sandbank pocketbook. Although the sandbank pocketbook is not expected to occur within the proposed project area, the proposed project may impact, but is not likely to adversely impact the species.

Texas Pigtoe

Suitable habitat for this species exists in the perennial streams within the proposed project area (Biological Technical Report-Exhibit 5; Photograph 15). However, observations of the Texas pigtoe were not reported within 10-miles of the proposed project area in the TXNDD and the species was not observed during the site investigation.

Mussel BMPs would be implemented, as listed in the BMP PA between TxDOT and TPWD per the 2013 TxDOT/TPWD MOU, eliminating the requirement to coordinate for this species. Per the Mussel BMPs, on-site mussel survey would also be conducted to verify the presence or absence of the Texas pigtoe. Although the Texas pigtoe is not expected to occur within the proposed project area, the proposed project may impact, but is not likely to adversely impact the species.

Northern Scarlet Snake

Suitable habitat for this species is located in the mixed hardwood scrub on sandy soils within the Liberty County portion of the proposed project. However, the species was not observed during the site visit. Contractors will be advised of the potential occurrence in the project area, and to avoid harming the species if encountered. Although the northern scarlet snake is not expected to occur within the proposed project area, the proposed project may impact, but is not likely to adversely impact the species.

Timber Rattlesnake

Suitable habitat for this species exists in the riparian zones, floodplains, upland pine and deciduous woodlands, and sandy soils mostly within 300 feet of stream crossings. The proposed project area habitat does not include swamps, abandoned farmland, limestone bluffs, black clay, or the preferred habitat of dense ground cover. i.e. grapevines or palmetto. Since some suitable habitat does exist, the timber rattlesnake could occur within the proposed project area. (Biological Technical Report-Exhibit 5; Photographs 4 - 12).

There is no element of occurrence records listings for this species in the TXNDD within 10 miles of the proposed project and the species was not observed during site investigation. Contractors would be advised of the potential occurrence of the species in the proposed project, and to avoid harming the species if encountered, thus eliminating the need for TxDOT/TPWD MOU coordination for this species. The timber rattlesnake is not expected to occur within the proposed project area and the proposed project may impact but is not likely to adversely impact the species.

State-listed Species of Greatest Conservation Need

In addition to threatened and endangered species, TPWD tracks species that are considered rare but do not have any formal federal or State listing status. Ten (10) SGCN have suitable habitat located within the proposed project area and are listed as follows: 1) the southern crawfish frog (*Lithobates areolatus*), 2) a mayfly (*Tricorythodes curvatus*), 3) a mayfly (*Plauditus gloveri*), 4) Gulf Coast clubtail (*Gomphus modestus*), 5) Texas emerald dragonfly (*Somatochlora margarita*), 6) plains spotted skunk (*Spilogale putorius interrupta*), 7) southeastern myotis bat (*Myotis austroriparius*), 8) bristle nailwort (*Paronychia setacea*), 9) Correll's false dragon-head (*Paronchia setacea*), and 10) Florida pinkroot (*Spigelia texana*). These species are described in further detail in the Biological Survey Technical Report, including a discussion of the potential impacts of the proposed project to these species. No long-term or population-level impacts are expected to occur for any SGCNs of potential occurrence in the proposed project area. The Biological Survey Technical Report is available for public review at the TxDOT Houston District office.

No Build Alternative

The No Build Alternative would not affect any federal or State-listed threatened, endangered, or SGCN in the proposed project area.

5.12 Air Quality

This project is located within an area that has been designated by USEPA as a moderate nonattainment area for the 2008 ozone NAAQS; therefore, transportation conformity rules apply for this standard. Effective August 3, 2018, the USEPA designated Montgomery County as marginal nonattainment for the 2015 ozone NAAQS. In accordance with 40 CFR 93.109(c), transportation conformity to this new standard is required by August 3, 2019 (one year after the effective date).

The proposed action was found to be consistent with HGAC's financially constrained RTP and the TIP, as amended, which were initially found to conform to the TCEQ State Implementation Plan (SIP) by FHWA on February 7, 2020. Copies of the RTP and TIP pages are included in **Appendix E**. All projects in the HGAC TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR.

The project is not located within a carbon monoxide (CO)/particulate matter (PM) nonattainment or maintenance area (NA/MA); therefore, a project level hot spot analysis is not required.

Traffic data for the design year 2040 is 30,521 vpd. A prior TxDOT modelling study and previous analyses of similar projects demonstrated that it is unlikely that a CO standard would ever be exceeded as a result of any project with an Annual Average Daily Traffic (AADT) below 140,000. The AADT projections for the project do not exceed 140,000 vpd; therefore, a Traffic Air Quality Analysis is not required.

A qualitative MSAT assessment was conducted to compare MSAT emissions of the alternatives. The Build Alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated. However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be lower in the future. A qualitative MSAT analysis is included in the Air Quality technical report on file with the District.

In an effort to reduce congestion and the need for single-occupancy vehicle (SOV) lanes in the region, TxDOT and H-GAC would continue to promote appropriate congestion reduction strategies through the Congestion Mitigation and Air Quality (CMAQ) program, the Congestion Management Process (CMP), and the 2045 RTP. Project specific commitments for CMP include signalization, intersection improvements, a sidewalk on both sides of SH 105 for the entire length of the proposed

project, and bicycle accommodations in the shared use lanes and the outside shoulders. These congestion reduction strategies considered for the proposed project would help alleviate congestion in the SOV project area boundary but would not eliminate it. Therefore, the proposed project is justified. The full CMP disclosure is included in the previously mentioned Air Quality technical report.

TxDOT Environmental Affairs Division (ENV) coordinated with the TCEQ on August 3, 2017 under the TxDOT-TCEQ MOU. The TCEQ responded in an email dated August 9, 2017 concurring with TxDOT's assessment. The coordination email can be seen in **Appendix G**.

See **Section 5.17** for a discussion of air quality impacts associated with project construction

For more detailed information on air quality impacts please see the Air Quality Analysis Technical Report, which is available for public review at the TxDOT Houston District office.

5.13 Hazardous Materials

An initial site assessment (including a visual survey of the project limits and surrounding area, research of existing and previous land uses, and a limited review of federal and state regulatory databases) was performed by Jacobs in August and September 2016. The surveyed areas included areas within existing and proposed ROW, where right-of-entry was granted, and areas adjacent to the proposed project. The purpose of the initial site assessment (ISA) was to identify the presence (or likely presence) of any hazardous substances or petroleum products at or near the proposed project under conditions that indicate an existing release, a past release, or a material threat for release of any hazardous substances or petroleum products into structures or into the ground, groundwater, or surface water of the proposed project.

No subsurface, asbestos, or lead paint investigations were included in the documentation reviewed.

Two sites (service stations-Map IDs 16 and 21) were identified as concerns with regard to underground storage tanks (USTs). Further investigation is recommended for the two sites; however, the depth of the proposed storm sewer is not known at this time. Therefore, TxDOT will conduct further testing during final design when the impacts/depths are known. Additional information can be seen below and in the Hazardous Materials Technical Report (2018), which is on file, along with the ISA form, at the TxDOT Houston District office.

Build Alternative

As seen in the Hazardous Materials Technical Report, the majority of the high and low risk sites represented by a Map ID and visual survey sites are associated with automotive service and/or fuel stations, oil and gas facilities, or commercial facilities. Many of the Map IDs are listed under multiple regulatory databases. TxDOT reviewed the Hazardous Materials Technical Report and of the eight (8) sites recommended for additional environmental investigative surveys, TxDOT considers the two previously mentioned service stations as needing further testing (complete American Society for Testing and Materials [ASTM] E1903-11 Phase II Environmental Site Assessment). A copy of the regulatory database radius report (excerpt), including acronyms, can be seen in **Appendix F, Exhibit 5**. The eight (8) sites are described in further detail below.

Sites Recommended for Further Testing:

1. Map ID 16: Crystal Creek Market/Shopping Center and AmeriGas Propane (11925 Highway 105 East, Conroe, TX) is located within the existing and proposed ROW and was determined to be a high risk for the project area. Approximately 0.15-acre of additional ROW is required from this site and the business will be displaced by the proposed project. The site is listed in the Notice of Violations (NOV), Leaking Petroleum Storage Tank (LPST), Petroleum Storage Tank (PST), Texas Tier II Chemical Reporting Program (Tier 2)(2) and Facility Registry System of Texas (FRSTX) databases.

1. Crystal Creek Market: The NOV database reported three minor and two moderate category waste violations in 2011 that all have a resolved status. The PST database lists the site as active with two 6,000-gallon underground storage tanks (UST), and one 6,000-gallon gasoline UST that were removed from the ground in 1991. One 25,000-gallon gasoline and one 25,000-gallon diesel UST are currently in use. The LPST database reports the priority code for the leaking tanks case as (4.2) no groundwater impact, with no apparent threats or impacts to receptors and a status code of (6A) final concurrence issued, case closed.
2. Tier2: The Tier2 database reported that AmeriGas Propane reported 24,000-gallons of Liquefied Petroleum Gas (LPG) onsite in 2007 with a maximum of 30,000-gallons/124,000 lbs.

Additional investigations will be conducted within the existing and proposed TxDOT ROW prior to construction, as this site has two (2) currently operating USTs that will be displaced on site, is a former LPST site, has large quantities of LPG gas onsite, and has a history of waste violations.

2. Map ID 21: EZ Mart 5/Super Stop 4 (11487 Highway 105 East, Conroe, TX) is located within the existing and proposed ROW and was determined to be a high risk for the project area. Approximately 0.15-acre of additional ROW is required from this site and it is listed in the Groundwater Contamination Cases (GWCC) (2), LPST, PST, and FRSTX databases. The GWCC database lists the site under TCEQ's remediation division/petroleum storage tank reimbursement program, confirmed in 1989, with no further contamination information reported. The LPST database reports the priority code for the leaking tanks case as (4.1) groundwater impacted, no apparent threat or impacts to receptors and a status code (2) site assessment. The leaking tank was reported in August 1989. The PST database lists the site as inactive with two tanks removed from the ground in 1998, and one tank permanently filled in place in 1997. Additional investigations are recommended within the existing and proposed TxDOT ROW prior to construction, as this is an active LPST site with known groundwater contamination.

Site with No Further Testing Recommended:

The following five sites were recommended for additional investigations; however, upon further TxDOT ENV review, the five sites were determined to require no further investigation. The five sites are listed below.

1. Map ID 14: Former Annie's Country Store, Speedy Stop 8/Sadler Development Corporation, 3900 E. Davis Street, Conroe, TX, LPST 116631.
2. Map ID 2: Former NAPA Facility/Custom Granite, 2416 E. Davis Street, Conroe, TX, LPST 108132.
3. Map ID 13: Former Coors of the Woods (Warehouse), 2811 E. Davis Street, Conroe, TX, LPST 116215.
4. Map ID 15: Tennessee Gas Pipeline Compressor Station 25 Cleveland, 25726 Highway 105, Cleveland, TX, PST, TIER II, Aerometric Information Retrieval System/Air Facility Subsystem (AIRSAFS), FRSTX, Permit Compliance System (PCSR06), Resource Conservation and Recovery Act- Non-Generator sites (RCRANGR06), and Industrial and Hazardous Waste Corrective Action (IHW).
5. Map ID 39: 1402 E. Davis Conroe Site, Former Super Stop 3, and Expressway Market 1402 E. Davis Street, Conroe, TX, Brownfield Management System (BF) #125661 and PST (2).

Site Avoided by Project Design:

The last remaining of the eight sites is avoided by project design. The site is a superfund site with groundwater that is contaminated with naphthalene and pentachlorophenol. More detailed information can be seen below and in the Hazardous Materials Technical Report.

1. Map ID 1: Conroe Creosoting Company (1776 E. Davis Street, Conroe, TX 77301) abuts the existing and proposed ROW and was determined to be a high risk to the proposed project. The site is divided in two portions adjacent to SH 105; a cleared area and a wooded area with a lake/detention pond. According to the USEPA Remedial Project Manager, the cleared area was the contaminated area and was the former processing plant for the creosote operation. He also stated that there are no concerns with the wooded area with the lake/detention pond on it, as the groundwater flow does not go in the direction of the wooded area (to the east), but rather to the southwest. On August 29, 2008, the USEPA determined that the Conroe Creosoting Company superfund site is ready for commercial/industrial reuse and can be sold at any time. Approximately 1.15 acres of additional ROW is required from the wooded area of this superfund site.

The Conroe Creosoting Company is listed in the AIRSAFS, Federal Engineering Institutional Control Sites (EC), FRSTX, GWCC (3), Integrated Compliance Information System [formerly DOCKETS] (ICIS) (2), Record of Decision System (RODS), PST, National Priorities List (NPL), RCRANGR06, Superfund Enterprise Management System (SEMS), IHW, TCEQ LIENS, CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) or Superfund Liens (SFLIENS), and Toxic Release Inventory (TRI) databases. The EC database reported that groundwater monitoring and natural attenuation controls were completed and that no further action for soil and sediment was decided in 2003. The GWCC database reported that creosote component contamination was confirmed in September 2003. The PST database reported the site as inactive with three diesels, two gasoline, and one kerosene ASTs that have been out of use since 1998. The NPL and SEMS databases reported that the site is listed on the final NPL as a superfund site with groundwater that is contaminated with naphthalene and pentachlorophenol. The site operated from 1947-1997. The RCRANGR06 database reported the site was a non-generator in 2001 and a Conditionally exempt small quantity generator in 1994 and 1980. Compliance actions included fourteen evaluations (1988-2004), eighteen violations (1993-1996), and twelve enforcements (1989-1999). Reported hazardous wastes included process wastes from using

chlorophenolic wood preservation formulations; sediment sludge used to treat wastewater from processes using creosote and pentachlorophenol. The IHW database reported the site as inactive in 2003 and was formerly an industrial large quantity generator of process residuals, drippage, and spent formulation from wood preservation, miscellaneous plant trash including wood, metal, etc., absorbent waste and used oil filters from vehicle maintenance shop, rendered sodium dichromate containers, and boiler fly ash from class 2 waste processing. The SFLIENS database reported that the site listing status was final in the NPL as of 2012 for the presence of base neutral acids and PAH contaminants. The TRI database chronicles the release of pentachlorophenol, copper, arsenic, creosote, and chromium into the air and/or water from 1987 - 1993.

Regulated facilities, such as the above-referenced sites (listed in the Hazardous Materials Technical Report on file at the TxDOT Houston District office) that would intersect with the proposed project, would be acquired through TxDOT's ROW acquisition process. The acquisition of hazardous material sites/facilities would present a liability risk to TxDOT. Therefore, prior to acquisition, it is recommended that a complete ASTM E1903-11 Phase II Environmental Site Assessment be performed for any site determined to be of "high risk." Should any unanticipated hazardous materials and/or petroleum contamination be encountered during construction, it would be handled according to applicable federal and state regulations and TxDOT standard specifications.

The contractor would respond appropriately to prevent, minimize, and control the spill of hazardous materials in the construction staging area. The use of construction equipment within sensitive areas would be minimized or eliminated. All construction materials used for the proposed project would be removed as soon as the work schedules permit. Should hazardous materials/substances be encountered, the authorities would be notified, and steps would be taken to protect personnel and the environment. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction are to be handled according to applicable federal, state, and local regulations per TxDOT standard specifications. If necessary, the plans, specifications, and estimates would include provisions for the appropriate soil and/or groundwater management plans for activities within the contaminated area. The management plans would be initiated in accordance with all applicable federal, state, and local regulations.

Because the proposed project would: 1) demolish and/or renovate multiple bridges and overpasses; 2) demolish buildings located within the proposed ROW; and 3) acquire areas that may contain asbestos or lead-based paint, all asbestos and lead-based paint inspections, specifications,

notifications, licenses, accreditations, abatement, and disposal (as applicable) would be performed in compliance with federal and state regulations.

No Build Alternative

Unless remediation plans are presently in place, current conditions related to existing hazardous material sites would remain unaltered under the No Build Alternative. Existing remediation plans would continue independently under the jurisdiction of TCEQ and the USEPA.

5.14 Traffic Noise

A noise analysis was conducted for the proposed project due to the addition of through lanes; the existing two-lane roadway would be widened to a four-lane roadway. This analysis was accomplished in accordance with TxDOT's *Traffic Noise Toolkit*, including FHWA's approved *Guidelines for Analysis and Abatement of Roadway Traffic Noise*, dated March 2011. The Traffic Noise Technical Report has been completed for this project and is available for public review at the TxDOT Houston District office.

Build Alternative

The traffic noise analysis determined that out of 157 representative receivers, 102 representative receivers would be expected to have a noise increase at or above the criteria for absolute or relative impacts; therefore, noise mitigation was considered for the proposed project. Noise receivers were primarily residential, but also included a cemetery, restaurants, churches and church playground, a park, a post office, a city hall, a ball room, a reception hall, a community center, a bar, RV parks, and an elementary school. A noise barrier analysis was performed and a total of two (2) noise barriers for two representative receivers were found to be reasonable and feasible and are recommended for incorporation into the proposed project (**Table 5-3**). Noise barriers were not recommended for the remaining 100 representative impacted receivers, as the barriers would not be sufficient to achieve the minimum feasible reduction of 5 dB(A) [A-weighted decibel] and the noise reduction design goal of 7 dB(A), or the barrier would exceed the reasonable, cost-effectiveness criterion of \$25,000. It should be noted that installation of any noise barriers is dependent on detailed design and input from adjacent property owners. Noise receiver and barrier locations can be seen in **Appendix F, Exhibit 6**.

R6: This receiver represents two residences. Based on preliminary calculations, a split noise barrier totaling 79 feet in length and 10 feet in height would reduce noise levels by at least 5 dB(A) or more

and achieve a 7 dB(A) noise reduction design goal at one or more receivers for 2 benefited receivers at a total cost of \$14,220 or \$7,110 for each benefited receiver.

It should be noted that the porch of one of the two receivers encroaches upon existing TxDOT ROW. In addition, the receivers are located between the existing BNSF RR ROW and the existing TxDOT ROW. The parking area is located within existing TxDOT ROW. The proposed roadway would construct a sidewalk in front of these receivers. There is no parking area behind the receivers due to the BNSF RR. Therefore, ROW acquisition would most likely be proposed for these receivers and the proposed noise barrier would be a conditional proposal to be discussed during the ROW acquisition process. If the residences at this location are displaced, then no noise barriers would be built at this location.

R11: This receiver represents one residence. Based on preliminary calculations, a noise barrier 75 feet in length and 10 feet in height would reduce noise levels by at least 5 dB(A) and achieve a 7 dB(A) noise reduction design goal at 1 benefited receiver at a total cost of \$13,500 or \$13,500 for each benefited receiver.

Table 5-3: Noise Barrier Proposal (Preliminary)

Barrier	Representative Receivers	Total No. Benefited Receivers	Length (feet)	*No. of Segments	Height (feet)	Total Cost	Cost/ Benefited Receiver
1	R6	2	79	1	10	\$14,220	\$7,110
2	R11	1	75	-	10	\$13,500	\$13,500

Source: Jacobs, 2018

*Segments are the number of breaks in a barrier a (-) symbolizes a continuous wall.

Any subsequent project design changes may require a re-evaluation of this preliminary noise barrier proposal. The final decision to construct the proposed noise barrier will not be made until completion of the project design, utility evaluation and polling of adjacent property owners. To avoid noise impacts to properties adjacent to the proposed project subject to future development, local officials responsible for land use control programs must ensure, to the maximum extent possible, that no new activities are planned or constructed along or within the following predicted (2040) noise impact contours. The noise impact contours can be seen in **Table 5-4**.

Table 5-4 Noise Impact Contours

Undeveloped Area	Land Use Noise Abatement Criteria (NAC)	Impact Contour (dBA)	Distance from ROW (Feet)
10 th Street to Loop 336	B and C	66	76
10 th Street to Loop 336	E	71	11
Loop 336 to FM 1484	B and C	66	185
Loop 336 to FM 1484	E	71	78
FM 1484 to Crockett Martin Road	B and C	66	170
FM 1484 to Crockett Martin Road	E	71	59
Crockett Martin Road to west of the BNSF RR Bridge	B and C	66	155
Crockett Martin Road to west of the BNSF RR Bridge	E	71	51
West of the BNSF RR Bridge to Fostoria Road	B and C	66	170
West of the BNSF RR Bridge to Fostoria Road	E	71	47
Fostoria Road to Business 105	B and C	66	149
Fostoria Road to Business 105	E	71	18

Source: Jacobs, 2018.

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

No Build Alternative

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.

5.15 Induced Growth

Build Alternative

An Indirect and Cumulative Impacts Technical Report was prepared for the proposed project and is available for public review at the TxDOT Houston District office.

The potential of the proposed project to result in induced growth and related effects was determined using TxDOT's *Induced Growth Indirect Impacts Decision Tree* and TxDOT's Risk Assessment for Indirect Impacts. Since the proposed project would substantially increase access or mobility in the project area and since the project area is experiencing population and/or economic growth, an induced growth impacts analysis was conducted. The analysis followed the six-step methodology identified in TxDOT's *Guidance: Indirect Impacts Analysis*:

1. Define the methodology;
2. Define the area of influence (AOI) and study timeframe;
3. Identify areas subject to induced growth in the AOI;
4. Determine if growth is likely to occur in the induced growth areas;
5. Identify resources subject to induced growth impacts;
6. Identify mitigation if applicable.

Evaluation of the AOI identified 11,192 acres available for new development (not currently slated for development) within the AOI. The induced growth impacts analysis of the areas available for new development concluded that the proposed project improvements would serve to alleviate congestion and reduce travel times along the SH 105 corridor; these factors are known to enhance the appeal of surrounding land to developers and consumers (National Cooperative Highway Research Program [NCHRP] 2002, 58). As a result of improved mobility, the proposed project would potentially result in increased appeal of the activity areas along the SH 105 corridor at the intersections of North Loop 336, FM 1485, South Walker Road, and Old Hwy 105 East. With the exception of the Old Hwy 105 East intersection, these areas are mostly developed; therefore, any future land use changes at these intersections would be expected to occur in the form of redevelopment, which could occur at a more rapid rate as a result of an increase in location attractiveness resulting from the proposed project improvements. Additionally, further build out of

existing planned residential developments, located in the eastern portions of the AOI, could potentially occur at a more rapid rate than would occur in the absence of the proposed improvements.

The proposed project could potentially influence vegetation, habitat for State-listed threatened and endangered species, as well as State-listed SGCN, and water resources. Please see Section 3.5 of the Indirect and Cumulative Impacts Technical Report, which is available for public review at the TxDOT Houston District office, for further information on these resources.

No Build Alternative

The No Build Alternative would not result in any of the potential indirect effects; however, this alternative would not satisfy the purpose and need of the proposed project.

5.16 Cumulative Impacts

Build Alternative

An Indirect and Cumulative Impacts Technical Report was prepared for the proposed project and is available for public review at the TxDOT Houston District office.

The potential of the proposed project to result in cumulative impacts was determined using TxDOT's *Cumulative Impacts Decision Tree* and TxDOT's *Risk Assessment for Cumulative Impacts*. A review of the direct and indirect effects of the proposed project were used to identify resources that are substantially impacted by the proposed project, and those that are impacted to some degree but are at risk or have poor or declining health. The analysis followed the five-step methodology identified in TxDOT's *Guidance: Indirect Impacts Analysis*:

1. Resource Study Area (RSA), Conditions, and Trends;
2. Direct and Indirect Effects on each Resource from the Proposed Project;
3. Other Actions-Past, Present, and Reasonably Foreseeable-and their Effect on each Resource;
4. The Overall Effects of the Proposed Project Combined with other Actions;
5. Mitigation of Cumulative Effects.

The following resources were deemed appropriate to analyze for cumulative impacts:

1. Vegetation Resources: Vegetation, including Wildlife Habitat;
2. Water Quality; and

3. Water Resources: Waters of the U.S., including Wetlands.

A summary of the overall effects of the proposed project combined with other actions and mitigation for each resource is detailed below.

Vegetation

Cumulative impacts to vegetation could result in the incremental permanent conversion of the vegetation communities and associated habitats, including preferred habitats of threatened and endangered species and SGCNs (98,153 acres), to suburban or urban developed conditions. Existing habitats may be fragmented from other similar habitats over time, as the RSA becomes more developed. Using H-GAC land use projections, it is anticipated that growth in the RSA would take place in these habitat areas regardless of the construction of the proposed project.

Mitigation efforts to compensate for the loss of natural resources could be done within or near the proposed project's RSA, which is identified as the eight (8) sub-watersheds of the Crystal Creek-West Fork San Jacinto River and the Peach Creek-28 Creek watersheds. There may also be opportunities from other planned development projects to restore or enhance degraded natural areas or create certain habitat types for terrestrial and aquatic wildlife (as an example) that previously were not present in a particular area. Re-vegetation along the ROW would adhere to TxDOT's re-vegetation guidelines.

Direct land use impacts would be mitigated through avoidance and minimization. Although the proposed project would result in direct impacts to wooded and other vegetative communities, mitigation would minimize the impacts to these habitats through minimizing de-vegetation of the construction area wherever safety allows. Cumulative impacts to vegetation would be similar to the direct impacts but would occur throughout the RSA. Because TxDOT and FHWA do not have the authority to implement zoning or planning regulations, vegetation mitigation on a larger scale would require the collaborative efforts of the public, private developers, and local, county, and regional planners. All parties have a stake in the ultimate landscape in which they reside, and only proactive, cooperative interactions would enhance the optimum blend of natural and developed communities.

Impacts to federally-listed threatened and endangered species are regulated by the USFWS under the Endangered Species Act. Impacts to State-listed threatened and endangered species are regulated by TPWD. Coordination with TPWD, for potential impacts to regulated species and their habitats, is required for the proposed project under the TxDOT-TPWD MOU.

Water Quality

Due to the limited availability of data, the analysis of overall cumulative effects on water quality from the proposed project is primarily qualitative. However, it is estimated that approximately 19,595 acres of reasonably foreseeable future actions from potential development could contribute to increases in impervious cover within the RSA. Combined with the existing impervious cover within the RSA, cumulatively this could amount to approximately 59,930 acres (34 percent) of impervious cover. This estimate assumes 100 percent conversion of land from all reasonably foreseeable future actions to impervious cover, which is unlikely. It is not anticipated that cumulative impacts to water quality would pose a long-term negative impact to water quality within the RSA. Under most development conditions, including the construction of the proposed project improvements, stream or tributary crossings would likely be bridged or placed in culverts. Any planned construction activities could temporarily affect water quality in area streams, and an increase in suspended sediments could occur at or near the construction site. However, BMPs could be used during construction to minimize any impact to the immediate construction area.

Mitigation options that may be considered for impacts to water resources either by TxDOT, local agencies, or developers may include:

- Roadway design (using bridge crossings instead of filled embankment);
- Decreasing the amount of fill placement;
- Implementing BMPs, such as an erosion and sedimentation control plans;
- The use of detention/retention basins and revegetated swales to minimize runoff, sedimentation, turbidity, leaching of soil nutrients, and leaching of chemicals from petroleum products, pavement, and waste material; and
- Maintaining flow patterns to ensure wetland hydrology is tied with roadway design requirements.

Water Resources: Waters of the U.S., including Wetlands

Due to the limited availability of data, the analysis of overall cumulative effects on water resources from the proposed project is primarily qualitative. Water resources include waters of the U.S., including wetlands. Of the approximate 12,842 acres of NWI-mapped wetlands and 1,119,970 linear feet of waters of the U.S. within the RSA, 7,069 acres of NWI-mapped wetlands and up to 588,948 linear feet of waters of the U.S. may be cumulatively impacted. Due to the net conversion of undeveloped land (which includes wetlands) to structures, impervious cover, and maintained open spaces, water resource impacts within the RSA would be probable and could pose a negative

impact to water resources within the RSA. However, due to mitigation requirements for impacts to regulated wetlands and waters of the U.S., this impact is not anticipated to be substantial.

Potential impacts to water resources would be mitigated through development and implementation of a SW3P that would address measures to prevent or correct erosion that may occur during construction. BMPs for temporary and permanent soil erosion and sedimentation controls would be implemented along with measures to prevent/control hazardous material spills during construction. Stormwater detention areas or vegetated open drainage ways with culverts would collect stormwater discharges, promote settling of suspended solids, and reduce potential pollutant concentrations.

To a large extent, impacts to wetlands would be avoided, minimized, or mitigated by compliance with existing federal statutes that apply to private and government interests. The USACE (under Section 404 of the CWA) has legislative mandates to reduce or avoid significant and adverse impacts to protected resources on an individual and cumulative basis. The regulations are intended to minimize adverse effects on protected water resources as a cumulative consequence of development.

Wetland impacts, whether direct or cumulative, would be regulated through the USACE Section 404 permit process. Natural resource agencies (including the TPWD, USFWS, USACE, USEPA, and TCEQ) would be party to decisions regarding appropriate mitigation (if required), as well as wetland type, function, location, and size. Should mitigation be required, the USACE mitigation rule regarding compensatory mitigation for losses of aquatic resources would be followed. Possible mitigation alternatives may be wetland habitat restoration, enhancement, creation, or preservation. Preference would be given to potential mitigation within the impacted watershed for direct impacts to waters of the U.S., including wetlands.

No Build Alternative

The No Build Alternative would not result in any of the potential indirect effects; however, this alternative would not satisfy the purpose and need of the proposed project.

5.17 Construction Phase Impacts

The construction would be phased and is anticipated to begin in 2021. The SH 105 project is estimated to be open for traffic in 2027.

Noise Impacts

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

Air Quality Impacts

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

See **Section 5.12** for further detail of construction-related air emissions associated with the project.

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

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

Biological Impacts

Temporary impacts to natural resources could result from construction of the proposed project, which could include disturbances to wildlife and vegetative communities. During project development, TxDOT would design, use, and promote construction practices that minimize adverse effects on regulated wildlife habitat. Existing vegetation, especially native trees, would be avoided

and preserved wherever practicable. Disturbed areas would be restored, reseeded, and re-contoured as necessary in accordance with TxDOT specifications.

Hazardous Materials Impacts

The contractor would apply appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. The use of construction equipment within sensitive areas would be minimized or eliminated entirely. All construction materials would be removed as soon as the work schedules permit. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled in accordance with all applicable federal, state, and local regulations per TxDOT standard specifications. The contractor will be required to adhere to all commitments established in any Phase II Environmental Site Assessment.

Traffic Pattern Impacts

Construction of the proposed project would not require the use of traffic detours. Traffic would utilize the existing roadway while the new lanes are being constructed. Once the new lanes have been constructed and opened for use, then the widening of the opposite lanes would begin. Construction of the proposed project would not prevent access to any adjacent property.

No Build Alternative

Because no construction would be performed, the No Build Alternative would have no construction impacts.

6.0 AGENCY COORDINATION

A coordination letter pertaining to this proposed project was sent from H-GAC to the Texas Transportation Commission. Coordination letters were sent to SHNF, THC, TCEQ, USCG, TPWD, and USFWS. Letters sent to and/or received from these agencies are included in **Appendix G**.

7.0 PUBLIC INVOLVEMENT

The NOA for the Draft EA and notification of the public hearing were published on the TxDOT's website on January 22, 2019. Copies of this notice can be found at:

<https://www.txdot.gov/inside-txdot/get-involved/about/hearings-meetings/houston/022119.html>.

Interested parties and stakeholders, including the applicable Metropolitan Planning Organization (MPO), which is the Houston-Galveston Area Council (H-GAC) for this proposed project, were notified via email about the availability of the document and how to access it.

The public hearing was held February 21, 2019. Copies of the Draft EA were made available for review at the hearing. A summary of the public hearing can be found in **Section 7.5**. An NOA for the Final EA and Finding of No Significant Impact (FONSI) will be published at the time of approval of the environmental document.

Table 7-1 lists the public involvement activities held for the proposed project to date.

Table 7-1: Public Involvement Activities

Activity	Public Meeting Date	Newspaper and Newspaper Advertisement Run Dates			
		Houston Chronicle (Main)	Conroe Courier (Community)	Cleveland (News) Advocate (Community)	La Voz (Spanish)
Public Meeting	06/24/2003	05/27/2003			
		06/14/2003	-	-	-
Public Meeting	06/26/2003	05/27/2003			
		06/14/2003	-	-	-
Public Meeting	11/19/2003	10/20/2003	10/20/2003	10/22/2003	
		11/10/2003	11/10/2003	11/5/2003	-
Public Meeting	11/20/2003	10/20/2003	10/20/2003	10/22/2003	
		11/10/2003	11/10/2003	11/5/2003	-
Public Meeting	05/11/2004	04/09/2004	04/09/2004	04/14/2004	
		04/30/2004	04/30/2004	04/28/2004	-
Public Meeting	05/13/2004	04/09/2004	04/14/2004	04/14/2004	
		04/30/2004	04/28/2004	04/28/2004	-
Public Meeting	12/01/2015	10/29/2015	10/28/2015	10/28/2015	11/01/2015
		11/19/2015	11/18/2015	11/18/2015	11/22/2015

Public Hearing	02/21/2019	01/22/2019	01/22/2019	01/23/2019	01/20/2019
		02/06/2019	02/06/2019	02/06/2019	02/03/2019

Source: Jacobs, 2019.

Note: Additionally, notices were posted on TxDOT's website at: <http://www.txdot.gov/inside-txdot/get-involved/about/hearings-meetings/houston/120115.html> for the 12/01/2015 public meeting and at <https://www.txdot.gov/inside-txdot/projects/studies/houston/sh105-east.html> for the 02/21/2019 public hearing.

All public meetings and the public hearing were held at facilities located within the project area capable of accommodating the meetings.

7.1 June 2003 Public Meetings

The June 24 and 26, 2003 public meetings were held at the Montgomery College Resource Room at 102 Longview Drive, Conroe, Texas and at the Stephen F. Austin Elementary School at 14796 Highway 105 East, Conroe, Texas, respectively. Seventy-one (71) attendees, including three public officials, attended the June 24th meeting and 111 attendees, including six public officials, attended the June 26th meeting. Twenty-four (24) people were in support of the general project and three (3) people were opposed to the project, mainly citing ROW concerns. One (1) person requested widening to the north, two (2) people requested widening to the south, one (1) person requested widening down the middle, and one (1) person requested a continuous two-way turn-lane. The following are the primary concerns noted at the public meeting:

- Improvements to safety along SH 105 are necessary;
- Improvements would increase safety between Loop 336 and FM 1485;
- ROW concerns;
- Improvements to be to AASHTO specifications and include designated bike route;
- Signal concerns at Waukegan and Walker Road;
- Problems at Austin Elementary School and the request for the construction of a turn lane or installation of a signal at the school;
- Increase in noise levels;
- Drainage issues on private property;
- Traffic during the construction phase of the project;

7.2 November 2003 Public Meetings

The November 19 and 20, 2003 public meetings were held at the Hauke Alternative High School at 701 North Third Street, Conroe, Texas and at Stephen F. Austin Elementary School, respectively. Twenty (20) attendees, who included no public officials, attended the November 19th meeting and 74 attendees, including five public officials, attended the November 20th meeting. There is no tally of how many people supported or opposed the proposed project. Two (2) people requested widening to the north, three (3) people requested widening to the south, nine (9) people requested widening down the middle, and one (1) person preferred the No Build Alternative. In addition, two (2) people had no preference on the alternative chosen, just that the building process be rushed. The following are the primary concerns noted at the public meeting:

- Requests for the project to be expedited;
- Noted: Five fatalities on SH 105 between Crockett Martin Road and Walker road since the last series of public meetings in June;
- Noted: Fatal accidents at and around the intersection of SH 105 and Walker Road, and the Security Community Center, and that the area between FM 1484 and Old Highway 105 is an area of fast, heavy development;
- Designated turn lane;
- ROW concerns;
- Signal concerns at Waukegan Road to improve safety at the intersection and nearby Stephen F. Austin Elementary School;
- Signal at FM 1484 and Walker Road;
- Reflective markers installed at upcoming dangerous intersections;
- Problems at Austin Elementary School and the request for the construction of a turn lane or installation of a signal at the school;
- Increase in noise levels;
- Drainage issues on private property;
- Traffic during the construction phase of the project;
- 70 mph is unnecessary;
- Request for connection road east of Loop 336 and Willis Road;
- Preservation of trees and road side parks;
- 2,000-gallon tank could be found at Derk Small Road on the right side.

7.3 May 2004 Public Meetings

The May 11 and 13, 2004 public meetings were held at Stephen F. Austin Elementary School and Washington Junior High School at 507 Martin Luther King Boulevard, Conroe, Texas, respectively. Fifty-seven (57) attendees, including one public official, attended the May 11th meeting and eleven (11) attendees, who included no public officials, attended the May 13th meeting. Three (3) people were in favor of the project for safety reasons associated with a reduction in traffic accidents and three (3) people opposed the project because of ROW concerns. The following are the primary concerns noted at the public meeting:

- Requests for the project to be expedited;
- Center two-way turn lane instead of grassy median;
- Cut and Shoot Volunteer Fire Department needs better left-turn access than what was presented in the plan.
- Request for access in front of business-south of SH 105 near Coopers Tires;
- ROW concerns;
- Traffic signal needed at Waukegan Road, Walker Road, Stephen F. Austin Elementary School, and FM 1484;
- Creosote plant was cleaned up and no longer there and some areas mislabeled on the map;
- Access at Stephen F. Austin Elementary School
- Request to buy back land at Fostoria Road if connector is eliminated.

7.4 December 2015 Public Meeting

The December 1, 2015 public meeting was held at Stephen F. Austin Elementary School at the previously-mentioned location. One hundred seventeen (117) attendees, including eleven (11) public officials, attended the meeting. Thirteen (13) people were in support of the project, five (5) were not in support of the project, and eleven (11) were non-committal. The following are the primary concerns noted at the public meeting:

- Raised medians will not allow turning movements and access for big trucks;
- Access concerns due to median openings;
- Median openings requested at certain properties;

- Construct a continuous two-way turn lane throughout the length of the proposed project;
- The project needs to be completed;
- The project needs to start soon;
- Sidewalks are unnecessary;
- Traffic signal requests at several locations; and,
- Add right turn lanes.

As a result of the public meeting comments, the proposed project was redesigned. The raised medians were removed, and a continuous two-way turn lane was added throughout the length of the proposed project.

Public Meeting Summary Reports were prepared for the public meetings and are available for public review at the TxDOT Houston District office.

7.5 February 2019 Public Hearing

The February 21, 2019 public hearing was held at the La Luna Ballroom located at 15900 Highway 105 E., Conroe, TX 77306. One hundred eighty-one (181) attendees, including four (4) public officials, and two (2) media representatives attended the hearing. Eighteen (18) people were in support of the project, nine (9) were not in support of the project, and ten (17) were non-committal. The following are the primary concerns noted at the public hearing:

- Sidewalks should be located by the roadway, not by the residences;
- Sidewalks are a waste of taxpayer's money;
- Curbs are not necessary;
- The project is taking too long to construct;
- Expedite the project for traffic and safety concerns;
- Poorly timed signal lights;
- Drainage;
- Right-of-way acquisition;
- Utilize the existing right-of-way before acquiring additional right-of-way from property owners.

In addition, per a comment from the public hearing, TxDOT made a design change to relocate the access road located on the north side of SH 105 between Douget Road and Circle Six Drive to avoid new parking facilities and a pump island on the commenter's property.

A notice of impending construction will be provided to owners of adjoining property and affected local governments and public officials. The notice may be provided via a sign or signs posted in the ROW, mailed notice, printed notice distributed by hand, or notice via website when the recipient has previously been informed of the relevant website address.

A Public Hearing Summary Report was prepared for the public hearing and is available for public review at the TxDOT Houston District office and on the project website at: <https://www.txdot.gov/inside-txdot/projects/studies/houston/sh105-east.html>

8.0 POST-ENVIRONMENTAL CLEARANCE ACTIVITIES AND CONTRACTOR COMMUNICATIONS

This section summarizes the post-environmental clearance activities and contractor communications that are part of the construction plans, specifications, and estimate.

8.1 Post - Environmental Clearance Activities

Table 8-1: Post - Environmental Clearance Activities

Project Issues and Resources	Type of Impact	Post- Environmental Clearance Activities	When to Be Completed
Noise	Traffic Noise Levels (Residential)	Noise barriers were found to be feasible and reasonable and are recommended for incorporation into the proposed project. The final decision to construct noise barriers will not be made until completion of project design, utility evaluation, and polling of adjacent property owners.	Prior to Construction
Water Resources	USACE Permit	An IP is required for impacts to waters of the U.S., including wetlands. An IP application is being prepared. Compensatory mitigation would be required as part of the IP for permanent impacts to potential jurisdictional waters of the U.S., including wetlands. The IP would contain a statement describing how temporary losses of waters of the U.S. would be avoided and/or minimized to the maximum extent practicable.	Prior to Construction

Project Issues and Resources	Type of Impact	Post- Environmental Clearance Activities	When to Be Completed
Water Resources	Water Quality Certification	A Tier II Water Quality Certification Questionnaire and Alternative Analysis Checklist (Large Projects) is required and will be submitted with the IP.	Prior to Construction
Hazardous Materials	Additional Investigations and Avoidance	Two service stations within the proposed project are recommended for a Phase II Environmental Site Assessment: 1) Map ID 16: Crystal Creek Market/Shopping Center and AmeriGas Propane located at 11925 Highway 105 East, Conroe, TX, and 2) Map ID 21: EZ Mart 5/Super Stop 4 located at 11487 Highway 105 East, Conroe, TX. In addition, one superfund site requires avoidance: 1) Map ID 58: Conroe Creosoting Company located at 1776 E. Davis Street, Conroe, TX.	Prior to Construction
Hazardous Materials	Asbestos and/or Lead-based Paint	Because the proposed project would: 1) demolish and/or renovate multiple bridges and overpasses; 2) demolish buildings located within the proposed ROW; and 3) acquire areas that may contain asbestos or lead-based paint, all asbestos and lead-based paint inspections, specifications, notifications, licenses, accreditations, abatement, and disposal (as applicable) would be performed in compliance with federal and state regulations.	Prior to Construction

Source: Jacobs, 2019.

8.2 Contractor Communications

Table 8-2: Contractor Communications

Project Issues and Resources	Type of Impact	Contractor Communications
Water Quality	Storm Water Runoff from Construction	The following BMPs would be used on the proposed project: Temporary vegetation and/or sod for erosion control, vegetative filter strips for post-construction TSS controls and silt fencing for sediment control. Other approved BMPs may be substituted, if necessary, using one of the BMPs from the same category.
Texas Pollutant Discharge Elimination System	No Long-Term Water Quality Impacts	This project would include five or more acres of earth disturbance. TxDOT would comply with the TCEQ-TPDES-CGP. A SW3P would be implemented, and a construction site notice would be posted on the construction site. A NOI would be required. This proposed project is located within the boundaries of a regulated MS4 (City of Conroe).
Floodplains	Construction Impacts within the 100-year floodplain	The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. In cooperation with FEMA, TxDOT would conform to the standard for temporary and permanent fill set by FEMA. Coordination with the local Floodplain Administrator would be required.
Migratory Birds	MBTA	Swallow nests were observed during field investigations on bridges under existing roadways, most abundant at the Caney Creek Bridge. In the event that migratory birds are encountered on-site during proposed project construction, every effort would be made to avoid protected birds, active nests, eggs, and/or young. In case birds nest in the structures were to be affected by construction, the contractor would remove all old migratory bird nests between October 1 and February 15 from any structure where work would be done. In addition, the contractor would be prepared to prevent migratory birds from building nests between February 15 and October 1.
Wildlife	TPWD	Any disturbance beyond the normal conditions of the proposed project area is expected to be limited to the immediate vicinity of construction of the proposed corridor.
Wildlife	Best Management Practices	Contractors will be advised of the potential presence of transient Red-cockaded Woodpecker(s) within the proposed project area and to avoid harming the species if encountered. Contractors will also be advised that in the very rare event a

Table 8-2: Contractor Communications

Project Issues and Resources	Type of Impact	Contractor Communications
		<p>Houston toad is encountered in the project area, they are to avoid harming it. In addition, Bird BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the Red-cockaded Woodpecker, Bachman’s Sparrow, Swallow-tailed Kite, and the Wood Stork. The design and construction of the proposed project would include construction and post-construction BMPs to manage storm water runoff and control sediments; thereby protecting creek chubsucker habitat. In addition, the Fish BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. Tree Bat BMPs, as outlined in the BMP PA between TPWD and TxDOT, would be in place to minimize any potential to impact the species. Mussel BMPs would be implemented, as listed in the BMP PA between TxDOT and TPWD per the 2013 TxDOT/TPWD MOU, eliminating the requirement to coordinate for this species. Per the Mussel BMPs, on-site mussel survey would also be conducted to verify the presence or absence of the sandbank pocketbook.</p>
<p>Invasive Species and Beneficial Landscaping</p>	<p>Beneficial</p>	<p>In accordance with EO 13112 on Invasive Species, native plant species would be used in landscaping and in the seed mixes where practicable.</p> <p>Landscaping included with this project would be in compliance with the Executive Memorandum on Beneficial Landscaping and the guidelines for environmentally and economically beneficial landscape practices.</p>
<p>Hazardous Materials</p>	<p>Accidental Disturbance of Hazardous Materials</p>	<p>The contractor would take appropriate measures to prevent, minimize, and control spillage of hazardous materials in the construction staging area(s). All material being removed or disposed of by the contractor would be done in accordance with applicable State and federal laws as not to degrade ambient water quality. All of these measures would be enforced under appropriate specifications in the plan, specification, and estimate stage of project development.</p>
<p>Construction</p>	<p>Traffic Detouring, Temporary Noise and Dust, etc.</p>	<p>Plans to ensure safe and efficient traffic flow during construction would be developed as part of the detailed construction plans for the proposed improvements. Other construction related activities (e.g., temporary air and noise effects) would be addressed in compliance with standard TxDOT policies and procedures.</p>

Table 8-2: Contractor Communications

Project Issues and Resources	Type of Impact	Contractor Communications
Construction	Traffic Control	Reasonable measures would be taken to minimize the inconvenience to the vehicles using the roadway during the construction phase. Residential and business properties would be accessible during and after construction. The proposed project would improve the safety, efficiency, and operations of the roadway.

Source: Jacobs, 2019.

9.0 CONCLUSION

TxDOT recommends the Build Alternative as the Preferred Alternative. The Preferred Alternative would meet the proposed project’s purpose and need for increased capacity, mobility, and safety of the roadway. Implementation of the proposed Preferred Alternative would not result in a significant impact on the human or natural environment. Therefore, a Finding of no significant impact is recommended.

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APPENDICES

Appendix A – Project Location Maps

Exhibit 1-Project Location Map

Exhibit 2- U.S. Geological Survey Map

Appendix B – Project Photos

Appendix C – Schematics

Appendix D – Typical Sections

Appendix E – Plan and Program Excerpts

Appendix F – Resource-specific Maps

Exhibit 1-Texas Trunk System Map

Exhibit 2-Displacements, Adjacent Properties & Community Facilities Map

Exhibit 3-Sam Houston National Forest Map

Exhibit 4-Proposed Project Schematic, NWI, Floodplains, and Wetland Sample Point Map

Exhibit 5-GeoSearch (Hazardous Materials) Radius, Water Well, and Oil and Gas Reports
(Excerpts)

Exhibit 6-Noise Receiver and Barrier Locations Map

Appendix G – Resource Agency Coordination

Houston Galveston Area Council

Sam Houston National Forest

Texas Historical Commission

United States Coast Guard

Texas Commission on Environmental Quality

U.S. Fish and Wildlife Service

Texas Parks and Wildlife

U.S. Army Corps of Engineers

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Sam Houston National Forest

Texas Historical Commission

United States Coast Guard

Texas Commission on Environmental Quality

U.S. Fish and Wildlife Service

Texas Parks and Wildlife

U.S. Army Corps of Engineers

Houston Galveston Area Council

Sam Houston National Forest

Texas Historical Commission

United States Coast Guard

Texas Commission on Environmental Quality

U.S. Fish and Wildlife Service

Texas Parks and Wildlife

U.S. Army Corps of Engineers