



# Final Environmental Assessment

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## IH 20 at Ranger Hill, Brownwood District

IH 20 (From 3.5 miles east of LP 254 to SH 16)

CSJ: 0007-06-084

Eastland County, Texas

October 2016

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

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## ACRONYMS

ACS	American Community Survey
ADT	Average Daily Traffic
APE	Area of Potential Effect
BCE	Blanket Categorical Exclusion
BCVI	Black-capped Vireo
BE	Biological Evaluation
BGEPA	Bald and Golden Eagle Protection Act
BO	Biological Opinion
CE	Categorical Exclusion
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CSJ	Control-Section-Job
CWA	Clean Water Act
DHV	Daily Hourly Volume
DOT	U.S. Department of Transportation
DPS	Department of Public Safety
EDR	Environmental Data Resources
EFH	Essential Fish Habitat
EMST	Ecological Mapping Systems of Texas
EO	Executive Order
EPIC	Environmental Permits, Issues, and Commitments
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GCWA	Golden-cheeked Warbler
GIS	Geographic Information System
IBWC	International Boundary and Water Commission
IH 20	Interstate Highway 20
IPaC	Information for Planning and Conservation
ISA	Initial Site Assessment
LEP	Limited English Proficiency
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPS	National Park Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
PM	Particulate Matter
ROW	Right-of-Way
RTHL	Recorded Texas Historical Landmark
RSA	Resource Study Area
SAL	State Antiquities Landmark
SGCN	Species of Greatest Conservation Need
SH 16	State Highway 16
SHPO	State Historic Preservation Office
SLRTP	State-wide Long Range Transportation Plan
SW3P	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TASA	Texas Archaeological Sites Atlas
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
THSA	Texas Historical Sites Atlas
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TRTP	Texas Rural Transportation Plan
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
USACE	United States Army Corps of Engineers
USDOJ	United States Department of Justice
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VPD	Vehicles Per Day
WHCR	Whooping Crane

## 1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) – Brownwood District proposes to construct improvements to Interstate Highway 20 (IH 20) from approximately 3.5 miles east of Loop 254 to State Highway 16 (SH 16) in the northeastern portion of Eastland County, Texas (Bear Mountain USGS 7.5-minute topographic quadrangle). The total project distance of this project area, as defined from 3.5 miles east of Loop 254 to SH 16, is approximately three miles and depicted in **Appendix A: Project Location Map**. A description of the existing and proposed interstate highway is provided below.

### **Project Limits**

The original limits of this project were defined as IH20 from approximately 3.5 miles east of Loop 254 to 0.5 mile east of SH 16. However, project scoping and initial engineering determined that realignment impacts would not extend east of SH 16. Therefore, the limits of this project detailed in this EA are only from approximately 3.5 miles east of Loop 254 to SH 16.

### 1.1 EXISTING FACILITY

The existing IH 20 facility in Eastland County, Texas is a four-lane (two lanes in each direction) interstate highway with 12-foot lanes, 6-foot inside shoulders, 10-foot outside shoulders, and a 54-inch wide concrete median as shown in **Appendix B: Existing Typical Sections**. IH 20 contains a horizontal ‘S’ curve approximately 1.5 miles west of the intersection of IH 20 and SH 16. This portion of IH 20 is locally referred to as “Ranger Hill” and has an existing six percent vertical grade increasing in elevation from east to west by approximately 300 feet. The existing right-of way (ROW) varies from 227 feet to 1,300 feet wide and totals approximately 170 acres in the project area.

### 1.2 PROPOSED PROJECT

The proposed project would consist of the following interstate improvements within the approximately three-mile project area, as shown in **Appendix B: Proposed Typical Sections and Project Layout**, to update the IH 20 design to meet current TxDOT design standards.

- The design would realign the interstate approximately 500 feet to the south of the existing alignment to alleviate the existing horizontal curvature (“S” curve). The horizontal curvature would be flattened to approximately one degree.
- The proposed interstate design would reduce the vertical grade from the existing six percent to approximately 3.5 percent vertical grade.
- The proposed interstate design would be updated from a superelevation of eight percent to four percent superelevation.

- The proposed interstate would include two, 12-foot main lanes in each direction with room for 10-foot shoulders. In addition, there would be a new 12-foot climbing (or passing) lane for westbound traffic.
- The proposed interstate would consist of the construction of two new continuous two-way frontage roads on either side of the interstate main lanes. The frontage roads would consist of two, 12-foot lanes with a 4-foot inside shoulder and an 8-foot outside shoulder.
- Concrete traffic barriers (54-inch) would be constructed between the west and eastbound main lanes and between the main lanes and frontage roads.
- The proposed ROW would vary from 300 to 1,380-feet wide for a total of approximately 260 acres, including an existing TxDOT safety rest area.
- TxDOT would acquire approximately 89 acres of ROW from adjacent private landowners for the expansion of the proposed project.

It is anticipated that construction would begin in January 2017 and last approximately three years. Vegetation removal of the new ROW is anticipated to occur after September 15, 2016, following environmental clearance, and before the start of construction in January 2017. Following vegetation removal, limited geotechnical boring will be conducted in the fall of 2016 within the proposed ROW to determine the depth and composition of rock and sediment. It is anticipated that up to 60 feet of excavation would occur for the new IH 20 alignment. This geotechnical assessment would be used to further define the schedule and methods for construction. The first phase of construction is anticipated to last 12 to 18 months and would include excavation and embankment activities. Excavation is anticipated to be conducted using a combination of mechanical equipment and explosives (particularly in areas of deep and hard rock). Where the use of explosives is required for rock excavation, the contractor would use standard methods (i.e., use of blasting mats, careful placement and sequencing of charges) to ensure the blasting is carried out in a safe and controlled manner, given the proximity of blasting to cars traveling along the existing alignment of IH 20. TxDOT would review the contractor's blast plan ahead of time to ensure that flyrock is contained and that the intensity of noise/airblast is minimized.

Partially concurrent with the first phase of excavation and embankment, paving and draining activities would be conducted over the course of 12 months. The remaining construction phase would last approximately 6 to 8 months and would include installation of permanent lighting, signage, and final grading and pavement marking. During this final phase of construction, the existing IH 20 ROW would be decommissioned and demolished as traffic is rerouted to the new alignment. During the anticipated 36-month construction period existing lanes of IH 20 would remain open until the final redirection of traffic to the new alignment.

### **1.3 LOGICAL TERMINI AND INDEPENDENT UTILITY**

Coordination with project stakeholders was conducted to determine the project termini based on several primary factors including: proximity to the existing TxDOT Eastland County (westbound) safety rest area and SH 16, safety, constructability, improving traffic operations, and mobility. The project limits for the proposed project consist of rational end points that are located (1) west of the existing ramps for the (westbound) safety rest area and the peak of “Ranger Hill”, and (2) at the major intersecting roadway (SH 16) at the base of “Ranger Hill”. Additionally, these logical termini are also located at either end of the existing horizontal curvature (“S” curve) where the vertical change of IH 20 is minimal.

The proposed improvements are a reasonable expenditure that “stand alone” and do not require additional transportation improvements at either terminus of the proposed project in order to function with IH 20.

Additionally, the proposed project would not restrict the consideration of alternatives for futures phases or other reasonably foreseeable transportation projects; therefore, the project has both logical termini and independent utility.

## **2.0 PURPOSE AND NEED**

TxDOT prepared a technical memorandum to examine and define the purpose and need for the proposed project in accordance with the National Environmental Policy Act (NEPA); the Council of Environmental Quality (CEQ) regulations for *Implementing the Procedural Provision of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508) and *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 following sections summarize those findings that are detailed within the *Purpose and Need Statement and Project Study Area Memorandum*.

### **2.1 BACKGROUND**

Within Texas, IH 20 runs from the Texas/Louisiana border through the Dallas – Fort Worth Metroplex west to IH 10 in West Texas and serves as a major highway through the state. Currently, the three-mile IH 20 proposed project segment is a major transportation route utilized by approximately 22,400 vehicles per day (vpd). The existing interstate is notable for 5 to 12 percent of crashes within Eastland County. Crashes peaked in 2013 with 48 incidents and four fatalities (TxDOT 2015c). This portion of IH 20 has been labelled as “one of the most dangerous stretches of the interstate between Fort Worth and El Paso” (KTXS 2013). Concerns about the dangers of Ranger Hill from local residents spurred the creation of petitions to have the speed limit reduced from 75 miles per hour (mph) and the interstate reconstructed to lower the grade and straighten out the curves. The petitions received more than 4,500 signatures, including signatures from the traveling public as far away as Hawaii that had travelled through Ranger Hill (Dickson 2013). As a result of these petitions, in 2013 short-term safety improvements were implemented including interstate resurfacing, increasing the median barrier height to 54 inches and installing high-mast safety lighting as well as electronic speed limit signs that reduced speed limits and allowed for remote adjustment by TxDOT during inclement weather conditions.

However, even with these improvements, this segment of IH 20 does not comply with current TxDOT design standards (Texas Department of Transportation 2014).

### **2.2 RELATED STUDIES AND RELEVANT DOCUMENTS**

In October 2004, the TxDOT Brownwood District completed a Categorical Exclusion (CE), which is prepared for projects that do not individually or cumulatively have significant environmental impacts, for the construction of two, Level 1 safety rest areas along IH 20 between Ranger, Texas and Thurber, Texas in Eastland County. The Eastland County (westbound) safety rest area is located eight miles east of Ranger on

the north side of IH 20, within the project area. The recently opened safety rest area includes a security station, air-conditioned lobby, restrooms, Department of Public Safety (DPS) office and storage, interactive displays, picnic facilities, playground, storm shelter, and handicap access. The safety rest area also provides entrance and exit ramps, as well as separate parking for trucks, landscaping, and an overall cultural architectural theme stemming from the area's historical background (TxDOT 2015a). The second Eastland County (eastbound) safety rest area is located just south of Ranger on the south side of IH 20, outside of the project area.

A Blanket Categorical Exclusion (BCE), which is prepared for projects that TxDOT has determined require no further NEPA approval, was completed for the median improvements discussed above in the project area on November 1, 2013. These improvements included the taller 54-inch-tall median barrier, highway resurfacing, and installation of the high mast safety lighting. The electronic speed limit signage and lowered speed limits were also included in the BCE and implemented in 2014.

The proposed project is not located within Metropolitan Planning Organization (MPO) boundaries; therefore, it is not part of a Metropolitan Transportation Plan (MTP). The *Texas Rural Transportation Plan (TRTP) 2035 Final Report* covers the rural portions of Texas, including this project located within the TxDOT Brownwood District. The TRTP was developed as a component of the *State-wide Long Range Transportation Plan (SLRTP) 2035 Final Report* through stakeholder and public outreach, and a technical approach which ranked the added capacity highway projects within the TRTP study area. Within the *TRTP 2035 Final Report*, the proposed project is ranked #1 for the TxDOT Brownwood District (TxDOT 2012), indicating its high priority status. This ranking gives TxDOT an objective basis for each District to begin project planning once funding becomes available. A copy of the representative page of the *TRTP 2035 Final Report* is included in **Appendix E: Supporting Documentation**.

The *Texas Transportation Plan (TTP) 2040*, released on February 26, 2015, builds upon these two 2035 plans and addresses state-wide planning requirements under the current federal surface transportation act – Moving Ahead for Progress in the 21st Century Act (MAP-21), and Title 43, Texas Administrative Code, Chapter 16.

A CE was also completed by TxDOT – Brownwood District on March 15, 2016 for the land acquisition related to the proposed project. The proposed project would require the acquisition of approximately 89 acres of new ROW from private landowners. While these parcels are anticipated to be acquired in advance of this EA via separate State of Texas funds, this purchase has not and will not influence the environmental review or selection of alternatives as documented in this EA.

## 2.3 NEED FOR PROJECT

As detailed in the *Purpose and Need Statement and Project Study Area Memorandum*, the proposed project is needed to address road design and safety, mobility, and access issues. Specifically, the proposed project is needed to address the following issues:

- Road design and safety - Interstate safety and operational concerns due to functional interstate deficiencies that contribute to high frequency and severity of traffic incidents
- Mobility - Reduced mobility due to accidents and increasing in congestion
- Access - Lack of access roads and incident management concerns and limited access for first responders

### 2.3.1 Road Design and Safety

The steep grade combined with the horizontal curvature and steep superelevation (cross slope or banking of the interstate) have been the primary factors contributing to vehicles failing to maintain control when traveling eastbound into the decline. Furthermore, weather events tend to exacerbate the safety concerns at this location. When wet interstate conditions are present, a vehicle's ability to maintain the appropriate friction between the tire and pavement, necessary to navigate the horizontal curvature, vertical grade, and superelevation, can be negatively affected.

### 2.3.2 Mobility

As discussed further in **Section 5.2.2.7**, over 21,000 vpd travel this segment of IH 20 in Eastland County with roughly half (approximately 9,000) of those vehicles being trucks (TxDOT, 2015d). Traffic forecasts for the project study area predict additional increases in average daily traffic (ADT) from an estimated 22,400 vehicles in 2018 to 34,700 vehicles in 2048. This represents an increase of 55 percent from 2018 to 2048. It is anticipated this predicted increase in traffic within the project area would potentially lead to further mobility issues.

### 2.3.3 Access

The existing interstate between 3.5 miles east of LP 254 and SH 16 lacks continuous frontage roads, thus creating access issues for adjacent property owners and first responders when traffic incidents occur. According to the local fire department, historically first responders had to park as close to the accident site as possible and walk or wheel their equipment to the crash site (Fox, 2015). Currently, there is an emergency access road on the eastbound side of IH 20 at Ranger Hill; however, this does not provide access to the westbound side of IH 20.

## 2.4 PROJECT PURPOSE

As further defined in the *Purpose and Need Statement and Project Study Area Memorandum*, the purpose of the proposed project is to improve safety and mobility on

IH 20 in the project area. Specifically the purpose of the proposed project is to address the safety and transportation related needs identified in **Section 2.3** by:

- Realigning the interstate to improve vehicular safety
- Reconstruct the facility to improve traffic mobility
- Incorporating frontage roads to improve access for emergency response

## **2.5 PROJECT FUNDING**

The proposed project is assigned to control-section-job number (CSJ) 0007-06-084. This proposed project has construction authority in the UTP and currently has funding via Categories 4 and 8. Category 4 includes funding for *State-wide Connectivity Corridor Projects* and Category 8 includes funds for *Highway Safety Improvement Projects*. The total project cost for CSJ 0007-06-084 is estimated to be \$106,785,015 and includes additional money for right-of-way, utilities, contingencies and change orders. This project is in the May revision of the (STIP) approved in June 2016. See **Appendix E: Supporting Documentation** for project STIP pages.

### 3.0 ALTERNATIVES

In April 2016, TxDOT prepared a technical memorandum to evaluate reasonable alternatives for the proposed project, define which alternative would be carried forward for detailed analysis, and detail why other alternatives were eliminated from further analysis in this EA. As detailed in *IH 20 Alternatives Analysis*, a total of 11 alternatives were evaluated. During the initial stages of project alternative development (approximately 2010- 2014) the TxDOT Brownwood District generally identified three project corridors: a realignment corridor north of the existing interstate, a realignment corridor south of the existing interstate, and an overlapping corridor of the existing interstate. Of the 11 alternatives within these three project corridors, only one alternative (the Build Alternative described below) is carried forward for further analysis, as the other 10 alternatives do not meet the purpose and need of the project. Those eliminated alternatives are detailed within the *IH 20 Alternatives Analysis*. The following sections detail the Build Alternative and No Build Alternative assessed in this EA.

The three project corridors and 11 alternatives were presented during the stakeholder meeting (comprised of TxDOT staff and local officials) on July 31, 2015 and the first public meeting held on August 25, 2015. During the August meeting, the public indicated support of the proposed alternative that is described below as the Build Alternative. At the second public meeting held on November 19, 2015, the Build Alternative was presented as the alternative to be assessed in detail in this EA. Public involvement activities are discussed in more detail in **Section 6.2**.

#### 3.1 BUILD ALTERNATIVE

The Build Alternative consists of the realignment of IH 20 to the southeast of the existing interstate facility. The alternative also includes grade separation with braided exit/entrance ramps to access the westbound safety rest area, construction of a 54-inch concrete median barrier, and the acquisition of approximately 89 acres of additional TxDOT ROW for the interstate realignment. The horizontal curvature would be flattened (approximately to one degree) and the profile grade would be approximately 3.5 percent, with a maximum superelevation of approximately 4 percent. As depicted in **Appendix B: Typical Sections**, the Build Alternative would construct two, 12-foot main lanes in each direction with room for 10-foot shoulders. In addition, there would be a new 12-foot passing lane for westbound traffic. Continuous two-way frontage roads would be constructed on either side of the interstate main lanes and consist of two, 12-foot lanes with a 4-foot inside shoulder and 8-foot outside shoulder. The frontage roads would be separated from the main lanes of traffic by a 54-inch concrete traffic barrier and 4-foot shoulder. During construction all four existing lanes of IH 20 would remain open.

As detailed in the *IH 20 Alternatives Analysis* technical memorandum, the Build Alternative meets all screening criteria and is consistent with the proposed project's purpose and need.

### **3.2 NO BUILD ALTERNATIVE**

Under the No Build Alternative, the existing facility would not be reconstructed and IH 20 would remain a four-lane divided highway. The horizontal curvature, profile grade of six percent, maximum superelevation of eight percent, and 54-inch concrete barrier would remain. Normal routine maintenance would continue under the No Build Alternative.

The No Build Alternative would not meet or satisfy the purpose and need of the proposed project.

## 4.0 AFFECTED ENVIRONMENT

### 4.1 LAND USE

The proposed project area consists of interstate highway ROW and rural undeveloped agricultural areas. The proposed project study area for land use is defined by a one-mile buffer along a 3.5-mile existing segment of IH 20 ROW. The study area encompasses approximately 6,200 acres primarily consisting of mixed rangeland and mixed forestland. These two categories of land use represent 92.4 percent (5,799 acres) of the total study area. Cropland and pasture are present in the northeast portion of the project area representing 3.2 percent (203 acres). The existing road IH 20 and SH 16 facilities represent the final 4.4 percent (274 acres) of the study area. Land adjacent to and surrounding the study area is undeveloped, rural, and primarily used for agricultural purposes (Anderson et al. 2016).

### 4.2 POPULATION

The proposed project and study area is located in Eastland County and completely contained within Block Group 2, Census Tract 9501. According to the U.S. Census Bureau and 2014 American Community Survey (ACS) 5-year estimates, the population for Eastland County is 18,403 and the population for Block Group 2, Census Tract 9501 is 885. There are approximately 10,250 housing units in Eastland County and 594 housing units in Block Group 2, Census Tract 9501. Minority and ethnic populations are discussed in Community Impact: **Section 5.2.2** under Environmental Justice, which also includes a description of median income.

The proposed project is located in the northeast portion of Eastland County, Texas, approximately five miles east of Ranger, Texas, and four miles south of Strawn, Texas. As this project does not fall within city boundaries and is not within the nearest Metropolitan Planning Organization (MPO) boundaries, county growth is the leading indicator of community growth. According to the Texas State Demographer, Eastland County is expected to experience a steady growth rate through 2040, but at a slower rate than the State of Texas (Demographer 2016). The Texas State Demographer projects an approximate four to 12 percent growth in the county population by 2040 (projected 19,260 to 20,757 total populations). The growth of the nearest cities is estimated to be less than the county projections. Therefore, the population and employment within the study area is not expected to have substantial growth.

### 4.3 NATURAL ENVIRONMENT

According to the Texas Parks and Wildlife Department (TPWD), the proposed project is located in the Cross Timbers Ecoregion. This ecoregion, also known as the Osage Plains, is found in north and central Texas and varies from savannah and woodland to

the east and south, to shorter mixed-grass prairie to the west. The ecoregion includes areas with a high density of trees as well as irregular plains and prairies. The topography of the project area is hilly with rolling terrain ranging from 1,090 to 1,410 feet above mean sea level. Soils are primarily sandy to loamy. Rainfall can be moderate, but somewhat erratic; therefore moisture is often limited during part of the growing season.

## **5.0 ENVIRONMENTAL CONSEQUENCES**

### **5.1 ISSUES EXCLUDED FROM FURTHER CONSIDERATION**

#### **5.1.1 Section 4(f) / 6(f)**

The proposed project would not require the use of, nor substantially impair the purposes of, any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands, or historic sites of national, state, or local significance; therefore, a Section 4(f) Evaluation is not required.

Section 6(f) of the Land and Water Conservation Fund Act requires that recreational facilities receiving U.S. Department of Interior funding from the Land and Water Conservation Fund Act as allocated by TPWD may not be converted to non-recreational uses unless approval is received from TPWD and the National Park Service (NPS). There are no Section 6(f) resources in the proposed project area.

#### **5.1.2 Groundwater**

The project is located over the Trinity Aquifer. The Trinity Aquifer consists of early Cretaceous-age formations of the Trinity Group where they occur in a band extending through the central part of the state of Texas, from the Red River in North Texas to the Hill Country of South-Central Texas. According to the Texas Water Development Board (TWDB) Database, no wells are located within a quarter-mile buffer of the proposed project; therefore no impacts to groundwater wells are anticipated. Best management (BMPs) utilized to avoid water quality degradation would serve to protect groundwater quality; therefore no impacts to groundwater would occur as a result of the proposed project.

#### **5.1.3 Floodplains**

As detailed in the April 2016 *Water Resources Technical Report*, according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (Community Panel Number: 4807930006A, Effective date: November 15, 1977), the proposed project is not located within a FEMA designated 100-year floodplain. Therefore coordination with the local floodplain administrator would not be required.

#### **5.1.4 Navigable Waters/Lakes, Rivers, Streams**

The proposed project does not involve work in or over a navigable water of the U.S., therefore Section 10 of the Rivers and Harbors Act does not apply.

#### **5.1.5 Wild and Scenic Rivers**

This project would not involve work within the designated segment of the Rio Grande; therefore, coordination with the National Park Service (NPS) would not be required.

### 5.1.6 International Boundary and Water Commission

The project is not located within the floodplain of the Rio Grande; therefore, coordination with the International Boundary and Water Commission (IBWC) would not be required.

### 5.1.7 Essential Fish Habitat

There are no tidally influenced waters in Eastland County; therefore there is no requirement to address Essential Fish Habitat (EFH).

### 5.1.8 Threatened or Impaired Waters

Based on the 2014 Texas Integrated Report of Surface Water Quality, formerly called the Texas Water Quality Inventory and 303(d) List, runoff from this project would not discharge directly into a Section 303(d) listed threatened or impaired water, or into a stream within five miles upstream of a Section 303(d) listed threatened or impaired water.

## 5.2 ISSUES CONSIDERED IN DETAIL

Several technical memoranda and other documentation were prepared in support of this EA. A list of these reports is presented below in **Table 5-1** and a summary of these reports is included in the respective sections below.

**Table 5-1: List of Technical Documents Cited**

Technical Memoranda or Document	Date
<i>Scope Development Tool</i>	September 30, 2015
<i>Hazardous Material ISA Report</i>	October 2015
<i>Project Coordination Request and Review for Archaeological Background Studies – IH 20 at Ranger Hill</i>	October 2015
<i>Project Coordination Request for Historical Studies Project</i>	November 2015
<i>Community Impact Assessment Memorandum, IH 20 at Ranger Hill Project</i>	January 2016
<i>Air Quality Technical Memorandum, IH 20 at Ranger Hill Project</i>	February 2016
<i>Purpose and Need Statement and Project Study Area Memorandum, IH 20 at Ranger Hill, Eastland County, Texas</i>	February 2016
<i>Biological Evaluation Form, IH 20 at Ranger Hill Project</i>	March 2016
<i>Biological Assessment for Consultation with USFWS, IH 20 at Ranger Hill, Brownwood District</i>	June 2016
<i>Intensive Archaeological Survey of IH 20 at Ranger Hill, Eastland County, TX (CSJ: 0007-06-084)</i>	April 2016
<i>IH 20 Alternative Analysis, IH 20 at Ranger Hill Project</i>	April 18, 2016

Technical Memoranda or Document	Date
<i>Traffic Noise Technical Memorandum, IH 20 at Ranger Hill Project</i>	June 2016
<i>Water Resources Technical Report, IH 20 at Ranger Hill Project</i>	April 2016

Source: Project Team, 2015 and 2016

### 5.2.1 Land Use

The primary direct impact on land use from the Build Alternative is the conversion of land to transportation ROW. Approximately 89 acres of additional ROW would be acquired to accommodate the ultimate configuration of the proposed project. Of this additional ROW, approximately 35 acres are currently undeveloped mixed rangeland; approximately 53 acres are undeveloped mixed forestland and approximately 2 acres developed urban low density (i.e. the abandoned former gas station). While there is no local planning guidance for the project area, this project is consistent with the *TRTP 2035 Final Report*.

### 5.2.2 Community Impacts

#### 5.2.2.1 Regional and Community Growth

As discussed in **Section 4.2**, the population and employment within the study area is not expected to have substantial growth. However, an additional measure of growth within the project area is vehicle travel on the interstate. As detailed below in Transportation and Traffic: **Section 5.2.2.7**, an estimated increase in traffic of 55 percent by 2048 is anticipated within the project area. The proposed project has taken into consideration this anticipated increase in traffic by the addition of a third westbound interstate 12-foot main lane and the inclusion of a 22-foot eastbound shoulder that could become a future interstate 12-foot main lane.

#### 5.2.2.2 Community Cohesion

As stated in the *Community Impact Assessment Memorandum, IH20 at Ranger Hill Project*, Mobility in the project area is conducted via vehicular access. The existing IH 20 would be slightly shifted, but overall there would be no new travel patterns or access impacts by the proposed project. This is an existing roadway and therefore there no new barriers would be constructed, there are no community facilities in the area, there is undeveloped agricultural land on either side of the road, and all roads that are currently accessed from IH 20 will still do so after the project.

#### 5.2.2.3 Public Facilities and Services

The proposed project would not impact public facilities or services located within the project area. The Eastland County safety rest area is a TxDOT property located approximately eight miles east of Ranger, TX on the north (westbound) side of IH 20 and is the only public facility or service located in the project area. As described in

**Section 2.2**, this safety rest area was recently opened and provides numerous public services. The proposed project would not adversely impact the Eastland County safety rest area. However, temporary lane closures of IH 20 during the final stages of construction of the proposed project would implement minor access detours to this public facility.

#### 5.2.2.4 Environmental Justice

As detailed within the *Community Impact Assessment Memorandum, IH20 at Ranger Hill Project*, The project area is located wholly within Block Group 2, Census Tract 9501, Eastland County, Texas (USCB 2015). According to the 2010 Census, minority populations in project area census blocks are less than 50 percent of the total population at approximately 10 percent (USCB 2014). Therefore, the project area census tract is not considered a minority population for the purposes of the environmental justice analysis.

Additionally, with a median income of \$32,219 there are no low-income populations in the project area, based on a comparison of the median household income of project area block as reported in the 2010-2014 American Community Survey (ACS) to the 2015 Department of Health and Human Services poverty guideline for a family of four (\$24,250.00).

In summary, the Build Alternative would not cause disproportionately high and adverse impacts on minority or low income populations and is consistent with EO 12898 and DOT Order 5610.2(a).

#### 5.2.2.5 Limited English Proficiency

As reported in 2010-2014 ACS, an estimated two percent of Census Tract 9501 (over the age of 5) speaks English less than “very well”. Those reported to speak English less than “very well”, have documented Spanish, or Spanish Creole as their primary language (USCB 2014). No signs, places of worship, businesses, or services targeting a Spanish speaking population were observed in the project vicinity. As English is the predominant language in the area, all project activities would be conducted in compliance with EO 13166.

#### 5.2.2.6 ROW/Easements and Relocations/Displacements

The proposed project would require the acquisition of approximately 89 acres of new ROW which consists of five, privately-owned parcels. The acquisition of this ROW was previously environmentally cleared by TxDOT under a CE completed on March 15, 2016 and is currently underway. While these parcels are anticipated to be acquired in advance of this EA via separate State of Texas funds, this purchase has not and will not

influence the environmental review or selection of alternatives as documented in this EA.

The Build Alternative of the proposed project would not require any residential or commercial displacements. The Eastland County (Westbound) Safety Rest Stop, managed by TxDOT, is located within the project area, but the Build Alternative would maintain access to the facility. All ROW acquisition would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1979, as amended.

#### 5.2.2.7 Traffic and Transportation

Over 21,000 vpd travel within this segment of IH 20, almost half of which (approximately 9,000) are trucks (TxDOT 2015d). Traffic forecasts for the project area predict additional increases in ADT from an estimated 22,400 vpd in 2018 to 34,700 vpd in 2048, as shown in **Table 5-2**. This growth represents an increase of 55 percent from 2018 to 2048. Additionally, trucks are forecasted to comprise nearly 43 percent of the increase in ADT volumes, and 19 percent of the daily hourly volume (DHV). Studies indicate that while traffic patterns can vary, in general an increase in traffic volumes increases accident volumes (Dickerson, Peirson and Vickerman 2000). In addition, it has been found that accidents involving two or more vehicles increases when traffic volumes increase (Satterthwaite 1981). It can be anticipated this predicted increase in traffic within the proposed project area would potentially lead to further mobility issues.

**Table 5-2: Traffic Forecast for the IH 20 at Project Study Area**

Location	ADT				Percent Trucks	
	Current <sup>a</sup>	2018	2038	2048	ADT	DHV
From Approx. 3.5 miles east of Loop 254 to SH 16	21,200	22,400	30,600	34,700	42.8	19.3

Source: TxDOT 2015d and TxDOT 2015e

<sup>a</sup> based on ADT of May 2013-2015

The proposed project would bring the IH 20 segment at Ranger Hill into accordance with modern TxDOT design standards. As described in **Section 3.1**, the Build Alternative would decrease interstate grade, flatten the horizontal curvature, provide an additional westbound climbing lane, and construct continuous two-way frontage roads in both directions while maintaining access to the existing TxDOT safety rest area. These design changes would improve traffic flow, decrease incident potential, and accommodate for projected traffic utilization. Additionally, the proposed project would add continuous frontage roads to the project area which would improve access to the interstate for emergency vehicles and provide relief during traffic incidents.

Construction of the proposed project would occur south of the existing lanes of IH 20, which would allow the existing main lanes to remain open during construction, minimizing impacts to traffic and mobility.

The proposed project does not include the addition of facilities for bicycles/pedestrians due to the rural nature of the proposed project area. Alternate modes of transportation are not present within the proposed project study area, or in Eastland County along the IH 20 ROW.

#### 5.2.2.8 Utilities

There are numerous active utilities located within the project area. The following utility companies provide telecommunications, fiber-optic communication, water and sewer, electric, and petroleum and natural gas pipeline services to the surrounding community:

- AT&T
- Level 3 Broadwing
- City of Ranger
- Oncor Electric Delivery
- Sunoco Logistics
- ONEOK
- Energy Transfer
- HANLON
- Enbridge

There are two crude oil transmission pipelines (Sunoco Logistics), one 26-inch and one 24-inch, that cross the proposed project ROW from the northwest traveling southeast. There are also two dry hole wells located within the proposed ROW, south of IH 20, and two gas wells located within the proposed ROW, one along IH 20 and another just south of IH 20. In addition, there are two liquefied petroleum gas pipelines and two natural gas pipelines to the north. Two dry hole wells and two gas wells are located adjacent to the north and one dry hole well is adjacent to the south of the Project ROW.

Utility relocation would be avoided to the maximum extent practicable; however, it is anticipated that the proposed improvements would require the relocation of all utilities within the proposed ROW. For the majority of the utility companies, coordination is ongoing and the detailed extent of relocation impacts would be determined. However, the relocation of existing utilities would likely be collocated with the proposed IH 20 realignment or within existing utility corridors (e.g., it is anticipated that the Sunoco pipelines would be directionally drilled from within the existing ROW beneath the realigned IH 20).

#### 5.2.3 Water Resources

Included in this section is a summary of the water resources impact analysis associated with the proposed project. Detailed information regarding this analysis may be found in the *Water Resources Technical Report*.

### 5.2.3.1 Wetlands and Jurisdictional Waters of the US

As detailed in the *Water Resources Technical Report*, a total of four features are found in the project area. They include two potentially jurisdictional waters of the United States (U.S.), a palustrine emergent wetland and an intermediate stream, and two non-jurisdictional man-made ponds. Wetlands and waterways that are considered waters of the U.S. are subject to regulation under Section 404 of the Clean Water Act (CWA) by the USACE. **Table 5-3** identifies the four features identified and the anticipated requirements of each.

**Table 5-3: Project Water Features**

Feature ID	Feature Type	Existing Conditions	Adjacent Surface Waters	Size	USACE Jurisdictional	Potential Permitting Requirements
1	Palustrine Emergent Wetland	Rocky bottom substrate. Presence of hydrophytic vegetation and wetland hydrology	While no direct inlets were observed, the Feature 1 drains into Feature 2 (an intermediate waterbody)	0.04 acre	Likely	NWP 14 with Pre-construction Notification (PCN)
2	Intermediate Stream	Rock / silt substrate and 2-3 feet wide	Feature 1 is the headwaters for this waterbody, which drains into Bear Creek	848.3 linear feet	Likely	NWP 14 with PCN
3	Man-made pond	Pond with earthen bottom	None	0.39 acre	Not likely	No permit anticipated
4	Man-made pond	Pond with earthen bottom	None	0.09 acre	Not likely	No permit anticipated

Source: Project Team, 2016

In accordance with EO 11990, no practicable alternatives were identified that would avoid impacts to wetlands. It is anticipated that both the wetlands and intermediate stream would be culverted, while the two man-made ponds would be filled during construction of the Build Alternative. TxDOT will continue coordination with the USACE –Fort Worth District through the final design of the Build Alternative to obtain the necessary permits. A USACE Nationwide Permit (NWP) 14 – Linear Transportation Projects with a PCN would be required for impacts to the jurisdictional waters, the wetland and intermittent stream, in the proposed project area.

### 5.2.3.2 Water Quality

The proposed project would involve five or more acres of earth disturbance. TxDOT would comply with the Texas Commission on Environmental Quality's (TCEQ) Texas

Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A Stormwater Pollution Prevention Plan (SW3P) would be implemented, and a construction site notice would be posted on the construction site. A Notice of Intent (NOI) and a Notice of Termination (NOT) would also be required. A municipal separate storm water system (MS4) permit would not be required for the proposed project.

Potential impacts to surface water quality may arise during construction activities. During construction, spills would be mainly limited to fuels (i.e., petrochemicals) and lubricants used for construction equipment. Construction in the immediate area of wetlands and waters can be assumed to generate additional sediment loads to the water bodies if bare earth is exposed for an extended period of time and not controlled using erosion control facilities. During operation, the use of fertilizers, herbicides and/or pesticides could result in reduced water quality due to runoff.

The proposed project and associated activities will be implemented, operated, and maintained using BMPs to control the discharge of pollutants from the project site. Wherever and whenever it is necessary, feasible, and practical, BMPs would be incorporated during construction of the proposed project, such as the installation of permanent vegetation (seeding mix) where necessary for erosion control.

#### 5.2.4 Biological Resources

The project study area for the biological resources evaluation consists of the existing and proposed ROW and easements for the proposed project. A *Biological Evaluation (BE)* was prepared and includes a detailed analysis of biological resources and subsequent data. The proposed project is located within the Cross Timbers Ecoregion as described in the 2012 Texas Conservation Action Plan (TCAP). The ecological characteristics of this ecoregion in this location have been altered due to conversion of native woodland and grassland to highway infrastructure, agricultural usage and the suppression of natural wild fires.

The TCAP identifies issues associated with new transportation projects which may negatively affect species of greatest conservation need (SGCN) populations, rare communities, and the habitats on which they depend in this region. Transportation improvements, whether upgrades of existing facilities or new construction, may disconnect intact habitat and present barriers to wildlife movements. Other issues noted include the use of non-native seed sources to stabilize disturbed areas after construction and potential impacts to adjacent drainages.

The proposed transportation improvements are not expected to alter existing travel corridors to wildlife species as the proposed project would generally follow the

alignment of the existing interstate facility. The drainage located adjacent to the proposed project would continue to receive runoff as it currently does. After construction is completed, the areas of bare ground resulting from the construction activity would be reseeded/revegetated according to TxDOT standards.

#### 5.2.4.1 Threatened and Endangered Species

The Endangered Species Act (ESA) affords protection for federally-listed threatened and endangered species and, where designated, critical habitat for these species. The U. S. Fish and Wildlife Service (USFWS) maintain a list of federally threatened and endangered species potentially present for each Texas County. The Information for Planning and Conservation tool (IPaC) for the USFWS was accessed February 9, 2016 (as part of the BE), and lists the golden-cheeked warbler (GCWA, *Setophaga chrysoparia*), black-capped vireo (BCVI, *Vireo atricapilla*), and whooping crane (WHCR, *Grus americana*) as potentially occurring within the proposed project area.

The project would impact habitat for the GCWA and BCVI, as detailed within the June 2016 Biological Assessment prepared by TxDOT as part of the formal Section 7 coordination with USFWS. Habitat for the GCWA was assessed and mapped based on vegetation descriptions from Campbell (1996). The two habitat types preferred by the GCWA mapped within the project area include:

- habitat that may be occupied - post oak (*Quercus stellata*)/blackjack oak (*Quercus marilandica*) with junipers (*Juniperus* spp.) and 35-100% canopy
- habitat considered to be probably occupied - slope communities of juniper and mixed hardwoods with 35-100% canopy cover

Habitat for the BCVI generally consists of patchy mosaics of shrubby vegetation, with a component of the vegetation extending down to ground-level (Campbell 1996). The eastern portion of the project area includes shrubby vegetation, predominantly composed of whitebrush (*Aloysia gratissima*), but with an overstory of post oak and cedar elm (*Ulmus crassifolia*). These areas did not exhibit the “patchy” structure that is typical of habitat for the BCVI; however, the shrubby component was dense and generally extended to ground level.

Presence/Absence surveys for the GCWA were initiated within areas identified as habitat during the spring of 2016. All surveys followed protocols outlined in the USFWS Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys and Habitat Assessments for Endangered Golden-cheeked Warblers (USFWS 2010). A total of nine surveys were completed from March 15 through May 10, 2016. During the fifth survey for GCWA on April 14, 2016 a single male BCVI was detected in

the eastern portion of the proposed project. Based on this detection, surveys were continued to determine BCVI use of the action area. A single individual BCVI was subsequently detected utilizing habitat patches which included whitebrush as a major understory component in the eastern portion of the proposed project, on the sixth and ninth surveys on April 25, 2016 and May 10, 2016, respectively. All GCWA detected during Presence/Absence surveys were located outside of the action area.

As detailed within the June 2016 *Biological Assessment for Consultation with USFWS*, the proposed project would result in the direct loss of 57.9 acres of habitat for the GCWA, which also includes 15.6 acres of transitional habitat for the BCVI. Therefore the proposed action may affect, and is likely to adversely affect the endangered GCWA and BCVI due to potential harm resulting from removal of breeding habitat. However, compensatory mitigation for habitat loss is not anticipated, due to the project clearing outside of the breeding season, and low quality of the habitat within the action area for GCWA and BCVI, as documented in the conservation measures and baseline conditions, respectively. On June 30, 2016 TxDOT submitted the June 2016 *Biological Assessment for Consultation with USFWS*. Formal Section 7 coordination concluded with the USFWS issuing a BO (02ETAR00-2016-F-0935) on October 21, 2016.

TPWD also maintains special species lists through the Texas Natural Diversity Database (TXNDD). The TXNDD is a geo-referenced database of documented sightings of rare, threatened and endangered species of Texas maintained by TPWD. Data were obtained from TPWD on August 14, 2015, and reviewed for the proposed project. The TXNDD is a potential presence database that cannot be interpreted as presence/absence data. There are approximately 50 element of occurrence records for BCVI recorded within nine miles of the proposed project. The TXNDD review met all the requirements of the TxDOT-TPWD Memorandum of Agreement (MOA) for sharing and maintaining TXNDD information.

The project area contains no suitable habitat such as large wetlands or grasslands to support whooping cranes which are present in Texas during the winter months and migration. There is no critical habitat for these or any other species, as designated by the USFWS, located within the proposed project area.

#### 5.2.4.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, egg in part or in whole, without a Federal permit issued in accordance within the Act's policies and regulations. Migratory patterns would not be affected by the proposed project. In the event that migratory birds are encountered on-site during project

construction, adverse impacts on protected birds, active nests, eggs, and/or young would be avoided. The contractor would remove vegetation and all old migratory bird nests from September 1 to March 1 in the project area. In addition, the contractor would be prepared to prevent migratory birds from building nests between March 1 and September 1, per the Environmental Permits, Issues, and Commitments (EPIC) sheet.

#### 5.2.4.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald or golden eagles, including their parts, nests or eggs. The BGEPA provides criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald or golden eagle, alive or dead, or any part, nest or egg thereof.” The BGEPA defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” “Disturb” means: “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

A bald eagle (*Haliaeetus leucocephalus*) was observed within two miles of the proposed project area; however, no nests have been located within the project area per field reconnaissance conducted on February 5, 2016. Suitable nest infrastructure such as cliffs or large trees is not present within the immediate proximity of the proposed project area. The proposed project is not likely to affect this species.

#### 5.2.4.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) of 1934 was enacted to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water. This project would impact one potential water of the U.S. and one wetland within the proposed project area. These impacts would be addressed and managed through the USACE 404 NWP 14 and PCN as detailed in **Section 7.3**.

#### 5.2.4.5 Vegetation and Wildlife Habitat

##### Vegetation

As detailed in the BE, the existing habitat types in the project area consist of approximately 0.44 acres of barren; 2.05 acres of agriculture; 17.08 acres of grassland, 68.96 acres of shrubland; 53.9 acres of woodland and forest; and 116.54 acres of urban. All natural vegetation would be removed for the proposed project.

Barren areas contain little to no herbaceous cover. Agriculture areas are those areas that have been altered in the past and utilized for row crops and livestock grazing. Grassland areas included prairie threeawn (*Aristida oligantha*), green sprangletop (*Leptochloa dubia*), blue grama grass (*Boutelous gracilis*) and desert Christmas cactus (*Cylindropuntia leptocaulis*). Woodland and forest areas included five species of oak (*Quercus sp.*), ashe juniper (*Juniper ashei*), and black willow (*Salix nigra*). Herbaceous vegetation observed in woodland and shrubland areas was the same as adjacent grassland areas described above.

Urban areas contain trees, shrubs, and grasses associated with residential and commercial properties or unmaintained adjacent properties as well as the interstate corridor. The vegetated areas within the existing interstate ROW are considered urban as it has been manipulated for transportation use.

#### Texas Parks and Wildlife Coordination Summary

In accordance with Title 43 of the Texas Administrative Code, Part 1, Chapter 2, Subchapter G, of the Memorandum of Understanding (MOU) between TxDOT and TPWD, several coordination triggers are used to determine whether coordination with TPWD is required. **Table 5-4** contains the triggers and project specific information.

**Table 5-4: TPWD Coordination Triggers**

Trigger	Applies to the Project?	Explanation
The proposed project is within the range of a state threatened or endangered species or SGCN, as identified by the TPWD county list, and there is suitable habitat for the species within the project area unless BMPs as defined in the MOU are implemented as provided by a programmatic agreement	Yes	The proposed project is within the range and suitable habitat is present for the GCWA and BCVI. Additionally individual GCWA and BCVI have been observed in the project vicinity. Pursuant to the TxDOT TPWD MOU on BMPs, TxDOT will implement BMPs for the protection of the GCWA and BCVI and other nesting birds. The BMPs will be added to the EPIC sheet for the proposed project and shared with the contractor. Additionally, terms and conditions presented in the October 21, 2016 USFWS BO would be included in the EPIC and implemented.
The proposed project may adversely impact important remnant vegetation based on the judgment of a qualified biologist or as mapped in the TXNDD.	No	No important remnant vegetation was identified within the project area by project biologists or by the TXNDD.
The proposed project requires a nationwide permit with pre-construction notification or an individual permit issued by the USACE.	Yes	The proposed project has a footprint that includes one potentially jurisdictional waters of the US (0.06ac) and one wetland (0.04 ac).

Trigger	Applies to the Project?	Explanation
The proposed project includes in the TxDOT right-of-way or conservation, construction, or drainage easement, more than 200 linear feet of stream channel for each single and complete crossing of one or more of the following that is not already channelized or otherwise maintained: a) channel realignment; or b) stream bed or stream bank excavation, scraping, clearing, or other permanent disturbance.	Yes	The proposed project includes 848.3 feet of a stream bed.
The proposed project contains known isolated wetlands outside existing TxDOT right-of-way that would be directly impacted by the project.	Yes	The proposed project has a footprint that includes one potentially jurisdictional wetland (0.04 ac).
The proposed project may impact at least 0.10 acre of riparian vegetation based on the judgement of a qualified biologist or as mapped in the EMST.	Yes	The proposed project has a footprint that Central Texas: Riparian Evergreen Shrubland is 0.53 and Central Texas: Riparian Deciduous Shrubland is 0.34.
The proposed project disturbs habitat in an area equal to or greater than the area of disturbance indicated in the <i>Threshold Table Programmatic Agreement</i> .	Yes	The proposed project would impact woodland and forest, disturbed prairie, savannah woodland and scrubland, riparian and grassland EMST mapped habitat types above the threshold values.

Source: Project Team, 2016.

Early coordination with TPWD was initiated on March 9, 2016. The *BE*, was provided to TPWD and coordination with TPWD was completed on May 20, 2016, as documented in **Appendix D: Interagency Coordination and Public Involvement**. TxDOT will continue to coordinate with TPWD during the planning and detailed engineering phase of the project. Any terms and conditions presented by TPWD would be included in the EPIC and implemented.

### Wildlife

Overall, there is potential habitat for wildlife species, including the federally-protected GCWA and BCVI, within the proposed project ROW. Woody, shrub and grassland vegetation is present within the project ROW which would be removed as a result of the implementation of the proposed project. No long-term impacts to wildlife populations are anticipated as a result of the proposed project. In areas temporarily impacted, wildlife species adapted to rural developed areas and assimilated to habitat adjacent to the existing highway would likely re-colonize the available habitat areas after construction. As discussed in **Section 5.2.4.1**, species specific surveys have been conducted for the protected species, GCWA and BCVI. On June 30, 2016 TxDOT submitted the June 2016 *Biological Assessment for Consultation with USFWS*. Formal Section 7

coordination concluded with the USFWS issuing a BO (02ETAR00-2016-F-0935) on October 21, 2016.

### *Invasive Species and Beneficial Landscaping Practices*

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

#### 5.2.5 Topography and Soils

According to the Bear Mountain USGS 7.5 minute topographic quadrangle map, the topography of the project area is hilly, rolling terrain ranging from 1,090 to 1,410 feet above mean sea level. According to the USDA NRCS Web Soil Survey for Eastland County, 14 different soil types (comprised predominantly of stony soils, clayey soils, and clay, sandy, and stony loams) are located within the project area, as summarized in **Table 5-5**. As detailed in the BE, the project traverses soils classified as hydric (Bunyan soils, frequently flooded; Leeray clay, 0 to 1 percent slopes); and Leeray clay, 1 to 3 percent slopes) and as prime farmland (Leeray clay, 1 to 3 percent slopes; Lindy loam, 1 to 3 percent slopes; and May fine sandy loam, 1 to 3 percent slopes).

**Table 5-5: Project Area Mapped Soils**

Soil Symbol	Map Unit Name	Landform	Acres within Study Area	Hydric	Prime farmland
BcB	Bolar clay loam, 1 to 3 percent slopes	Ridges	0.06	No	No
BnB	Bonti fine sandy loam, 1 to 3 percent slopes	Ridges, structural benches	17.65	No	No
By	Bunyan soils, frequently flooded	Bottomlands	0.27	Yes	No
ESE	Exray stony soils	Ridges	0.10	No	No
ErD	Bonti-Exray complex, 1 to 3 percent slopes, extremely stony	Ridges	38.59	No	No
HnC	Hensley stony loam, 1 to 5 percent slopes	Ridges	73.08	No	No
LeA	Leeray clay, 0 to 1 percent slopes	Ridges	0.58	Yes	No

Soil Symbol	Map Unit Name	Landform	Acres within Study Area	Hydric	Prime farmland
LeB	Leeray clay, 1 to 3 percent slopes	Ridges	17.60	Yes	All Areas are Prime Farmland
LnB	Lindy loam, 1 to 3 percent slopes	Ridges	2.73	No	Prime Farmland If Irrigated
MfB	May fine sandy loam, 1 to 3 percent slopes	Stream terraces	3.47	No	All Areas are Prime Farmland
OWE	Owens clay, 5 to 30 percent slopes, extremely stony	Escarments, ridges	24.90	No	No
TNE	Palopinto stony soils, hilly	Ridges	14.93	No	No
TrB	Thurber clay loam, 1 to 3 percent slopes	Ridges	54.16	No	No
TuB	Truce fine sandy loam, 1 to 3 percent slopes	Ridgetops	10.85	No	No

Source: USDA, 2016

### Farmland Protection Policy Act (FPPA)

Three of the 14 soil types within the project area are classified as prime farmland, LeB, LnB, and MfB. These three soils account for 23.8 acres of the existing and proposed ROW. However, as the score on Part IV of the FPPA AD-1006 form was less than 60, no coordination with NRCS is required.

#### 5.2.6 Hazardous Materials

A hazardous materials Initial Site Assessment (ISA) was completed in between September 22, 2016 and October 12, 2016 (*Final Hazardous Material Initial Site Assessment report* dated October 2015). The ISA included a review of topographic and ROW maps, historic aerial photographs, a regulatory database search, and a site visit.

The Environmental Data Resources (EDR) regulatory database search did not identify any properties as being located within applicable search distances for regulatory records. However, a review of the EDR Orphan Summary report, attached to the *Hazardous Material ISA Report*, identified a diesel oil spill that was reported on December 20, 2011 which may have been located within the Project ROW. The comments section of the EDR Report states that it appears adequate corrective actions have been taken to clean up the spill site and the incident report was closed by regulators on March 12, 2012. Based on this information, the former spill does not appear to pose an environmental concern to the Project ROW.

A former gas station was observed on the eastern limits of the Project ROW. The store front building and pump island canopy remain; however, there was no evidence of existing underground storage tanks (USTs) noted during the site visit, indicating that the USTs may have been removed or abandoned in place. This property was not listed as a registered petroleum storage tank (PST) site, leaking PST (LPST) site, or historic gas

station in the regulatory database report provided by EDR. Due to the limited information available regarding this former gas station, it is uncertain whether or not petroleum USTs or residual contamination that resulted from petroleum releases remains on the property. Due to the nature of the former gas station operations and the unknown condition of subsurface soil and groundwater, this property poses an environmental concern to the Project ROW. Future ground-disturbing activities at the property have a potential to encounter hazardous materials and expose construction workers and the environment to hazardous materials. . If ground-disturbing activities are planned for the property, further investigation is recommended to confirm if contamination from the site would be encountered during construction.

The proposed project could encounter asbestos containing materials (ACM), lead-based paints (LBP), or other unidentified environmental risks during demolition of the abandoned former gas station store front building. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal, as applicable, would comply with federal and state regulations. Asbestos issues would be addressed during the ROW process prior to construction.

The contractor would take appropriate measures to prevent, minimize, and control the spill of fuels, lubricants, and hazardous materials that the contractor brings into the construction staging area.

Based on available historic data, existing land use, and the nature of the proposed project, there are no other hazardous materials concerns anticipated.

#### 5.2.7 Cultural Resources

Included in this section is a summary of the cultural resources impact analysis associated with the proposed project. Detailed information regarding this analysis is on file at the TxDOT Brownwood District.

##### 5.2.7.1 Historical Resources

The proposed project is located in an existing transportation corridor and the proposed realignment was not considered severe enough in scope to be considered a new location transportation corridor. Therefore, in accordance with 36 CFR 800 and the First Amended Programmatic Agreement for Transportation Undertakings (PA-TU 2005), the area of potential effect (APE) for historical resources was 150 feet from the proposed project ROW. The historic-age cut-off date for the historical survey was 1971, which was based on the proposed project anticipated letting date for construction of 2016, minus 45 years to allow for unanticipated delays in project planning. A review of the Texas Historical Commission (THC) survey and webpage on the Bankhead Highway, a Google Earth layer provided by the THC for that survey, the Texas Historic Overlay, the

National Register of Historic Places (NRHP), the list of State Antiquities Landmarks (SAL), and the list of Recorded Texas Historical Landmarks (RTHL) was conducted to identify historically significant resources previously documented within the APE or quarter-mile study area from the APE.

No historically significant resources were previously documented within the APE or the quarter-mile study area. A comparative analysis of the 1965 and 2012 aerial photographs identified four historic-age resources within the APE, one of which (Bankhead Highway/Café) was previously determined not eligible for listing in the NRHP as part of the Bankhead Highway Survey. The remaining resources include a 1960s ranch house and barn and a ca. 1970 gas station. The ranch house and barn were determined not eligible for listing in the NRHP due to no known association with significant historical events and the lack of architectural design merit. The gas station was determined not eligible for listing in the NRHP due to a lack of historic integrity caused by significant deterioration and damage to the roof and structural elements. Additionally, three historic interstate highway bridges (NBI: 23-068-0007-03-134 [built 1969], NBI: 23-068-0007-03-132 [built 1969], and NBI: 23-068-0007-06-076 [built 1959] were within or adjacent to the APE. However, these bridges are exempt from Section 106 review due to their exclusion from the Final List of Nationally and Exceptionally Significant Features of the Federal Interstate Highway System.

Pursuant to Stipulation VI, Appendix 4 “Undertakings Not Requiring SHPO Review” of the PA-TU between the Federal Highway Administration (FHWA), the Texas State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and TxDOT and the MOU, TxDOT historians have determined that there are no historic properties present and that the proposed project does not require individual SHPO coordination as documented in in the *Project Coordination Request for Historical Studies*.

#### 5.2.7.2 Archeological Resources

A file search of the Texas Archaeological Sites Atlas (TASA), Texas Historical Sites Atlas (THSA), historic aerial photographs, historic topographic maps, and technical reports on previous cultural resources surveys was conducted to identify archaeological sites, SALs, NRHP-listed and NRHP-eligible properties, RTHLs, cemeteries, and other archaeological resources previously documented within the APE and one-kilometer study area around the APE. According to the file search, documented in *Project Coordination Request and Review for Archaeological Background Studies – IH 20 at Ranger Hill*, no archaeological sites have been recorded within the APE or the 1-kilometer study area. One previous survey (Sunoco Pipeline, 2014) was partially

conducted within the study area, but no historic or prehistoric sites were identified within the proposed project vicinity.

Consultation with federally recognized Native American tribes was conducted between November 9 and December 10, 2015. The Caddo Nation indicated that the project may be in the vicinity of the “Caddo Indian Ball Ground and One Hundred Mile Mountain,” while the Comanche Nation determined that there are no concerns with the project.

Based on the file search and the presence of undisturbed soils with potential to contain intact subsurface cultural materials, an intensive archaeological survey was recommended for the proposed project. The APE for archaeological resources was defined as the 300 to 1,300-ft wide ROW, which includes approximately 170 acres of existing ROW and 89 acres of proposed new ROW. Based on the planned interstate design, the depth of impacts for the proposed project were estimated to be up to 70 feet below the current ground surface for the proposed project.

As documented in the *Intensive Archaeological Survey of IH 20 at Ranger Hill, Eastland County, TX (CSJ: 0007-06-084)*, the intensive archaeological survey of the APE was completed under Texas Antiquities Permit Number 7546. The investigation consisted of 100 percent pedestrian survey of the APE, supplemented by 38 shovel tests. No archaeological sites were identified. One projectile point was observed on the surface and recorded as an isolated find.

Based on the results of the archaeological survey, the proposed reconstruction and realignment of IH 20 would have no effect on archaeological sites or SALs. THC/SHPO concurrence was received on April 14, 2016, as documented in **Appendix D: Interagency Coordination and Public Involvement**. Should the dimensions of the proposed project area change, however, additional investigations may be warranted.

#### 5.2.8 Visual/Aesthetic Resources

Section 136 of the Federal Aid Highway Act of 1970 (Public Law [P.L.] 91-605) requires consideration of aesthetic values in the highway planning process. Aesthetic values would be emphasized with this proposed project. It has always been the policy of TxDOT to build visually pleasing travel ways, coupling beauty with their functional capability. As the proposed project consists of the realignment of an existing interstate facility, it is anticipated the aesthetic effect would be equal to or better than the existing area. Therefore the Build Alternative would not negatively affect the visual or aesthetic character of the proposed project area.

#### 5.2.9 Air Quality

An air quality analysis was prepared following TxDOT’s current air quality compliance process and in accordance with TxDOT’s Environmental Handbook for Air Quality and

2015 Standard Operating Procedures for Preparing Air Quality Statements. The proposed project is located in Eastland County, which is an area in attainment or unclassifiable for all national ambient air quality standards (NAAQS); therefore, the transportation conformity rules do not apply. Results of the analysis indicate that the proposed project would not contribute to an exceedance of any NAAQS. For details, refer to the *Air Quality Technical Memorandum*.

The average annual daily traffic projections for the proposed project do not exceed 140,000 vehicles per day; therefore, a carbon monoxide (CO) Traffic Air Quality Analysis is not required. In addition, the proposed project is located within an attainment or unclassifiable area for ozone and CO; therefore, a project level Congestion Management Process (CMP) analysis is not required. Results of a qualitative mobile source air toxics (MSAT) analysis acknowledged that the proposed project 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, any future MSAT emissions increases would be offset on a regional basis by EPA's vehicle and fuel regulations, coupled with fleet turnover, that will over time lead to substantial reductions in MSAT concentrations.

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

The potential impacts of particulate matter emissions would be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: <http://www.tceq.state.tx.us/implementation/air/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 proposed project would have any substantial impact on air quality in the area.

#### 5.2.10 Traffic Noise

A traffic noise analysis was prepared in accordance with TxDOT's FHWA approved 2011 Guidelines for Analysis and Abatement of Interstate Traffic Noise. Results of the analysis indicate that the proposed project would not result in a traffic noise impact. For details, refer to the *Traffic Noise Technical Report*.

Noise associated with the construction of the proposed project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are 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.

#### 5.2.11 Indirect Impacts

In accordance with the TxDOT's *Guidance: Indirect Impacts Analysis* (September 2015), TxDOT completed the *Scope Development Tool* for the proposed project in September 2015 (Appendix E). As detailed within the *Scope Development Tool*, the purpose and need of the project does not include economic development, would not serve a specific development, and economic development or new opportunities for growth would be not anticipated. Therefore, while a detailed indirect effect analysis is not required, a summary of anticipated indirect impacts is included below. The realignment of the highway would enhance accessibility by improving mobility and travel time through the surrounding environment. Additionally, the construction of access roads could increase accessibility to the immediately surrounding private properties, the westbound TxDOT safety rest area on IH 20, and SH 16.

However, the proposed project is not anticipated to substantial result in induced growth effects through an increased rate of potential development within or surrounding the proposed project for the reasonable and foreseeable future. Mobility in the project area is conducted via vehicular access. The existing IH 20 would be slightly shifted, but overall there would be no new travel patterns or access impacts by the proposed project. This is an existing roadway and therefore no new barriers would be constructed, there is no community facilities in the area, there is undeveloped agricultural land on either side of the road, and all roads that are currently accessed from IH 20 will still do so after the proposed project is constructed. The proposed project area is not currently experiencing growth, and is not anticipated to change as a result of the Proposed Action.

The responsibility of transportation providers such as TxDOT, local and regional agencies, developers and local governments would be to implement development and transportation systems that would complement land use or development management techniques currently in place. There is no local planning guidance for the proposed project area.

As detailed within the June 2016 *Biological Assessment for Consultation with USFWS*, the proposed project could have both temporary (construction phase) and permanent (operational phase) indirect effects to the GCWA and BCVI in areas adjacent to the proposed ROW. Temporary indirect effects could result from increases in noise and human activity adjacent to habitat areas for the two species over the course of three breeding seasons. Permanent indirect effects could result from the shifting of roadway with its associated traffic noise as well as the creation of new edge habitat where relatively undisturbed woodland habitat currently occurs. Indirect effects would extend an additional 300 feet beyond the proposed project ROW to the south where breeding habitat for the GCWA and BCVI has been identified. A total of 27.4 acres of GCWA and 6.9 acres of BCVI habitat have the potential to be indirectly impacted by the proposed project.

As discussed in **Section 5.2.2.8**, there are numerous active utilities located within the proposed project area. Utility relocation, required as a result of the proposed realignment of IH 20, would be avoided to the maximum extent practicable; however, it is anticipated that the proposed improvements would require the relocation of all utilities within the proposed ROW. Additionally, the relocation of utilities within the proposed ROW could also trigger relocation of similar utilities outside of the proposed project area. For the majority of the utility companies, coordination is ongoing and the detailed extent of relocation impacts would be determined. Utility relocation would be the responsibility of the utility provider and it is anticipated that they would coordinate with USFWS directly as necessary. It is anticipated that these actions may also result in impacts to GCWA and BCVI.

#### 5.2.12 Cumulative Impacts

CEQ regulations (40 CFR § 1508.7) define cumulative impacts (i.e., effects) as “the impact on the environment which results from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions.” The purpose of cumulative impacts analysis is to view the direct and indirect impacts of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but which are likely to affect the same resources in the future. This approach allows the evaluation of the incremental impacts

of the proposed project in light of the overall health and abundance of selected resources.

The evaluation process for each resource considered may be expressed in shorthand form as follows:

<p><b>Baseline Condition + Future Effects + Project Impacts = Cumulative Effects</b> <i>(historical and current) (expected projects) (direct and indirect)</i></p>
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As described in TxDOT's *Cumulative Impacts Analysis Guidelines* (March 2014), the following five-step approach was utilized to assess the potential cumulative impacts of the past, present, and reasonably foreseeable actions to the resources in the proposed project area:

1. Resource Study Area, 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; and
5. Mitigation of Cumulative Effects.

The initial step of the cumulative impacts analysis uses information from the evaluation of direct and indirect impacts in the selection of environmental resources that should be evaluated for cumulative impacts. TxDOT's Guidance states: "If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource". CEQ guidance recommends focusing on key resource issues of national, regional, or local significance. Applying the above criteria, the resources or environmental issues considered for cumulative impacts assessment are listed in **Table 5-6**.

**Table 5-6: Resources Considered for the Cumulative Impacts Analysis**

Resource or Topic Evaluated	TxDOT/CEQ Criteria <sup>1</sup>			Included for Cumulative Impacts Analysis (Yes / No)	Explanation For Including or Excluding the Resource or Topic from Cumulative Impacts Analysis
	Would the Resource or Topic be Directly or Indirectly Impacted? (Yes / No)	Would the Direct or Indirect Impacts be Substantial? (Yes / No)	Is the Resource in Poor or Declining Health? (Yes / No)		
<b>Air Quality</b>					
Air Quality	No	No	No	No	Because the project's potential direct and indirect impacts on air quality and MSATs are projected to be offset by federal regulatory programs, negative impacts on air quality are not anticipated.
<b>Biological Resources</b>					
Threatened and Endangered Species	Yes	No	Yes	Yes	Included as the proposed action may affect, and is likely to adversely affect the endangered GCWA and BCVI due direct and indirect impacts resulting from removal of breeding habitat.
Migratory Bird Treaty Act	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated. The proposed project would potentially impact nesting bird habitat. Impacts would be avoided by vegetation clearing occurring outside of the nesting season.
Bald and Golden Eagle Protection Act	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated.

<sup>1</sup> In accordance with TxDOT (2010) and CEQ (2007) selection criteria for limiting the scope of cumulative impacts analysis.

Resource or Topic Evaluated	TxDOT/CEQ Criteria <sup>1</sup>			Included for Cumulative Impacts Analysis (Yes / No)	Explanation For Including or Excluding the Resource or Topic from Cumulative Impacts Analysis
	Would the Resource or Topic be Directly or Indirectly Impacted? (Yes / No)	Would the Direct or Indirect Impacts be Substantial? (Yes / No)	Is the Resource in Poor or Declining Health? (Yes / No)		
Vegetation and Wildlife Habitat	Yes	No	No	No	Excluded, because while direct and impacts are anticipated due to the acquisition of approximately 89 acres of currently vegetated shrub/forested ROW, impacts would be similar to those detailed for threatened and endangered species
Invasive Species and Beneficial Landscaping Practices	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated.
Topography and Soils	Yes	No	No	No	Excluded because soils impacts would not be sustainable to prime farmland resource and the resource is not in declining or poor health.
<b>Socio-Economic Resources</b>					
ROW/Easements and Relocations/Displacements	No	No	No	No	Displacements or relocations are not anticipated. Excluded because ROW acquisition (89 acres) is not an issue that warrant a cumulative impacts analysis.
Regional and Community Growth	No	No	No	No	Excluded be neither direct nor indirect impacts are anticipated.
Community Cohesion	No	No	No	No	Excluded be neither direct nor indirect impacts are anticipated.
Environmental Justice Populations	No	No	No	No	Excluded be neither direct nor indirect impacts are anticipated.
Limited English Proficiency Populations	No	No	No	No	Excluded be neither direct nor indirect impacts are anticipated.
Public Facilities and Services	No	No	No	No	Excluded be neither direct nor indirect impacts are anticipated.
<b>Community Resources</b>					
Visual and Aesthetics	No	No	No	No	Excluded be neither direct nor indirect impacts are anticipated.

Resource or Topic Evaluated	TxDOT/CEQ Criteria <sup>1</sup>			Included for Cumulative Impacts Analysis (Yes / No)	Explanation For Including or Excluding the Resource or Topic from Cumulative Impacts Analysis
	Would the Resource or Topic be Directly or Indirectly Impacted? (Yes / No)	Would the Direct or Indirect Impacts be Substantial? (Yes / No)	Is the Resource in Poor or Declining Health? (Yes / No)		
Utilities	Yes	No	No	No	Excluded because indirect impacts are not substantial and the resource is not in declining or poor health.
<b>Cultural Resources</b>					
Historic Properties	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated.
Archaeological Resources	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated.
<b>Hazardous Materials</b>					
Hazardous Materials	No	No	No	No	Excluded as neither direct nor indirect impacts are anticipated.
<b>Noise</b>					
Traffic Noise	No	No	No	No	Excluded as neither direct nor indirect impacts are anticipated.
<b>Section 4(f) and 6(f)</b>					
Section 4(f) Properties	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated.
<b>Water Resources</b>					
Groundwater	No	No	No	No	Excluded because neither direct nor indirect impacts are anticipated.
Threatened and Impaired Waters	No	No	No	No	Excluded as there are no threatened or impaired waters within the proposed project area.
Wetlands and Jurisdictional Waters of the U.S.	Yes	No	No	Yes	The proposed project would directly impact a wetland and an intermittent stream.
Floodplains	No	No	No	No	Excluded as there are no 100-year floodplains documented within the proposed project area.
Water Quality	No	No	No	No	Excluded because the impact would be temporary.

Source: Project Team, 2016

As documented in **Section 5.0** Environmental Consequences and **Section 5.2.11**, it was determined that the proposed project would not have considerable direct or indirect impacts on the following resources and topics of concern: air quality; migratory bird treaty act; Bald and Golden Eagle protection act; vegetation and wildlife; invasive species and beneficial landscaping; regional and community growth; community cohesion; EJ populations; LEP populations; ROW displacement; utilities; public facilities and services; historic properties; topography and soils; archaeological resources; hazardous materials; traffic noise; Section 4(f) and 6(f) properties; groundwater; threatened or impaired waters; floodplains; and water quality.

Cumulative impacts are analyzed in terms of the specific resource being affected. As shown in **Table 5-6**, the following resources were eligible for cumulative impacts analysis: threatened and endangered species; and wetlands and jurisdictional waters of the U.S. Direct impacts to these resources are addressed in **Section 5.0** Environmental Consequences.

The following section describes steps 1 through 5 for the resource eligible for cumulative impacts analysis.

#### 5.2.12.1 Threatened and Endangered Species

##### Step 1: Resource Study Area, Conditions and Trends

As discussed in **Section 5.2.4.1** and detailed with in the June 2016 *Biological Assessment for Consultation with USFWS*, the proposed project area contains 57.9 acres of habitat for the GCWA and 15.6 acres of marginal habitat for the BCVI. Habitat for the GCWA and BCVI was assessed and mapped based on site visits conducted through March, April, and May 2016. The area as included in the June 2016 *Biological Assessment* as well as the watershed sub-basin encompassing the proposed project limits (Bear Creek-South Fork Palo Pinto Creek - Hydrological Code [HUC] 120602010805) is the basis for the resource study area (RSA), as depicted in Appendix A. These boundaries were utilized because drainage areas influence the type of vegetation and only specific drainage areas would be associated with the proposed. The timeframe included in this cumulative analysis for this resource would be from 1971 through 2048 which are the years in which IH 20 was first constructed and the design year of the proposed project respectively.

The RSA consists of various vegetation and ecological areas. For current vegetation conditions, **Section 5.2.4.5** includes vegetation characteristics within the proposed project, while **Section 5.2.4.1** and the June 2016 *Biological Assessment* detail the GCWA and BCVI habitat. Within the RSA, the vegetation characteristics are similar to the vegetation types found within the proposed project limits. There are barren areas

that contain little to no herbaceous cover. Agriculture areas are present as areas that have been altered in the past and utilized for livestock grazing. Urban areas contain trees, shrubs, and grasses associated with residential and commercial properties or unmaintained adjacent properties. The vegetated areas within the existing ROW are considered urban as it has been manipulated for transportation use.

Step 2: Direct and Indirect Effects on Each Resource from the Proposed

Project direct impacts to vegetation are discussed in **Section 5.2.4.1**. Approximately 89 acres required for additional ROW would result from the proposed project. All natural vegetation would be removed for the proposed project, and the project would result in the direct loss of 57.9 acres of habitat for the GCWA and 15.6 acres of habitat for the BCVI. Coordination with USFWS and TPWD will continue through the final design phase for impacts as discussed in **Section 6.1.1**. As discussed in **Section 5.2.11** and detailed within June 2016 *Biological Assessment for Consultation with USFWS*, indirect effects of the proposed project could include reduced use of adjacent habitats due to increase in road noise and habitat edge. As the project would be removing portions of edge habitat, fragmentation of existing blocks of habitat would not be expected as a result of the proposed project.

Due to the proposed project clearing outside of the breeding season, and low quality of the habitat within the action area by BCVI, these impacts are anticipated to not be substantial. On June 30, 2016 TxDOT submitted these findings in the June 2016 *Biological Assessment for Consultation with USFWS*. Formal Section 7 coordination concluded with the USFWS issuing a BO (02ETAR00-2016-F-0935) on October 21, 2016.

Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on Each Resource

Past actions within the RSA include roadway construction minimal ranch and residential development. The IH 20 highway was first constructed in 1971. Since then, several minor roadway improvements have occurred. The proposed project is located in a rural area where land use is based primarily around agriculture, with some development of energy resources, including oil, gas, and wind power. Past actions have contributed to conversion of undeveloped range land to urbanized transportation uses and minor residential development. The primary effect of these land use practices is the loss of habitat for GCWA and BCVI due to vegetation clearing and habitat fragmentation. Additionally, livestock practices have the potential to be detrimental to BCVI, as the presence of cattle may also increase the potential for brood parasitism from brown-headed cowbirds, and grazing practices can result in the loss of BCVI habitat, when not managed appropriately.

As discussed in **Section 2.2** within the proposed project area, TxDOT recently constructed the Eastland County (westbound) safety rest area eight miles east of Ranger on the north side of IH 20. The recently opened safety rest area includes a security station, air-conditioned lobby, restrooms, Department of Public Safety (DPS) office and storage, interactive displays, picnic facilities, playground, storm shelter, and handicap access. The second recently completed Eastland County (eastbound) safety rest area is located just south of Ranger on the south side of IH 20, outside of the proposed project area. TxDOT Brownwood District reviewed these safety rest areas in October 2004 under a CE, for projects that do not individually or cumulatively have significant environmental impacts. The westbound safety rest area is located within the existing and proposed TxDOT ROW, and access to this facility will be maintained by the proposed action without needed additional ROW. Past developments have already encroached on existing wildlife habitat.

While Eastland County population has remained steady since the 1970s, the Texas State Demographer projects a moderate (but less than the State) growth in the county population by 2040, as detailed in **Section 4.2**. There are no local planning guidances or known development plans for the project area, or RSA. However, as discussed in **Section 2.3.2**, traffic forecasts predict additional increases in AD) from an estimated increase of 55 percent in vehicle on this section of IH 20 from 2018 to 2048.

Within the RSA the only planned construction or development projects is approximately two miles north of the proposed project. TPWD, in conjunction the City of Strawn with has secured a 4,395-acre around Tucker Lake for the Palo Pinto Mountains State Park. Currently only the 80-acre Tucker Lake is open to the public, but it is anticipated that the remainder of the park would open in 2020 (depending on state funding and park planning processed) (McCorkle, 2015). As discussed in June 2016 *Biological Assessment for Consultation with USFWS*, the planned park has had documented records of GCWA within the proposed park boundaries.

#### Step 4: The Overall Effects of the Proposed Project Combined with other Actions

Overall cumulative effects include past actions (residential and transportation facilities), present actions (proposed project); and future actions (TPWD development). When considering the past and present actions in the project area, it is anticipated that the proposed project may result in an incremental impact to GCWA or BCVI or their habitat. As detailed in **Table 5-7**, cumulative effects from past development and the proposed project impacted this resource over time through conversion of undisturbed shrublands and woodlands to ranch land and other urbanized developments. Approximately 255 acres could be impacted from cumulative effects as a result of the proposed project.

However, it is anticipated that this incremental affect would not result in an adverse impact to the BCVI or GCWA as future planning activities anticipated to occur with the development of Palo Pinto Mountains by TPWD would likely benefit and contribute to the preservation of GCWA and BCVI habitat. The establishment of Palo Pinto Mountains State Park by TPWD would contribute to the potential conservation and preservation of habitat by restricting future development activities.

**Table 5-7: Cumulative Impacts Analysis – Threatened and Endangered Species**

Type of Action		GCWA (acres)	BCVI (acres)
Past Action	Previously Developed and Impacted Areas associated with the safety rest stop (approximate)	- 170	- 170
Present Action	Proposed Project Area - Direct	- 57.9	- 15.6
Present Action	Proposed Project Area - Indirect	- 27.4	- 6.9
Approximate Total Conversion		- 255.3	- 192.5
Future Action	Potential TPWD development of Palo Pinto Mountains State Park near Tucker Lake (Approximate Conservation)	+ 4,395	+ 4,395

Source: Project Team, 2016

#### Step 5: Mitigation of Cumulative Effects

When considering the past, present and reasonably foreseeable future actions in the proposed project area, it is anticipated that the proposed project would not result in an incremental adverse impact to GCWA or BCVI or their habitat. Therefore, compensatory mitigation for habitat loss is not anticipated. Additionally the proposed project would limit vegetation clearing to outside of the GCWA and BCVI breeding season.

Efforts would be taken through local, state and federal regulations to avoid and minimize any adverse effects from development or future activities. Future city, county or local plans could help avoid and minimize impacts to these natural resources from future developments or activities. Continued coordination with TPWD and USFWS would be conducted as part the detailed engineering design and environmental documentation to determine avoidance and minimization opportunities as well as any necessary mitigation for direct impacts to vegetation and wildlife habitat. On June 30, 2016 TxDOT submitted the June 2016 *Biological Assessment for Consultation with USFWS*. Formal Section 7 coordination concluded with the USFWS issuing a BO (02ETAR00-2016-F-0935) on October 21, 2016. Additional impacts associated with utility development would be the responsibility of developers in coordination with local agencies.

### 5.2.12.2 Wetlands and Jurisdictional Waters of the U.S

#### Step 1: Resource Study Area, Conditions and Trends

Based on the field surveys conducted February 5, 2016, a total of four features were found in the proposed project area. As detailed in the *Water Resources Technical Report* they include two potentially jurisdictional waters of the United States (U.S.), a palustrine emergent wetland and an intermediate stream, and two non-jurisdictional man-made ponds. The area as included in the *Water Resources Technical Report*, as well as the watershed sub-basin encompassing the proposed project limits, is the basis for the RSA. As defined above in 5.2.12.1, these boundaries, current conditional and trends of the RSA are those also utilized for threatened and endangered species.

#### Step 2: Direct and Indirect Effects on Each Resource from the Proposed –

Project Direct impacts to wetlands and waters of the U.S. are detailed within **Section 5.2.3.1**. This proposed project would directly impact one potential water of the U.S. and one wetland, resulting in the loss of 0.04 acre of palustrine emergent wetland, and impact approximately 850 linear feet of intermediate stream. The placement of temporary or permanent dredge or fill material into waters of the U.S. (including wetlands) that are considered to be jurisdictional would be authorized under a USACE Section 404 NWP 14 for Linear Transportation Projects. It is anticipated that permanent impacts in jurisdictional waters and wetlands would occur during construction. Coordination with USACE will continue through the final design phase for impacts.

#### Step 3: Other Actions – Past, Present and Reasonably Foreseeable – and their Effect on Each Resource

As defined above in 5.2.12.1, the past, present, and reasonably foreseeable actions for wetland and waters of the U.S. are those also assessed for threatened and endangered species.

#### Step 4: The Overall Effects of the Proposed Project Combined with other Actions

The overall effects for wetlands and waters of the U.S. by the proposed project combined with other actions would be similar to those also assessed for above in **Section 5.2.12.1** for threatened and endangered species. As detailed in **Table 5-8**, cumulative effects from past development and the proposed project impacted this resource over time through potential loss of minor wetlands and culverting or rerouting of existing streams. However, similar to threatened and endangered species, the acquisition and future planning activities anticipated to occur with the development of Palo Pinto Mountains by TPWD would likely benefit and contribute to the preservation of wetlands and waters of the U.S.; by restricting further development in the proposed park.

**Table 5-8: Cumulative Impacts Analysis – Wetlands and Jurisdictional Waters of the U.S.**

Type of Action		Wetlands (acres)	Waters of the U.S. (linear feet)
Past Action	Previously Developed and Impacted Areas associated with the safety rest stop (approximate)	0.00	0.00
Present Action	Proposed Project Area - Direct	- 0.04	- 850
Approximate Total Conversion		- 0.04	- 850
Future Action	Potential TPWD development of Palo Pinto Mountains State Park near Tucker Lake (Approximate Conservation)	+ 87	+ 66,825

Source: Project Team, 2016

#### Step 5: Mitigation of Cumulative Effects

Efforts would be taken through local, state and federal regulations to avoid and minimize any adverse effects from development or future activities. Additional BMPs such as seeding and replanting in accordance with TxDOT approved seeding specification could help mitigate effects from transportation projects. Continued coordination with USACE would be conducted as part the detailed engineering design and environmental documentation to determine avoidance and minimization opportunities as well as any necessary mitigation for direct impacts to wetlands and waters and U.S. Additional impacts associated with utility development would be the responsibility of developers in coordination with local agencies.

## 6.0 INTERAGENCY COORDINATION AND PUBLIC INVOLVEMENT

### 6.1 INTERAGENCY

TxDOT has coordinated with the following agencies during the development of this EA and will continue to coordinate with TPWD, USFWS and USACE during the detailed design phase of the proposed project. Consultation with federally recognized Native American tribes was conducted between November 9 and December 10, 2015 as detailed within **Section 5.2.7**.

#### 6.1.1 Biological

Early coordination with USFWS has been initiated as documented in **Appendix D: Interagency Coordination and Public Involvement**. A project site visit with AECOM biologists and representatives from TxDOT and USFWS was conducted on March 2 and May 2, 2016. On June 30, 2016 TxDOT submitted the June 2016 *Biological Assessment for Consultation with USFWS*. Formal Section 7 coordination concluded with the USFWS issuing a BO (02ETAR00-2016-F-0935) on October 21, 2016 for potential impacts to GCWA and BCVI habitat. TxDOT will continue to coordinate with USFWS during the planning and detailed engineering phase of the proposed project. Terms and conditions presented in the October 21, 2016 USFWS BO would be included in the EPIC and implemented.

As detailed in **Section 5.2.7.5**, coordination with TPWD was initiated on March 9, 2016 and completed on May 20, 2016 as documented in **Appendix D: Interagency Coordination and Public Involvement**. TxDOT will continue to coordinate with TPWD during the planning and detailed engineering phase of the project. Any terms and conditions presented by TPWD would be included in the EPIC and implemented.

#### 6.1.2 Cultural

TxDOT has completed coordination (**Appendix D: Interagency Coordination and Public Involvement**) for historic and archaeological resources with the THC/SHPO. No additional agency coordination for cultural resources is required at this time. The environmental review, consultation, and other actions required by applicable Federal environmental laws for this proposed project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a MOU dated December 16, 2014, and executed by FHWA and TxDOT. Review and coordination of this proposed project followed approved procedures for compliance with federal and state laws.

### 6.2 PUBLIC

Multiple public outreach activities, including stakeholders meeting, and public meetings have been conducted by TxDOT for the proposed IH 20 Project. Copies of public

outreach documents and summaries of meetings are located in **Appendix D: Interagency Coordination and Public Involvement**.

On July 31, 2015, TxDOT held a stakeholder meeting at the TxDOT Brownwood District office to provide elected officials a status update on the proposed project. A presentation and discussion were held with representatives from the Senator Charles Perry's Office and Representative Jim Keffer's offices, and Judge Rex Fields (Eastland County Judge).

On August 25, 2015, a public meeting was conducted at Ranger High School, 1842 TX-254 Loop, Ranger, TX 76470, from 5:30 to 7:30 p.m. The public meeting was held in an open house format that included a formal presentation and an opportunity for public comment. A total of 25 attendees registered at this meeting, including three elected officials and one public official from TxDOT. A total of five written comments were received during the meeting, and four additional comments were received after the meeting.

On November 19, 2015, a second public meeting was conducted at Ranger High School from 5:00 to 7:00 p.m. in an open house format that included a formal presentation and an opportunity for public comment. Seventeen attendees registered at this meeting, including four elected officials and three public officials from TxDOT. No written comments were received during the meeting, but one written comment was received following the meeting.

A Notice of Availability of the Draft Environmental Assessment and Public Hearing was published in the *Ranger Times/Eastland Telegram/Eastland County Today* on July 28 and August 2, 2016. TxDOT Brownwood District also distributed a press release/media advisory to various media outlets.

On August 16, 2016, a public hearing was conducted at Ranger High School from 5:30 to 7:30 p.m. in an open house format that included a formal presentation and an opportunity for public comment. Thirty-two attendees registered at this meeting, including one elected official and eight public officials from the City of Ranger and TxDOT. No written comments were received during the public hearing, but four written comments were received during the 30-day public comment period (July 28 to August 20, 2016).

Details of all of these meetings and comments received are included in **Appendix D: Interagency Coordination and Public Involvement**.

## **7.0 MITIGATION/PERMITS/ENVIRONMENTAL COMMITMENTS**

### **7.1 HAZARDOUS MATERIALS**

Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal, state and local regulations per TxDOT Standard Specifications. The contractor would take 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 used for this project would be removed as soon as work schedules permit.

### **7.2 STORMWATER**

The proposed project would involve more than five acres of earth disturbance. TxDOT would comply with TCEQ's TPDES CGP. SW3P would be prepared and implemented, and a construction site notice would be posted on the construction site. A NOI would be required.

During construction, BMPs, including temporary erosion, sedimentation, and water pollution controls would be implemented. All temporary erosion controls would be in compliance with TxDOT Standard Specifications and would be in place, according to the construction plans, prior to commencement of construction-related activities. The contractor would take appropriate measures to prevent, minimize, and control the spill of fuels, lubricants, and hazardous materials in the construction staging area.

### **7.3 WATERS OF THE U.S., INCLUDING WETLANDS**

The potential for proposed project-related encroachment-alteration effects on wetlands and waters of the U.S. would be mitigated through permanent (post-construction) BMPs. Wetlands and waters of the U.S. could receive an increased amount of sediment if storm water were released from the proposed project area despite the use of BMPs. To minimize the potential for adverse impacts, BMPs would be regularly and proactively maintained.

#### **7.3.1 Section 404 CWA**

As detailed previously in **Table 5-3**, the placement of temporary or permanent dredge or fill material into waters of the U.S. (including wetlands) that are considered to be jurisdictional would be authorized under a USACE Section 404 NWP 14 for Linear Transportation Projects and PCN would be required because permanent fill impact exceeds the NWP 14 threshold of 0.1 acre of impacts, but are less than 0.50 acre of impacts, and/or because fill would be placed in a special aquatic site (wetland). It is anticipated that permanent impacts to jurisdictional waters and wetlands would occur during construction.

### 7.3.2 Section 401 Water Quality Certification

Since a NWP would be necessary, construction activities would require compliance with the State of Texas Water Quality Certification Program. The 401 Certification requirements for a NWP 14 and SW3P would be met by implementing BMPs from the TCEQ 401 Water Quality Certification Conditions for NWPs.

## 7.4 BIOLOGICAL RESOURCES

The proposed action may affect, and is likely to adversely affect the endangered GCWA and BCVI due to potential harm resulting from removal of breeding habitat. However, compensatory mitigation for habitat loss is not anticipated, due to the proposed project clearing outside of the breeding season, and low quality of the habitat within the action area by BCVI, as documented in the baseline conditions. On June 30, 2016 TxDOT submitted the June 2016 *Biological Assessment for Consultation with USFWS*. Formal Section 7 coordination concluded with the USFWS issuing a BO (02ETAR00-2016-F-0935) on October 21, 2016. TxDOT will continue to coordinate with USFWS during the planning and detailed phase of the proposed project. Terms and conditions presented in the October 21, 2016 USFWS BO would be included in the EPIC and implemented.

In compliance with the MBTA, TxDOT would take all appropriate actions to prevent the take of migratory birds, their active nests, eggs or young by the use of proper phasing of the proposed project or other appropriate actions.

### 7.4.1 EPICS

Several measures designed to either protect or enhance the environment are specifically included in the plans for the proposed project. These measures would be coordinated with the construction contractor through the use of EPIC sheets. These measures are:

- Invasive and alien vegetation would be controlled by following the guidance and provisions of EO 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscape Practices. The proposed seed mixture (both grasses and forbs) would be in accordance with Item 164, *Seeding for Erosion Control* in TxDOT's Standard Specifications for the construction of Highways, Streets, and Bridges.
- Proper maintenance and idling of construction equipment and water sprinkling during construction would be observed to control emissions of particulate matter.
- Good housekeeping measures, as well as grade management techniques would be observed to help ensure that proper precautions are in place throughout construction of the proposed project.
- No hazardous materials would be stored in the ROW.
- A SW3P, construction site notice, and NOI would be required.

- The MBTA of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, egg in part or in whole, without a Federal permit issued in accordance within the Act's policies and regulations. In the event that migratory birds are encountered on-site during proposed project construction, adverse impacts on protected birds, active nests, eggs, and/or young would be avoided. The contractor would remove all old migratory bird nests from September 1 to March 1 from any structure where work will be done. In addition, the contractor would be prepared to prevent migratory birds from building nests between March 1 and September 1, per the EPIC sheet.
- The following BMPs will be implemented for the following species, including these additional measures provided by the USFWS:
  - GCWA and BCVI
    - The contractors will be advised of potential occurrence in the proposed project area, and to avoid harming the species if encountered.
    - Construction would be restricted to daylight hours to prevent continuous disturbance of adjacent habitat areas.
    - Not disturbing, destroying, or removing active nests, including ground nesting birds, during the nesting season.
    - The clearing of woody vegetation would be limited to the existing and new ROWs.
    - To the maximum extent practicable, all vegetation clearing would be conducted prior to the start of the 2017 breeding season for the GCWA and BCVI. However, small, linear strips of woody vegetation adjacent to current ROW may not be cleared in this timeframe due to traffic control issues. Any woody vegetation remaining in the ROW after the initial clearing will either be removed outside of subsequent breeding seasons; removed after nest surveys have concluded no active nests are present; or, if active nests are identified, USFWS will be consulted to discuss other options. TxDOT shall contact the USFWS for approval of survey results before clearing vegetation in the breeding season (March 1 – September 1).
    - Avoiding the removal of unoccupied, inactive nests, as practicable;
    - Preventing the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair;
    - Not collecting, capturing, relocating, or transporting birds, eggs, young, or active nests without a permit.

- Construction activities would be minimized in areas adjacent to occupied GCWA or BCVI habitats. Habitat areas adjacent to the project will be shown on the EPIC sheet and will also be presented by TxDOT at a preconstruction meeting with the contractor. This adjacent GCWA habitat shall not be used as Project Specific Locations (PSLs). Staging areas and PSLs within the ROW would be located away from the GCWA and BCVI habitat on the south side of the proposed new alignment ROW. If any PSLs are to be located within 300 ft of habitat along the edge of the southern ROW, the contractor must notify TxDOT, so that TxDOT can request review and approval from the USFWS.
  - In areas where excavation activities require the use of explosives, blasting would be accomplished in a careful controlled manner, and only after TxDOT has approved a site specific blast plan.
  - After construction is completed, disturbed areas would be seeded with native vegetation, per TxDOT's standard seeding specifications.
  - TxDOT will provide information to the project contractors on how to recognize habitat for the GCWA and BCVI and would advise the contractors to avoid impacting habitat areas outside of the project footprint. TxDOT will remind contractors of their responsibility to comply with all State and Federal regulations, including the Act, and would inform them of the legal and financial ramifications of non-compliance.
  - The contractor must provide necessary information to TxDOT to support USFWS reporting requirements. TxDOT will be responsible for providing the USFWS with biannual reports, in January and July of each year after the issuance date the BO, detailing the construction activities that have occurred in the prior six months, the anticipated construction activities that would occur in the following six months, any known take that has occurred due to vegetation clearing or other activities, any listed species observed during project implementation, any unexpected delays in construction, and all ROW restoration actions. Reports will be submitted by TxDOT for one year after all project construction actions are completed.
- American Peregrine Falcon (*Falco peregrinus anatum*), Arctic Peregrine Falcon (*Falco peregrinus tundrius*), Baird's Sparrow (*Ammodramus bairdii*), and Western Burrowing Owl (*Athene cunicularia hypugaea*)

- BMPs described above for the GCWA and BCVI would also be implemented for these avian species.
- Cave myotis bat (*Myotis velifer*)
  - Bridge bat BMPs and cave/cliff BMPs will be implemented per the TxDOT BMP Programmatic Agreement with TPWD under the 2013 MOU
- Plains spotted skunk (*Spilogale putorius interrupta*), Texas horned lizard (*Phrynosoma cornutum*), and timber rattlesnake (*Crotalus horridus*)
  - Contractors will be advised of potential occurrence in the proposed project area, and to avoid harming the species if encountered, and to avoid unnecessary impacts to habitats if encountered.
- In the event that unanticipated archaeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archaeological staff will be contacted to initiate post-review discovery procedures.
- If any species on the Eastland County threatened and endangered species list is sighted in the proposed project area during construction, stop construction and notify the Area Engineer.

## **7.5 CULTURAL RESOURCES**

In the event of an inadvertent archaeological discovery during construction, work at that location and within the immediate area that would affect the site would cease, and TxDOT archaeological staff would be immediately contacted to initiate post-review discovery procedures. TxDOT, in consultation with THC, will evaluate the need, if any, for further investigations. Construction in the location of the discovery may proceed only after the completion of the investigation in accordance with any applicable permit terms.

## **8.0 CONCLUSION**

The social, economic, and environmental investigations conducted thus far indicate that the Build Alternative best meets the need and purpose of the proposed project and would not substantially impact the human or natural environments. The No Build alternative would not meet the need and purpose of the proposed project. Implementation of the Build Alternative would not be a major federal action substantially affecting the quality of the human environment and thus, the determination of a Finding of No Significant Impact (FONSI) for this proposed project is requested.

## APPENDIX A: MAPS

## **APPENDIX B: TYPICAL SECTIONS AND PROJECT LAYOUT**

## **APPENDIX C: PROJECT PHOTOGRAPHS**

**APPENDIX D: INTERAGENCY COORDINATION AND PUBLIC INVOLVEMENT**

## **APPENDIX E: SUPPORTING DOCUMENTATION**

## **APPENDIX F: REFERENCES CITED**

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