



Draft

Environmental Assessment

Supporting the Proposed Carrizo Springs
Traffic Checkpoint Renovation and
Expansion

Dimmit County, Texas



June

2015

Abbreviations and Acronyms

$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter	NPDES	National Pollutant Discharge Elimination System
ACM	asbestos-containing materials	NRCS	Natural Resources Conservation Service
AIRFA	American Indian Religious Freedom Act	NRHP	National Register of Historic Places
ARHA	Archaeological and Historic Preservation Act	O_3	ozone
AST	aboveground storage tanks	OSHA	Occupational Safety and Health Administration
AT/FP	Anti-terrorism/force protection	OSH	occupational health and safety
B.P.	before present	P.L.	Public Law
BMPs	best management practices	Pb	lead
CAA	Clean Air Act	PCBs	polychlorinated biphenyls
CBP	Customs and Border Protection	percent g	percent of the force of gravity
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	$\text{PM}_{2.5}$	Aerodynamic size less than or equal to 2.5 microns
CEQ	Council on Environmental Quality	PM_{10}	Aerodynamic size less than or equal to 10 microns
CFR	Code of Federal Regulations	PMO	Program Management Office
CO	carbon monoxide	PPE	personal protective equipment
CO_2	carbon dioxide	ppb	parts per billion
CWA	Clean Water Act	ppm	parts per million
dBA	A-weighted decibel	PSD	Prevention of Significant Deterioration
DHS	Department of Homeland Security	RCRA	Resources Conservation and Recovery Act
EA	Environmental Assessment	SALs	State Antiquities Landmarks
EIS	Environmental Impact Statement	SO_2	sulfur dioxide
EO	Executive Order	TAC	Texas Administrative Code
ESA	Endangered Species Act	TCEQ	Texas Commission on Environmental Quality
ESCP	erosion-and-sediment control plan	TMDL	Total Maximum Daily Loads
FONSI	Finding of No Significant Impact	TPDES	Texas Pollutant Discharge System
FPPA	Farmland Protection Policy Act	tpy	tons per year
GHG	Greenhouse Gas	TSCA	Toxic Substances Control Act
Hwy	Highway	TXDOT	Texas Department of Transportation
LBP	lead-based paint	U.S.C.	United States Code
mg/m^3	Milligrams per cubic meter	USACE	U.S. Army Corps of Engineers
mph	miles per hour	USBP	U.S. Border Patrol
msl	mean sea level	USEPA	U.S. Environmental Protection Agency
NAAQS	National Ambient Air Quality Standards	USFWS	U.S. Fish and Wildlife Service
NAGPRA	Native American Graves Protection and Repatriation Act	UST	underground storage tank
NEPA	National Environmental Policy Act	VOC	volatile organic compounds
NHPA	National Historic Preservation Act		
NO_x	nitrogen oxide		
NO_2	nitrogen dioxide		

Cover Sheet

Draft Environmental Assessment Supporting the Proposed Carrizo Springs Traffic Checkpoint Renovation and Expansion Dimmit County, Texas

Responsible Agencies: Department of Homeland Security, U.S. Customs and Border Protection

Affected Location: Carrizo Springs Traffic Checkpoint, Dimmit County, Texas

Report Designation: Draft Environmental Assessment (EA).

Abstract: The Department of Homeland Security and the Border Patrol Facilities & Tactical Infrastructure Program Management Office within the U.S. Customs and Border Protection propose to renovate and expand the existing Carrizo Springs Checkpoint located in Dimmit County, Texas. The infrastructure proposed to be constructed and renovated would include one to three acceleration/deceleration lanes, new signage, booths, canopy, lighting, and structure updates. The existing checkpoint and inspection station currently occupy approximately 0.5 acre along Highway 277 in Texas, 18 miles northwest of the city of Carrizo Springs at the southern end of the U.S. Border Patrol Del Rio Sector. Renovation and expansion of the checkpoint would include acquiring 5 acres of land adjacent to the existing checkpoint in order to construct proper acceleration and deceleration lanes. During construction and renovation activities, 2 acres of land would be temporarily acquired to provide construction staging and access areas.

The EA analyzes and documents potential environmental consequences associated with the Proposed Action. The analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, and a Finding of No Significant Impact is appropriate.

Status updates for the EA may be obtained via the CBP EA website at <http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review> or by emailing joseph.zidron@cbp.dhs.gov. Comments on the EA or information requests may be submitted to Carrizo Springs EA, c/o Mr. Joseph Zidron, U.S. Customs and Border Protection, 24000 Avila Road Suite 5020, Laguna Niguel, CA 92677; or by email at joseph.zidron@cbp.dhs.gov.

Privacy Advisory

Your comments on this document are requested. Letters or other written comments provided may be published in the EA. Comments will normally be addressed in the EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the private citizens making comments and specific comments will be disclosed; personal home addresses and telephone numbers will not be published in the EA.

Draft

**ENVIRONMENTAL ASSESSMENT
SUPPORTING THE PROPOSED CARRIZO SPRINGS
TRAFFIC CHECKPOINT RENOVATION AND EXPANSION
DIMMIT COUNTY, TEXAS**

**DEPARTMENT OF HOMELAND SECURITY
U.S. CUSTOMS AND BORDER PROTECTION**

**1868 Highway 85 East
Carrizo Springs, Texas 78834**

JUNE 2015

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1. Introduction

The Department of Homeland Security (DHS) and the Border Patrol Facilities & Tactical Infrastructure Program Management Office (PMO) within Customs and Border Protection (CBP) propose to renovate and expand the existing Carrizo Springs Checkpoint located in Dimmit County, Texas. The infrastructure proposed to be constructed and renovated would include one to three acceleration/deceleration lanes, new signage, booths, canopy, lighting, and structure updates. The existing checkpoint and inspection station currently occupy approximately 0.5 acre along U.S. Highway (Hwy) 277 in Texas, 18 miles northwest of the city of Carrizo Springs at the southern end of the U.S. Border Patrol (USBP) sector Del Rio Sector (see **Figure 1-1**). Renovation and expansion of the checkpoint would include acquiring 5 acres of land adjacent to the existing checkpoint in order to construct proper acceleration and deceleration lanes. During construction and renovation activities, 2 acres of land would be temporarily acquired to provide construction staging and access areas. Hwy 277 is managed by the Texas Department of Transportation (TXDOT) and the land proposed for acquisition is privately owned. This Environmental Assessment (EA) analyzes the environmental impacts from the renovation and expansion of the Carrizo Springs Checkpoint station.

This EA is organized in six sections plus appendices. **Section 1** provides background information on the existing Carrizo Springs Checkpoint, identifies the purpose of and need for the Proposed Action, describes the area in which the Proposed Action would occur, and explains the public involvement process. **Section 2** provides a detailed description of the Proposed Action and the No Action Alternative. **Section 3** describes existing environmental conditions in the area where the Proposed Action would occur, and identifies potential environmental impacts that could occur within each resource area. **Section 4** contains information on the cumulative impacts that this project combined with other projects in the area may have on the environment. **Section 5** is a list references that were used to develop the EA. **Section 6** is a list of preparers who helped develop the EA. Finally, the appendices include other information pertinent to the development of this EA.

1.1 Background

The Carrizo Springs Checkpoint is approximately 18 miles northwest of Carrizo Springs, and approximately 28 miles southeast of the town of Eagle Pass, Texas. The Carrizo Springs Border Patrol station is responsible for monitoring approximately 2,618 square miles of land coverage and 30 miles of river border coverage in Texas. The checkpoint helps maintain effective control of immediate border area which includes direct conduit from the U.S/Mexico international border along Hwy 277, a two-lane paved road that runs east-west along the border through Eagle Pass to its southern terminus in Carrizo Springs. The checkpoint is currently operated and maintained by five to six USBP agents. **Figure 1-1** provides an aerial of the existing footprint for the checkpoint (CBP 2015).

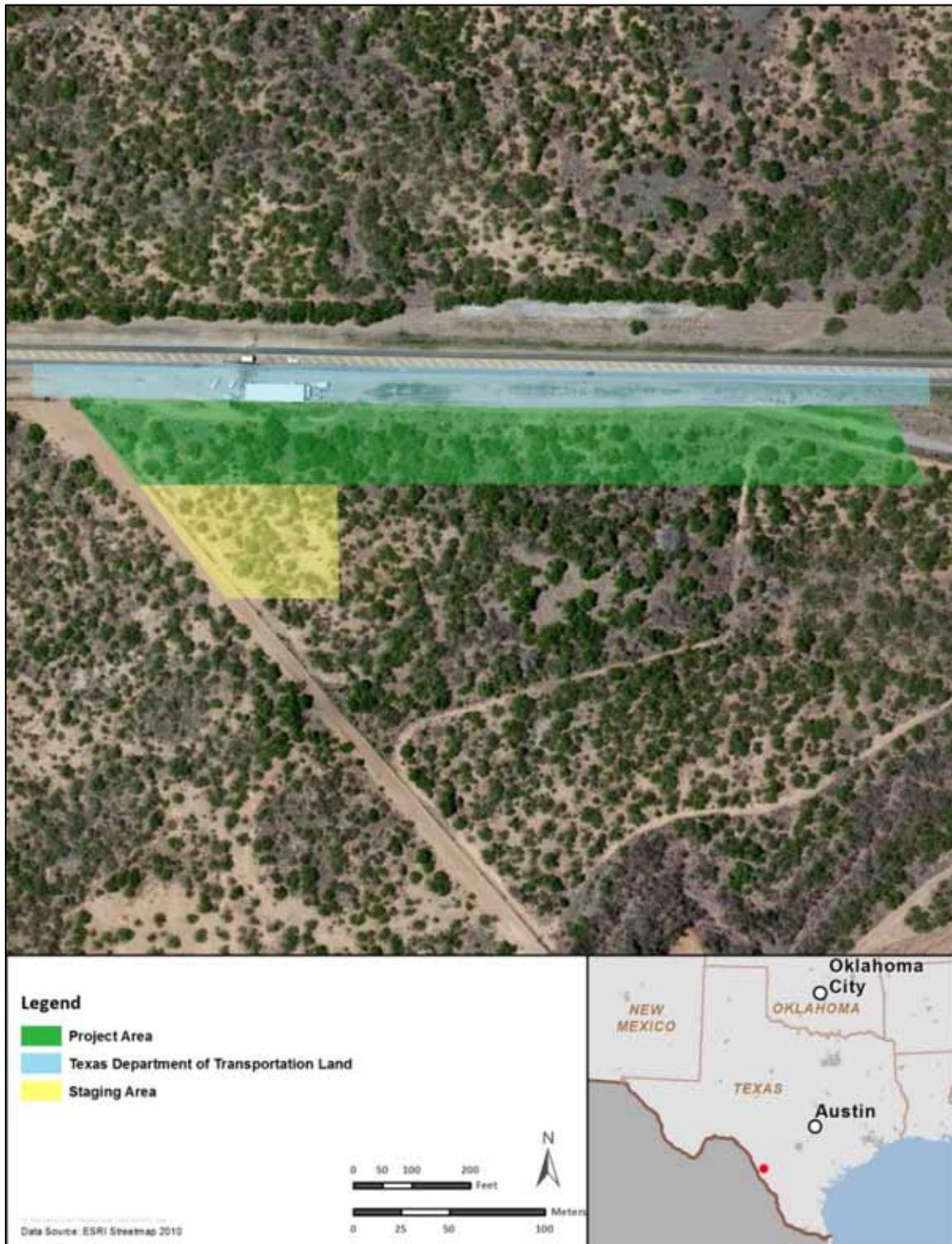


Figure 1-1. Location of Carrizo Springs CBP Checkpoint

Current infrastructure for the Carrizo Springs Checkpoint occupies approximately 0.7 acre adjacent to the southbound lane along the south side of Hwy 277. The current checkpoint building is a 12-year-old elevated modular metal structure with a pre-engineered metal canopy and serves as an inspection station that houses USBP personnel, and includes processing areas and holding cells. The building is listed in fair condition and exhibits various signs of interior and exterior deterioration. Interior deficiencies include replacement or repair of interior finishes and some exterior deficiencies include replacing poor exterior metal wall panel connections, bent exterior stair treads, and deteriorated exterior door weather stripping.

Over the past 4 years, Hwy 277 and the Carrizo Springs Checkpoint have seen a considerable increase in the amount of traffic generated from the Eagle Ford Shale oil and natural gas boom. The Eagle Ford Shale is a geological formation located in southwestern Texas that contains a significant amount of oil and natural gas. The Shale is approximately 50 miles wide, 400 miles long, and an average of 250 feet thick. As a result of advances in fracking technology, oil and natural gas leases related to the Eagle Ford Shale have grown 6,300 percent and 3,600 percent, respectively, from 2009 to 2013 (StateImpact 2015).

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to renovate the Carrizo Springs Checkpoint to ensure that it is able to safely accommodate CBP agents, the public, and the increasing traffic so that the checkpoint can continue to function as intended. USBP checkpoints are a critical enforcement tool for securing the nation's borders against threats by restricting the ability of criminal organizations to exploit roadways traveling away from the border. USBP is committed to ensuring that these checkpoints stay as safe, efficient, and in accordance with existing design guide standards as possible.

The Proposed Action is needed in order to maintain the level of border security provided by the existing checkpoint that could become compromised if the increasing traffic demand is not accommodated. The renovation and construction activities would ensure USBP agent and public safety by securing the nation's borders while minimizing potential vehicular accidents and reducing wait times.

1.3 Framework for Analysis

The National Environmental Policy Act of 1969 (NEPA) is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. The Council on Environmental Quality (CEQ) is the principal Federal agency responsible for the administration of NEPA. CEQ regulations mandate that all Federal agencies use a systematic, interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in 40 Code of Federal Regulations (CFR) 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee Federal policy in this process. CEQ regulations specify that an EA may be prepared to:

- Briefly provide evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI)
- Aid in an agency’s compliance with NEPA when an EIS is unnecessary
- Facilitate preparation of an EIS when one is necessary.

Within DHS and CBP, NEPA is implemented using DHS Directive 023-01 *Environmental Planning Program* and CBP policies and procedures.

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively.”

Within the framework of environmental impact analysis under NEPA, additional authorities that might be applicable include the Clean Air Act (CAA), Clean Water Act (CWA) (including a National Pollutant Discharge Elimination System [NPDES] storm water discharge permit or Section 404 permit), Noise Control Act, Endangered Species Act (ESA), Migratory Bird Treaty Act, National Historic Preservation Act (NHPA), Archaeological Resources Protection Act, Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), and various Executive Orders (EOs). A summary of laws, regulations, and EOs that might be applicable to the Proposed Action is presented in **Appendix A**.

1.4 Public Involvement

Agency and public involvement in the NEPA process promotes open communication between the public and the government and enhances the decisionmaking process. All persons or organizations having a potential interest in the Proposed Action are encouraged to submit input into the decisionmaking process.

NEPA and implementing regulations from the CEQ and DHS direct agencies to make their EAs and EISs available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process.

Through the public involvement process, CBP will notify relevant Federal, state, and local agencies of the Proposed Action and requested input on environmental concerns they might have regarding the Proposed Action. The public involvement process provides CBP with the opportunity to cooperate with and consider state and local views in its decision regarding implementing this Federal proposal.

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2. Proposed Action and Alternatives

2.1 Introduction

This section describes the Proposed Action to renovate and expand the existing Carrizo Springs Checkpoint in Dimmit County, Texas. As discussed in **Section 1.3**, the NEPA process evaluates potential environmental consequences associated with a proposed action and considers the No Action Alternative. Because there are no feasible alternatives for the Proposed Action, none are evaluated in this EA. CEQ regulations specify the inclusion of a No Action Alternative against which potential effects can be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in detail in accordance with CEQ regulations.

2.2 Alternative 1: Proposed Action

CBP intends to renovate and expand the existing Carrizo Springs Checkpoint in Dimmit County, Texas. The checkpoint is currently out-of-date and is not able to fully handle the volume of traffic using Hwy 277 related to the Eagle Ford Shale oil/natural gas boom as efficiently as possible.

Expansion activities would consist of acquiring 5 acres of private land south of Hwy 277 which would be used to construct proper acceleration and deceleration lanes. Along with the 5 acres of land being permanently acquired by CBP, an additional 2 acres of land will be temporarily acquired as construction staging areas and access. The Proposed Action area, including construction of a new checkpoint building and associated infrastructure, is approximately 1 acre within the land to be acquired by CBP. The new checkpoint building would be approximately 2,260 square feet and contain an expanded observation space, weapons storage, four holding rooms, an interview room, evidence and equipment storage, and a metal detection vestibule. Security cameras would be placed strategically on the interior and exterior of the structure. In order to renovate the existing checkpoint new signage, booths, canopy, lighting and structure would also be required. In addition to new signage, booths, canopy and lighting; supplemental, portable light stands may also be deployed at the checkpoint as necessary. Land site improvements would include approximately 1 acre of impervious surface.

Additionally, operation and ongoing maintenance and repair activities are included under the Proposed Action. Day-to-day operations of the updated checkpoint would be similar to current operations and include providing shelter for USBP personnel, surveillance monitoring, and checkpoint vehicle inspections. Maintenance and repair activities would occur as needed at the checkpoint and would include updates to any fencing, building infrastructure, electrical equipment, road repair, and vegetation clearing.

2.3 Alternative 2: No Action Alternative

The No Action Alternative would maintain the status quo. Under the No Action Alternative, CBP would continue to operate the Carrizo Springs Checkpoint as described in **Section 1**. No expansion or renovation would occur under the No Action Alternative.

The checkpoint would continue to be exposed to heavy volumes of traffic that could leave CBP agents and the public vulnerable.

2.4 Alternatives Considered But Eliminated From Further Detailed Analysis

Current operational requirements preclude the relocation of the proposed checkpoint. Upgrades to the proposed checkpoint must meet CBP mission requirements. Therefore, no other alternative locations or site alterations are considered in this analysis.

3. Affected Environment and Environmental Consequences

This section provides a characterization of the affected environment and an analysis of the potential direct and indirect effects each alternative would have on the affected environment. Each alternative was evaluated for its potential to affect physical, biological, and socioeconomic resources. Cumulative and other effects are discussed in **Section 4**. All potentially relevant resource areas were considered in this EA. General descriptions of the eliminated resource areas and the basis for elimination are described in **Section 3.1**.

The following discussion elaborates on the characteristics that might relate to impacts on resources.

- *Short term or long term.* These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term effects are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction activities. Long-term effects are those that are more likely to be persistent and chronic.
- *Direct or indirect.* A direct effect is caused by and occurs contemporaneously at or near the location of the action. An indirect effect is caused by a proposed action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action. For example, a direct effect of erosion on a stream might include sediment-laden waters in the vicinity of the action, whereas an indirect effect of the same erosion might lead to lack of spawning and result in lowered reproduction rates of indigenous fish downstream.
- *Negligible, minor, moderate, or major.* These relative terms are used to characterize the magnitude or intensity of an impact. Negligible effects are generally those that might be perceptible but are at the lower level of detection. A minor effect is slight, but detectable. A moderate effect is readily apparent. A major effect is one that is severely adverse or exceptionally beneficial.
- *Adverse or beneficial.* An adverse effect is one having unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial effect is one having positive outcomes on the man-made or natural environment. A single act might result in adverse effects on one environmental resource and beneficial effects on another resource.
- *Significance.* Significant effects are those that, in their context and due to their intensity (severity), meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27).
- *Context.* The context of an effect can be localized or more widespread (e.g., regional).
- *Intensity.* The intensity of an effect is determined through consideration of several factors, including whether an alternative might have an adverse impact on the

unique characteristics of an area (e.g., historical resources, ecologically critical areas), public health or safety, or endangered or threatened species or designated critical habitat. Effects are also considered in terms of their potential for violation of Federal, state, or local environmental law; their controversial nature; the degree of uncertainty or unknown effects, or unique or unknown risks; if there are precedent-setting effects; and their cumulative effects (see **Section 4**).

3.1 Preliminary Impact Scoping

In accordance with NEPA, CEQ regulations, and DHS Directive 023-01, the following evaluation of environmental impacts focuses on those resources and conditions potentially subject to effects and potentially significant environmental issues deserving of study, and deemphasizes insignificant issues. Some environmental resources and issues that are often analyzed in an EA have been omitted from detailed analysis, specifically aesthetics and visual resources and land use. The following provides the basis for such exclusions.

3.1.1 Aesthetics and Visual Resources

The Proposed Action would not have a significant impact on aesthetics or visual resources. While a small percentage of natural space would be lost to development of the new facility and associated infrastructure, the vast majority of natural space and aesthetics would remain undisturbed. Therefore, no impacts on aesthetic and visual resources would be anticipated.

3.1.2 Land Use

Dimmit County, Texas does not have specific land use classifications for the proposed project area. Carrizo Springs Checkpoint infrastructure includes buildings and an unpaved area used for vehicle parking. The roadside berm is owned and maintained by TXDOT and is mowed on a regular basis. Additionally portions of this part of the project area are covered by an abandoned road grade.

The remaining 5 acres, south of the current infrastructure is used for livestock grazing. Cattle signs, such as grazed forbs and grasses, hoof prints, and soil compaction, are evident throughout this portion of the project area. Remnants of mechanical disturbance (such as windrows and old burned brush piles) indicate that the area has been cleared on numerous occasions and at varying intervals. Grazing areas would be converted to paved asphalt; however, the conversion of open space would be minimal and not require changes to existing land use. As a result, no impacts on land use would be expected.

3.1.3 Environmental Justice

The Proposed Action would not have disproportionate impacts on low-income, minority, or child (people under 18 years old) populations. The existing checkpoint would be renovated in an area that is 17 miles from the nearest city and would only expand into a portion of ranch land that has no housing structures. No populations of individuals would be impacted. As a result, environmental justice and the protection of children are not discussed further.

3.2 Noise

3.2.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one’s ears or as annoying noise. Affected receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Noise Metrics and Federal Regulations. Although human response to noise varies, measurements can be calculated with instruments that record instantaneous sound levels in decibels. A-weighted decibel (dBA) is used to characterize sound levels that can be sensed by the human ear. “A-weighted” denotes the adjustment of the frequency range to what the average human ear can sense when experiencing an audible event. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The threshold of pain occurs at the upper boundary of audibility, which is normally about 135 dBA (USEPA 1981). **Table 3-1** compares common sounds and shows how they rank in terms of the effects of hearing. As shown, a whisper is normally 30 dBA and considered to be very quiet, while an air conditioning unit 20 feet away is considered an intrusive noise at 60 dBA. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10 dBA increase seems twice as loud (USEPA 1981).

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed to is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

Construction Noise. Construction work can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, saws, and other work equipment. **Table 3-2** lists noise levels associated with common types of construction equipment.

Table 3-1. Sound Levels and Human Response

Noise Level (dBA)	Common Sounds	Effect
-------------------	---------------	--------

10	Just audible	Negligible*
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying
90	Heavy truck (50 feet) or city traffic	Very annoying; Hearing damage (8 hours)
100	Garbage truck	Very annoying*
110	Pile drivers	Strained vocal effort*
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Source: FICON 1992. Note: * HDR interpolation

Table 3-2. Estimated Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Clearing and Grading	
Bulldozer	80
Grader	80–93
Truck	83–94
Roller	73–75
Excavation	
Backhoe	72–93
Jackhammer	81–98
Building Construction	
Concrete mixer	74–88
Welding generator	71–82
Pile driver	91–105
Crane	75–87
Paver	86–88

Source: USEPA 1971

3.2.2 Affected Environment

The existing sound environment for the Carrizo Springs Checkpoint is typical of a rural environment and is mainly affected by noise from vehicular traffic utilizing Hwy 277. The Carrizo Springs Checkpoint is in a semi-arid area with sparse vegetation and no nearby residential properties. The checkpoint sits adjacent to Hwy 277, which is a two-lane highway that provides arterial east-west access from Carrizo Springs to Eagle Pass, Texas. The nearest population center to the checkpoint is Carrizo Springs, Texas, which is approximately 18 miles from the checkpoint. There are no sensitive noise receptors within 2,000 feet of the Carrizo Springs Checkpoint.

3.2.3 Environmental Consequences

Noise impact analyses typically evaluate potential changes to the existing noise environment that would result from implementation of a proposed action. Potential changes in the acoustical environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels or reduce the ambient sound level), negligible (i.e., if the total number of sensitive receptors exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased sound exposure to unacceptable noise levels or ultimately increase the ambient sound level).

3.2.3.1 Proposed Action

Impacts on the existing noise environment at the Carrizo Springs Checkpoint would be short-term, negligible and adverse. Impacts would result from noise generated from demolition and construction activities related to the construction of the new checkpoint. Typically, demolition and construction activities involve the use of more than one piece of equipment simultaneously (e.g., paver and haul truck). Examples of expected additive demolition and construction noise during daytime hours at specific distances are shown in **Table 3-3**. These sound levels were predicted at 50, 300, 500, 1,000, and 3,000 feet from the source of the noise.

Table 3-3. Predicted Noise Levels from Construction Activities

Distance from Noise Source	Predicted Noise Level
50 feet	92 dBA
300 feet	76 dBA
500 feet	72 dBA
1,000 feet	66 dBA
3,000 feet	56 dBA

The proposed demolition and construction activities would be expected to generate similar comparable noise levels to those found in **Table 3-3**. Noise generated from heavy equipment during demolition and construction would be higher than noise generated from Hwy 277; however, demolition and construction activities would be temporary.

No impacts on the existing noise environment would be expected from the operation of the proposed checkpoint because the checkpoint would continue to operate at the same levels.

3.2.3.2 No Action Alternative

Under the No Action Alternative, CBP would not construct a new checkpoint along Hwy 277 and the current checkpoint would continue to operate as is. No impacts on the existing noise environment would be expected under the No Action Alternative.

3.3 Air Quality

3.3.1 Definition of the Resource

Air quality is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result not only of the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions in that region.

National Ambient Air Quality Standards (NAAQS). The Clean Air Act, as amended, requires the U.S. Environmental Protection Agency (USEPA) to set NAAQS for pollutants considered harmful to public health and the environment. The USEPA characterizes ambient air quality in terms of compliance with the primary and secondary NAAQS. Primary NAAQS provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The USEPA established NAAQS for six criteria pollutants:

- Carbon monoxide (CO)
- Lead (Pb)
- Nitrogen dioxide (NO₂)
- Ozone (O₃), which results from the presence of nitrogen oxides [NO_x] and volatile organic compounds [VOC] in the atmosphere
- Sulfur dioxide (SO₂)
- Particulate matter (with an aerodynamic size less than or equal to 10 microns [PM₁₀] and with an aerodynamic size less than or equal to 2.5 microns [PM_{2.5}]).

States may either adopt the NAAQS or establish their own more stringent standards. No additional ambient air quality standards have been adopted by the State of Texas. **Table 3-4** provides the primary and secondary NAAQS.

Attainment Versus Nonattainment. The USEPA classifies the air quality in a region according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation means that there is not enough information to appropriately classify an area, so the area is considered attainment.

Greenhouse Gas (GHG) Emissions. GHGs are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Human-caused GHGs are produced primarily by the burning of fossil fuels and through industrial

Table 3-4. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard	Secondary Standard
CO	8-hour ⁽¹⁾	9 ppm (10 mg/m ³)	None
	1-hour ⁽¹⁾	35 ppm (40 mg/m ³)	None
Pb	Rolling 3-Month Average ⁽²⁾	0.15 µg/m ³ ⁽³⁾	Same as Primary
NO₂	Annual ⁽⁴⁾	53 ppb ⁽⁵⁾	Same as Primary
	1-hour ⁽⁶⁾	100 ppb	None
PM₁₀	24-hour ⁽⁷⁾	150 µg/m ³	Same as Primary
PM_{2.5}	Annual ⁽⁸⁾	12 µg/m ³	15 µg/m ³
	24-hour ⁽⁶⁾	35 µg/m ³	Same as Primary
O₃	8-hour ⁽⁹⁾	0.075 ppm ⁽¹⁰⁾	Same as Primary
SO₂	1-hour ⁽¹¹⁾	75 ppb ⁽¹²⁾	None
	Annual ⁽⁴⁾	None	None
	3-hour ⁽¹⁾	None	0.5 ppm
	24-hour block	None	None

Sources: USEPA 2011

Notes: Parenthetical values are approximate equivalent concentrations.

1. Not to be exceeded more than once per year.
2. Not to be exceeded.
3. Final rule signed 15 October 2008. The 1978 standard for Pb (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved. The USEPA designated areas for the new 2008 standard on 8 November 2011.
4. Annual mean.
5. The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
6. 98th percentile, averaged over 3 years.
7. Not to be exceeded more than once per year on average over 3 years.
8. Annual mean, averaged over 3 years.
9. Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
10. Final rule signed 12 March 2008. The 1997 O₃ standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, USEPA revoked the 1-hour O₃ standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour O₃ standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
11. 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
12. Final rule signed 2 June 2010. The 1971 annual (0.3 ppm) and 24-hour (0.14 ppm) SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until 1 year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.
13. Not to be above this level more than twice in a consecutive 7-day period.

Key: ppm = parts per million; ppb = parts per billion; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter

and biological processes. The most common GHGs emitted from human activities include carbon dioxide (CO₂), methane, and nitrous oxide.

3.3.2 Affected Environment

The Carrizo Springs Checkpoint is located in Dimmit County, Texas, which is designated by the USEPA as attainment for all criteria pollutants (USEPA 2015).

There is only one stationary source of air emissions at the Carrizo Springs checkpoint: a 30-kilowatt emergency generator, which is only operated when needed. Mobile sources of air emissions include traffic on Hwy 277, vehicles that are queued at the checkpoint, and CBP vehicles and equipment performing everyday functions.

3.3.3 Environmental Consequences

The environmental consequences on local and regional air quality conditions from a proposed Federal action are determined based upon the increases or decreases in regulated air pollutant emissions and upon existing conditions and ambient air quality. The evaluation criteria are dependent on whether the proposed action is located in an attainment, nonattainment, or maintenance area for criteria pollutants.

For attainment areas, a proposed action would be considered significant if the net increases in pollutant emissions would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Exceed any evaluation criteria established by a state implementation plan
- Cause an increase of 250 tons per year (tpy) of any attainment criteria pollutant from mobile sources.

Although the fourth bullet above (i.e., cause an increase of 250 tpy of any attainment criteria pollutant from mobile sources) is not a regulatory driven threshold, it is being applied as a conservative measure of significance in attainment areas. The rationale for applying this conservative threshold to mobile sources is that it is consistent with the threshold for a Prevention of Significant Deterioration (PSD) major source (i.e., stationary source) in attainment areas.

Because the General Conformity Rule applies only to significant Federal actions in nonattainment or maintenance areas, it is not applicable to this air quality analysis. Therefore, neither an applicability analysis nor a conformity determination is required.

There are no regulatory thresholds of significance for GHG emissions; however, the CEQ released the *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, which suggests that 25,000 metric tpy of CO₂-equivalent is a meaningful reference point for when to consider GHG emissions in NEPA documentation. CO₂ emissions are provided in this EA for information and comparison purposes.

3.3.3.1 Proposed Action

Short-term, negligible, adverse effects on air quality would occur from the proposed renovation and expansion of the Carrizo Springs Checkpoint. The proposed demolition and construction activities would generate air pollutant emissions from site-disturbing and the operation of construction equipment (mobile sources). Demolition and construction activities would also generate particulate matter emissions as fugitive dust from ground-disturbing activities and from the combustion of fuels in construction equipment. Construction workers commuting daily to and from the job site in their personal vehicles would also generate regulated pollutant air emissions. Emissions from demolition and construction activities would be produced only for the duration of demolition and construction activities which, for the purposes of this air quality analysis, is conservatively assumed to be 12 calendar months or 240 workdays.

Demolition and construction activities would incorporate best management practices to minimize fugitive particulate matter emissions. Work vehicles would be well maintained and could use diesel particulate filters to reduce particulate matter emissions.

Demolition and construction activities would contribute directly to emissions of GHGs from the combustion of fossil fuels. The estimated emission of CO₂ from demolition and construction is estimated to be 676.1 metric tpy, which is approximately 2.7 percent of the 25,000 metric tpy of CO₂-equivalent meaningful assessment reference point established by the CEQ. Because CO₂ represents the overwhelming majority of GHGs from motor vehicle fuel combustion, an estimate of methane and nitrous oxide emissions converted to CO₂-equivalent is unnecessary.

An air emissions analysis containing detailed calculations and assumptions was conducted for the proposed demolition and construction activities, which is summarized in **Table 3-5** and shown in detail in **Appendix D**. In summary, the increase in air emissions from the demolition and construction activities is below applicable significance criteria.

Table 3-5. Summary of Renovation and Expansion Emissions

	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	CO ₂ (metric tpy)
Air Emissions							
Combustion	5.029	0.471	2.206	0.399	0.359	0.348	518.176
Fugitive Dust	-	-	-	-	10.270	1.027	-
Haul Truck On-Road	0.034	0.003	0.018	0.000	0.001	0.001	8.099
Construction Commuter	0.116	0.119	1.148	0.002	0.013	0.009	149.863
Total Renovation and Expansion Emissions	5.179	0.594	3.373	0.401	10.644	1.385	676.137
Significance Criteria Threshold for Mobile Sources							
Attainment Area Significance Criteria	250	250	250	250	250	250	25,000

Long-term, negligible, beneficial effects on air quality are expected to result from replacing the existing 30-kilowatt backup generator with a new backup generator of the same power output. While the replacement generator would operate for approximately the same number of hours per year, a net reduction in air emissions is expected because the replacement generator would be new and, therefore, meet stricter air emission standards. Installation of the replacement generator could necessitate the acquisition of a state-level air quality construction permit or permit-by-rule from the Texas Commission on Environmental Quality (TCEQ). The unclassified/attainment designation for the area means that nonattainment New Source Review permitting does not apply. Potential air emissions from the replacement generator are assumed to be well below the PSD major source and Title V operating permit thresholds for all pollutants.

The construction of the second checkpoint lane on Hwy 277 would allow two vehicles to be processed simultaneously and consequently reduce wait times. Fast processing would reduce the number of vehicles queuing and, in turn, slightly reduce air emissions from idling vehicles. The number of CBP personnel assigned to the proposed checkpoint is expected to increase slightly under the Proposed Action; however, no new vehicles or equipment to perform everyday functions would be added.

3.3.3.2 No Action Alternative

No impacts on air quality would occur under the No Action Alternative. Under the No Action Alternative, CBP would not renovate and expand the checkpoint and would continue to operate the existing checkpoint. The existing 30-kilowatt backup generator would remain in service.

3.4 Geological Resources

3.4.1 Definition of the Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of topography and physiography, geology, soils, and, where applicable, geologic hazards and paleontology. Topography and physiography pertain to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features. Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Prime farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and that is also

available for these uses. The implementing procedures of the FPPA require Federal agencies to evaluate the adverse effects of their activities on prime and unique farmland, and farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects. The Natural Resources Conservation Service (NRCS) is responsible for overseeing compliance with the FPPA and has developed the rules and regulations for implementation of the Act (see 7 CFR 658, 5 July 1984).

3.4.2 Affected Environment

Regional Geography. The Carrizo Springs Checkpoint lies within the Interior Coastal Plains subprovince of the Gulf Coastal Plains province of Texas. The Interior Coastal Plain of Texas comprises belts of uncemented sands among shales that erode into sandy ridges. In addition, young deltaic sands, silts and clays erode to flat grasslands that form almost imperceptible slopes to the southeast. Two fault systems within the subprovince trend parallel to the coastline (UT at Austin 1996).

Topography. The majority of the project area is relatively flat due to its proximity with Hwy 277 and the level terrain associated with the existing Carrizo Springs Checkpoint. The project area sits at approximately 650 feet above mean sea level (msl) (USGS 2012).

Soils. Brundage fine sandy loam is the only soil identified within the project area by NRCS. This soil type is characterized by fine sandy loam on top of sandy clay loam and is moderately well drained. Slopes within this unit typically range from 0 to 1 percent but average 0.5 percent. Surface runoff for this soil type is slow and the available water capacity is low. Water erosion is a slight hazard and wind erosion is a moderate hazard for the Brundage soil series (USDA 1981, NRCS 2015)

Prime Farmland. There is no prime farmland identified within the project area. Therefore, prime farmland is removed from analysis.

Geologic Hazards. The 2014 Texas Seismic Hazard Map shows that the seismic hazard for the Proposed Action ranges from 2 to 4 percent of the force of gravity (percent g). This indicates that seismic events are uncommon and in the event of a seismic activity, little damage would be expected to occur (USGS 2014).

3.4.3 Environmental Consequences

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential effects of a proposed action on geological resources. Generally, adverse effects can be avoided or minimized if proper construction techniques, erosion-control measures, and structural engineering design are incorporated into project development.

Effects on geology and soils would be significant if they would alter the lithology (i.e., the character of a rock formation), stratigraphy (i.e., the layering of sedimentary rocks), and geological structures that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or change the soil composition, structure, or function within the environment.

3.4.3.1 Proposed Action

Regional Geography. No impacts on regional geography would be anticipated from implementation of the Proposed Action.

Topography. Long-term, negligible to minor, adverse impacts would be expected on topography from implementation of the Proposed Action. Areas that have been previously disturbed from development related to the existing Carrizo Springs Checkpoint would have negligible impacts due to these areas already being previously developed and graded.

Because the footprint for the new checkpoint would be slightly larger than the existing checkpoint, additional previously ungraded land would require appropriate grading. In addition, use of ground moving equipment and staging areas would result in alteration of existing topography.

Soils. Short-term, negligible, adverse impacts to soils would be expected from the implementation of the Proposed Action. Soils would become disturbed or compacted during demolition and construction activities which would leave soil susceptible to water and wind erosion. An erosion and sediment control plan (ESCP) would be developed and implemented during demolition and construction activities in order to contain soil and runoff on site through use of measures such as silt curtains and reduce potential for adverse effects associated with erosion and sedimentation and transport of sediments in runoff.

Geologic Hazards. Earthquakes within the area of the Proposed Action are unlikely as there hasn't been one in the area of the Proposed Action since 1973 and the seismic hazard rating is very low (USGS 2014, USGS 2015).

3.4.3.2 No Action Alternative

Under the No Action Alternative, CBP would not construct a new checkpoint along Hwy 277 and the current checkpoint would continue to operate as is. No impacts on geological resources would be expected under the No Action Alternative.

3.5 Biological Resources

3.5.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests, and wetlands) in which they exist. Protected and sensitive biological resources include listed (threatened or endangered) and proposed species under the ESA as designated by the U.S. Fish and Wildlife Service (USFWS), state-listed threatened or endangered species, and migratory birds.

Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the ESA and sensitive ecological areas as designated by state or Federal rulings. Critical habitat is designated if the USFWS determines that it is essential to a threatened or endangered species' conservation. Federal agencies are required to ensure that their activities do not adversely modify or destroy critical habitat to the point that it will no longer aid in the species' recovery. Sensitive habitats also include wetlands, plant

communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer and winter habitats).

3.5.2 Affected Environment

Vegetation. The project occurs in the South Texas Plains ecoregion, the northern extent of the Tamaulipan biotic province. This province includes south Texas and portions of the states of Coahuila, Nuevo Leon, and Tamaulipas in Mexico. The native vegetation covering much of northeastern Mexico and parts of south Texas is mesquite (*Prosopis glandulosa*) dominated thornscrub and grasslands. The Tamaulipan province extends south of the Texas/Mexico border for almost 200 miles between the Gulf Coast and the deciduous woodlands on the slopes of the Sierra Madre Oriental. The Tamaulipan thornscrub, a subtropical, semi-arid vegetation type, occurs on either side of the Rio Grande. Spiny shrubs and trees dominate this thornscrub, but grasses, forbs, and succulents are also prominent (GDET 2006). The preliminary literature review and desktop analysis indicated that vegetation within the project area consists of some assemblage of Tamaulipan thornscrub.

A field species survey was conducted in April 2015 within the approximately 7 acre project and staging area; henceforth referred to as the project area (see **Figure 1-1**). Survey results showed that the majority of the project area (approximately 5.1 acres) is dominated by mesquite and can most accurately be classified as the Tamaulipan Mixed Deciduous Thornscrub Vegetation Alliance (NatureServe 2015). In addition to mesquite, other commonly observed shrub and tree species include desert hackberry (*Celtis pallida*), lotebush (*Ziziphus obtusifolia*), twisted acacia (*Acacia schaffneri*), whitebrush (*Aloysia gratissima*), and false broomweed (*Xylothamia palmeri*). Other shrub species observed infrequently include hogplum (*Colubrina texensis*), iron-wood (*Guaiacum angustifolia*), and leather stem (*Jatropha dioica*). This tree and shrub species layer is absent in large areas and, combined, makes up approximately 40 percent of canopy cover throughout this portion of the project area. While certain areas consist of mesquite and shrub stands, this portion of the project area generally has an open canopy layer (see **Figure 3-1**).

Herbaceous vegetation within this portion of the project area varies in abundance and diversity; however, there is generally a high percentage of bare soil resulting in large spacing between plants. The herbaceous layer of vegetation is both a combination of native and nonnative species. Dominant herbaceous plant species include buffelgrass (*Pennisetum ciliare*), pink pappusgrass (*Pappophorum bicolor*), camphorweed (*Heterotheca subaxillaris*), American wild carrot (*Daucus pusillus*), Texas Indian mallow (*Abutilon fruticosum*), Texas thistle (*Cirsium texana*), spring pygmyweed (*Evax verna*), and Texas bindweed (*Convolvulus equitans*).

In addition to the Tamaulipan Mixed Deciduous Thornscrub, approximately 1.2 acre of the project area is maintained grassland along the northeastern boundary and the Hwy 277 roadside shoulder. This frequently mowed area consists of both native and nonnative forbs and grass species. Dominant plant species within this portion of the project area consist of King Ranch bluestem (*Bothriochloa ischaemum var. songarica*), rescue grass (*Ceratochloa cathartica*), bermudagrass (*Cynodon dactylon*), common sowthistle (*Sonchus oleraceus*), stinkweed (*Chenopodium berlandieri*), sour clover (*Melilotus*

indicus), and silverleaf nightshade (*Solanum elaeagnifolium*). The remaining 0.7 acre consists of current infrastructure, parking, and roadway for the Carrizo Springs Checkpoint and is not vegetated.



Figure 3-1. Mesquite Dominated Canopy with Buffelgrass Dominated Herbaceous Layer within the Project Area

Wildlife. Wildlife species were observed by visual observation, vocalization, or sign (e.g., tracks, burrows, scat). The most abundant wildlife species observed was the great-tailed grackle (*Quiscalus mexicanus*) of which a colony of nests were observed along the northern boundary of the project area. Additionally observed avian species include crested caracara (*Caracara cheriway*), turkey vulture (*Cathartes aura*), northern mockingbird (*Mimus polyglottos*), black-throated sparrow (*Amphispiza bilineata*), summer tanager (*Pirangra rubra*), Bullock's oriole (*Icterus bullockii*), and hooded oriole (*Icterus cucullatus*). All of the avian species observed are protected by the Migratory Bird Treaty Act. One small mammal, the Mexican ground squirrel (*Spermophilus mexicanus*) was also observed. While mammal observations were limited, a few active mammal burrows were observed during the surveys, which could be used by the striped skunk (*Mephitis mephitis*). Invertebrates observed include the red harvester ant (*Pogonomyrmex barbatus*), blister beetle (*Pyrota* sp.), and dung beetle (*Canthon imitator*).

Special Status Species. Five federally listed animal species occur or have the potential to occur in Dimmit County. Based on the habitat descriptions and survey results described previously, none of these species are likely to occur within the project area and none of these species were observed during the qualitative assessment of the project area. **Appendix C** provides habitat and range descriptions for each of these species and provides justification for the conclusion that they are unlikely to occur.

Of the 19 state-listed species known to occur or have the potential to occur in Dimmit County, Texas, 6 species are unlikely to occur in the project area. This determination is based on these species ranges and habitat associations along with the project area settings and field and desktop analysis. These species and their associated habitats and distribution are listed in **Appendix C**.

The remaining 13 species (5 reptile, 3 bird, 3 mammal, 1 insect, and 1 plant), may occur, or are known to occur within or near the project area. These species are summarized in **Table 3-6**. Five of those species are listed by Texas Parks and Wildlife Department as state threatened: the white-nosed coati (*Nasua narica*), reticulate collared lizard (*Crotaphytus reticulatus*), Texas horned lizard (*Phrynosoma cornutum*), Texas indigo snake (*Drymarchon melanurus erebennus*), and Texas tortoise (*Gopherus berlandieri*). The remaining eight species are listed as rare species by the Texas Parks and Wildlife Department: Audubon's oriole (*Icterus graduacauda audubonii*), Mexican hooded oriole (*Icterus cucullatus cucullatus*), Sennett's hooded oriole (*Icterus cucullatus sennetti*), neojunvenile tiger beetle (*Cicindela obsoleta neojunivilis*), Carrizo Springs pocket gopher (Carrizo Springs pocket gopher), cave myotis (*Myotis velifer*), spot-tailed earless lizard (*Holbrookia lacerata*), and Dimmit sunflower (*Helianthus praecox ssp hirtus*).

Of the three bird species that may occur in the project area, the Audubon's oriole is a year-round resident of south Texas while the two subspecies of hooded oriole, the Mexican hooded oriole and Sennett's hooded oriole, are summer residents to the region (Lockwood and Freeman 2014). While ideal nesting habitat was not observed, all three of these species could potentially nest within the project area. During the survey of the project area, two pairs (two males and two females) of either the Sennett's or Mexican hooded oriole (**Figure 3-2**) were observed displaying territorial behavior along the northern boundary of the project area. Nests were not observed; however, their behavior indicated that they may be breeding in or near the project area.

Of the three mammals that may occur in the project area (**Table 3-6**), the cave myotis and white-nosed coati would likely only use the project area temporarily for food or en route to more suitable habitat. Habitats are not ideal for either of these species to become residents within the project area. The Carrizo Springs pocket gopher also may occur in the project area; however, no signs of gophers such as burrows were observed during the survey.

Table 3-6. State Listed Species Known to Occur or Have the Potential to Occur in the Project Area

Species		Listing Status	Habitat*	Likelihood of Occurrence/ Determination
Birds				
Audobon's oriole	<i>Icterus graduacauda audubonii</i>	R	Scrub, mesquite; nests in dense trees, or thickets, usually along water courses.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Mexican hooded oriole**	<i>Icterus cucullatus cucullatus</i>	R	Thick riparian vegetation.	Known to occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Sennett's hooded oriole**	<i>Icterus cucullatus sennetti</i>	R	Builds nests in Spanish moss (<i>Tillandsia usneoides</i>). Breeding March to August.	Known to occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Insects				
Neojvenile tiger beetle	<i>Cicindela obsoleta neojvenilis</i>	R	Bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Mammals				
Carrizo Springs pocket gopher	<i>Geomys personatus streckeri</i>	R	Underground burrows of deep, sandy soils; feed mostly on vegetation	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Cave Myotis	<i>Myotis velifer</i>	R	Roosts in caves and tunnels.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
White-nosed coati	<i>Nasua narica</i>	T	Woodlands, riparian corridors and canyons.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.

Species		Listing Status	Habitat*	Likelihood of Occurrence/ Determination
Reptiles				
Reticulate collared lizard	<i>Crotaphytus reticulatus</i>	T	Open brush-grasslands; thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils; often on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Spot-tailed earless lizard	<i>Holbrookia lacerata</i>	R	Moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Texas horned lizard	<i>Phrynosoma cornutum</i>	T	Arid and semi-arid regions with sparse vegetation, including shrubs, grasses, and cacti.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.
Texas indigo snake	<i>Drymarchon melanurus erebennus</i>	T	Thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; requires moist microhabitats, such as rodent burrows, for shelter.	May occur. Long-term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.
Texas tortoise	<i>Gopherus berlandieri</i>	T	Scrub and brushlands with sandy, well-draining soils.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts. .
Plants				
Dimmit sunflower	<i>Helianthus praecox ssp hirtus</i>	R	Bluestem midgrass grasslands on loose, well-drained, slightly acid, deep, sandy soils, mostly of Antosa-Bobilla Association and Poteet Series; underlain by Carrizo Sand Formation; flowering late summer-fall.	May occur. Long-term negligible direct and indirect adverse impacts. Short-term minor to no direct and indirect adverse impacts.

Key: R = State Rare and Wildlife Rare; T = State Threatened

*Source: TPWD 2015

**Hooded orioles were observed within the project area; however, a subspecies was not determined.



Figure 3-2. Male Hooded Oriole Observed in the Project Area

While habitat within the project area is suitable for all five reptiles that may occur in the project area, no reptiles were observed during the survey; however, the surveys were conducted during overcast conditions with temperatures around 65 degrees Fahrenheit (18 degrees Celsius), which are not ideal conditions for reptile activity. All three lizards occupy well-drained and open to moderately open shrublands (TPWD 2015). During the survey, harvester ants (*Pogonomyrmex* sp.) were documented regularly throughout the project area. These insects are a primary food source for the Texas horned lizard, and their presence indicates a high probability of Texas horned lizards occupying the area (TPWD 2015). The Texas indigo snake prefers dense riparian areas (TPWD 2015); however, due to the proximity to Cayetano Creek it is likely that this snake could occur occasionally in the project area. The project area conditions are suitable for tortoise burrowing; however, signs of Texas tortoise disturbance were not observed during the survey

The neojunvenile tiger beetle occurs in bare or sparsely vegetated dry, hard-packed soil, typically in disturbed sites (TPWD 2015). The tiger beetle was not identified during the field survey; however, project area conditions and previous disturbance make this area potentially suitable for this insect.

The Dimmit sunflower (*Helianthus praecox* ssp *hirtus*) is a subspecies of the Texas sunflower (*Helianthus praecox*) that is difficult to discern between other closely related *Helianthus* species and impossible to identify unless the plant is flowering (Turner 2014). A recent regional survey estimated that public lands contain up to 1.7 million individuals

which comprise 35–40 populations. It is documented entirely within the same sub-watershed in which the project area is located. Based on the location and habitat (well-drained sandy soils in open shrublands or shrub-invaded grasslands), the Dimmit sunflower has the potential to occur on the project area. During the field surveys, the common sunflower (*Helianthus annuus*) was documented across the project area. Additionally, two individuals of another plant that resembles a *Helianthus* species was also documented along the undeveloped highway shoulder just east of the current check point infrastructure; however, there were not enough diagnostic characteristics available, such as the inflorescence, to be able to readily discount the plant as a *Helianthus* or to identify the plant to species.

3.5.3 Environmental Consequences

Ground disturbance and noise associated with construction activities have the potential to cause direct or indirect adverse effects on biological resources. Effects can include disturbance, injury, or mortality of individual plants or animals, as well as habitat removal, damage, or degradation. The context and intensity of the effects to determine whether they were significant were evaluated based on the nature and location of activities relative to important biological resources, the magnitude of the effects, the number of species or individuals involved, amount of habitat affected relative to the total available habitat within the region and the type of stressors involved.

3.5.3.1 Proposed Action

Short- and long-term, negligible to minor, adverse impacts on vegetation would be expected from the temporary disturbances during construction and demolition activities (e.g., trampling, crushing, and removal) and from the permanent removal of vegetation from the construction of a new facility and supporting infrastructure. However, adverse impacts on vegetation would be minimized through the use of appropriate best management practices (BMPs).

A variety of nonnative vegetation occurs throughout the project area. Disturbances to the canopy or ground surface in the forested habitat could also allow opportunities for nonnative and invasive species to establish or spread within forested habitat. BMPs such as the following would be implemented during and following construction and demolition activities to prevent the establishment or spread of nonnative species:

- Inspect and clean construction equipment to remove soil, plants, and seeds
- Stage equipment in areas free of nonnative plant species
- Use certified weed-free materials (e.g., grass seed, mulch, gravel, sand).

In addition, disturbed sites could be promptly revegetated with native plant species.

Short- and long-term, negligible to minor, direct and indirect, adverse effects on wildlife would occur from the Proposed Action. Temporary impacts on wildlife would be expected due to noise disturbances from construction and demolition activities, which include heavy equipment use. Loud noise events could cause wildlife to engage in escape or avoidance behaviors; however, these effects would be temporary. Increases in ambient noise can reduce communication, inhibit predator detection, and increase energy

expenditures in wildlife species. Noise can also distort or mask bird communications signals (e.g., songs, warning calls, fledgling begging calls) and their ability to find prey or detect predators. If noise persists in a particular area, animals could leave their habitat and avoid it permanently. Wildlife species occurring in the area would be expected to be habituated to high levels of noise due to their proximity to the airfield. Most wildlife species would be expected to recover quickly from noise disturbance once the construction activities have ceased for the day and after the construction and demolition period is complete. Noises associated with construction and demolition activities would only be expected to affect individual animals within close proximity to the noise sources. As a result, population-level impacts would not be expected to occur.

Habitat removed under the Proposed Action would be classified as the Tamaulipan Mixed Deciduous Thornscrub Vegetation Alliance, which is primarily dominated by mesquite. However, the vast majority of available habitat in the surrounding area would not be affected by the Proposed Action. Wildlife would be able to relocate to adjacent habitat. As a result, impacts on wildlife habitat would be negligible.

No federally threatened or endangered species have been identified in or adjacent to the project area; therefore, no effects on federally listed threatened or endangered species would be expected from the Proposed Action. Temporary impacts on special status state-listed species could occur from noise and ground disturbing activities associated with construction and demolition activities. The contribution of noise disturbances from construction and demolition activities under the Proposed Action to the ambient noise environment would be negligible and temporary. Habitat removal would be minor and would not preclude the use of habitat by any rare, threatened or endangered species. Although very unlikely, if a population of state-listed species were discovered within the project area, it would be protected from disturbance to the greatest extent practicable.

Several migratory birds were documented during the project area survey. Great-tailed grackles were documented nesting; these migratory birds are protected by the Migratory Bird Treaty Act. In order to avoid disturbing this species or any other migratory bird that may utilize the project area, it is recommended that any land clearing activities associated with this project take place outside of bird breeding season. While some species can breed year round in south Texas, the bird breeding season is considered 15 March to 15 September. If construction cannot be avoided during this window, a survey could be conducted to identify migratory bird nests, in order to avoid any active nests and unintentional take of migratory birds.

3.5.3.2 No Action Alternative

Under the No Action Alternative, the expansion of the Carrizo Springs Checkpoint would not occur. Vegetation adjacent to the current station would not be removed and no impacts on biological resources would be expected.

3.6 Cultural Resources

3.6.1 Definition of the Resource

“Cultural resources” is an umbrella term for many heritage-related resources defined in several Federal laws and Eos, including the NHPA, the Archeological and Historic

Preservation Act (ARHA), the American Indian Religious Freedom Act (AIRFA), the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act (NAGPRA). The NHPA focuses on cultural resources such as prehistoric and historic sites, buildings and structures, districts, or other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or other reasons. Such resources might provide insight into the cultural practices of previous civilizations or retain cultural and religious significance to modern groups. Resources judged important under criteria established in the NHPA are considered eligible for listing in the National Register of Historic Places (NRHP). These resources are termed “historic properties” and are protected under the NHPA.

NAGPRA requires consultation with culturally affiliated Native American tribes for the disposition of Native American human remains, burial goods, and cultural items recovered from federally owned or controlled lands. Typically, cultural resources are subdivided into archaeological sites (prehistoric or historic sites containing physical evidence of human activity but no standing structures); architectural sites (buildings or other structures or groups of structures, or designed landscapes that are of historic or aesthetic significance); and sites of traditional, religious, or cultural significance to Native American tribes.

Archaeological resources comprise areas where human activity has measurably altered the earth or deposits of physical remains are found (i.e., artifacts). Architectural resources include standing buildings, bridges, dams, and other structures of historic or aesthetic significance. Generally, architectural resources must be more than 50 years old to warrant consideration for the NRHP. More recent structures, such as Cold War-era resources, might warrant protection if they are of exceptional importance or have the potential to gain significance in the future. Resources of traditional, religious, or cultural significance to Native American tribes can include archaeological resources, sacred sites, structures, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans consider essential for the preservation of their traditional culture.

3.6.2 Affected Environment

Site Records. Numerous cultural resources investigations, including survey, testing, and data recovery, have been conducted within Dimmit County and have shown that this part of Texas has been inhabited by human populations since approximately 10,000 before present (B.P.).

According to the Texas Historical Commission’s restricted Texas Archeological Sites Atlas, there are no known archaeological sites within a one-mile radius of the project area, and no previous surveys have been conducted (THC 2015). The project area contains no cemetery, no historical markers, no NRHP listed/eligible properties or districts, and no State Antiquities Landmarks (SALs) within a one-mile radius.

Area History. A review of relevant archeological publications for the project area suggests that historic patterns of occupation and land use within the area are very similar to those documented elsewhere in southwestern Texas. In general, early Dimmit County was isolated and rural. Trade was limited by the primitive modes and avenues of

transportation; most early settlers strived for self-sufficiency and grew a variety of crops to meet the basic needs of their families.

The first permanent settlement in Dimmit County was in 1865 when 15 families, led by Levi English, moved to Carrizo Springs, the current county seat. Ranching in the county remained a dangerous pursuit until the Native Americans were forced out of the county in 1877 and the decline of banditry in the 1880s. By 1890, the county had grown and become firmly established. The economy in the county was centered on ranching, primarily cattle, but sheep ranching was also prominent until 1900. Farming was also part of the local economy but was restricted by the limited rainfall, and most farms were devoted to corn. Over time, Mexican immigrants began to supplant the white Americans who originally settled the county and by 1930, Mexican Americans constituted two-thirds of the Dimmit County population (Leffler 2015). The 1960s saw much of the land revert from farmland to rangeland. Oil discoveries in the county began in 1903 and by the 1960s, oil and gas were central to the Dimmit County economy. By 1980, approximately three-fourths of the county's income came from oil and gas, and the remainder was derived from cattle ranching (Leffler 2015).

A cultural resources survey was conducted in the project area in April 2015 to determine the presence/absence of archaeological resources (36 CFR 800.4) and to evaluate identified resources for their eligibility for inclusion in the NRHP, as per Section 106 (36 CFR 800) of the National Historic Preservation Act of 1966, as amended, or as a designated SAL under the Antiquities Code of Texas (13 *Texas Administrative Code* [TAC] 26.12).

3.6.3 Environmental Consequences

Adverse effects on cultural resources can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or that alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

Ground-disturbing activities associated with the implementation of the proposed action constitute the most relevant potential impact on cultural resources.

3.6.3.1 Proposed Action

No impacts on cultural resources would be expected from the implementation of the Proposed Action. Per the recent cultural resources survey, disturbances related to Hwy 277 were noted, and asphalt fragments were identified throughout the project area. One prehistoric, non-site isolated find (CS-ISO-001) was identified during the course of the survey, consisting of one alibates flake fragment adjacent to a gravel push pile. Due to the lack of additional artifacts identified in association with the flake, this isolated find does not meet the definition of a site and, therefore, is not eligible for inclusion in the NRHP. No archaeological sites were identified during the investigation. In accordance with 36 CFR 800 and 13 TAC 26, no further archaeological investigations are recommended. Due to the lack of previously-recorded archaeological sites or NRHP

resources within a one-mile radius of the project area, as well as the negative survey findings discussed above, it is unlikely that the proposed renovation of the Carrizo Springs Checkpoint within the 7-acre project area affect cultural resources in the project area. No further archaeological investigations are necessary for this project area. CBP has determined there would be no effect on cultural resources.

3.6.3.2 No Action Alternative

No impacts on cultural resources would be expected under the No Action Alternative. Under the No Action Alternative, CBP would not renovate and expand the checkpoint along Hwy 277 and would continue to operate the existing checkpoint.

3.7 Water Resources

3.7.1 Definition of the Resource

Groundwater is a subsurface hydrologic resource. It functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater typically can be described in terms of its depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations.

Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Waters of the United States are defined under Section 404 of the CWA, as amended, as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries. Waters of the United States are regulated by the USEPA and the U.S. Army Corps of Engineers (USACE). Section 303(d) of the CWA requires that Texas establish a list to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the sources causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a water body without causing impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards, established by the CWA, occur.

The CWA (33 United States Code [U.S.C.] Section 1251 et. seq., as amended) establishes Federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., storm water) of water pollution. The state of Texas assumed the authority to administer the NPDES program in Texas on 14 September 1998. The TCEQ Texas Pollutant Discharge Elimination System (TPDES) program now has federal regulatory authority over discharges of pollutants to Texas surface water, with the exception of discharges associated with oil, gas, and geothermal exploration and development activities, which are regulated by the Railroad Commission of Texas.

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation

of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body.

Floodplains are protected under EO 11988, *Floodplain Management*. If action by a Federal agency is taken that encroaches within the floodplain and alters the flood hazards designated on a National Flood Insurance Rate Map (e.g., changes to the floodplain boundary), an analysis reflecting any changes must be submitted to the Federal Emergency Management Agency (FEMA). Flood potential is evaluated by FEMA, which defines the 100-year floodplain as the area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities, such as hospitals, schools, or storage buildings for irreplaceable records, inherently pose too great a risk to be in either the 100- or 500-year floodplain. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

No wetlands exist within or directly adjacent to the project area and are not discussed further (USFWS 2015c).

3.7.2 Affected Environment

Groundwater. The Carrizo-Wilcox aquifer underlies the project area and is composed of sand locally interbedded with gravel, silt, clay, and lignite. The freshwater thickness of the sands averages 670 feet and typically contains less than 500 milligrams per liter of total dissolved solids in the outcrop. Deeper portions of the aquifer are characterized by high iron and manganese content. More than half of the water pumped from the aquifer is for irrigation with another 40 percent used for municipal water supplies. Total groundwater level declines in the aquifer within the project area are less than 50 feet but are in excess of 300 feet in the northeastern portion of Dimmit County (TWDB 2011).

Surface Water. The project area generally drains in an eastern and southeastern direction and occurs in the Turkey Sub-basin of the Nueces River Basin. A substantial portion of the Nueces River and its tributaries enter the fractured and cavernous limestone formations of the Edwards Aquifer Balcones Fault Zone, north (upstream on the Nueces River) of the project area. As a result, stream flows in the Nueces River Basin downstream from the recharge zone consists almost entirely of stormwater. At its closest distance, the project area is approximately 300 feet west of Cayetano Creek, a quaternary stream of the Nueces River (TCEQ 2015). No impaired waters are listed in Dimmit County (TCEQ 2012).

Floodplains. Portions of the proposed project area are within the 100-year floodplain according to FEMA flood hazard boundary map number 480789001A (FEMA 1978) (see **Figure 3-3**). However, Hwy 277 has been regraded since the effective date for the map and site hydrology has likely been altered. A FEMA letter of map revision for the flood map for the road improvement has not been identified. As a result, the floodplain is discussed as it appears in **Figure 3-3**.

3.7.3 Environmental Consequences

A proposed action would be considered to cause a significant, adverse impact on water resources if it were to substantially affect water quality; substantially reduce water availability or supply to existing users; threaten or damage hydrologic characteristics; or violate established Federal, state, or local laws and regulations.

3.7.3.1 Proposed Action

Groundwater. Long-term, negligible, adverse impacts on groundwater could occur under the Proposed Action from increased sedimentation from runoff from construction activities and new impervious surfaces in groundwater recharge areas. The distribution of groundwater recharge across the project area could change (e.g., recharge would be concentrated in infiltration areas); however, these changes in drainage would be highly localized, site-specific, and negligible. Additionally, the installation of a groundwater well would also be expected to have long-term, negligible impacts on the groundwater because of the continuous draw of potable water to the Carrizo Springs checkpoint. The installation of a groundwater well would not be expected to have a significant impact on the Carrizo-Wilcox aquifer.

All construction equipment would be maintained according to the manufacturer's specifications and all fuels and other potentially hazardous materials would be contained and stored appropriately. In the event of a spill, procedures outlined in CBP's spill protection plan would be followed to contain and clean up a spill quickly. BMPs outlined in the spill protection plan would be enacted and CBP would comply with the Spill Prevention, Control, and Countermeasures Rule (40 CFR 112) and existing groundwater protection protocols as required under the Safe Drinking Water Act.

Installation and operation of a groundwater well for potable water use would result in long-term, minor, adverse impacts on groundwater. However, the Carrizo-Wilcox aquifer is not overly stressed within the project area and withdrawal from the aquifer would not be expected to exceed the recharge rate.

Surface water. Short-term, negligible, adverse impacts on surface water would be expected from vegetation removal and construction activities that would increase the amount of impervious surfaces. Construction and demolition activities could cause the deposition of fill materials or increased sedimentation into Cayetano Creek; however, erosion-control BMPs, such as placing fabric filters, sand bag enclosures, or other capture devices around the work area, would be implemented to maintain runoff on site and would minimize the potential for adverse effects on downstream water quality. Pertinent local, state, and Federal permits would be obtained for any work, including work that could occur in jurisdictional drainages or waterways. No impacts on surface water would be expected from operation of the updated checkpoint.

Floodplains. Long-term, negligible to minor, adverse impacts on floodplains would be expected from demolition and construction activities within the 100-year floodplain. No alteration to existing stream channels would occur. Additionally, considering the age of the flood hazard boundary map and past improvements in the vicinity of the project area, any potential impacts to the floodplain from the Proposed Action would likely be less intense than expected based on **Figure 3-3**. No permanent residents would reside in the

upgraded checkpoint and no residences are within or adjacent to the proposed project area. Regardless, CBP would acquire the appropriate floodplain permits through FEMA in coordination with the Dimmit County floodplain administrator as required for the construction of the checkpoint and its associated infrastructure within the 100-year floodplain. Per the *National Flood Insurance Program Floodplain Management Requirements* (40 CFR 60.3[b]), any project with greater than 5 acres of disturbance in a floodplain would require a study to determine base flood elevations. CBP would ensure that less than 5 acres of the project area would be within the floodplain. Additionally, the Dimmit County floodplain administrator recommends that any construction within a floodplain be raised 1 foot higher than the official surveyor contours for the site. CBP would comply with all relevant regulations, as practicable. Operational requirements dictate the need to renovate the existing checkpoint within the same location.

3.7.3.2 No Action Alternative

Under the No Action Alternative, renovations and expansion of the Carrizo Springs Checkpoint would not occur. Land would not be disturbed and water resources would remain as described in **Section 3.7.2**. No impacts on water resource would occur.

3.8 Hazardous Materials and Wastes

3.8.1 Definition of the Resource

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR 105–180.

Hazardous waste is defined by the RCRA at 42 U.S.C. 6903(5), as amended by the Hazardous and Solid Waste Amendments, as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR 273.

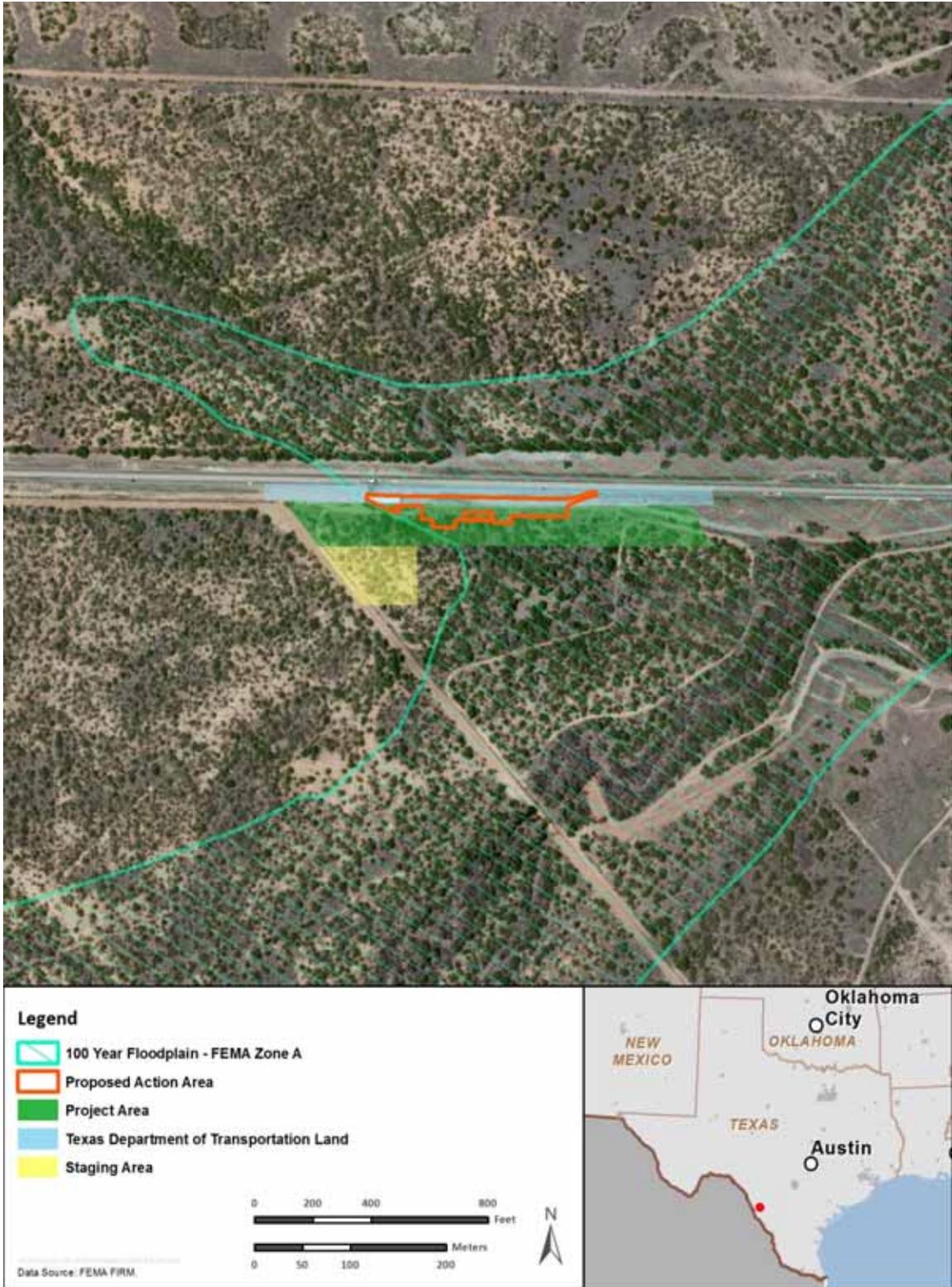


Figure 3-3. Floodplains near Carrizo Springs Checkpoint Project Area, Dimmit County, Texas

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs). The USEPA is given authority to regulate these special hazard substances by the Toxic Substances Control Act, Title 15 U.S.C. Chapter 53. The USEPA has established regulations regarding asbestos abatement and worker safety under 40 CFR 763 with additional regulation concerning emissions (40 CFR 61). Whether from Pb abatement or other activities, depending on the quantity or concentration, the disposal of the LBP waste is potentially regulated by the RCRA at 40 CFR 260. The disposal of PCBs is addressed in 40 CFR 750 and 761.

Evaluation of hazardous materials and wastes focuses on underground storage tanks (USTs); aboveground storage tanks (ASTs); and the presence, storage, transport, handling, and use of pesticides, herbicides, fuels, solvents, oils, lubricants, ACMs, PCBs, and LBP. The evaluation might also extend to the generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the event of a release of hazardous materials or wastes, the extent of contamination varies based on the contaminant and the type of soil, topography, and water resources.

3.8.2 Affected Environment

Hazardous Materials, Hazardous Wastes, and Petroleum Products. No bulk quantities of hazardous materials, hazardous wastes, or petroleum products are associated with the checkpoint. Minimal quantities of hazardous materials (e.g., cleaning products) are used and minimal quantities of hazardous wastes are generated at the checkpoint from everyday functions. Petroleum products (i.e., diesel fuel) are limited to the checkpoint's backup electrical generator, which contains a small AST that is directly integrated into the generator.

Asbestos-Containing Material. Asbestos is regulated by the USEPA under the CAA, TSCA, and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The USEPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM. Common ACMs include siding, ceiling tiles, floor tiles, floor tile mastic, roofing materials, joint compound, wallboard, thermal system insulation, boiler gaskets, paint, and other materials. The existing Carrizo Springs Checkpoint is an approximately 12-year-old, metal prefabricated structure. Based on this type of construction and the age of the building, the checkpoint is unlikely to contain ACMs.

Lead-Based Paint. Lead is a heavy, ductile metal commonly found simply as metallic lead or in association with organic compounds, oxides, and salts. It was commonly used in house paint until the Federal government banned the use of most LBP in 1978. Therefore, it is assumed that all structures constructed prior to 1978 contain LBP. The existing Carrizo Springs Checkpoint was constructed approximately 12 years ago; therefore, LBP is unlikely to be present.

Polychlorinated Biphenyls. PCBs are a group of organic compounds used as dielectric and coolant fluids in equipment such as transformers, capacitors, fluorescent light ballasts, electric motors, and hydraulic systems. PCBs are managed and regulated in accordance with the TSCA of 1976 (40 CFR 761). Chemicals classified as PCBs were widely manufactured and used in the United States throughout the 1950s and 1960s; however, the production of PCBs was banned in the United States in 1979. The existing Carrizo Springs Checkpoint is approximately 12 years old; therefore, PCB-containing equipment is unlikely to be present.

Contamination. Concurrent to this EA, CBP has prepared a Phase I Environmental Site Assessment on the Carrizo Springs Checkpoint to identify potential areas of contamination. The Phase I ESA did not identify any known or suspected areas of contamination at or adjacent to the checkpoint with exception of a ground surface stain that was observed on the gravel surface approximately 280 feet west of the checkpoint building and 40 feet south of Hwy 277. This stain was approximately 2 feet in diameter, and appeared to be the result of drips from equipment and vehicles. Based on its limited size, this stain is considered to be de minimis and does not represent an environmental threat to the property.

3.8.3 Environmental Consequences

Impacts on hazardous materials management would be considered significant if a proposed action resulted in worker, resident, or visitor exposure to these materials above established limits. Impacts on hazardous materials management would be considered significant if the Federal action resulted in noncompliance with applicable Federal and respective state regulations, or increased the amounts generated or procured beyond current CBP hazardous materials management procedures and capacities.

3.8.3.1 Proposed Action

Hazardous Materials, Hazardous Wastes, and Petroleum Products. Short-term, negligible, adverse impacts would occur from the use of hazardous materials and petroleum products and the generation of hazardous wastes during construction activities. Construction activities would require the delivery and use of very minimal amounts of hazardous materials and petroleum products and would generate very minimal amounts of hazardous wastes. Contractors would be responsible for the management of hazardous materials, hazardous wastes, and petroleum products during construction. These products would be handled in accordance with Federal, state, and local regulations and would not be expected to increase the risks of exposure to workers and the public.

No long-term impacts on hazardous materials, hazardous wastes, and petroleum products would occur from the operation of the renovated and expanded checkpoint. Similar types and quantities of hazardous materials and petroleum products would be stored and used at the renovated checkpoint as current conditions. The replacement backup electrical generator would use similar amounts of diesel fuel as the existing electrical generator. Similar types and quantities of hazardous wastes would also be generated at the renovated checkpoint as current conditions.

Asbestos-Containing Material, Lead-Based Paint, and Polychlorinated Biphenyls. No impacts from ACMs, LBP, and PCBs would be expected. ACMs, LBP, and PCBs are

unlikely at the existing checkpoint and, therefore, are unlikely to be disturbed during renovation and expansion. These materials would not be used in new construction.

Contamination. No impacts from environmental contamination would occur because no known or suspected areas of contamination have been identified at the checkpoint or adjacent properties.

3.8.3.2 No Action Alternative

No impacts on hazardous materials and wastes would be expected under the No Action Alternative. Under the No Action Alternative, CBP would not renovate and expand the checkpoint along Hwy 277 and would continue to operate the existing checkpoint.

3.9 Health and Safety

3.9.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses workers' and the public's health and safety during construction activities and subsequent operation of the newly constructed facilities.

Construction site safety requires adherence to regulatory requirements imposed for the benefit of employees. It includes implementation of engineering and administrative practices that aim to reduce risks of illness, injury, death, and property damage. The health and safety of onsite workers and personnel are safeguarded by numerous regulations designed to comply with standards issued by OSHA, the USEPA, and state occupational safety and health agencies. These standards specify health and safety requirements, the amount and type of training required for workers, the use of personal protective equipment (PPE), administrative controls, engineering controls, and permissible exposure limits for workplace stressors.

Health and safety hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Hazards include transportation, maintenance and repair activities, and the creation of noisy environments or a potential fire hazard. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments due to noise or fire hazards for nearby populations. Noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.9.2 Affected Environment

Contractor Safety. All contractors performing demolition or construction activities are responsible for following ground safety and OSHA regulations, and are required to conduct construction activities in a manner that does not increase risk to workers or the public. The Texas Department of Insurance, Division of Workers' Compensation provides safety and health resources to employers, employees, and other organizations

that support the Texas workforce. In addition to the Texas Department of Insurance, OSHA also provides safety and health resources to employees and employers working in Texas.

Occupational safety and health (OSH) programs address health and safety of people at work. OSHA regulations cover potential exposure to a wide range of chemical, physical, biological, and ergonomic stressors. The regulations are designed to control these hazards by eliminating exposure to hazards via administrative or engineering controls, substitution, or use of PPE. OSH is the responsibility of each employer, as applicable. Employer responsibilities are to review potentially hazardous workplace conditions; monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous substances), physical (e.g., noise propagation, falls), and biological (e.g., infectious waste, wildlife, poisonous plants) agents, and ergonomic stressors; recommend and evaluate controls (e.g., prevention, administrative, engineering, PPE) to ensure exposure to personnel is eliminated or adequately controlled; and ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to the use of respiratory protection, or engaged in hazardous waste, asbestos, lead, or other work requiring medical monitoring.

USBP Personnel Safety. USBP personnel are responsible for complying with the Occupational Safety and Health Act and DHS safety and health requirements. DHS Directive 066-01, *Safety and Health Programs*, establishes the DHS's policies, responsibilities, and requirements regarding safety and health programs. The purpose of DHS safety and health programs are to prevent or minimize the loss of DHS resources and to protect employees, contractors, and the visiting public from accidental death, injury, or illness by managing risks through implementation of the tenets of operational risk management.

Public Safety. Fire department and emergency medical services are provided to the Carrizo Springs Checkpoint from the city of Carrizo Springs. The fire department consists of approximately 20 volunteer firefighters and four firefighting apparatuses. The department responds to approximately 50 to 100 calls per year. Police department services are provided both by the Carrizo Springs Police Department and the Dimmit County Sheriff. The police department, sheriff's stations and fire department are located within the city of Carrizo Springs, which is approximately 18 miles from the Carrizo Springs Checkpoint.

3.9.3 Environmental Consequences

If implementation of the Proposed Action were to increase risks associated with the safety of construction personnel, contractors, USBP personnel, or the local community, or hinder the ability to respond to an emergency, it would represent an adverse effect. An effect would be significant if implementation of the Proposed Action were to increase risks associated with the safety of construction personnel, contractors, USBP personnel, or the local community substantially; hinder the ability to respond to an emergency substantially; or introduce a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

3.9.3.1 Proposed Action

Contractor Safety. Short-term, negligible, adverse impacts would be expected on contractor safety would be expected as a result of implementation of the Proposed Action. Construction activities would pose an increased risk of construction-related accidents however, adherence to established state and Federal safety regulations would reduce this risk. Workers would be required to wear PPE such as ear protection, steel-toed boots, hard hats, gloves and other appropriate safety products. Employer responsibilities would include assessing potential hazardous workplace conditions; monitor employee exposure to workplace chemicals, physical, and biological agents, and ergonomic stressors; recommend and evaluate controls to ensure exposure to personnel is eliminated or adequately controlled; and ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to the use of respiratory protection, or engaged in hazardous waste, or other work requiring medical monitoring. Construction areas would be fenced and appropriately marked with signs to prevent trespassing. Construction equipment and associated trucks transporting material to and from the project sites would use Hwy 277. For more information on traffic impacts of construction traffic, see **Section 3.10**. All equipment operators would be required to be fully trained and licensed for their assigned jobs. Contractors would be required to establish and maintain health and safety programs for their employees. Construction activities would be short-term and temporary. No long-term impacts would be expected.

USBP Personnel Safety. Impacts on USBP Personnel safety would be long-term, minor, and beneficial. The Proposed Action would provide a new facility with modern and safe working conditions to accommodate the current and projected staff, vehicles, and equipment of the existing Carrizo Springs Checkpoint. Anti-terrorism/force protection (AT/FP) would be incorporated into the facility design.

Public Safety. Construction activities would not pose a safety risk to the public as the work site would be fenced and appropriate signs would be posted to reduce safety risks to the public further. Therefore, construction of the proposed new Carrizo Springs Checkpoint would not be expected to have adverse impacts on public safety. Long-term, indirect, beneficial impacts could occur as a result of improving law enforcement efficiency with the U.S./Mexico international border area.

3.9.3.2 No Action Alternative

Under the No Action Alternative the existing Carrizo Springs Checkpoint would not be demolished and a new, more modern checkpoint would not be constructed in its place. The No Action Alternative would be expected to have long-term, minor, adverse impacts on the safety of USBP personnel and the public because the Carrizo Springs Checkpoint would continue to be exposed to increased traffic and would not have the adequate and necessary facilities to accommodate such an increase.

3.10 Roadways and Traffic

3.10.1 Definition of the Resource

The transportation resource is defined as the system of roadways and highways that are in the vicinity of a proposed action and could reasonably be affected by a proposed action.

Traffic relates to changes in the number of vehicles on roadways and highways as a result of a proposed action.

3.10.2 Affected Environment

The Carrizo Springs Checkpoint occurs along Hwy 277 which extends northwest toward Eagle Pass and the U.S./Mexico international border, and southeast toward the city of Carrizo Springs, Texas. Hwy 277 is a two-lane highway with a speed limit of 75 miles per hour (mph). As a result of the booming oil/gas industry related to the Eagle Shale, Hwy 277 has seen a 73 percent increase in the amount of average annual daily traffic between 2010 and 2013. Approximately 24 percent of the traffic on Hwy 277 during a 24-hour period is comprised of trucks. There is a single-lane, unimproved farm road west of the checkpoint that runs north-south, which is outside the project area (TXDOT 2015).

3.10.3 Environmental Consequences

Impacts on traffic and transportation are evaluated by how well existing roadways can accommodate changes in traffic. Adverse effects would occur if drivers experience high delays because the Proposed Action altered traffic patterns beyond existing lane capacity.

3.10.3.1 Proposed Action

Impacts on traffic and transportation from construction of the Carrizo Springs Checkpoint would be short-term, minor and adverse. Construction of the new checkpoint would temporarily increase the number of trucks and cars on Hwy 277 from the delivery of construction equipment and building materials, and the removal of debris from the project area. The added traffic would compose a small percentage of the total existing traffic on Hwy 277.

Long-term, minor, and beneficial impacts on traffic and transportation would be expected from the operation of the proposed Carrizo Springs Checkpoint. With the addition of one to three new deceleration lanes, traffic would be expected to flow much more efficiently along Hwy 277 as CBP will be able to more efficiently control vehicle traffic inspections.

3.10.3.2 No Action Alternative

Under the No Action Alternative, the existing Carrizo Springs Checkpoint would not be demolished and a new, more modern checkpoint would not be constructed in its place. Traffic conditions would continue to worsen and CBP resources would continue to be exposed to increased traffic as a result of the Eagle Ford Shale oil/natural gas boom and would not have the adequate and necessary facilities to accommodate such an increase.

3.11 Infrastructure and Utilities

3.11.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area.

3.11.2 Affected Environment

Utilities potentially affected by the Proposed Action include electrical supply, water supply, wastewater service, and storm water management. Because natural gas service is not available to the checkpoint and the Proposed Action would not appreciably affect telecommunications and solid waste management, an analysis of these utilities is not necessary. This infrastructure analysis also considers the impacts of the Proposed Action on the Nation's border security infrastructure.

Electrical Supply. Electricity is provided to the checkpoint by Rio Grande Electric. A 30-kilowatt generator provides a secondary source for electricity during times of outages. The future reliability of the generator is questionable because it is not a common brand and spare parts for the model can no longer be acquired from the manufacturer.

Water Supply. The checkpoint is not supplied with municipal water nor does it use a private groundwater well. Potable water is delivered to the checkpoint in 5-gallon containers from various commercial suppliers. Non-potable water, which is used only in sinks and toilets, is stored in two, 1,650-gallon, mobile ASTs that are stored to the east of the building. These ASTs are taken to the USBP station in the town of Carrizo Springs and refilled every two to three days. Aboveground water piping connects the building to the water storage tanks.

Wastewater Service. Wastewater generated at the checkpoint is disposed of with an onsite septic system. The drainage field for the septic system is to the east of the checkpoint. Wastewater is generated only in the toilets and sinks of the checkpoint.

Storm Water Management. No man-made storm water infrastructure is associated with the checkpoint. Storm water generally drains to the north towards the shoulder of Hwy 277.

Border Security Infrastructure. The checkpoint itself is infrastructure that CBP uses to secure the nation's borders against threats. The deficiencies of the Carrizo Springs checkpoint compromise the effectiveness of CBP to meet its objectives to secure the borders. The most prominent deficiency of the checkpoint is the limited processing abilities, which can result in long wait times during periods of heavy traffic and introduce safety concerns to agents and civilians.

3.11.3 Environmental Consequences

Effects on infrastructure are evaluated for their potential to disrupt or improve existing levels of service and create additional needs for utilities. For example, effects might arise from energy needs created by either direct or indirect workforce and population changes related to activities. An impact could be significant if the Proposed Action resulted in any of the following:

- Exceeded capacity of a utility
- A long-term interruption of the utility
- A violation of a permit condition

- A violation of an approved plan for that utility.

3.11.3.1 Proposed Action

Electrical Supply. Short-term, negligible, adverse effects on electrical supply would occur during the construction of the renovated checkpoint. Temporary electrical service interruptions might be experienced when service is disconnected from the existing checkpoint and connected to the renovated checkpoint. Any electrical service interruptions would be temporary and coordinated with users prior to the occurrence. The construction of the renovated checkpoint would result in a negligible, temporary increase in electrical demand because of the electricity needed to power the construction equipment.

Long-term, minor, beneficial effects on electrical supply would occur following the proposed renovation and expansion activities. No appreciable changes in electricity demand would occur following renovation because the number of staff assigned to the renovated checkpoint and the overall size of the facility would be similar to existing conditions. Additionally, portable light stands could be deployed in order to provide supplemental light to the checkpoint. The replacement of the existing 30-kilowatt back-up generator, for which replacement parts are no longer available from the manufacture, with a modern generator would improve the reliability of the checkpoint's backup power supply.

Water Supply. Short-term, negligible, adverse effects on water supply would occur during construction of the renovated checkpoint. Construction activities would require very minimal amounts of water mostly for dust suppression. Construction contractors would deliver water to the project site in trucks.

Long-term, minor, beneficial effects on water supply would occur following the proposed renovation and expansion activities. The demand for potable and non-potable water at the checkpoint would not change following renovation; however, a groundwater well would be installed during renovation and construction activities in order to provide the station with potable water. Additionally, the non-potable water supply piping between the checkpoint and the two mobile ASTs would be upgraded by burying the pipes. This upgrade would reduce the potential for the pipes to break.

Wastewater Service. No effects on wastewater service would occur. The renovated checkpoint would include plans to either renovate the existing septic system or to replace the system, as necessary, in order to accommodate expanded facilities. No changes to the amounts of wastewater generated are anticipated.

Storm Water Management. Short-term, minor, adverse effects on storm water drainage would occur during construction of the renovated checkpoint. Ground disturbance would disturb storm water drainage features and temporarily increase the potential for soil erosion and sediment transport during rain events. Soil erosion and sediment production would be minimized during construction by developing and implementing an ESCP, a Storm Water Pollution Prevention Plan, and Section 438 of the Energy Independence and Security Act, which requires the implementation of low-impact development. CBP would obtain any applicable storm water discharge permits. BMPs would also be implemented

to minimize ground surface disturbance and attempt to provide adequate, temporary storm water-handling methods.

Long-term, negligible to minor, adverse effects on storm water drainage would occur following construction. The renovated and expanded checkpoint would increase the amount of impervious surface; therefore, the amount of area available for storm water to permeate into the ground would be reduced thereby resulting in an increase in storm water runoff. Appropriate long-term storm water-control measures including storm water detention basins may be incorporated into the final design of the proposed checkpoint to reduce, limit, and control storm water runoff to preconstruction rates.

Border Security Infrastructure. Long-term, minor, beneficial effects on border security infrastructure would occur following the proposed renovation and expansion activities. CBP's ability to quickly, safely, and accurately process vehicles would improve with the renovated checkpoint. The construction of the second checkpoint lane on Hwy 277 would allow two vehicles to be processed simultaneously and consequently reduce wait times.

3.11.3.2 No Action Alternative

No impacts on infrastructure and utilities would be expected under the No Action Alternative. Under the No Action Alternative, CBP would not renovate and expand the checkpoint along Hwy 277 and would continue to operate the existing checkpoint. The existing infrastructure and utilities at the checkpoint would remain in service.

3.12 Socioeconomics

3.12.1 Definition of the Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity. Demographics, employment characteristics, and housing occupancy status data provide key insights into socioeconomic conditions that might be affected by a proposed action.

3.12.2 Affected Environment

For the purposes of this socioeconomic analysis, four different spatial levels were used: (1) Census Tract 9502 in which the Proposed Action occurs, (2) Dimmit County, (3) the State of Texas and (4) the United States.

The selected spatial levels illustrate the socioeconomic characteristics for the areas adjacent to the Carrizo Springs Checkpoint where the most impacts from the Proposed Action would be expected to occur. Census tract data represents the immediate area in which the Proposed Action would occur while Dimmit County, Texas and the United States data is used as a baseline level for comparison.

Demographics. 2000 and 2010 population data for the analyzed spatial levels are presented in **Table 3-7**. Five-year estimates from 2009 to 2013 are provided to offer a more precise estimate of current conditions. Census Tract 9502 has seen a steady decline in population since 2000, with a total percent change of -1.6 from 2000 to 2013. Dimmit County saw a slight decline in population between 2000 and 2010 however, has seen a

slight increase in population from 2000 to 2013 (approximately 0.2 percent change). Texas has seen the most considerable growth of all the spatial levels with percent change between 2000 and 2013 at 22.9 percent. Population growth in the United States has also steadily increased since 2000 with a total percent change of 10.7 between 2000 and 2013 (USCB 2000, USCB 2010, USCB 2013a).

Table 3-7. Population Counts and Estimates for Spatial Levels in 2000, 2010 and 2013

Location	2000	2010	2013*	Percent Change 2000 to 2010	Percent Change 2000 to 2013*
Census Tract 9502	7,734	7,715	7,606	-0.2	-1.6
Dimmit County	10,248	9,996	10,270	-2.5	0.2
Texas	20,851,820	25,145,561	25,639,373	20.6	22.9
United States	281,421,906	308,745,538	311,536,594	9.7	10.7

Sources: USCB 2000, USCB 2010, USCB 2013a

Note: *2013 data represents 5-year estimates from 2009 to 2013 and are meant to provide a more precise estimate of current conditions across all spatial levels.

Housing data indicates that vacant housing is similar across all spatial levels except for within Dimmit County. Dimmit County has the highest amount of vacant homes (18.3 percent) across all spatial levels, with other spatial levels hovering within one percentage point of the national average of 12.5 percent (see **Table 3-8**) (USCB 2013b).

Table 3-8. Vacant Housing Units Across all Spatial Levels (2009 – 2013)*

Location	Total Units	Vacant Units	Percentage Vacant
Census Tract 9502	3,110	408	13.1
Dimmit County	4,338	796	18.3
Texas	10,070,703	1,184,232	11.8
United States	132,057,804	16,447,588	12.5

Sources: USCB 2013b

Note: *2013 data represents 5-year estimates from 2009 to 2013.

Employment Characteristics. The total workforce within Dimmit County is 4,507 personnel. As of 2013, Census Tract 9502 has the greatest amount of people working in the agriculture, forestry, fishing and hunting and mining industry (21.4 percent) which is the highest of all the spatial levels for that industry. A majority of the Dimmit County workforce was employed within the education, health, and social services industry which is the most common occupational industry in Texas and the United States. **Table 3-9** presents information regarding employment by industry from 2009 to 2013 for all the spatial levels (USCB 2013c).

Table 3-9. Employment Characteristics by Industry for 2009 to 2013*

Industry	Census Tract 9502	Dimmit County	Texas	United States
Percent of civilian population 16 years old and over in the labor force	61.3	58.6	65.2	64.3
Percentage of Employed Persons in the Armed Forces	0	0	0.5	0.4
Agriculture, forestry, fishing and hunting and mining	21.4	21.0	3.1	1.9
Construction	7.1	7.4	7.9	6.2
Manufacturing	1.6	1.3	9.4	10.5
Wholesale Trade	2.8	2.2	3.0	2.8
Retail Trade	18.2	15.7	11.6	11.6
Transportation and warehousing, and utilities	2.2	3.7	5.4	4.9
Information	0.0	0.0	1.8	2.2
Finance, insurance, real estate, and rental and leasing	2.7	2.4	6.6	6.7
Professional, scientific, management, administrative, and waste management services	1.6	2.6	10.8	10.8
Education, health, and social services	19.3	22.2	21.7	23.2
Arts, Entertainment, recreation, accommodation, and food services	11.0	8.9	8.7	9.3
Other services (except public administration)	3.0	3.7	5.4	5.0
Public administration	9.0	8.9	4.5	5.0

Sources: USCB 2013c

Note: *2013 data represents 5-year estimates from 2009 to 2013.

3.12.3 Environmental Consequences

Socioeconomics. The significance of socioeconomic effects is assessed in terms of direct and indirect effects on the local economy and related effects on other socioeconomic resources (e.g., income, housing, and employment). The magnitude of potential effects can vary greatly, depending on the location of a proposed action. For example, implementation of an action that creates 10 employment positions might be unnoticed in an urban area, but could have significant effects in a rural community.

3.12.3.1 Proposed Action

Socioeconomics. Impacts on socioeconomics as a result of the Proposed Action would be short-term, negligible, and beneficial. Impacts from demolition and construction activities under the Proposed Action would stimulate the local economy through increases in payroll taxes, sales receipts, and the indirect purchase of goods and services. Construction workers could come from within Dimmit County because the demolition and construction would not require specialized workers and, as of 2013, approximately 287 people (7.4 percent) are considered construction workers in Dimmit County and would easily be able to meet demand. Long-term, negligible, beneficial impacts on employment could occur from a potential increase in USBP personnel at the checkpoint. However, any increase in personnel would likely represent only a small fraction of the available workforce within Dimmit County.

The Proposed Action would not have any impact on housing or property values because the existing CBP checkpoint would be renovated in an area that is 17 miles from the nearest city and would only expand into a portion of ranch land that has no housing structures. The updated checkpoint would remain in the same area as the existing checkpoint and would not functionally change from its current mission.

3.12.3.2 No Action Alternative

No impacts on socioeconomics would be expected under the No Action Alternative. CBP would not renovate and expand the checkpoint along Hwy 277 and would continue to operate the existing checkpoint. The existing socioeconomic conditions would remain as they are described in **Section 3.12.2**.

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4. Cumulative and Other Adverse Effects

Cumulative impacts can result from individually minor but collectively significant past, present, and foreseeable future actions. For the purposes of the analysis in this section, consideration was given to cumulative impacts of all projects identified within a reasonable distance to the project area, dependent on the resource. In this instance, the isolated area surrounding the project is unlikely to be subjected to the compounding activity of other entities, particularly because they take place on an infrequent basis. The geographic scope of the analysis varies by resource area. Direct cumulative impacts on air quality; noise; geological, biological, cultural, and water resources, hazardous materials and wastes, human health and safety, roadways and traffic, and infrastructure and utilities would occur within the construction footprint of the Proposed Action. Indirect cumulative impacts on noise and geological, biological, and water resources, could occur beyond the construction footprint but would be limited to the area immediately surrounding the area (approximately 1 mile). Indirect cumulative impacts on cultural resources, hazardous materials and wastes, human health and safety, roadways and traffic, and infrastructure would not be expected outside of the project area. Indirect cumulative impacts on utilities and air quality could occur beyond the project area; however, no long-term appreciable change in utilities would be expected and impacts on air quality would not remotely exceed attainment area significance criteria.

4.1 Past, Present and Future Actions near the Carrizo Springs Checkpoint

Past and present actions are those actions that occurred within the geographic scope of cumulative effects prior to the development of this EA or are concurrently being undertaken in the geographic area of the proposed project area. Past actions have shaped the current environmental conditions in close proximity (i.e., within several miles) to the existing Carrizo Springs Checkpoint. Therefore, the effects of identified past actions are now part of the existing environment, and are generally included in the affected environment described in **Section 3**. Present actions consist of current maintenance of the checkpoint, continued use of ranchland, or updates to Hwy 277 and future actions would consist of maintenance of Hwy 277 or any changes to nearby ranchland. CBP is considering renovating other checkpoints in the state of Texas; however they are outside the geographic scope of this project.

4.2 Cumulative Impacts Analysis of the Proposed Action

Implementation of the Proposed Action would result in the demolition of existing infrastructure and construction of new facilities and associated infrastructure. However, given the remote location of the proposed project area, implementation of the Proposed Action would not be expected to contribute to significant adverse cumulative effects. Any potential actions within the towns of Carrizo Springs or Eagle Pass would occur at least 18 miles from the project area. Impacts on the loss of ranchland are covered in the environmental consequences section of this EA. No additional impacts on ranchland would be expected. In 2016, TXDOT plans to resurface Hwy 277 approximately 5 miles

east of the proposed project area between Farm to Market Road 393 and State Loop 517 (TXDOT 2015). However, considering the distance from the project area, no cumulative impacts on any resource area would be expected.

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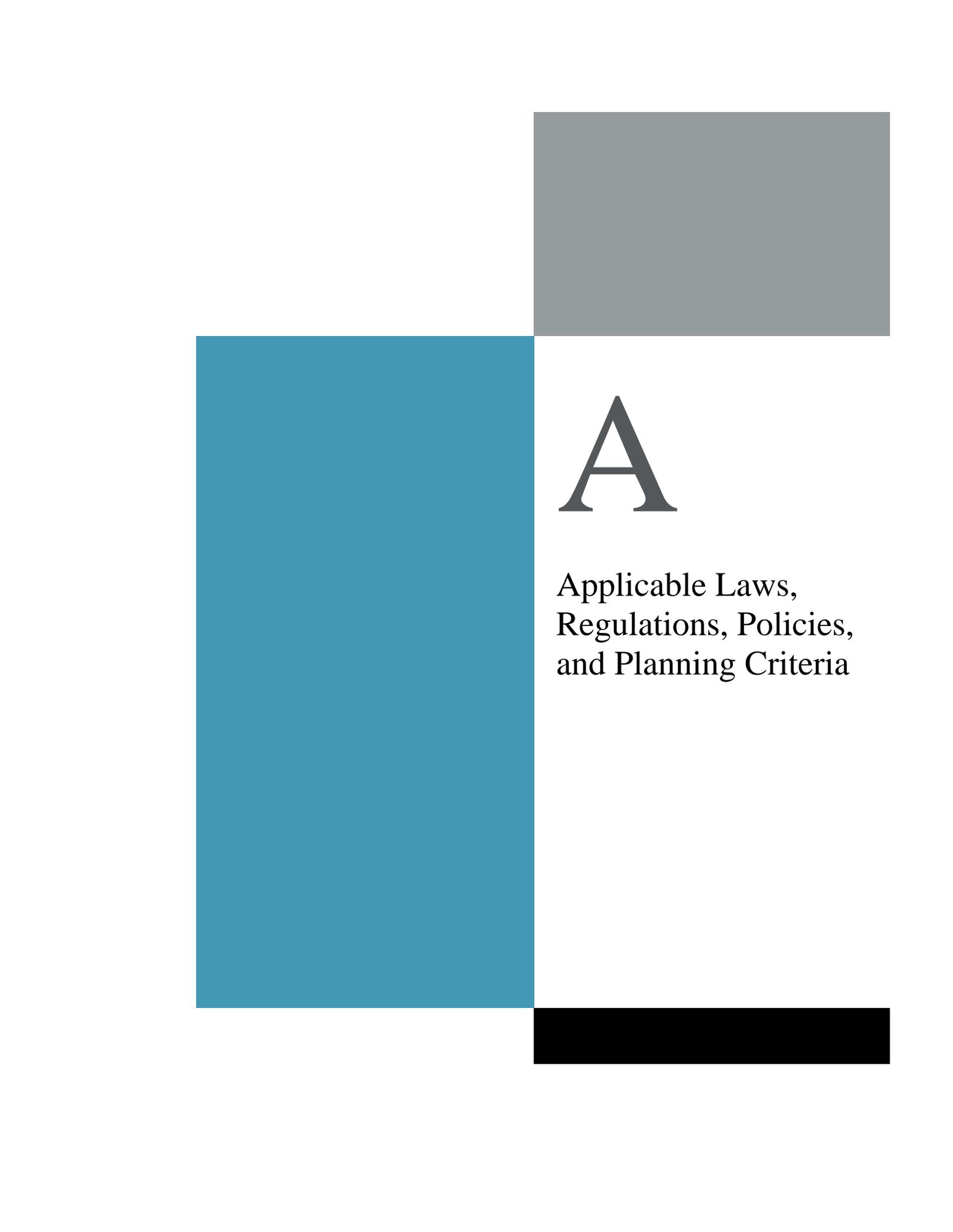
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A

Applicable Laws,
Regulations, Policies,
and Planning Criteria

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APPENDIX A: APPLICABLE LAWS AND EXECUTIVE ORDERS

Table A-1. Applicable Laws and Executive Orders ¹

Title, Citation	Summary
Archaeological and Historical Preservation Act, 16 United States Code (U.S.C.) 469	Protects and preserves historical and archaeological data. Requires Federal agencies to identify and recover data from archaeological sites threatened by a proposed action(s).
Clean Air Act, 42 U.S.C. 7401–7671q, as amended	Establishes Federal standards for air pollutants. Prevents significant deterioration in areas of the country where air quality fails to meet Federal standards.
Clean Water Act, 33 U.S.C. 1251–1387 (also known as the Federal Water Pollution Control Act)	Comprehensively restores and maintains the chemical, physical, and biological integrity of the nation’s waters. Implemented and enforced by the U.S. Environmental Protection Agency (USEPA).
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601–9675 (also known as “Superfund”)	Provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous substance disposal sites. Establishes a fund financed by hazardous waste generators to support cleanup and response actions.
Endangered Species Act of 1973, 16 U.S.C. 1531–1543, as amended	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Prohibits Federal action that jeopardizes the continued existence of endangered or threatened species. Requires consultation with U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries and a biological assessment when such species are present in an area affected by Federal government activities.
Fish and Wildlife Coordination Act, 16 U.S.C. 661–667e, as amended	Authorizes the Secretaries of the Interior and Commerce to provide assistance to and cooperate with Federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The 1946 amendments require consultation with the USFWS and the state fish and wildlife agencies involving any waterbodies that are proposed or authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified by any agency under a Federal permit or license.
Migratory Bird Treaty Act, 16 U.S.C. 703–712	Implements various treaties for protecting migratory birds; the taking, killing, or possession of migratory birds is unlawful.
National Environmental Policy Act of 1969, 42 U.S.C. 4321–4370e, as amended	Requires Federal agencies to use a systematic approach when assessing environmental impacts of government activities. Proposes an interdisciplinary approach in a decisionmaking process designed to identify unacceptable or unnecessary impacts to the environment.

Title, Citation	Summary
National Historic Preservation Act, 16 U.S.C. 470–470x-6	Requires Federal agencies to consider the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object eligible for inclusion, or listed in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through NRHP listing), and protection of significant historical and cultural properties.
Noise Control Act of 1972, 42 U.S.C. 4901–4918	Establishes a national policy to promote an environment free from noise that jeopardizes health and welfare. Authorizes the establishment of Federal noise emissions standards and provides relevant information to the public.
Occupational Safety and Health Act of 1970, 29 U.S.C. 651–678	Establishes standards to protect workers, including standards on industrial safety, noise, and health standards.
Resource Conservation and Recovery Act, 42 U.S.C. 6901–6992k	Establishes requirements for safely managing and disposing of solid and hazardous waste and underground storage tanks.
Executive Order (EO) 12372, <i>Intergovernmental Review of Federal Programs</i> , July 14, 1982, 47 FR 30959 (6/16/82), as supplemented	Requires Federal agencies to consult with state and local governments when proposed Federal financial assistance or direct Federal development impacts interstate metropolitan urban centers or other interstate areas.
EO 12898, <i>Environmental Justice</i> , February 11, 1994, 59 FR 7629 (2/16/94), as amended	Requires certain Federal agencies, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.
EO 13423, <i>Strengthening Federal Environmental, Energy, and Transportation Management</i> , January 24, 2007, 72 FR 3919 (January 26, 2007)	Requires the head of each Federal agency to implement sustainable practices for energy efficiency, greenhouse gas emissions avoidance or reduction, and petroleum products use reduction; renewable energy, including bioenergy; water conservation; acquisition; pollution and waste prevention and recycling; reduction or elimination of acquisition and use of toxic or hazardous chemicals; high performance construction, lease, operation, and maintenance of buildings; vehicle fleet management; and electronic equipment. Requires more widespread use of Environmental Management Systems as the framework with which to manage and continually improve these sustainable practices.
EO 13693, <i>Planning for Federal Sustainability in the Next Decade</i>	Directs Federal agencies to reduce direct greenhouse gas emissions by at least 40 percent over the next decade while at the same time fostering innovation, reducing spending, and strengthening the communities in which Federal facilities operate. It is also designed to promote building energy conservation, efficiency, and management; ensure that percentages of building electrical energy and thermal energy shall be clean (renewable and alternative) energy; ensure that the total building energy consumed by the agency incorporates renewable energy; and to incorporate renewable energy

Title, Citation	Summary
EO 13175, <i>Consultation and Coordination with Indian Tribal Governments</i> , November 6, 2000, 65 FR 67249 (11/09/00)	guidelines where feasible. Requires Federal agencies to establish an accountable process that ensures meaningful and timely input from tribal officials in developing policies that have tribal implications.
EO 13186, <i>Responsibilities of Federal Agencies to Protect Migratory Birds</i> , January 10, 2001, 66 FR 3853 (1/17/01)	Requires each agency to ensure that environmental analyses of Federal actions (required by the National Environmental Policy Act or other established environmental review processes) evaluate the effects of actions and agency plans on migratory birds, emphasizing species of concern. Agencies must support the conservation intent of migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities, and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
EO 11593, <i>Protection and Enhancement of the Cultural Environment</i> , May 13, 1971, 36 FR 8921 (5/15/71)	Requires all Federal agencies to locate, identify, and record all cultural resources, including significant archeological, historical, or architectural sites.

Note:

1. This table only reflects those laws and EOs that might reasonably be expected to apply to the Proposed Action and alternatives addressed in this Environmental Assessment (EA).

Other laws and Executive Orders (EOs) potentially relevant to this Environmental Assessment (EA) include, but are not limited to, the following:

- American Indian Religious Freedom Act, 42 United States Code (U.S.C.) 1996, et seq.
- Antiquities Act, 16 U.S.C. 433, et seq.; Archeological Resources Protection Act, 16 U.S.C. 470 aa-ll, et seq.
- Architectural Barriers Act, 42 U.S.C. 4151, et seq.
- Community Environmental Response Facilitation Act, 42 U.S.C. 9620, et seq.
- Department of Transportation Act, Public Law (P.L.) 89-670, 49 U.S.C. 303, Section 4(f), et seq.
- Emergency Planning and Community Right-to-Know Act, 42 U.S.C. 11001–11050, et seq.
- Environmental Quality Improvement Act, P.L. 98-581, 42 U.S.C. 4371, et seq.
- Farmlands Protection Policy Act, P.L. 97-98, 7 U.S.C. 4201, et seq.
- Federal Insecticide, Fungicide, and Rodenticide Act, P.L. 86-139, 7 U.S.C. 135, et seq.
- Federal Records Act, 44 U.S.C. 2101-3324, et seq.
- Fish and Wildlife Act of 1956, P.L. 85-888, 16 U.S.C. 742, et seq.

- Flood Disaster Protection Act, 42 U.S.C. 4001, et seq.
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001, et seq.
- Pollution Prevention Act of 1990, 42 U.S.C. 13101-13109, et seq.
- Safe Drinking Water Act, P.L. 93-523, 42, U.S.C. 201, et seq.
- Toxic Substances Control Act, 7 U.S.C. 136, et seq.
- Wild and Scenic Rivers Act, P.L. 90-542, 16 U.S.C. 1271, et seq.
- EO 12114, dated January 9, 1979, *Environmental Effects Abroad of Major Federal Actions*, 44 FR 1957
- EO 12088, dated October 13, 1978, *Federal Compliance with Pollution Control Standards*, 43 FR 47707, as amended by EO 12580, dated January 23, 1987, and revoked (in part) by EO 13148, dated April 21, 2000
- EO 13132, dated August 4, 1999, *Federalism*, 64 FR 43255
- EO 11988, dated May 24, 1977, *Floodplain Management and Protection*, 42 FR 26951, as amended by EO 12148, dated July 20, 1979, 44 FR 43239
- EO 13007, dated May 24, 1996, *Historic Sites Act*, 16 U.S.C. 46, et seq.; Indian Sacred Sites, 61 FR 26771
- EO 12372, dated July 14, 1982, *Intergovernmental Review of Federal Programs*, 47 FR 30959, as amended by EO 12416, April 8, 1983, 48 FR 15587; supplemented by EO 13132, August 4, 1999, 64 FR 43255
- EO 13112, dated February 3, 1999, *Invasive Species*, 64 FR 6183, as amended by EO 13286, February 28, 2003, 68 FR 10619
- EO 11514, dated March 5, 1970, *Protection and Enhancement of Environmental Quality*, 35 FR 4247, as amended by EO 11541, July 1, 1970, 35 FR 10737 and EO 11991, May 24, 1977, 42 FR 26967
- EO 13045, dated April 21, 1997, *Protection of Children from Environmental Health and Safety Risks*, 62 FR 19885, as amended by EO 13229, October 9, 2001, 66 FR 52013 and EO 13296, April 18, 2003, 68 FR 19931
- EO 11990, dated May 24, 1977, *Protection of Wetlands*, 42 FR 26961, as amended by EO 12608, September 9, 1987, 52 FR 34617.



B

Public Involvement and
Agency Coordination

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APPENDIX B: PUBLIC INVOLVEMENT AND AGENCY COORDINATION

Interested Party List

Copies of the Coordination Letter with instructions for accessing the Draft EA will be sent to the following agencies and interested parties during the Draft EA public review period:

FEDERAL AGENCY CONTACTS

Mr. John Blevins
Division Director
U.S. Environmental Protection Agency,
Region 6

Ms. Cathy Gilmore
Section Chief
U.S. Environmental Protection Agency

Jose A. Nunez
Principal Engineer
International Boundary and Water
Commission

Mr. Mike Snyder
Regional Director
National Park Service

Mary Orms
U.S. Fish and Wildlife Service

Mr. Adam Zerrenner
Field Supervisor
U.S. Fish and Wildlife Service

STATE AGENCY CONTACTS

James M. Bass
Executive Director
Texas Dept. of Transportation

Mr. Archie Clouse
Regional Director
Texas Commission on Environmental
Quality

Ms. Lorinda Gardner
Regional Director
Texas Commission on Environmental
Quality

Mr. Jaime A. Garza
Regional Director
Texas Commission on Environmental
Quality

Ms. Jody Henneke
Deputy Commissioner
Texas General Land Office

Mr. John Howard
Environmental Policy Director
Governor's Policy Office

Mr. F. Lawrence Oaks
State Historic Preservation Officer
Texas Historical Commission

Mr. David A. Ramirez
Area Director
Texas Commission on Environmental
Quality

Mr. Carlos Rubinstein
Area Director
Texas Commission on Environmental
Quality

Mr. Carter Smith
Executive Director
Texas Parks and Wildlife

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission

Environmental Policy Director
Governor's Policy Office

LOCAL CONTACTS

The Honorable Ramsey English Cantu
Mayor
City of Eagle Pass

Gloria Barrientos
City Manager
City of Eagle Pass

The Honorable Adrian DeLeon
Mayor
City of Carrizo Springs

The Honorable Francisco G. Ponce
County Judge
Dimmit County, Commissioners Court

Mr. Eloy Rodriguez
Floodplain Administrator
Dimmit County

TRIBAL CONTACTS

The Honorable Wallace Coffey
Chairman
Comanche Nation

The Honorable Juan Garza Jr.
Chairman
Kickapoo Traditional Tribe of Texas

The Honorable Ron Twohatchet
Chairman
Kiowa Tribe of Oklahoma



C

State-Listed Species
Unlikely to Occur in the
Project Area

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APPENDIX C: LISTED SPECIES UNLIKELY TO OCCUR IN THE PROJECT AREA

Table C-1. Federally Listed Species that Occur in Dimmit County

Species		Status		Habitat Associations*/Likelihood of Occurrence in Project Area
Common Name	Scientific Name	Federal	State	
Birds				
Least tern (Interior Population)	<i>Sterna antillarum</i>	E	E	Nest on barren to sparsely vegetated sandbars along rivers, sand and gravel pits, lake and reservoir shorelines, and occasionally gravel rooftops. Habitat not present. Unlikely to occur.
Piping plover	<i>Charadrius melodus</i>	T	T	Winter populations associated with sparsely vegetated tidal sand flats, or algal flats. Habitat not present. Unlikely to occur.
Sprague's pipit	<i>Anthus spragueii</i>	C	-	Winter habitats consist of large grassland areas that may or may not primarily consist of native grass. Habitat not present. Unlikely to occur.
Mammals				
Gulf Coast jaguarundi	<i>Herpailurus yagouaroundi</i>	E	E	Tamaulipan Biotic Province, where it uses dense, natural, and undisturbed thorny shrublands or woodlands and tall dense bunchgrass pastures adjacent to dense brush or woody cover. Habitat not present. Unlikely to occur.
Ocelot	<i>Leopardus (=felis) pardalis</i>	E	E	Tamaulipan Biotic Province which includes several variations of subtropical thornscrub brush. Ocelots prefer dense thornscrub habitats with greater than 95 percent canopy cover. Habitat not present. Unlikely to occur.

Key: E = Endangered, T = Threatened, C = Candidate

*Sources: USFWS 2010a, USFWS 2010b, USFWS 2013, USFWS 2015a, USFWS 2015b

Table C-2. State Listed Species that are Unlikely to Occur in the Project Area

Species	Listing Status	Habitat*	Likelihood of Occurrence/ Determination	
Birds				
Baird's sparrow	<i>Ammodramus bairdii</i>	R	Short-grass prairie with scattered shrubs.	Unlikely to occur. Long term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.
Mountain plover	<i>Charadrius montanus</i>	R	Short-grass prairie, but occasionally in cropland or barren ground.	Unlikely to occur. Long term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	R	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows.	Unlikely to occur. Long term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.
Mammals				
Black bear	<i>Ursus americanus</i>	T	Large tracts of bottomland hardwood forests.	Unlikely to occur. Long term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.
Plants				
Mexican mud-plantain	<i>Heteranthera mexicana</i>	R	Wet clayey soils of resacas and ephemeral wetlands; flowering June-December.	Unlikely to occur. Long term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.
Shinner's sunflower	<i>Helianthus occidentalis</i> ssp <i>plantagineus</i>	R	Mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country.	Unlikely to occur. Long term negligible direct and indirect adverse impacts. Short term minor to no direct and indirect adverse impacts.

*Source: TPWD 2015



D

Air Quality
Calculations

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APPENDIX D: AIR QUALITY CALCULATIONS

Combustion Emissions

Combustion Emissions of VOC, NO_x, SO₂, CO, PM_{2.5}, PM₁₀, and CO₂ due to Construction and Demolition

General Construction Activities	Area Disturbed	Source and Assumptions
1.) Demolish Existing Checkpoint	2,500 ft ²	Google Earth Estimate
2.) Construct New Checkpoint Building	2,500 ft ²	Estimate from conceptual drawings
3.) Construct Kennel	375 ft ²	Estimate from conceptual drawings
4.) Construct Canopy (includes booths and median under canopy)	5,000 ft ²	Estimate from conceptual drawings
5.) Construct Communications Tower	173 ft ²	Estimate from conceptual drawings
6.) Construct Vehicle Lift Area	375 ft ²	Estimate from conceptual drawings
7.) Construct Tool Shed, Building in Mechanical Yard, Dumpster Enclosures, and Traffic Device Storage (4 buildings, each approximately 80 ft ²).	320 ft ²	Estimate from conceptual drawings
8.) Construct new pavement area for checkpoint. All buildings are modular and assumed to be on top of pavement	45,302 ft ²	GIS Data
9.) Total Ground Disturbance (checkpoint footprint and construction staging areas)	337,590 ft ²	GIS Data
Total Building Construction Area: 8,743 ft ²		
0.201 acres		
Total Building Demolition Area: 2,500 ft ²		
0.057 acres		
New Roadway Construction Area 45,302 ft ²		
1.040 acres		
Total Disturbed Area: 337,590 ft ²		
7.750 acres		
Construction Duration: 12 months		
Annual Construction Activity: 240 days		
		Assumes 4 weeks per month, 5 days per week of work.

Emission Factors Used for Construction Equipment

References: Guide to Air Quality Assessment, SMAQMD, 2004; and U.S. EPA NONROAD Emissions Model, Version 2005.0.0
 Emission factors are taken from the NONROAD model and were provided to HDR by Larry Landman of the Air Quality and Modeling Center (Landman.Larry@epamail.epa.gov) on 12/14/07. Factors provided are for the weighted average US fleet for CY2007.
 Assumptions regarding the type and number of equipment are from SMAQMD Table 3-1 unless otherwise noted.

Grading

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Bulldozer	1	13.597	0.957	5.502	1.017	0.895	0.868	1456.904
Motor Grader	1	9.689	0.726	3.203	0.797	0.655	0.635	1141.647
Water Truck	1	18.356	0.894	7.004	1.635	0.996	0.966	2342.975
Total per 10 acres of activity	3	41.641	2.577	15.710	3.449	2.546	2.469	4941.526

Paving

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Paver	1	3.831	0.374	2.055	0.281	0.350	0.340	401.932
Roller	1	4.825	0.443	2.514	0.374	0.434	0.421	536.074
Truck	2	36.712	1.788	14.009	3.271	1.992	1.932	4685.951
Total per 10 acres of activity	4	45.367	2.606	18.578	3.926	2.776	2.693	5623.957

Demolition

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Loader	1	13.452	0.992	5.579	0.949	0.927	0.899	1360.098
Haul Truck	1	18.356	0.894	7.004	1.635	0.996	0.966	2342.975
Total per 10 acres of activity	2	31.808	1.886	12.584	2.585	1.923	1.865	3703.074

Building Construction

Equipment ^d	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Stationary								
Generator Set	1	2.381	0.317	1.183	0.149	0.227	0.220	213.059
Industrial Saw	1	2.618	0.316	1.966	0.204	0.325	0.315	291.920
Welder	1	1.124	0.378	1.504	0.078	0.227	0.220	112.393
Mobile (non-road)								
Truck	1	18.356	0.894	7.004	1.635	0.996	0.966	2342.975
Forklift	1	5.342	0.560	3.332	0.399	0.554	0.537	572.235
Crane	1	9.575	0.665	2.393	0.651	0.500	0.485	931.929
Total per 10 acres of activity	6	39.396	3.130	17.382	3.116	2.829	2.744	4464.512

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Req ^d per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Air Compressor	1	3.574	0.373	1.565	0.251	0.309	0.300	359.773
Total per 10 acres of activity	1	3.574	0.373	1.565	0.251	0.309	0.300	359.773

- a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC. The NONROAD model contains emissions factors for total HC and for VOC. The factors used here are the VOC factors.
- c) The NONROAD emission factors assume that the average fuel burned in nonroad trucks is 1100 ppm sulfur. Trucks that would be used for the Proposed Action would be fueled by diesel fuel which cannot exceed 15 ppm sulfur. These estimates therefore over-estimate SO₂ emissions by more than a factor of 73.
- d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	Project-Specific Emission Factors (lb/day)						
		NO _x	VOC	CO	SO ₂ **	PM ₁₀	PM _{2.5}	CO ₂
Grading Equipment	1	41.641	2.577	15.710	3.449	2.546	2.469	4941.526
Paving Equipment	1	45.367	2.606	18.578	3.926	2.776	2.693	5623.957
Demolition Equipment	1	31.808	1.886	12.584	2.585	1.923	1.865	3703.074
Building Construction	1	39.396	3.130	17.382	3.116	2.829	2.744	4464.512
Air Compressor for Architectural Coating	1	3.574	0.373	1.565	0.251	0.309	0.300	359.773
Architectural Coating**			7.621					

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project.

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NO_x = (Total Grading NO_x per 10 acre)*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days	
Grading:	337,590	7.750	5	(from "Grading" worksheet)
Paving:	45,302	1.040	5	
Demolition:	2,500	0.057	3	
Building Construction:	8,743	0.201	240	
Architectural Coating	8,743	0.201	20	(per SMAQMD "Air Quality of Thresholds of Significance", 1994)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. The 'Total Days' estimate for building construction is assumed to be 240 days.

Total Project Emissions by Activity (lbs)

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Grading Equipment	208.206	12.885	78.549	17.247	12.728	12.346	24,707.632
Paving	226.836	13.029	92.892	19.629	13.880	13.464	28,119.784
Demolition	95.423	5.657	37.751	7.755	5.770	5.596	11,109.221
Building Construction	9,455.116	751.154	4,171.754	747.924	678.970	658.601	1,071,482.802
Architectural Coatings	71.481	159.877	31.308	5.023	6.186	6.001	7,195.467
Total Emissions (lbs):	10,057.063	942.601	4,412.256	797.577	717.534	696.008	1,142,614.906

Results: Total Project Annual Emission Rates

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Total Project Emissions (lbs)	10,057.063	942.601	4,412.256	797.577	717.534	696.008	1,142,614.906
Total Project Emissions (tons)	5.029	0.471	2.206	0.399	0.359	0.348	571.307