



1 DEIS Reasonable Alternatives  
2 Biological Resources Technical Report

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3 SH 68 from I-2/US 83 to I-69C/US 281

4 CSJs: 3629-01-001, -002, -003

5 Hidalgo County, Texas

6 Texas Department of Transportation - Pharr District

7 February 2018

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

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## 1 1.0 INTRODUCTION

2 The Pharr District of the Texas Department of Transportation (TxDOT) proposes to construct  
3 State Highway (SH) 68, a new highway facility from Interstate Highway (I) 2/U.S. Highway (US)  
4 83 to I-69C/US 281, located in eastern Hidalgo County. The proposed project corridor would  
5 begin at I-2/US 83 and travel north then west to connect to I-69C/US 281. The total length of  
6 the proposed project is approximately 22 miles.

7 The purpose of this technical report is to provide descriptions of biological resources and  
8 assess potential impacts for the three reasonable alternatives and the No-Build Alternative  
9 identified for the proposed project. This document would serve as support for Section 4, the  
10 Affected Environment and Environmental Consequences of the SH 68 Draft Environmental  
11 Impact Statement (DEIS).

### 12 1.1 Project Description

13 SH 68, as currently described in the Metropolitan Transportation Plan (MTP) and the  
14 Statewide Transportation Improvement Program (STIP), is a proposed four-lane divided rural  
15 highway facility with future mainlanes and overpasses.

16 SH 68 would be constructed in several phases, as funding becomes available. Funding has  
17 been secured for Phase I of the project. Funding for future phases has not yet been  
18 determined.

19 Phase I would construct a new four-lane divided rural highway facility from I-2/US 83 to Farm-  
20 to-Market (FM) 1925, which is also known as Monte Cristo Road. The four-lane divided facility  
21 would serve as frontage roads for the ultimate facility and consist of two lanes in each  
22 direction with shoulders, separated by a grassy median. Future phases would extend the four-  
23 lane divided rural highway from FM 1925/Monte Cristo Road to I-69C/US 281, and eventually  
24 would complete the ultimate facility by constructing the mainlanes and overpasses. The  
25 proposed project is being developed as a non-tolled facility.

26 The ultimate, controlled-access facility would be contained within a 350-foot typical right-of-  
27 way (ROW) width, with up to 400 feet of ROW needed at proposed grade separations. The  
28 proposed frontage roads would consist of two 12-foot wide lanes in each direction, with 4-foot  
29 wide inside shoulders and 8-foot wide outside shoulders. The frontage roads would include  
30 curb and gutter to accommodate drainage requirements. The proposed mainlanes would  
31 consist of two 12-foot wide lanes in each direction, with 4-foot wide inside shoulders and 10-  
32 foot wide outside shoulders. Mainlanes would be separated by a grassy median. Mainlane  
33 overpasses are assumed to be at major roadway crossings. Proposed future entrance and exit  
34 ramps would consist of 14-foot wide lanes, with 2-foot wide inside shoulders and 8-foot wide

1 outside shoulders. The termini at I-2/US 83 and I-69C/US 281 would include proposed  
2 connections to existing frontage roads and proposed direct connector ramps to and from  
3 existing mainlanes.

4 As part of the alternatives analysis and public involvement process for SH 68, study corridors  
5 and preliminary alternatives were developed within the approximately 179 square mile study  
6 area for the project. The preliminary alternatives were analyzed and evaluated to identify three  
7 reasonable alternatives. These reasonable alternatives, as well as the No-Build Alternative,  
8 are being advanced for more detailed analysis in order to identify a recommended preferred  
9 alternative. For more information about development of the reasonable alternatives and the  
10 alternatives analysis methodology, refer to the *SH 68 Draft DEIS Alternatives Analysis*  
11 *Technical Report* on file at TxDOT (TxDOT 2018).

12 The reasonable alternatives are shown in **Exhibits 1 and 2** in **Attachment A** and are described  
13 below along with the No-Build Alternative. The alternatives are presented in order  
14 geographically, from west to east. All alternatives would have the same ultimate typical  
15 section, as described above.

#### 16 **1.1.1 2014 Modified 2 Alternative**

17 The 2014 Modified 2 Alternative (light purple route in **Exhibits 1 and 2**) is approximately  
18 21.7 miles in length and would require an estimated 1,057 acres of ROW. The 2014  
19 Modified 2 Alternative is almost entirely on new location.

20 This alternative connects to I-2/US 83 approximately 7 miles east of I-69C/US 281, between  
21 the FM 1423/Val Verde Road overpass and the North Hutto Road overpass, near the existing  
22 intersection of the I-2/US 83 westbound frontage road and Valley View Road. From I-2/US 83,  
23 the 2014 Modified 2 Alternative would travel northwest on new location for approximately 3  
24 miles to near Minnesota Road before turning generally northward for approximately 7 miles  
25 through the communities of Muniz and San Carlos to north of SH 107.

26 Approximately 1 mile north of SH 107, near Mile 17 ½ Road, the 2014 Modified 2 Alternative  
27 would curve to the west for approximately 2 miles, crossing FM 1925/Monte Cristo Road and  
28 Davis Road. North of Davis Road, the 2014 Modified 2 route would run parallel to the west  
29 side of Brushline Road for approximately 5 miles. The proposed roadway would then curve to  
30 the northwest for approximately 2 miles before running along the north side of the existing  
31 FM 490 for approximately 3 miles and connect to I-69C/US 281 near the South Texas  
32 International Airport at Edinburg.

1 Future mainlane overpasses are assumed to be at Ferguson Road, Sioux Road, East Nolana  
2 Loop/Earling Road, Owassa Road, Alberta Road, Trenton Road, Wisconsin Road, Canton Road,  
3 SH 107, FM 1925, FM 2812, Brushline Road and Air Cargo Drive.

#### 4 **1.1.2 2014 PSM Alternative**

5 Like the 2014 Modified 2 Alternative, the 2014 Public Scoping Meeting (PSM) Alternative  
6 (orange route in **Exhibits 1 and 2**) is almost entirely on new location. The 2014 PSM Alternative  
7 is approximately 22.4 miles in length and would require an estimated 1,076 acres of ROW.  
8 The 2014 PSM Alternative follows the same new location route as the 2014 Modified 2  
9 Alternative from its intersection with I-2/US 83 to SH 107, a distance of approximately 8 miles,  
10 and continues generally northward for another 2 miles to cross FM 1925.

11 North of FM 1925, the 2014 PSM Alternative would curve to the east for approximately 1 mile,  
12 approaching Mile 19 Road, where it would then run parallel to the west of FM 1423/Val Verde  
13 Road for approximately 4 miles. The corridor would then curve to the northwest for  
14 approximately 4 miles before running along the north side of the existing FM 490 for  
15 approximately 3 miles and connect to I-69C/US 281 near the South Texas International Airport  
16 at Edinburg.

17 This alternative would also pass through the communities of Muniz and San Carlos. Future  
18 mainlane overpasses are assumed to be at Ferguson Road, Sioux Road, East Nolana  
19 Loop/Earling Road, Owassa Road, Alberta Road, Trenton Road, Wisconsin Road, Canton Road,  
20 SH 107, FM 1925, FM 2812, Brushline Road, and Air Cargo Drive.

#### 21 **1.1.3 FM 1423 PSM Alternative**

22 The FM 1423 PSM Alternative (dark pink route in **Exhibits 1 and 2**) is approximately 21.6  
23 miles in length and would require an estimated 1,061 acres of ROW. This alternative would  
24 connect to I-2/US 83 approximately 6 miles east of I-69C/US 281.

25 This alternative would generally follow FM 1423/Val Verde Road northward for approximately  
26 7.5 miles from the intersection with I-2/US 83 to SH 107 in the community of San Carlos.  
27 From SH 107, the alternative would continue northward along Val Verde Road approximately  
28 2 miles to FM 1925/Monte Cristo Road. Approximately 1.5 miles north of FM 1925, between  
29 Mile 19 Road and Mile 20 Road, the route would then follow the 2014 PSM Alternative route  
30 for approximately 11 miles north and west to I-69C/US 281 near the South Texas  
31 International Airport at Edinburg.

32 This alternative would pass through the City of Donna and the community of San Carlos.  
33 Future mainlane overpasses are assumed to be at FM 495/Kansas Road, Sioux Road, East

1 Nolana Loop/Earling Road, Roosevelt Road, Alberta Road, Trenton Road, Wisconsin Road,  
2 Canton Road, SH 107, FM 1925, FM 2812, Brushline Road, and Air Cargo Drive.

### 3 **1.1.4 No-Build Alternative**

4 The No-Build Alternative means that the proposed improvements associated with the SH 68  
5 project would not occur. Under this alternative, the existing facilities would operate as they  
6 currently do and there would be no new roadway called SH 68 constructed. There would be  
7 no relocations or conversion of land to transportation uses, and no adverse environmental or  
8 economic impacts associated with this alternative would occur. However, the No-Build  
9 Alternative would not address the purpose and need for the proposed project because it would  
10 not improve north-south mobility, increase travel capacity for local and regional traffic, or  
11 provide an alternate north-south evacuation route during emergency events.

## 12 **2.0 METHODOLOGY**

### 13 **2.1 Applicable Regulations, Executive Orders (EOs), and Memoranda of Understanding** 14 **(MOU)**

15 The wildlife resources of the Lower Rio Grande Valley (LRGV) are regulated by a variety of laws,  
16 EOs, and MOUs. They are administered by various agencies, including the U.S. Army Corps of  
17 Engineers (USACE), U.S. Fish & Wildlife Service (USFWS), National Marine Fisheries Service  
18 (NMFS), and Texas Parks & Wildlife Department (TPWD). The following paragraphs provide  
19 brief summaries of pertinent wildlife regulations, executive orders, MOUs.

#### 20 **2.1.1 Endangered Species Act (ESA)**

21 The federal ESA of 1973 (16 United States Code [U.S.C.] §§1531 et seq.) directs the USFWS  
22 (for terrestrial and freshwater species) and NMFS (for marine species) to identify and protect  
23 endangered and threatened species and their critical habitat. Section 9 of the ESA prohibits  
24 the unauthorized “take” of listed species. Under the ESA, the term “take” means to harass,  
25 harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a listed species, or to attempt  
26 to engage in such conduct. “Harm” includes significant habitat modification or degradation  
27 that actually kills or injures wildlife by significantly impairing essential behavior patterns, such  
28 as breeding, feeding, or sheltering. The purpose of the ESA is to conserve threatened and  
29 endangered species and the ecosystems on which they depend, and Section 7 of the ESA  
30 requires federal agencies to ensure that any action authorized, funded, or carried out is not  
31 likely to jeopardize the continued existence of listed species or result in the destruction or  
32 adverse modification of designated critical habitat.

1 The ESA defines an endangered species as one that is in danger of extinction throughout all  
2 or a significant portion of its range, and a threatened species is defined as one that is likely  
3 to become endangered in the foreseeable future. Proposed species have been formally  
4 submitted to the USFWS or NMFS for official listing as endangered or threatened. Additionally,  
5 candidate species that have potential to be listed because of identified and documented  
6 threats to their continued existence are identified by the USFWS. The USFWS also identifies  
7 species of concern that, like proposed and candidate species, are addressed in this DEIS, but  
8 are not protected under the ESA.

### 9 **2.1.2 Fish and Wildlife Coordination Act (FWCA)**

10 The FWCA of 1958 (16 USC Section 661-667e) requires that federal agencies obtain  
11 comments from USFWS for federally-funded projects that result in the control or modification  
12 of a natural stream or body of water (TxDOT 2017). The purpose of the FWCA is to provide the  
13 USFWS the opportunity to provide comments on large-scale actions affecting water resources  
14 to ensure wildlife are considered and protected. This coordination is required whenever an  
15 action involves impounding, diverting, or deepening a stream channel or other body of water  
16 and requires an Individual Section 404 permit.

### 17 **2.1.3 Migratory Bird Treaty Act (MBTA)**

18 The MBTA of 1918 (16 U.S.C. §§ 703-712) prohibits the taking, killing, possession,  
19 transportation, import, and export of migratory birds, their eggs, parts, and nests without a  
20 USFWS permit or other regulatory authorization. The MBTA protects most native bird species  
21 occurring in the wild in the United States except for gallinaceous birds (upland game birds  
22 such as turkeys and quail) that are not considered migratory.

### 23 **2.1.4 Bald and Golden Eagle Protection Act (BGEPA)**

24 The BGEPA (16 U.S.C. §§ 668-668d) prohibits the take of bald and golden eagles unless  
25 pursuant to regulations. It was originally enacted in 1940 as the Bald Eagle Protection Act,  
26 and it was expanded in 1962 to include the golden eagle. The BGEPA defines the take of an  
27 eagle to include a broad range of actions, including to pursue, shoot, shoot at, poison, wound,  
28 kill, capture, trap, collect, molest, or disturb. Based on regulations found at 50 CFR 22.3, the  
29 term “disturb” means to “agitate or bother a bald or golden eagle to a degree that causes, or  
30 is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2)  
31 a decrease in its productivity, by substantially interfering with normal breeding, feeding, or  
32 sheltering behavior, or (3) nest abandonment, by substantially interfering with normal  
33 breeding, feeding, or sheltering behavior.”

### 1 2.1.5 State Endangered Species Regulations

2 Endangered species legislation was passed in Texas in 1975 and 1988 (TPWD 2017a), and  
3 the ensuing TPWD regulations are found in Title 31 of the Texas Administrative Code (TAC),  
4 Sections 65.171–65.177 (for animals) and 69.1-69.9 (for plants) (Chapters 67, 68, and 88  
5 of the TPWD Code, respectively). These sections regulate the taking, possessing, transporting,  
6 exporting, processing, selling/offering for sale, or shipping of endangered or threatened  
7 species of fish, wildlife, and plants. The 1975 and 1981 revisions to the TPWD code  
8 established a state regulatory vehicle for the management and protection of threatened and  
9 endangered species. Chapters 67 and 68 (1975 revisions) of the code authorize the TPWD to  
10 formulate lists of threatened and endangered fish and wildlife species and to regulate the  
11 taking or possession of these species. A 1981 revision (and 1985 amendment) to the code  
12 provides authority for the TPWD to designate plant species as threatened or endangered and  
13 to prohibit commercial collection or sale of these species without permits.

14 The definition of “take” under state regulations differs from that of the federal ESA. For state-  
15 listed vertebrates “take” is defined as, “to collect, hook, hunt, net, shoot, or snare, by any  
16 means or device, and includes an attempt to take or to pursue in order to take” (Parks and  
17 Wildlife Code, Chapter 1, §1.101). For state-listed plants, “take” is defined as “to collect, pick,  
18 cut, dig up, or remove” (Parks and Wildlife Code, Chapter 88, §88.001). State of Texas  
19 endangered species regulations differentiate between those species listed by the state as  
20 "Endangered" and those species listed by the state as "Threatened." The state's lists of  
21 "Endangered" animals and plants are found at 31 TAC §65.176 and §69.8(a) respectively; all  
22 state-listed endangered species are also listed and protected by the federal ESA. The state's  
23 list of "Threatened" animals and plants are found at 31 TAC §61.175 and §69.8(b),  
24 respectively. State regulations do not protect state-threatened species from incidental or  
25 indirect impacts, indirect take, or habitat destruction. The Texas Natural Diversity Database  
26 (TXNDD), which is part of the TPWD’s Texas Wildlife Science Research and Diversity Program,  
27 catalogs, monitors, and provides information on rare species and communities of concern  
28 whether federally or state listed.

### 29 2.1.6 Marine Mammal Protection Act (MMPA)

30 The MMPA was enacted in 1972 and amended in 1994 to protect populations of marine  
31 mammals from declining beyond that required to maintain sustainable populations. The  
32 MMPA is codified at 16 USC Chapter 1361-1423h and is administered by the USFWS over the  
33 management of sea otters, walrus, polar bears, dugong and manatees, and by the NMFS over  
34 the management of cetaceans (whales and porpoises) and pinnipeds (seals) other than the  
35 walrus.

### 1 2.1.7 Magnuson Stevens Fisheries Conservation Management Act (MSFCA)

2 The MSFCA, first enacted in 1976 and then reauthorized in 2006 is administered by the NMFS  
3 and protects critical habitat for marine species. The MSFCA applies to projects that are  
4 federally funded, located within a county with tidally-influenced waters, and affect essential  
5 fish habitat (EFH).

### 6 2.1.8 Executive Order (EO) 13112 on Invasive Species and Executive Memorandum (EM) 7 on Environmentally and Economically Beneficial Landscaping

8 The federal EO 13112 on Invasive Species, effective February 3, 1999, directs federal  
9 agencies to prevent the introduction and control the spread of invasive species. Invasive  
10 species are defined by the EO as “an alien species whose introduction does or is likely to  
11 cause economic or environmental harm or harm to human health.” The EO directs federal  
12 agencies avoid and/or minimize the potential spread of invasive species.

13 The federal EM on Environmentally and Economically Beneficial Landscaping, effective April  
14 26, 1994, directs federal agencies to incorporate beneficial landscaping into their projects  
15 and facilities, where practical.

### 16 2.1.9 TxDOT-Texas Parks and Wildlife Department MOU

17 Provision (4)(A)(i) of the 2017 MOU between TxDOT and TPWD requires that the vegetation  
18 and habitat for the proposed action be characterized, as defined by Sections 1, 2 and 3 of the  
19 2001 TxDOT-TPWD MOU, and the impact to vegetation described. Section 1 of the TxDOT-  
20 TPWD MOU requires the description of unusual vegetation and special habitat features. In  
21 accordance with Provision (4)(A)(ii) of the TxDOT-TPWD MOU, the TxDOT-TPWD MOU identifies  
22 non-regulatory habitats that, if impacted, TxDOT would consider mitigating. These habitats  
23 include: habitat for federal candidate species if mitigation would prevent listing; communities  
24 that are critically imperiled in the state, extremely rare and very vulnerable to extirpation (S1);  
25 communities that are imperiled in the state, very rare and vulnerable to extirpation (S2); S3  
26 vegetation series that provide habitat for state listed species; native prairies and riparian  
27 sites; and any other habitat feature considered to be locally important. In accordance with the  
28 2017 TxDOT-TPWD MOU, there are various Tier I Site Assessment triggers for coordination  
29 with TPWD that must be considered. A Tier I Site Assessment defines the type and amount of  
30 habitat that could be impacted by the proposed project by using information from the Texas  
31 Conservation Action Plan (TCAP); Ecological Mapping System of Texas (EMST); TXNDD; TPWD  
32 county list of Rare and Protected Species of Texas; USFWS county list of endangered,  
33 threatened, and candidate species; and current aerial photography.

## 1 2.2 Description of Review Methods

2 The biological resource study was conducted by reviewing numerous sources, including  
3 natural color and infrared aerial photography, U.S. Geological Survey (USGS) 7.5 minute  
4 topographic quadrangle maps (Donna, Hargill, and La Blanca, Texas) (**Exhibit 2**), U.S.  
5 Department of Agriculture (USDA) soil maps, USFWS National Wetlands Inventory (NWI) maps  
6 (USFWS 2017a) (**Exhibit 3**), Federal Emergency Management Agency's (FEMA) floodplain  
7 maps (**Exhibit 3**), watershed data from the USGS (HUC Code 12110208)  
8 ([https://cfpub.epa.gov/surf/county.cfm?fips\\_code=48215](https://cfpub.epa.gov/surf/county.cfm?fips_code=48215)), the National Hydrography  
9 Dataset (<http://viewer.nationalmap.gov/basic/>), historic aerial photographs on Google Earth,  
10 precipitation data from NOAA's National Climatic Data Center  
11 (<http://www.usclimatedata.com/climate/edinburg/texas/united-states/ustx2428>), NatureServe  
12 explorer (NatureServe 2017), the TCAP, a query of the TXNDD within 10 miles of the three  
13 reasonable alternative corridors, the USFWS Information for Planning and Conservation (IPaC)  
14 system list of federally threatened and endangered species and other resources of potential  
15 occurrence in the study area (USFWS 2017b), and TPWD's Annotated County Lists of Rare  
16 Species for Hidalgo County (TPWD 2017b).

## 17 2.3 Description of Habitat Assessment Methods

18 Following the desktop review, several field reconnaissance visits were conducted on May 25  
19 and 26, 2016 and June 28 and 29, 2016 to identify and photo-document the aquatic and  
20 terrestrial habitats present in the study area, ground-truth aerial signatures, and generally  
21 characterize habitats with respect to dominant and common vegetation species and physical  
22 attributes. A field reconnaissance visit was conducted on January 31, 2017 to identify and  
23 photo-document the aquatic and terrestrial habitats present in the three reasonable  
24 alternatives. However, there are portions of the three reasonable alternatives proposed on  
25 new location where access was not available. These areas were analyzed through  
26 interpretation of 2015 and 2016 aerial imagery based on ground-truthing of aerial signatures  
27 that were available. The types and relative quality of the habitats identified in the study area  
28 were assessed to assist with the evaluation of the potential occurrence of rare, threatened,  
29 and endangered species in the study area, and to assess potential impacts to vegetation and  
30 general wildlife.

## 31 3.0 **RESOURCES IN THE STUDY AREA**

32 The three reasonable alternatives are located within the LRGV sub-region of the Western Gulf  
33 Coastal Plain Ecoregion, also known as the Gulf Coast Prairies and Marshes  
34 ([ftp://newftp.epa.gov/EPADDataCommons/ORD/Ecoregions/tx/tx\\_front.pdf](ftp://newftp.epa.gov/EPADDataCommons/ORD/Ecoregions/tx/tx_front.pdf)). This ecoregion is  
35 a slowly drained, relatively level floodplain that slopes gently toward the Gulf of Mexico.  
36 Historically, the Western Gulf Coastal Plain was dominated by tallgrass prairies and oak

1 savannas. From a physiographic perspective, the study area is on the boundary of the flat  
2 Coastal Prairies to the east and the small ridges and valleys of the uplands of the Interior  
3 Coastal Plains to the west ([http://www.beg.utexas.edu/UTopia/images/pagesizemaps/  
4 physiography.pdf](http://www.beg.utexas.edu/UTopia/images/pagesizemaps/physiography.pdf)). The Interior Coastal Plains support the South Texas Plains, which are  
5 dominated by mesquite brushlands and chaparral. Elevations in the area range from  
6 approximately 50 feet to approximately 100 feet above mean sea level (msl). The soils of the  
7 LRGV region are comprised primarily of sandy clays and sandy loams. The soils in the majority  
8 of the area are mapped as Hidalgo sandy clay loam, Hidalgo fine sandy loam, Willacy fine  
9 sandy loam, and Hargill fine sandy loam, which are all classified as prime farmland  
10 (USDA 2017). Only a few of these soils are listed on the state or national hydric soils lists  
11 (USDA 2017, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>). The study  
12 area has an average annual precipitation of 24 inches ([http://www.usclimatedata.com/  
13 climate/edinburg/texas/united-states/ustx2428](http://www.usclimatedata.com/climate/edinburg/texas/united-states/ustx2428)), with the most precipitation coming on  
14 average from May through October. Small portions of the study area are located within the  
15 FEMA 100-year floodplain (**Exhibit 3**) (FEMA 1981, 1982, and 2000). Land use in the study  
16 area includes agriculture (row crops and orchards), transportation, residential/commercial,  
17 grassland, and brushland.

### 18 **3.1 Terrestrial and Aquatic Habitats**

19 According to the EMST, the three reasonable alternatives contain specific mapped vegetation  
20 types ranging from Urban High and Low Intensity to South Texas Disturbance Grassland, and  
21 various types of South Texas Clayey or Sandy Shrublands (**Exhibits 4.1 through 4.13**). The  
22 Land Use/Land Cover (LU/LC) data derived from field visits and analysis of aerial photography  
23 of the three reasonable alternatives identified Croplands, Grasslands, and Residential as the  
24 dominant land use categories in the study area (**Exhibits 5.1 through 5.13**). Other LU/LC types  
25 identified in the study area include Drainage and Irrigation Canals, Extra Large Trees, Mixed  
26 Brush, and Shrublands.

27 Dominant woody vegetation in the small patches of brush and shrublands include honey  
28 mesquite (*Prosopis glandulosa*), huisache (*Acacia farnesiana*), blackbrush (*Acacia rigidula*),  
29 granjeno (*Celtis pallida*), and sugar hackberry (*Celtis laevigata*). Other common woody plant  
30 species include brasil (*Condalia hookeri*), Texas ebony (*Pithecellobium flexicaule*), whitebrush  
31 (*Aloysia gratissima*), retama (*Parkinsonia aculata*), anaqua (*Ehretia anacua*), lime prickly ash  
32 or colima (*Zanthoxylum fagara*), all-thorn or amargosa (*Castela erecta*), snake eyes  
33 (*Phaulothamnus spinescens*), cenizo (*Leucophyllum frutescens*), Texas lantana (*Lantana  
34 urticoides*), lotebush (*Ziziphus obtusifolia*), and prickly pear (*Opuntia* sp.). Common grasses of  
35 the region include King Ranch bluestem (*Bothriochloa ischaemum*), buffelgrass (*Cenchrus  
36 ciliaris*), little bluestem (*Schizachyrium scoparium*), johnsongrass (*Sorghum halepense*),  
37 guinea grass (*Megathyrsus maximus*), and common bermudagrass (*Cynodon dactylon*).

1 Ornamental vegetation at residential and commercial developments includes Washington fan  
2 palm (*Washingtonia robusta*), Chinese tallow (*Sapium sebiferum*), crepe myrtle  
3 (*Lagerstroemia* sp.), mesquite, saltcedar (*Tamarix aphylla*), anacahuita or Mexican olive  
4 (*Cordia boissieri*), orchid tree (*Bauhinia lunarioides*), tepehuaje (*Leucana pulverulenta*), live  
5 oak (*Quercus virginiana*), granjeno, anaqua, and retama. Areas between these brush and  
6 shrub patches, as well as patches of other natural habitats in the study area, form wildlife  
7 corridors which are essential for wildlife conservation. They allow wildlife to move between  
8 natural resources, allow for the exchange of genetic materials among populations of wildlife,  
9 and they are important dispersal routes for numerous species of wildlife.

10 With the exception of the Rio Grande and its associated resacas and wetlands, the majority  
11 of the LRGV region is an area of relatively flat coastal plain that drains gradually eastward to  
12 the Laguna Madre and the Gulf of Mexico. The only extensive aquatic habitat in the study area  
13 is located in the Donna Main Canal and Santa Cruz Canal, which are relatively large man-  
14 made canals, and other smaller canals constructed for drainage and irrigation. According to  
15 the 2014 Texas Integrated Report of Surface Water Quality for Clean Water Act, Sections  
16 305(b) and 303(d), there are no crossings of any TCEQ water quality monitoring segments by  
17 the three reasonable alternatives ([http://tceq.maps.arcgis.com/apps/webappviewer/  
18 index.html?id=b0ab6bac411a49189106064b70bbe778](http://tceq.maps.arcgis.com/apps/webappviewer/index.html?id=b0ab6bac411a49189106064b70bbe778)).

### 19 3.2 Vegetation and Land Use

20 According to EMST data, the majority of the three reasonable alternatives is mapped as South  
21 Texas Disturbance Grassland or Row Crops. These vegetation types correspond to the Grass  
22 and Cropland categories in the LU/LC data. Other EMST vegetation types mapped within the  
23 three reasonable alternatives include Marsh, Open Water, South Texas Clayey Blackbrush  
24 Mixed Shrubland, South Texas Clayey Mesquite Mixed Shrubland, South Texas Sandy  
25 Mesquite - Evergreen Woodland, South Texas Sandy Mesquite Dense Shrubland, South Texas  
26 Sandy Mesquite Savanna Grassland, South Texas Sandy Mesquite Woodland and Shrubland,  
27 and Urban High and Low Intensity. The various EMST shrubland types correspond to the Brush  
28 and Shrubland categories in the LU/LC data. The EMST Urban Types correspond to the  
29 Commercial, Mixed Residential/Commercial, and Residential categories in the LU/LC data.  
30 The following sections describe the EMST vegetation types and the LU/LC types mapped  
31 within the three reasonable alternatives.

#### 32 3.2.1 EMST Types

33 The Marsh type is often associated with man-made ponds or tanks. Important herbaceous  
34 species include various sedges (*Carex* spp.), rushes (*Juncus* spp.), spikerushes (*Eleocharis*  
35 spp.), bulrushes (*Scirpus* spp.), and wet grasses. Common woody species include shrubs such  
36 as black willow and buttonbush (*Cephalanthus occidentalis*). The Open Water type includes

1 large lakes, rivers, marine waters, and ephemeral ponds, some of which may support  
2 vegetation with species such as black willow, cottonwood (*Populus deltoides*), Chinese tallow,  
3 seepweed (*Suaeda linearis*), sea ox-eye daisy (*Borrchia frutescens*), saltwort (*Batis maritima*),  
4 rushes, sedges, cattails (*Typha* spp.), and spikerushes.

5 Row Crops are defined as crops and other annual agricultural fields. South Texas Disturbance  
6 Grassland is defined as a variety of mainly heavily grazed grasslands, including managed  
7 exotic pastures. Common dominant species include buffelgrass, King Ranch Bluestem, pink  
8 pappusgrass (*Pappophorum bicolor*), threeawn species (*Aristida* sp.), guineagrass, and  
9 Kleberg bluestem (*Dichanthium annulatum*). Shrubs and small trees such as mesquite,  
10 huisache, lotebush, and granjeno are common components.

11 South Texas Clayey Blackbrush Mixed Shrubland is defined as relatively dense shrublands  
12 with characteristic species such as blackbrush, mesquite, granjeno, guajillo (*Acacia*  
13 *berlandieri*), lotebush, amargosa, brasil, and lime prickly ash. South Texas Clayey Mesquite  
14 Mixed Shrubland is characterized by a discontinuous canopy of shrubs and small trees, and  
15 species such as mesquite, huisache, granjeno, sugar hackberry, brasil, guajillo, blackbrush,  
16 lotebush, pricklypear, and whitebrush are common components. Buffelgrass is a common  
17 herbaceous dominant.

18 South Texas Sandy Mesquite - Evergreen Woodland is characterized by the dominant species  
19 mesquite and huisache. It is represented by more northern occurrences with species such as  
20 live oak, yaupon (*Ilex vomitoria*), and bumelia (*Sideroxylon lanuginosum*) and more southern  
21 occurrences where species such as granjeno, colima, brasil, lotebush, and coma (*Bumelia*  
22 *celastrina*) and more common. South Texas Sandy Mesquite Dense Shrubland is defined as  
23 dense mesquite shrubland characterized by a relatively diverse compliment of additional  
24 shrubs and small trees such as colima, granjeno, Texas persimmon (*Diospyros texana*), sugar  
25 hackberry, Texas ebony, huisache, guajillo, blackbrush, and brasil. South Texas Sandy  
26 Mesquite Savanna Grassland is characterized by grasslands with scattered mesquite, and it  
27 includes areas over both loamy sands and loams. Herbaceous species such as King Ranch  
28 bluestem, buffelgrass, Kleberg bluestem, Bermudagrass, little bluestem, purple threeawn  
29 (*Aristida purpurea*), silver bluestem (*Bothriochloa saccharoides*), tanglehead (*Heteropogon*  
30 *contortus*), and hog croton (*Croton capitatus*) are common. Additional common shrubs include  
31 Lindheimer pricklypear (*Opuntia engelmannii* var. *lindheimeri*), huisache, colima, and  
32 granjeno. South Texas Sandy Mesquite Woodland and Shrubland is defined as relatively  
33 dense mesquite low woodlands with common components including Lindheimer pricklypear,  
34 granjeno, colima, huisache, sugar hackberry, lotebush, and brasil.

35 The Urban High Intensity EMST Type consists of built-up areas and wide transportation  
36 corridors that are dominated by impervious cover. The Urban Low Intensity type includes areas

1 that are built-up but not entirely covered by impervious cover, and includes most of the  
2 commercial and residential areas within cities and towns.

### 3 **3.2.2 Land Use/Land Cover Types**

4 Brush and Shrubland LU/LC types are defined as areas dominated by woody vegetation  
5 generally less than 5 meters in height that occurs in clumps of varying densities. These types  
6 can include evergreen and deciduous species of shrubs and young trees. Both types are  
7 characterized by the same common species such as mesquite, huisache, granjeno, sugar  
8 hackberry, and lotebush. Brush and Shrublands are differentiated by the amount of cover they  
9 provide. Areas assigned to the Brush category are denser and have fewer breaks in the canopy  
10 (over 75 percent canopy cover). They also generally have greater species diversity and may  
11 include species such as blackbrush, colima, brasil, Texas ebony, and coma. Areas assigned  
12 to the Shrubland category are less dense and generally characterized as having shrub cover  
13 of 25 to 75 percent.

14 The Commercial LU/LC type includes areas that are used for the sale of products and services  
15 and may include some areas of noncommercial use that are too small to be separated out. It  
16 is generally comprised of facilities such as office buildings, warehouses, shopping centers,  
17 urban business districts, parking lots, and associated landscaped areas. The Residential  
18 LU/LC type is characterized by areas with residential uses varying from high density multiple-  
19 unit structures in urban areas to low density neighborhoods with houses on large lots.  
20 Residential development often occurs in linear appendages to urban areas that stretch along  
21 transportation routes. Areas where both commercial and residential development occur and  
22 neither accounts for more than two-thirds of the development are classified as the Mixed  
23 Residential/Commercial LU/LC type.

24 The Cropland LU/LC types are characterized by vegetation that has been planted or is  
25 intensively managed to produce food, feed, or fiber. The Cropland Cultivated category includes  
26 areas used for the production of crops, such as corn, sorghum, wheat, cotton, onions,  
27 cabbage, watermelons, cantaloupe, etc.; cropland used only for pasture in rotation with crops;  
28 and fallow fields that do not exhibit visible vegetation because of management practices that  
29 incorporate alternation between active farming and tillage. The Cropland Orchards category  
30 includes orchards, groves, and vineyards that produce various fruit and nut crops, and  
31 nurseries and greenhouses used perennially for these purposes.

32 The Drainage/Irrigation Canals LU/LC types include areas within the study area that are part  
33 of the extensive system of drainage or irrigation canals that have been built across the LRGV.  
34 The Donna Main Canal and Santa Cruz Canal are the largest of the canals in the study area.

1 The Extra Large Trees LU/LC type includes small patches of large trees scattered throughout  
2 the study area. These areas are primarily comprised of large live oaks and other tree species  
3 found near residences and farmsteads or along roadsides.

4 The Grasslands LU/LC type includes areas dominated by naturally occurring grasses and forbs  
5 as well as areas with non-native grasses and forbs as their principal cover that are primarily  
6 used for cattle grazing. Common dominant species include King Ranch bluestem, buffelgrass,  
7 Kleberg bluestem, Bermudagrass, little bluestem, purple threeawn, and silver bluestem.

8 The Open Water LU/LC type includes all areas of open water, generally with less than 25  
9 percent cover of vegetation or land cover. Within the study area, this category is primarily  
10 represented by impoundments used as stock tanks.

11 The Transportation LU/LC type includes linear transportation routes and associated ROWs,  
12 areas used for interchanges, and service facilities. These transportation routes largely  
13 influence other land uses, and they frequently define other land use boundaries.

14 Representative photographs of the LU/LC types are included in **Attachment B**.

## 15 4.0 ASSESSMENT OF ALTERNATIVES

### 16 4.1 Impacts to Vegetation

17 The three reasonable alternatives are generally similar to each other in vegetation cover and  
18 mapped LU/LC types and would have similar impacts to vegetation. Preliminary designs of the  
19 three reasonable alternatives are not detailed enough to calculate permanent impacts within  
20 each corridor. Therefore, acreage calculations of potential impacts to EMST and LU/LC types  
21 are based on the total area of each reasonable alternative. Specific information for each  
22 alternative is described below.

#### 23 4.1.1 2014 Modified 2 Alternative

24 According to EMST mapped vegetation in the study area, the 2014 Modified 2 Alternative  
25 would potentially impact the largest amount of South Texas Clayey Blackbrush Mixed  
26 Shrubland, South Texas Clayey Mesquite Mixed Shrubland, South Texas Disturbance  
27 Grassland, South Texas Sandy Mesquite Dense Shrubland, and South Texas Sandy Mesquite  
28 Savanna Grassland vegetation types of the three reasonable alternatives (**Table 1**). It is the  
29 only alternative that would potentially impact the Open Water EMST type. It would potentially  
30 impact the smallest amount of Row Crops, South Texas Sandy Mesquite – Evergreen  
31 Woodland, South Texas Sandy Mesquite Woodland and Shrubland, and Urban EMST types of  
32 the three reasonable alternatives.

**Table 1. EMST Vegetation Mapped Within the Three Reasonable Alternatives**

EMST Vegetation Type	Ecological System Type	TxDOT-TPWD MOU Vegetation Type	Acres Within 2014 Modified 2 Alternative	Acres Within 2014 PSM Alternative	Acres Within 1423 PSM Alternative
Marsh	Azonal Wetland	Riparian	0	1.71	2.25*
Open Water	Open Water	Riparian	1.03*	0	0
Row Crops	Agriculture	Agriculture	205.89	280.3*	249.83
South Texas: Clayey Blackbrush Mixed Shrubland	Tamaulipan Mixed Deciduous Thornscrub	Scrub, Thornscrub, Shrubland	11.93*	9.51	9.3
South Texas: Clayey Mesquite Mixed Shrubland	Tamaulipan Mixed Deciduous Thornscrub	Scrub, Thornscrub, Shrubland	2.42*	1.95	1.43
South Texas: Disturbance Grassland	Disturbance Grassland	Disturbed Prairie	550.48*	511.22	479.92
South Texas: Sandy Mesquite - Evergreen Woodland	Tamaulipan Savanna Grassland	Tallgrass Prairie, Grassland	36.49	67.55*	47.56
South Texas: Sandy Mesquite Dense Shrubland	Tamaulipan Savanna Grassland	Tallgrass Prairie, Grassland	154.51*	109.85	113.48
South Texas: Sandy Mesquite Savanna Grassland	Tamaulipan Savanna Grassland	Tallgrass Prairie, Grassland	13.01*	0	0
South Texas: Sandy Mesquite Woodland and Shrubland	Tamaulipan Savanna Grassland	Tallgrass Prairie, Grassland	14.45	19.99	23.89*
Urban High Intensity	Urban	Urban	2.49	3.04	8.46*

**Table 1. EMST Vegetation Mapped Within the Three Reasonable Alternatives**

EMST Vegetation Type	Ecological System Type	TxDOT-TPWD MOU Vegetation Type	Acres Within 2014 Modified 2 Alternative	Acres Within 2014 PSM Alternative	Acres Within 1423 PSM Alternative
Urban Low Intensity	Urban	Urban	64.21	70.77	124.47*
<b>Total</b>			<b>1,057</b>	<b>1,076</b>	<b>1,061</b>

Source: EMST 2017.

Notes:

\*Anticipated impacts to mapped vegetation greater than other two alternatives.

According to LU/LC data, this alternative would potentially impact the highest amount of brush and shrublands, and area of orchards, but would impact the least amount of grasslands (Table 2). Exhibits 4.1 through 4.13 show EMST data and Exhibits 5.1 through 5.13 show LU/LC data.

**Table 2. Land Use/Land Cover Data Mapped Within the Three Reasonable Alternatives**

LU/LC Type	Acres Within 2014 Modified 2 Alternative	Acres Within 2014 PSM Alternative	Acres Within 1423 PSM Alternative
Brush	117.5	87.9	81.1
Commercial	20.8	19.6	49.9
Cropland Cultivated	367.8	386.8	294.1
Cropland Orchard	84.3	73.9	31.7
Drainage Canal	2.7	2.7	1.4
Extra Large Trees	17.5	17.5	19.1
Grass	204.7	259.9	333.4
Irrigation Canal	1.7	2.3	1.9
Mixed Residential/Commercial	13.7	11.4	12.6
Open Water	1.7	0.4	0.6
Residential	124.0	122.1	154.0
Shrubland	78.0	70.8	24.8
Transportation	22.2	20.3	56.0
<b>Total</b>	<b>1,057</b>	<b>1,076</b>	<b>1,061</b>

Source: Blanton &amp; Associates 2017.

- 1
- 2 Remnant patches of native brush and shrubland habitat are important in the region because
- 3 of their rarity, unique characteristics, and potential for supporting wildlife. Areas between
- 4 these brush and shrub patches, as well as patches of other natural habitats in the study area,
- 5 form wildlife corridors which are essential for wildlife conservation. They allow wildlife to move
- 6 between natural areas, allow for the exchange of genetic materials among populations of
- 7 wildlife, and they are important dispersal routes for numerous species of wildlife. These
- 8 habitat patches could be fragmented and degraded by induced growth.

1 The 2014 Modified 2 Alternative supports the most native brush habitat of the three  
2 reasonable alternatives. The largest area of brush within any of the three reasonable  
3 alternative corridors is located near the northern end of the corridor west of Brushline Road  
4 and south of FM 490 (**Exhibits 5.10** and **5.11**). If this alternative were selected as the  
5 preferred alternative, this area west of Brushline Road would be considered as a potential  
6 location for a wildlife crossing in the design of the roadway.

7 In accordance with the 2017 TxDOT-TPWD MOU, most of the Tier I Site Assessment triggers  
8 cannot be fully evaluated at this preliminary stage of the design of the three reasonable  
9 alternatives. However, it is anticipated that this alternative would exceed impact thresholds  
10 defined in the TxDOT-TPWD MOU for Agriculture; Disturbed Prairie; Scrub, Thornscrub,  
11 Shrubland; and Tallgrass Prairie, Grassland MOU vegetation types. Therefore, coordination  
12 with TPWD would be required. Coordination with TPWD would also be required for potential  
13 impacts to threatened and endangered species and species of greatest conservation need  
14 (SGCN), as described in **Section 4.5**.

#### 15 4.1.2 2014 PSM Alternative

16 According to EMST mapped vegetation in the study area, the 2014 PSM Alternative would  
17 potentially impact the largest amount of Row Crops and South Texas Sandy Mesquite –  
18 Evergreen Woodland vegetation types of the three reasonable alternatives (**Table 1**). It would  
19 potentially impact the smallest amount of the South Texas Sandy Mesquite Dense Shrubland  
20 vegetation type of the three reasonable alternatives. According to LU/LC data, this alternative  
21 would potentially impact the greatest amount of cultivated croplands but the least amount of  
22 commercial, residential, and mixed commercial/residential acreage and existing  
23 transportation acreage of the three reasonable alternatives (**Table 2**). **Exhibits 4.1** through  
24 **4.13** show EMST data and **Exhibits 5.1** through **5.13** show LU/LC data.

25 The 2014 PSM Alternative would also potentially impact remnant patches of brush habitat,  
26 which are important in the region because of their rarity, unique characteristics, and potential  
27 for supporting rare species. The 2014 PSM Alternative supports more brush habitat than the  
28 1423 PSM Alternative, but not as much as the 2014 Modified 2 Alternative. The largest area  
29 of brush habitat potentially impacted by this alternative is located near the northern end of  
30 the corridor, north of Mile 22½ Road near its intersection with 1423/Val Verde Road (**Exhibits**  
31 **5.9** and **5.10**). If this alternative were selected as the preferred alternative, this area near  
32 Mile 22½ Road would be considered as a potential location for a wildlife crossing in the design  
33 of the roadway.

34 Most of the Tier I Site Assessment triggers cannot be fully evaluated at this preliminary stage  
35 of the design of the three reasonable alternatives. However, it is anticipated that this  
36 alternative would exceed impact thresholds defined in the TxDOT-TPWD MOU for Agriculture;

1 Disturbed Prairie; Scrub, Thornscrub, Shrubland; and Tallgrass Prairie, Grassland MOU  
2 vegetation types. Therefore, coordination with TPWD would be required. Coordination with  
3 TPWD would also be required for potential impacts to threatened and endangered species  
4 and SGCN, as described in **Section 4.5**.

#### 5 **4.1.3 FM 1423 PSM Alternative**

6 According to EMST mapped vegetation in the study area, the FM 1423 PSM Alternative would  
7 potentially impact the largest amount of Marsh, South Texas Sandy Mesquite Woodland and  
8 Shrubland, and Urban vegetation types of the three reasonable alternatives (**Table 1**). It would  
9 potentially impact the smallest amount of South Texas Clayey Blackbrush Mixed Shrubland,  
10 South Texas Clayey Mesquite Mixed Shrubland, and South Texas Disturbance Grassland  
11 vegetation types of the three reasonable alternatives. According to LU/LC data, this alternative  
12 would potentially impact the greatest amount of Commercial and Residential areas,  
13 Transportation Areas, Grasslands, and acres of Extra Large Trees, but would impact the least  
14 amount of Brush, Shrublands, and Cropland (Cultivated and Orchard), of the three reasonable  
15 alternatives (**Table 2**). **Exhibits 4.1** through **4.13** show EMST data and **Exhibits 5.1** through  
16 **5.13** show LU/LC data. The 1423 PSM Alternative would potentially impact the smallest  
17 amount of brush habitat of the three reasonable alternatives, but like the 2014 PSM  
18 Alternative, the largest area of brush habitat impacted by this alternative is located near the  
19 northern end of the corridor, north of Mile 22½ Road near its intersection with  
20 FM 1423/Val Verde Road (**Exhibits 5.9** and **5.10**). If this alternative were selected as the  
21 preferred alternative, this area near Mile 22½ Road would be considered as a potential  
22 location for a wildlife crossing in the design of the roadway.

23 Most of the Tier I Site Assessment triggers cannot be fully evaluated at this preliminary stage  
24 of the design of the three reasonable alternatives. However, it is anticipated that this  
25 alternative would exceed impact thresholds defined in the TxDOT-TPWD MOU for Agriculture;  
26 Disturbed Prairie; Scrub, Thornscrub, Shrubland; and Tallgrass Prairie, Grassland MOU  
27 vegetation types. Therefore, coordination with TPWD would be required. Coordination with  
28 TPWD would also be required for potential impacts to threatened and endangered species  
29 and SGCN, as described in **Section 4.5**.

#### 30 **4.1.4 No-Build Alternative**

31 The No-Build Alternative means that the proposed improvements associated with the SH 68  
32 project would not occur. Under this alternative, the existing facilities would operate as they  
33 currently do and there would be no new roadway called SH 68 constructed. There would be  
34 no relocations or conversion of land to transportation uses, and no adverse environmental or  
35 economic impacts associated with this alternative would occur. However, the No-Build  
36 Alternative would not address the purpose and need for the proposed project because it would

1 not improve north-south mobility, increase travel capacity for local and regional traffic, or  
2 provide an alternate north-south evacuation route during emergency events. There would be  
3 no impacts to any EMST mapped vegetation or LU/LC type as a result of the No-Build  
4 Alternative, and no MOU thresholds defined in the TxDOT-TPWD MOU would be exceeded.

#### 5 **4.2 Fish and Wildlife Coordination Act (FWCA)**

6 It is anticipated that each of the three reasonable alternatives would be authorized by USACE  
7 Section 404 Nationwide Permits (NWP) 14 for Linear Transportation Projects because the  
8 permanent impacts are expected to be less than 0.1 acre at each individual crossing of a  
9 potential water of the U.S. The activity would comply with all general and regional conditions  
10 applicable to NWP 14. Coordination with the USFWS would be conducted for SH 68 as part of  
11 the procedural requirements of the National Environmental Protection Act (NEPA) and for  
12 potential impacts to federally listed threatened and endangered species under Section 7 of  
13 the ESA. In addition, the project would be required to obtain one or more Section 404 Clean  
14 Water Act (CWA) permits, therefore, compliance with the terms of a Section 404 CWA NWP  
15 typically satisfies FWCA coordination requirements.

16 **Table 3** summarizes the water resources present within the three reasonable Alternatives.  
17 The No Build Alternative would have no impact on potential waters of the U.S., and  
18 coordination with USFWS would not be required.

**Table 3. Water Resources Within the Three Reasonable Alternatives**

	2014 Modified 2 Alternative	2014 PSM Alternative	FM 1423 PSM Alternative	No Build Alternative
Number of Drainage Canal/Ditch Crossings	11	11	6	0
Number of Irrigation Canal/Ditch Crossings	15	21	35	0
Floodplains (acres)	140.2	148.7	161.2	0
National Wetland Inventory Features (acres)	4.17	4.81	4.59	0

Source: Blanton & Associates 2017.

#### 19 **4.3 Invasive Species and Beneficial Landscaping**

20 To comply with the federal EO 13112 on Invasive Species and the EM for Environmentally and  
21 Economically Beneficial Landscaping, the department implements appropriate measures on  
22 a programmatic basis through its Roadside Vegetation Management Manual and Landscape  
23 and Aesthetics Design Manual. Permanent soil erosion control features would be  
24 implemented as soon as feasible during the early stages of construction through proper  
25 sodding and/or seeding techniques. Disturbed areas would be restored and stabilized as soon  
26 as the construction schedule permits. Seeding and replanting with TxDOT approved rural

1 seeding specifications would be performed where possible, and only non-invasive species  
2 would be planted within the ROW.

3 The No Build Alternative would have no potential to cause soil erosion or the introduction of  
4 invasive species.

#### 5 **4.4 Farmland Protection Policy Act (FPPA)**

6 The Agriculture and Food Act of 1981 contained the Farmland Protection Policy Act (FPPA) in  
7 subtitle I of Title XV, Section 1539-1549, and final rules were published in the Federal Register  
8 on June 17, 1994. The purpose of the FPPA is to protect prime or unique farmland or land of  
9 statewide or local importance from being unnecessarily converted to nonagricultural uses by  
10 federal programs. The FPPA ensures that federal actions are compatible with state, local  
11 government, and private programs or policies to protect farmland.

12 All three of the reasonable alternatives would impact areas mapped as prime farmland by the  
13 Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2017) (**Table 4**). The  
14 1423 PSM Alternative contains the most prime farmland of the three reasonable alternatives,  
15 and the 2014 Modified 2 Alternative contains the most prime if irrigated farmland. The No  
16 Build Alternative would have no impact on prime farmland.

17 The NRCS-CPA-106 form evaluates potential farmland soil impacts on a 260-point scale,  
18 where 160 points is the threshold for consideration for protection. Part V of the form, which  
19 can range from 0 to 100 points, is completed by the NRCS. Part VI of the form, completed by  
20 a federal or state agency, can total up to 160 points. The 160-point threshold is based on the  
21 combined totals of Parts V and VI. All three reasonable alternatives received scores above 60  
22 on Part VI of the form, and are therefore required to coordinate with NRCS (see NRCS-CPA-  
23 106 form in **Attachment B**).

**Table 4. Prime Farmland and NRCS-CPA-106 Score by Alternative**

Alternative	2014 Modified 2	2014 PSM	1423 PSM	No Build
Prime Farmland Within Corridor (Acres)	636	723	763	0
Prime Farmland if Drained Within Corridor (Acres)	5	9	9	0
Prime Farmland if Irrigated Within Corridor (Acres)	392	322	267	0
NRCS-CPA-106 Part VI Score	68	71	69	0

Source: USDA 2017.

#### 1 4.5 Threatened, Endangered, and Other Protected Species

2 This section addresses potential impacts to threatened, endangered, and other protected  
3 species and a brief description of the applicable regulatory programs. A review of the USFWS  
4 Information for Planning and Consultation (IPaC) list and the TPWD threatened and  
5 endangered species list for Hidalgo County, Texas conducted in December 2016 identified  
6 federal and state-listed threatened, endangered, and candidate species and SGCN. See  
7 **Sections 4.5.1, 4.5.2, and 4.5.3** for a comprehensive list of these species, their habitat  
8 requirements, and identification of whether habitat is present in the study area and the  
9 potential impacts of the project. A search of the TXNDD managed by TPWD was also  
10 conducted in September 2017 to assess the potential for endangered or threatened species  
11 to occur within 10 miles of the proposed project limits of the three reasonable alternatives.

12 The TXNDD data was obtained from TPWD, and review of the data met all the requirements  
13 of the TxDOT-TPWD Memorandum of Agreement (MOA) for sharing and maintaining TXNDD  
14 information. **Table 5** includes all records of species occurrence within 1.5 miles of the three  
15 reasonable alternatives.

**Table 5. TXNDD Search Results for Element Occurrence Records and Tracked Managed Areas**

EOID* Number	Common Name	Scientific Name	Federal Status	State Status	Buffer Zone
2647	Mexican Mud- plantain	<i>Heteranthera mexicana</i>	--	SGCN	1.5 mile
3099	Sheep Frog	<i>Hypopachus variolosus</i>	--	T	1.5 mile
5801	Ocelot	<i>Leopardus pardalis</i>	E	E	1.5 mile
6405	Sheep Frog	<i>Hypopachus variolosus</i>	--	T	1.5 mile

Source: TXNDD 2017.

Note:

\* EOID - Element of Occurrence Identification

16 Because of similarities between the variety and amounts of habitats within the 2014 Modified  
17 2, 2014 PSM, and 1423 PSM alternatives, determinations of effects/impacts to individual  
18 species in this section apply to all three reasonable alternatives, as summarized in **Table 6**.  
19 The No Build Alternative would have no effect/impact on any federal or state-listed threatened  
20 or endangered species.

**Table 6. Federal and State-Listed Threatened and Endangered Species and Species of Greatest Conservation Need in Hidalgo County**

Species	Federal Status	State Status	Potential Effect/Impact from 2014 Modified 2 Alternative	Potential Effect/Impact from 2014 PSM Alternative	Potential Effect/Impact from 1423 PSM Alternative
<b>AMPHIBIANS</b>					
Black-spotted Newt <i>Notophthalmus meridionalis</i>	—	T	May Impact	May Impact	May Impact
Mexican Treefrog <i>Smilisca baudinii</i>	—	T	May Impact	May Impact	May Impact
Sheep Frog <i>Hypopachus variolosus</i>	—	T	May Impact	May Impact	May Impact
South Texas Siren (large form) <i>Siren sp. 1</i>	—	T	May Impact	May Impact	May Impact
White-lipped Frog <i>Leptodactylus fragilis</i>	—	T	May Impact	May Impact	May Impact
<b>BIRDS</b>					
American Peregrine Falcon <i>Falco peregrinus anatum</i>	DL	T	No impact	No impact	No impact
Arctic Peregrine Falcon <i>Falco peregrinus tundrius</i>	DL	SGCN	No impact	No impact	No impact
Audubon's Oriole <i>Icterus graduacauda audubonii</i>	—	SGCN	May Impact	May Impact	May Impact
Brownsville Common Yellowthroat <i>Geothlypis trichas insperata</i>	—	SGCN	May Impact	May Impact	May Impact
Cactus Ferruginous Pygmy-owl <i>Glaucidium brasilianum cactorum</i>	—	T	No impact	No impact	No impact
Common Black-hawk <i>Buteogallus anthracinus</i>	—	T	No impact	No impact	No impact
Gray Hawk <i>Asturina nitida</i>	—	T	May Impact	May Impact	May Impact
Hook-billed Kite <i>Chondrohierax uncinatus</i>	—	SGCN	No impact	No impact	No impact
Interior Least Tern <i>Sterna antillarum athalassos</i>	E	E	No effect	No effect	No effect
Mountain Plover <i>Charadrius montanus</i>	—	SGCN	No impact	No impact	No impact

**Table 6. Federal and State-Listed Threatened and Endangered Species and Species of Greatest Conservation Need in Hidalgo County**

Species	Federal Status	State Status	Potential Effect/Impact from 2014 Modified 2 Alternative	Potential Effect/Impact from 2014 PSM Alternative	Potential Effect/Impact from 1423 PSM Alternative
Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i>	E	E	No effect	No effect	No effect
Northern Beardless-Tyrannulet <i>Camptostma imberbe</i>	—	T	May Impact	May Impact	May Impact
Peregrine Falcon <i>Falco peregrinus</i>	DL	T	No impact	No impact	No impact
Piping Plover <i>Charadrius Melodus</i>	T	T	No effect	No effect	No effect
Red Knot <i>Calidris canutus rufa</i>	T	SGCN	No effect	No effect	No effect
Red-crowned Parrot <i>Amazona viridigenalis</i>	C	SGCN	May Impact	May Impact	May Impact
Reddish Egret <i>Egretta rufescens</i>	—	T	No impact	No impact	No impact
Rose-throated Becard <i>Pachyramphus aglaiae</i>	—	T	No impact	No impact	No impact
Sennett's Hooded Oriole <i>Icterus cucullatus sennetti</i>	—	SGCN	May Impact	May Impact	May Impact
Sprague's Pipit <i>Anthus spragueii</i>	—	SGCN	No impact	No impact	No impact
Texas Botteri's Sparrow <i>Aimophila botteri texana</i>	—	T	No impact	No impact	No impact
Tropical Parula <i>Setophaga pitiayumi nigrilora</i>	—	T	May Impact	May Impact	May Impact
Western Burrowing Owl <i>Athene cucularia hypugaea</i>	—	SGCN	May Impact	May Impact	May Impact
Western Snowy Plover <i>Charadrius nivosus</i>	—	SGCN	No impact	No impact	No impact
White-faced Ibis <i>Plegadis chihi</i>	—	T	No impact	No impact	No impact
White-tailed Hawk <i>Buteo albicaudatus</i>	—	T	May Impact	May Impact	May Impact
Wood Stork <i>Mycteria americana</i>	—	T	No impact	No impact	No impact
Zone-tailed Hawk <i>Buteo albonotatus</i>	—	T	May Impact	May Impact	May Impact
<b>FISHES</b>					
American Eel <i>Anguilla rostrata</i>	—	SGCN	No impact	No impact	No impact

**Table 6. Federal and State-Listed Threatened and Endangered Species and Species of Greatest Conservation Need in Hidalgo County**

Species	Federal Status	State Status	Potential Effect/Impact from 2014 Modified 2 Alternative	Potential Effect/Impact from 2014 PSM Alternative	Potential Effect/Impact from 1423 PSM Alternative
Rio Grande Shiner <i>Notropis jemezianus</i>	—	SGCN	No impact	No impact	No impact
Rio Grande Silvery Minnow <i>Hybognathus amarus</i>	E <sup>1</sup>	E	No effect	No effect	No effect
River Goby <i>Awaous banana</i>	—	T	No impact	No impact	No impact
<b>INSECTS</b>			No impact	No impact	No impact
A Mayfly <i>Campsurus decoloratus</i>	—	SGCN	No impact	No impact	No impact
A Royal Moth <i>Sphingicampa blanchardi</i>	—	SGCN	No impact	No impact	No impact
A Tiger Beetle <i>Tetracha affinis angustata</i>	—	SGCN	No impact	No impact	No impact
Arroyo Darner <i>Aeshna dugesi</i>	—	SGCN	No impact	No impact	No impact
Los Olmos Tiger Beetle <i>Cicindela nevadica olmosa</i>	—	SGCN	No impact	No impact	No impact
Manfreda Giant-skipper <i>Stallingsia maculosus</i>	—	SGCN	No impact	No impact	No impact
Neojuvenile Tiger Beetle <i>Cicindela obsoleta neojuvenilis</i>	—	SGCN	No impact	No impact	No impact
Rawson's Metalmark <i>Calephelis rawsoni</i>	—	SGCN	No impact	No impact	No impact
Subtropical Blue-black Tiger Beetle <i>Cicindela nigrocoerulea subtropica</i>	—	SGCN	No impact	No impact	No impact
Tamaulipan Agapema <i>Agapema galbina</i>	—	SGCN	No impact	No impact	No impact
<b>MAMMALS</b>					
Cave Myotis Bat <i>Myotis velifer</i>	—	T	May Impact	May Impact	May Impact
Coues' Rice Rat <i>Oryzomys couesi</i>	—	T	May Impact	May Impact	May Impact
Gulf Coast Jaguarundi <i>Herpailurus yaguarondi</i>	E	E	No effect	No effect	No effect
Jaguar <i>Panthera onca</i>	E <sup>1</sup>	E	No effect	No effect	No effect
Mexican Long-tongued Bat <i>Choeronycteris mexicana</i>	—	SGCN	May impact	May impact	May impact

**Table 6. Federal and State-Listed Threatened and Endangered Species and Species of Greatest Conservation Need in Hidalgo County**

Species	Federal Status	State Status	Potential Effect/Impact from 2014 Modified 2 Alternative	Potential Effect/Impact from 2014 PSM Alternative	Potential Effect/Impact from 1423 PSM Alternative
Ocelot <i>Leopardus pardalis</i>	E	E	May affect, not likely to adversely affect	May affect, not likely to adversely affect	May affect, not likely to adversely affect
Plains Spotted Skunk <i>Spilogale putorius interrupta</i>	—	SGCN	May Impact	May Impact	May Impact
Southern Yellow Bat <i>Lasiurus ega</i>	—	T	May Impact	May Impact	May Impact
White-nosed Coati <i>Nasua narica</i>	—	T	No impact	No impact	No impact
<b>MOLLUSKS</b>					
Mexican Fawnsfoot Mussel <i>Truncilla cognata</i>	—	T	No impact	No impact	No impact
Salina Mucket <i>Potamilus metnecktayi</i>	—	T	No impact	No impact	No impact
Texas Hornshell <i>Popenaias popeii</i>	PE <sup>1</sup>	T	No impact	No impact	No impact
<b>REPTILES</b>					
Black-striped Snake <i>Coniophanes imperialis</i>	—	T	May Impact	May Impact	May Impact
Northern Cat-eyed Snake <i>Leptodeira septentrionalis</i>	—	T	May Impact	May Impact	May Impact
Reticulate Collared Lizard <i>Crotaphytus reticulatus</i>	—	T	May Impact	May Impact	May Impact
Speckled Racer <i>Drymobius margaritiferus</i>	—	T	No impact	No impact	No impact
Spot-tailed Earless Lizard <i>Holbrookia lacerata</i>	—	SGCN	May Impact	May Impact	May Impact
Texas Horned Lizard <i>Phrynosoma cornutum</i>	—	T	May Impact	May Impact	May Impact
Texas Indigo Snake <i>Drymarchon corais</i>	—	T	May Impact	May Impact	May Impact
Texas Tortoise <i>Gopherus berlandieri</i>	—	T	May Impact	May Impact	May Impact
<b>PLANTS</b>					
Amelia's Abronia <i>Abronia ameliae</i>	—	SGCN	May Impact	May Impact	May Impact
Arrowleaf Milkvine <i>Matelea sagittifolia</i>	—	SGCN	May Impact	May Impact	May Impact
Bailey's Ballmoss <i>Tillandsia baileyi</i>	—	SGCN	May Impact	May Impact	May Impact

**Table 6. Federal and State-Listed Threatened and Endangered Species and Species of Greatest Conservation Need in Hidalgo County**

Species	Federal Status	State Status	Potential Effect/Impact from 2014 Modified 2 Alternative	Potential Effect/Impact from 2014 PSM Alternative	Potential Effect/Impact from 1423 PSM Alternative
Chihuahua Balloon-vine <i>Cardiospermum dissectum</i>	—	SGCN	May Impact	May Impact	May Impact
Cory's Croton <i>Croton coryi</i>	—	SGCN	May Impact	May Impact	May Impact
Falfurrias Milkvine <i>Matelea radiata</i>	—	SGCN	May Impact	May Impact	May Impact
Gregg's wild-buckwheat <i>Eriogonum greggii</i>	—	SGCN	No impact	No impact	No impact
Jones' Nailwort <i>Paronychia jonesii</i>	—	SGCN	May Impact	May Impact	May Impact
Large Selenia <i>Selenia grandis</i>	—	SGCN	May Impact	May Impact	May Impact
Mexican Mud-plantain <i>Heteranthera mexicana</i>	—	SGCN	May Impact	May Impact	May Impact
Runyon's Cory Cactus <i>Coryphantha macromeris v. runyonii</i>	—	SGCN	May Impact	May Impact	May Impact
Runyon's Water-willow <i>Justicia runyonii</i>	—	SGCN	May Impact	May Impact	May Impact
Sand Brazos Mint <i>Brazoria arenaria</i>	—	SGCN	May Impact	May Impact	May Impact
Sand Sheet Leaf-flower <i>Phyllanthus abnormis</i> <i>var. riograndensis</i>	—	SGCN	May Impact	May Impact	May Impact
Shortcrown Milkvine <i>Matelea brevicoronata</i>	—	SGCN	May Impact	May Impact	May Impact
Siler's Huaco <i>Manfreda sileri</i>	—	SGCN	May Impact	May Impact	May Impact
Small-leaved Yellow Velvet-leaf <i>Thelypodopsis shinersii</i>	—	SGCN	May Impact	May Impact	May Impact
St. Joseph's Staff <i>Manfreda longiflora</i>	—	SGCN	May Impact	May Impact	May Impact
Star Cactus <i>Astrophytum asterias</i>	E	E	No effect	No effect	No effect
Stinking Rushpea <i>Pomaria austrotexana</i>	—	SGCN	May Impact	May Impact	May Impact
Texas Ayenia <i>Ayenia limitaris</i>	E	E	May affect, not likely to adversely affect	May affect, not likely to adversely affect	May affect, not likely to adversely affect
Texas Peachbush <i>Prunus texana</i>	—	SGCN	May Impact	May Impact	May Impact
Texas Stonecrop <i>Lenophyllum texanum</i>	—	SGCN	No impact	No impact	No impact
Vasey's Adelia <i>Adelia vaseyi</i>	—	SGCN	May Impact	May Impact	May Impact

**Table 6. Federal and State-Listed Threatened and Endangered Species and Species of Greatest Conservation Need in Hidalgo County**

Species	Federal Status	State Status	Potential Effect/Impact from 2014 Modified 2 Alternative	Potential Effect/Impact from 2014 PSM Alternative	Potential Effect/Impact from 1423 PSM Alternative
Walker's Manioc <i>Manihot walkerae</i>	E	E	May affect, not likely to adversely affect	May affect, not likely to adversely affect	May affect, not likely to adversely affect
Wright's Trichocoronis <i>wrightii</i> var. <i>wrightii</i>	—	SGCN	May Impact	May Impact	May Impact
Yellow-flowered Alicoche <i>Echinocereus papillosus</i>	—	SGCN	May Impact	May Impact	May Impact

Sources: USFWS 2017b, TPWD 2017b.  
Note:  
E – Endangered; T – Threatened; PE – Proposed Endangered; C – Candidate; DL – Federally Delisted; “—” – No designation occurring within identified county; SGCN – Species of Greatest Conservation Need: rare, but with no regulatory listing status  
<sup>1</sup> The USFWS does not list these species for Hidalgo County; however, these species are listed on the TPWD's county list.

#### 1 4.5.1 Federally listed Threatened and Endangered Species of Potential Occurrence in the 2 Three Reasonable Alternatives from IPaC

3 The USFWS IPaC list of federally protected species of potential occurrence in the three  
4 reasonable alternatives includes nine federal listed threatened or endangered species and  
5 one federal candidate for listing. These species include the interior least tern (*Sterna*  
6 *antillarum athalassos*)-endangered, northern aplomado falcon (*Falco femoralis*  
7 *Septentrionalis*)-endangered, piping plover (*Charadrius melodus*)-threatened, red knot  
8 (*Calidris canutus rufa*)-threatened, red-crowned parrot (*Amazona viridigenalis*)-candidate, gulf  
9 coast jaguarundi (*Herpailurus yagouaroundi cacomitli*)-endangered, ocelot (*Leopardus*  
10 *pardalis*)-endangered, Texas ayenia (*Ayenia limitaris*)-endangered, Walker's manioc (*Manihot*  
11 *walkerae*)-endangered, and star cactus (*Astrophytum asterias*)-endangered (USFWS 2017b).  
12 The following paragraphs describe the habitat requirements of each species relative to the  
13 habitats identified within the reasonable alternatives, followed by an assessment of the likely  
14 effects of the proposed project on each species or group. The No Build Alternative would have  
15 no effect on any federally listed species. Once a preferred alternative has been identified,  
16 more detailed habitat assessments and species presence/absence surveys, if necessary, will  
17 be conducted which could result in updates to the impact assessments. See **Attachment B** for  
18 the IPaC list for Hidalgo County.

**1 Gulf Coast Jaguarundi (*Herpailurus yaguarondi*)****2 Federal Status: E State Status: E**

3 Across its range, the Gulf Coast jaguarundi occupies many habitat types including primary  
4 forests and woodlands, as well as secondary woodlands and human induced grasslands with  
5 scattered dense cover areas (International Union for Conservation of Nature [IUCN] 2017). In  
6 south Texas, the jaguarundi is considered a denizen of the dense, thorny thickets (Davis and  
7 Schmidly 1994). They are expert at hunting ground based and arboreal prey and are known  
8 to be active at night and daytime (IUCN 2017). No occurrences of the species are documented  
9 by the TXNDD (TXNDD 2017) within 10 miles of the three reasonable alternatives. The  
10 Comprehensive Conservation Plan (CCP) (USFWS 1997) lists the jaguarundi as reported within  
11 Santa Ana National Wildlife Refuge (SANWR) and/or Lower Rio Grande Valley National Wildlife  
12 Refuge (LRGVNWR); however, the last confirmed physical evidence of jaguarundi in Texas was  
13 in 1986. Areas of dense thornshrub occur in small remnant patches in the northern portion  
14 of the study area, however, most are either too small or lack the horizontal cover in the  
15 lowermost stratum to be considered suitable habitat for the species. The 2014 Modified 2  
16 Alternative provides the most potential habitat of the three reasonable alternatives. Based  
17 upon the general conversion of native vegetation within the study area to farmland or  
18 residential/commercial use, the limited extent of potential habitat, and the lack of a known  
19 existing population in Texas, it is expected that the proposed project would have no effect on  
20 the Gulf Coast jaguarundi.

**21 Interior Least Tern (*Sterna antillarum athalassos*)****22 Federal Status: E State Status: E**

23 The interior least tern is a migratory bird that breeds along inland river systems in the United  
24 States and winters in Central and South America (Campbell 2003). This smallest of North  
25 American terns is a colonial nesting shorebird adapted to lacustrine and riverine sandbar and  
26 gravel beach habitats of relatively large drainage systems for inland breeding sites in the Great  
27 Plains and Midwest (USFWS 1990). The interior least tern nests on the ground in small  
28 colonies on islands, sandbars, and scoured river bends along large, sandy rivers, reservoirs  
29 and a few artificial habitats (lignite mines and on gravel roof tops). The nesting range of the  
30 species does not include Hidalgo County ([http://ecos.fws.gov/ecp0/profile/  
31 speciesProfile?spcode=B07N](http://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B07N)). The wintering habitat of the least tern includes open water,  
32 beaches, flats, and other coastal sites (USFWS 1990). No critical habitat has been designated  
33 for the interior least tern ([http://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=  
34 B07N#crithab](http://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B07N#crithab)). The study area does not support suitable wintering or nesting habitat for the  
35 interior least tern and no TXNDD occurrences of the species are documented in or within 10  
36 miles of the three reasonable alternatives (TXNDD 2017). The interior least tern would only

1 occur in the vicinity of the study area during migration and is not expected to utilize the study  
2 area because their preferred foraging and roosting habitats are wide open water features and  
3 beaches/flats which do not occur in the study area. Therefore, the proposed project is  
4 expected to have no effect on the interior least tern.

5 **Northern Aplomado Falcon** (*Falco femoralis septentrionalis*)

6 Federal Status: E State Status: E

7 The northern aplomado falcon (*Falco femoralis septentrionalis*) is primarily a Latin American  
8 species that historically inhabited the southwestern United States. This federally endangered  
9 falcon prefers arid grassy plains, coastal grasslands, and tropical savannah habitat, where it  
10 feeds on insects, small mammals, lizards, snakes, and small birds (USFWS 2014). It is  
11 associated with plains or savannahs throughout its range whether it is the moist coastal  
12 savannahs of eastern Mexico, the xeric Chihuahuan Desert, or the coastal prairies of south  
13 Texas (NatureServe 2017). Breeding specimens and year-round sightings have been made in  
14 Hidalgo County (Oberholser 1974). In conjunction with The Peregrine Fund, the USFWS raised  
15 and released northern aplomado falcons at Laguna Atascosa NWR in neighboring Cameron  
16 County starting in 1993. According to the USFWS's 5-year Review, reintroductions of 839  
17 captive-bred northern aplomado falcons from 22 sites along the coastal plain of southern  
18 Texas from 1993 to 2004 have resulted, at present, in two potentially stable nesting  
19 populations, including 19 pairs near Brownsville and 15 pairs on two islands near Rockport  
20 (USFWS 2014). No critical habitat rules have been published for the northern aplomado falcon  
21 (<https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B06V>). The northern portions of  
22 all three reasonable alternatives contain a small amount of suitable potential habitat for the  
23 northern aplomado falcon, which prefers wide-ranging open grasslands with little or no  
24 development. The habitat in the study area is fragmented and not likely to support nesting  
25 falcons. No known aplomado falcon nests are documented near the three reasonable  
26 alternatives, and there are no recorded observations in the area (TXNDD 2017, eBird 2017).  
27 Therefore, the proposed project is expected to have no effect on the northern aplomado  
28 falcon.

29 **Ocelot** (*Leopardus pardalis*)

30 Federal Status: E State Status: E

31 The ocelot is a medium-sized, spotted and blotched cat that occupies a wide spectrum of  
32 habitats types across the Americas. The commonality of these habitats is the exhibition of  
33 well-structured vegetation cover (IUCN 2017). Within Texas, ocelots are restricted to the nearly  
34 impenetrable chaparral thickets and mesquite-thorn scrub of deep south Texas. Historically  
35 they ranged north to the cedar brakes of central Texas and the hardwood forests of east Texas

1 and Louisiana. Currently, three small populations are believed to occur in Laguna Atascosa  
2 and LRGVNRs near the coast as well as on some nearby private lands in Willacy County.  
3 Occasional sightings of transitory ocelots and likely misidentified bobcats have been reported  
4 from various locations in south Texas. There is a 1984 TXNDD element occurrence record of  
5 an ocelot within the study area (TXNDD 2017). However, the closest known extant population  
6 is approximately 20 miles northeast of the three reasonable alternatives. Areas of dense  
7 thornshrub occur as small remnant patches, primarily in the northern portions of the three  
8 reasonable alternatives. The 2014 Modified 2 Alternative provides the most potential habitat  
9 of the three reasonable alternatives. Most patches are either too small or lack the horizontal  
10 cover in the lowermost stratum to be considered suitable habitat for the species. However,  
11 these areas may provide travel corridors for the dispersing ocelots. Based upon the small  
12 amount of potential travel corridor habitat and the fact that there is no known extant  
13 population within 20 miles of the study area, it is expected that the proposed project may  
14 affect, but is not likely to adversely affect the ocelot.

#### 15 **Piping Plover** (*Charadrius melodus*)

16 Federal Status: T State Status: T

17 The piping plover is a small, ringed shorebird that breeds from south-central Canada to the  
18 Great Lakes region, and coastally from Newfoundland to Virginia. Piping plovers primarily  
19 winter at coastal sites from South Carolina to south Texas and Mexico (USFWS 2003). The  
20 species is a wintering migrant along the Texas Gulf Coast, utilizing beaches and sparsely  
21 vegetated tidal mudflats, sandflats, or algal flats as feeding areas and roosting nearby on  
22 beaches or among debris washed up by the tide (Campbell 2003). Piping Plovers begin  
23 arriving along the Texas coast in mid-July and stay throughout the winter, returning to their  
24 breeding grounds in the northern United States and Canada around April. Habitat alteration  
25 and destruction because of development as well as contamination from petrochemical spills  
26 and other hazardous materials are the major threats to this species (Campbell 2003). Critical  
27 habitat has been designated in various units along the entire Texas coast. The closest  
28 designated critical habitat for the piping plover is approximately 40 miles east of the study  
29 area along the Laguna Madre in Cameron and Willacy Counties ([https://ecos.fws.gov/  
30 ecp/report/table/critical-habitat.html](https://ecos.fws.gov/ecp/report/table/critical-habitat.html)). The study area does not support suitable wintering or  
31 nesting habitat for the piping plover and no TXNDD occurrences of the species are  
32 documented in or within 10 miles of the three reasonable alternatives (TXNDD 2017). The  
33 piping plover would only occur in the vicinity of the study area during migration and is not  
34 expected to utilize the study area because of a lack of suitable stopover habitat. Therefore,  
35 the proposed project is expected to have no effect on the piping plover.

**1 Red Knot (*Calidris canutus rufa*)****2 Federal Status: T State Status: SGCN**

**3** The red knot is a large sandpiper that breeds in the arctic and winters in South America  
**4** making it one of the longest distance migrants in the animal kingdom (Garland and  
**5** Thomas 2009). In January 2015 it was added to the list of threatened species under the ESA.  
**6** The red knot is primarily found in intertidal, marine habitats near coastal inlets, estuaries, and  
**7** bays, outside the breeding season. No critical habitat rules have been published for the red  
**8** knot (<https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=BODM#crithab>). According  
**9** to the TXNDD, the red knot has not been documented within 10 miles of the three reasonable  
**10** alternatives (TXNDD 2017). There are many documented occurrences of the red knot at  
**11** Laguna Atascosa NWR, approximately 35 miles east of the study area, but few farther inland  
**12** near the study area (eBird 2017). The study area does not support suitable wintering or  
**13** nesting habitat for the red knot. The red knot would only occur near the study area during  
**14** migration and is not expected to utilize the study area because of a lack of suitable stopover  
**15** habitat. Therefore, the proposed project is expected to have no effect on the red knot.

**16 Red-crowned Parrot (*Amazona viridigenalis*)****17 Federal Status: C State Status: SGCN**

**18** Native to Mexico, the species is found in northeastern Mexico where it inhabits lush areas in  
**19** arid lowlands and foothills, particularly gallery forests, deciduous woodlands, and dry, open  
**20** pine-oak woodlands on ridges ([https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=](https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=BOGO)  
**21** [BOGO](https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=BOGO)). This tree cavity-nesting species also forages in cultivated and suburban areas. In the  
**22** LRGV, it prefers urban areas with large trees, and it nests and roosts in palm trees. Major  
**23** threats to the species include habitat destruction, being shot to prevent crop damage, and  
**24** being captured for the caged bird trade (NatureServe 2017). No TXNDD occurrences of the  
**25** species are documented in or within 10 miles of the three reasonable alternatives (TXNDD  
**26** 2017), but there are multiple documented observations in the study area according to eBird  
**27** (2017). Because of the occurrence of ornamental palms in the three reasonable alternatives,  
**28** the proposed project may impact the red-crowned parrot. As a candidate species, the red-  
**29** crowned parrot currently has no protection under the ESA. Bird best management practices  
**30** (BMPs) would be implemented to avoid potential impacts to the species, where possible. See  
**31** **Attachment B** for a list of BMPs. Additionally, if future field investigations of the preferred  
**32** alternative identify palms with potential red-crowned parrot nest sites, those palms could be  
**33** relocated to avoid impacts to the species.

**1 Star Cactus (*Astrophytum asterias*)****2 Federal Status: E State Status: E**

**3** The species occurs in gravelly clays or loams, possibly of the Catarina Series (deep, droughty,  
**4** saline clays), over the Catahoula and Frio formations, on gentle slopes and flats in sparsely  
**5** vegetated openings between shrub thickets within mesquite grasslands or mesquite-  
**6** blackbrush thorn shrublands (TPWD 2017b). Neither the TXNDD (2016) nor the Final Lower  
**7** Rio Grande Valley and Santa Ana National Wildlife Refuges CCP (USFWS 1997) indicates the  
**8** occurrence of the star cactus within or near the study area. Additionally, none of the soil units  
**9** within the proposed project are described as gravelly clays or loams. Based upon the lack of  
**10** gravelly soils within the study area, the proposed project is expected to have no effect on the  
**11** star cactus.

**12 Texas Ayenia (*Ayenia limitaris*)****13 Federal Status: E State Status: E**

**14** Texas ayenia is a thornless member of the chocolate family. The species is found in  
**15** subtropical thorn woodland or tall shrubland on loamy soils of the Rio Grande Delta. Known  
**16** utilized soils include well-drained, calcareous, sandy clay loam (Hidalgo Series) and neutral to  
**17** moderately alkaline, fine sandy loam (Willacy Series). It also occurs under or among taller  
**18** shrubs in thorn woodland/thorn shrubland. Occurrence of Texas ayenia on LRGVNR tracts  
**19** is confirmed by the CCP (USFWS 1997). Additionally, TXNDD (2016) records indicate two  
**20** occurrences of the species within 7 miles of the study area. Based upon the occurrence of  
**21** habitats and soil types matching those described for the species within the three reasonable  
**22** alternatives, the potential for Texas ayenia to occur cannot be discounted. Therefore, it is  
**23** expected that the project may affect, but is not likely to adversely affect the Texas ayenia.  
**24** Once a preferred alternative has been identified and right of entry is obtained,  
**25** presence/absence surveys would be conducted which could result in a change to the effect  
**26** determination.

**27 Walker's Manioc (*Manihot walkerae*)****28 Federal Status: E State Status: E**

**29** Walkers' manioc is a sprawling woody perennial with distinct leaves that are five-lobed. Little  
**30** is known regarding this species' biology, but they are known to be associated with the  
**31** periphery of mature thornshrub. Occurrence of Walker's manioc on LRGVNR tracts is  
**32** confirmed by the CCP (USFWS 1997). Additionally, TXNDD (2016) records indicate an  
**33** occurrence of the species within 9 miles of the study area. Based upon the occurrence of

1 habitat types similar to those described for the species within the three reasonable  
2 alternatives, the potential for Walkers' manioc to occur cannot be discounted. Therefore, it is  
3 expected that the proposed project may affect, but is not likely to adversely affect the Walker's  
4 manioc. Once a preferred alternative has been identified and right of entry is obtained,  
5 presence/absence surveys would be conducted which could result in a change to the effect  
6 determination.

7 **4.5.2 Federal-listed Threatened and Endangered Species of Potential Occurrence in the**  
8 **Three Reasonable Alternatives from Texas Parks and Wildlife Department's Hidalgo**  
9 **County List of Rare Species**

10 In addition to the species included in the USFWS' IPaC, the TPWD list of threatened and  
11 endangered species of potential occurrence in Hidalgo County includes two federally  
12 endangered species and one federal proposed endangered species. These species are the  
13 jaguar (*Panthera onca*)-endangered, Rio Grande silvery minnow (*Hybognathus amarus*)-  
14 endangered, and Texas hornshell (*Popenaias popeii*)-proposed endangered (TPWD 2016).  
15 The following paragraphs describe the habitat requirements of each species relative to the  
16 habitats identified in the study area, followed by an assessment of the likely effects of the  
17 project on each species or group. The No Build Alternative would no effect on any federally  
18 listed species.

19 **Jaguar (*Panthera onca*)**

20 Federal Status: E State Status: E

21 The jaguar inhabits the dense chaparral and timbered sections of the New World tropics and  
22 seldom ventures into the high, cooler inland areas. Historically it was once fairly common in  
23 the dense chaparral of south Texas and the woodlands of east Texas (Davis and  
24 Schmidly 1994). The last confirmed jaguar in the LRGV occurred during the 1950s. A strong  
25 affinity for water, large ungulate prey, and aversion to human development (IUCN 2017)  
26 generally relegates the jaguar to large undeveloped landscapes. Because of large scale  
27 habitat conversion and predator control efforts for livestock, the species is considered  
28 extirpated from the state. No occurrences of the species are documented by the TXNDD  
29 (TXNDD 2017) or by the CCP (USFWS 1997). No suitable habitat for the jaguar was identified  
30 in the study area, and the proposed project is expected to have no effect on the jaguar.

31 **Rio Grande Silvery Minnow (*Hybognathus amarus*)**

32 Federal Status: E State Status: E

33 The species is believed to be extirpated from the LRGV. Historically it occurred in pools and  
34 backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel

1 bottoms (TPWD 2017b). The species most commonly occurs in depths of less than 20  
2 centimeters in the summer and 31-40 centimeters in the winter in pools, backwaters, or  
3 eddies formed by debris piles. Larger individuals use a wide variety of habitats, including main  
4 and side channel runs, but the species rarely uses areas with high water velocities  
5 (USFWS 2010). The Rio Grande silvery minnow currently inhabits an approximately 170-mile  
6 stretch of the Rio Grande in New Mexico where its survival is threatened by habitat  
7 degradation and flow modifications, non-native fish species, and lack of habitat during periods  
8 of low or no flow (NatureServe 2017). Critical habitat for the species has been designated in  
9 the Rio Grande in New Mexico, wherever the species is found ([https://ecos.fws.gov/  
10 ecp0/profile/speciesProfile?spcode=E071](https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E071)). No TXNDD element occurrence records of the  
11 species are documented in or within 10 miles of the three reasonable alternatives (TXNDD  
12 2017), and there is no suitable aquatic habitat within the study area. Therefore, the proposed  
13 project is expected to have no effect on the Rio Grande silvery minnow.

#### 14 **Texas Hornshell (*Popenaias popeii*)**

15 Federal Status: PE State Status: T

16 Historically, the Texas hornshell inhabited the Rio Grande from the Big Bend region to the Gulf  
17 of Mexico. Additionally, it could be found in the Pecos River from its confluence with the Rio  
18 Grande to Eddy and Chavez counties in New Mexico. Several tributaries in in the Mexican  
19 states of Tamaulipas and San Luis Potosi also were inhabited. Identification of weathered  
20 shells also indicates the potential for a disjunct historical population in the Colorado River of  
21 Texas (NatureServe 2017). Existing populations have been identified in New Mexico as well  
22 as a few isolated stretches of the Rio Grande including portions in Hidalgo county. Typical  
23 habitat for the hornshell occurs at the head and terminus of shallow, narrow run habitat over  
24 travertine bedrock where small-grained substrata collect in undercut riverbanks, crevices,  
25 shelves, and under large boulders. Neither TXNDD (2016) nor the CCP (USFWS 1997) indicate  
26 the occurrence of the mussel within the three reasonable alternatives or nearby area. Free  
27 flowing stream habitat with a sand or gravel bottom does not occur within the study area.  
28 Therefore, the proposed project is not anticipated to impact the species.

#### 29 **Summary of Impacts to Federally Protected Species**

30 Suitable habitat for three federally listed threatened, endangered, or proposed  
31 threatened/endangered species (ocelot, Texas ayenia, and Walker's manioc) and one federal  
32 candidate species (red-crowned parrot) was identified in or adjacent to the three reasonable  
33 alternatives. While suitable habitat for these species was identified within each reasonable  
34 alternative, the habitat is marginal and not extensive. No breeding populations of the ocelot  
35 are known from the study area, but remnant brush and shrubland patches, grasslands, and  
36 canals and drainages could be used by ocelots as travel/dispersal corridors. Suitable habitat

1 for Texas ayenia, and Walker's manioc is limited to brush and shrubland patches. Suitable  
2 habitat for the red-crowned parrot includes palms and other large trees that occur primarily in  
3 urban and suburban areas. Therefore, the proposed project may affect, but is not likely to  
4 adversely affect the ocelot, Texas ayenia, and Walker's manioc, and may impact the red-  
5 crowned parrot. The proposed project is expected to have no effect on any other federally  
6 listed or proposed listed species. Depending on the results of future field investigations of the  
7 preferred alternative once it is identified and right of entry is obtained, presence/absence  
8 surveys would likely be conducted which could result in a change to these effect/impact  
9 determinations. There is no designated critical habitat for any federally listed species within  
10 or adjacent to the three reasonable alternatives.

#### 11 **4.5.3 State of Texas Threatened and Endangered Species and Species of Greatest** 12 **Conservation Need**

13 In addition to federal listed threatened and endangered species (which also have status at  
14 the state level), there are 31 other state threatened species and 46 SGCN that are listed for  
15 Hidalgo County by TPWD. The following paragraphs provide a summary of the assessment of  
16 potential impacts of the proposed project on state-listed threatened and endangered species  
17 and species of greatest conservation need that are not federally protected (addressed in  
18 Sections 4.5.1 and 4.5.2) by phylogenetic group. See **Attachment B** for the TPWD species list  
19 for Hidalgo County.

#### 20 **AMPHIBIANS**

##### 21 **Black-spotted Newt (*Notophthalmus meridionalis*)**

22 Federal Status: NA State Status: T

23 The range of the black-spotted newt includes the Gulf Coastal Plain south of the San Antonio  
24 River. The species can be found in wet areas, such as arroyos, canals, ditches, or even shallow  
25 depressions, and the species aestivates in the ground during dry periods (TPWD 2017b). It is  
26 most often observed among submerged vegetation and is found under rocks and other shelter  
27 during dry periods (NatureServe 2017). There are several TXNDD element occurrence records  
28 for black-spotted newt within 10 miles of the three reasonable alternatives, although none  
29 more recent than 1967 (TXNDD 2017). According to NatureServe (2017), the species is  
30 considered extirpated or possibly extirpated in Hidalgo County. Although the three reasonable  
31 alternatives contain little suitable aquatic habitat, the proposed project could potentially  
32 impact the black-spotted newt. Water Quality BMPs and Amphibian BMPs would be  
33 implemented to avoid potential impacts to the species, where possible. See **Attachment B** for  
34 a list of BMPs.

**1 Mexican Treefrog (*Smilisca baudinii*)****2** Federal Status: NA State Status: T

**3** The Mexican treefrog is found in the subtropical region of extreme southern Texas where it  
**4** inhabits xerophytic vegetation in semiarid savannas. The species breeds May-October  
**5** coinciding with rainfall, and eggs are laid in temporary rain pools (TPWD 2017b). This benthic  
**6** species burrows into soil, often under fallen logs or debris, or in standing snags or hollow  
**7** trees. It is found near ponds, pools, canals, and flooded fields, and it can also occur in gardens  
**8** with pools. It hides underground, under tree bark, in leaf axils, or in tree holes when inactive  
**9** (NatureServe 2017). There are no TXNDD records of Mexican treefrog within 10 miles of the  
**10** three reasonable alternatives (TXNDD 2017). Although the three reasonable alternatives  
**11** contain little suitable aquatic habitat, the proposed project could potentially impact the  
**12** Mexican treefrog. Water Quality BMPs and Amphibian BMPs would be implemented to avoid  
**13** potential impacts to the species, where possible. See **Attachment B** for a list of BMPs.

**14 Sheep Frog (*Hypopachus variolosus*)****15** Federal Status: NA State Status: T

**16** The sheep frog is predominantly found in grasslands, savannas, and moist sites in arid areas.  
**17** It is known to occur in moist burrows of subterranean mammals, under vegetative debris, and  
**18** near edges of ponds and marshes and irrigation ditches (TPWD 2017b). It can inhabit a variety  
**19** of habitats ranging from forest to open or disturbed areas. It lays eggs when habitat is flooded  
**20** from heavy rains or water from irrigation (NatureServe 2017). There are several TXNDD  
**21** element occurrence records for the sheep frog within 1.5 miles of the three reasonable  
**22** alternatives, although none more recent than 1965 (TXNDD 2017). Although the three  
**23** reasonable alternatives contain little suitable aquatic habitat, the proposed project could  
**24** potentially impact the sheep frog. Contractors would be advised to minimize disturbance to  
**25** burrows or downed woody debris. Additionally, Water Quality BMPs and Amphibian BMPs  
**26** would be implemented to avoid potential impacts to the species, where possible. See  
**27** **Attachment B** for a list of BMPs.

**28 South Texas Siren (large form) (*Siren* sp. 1)****29** Federal Status: NA State Status: T

**30** The South Texas siren can be found in wet areas, such as arroyos, canals, ditches, or even  
**31** shallow depressions. It aestivates in the ground during dry periods, but does require some  
**32** moisture to remain. Its range includes southern Texas south of the Balcones Escarpment  
**33** (TPWD 2017b). It prefers quiet and permanent bodies of water with a soft, mucky bottom and

1 with or without submerged vegetation. It lays eggs underwater in small pockets or debris-  
2 covered cavities in bottom mud (Dixon 2000). Extensive habitat and drainage alteration for  
3 agriculture and urban development has drastically reduced its available habitat within its  
4 range. The species is also apparently highly sensitive to pesticides (NatureServe 2017). There  
5 are several TXNDD element occurrence records for south Texas siren within 10 miles of the  
6 three reasonable alternatives, with the most recent observation in 1983 (TXNDD 2017).  
7 Although the three reasonable alternatives contain little suitable aquatic habitat, the  
8 proposed project could potentially impact the South Texas siren. Contractors would be advised  
9 to minimize impacts to warm, shallow waters with vegetative cover such as ponds and ditches.  
10 Additionally, Water Quality BMPs and Amphibian BMPs would be implemented to avoid  
11 potential impacts to the species, where possible. See **Attachment B** for a list of BMPs.

## 12 **White-lipped Frog (*Leptodactylus fragilis*)**

13 Federal Status: NA State Status: T

14 The white-lipped frog occurs in grasslands, cultivated fields, roadside ditches, and a wide  
15 variety of other habitats, and it often hides under rocks or in burrows under clumps of grass  
16 (TPWD 2017b). It is often encountered near marshes, ponds, and temporary lentic bodies of  
17 water, and it also inhabits open and disturbed sites. Females lay eggs in foam nests whipped  
18 from body secretions, and these foam nests are placed in excavations males make in the  
19 ground. Larvae develop in the watery center of the foam mass until rains allow them to swim  
20 to nearby pools (NatureServe 2017). The species requirements are often incompatible with  
21 widespread habitat alteration and pesticide use in south Texas (TPWD 2017b), and the  
22 species is potentially extirpated in Texas as a result of heavy use of organophosphates  
23 (Dixon 2000). There are no TXNDD records of white-lipped frog within 10 miles of the three  
24 reasonable alternatives (TXNDD 2017). Although the three reasonable alternatives contain  
25 little suitable aquatic habitat, the proposed project could potentially impact the white-lipped  
26 frog. Water Quality BMPs and Amphibian BMPs would be implemented to avoid potential  
27 impacts to the species, where possible. See **Attachment B** for a list of BMPs.

## 28 **BIRDS**

### 29 **American Peregrine Falcon (*Falco peregrinus anatum*)**

30 Federal Status: DL State Status: T

31 The American peregrine falcon is a year-round resident and local breeder in west Texas where  
32 it nests in tall cliff eyries. It is a migrant across the state from more northern breeding areas  
33 in the U.S. and Canada, and it winters along the coast and farther south. It occupies a wide  
34 range of habitats during migration, including urban habitat. Concentrations occur along the

1 coast and barrier islands. It is a low-altitude migrant, and typical stopover sites include leading  
2 landscape edges such as lake shores, coastlines, and barrier islands (TPWD 2017b). The  
3 peregrine falcon is a possible migrant through the region surrounding the study area. There  
4 are no TXNDD records of the species within 10 miles of the three reasonable alternatives  
5 (TXNDD 2017), but there are numerous documented observations in the vicinity of the study  
6 area (eBird 2017), and it is known to occur in Hidalgo County (Oberholser 1974). There are  
7 few optimal migrant stopover sites within the study area, and impacts to habitat would be  
8 minimal. Therefore, the proposed project is not expected to impact the American peregrine  
9 falcon.

#### 10 **Arctic Peregrine Falcon** (*Falco peregrinus tundrius*)

11 Federal Status: DL State Status: SGCN

12 This subspecies of the American peregrine falcon is a migrant throughout the state from its  
13 far northern breeding range, and it winters along the coast and farther south. It occupies a  
14 wide range of habitats during migration, including urban habitat. Concentrations occur along  
15 the coast and barrier islands. It is a low-altitude migrant, and typical stopover sites include  
16 leading landscape edges such as lake shores, coastlines, and barrier islands (TPWD 2017b).  
17 The peregrine falcon is a possible migrant through the region surrounding the study area.  
18 There are no TXNDD records of the species within 10 miles of the three reasonable  
19 alternatives (TXNDD 2017), but there are numerous documented observations in the vicinity  
20 of the study area (eBird 2017), and it known to occur in Hidalgo County (Oberholser 1974).  
21 There are few optimal migrant stopover sites within the study area, and impacts to habitat  
22 would be minimal. Therefore, the proposed project is not expected to impact the Arctic  
23 peregrine falcon.

#### 24 **Audubon's Oriole** (*Icterus graduacauda audubonii*)

25 Federal Status: NA State Status: SGCN

26 The Audubon's oriole inhabits mesquite scrub and nests in dense trees, or thickets, usually  
27 along water courses (TPWD 2017b). The species is often found near stagnant water in resacas  
28 or in other wooded regions that contain large specimens of honey mesquite, sugar hackberry  
29 (*Celtis laevigata*), Texas ebony (*Pithecellobium flexicaule*), huisache (*Acacia farnesiana*),  
30 willow (*Salix* spp.), palmetto (*Sabal* spp.), and live oak (*Quercus virginiana*), with a heavy  
31 undergrowth of shrubs and vines. The species generally prefers to use the tallest and densest  
32 trees in the landscape (Oberholser 1974). There are no TXNDD records of the species within  
33 10 miles of the three reasonable alternatives (TXNDD 2017), but there are multiple  
34 documented observations at the Edinburg Scenic Wetlands World Birding Center (WBC)  
35 approximately 3 miles west of the 2014 Modified 2 Alternative (eBird 2017). Relatively little

1 suitable habitat for the Audubon's oriole is located in or adjacent to the study area, and  
2 impacts to habitat would be minimal. However, because of the presence of a small amount of  
3 suitable habitat, the proposed project may impact the species. Bird BMPs would be  
4 implemented to avoid potential impacts to the species, where possible. See **Attachment B** for  
5 a list of BMPs.

6 **Brownsville Common Yellowthroat** (*Geothlypis trichas insperata*)

7 Federal Status: NA State Status: SGCN

8 The Brownsville common yellowthroat inhabits tall grasses and brush near ponds, marshes,  
9 and swamps (TPWD 2017b). The subspecies is primarily found along the Rio Grande in  
10 Cameron County below Brownsville (NatureServe 2017). However, according to eBird (2017),  
11 there are documented observations at SANWR and Tiocano Lake, located approximately 8  
12 miles south and 15 miles east of the study area, respectively. There are no TXNDD records of  
13 the Brownsville common yellowthroat within 10 miles of the three reasonable alternatives  
14 (TXNDD 2017). However, because of the potential for small patches of suitable habitat to be  
15 present in the study area, the presence of the species cannot be ruled out. Therefore, the  
16 proposed project may impact the species. Bird BMPs would be implemented to avoid potential  
17 impacts to the species, where possible. See **Attachment B** for a list of BMPs.

18 **Cactus Ferruginous Pygmy-owl** (*Glaucidium brasilianum cactorum*)

19 Federal Status: NA State Status: T

20 The cactus ferruginous pygmy-owl is found in oak woodlands, riparian trees, brush, palm  
21 groves, and mesquite thickets. It roosts in small caves and recesses on slopes of low hills  
22 (TPWD 2017b). It was formerly common in coastal plain oak associations and Tamaulipan  
23 thornscrub of the LRGV. The largest population is currently found in coastal sand plains  
24 dominated by mixed live oak and honey mesquite brush (NatureServe 2017). The species is  
25 primarily threatened in the United States by habitat destruction and modification of riparian  
26 and thornscrub habitats resulting from urban and agricultural development, water diversion,  
27 channelization, livestock overgrazing, groundwater pumping, and hydrological changes  
28 resulting from various land-use practices (USFWS 1994). There are no TXNDD records of the  
29 species within 10 miles of the three reasonable alternatives (TXNDD 2017). Relatively little  
30 suitable habitat for the cactus ferruginous pygmy-owl is located in or adjacent to the study  
31 area, and the species is not known from the area. Therefore, the proposed project is not  
32 expected to impact the species.

**1 Common Black-hawk (*Buteogallus anthracinus*)****2 Federal Status: NA State Status: T**

**3** The common black-hawk occurs in both moist and arid habitats but generally along streams  
**4** and rivers. It forages near water in lowland forest, open woodland, swamps and mangroves,  
**5** or tidal flats (American Ornithologists' Union [AOU] 1983). In Texas, the species occurs near  
**6** cottonwood-lined rivers and streams in the western part of the state, and willow tree groves  
**7** on the lower Rio Grande floodplain (TPWD 2017b). It usually nests in woodlands near water;  
**8** it prefers tall gallery forest trees, mostly cottonwoods near flowing water, and builds or  
**9** refurbishes and uses old nests 4-30 meters above the ground (NatureServe 2017). There are  
**10** no TXNDD records of the species within 10 miles of the three reasonable alternatives (TXNDD  
**11** 2017), and no suitable habitat is located in or adjacent to the study area. Therefore, the  
**12** proposed project is not expected to impact the common black-hawk.

**13 Gray Hawk (*Asturina nitida*)****14 Federal Status: NA State Status: T**

**15** The species is found locally and irregularly along the US-Mexico border in mature riparian  
**16** woodlands and nearby semi-arid mesquite and scrub grasslands. It's breeding range formerly  
**17** extended north to southernmost Rio Grande floodplain of Texas (TPWD 2017b). It primarily  
**18** occurs south of the study area along the Rio Grande at sites such as SANWR and Bentsen-Rio  
**19** Grande State Park. There is a TXNDD element occurrence record from Anzalduas County Park  
**20** approximately 15 miles southwest of the study area, but there are no TXNDD records of the  
**21** species within 10 miles of the three reasonable alternatives (TXNDD 2017b). However, there  
**22** are several other documented sightings in the vicinity of the study area (eBird 2017). Because  
**23** of the potential for small patches of suitable habitat to be present in the study area, the  
**24** presence of the species cannot be ruled out. Therefore, the proposed project may impact the  
**25** species. Bird BMPs would be implemented to avoid potential impacts to the species, where  
**26** possible. See **Attachment B** for a list of BMPs.

**27 Hook-billed Kite (*Chondrohierax uncinatus*)****28 Federal Status: NA State Status: SGCN**

**29** The hook-billed kite is uncommon to rare in most of its range throughout Central and South  
**30** America, and it is considered and accidental in south Texas. It inhabits dense tropical and  
**31** subtropical forests or open woodlands (TPWD 2017b) and prefers swampy lowland forests  
**32** and open marshes (AOU 1983). In Texas, it nests along the Rio Grande in large individuals of  
**33** species such as black willow or Texas ebony (NatureServe 2017). It primarily occurs south of  
**34** the study area along the Rio Grande at sites such as SANWR and Bentsen-Rio Grande State

1 Park (eBird 2017). There are no TXNDD records of the species within 10 miles of the three  
2 reasonable alternatives (TXNDD 2017) and no suitable habitat is located in or adjacent to the  
3 study area. Therefore, the proposed project is not expected to impact the hook-billed kite.

#### 4 **Mountain Plover** (*Charadrius montanus*)

5 Federal Status: NA State Status: SGCN

6 The mountain plover is a small shorebird that ranges from the panhandle of Texas west to  
7 Arizona and Utah and north to Montana during the breeding season, and from south Texas  
8 and Mexico west to California during the winter. During breeding season, it inhabits shortgrass  
9 plains or prairies and high desert, often near prairie dog colonies. Preferred winter habitat  
10 includes shortgrass plains, plowed fields, and sandy deserts (AOU 1983 and TPWD 2017b).  
11 Primary threats to habitat include conversion of shortgrass prairies to agriculture, urban  
12 development, and the decline of prairie dogs (NatureServe 2017). There are no TXNDD  
13 records of the species or other documented observations in the vicinity of the three  
14 reasonable alternatives (eBird 2017 and TXNDD 2017). There is a small amount of suitable  
15 wintering habitat located in and adjacent to the study area, but impacts to habitat would be  
16 minimal, and mountain plovers do not nest in the region. Therefore, the proposed project is  
17 not expected to impact the mountain plover.

#### 18 **Northern Beardless-tyrannulet** (*Camptostma imberbe*)

19 Federal Status: NA State Status: T

20 The northern beardless-tyrannulet is a small tropical flycatcher that reaches the northern  
21 extent of its range in the southeastern Arizona, southwestern New Mexico, and south Texas.  
22 It prefers open riparian woodland and nests in groves of trees near water, but it also inhabits  
23 arid scrub, thickets, and forest edges (AOU 1983). In Texas, it occurs in mesquite woodlands  
24 and riparian areas near the Rio Grande where it frequents cottonwood, willow, elm, and great  
25 leadtree. (TPWD 2017b). It nests from March through September in clumps of ball-moss  
26 (*Tillandsia recurvata*) in cedar elm (Brush 1999). There are no TXNDD records of the species  
27 in the vicinity of the three reasonable alternatives (TXNDD 2017), but there are numerous  
28 documented sightings in the vicinity of the study area (eBird 2017). There is suitable habitat  
29 located in and adjacent to the study area, but impacts to habitat would be minimal. However,  
30 because of the presence of some suitable habitat, the proposed project may impact the  
31 northern beardless-tyrannulet. Bird BMPs would be implemented to avoid potential impacts  
32 to the species, where possible. See **Attachment B** for a list of BMPs.

**1 Peregrine Falcon (*Falco peregrinus*)****2 Federal Status: DL State Status: T**

**3** This species migrates across the state from more northern breeding areas in the United States  
**4** and Canada to winter along coast and farther south; subspecies (*F. p. anatum*) is also a  
**5** resident breeder in west Texas. The two subspecies' listing statuses differ, *F.p. tundrius* is no  
**6** longer listed in Texas, but because the subspecies are not easily distinguishable at a distance,  
**7** reference is generally made only to the species level (see subspecies for habitat)  
**8** (TPWD 2017b). The peregrine falcon is a possible migrant through the region surrounding the  
**9** study area. There are no TXNDD records of the species within 10 miles of the three reasonable  
**10** alternatives (TXNDD 2017), but there are numerous documented observations in the vicinity  
**11** of the study area (eBird 2017), and it known to occur in Hidalgo County (Oberholser 1974).  
**12** There are few optimal migrant stopover sites within the study area, and impacts to habitat  
**13** would be minimal. Therefore, the proposed project is not expected to impact the peregrine  
**14** falcon.

**15 Reddish Egret (*Egretta rufescens*)****16 Federal Status: NA State Status: T**

**17** A permanent resident of the Texas Gulf Coast, the reddish egret is associated with brackish  
**18** marshes and shallow salt ponds and tidal flats. It nests on the ground or in trees or bushes  
**19** and on dry coastal islands in brushy thickets of yucca and prickly pear (TPWD 2017b). The  
**20** species is associated with saline and/or brackish aquatic habitats for foraging (NatureServe  
**21** 2017). There are no TXNDD records of the species within 10 miles of the three reasonable  
**22** alternatives (TXNDD 2017), but there are several documented observations in the vicinity of  
**23** the study area from Delta Lake, Edinburg Scenic Wetlands World Birding Center, and Hargill  
**24** Playa (eBird 2017). No suitable (saline or brackish) habitat for the reddish egret is located in  
**25** or adjacent to the study area. Therefore, the proposed project is not expected to impact the  
**26** reddish egret.

**27 Rose-throated Becard (*Pachyramphus aglaiae*)****28 Federal Status: NA State Status: T**

**29** The rose-throated becard is a small flycatcher that reaches the northern extent of its range in  
**30** southeastern Arizona and south Texas (AOU 1983). It is found mostly in semi-arid regions but  
**31** also less commonly in humid areas (NatureServe 2017). It inhabits a wide variety of habitats,  
**32** but it prefers large trees in riparian areas (TPWD 2017b). It occurs in riparian trees,  
**33** woodlands, open forest, scrubby areas, mangroves, open areas with scattered trees,  
**34** plantations, and occasionally in open understory of dense forest (NatureServe 2017 and

1 TPWD 2017b). Nesting in Texas has occurred in closed-canopy, mature Texas ebony and great  
2 leadtree forest (NatureServe 2017). It has nested historically in Hidalgo County at SANWR and  
3 Anzalduas County Park (Oberholser 1974). There is a TXNDD element occurrence record from  
4 Anzalduas County Park approximately 15 miles southwest of the study area, but there are no  
5 TXNDD records of the species within 10 miles of the three reasonable alternatives (TXNDD  
6 2017). However, there are several other documented observations south of the study area  
7 (eBird 2017). The study area contains very little riparian habitat, and the species is not known  
8 from the immediate area. Therefore, the proposed project is not expected to impact the rose-  
9 throated becard.

10 **Sennett's Hooded Oriole** (*Icterus cucullatus sennetti*)

11 Federal Status: NA State Status: SGCN

12 The Sennett's hooded oriole is a summer resident in south Texas. It occurs in various habitats  
13 including riparian woodland, palm groves, mesquite, arid scrub, deciduous woodland, and city  
14 parks and other urban areas with palms. It often builds nests in and of Spanish moss  
15 (*Tillandsia usneoides*), in mistletoe clumps, the underside of palm leaves, or suspended from  
16 tree branches (NatureServe 2017 and TPWD 2017b). No TXNDD occurrences of the species  
17 are documented in or within 10 miles of the three reasonable alternatives (TXNDD 2017),  
18 although there are a few documented observations south of the study area (eBird 2017). The  
19 study area contains some suitable habitat. Therefore, the proposed project could potentially  
20 impact the Sennett's hooded oriole. Bird BMPs would be implemented to avoid potential  
21 impacts to the species, where possible. See **Attachment B** for a list of BMPs.

22 **Sprague's Pipit** (*Anthus spragueii*)

23 Federal Status: NA State Status: SGCN

24 The Sprague's pipit is a small sparrow-like songbird that breeds in the northern Great Plains  
25 and winters in the southern U.S. and Mexico (AOU 1983). It is a migrant and winter resident  
26 in Texas and is strongly tied to native upland prairie. It can be locally common in coastal  
27 grasslands and is uncommon to rare further west (TPWD 2017b). Typical winter habitat  
28 includes pastures, weedy fields, grassy agricultural fields, and grasslands with dense  
29 herbaceous vegetation (NatureServe 2017). It is sensitive to patch size and avoids edges  
30 (TPWD 2017b), and populations appear to be declining as a result of habitat loss and  
31 fragmentation caused by cultivation, overgrazing, and the spread of non-native invasive  
32 vegetation (NatureServe 2017). There are no TXNDD records of the species within 10 miles  
33 of the three reasonable alternatives (TXNDD 2017), but there are several documented  
34 sightings in the vicinity of the study area (eBird 2017). There are small patches of upland  
35 prairie habitat located in and adjacent to the study area. However, the species is only present

1 in the winter and does not nest in the study area. Therefore, the proposed project is not  
2 expected to impact the Sprague's pipit.

3 **Texas Botteri's Sparrow** (*Aimophila botteri texana*)

4 Federal Status: NA State Status: T

5 The Texas Botteri's sparrow reaches the northern extent of its range in southeastern Arizona,  
6 southwestern New Mexico, and southern coastal Texas. The Texas Botteri's sparrow occurs in  
7 coastal grasslands as far north as Kleberg and Nueces Counties (AOU 1983). It inhabits  
8 grassland and short-grass plains with scattered bushes or shrubs, sagebrush, mesquite, or  
9 yucca. It nests on the ground in clumps of tall bunchgrass with scattered bushes and other  
10 structures on which to perch, such as fence posts. It is fairly common in Cameron and Willacy  
11 Counties, but less common in Hidalgo County (TPWD 2017b). There are no TXNDD records of  
12 the species or other documented observations in the vicinity of the three reasonable  
13 alternatives (eBird 2017 and TXNDD 2017). There is relatively little suitable habitat located  
14 in or adjacent to the study area, and the species is not known from the area. Therefore, the  
15 proposed project is not expected to impact the Texas Botteri's sparrow.

16 **Tropical Parula** (*Setophaga pitiayumi nigrilora*)

17 Federal Status: NA State Status: T

18 The tropical parula reaches the northern extent of its range in south Texas where it breeds  
19 from April through July. It inhabits riparian areas near rivers and resacas, dense or open  
20 woods, undergrowth, and brush. It nests primarily in bottomland forests with epiphytic Spanish  
21 moss and gray-green lichen (*Usnea* spp.) (TPWD 2017b). Its preferred riparian forest habitat  
22 has a closed or partially closed canopy and is dominated by cedar elm, sugar hackberry, Texas  
23 ebony, and Mexican ash (Brush 1999). It was formerly more common in south Texas, but it  
24 has declined as a result of habitat loss and degradation from activities related to agriculture  
25 and flood control (NatureServe 2017). There are no TXNDD occurrences of the species  
26 documented within 10 miles of the three reasonable alternatives (TXNDD 2017), but there  
27 are several documented sightings in the vicinity of the study area, primarily from the Edinburg  
28 Scenic Wetlands WBC (eBird 2017). Because of the potential for small patches of suitable  
29 habitat to be present in the study area, the presence of the species cannot be ruled out.  
30 Therefore, the proposed project may impact the species. Bird BMPs would be implemented to  
31 avoid potential impacts to the species, where possible. See **Attachment B** for a list of BMPs.

32 **Western Burrowing Owl** (*Athene cunicularia hypugaea*)

33 Federal Status: NA State Status: SGCN

1 The western burrowing owl is a small, primarily ground-dwelling owl that ranges throughout  
2 most of the western U.S. including west Texas, and there is a wintering population in the  
3 coastal lowlands of Texas and northern Mexico (AOU 1983, NatureServe 2017). It inhabits  
4 open grasslands, especially prairie, plains, and savanna, and sometimes open areas near  
5 human habitation such as vacant lots, airports, golf courses, campuses, agricultural fields,  
6 and irrigation ditches. It nests and roosts in abandoned mammal burrows (TPWD 2017b).  
7 While there are no TXNDD occurrences of the species are documented within 10 miles of the  
8 three reasonable alternatives (TXNDD 2017), there are numerous documented sightings in  
9 the vicinity of the study area, primarily south of the I-2/US 83 corridor (eBird 2017). The study  
10 area contains small areas of suitable habitat. Although impacts to habitat would be minimal,  
11 the proposed project could potentially impact the western burrowing owl. Bird BMPs would be  
12 implemented to avoid potential impacts to the species, where possible. See **Attachment B** for  
13 a list of BMPs.

#### 14 **Western Snowy Plover** (*Charadrius nivosus nivosus*)

15 Federal Status: NA State Status: SGCN

16 The western snowy plover is a small shorebird that breeds along the Pacific coast and  
17 throughout much of the western U.S. (AOU 1983). It is a migrant and winter resident along the  
18 Texas coast where it is found on beaches, bayside mud or salt flats, sandy shores of rivers,  
19 ponds, lagoons, and estuaries (NatureServe 2017 and TPWD 2017b). It is threatened  
20 primarily by habitat loss from beach-front development and other human activities and beach  
21 erosion (NatureServe 2017). No TXNDD occurrences of the species are documented within  
22 10 miles of the three reasonable alternatives (TXNDD 2017), but there are several  
23 documented observations in the vicinity of the study area from Delta Lake, and Hargill Playa  
24 (eBird 2017). The study area does not support suitable wintering or stopover habitat for the  
25 western snowy plover. Therefore, the proposed project is expected to have no impact on the  
26 species.

#### 27 **White-tailed Hawk** (*Buteo albicaudatus*)

28 Federal Status: NA State Status: T

29 The white-tailed hawk is a year-round resident near the Texas coast in prairies, cordgrass flats,  
30 and scrub-live oak. Further inland it occurs on prairies, mesquite, and oak savannas, and  
31 mixed savanna-chaparral (TPWD 2017b). It feeds on the variety of mammals, birds, reptiles,  
32 amphibians and insects associated with the open to sparsely wooded areas of the arid south  
33 Texas plains and coastal prairies. Nesting typically occurs in short trees and shrubs (Farquhar  
34 2009). There are no TXNDD records of the species within 10 miles of the three reasonable  
35 alternatives (TXNDD 2017), but there are numerous documented sightings in the vicinity of

1 the study area (eBird 2017). Suitable habitat for the white-tailed hawk is located in or adjacent  
2 to the study area. Therefore, the proposed project may impact the white-tailed hawk. Bird  
3 BMPs would be implemented to avoid potential impacts to the species, where possible. See  
4 **Attachment B** for a list of BMPs.

5 **White-faced Ibis** (*Plegadis chihi*)

6 Federal Status: NA State Status: T

7 The white-faced ibis is a medium-sized wading bird that frequents freshwater marshes,  
8 swamps, ponds, rivers, sloughs, and irrigated rice fields, and will also attend brackish and  
9 saltwater habitats. It feeds on small fish, frogs, insects and crustaceans. Nesting is colonial  
10 and occurs within marshes in low trees, on floating mats, or on the ground in bulrushes or  
11 reeds (TPWD 2017b, NatureServe 2017). There are no TXNDD records of the species within  
12 10 miles of the three reasonable alternatives (TXNDD 2017), but there are numerous  
13 documented sightings in the study area (eBird 2017). Little suitable aquatic habitat is located  
14 in or adjacent to the study area, and impacts to habitat would be minimal. Therefore, the  
15 proposed project is not expected to impact the white-faced ibis.

16 **Wood Stork** (*Mycteria Americana*)

17 Federal Status: NA State Status: T

18 The wood stork occurs throughout the Americas from the southeastern U.S. and Mexico to  
19 South America (AOU 1983). It forages in marshes, swamps, lagoons, prairie ponds, flooded  
20 pastures or fields, ditches, and other shallow standing water. It prefers freshwater, but can  
21 occur in brackish wetlands or saltwater (NatureServe 2017 and TPWD 2017b). It usually  
22 roosts communally in tall snags, sometimes in association with other wading birds (i.e. active  
23 heronries). It breeds in Mexico, after which birds move into the gulf states in search of mud  
24 flats and other wetlands, even those associated with forested areas (TPWD 2017b). There are  
25 no TXNDD records of the species within 10 miles of the three reasonable alternatives (TXNDD  
26 2017), but there are several documented sightings in the study area (eBird 2017). The study  
27 area could provide marginal shallow aquatic habitat when the floodplain or ditches are  
28 periodically inundated. However, the occurrence of the wood stork in the study area is  
29 considered unlikely. Therefore, the proposed project is not expected to impact the wood stork.

30 **Zone-tailed Hawk** (*Buteo albonotatus*)

31 Federal Status: NA State Status: T

32 The zone-tailed hawk reaches the northern extent of its range in the southwestern U.S. where  
33 it inhabits arid open country, particularly open deciduous or pine-oak woodland (AOU 1983).

1 It is found in mesa or mountain country, often near watercourses, and wooded canyons and  
2 tree-lined rivers along middle-slopes of desert mountains (NatureServe 2017 and  
3 TPWD 2017b). It nests in various habitats, including small trees in lower desert, giant  
4 cottonwoods in riparian areas, or mature conifers in high mountain regions (TPWD 2017b),  
5 but it prefers to nest in large trees and frequently uses the same nest tree for years  
6 (NatureServe 2017). There are no TXNDD records of the species within 10 miles of the three  
7 reasonable alternatives (TXNDD 2017), but there are several documented sightings in the  
8 vicinity of the study area (eBird 2017). There is suitable habitat located in and adjacent to the  
9 study area. Although impacts to habitat would be minimal, the proposed project may impact  
10 the zone-tailed hawk. Bird BMPs would be implemented to avoid potential impacts to the  
11 species, where possible. See **Attachment B** for a list of BMPs.

## 12 FISHES

### 13 American eel (*Anguilla rostrate*)

14 Federal Status: NA State Status: SGCN

15 The American eel inhabits various aquatic habitats in coastal waterways below reservoirs to  
16 the Gulf of Mexico. It is found in muddy bottoms, still waters, large streams, and lakes, and it  
17 can travel overland in wet areas (TPWD 2017b). There are no TXNDD records of the species  
18 within 10 miles of the three reasonable alternatives (TXNDD 2017), and there is no suitable  
19 habitat for the species within the study area. Therefore, the proposed project is not expected  
20 to impact the American eel.

### 21 Rio Grande Shiner (*Notropis jemezianus*)

22 Federal Status: NA State Status: SGCN

23 The Rio Grande shiner is a small minnow that occurs in large, open, weedless rivers or large  
24 creeks with bottoms of rubble, gravel, and sand, often overlain with silt (TPWD 2017b).  
25 Primary threats to the species include modification of natural flow regimes, competition from  
26 non-native species, and water contaminants (NatureServe 2017). There are no TXNDD  
27 records of the species within 10 miles of the three reasonable alternatives (TXNDD 2017),  
28 and there is no suitable habitat for the species within the study area. Therefore, the proposed  
29 project is not expected to impact the Rio Grande shiner.

**1 River Goby (*Awaous banana*)****2 Federal Status: NA State Status: T**

**3** This river goby is a coastal freshwater species that inhabits clear water with slow to moderate  
**4** current, a sandy or hard bottom, and little to no vegetation. It also enters brackish and ocean  
**5** waters (TPWD 2017b). Primary threats to the species include modification of natural flow  
**6** regimes, competition from non-native species, and water contaminants (NatureServe 2017).  
**7** There are no TXNDD records of the species within 10 miles of the three reasonable  
**8** alternatives (TXNDD 2017), and there is no suitable habitat for the species within the study  
**9** area. Therefore, the proposed project is not expected to impact the river goby.

**10 INSECTS****11 A Mayfly (*Campsurus decoloratus*)****12 Federal Status: NA State Status: SGCN**

**13** A mayfly is the only species found in the U.S. from the neotropical genus *Campsurus*  
**14** (NatureServe 2017). It is generally found in shoreline vegetation as an adult, and is possibly  
**15** found in clay substrates during the larval stage. Mayflies are distinguished by aquatic larval  
**16** stage (TPWD 2017b). Larvae of this species are presumed to burrow in clay or clay/silt  
**17** substrates and have been found in both lake and riverine environments (NatureServe 2017).  
**18** There are no occurrences of the species documented by the TXNDD within 10 miles of the  
**19** three reasonable alternatives (TXNDD 2017). A few small areas of suitable habitat for A mayfly  
**20** occur in the study area, but impacts to habitat would be minimal. Therefore, the proposed  
**21** project is not expected to impact the species.

**22 A Royal Moth (*Sphingicampa blanchardi*)****23 Federal Status: NA State Status: SGCN**

**24** A royal moth has only been documented from two locations, one in Cameron County and one  
**25** in Hidalgo County. It is predicted to also occur in Mexico, but there are no records  
**26** (NatureServe 2017). The species inhabits hardwood woodlands, and Tamaulipan thornscrub  
**27** with the caterpillar's host plant, Texas Ebony, is an important element (TPWD 2017b). There  
**28** are no occurrences of the species documented by the TXNDD within 10 miles of the three  
**29** reasonable alternatives (TXNDD 2017), and it is only known to occur at SANWR within Hidalgo  
**30** County (NatureServe 2017). A few small areas of suitable habitat for A royal moth occur in the  
**31** study area, but impacts to habitat would be minimal. Therefore, the proposed project is not  
**32** expected to impact the species.

**1 A Tiger Beetle (*Tetracha affinis angustata*)****2 Federal Status: NA State Status: SGCN**

**3** A tiger beetle, also known as upland big-headed tiger beetle, ranges from south Texas to Costa  
**4** Rica (NatureServe 2017). The species occurs in open sandy areas, beaches, or mudflats  
**5** (TPWD 2017b). There are no occurrences of the species documented by the TXNDD within 10  
**6** miles of the three reasonable alternatives (TXNDD 2017). No suitable habitat is present within  
**7** the study area; therefore, the proposed project is not expected to impact the species.

**8 Arroyo Darner (*Aeshna dugesi*)****9 Federal Status: NA State Status: SGCN**

**10** The arroyo darner occurs primarily in mountain woodland streams in southeastern Arizona,  
**11** southwestern New Mexico, west Texas, and Mexico, and also uncommonly in the Rio Grande  
**12** Valley (NatureServe 2017). The species inhabits pools in streams from desert up to the pine-  
**13** oak zone (TPWD 2017b). It lays eggs in the aquatic vegetation on the pool bottoms  
**14** (NatureServe 2017). There are no occurrences of the species documented by the TXNDD  
**15** within 10 miles of the three reasonable alternatives (TXNDD 2017). No suitable habitat is  
**16** present within the study area; therefore, the proposed project is not expected to impact the  
**17** species.

**18 Los Olmos Tiger Beetle (*Cicindela nevadica olmosa*)****19 Federal Status: NA State Status: SGCN**

**20** The Los Olmos tiger beetle apparently restricted to Texas and southeastern New Mexico  
**21** (NatureServe 2017). It is found in open, sunny areas, and larvae live in vertical burrows in soil  
**22** of dry paths, fields, or sandy beaches (TPWD 2017b). It prefers alkali sand along the banks of  
**23** creeks, but it can also occur in areas that are not riparian such as salt flats and playas  
**24** (NatureServe 2017). There are no occurrences of the species documented by the TXNDD  
**25** within 10 miles of the three reasonable alternatives (TXNDD 2017). No suitable habitat is  
**26** present within the study area; therefore, the proposed project is not expected to impact the  
**27** species.

**28 Manfreda Giant-skipper (*Stallingsia maculosus*)****29 Federal Status: NA State Status: SGCN**

**30** The manfreda giant skipper is known from south Texas and northeastern Mexico  
**31** (NatureServe 2017). It inhabits subtropical thorn and pine forests associated with the host

1 plant, Texas tuberosa (*Manfreda maculosa*) or spice lily (TPWD 2017b). There is only one  
2 record in Texas since 1980, which was in Kinney County in 2008. It is possible that the habitat  
3 of that one colony could represent the current range of the species (NatureServe 2017). There  
4 are no occurrences of the species documented by the TXNDD within 10 miles of the three  
5 reasonable alternatives (TXNDD 2017). No suitable habitat is present within the study area;  
6 therefore, the proposed project is not expected to impact the species.

7 **Neojvenile Tiger Beetle** (*Cicindela obsoleta neojvenilis*)

8 Federal Status: NA State Status: SGCN

9 The neojvenile tiger beetle is found in bare or sparsely vegetated, dry, hard-packed soil  
10 (TPWD 2017b). There are no occurrences of the species documented by the TXNDD within 10  
11 miles of the three reasonable alternatives (TXNDD 2017). No suitable habitat is present within  
12 the study area; therefore, the proposed project is not expected to impact the species.

13 **Subtropical Blue-black Tiger Beetle** (*Cicindela nigrocoerulea subtropica*)

14 Federal Status: NA State Status: SGCN

15 The subtropical blue-black tiger beetle is found in open, sunny areas, and larvae live in vertical  
16 burrows in soil of dry paths, fields, or sandy beaches (TPWD 2017b). There are no occurrences  
17 of the species documented by the TXNDD within 10 miles of the three reasonable alternatives  
18 (TXNDD 2017). No suitable habitat is present within the study area; therefore, the proposed  
19 project is not expected to impact the species.

20 **Tamaulipan Agapema** (*Agapema galbina*)

21 Federal Status: NA State Status: SGCN

22 The Tamaulipan agapema was formerly found in Cameron and Hidalgo Counties, Texas, and  
23 in Tamaulipas, Mexico. However, it is believed to extirpated from the U.S. portion of its range  
24 (NatureServe 2017). It inhabits Tamaulipan thornscrub with adequate densities of the  
25 caterpillar host plant, Brasil (TPWD 2017b). Conversion of Tamaulipan thornscrub to  
26 agriculture has caused it to be lost from the Rio Grande Valley (NatureServe 2017). There are  
27 no occurrences of the species documented by the TXNDD within 10 miles of the three  
28 reasonable alternatives (TXNDD 2017). No suitable habitat is present within the study area;  
29 therefore, the proposed project is not expected to impact the species.

**1 MAMMALS****2 Cave Myotis Bat (*Lasiurus ega*)**

3 Federal Status: NA State Status: T

4 The cave myotis bat is colonial and cave-dwelling. It also roosts in rock crevices, old buildings,  
5 carports, under bridges, and even in abandoned cliff swallow (*Petrochelidon pyrrhonota*)  
6 nests. It roosts in clusters of up to thousands of individuals and hibernates in limestone caves  
7 of Edwards Plateau and gypsum caves of the Texas Panhandle during winter (TPWD 2017b).  
8 While no occurrences of the species are documented by the TXNDD (TXNDD 2017) data, the  
9 CCP (USFWS 1997) lists the species as recorded within either SANWR and/or LRGVNR.  
10 Existing bridges, culverts, buildings, or other structures within the three reasonable  
11 alternatives could provide potential roosting habitat. Therefore, the proposed project may  
12 impact the cave myotis bat. Bat BMPs would be implemented to avoid potential impacts to  
13 the species, where possible. See **Attachment B** for a list of BMPs.

**14 Coues' Rice Rat (*Oryzomys couesi*)**

15 Federal Status: DL State Status: T

16 The Coues' rice rat inhabits cattail-bulrush marsh with shallow zones of aquatic grasses near  
17 the shoreline. Shade trees around the shoreline are important features. It is found in grassy  
18 areas near both salt and freshwater. While no occurrences of the species are documented by  
19 the TXNDD (TXNDD 2017), the CCP (USFWS 1997) lists the species as recorded within either  
20 SANWR and/or LRGVNR. Furthermore, Davis and Schmidly (1994) identify the species as  
21 occurring in Hidalgo County. The potential for Coues' rice rat to utilize various waterbodies (i.e.  
22 Santa Cruz and/or Donna Main Canals) within the study area cannot be discounted. Because  
23 of the likely presence of habitat within or near the study area, the proposed project may impact  
24 the Coues' rice rat. Contractors will be advised to minimize impacts to wetland, Resaca,  
25 oxbow lake, and marsh habitats, and advised of potential occurrence in the project area, and  
26 avoid harming the species if encountered. Additionally, Water Quality BMPs would be  
27 implemented to avoid potential impacts to the species, where possible. See **Attachment B** for  
28 a list of BMPs.

**29 Mexican Long-tongued Bat (*Choeronycteris Mexicana*)**

30 Federal Status: NA State Status: SGCN

31 The Mexican long-tongued bat can be found in desert scrub, deciduous, and pine-oak forest.  
32 It roosts in caves and mines, and occasionally in buildings. This species feeds on pollen and  
33 nectar of agaves, cacti, Ipomoea, Ceiba, and other plants. Cactus fruits are also eaten.

1 Hummingbird feeders may also be visited in the search for nectar. U.S. populations migrate  
2 south to Mexico for the winter (IUCN 2017). While not indicated by TXNDD (TXNDD 2017) for  
3 the study area, there is a single Texas record from SANWR in 1971 (IUCN 2017) approximately  
4 15 miles to the south of the study area. Because of the general lack of agave dominated  
5 habitat, as well as the general conversion of native vegetation to farmland or  
6 residential/commercial use, the likelihood of occurrence of Mexican long-tongued bat in the  
7 study area is low. However, its potential occurrence cannot be ruled out; therefore, the  
8 proposed project may impact the species. Bat BMPs would be implemented to avoid potential  
9 impacts to the species, where possible. See **Attachment B** for a list of BMPs.

#### 10 **Plains Spotted Skunk** (*Spilogale putorius interrupta*)

11 Federal Status: NA State Status: SGCN

12 The plains spotted skunk inhabits open fields, prairies, croplands, fence rows, farmyards,  
13 forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie  
14 (TPWD 2017b). The CCP lists the eastern spotted skunk as a recorded resident of the  
15 LRGVNRs (USFWS 1997). However, no TXNDD records of the species occurs within 10 miles  
16 of the three reasonable alternatives (TXNDD 2017). Suitable habitat for the eastern spotted  
17 skunk within the three reasonable alternatives may be present within some of the small  
18 undeveloped tracts in the study area (i.e. forest edges, fencerows). Additionally, areas utilized  
19 for livestock grazing and agriculture may be utilized by the plains spotted skunk. Based upon  
20 the presence of potential habitat for this generalist species, the proposed project may impact  
21 the plains spotted skunk. Contractors will be advised of potential occurrence in the project  
22 area, and to avoid harming the species if encountered, and to avoid unnecessary impacts to  
23 dens.

#### 24 **Southern Yellow Bat** (*Lasiurus ega*)

25 Federal Status: NA State Status: T

26 The southern yellow bat is a neotropical species that reaches the United States in southern  
27 Texas. It has been recorded from Cameron, Kleberg, and Nueces Counties and as far south  
28 as Argentina (Davis and Schmidly 1994). This bat is thought to be a year-round inhabitant of  
29 extreme South Texas as individuals have been captured near Brownsville during all seasons.  
30 Southern yellow bats occur in wooded areas and roost in foliage. In the United States, the  
31 southern yellow bat is generally associated with both introduced and native palms. They can  
32 be found in degraded habitat areas as well as roofs made with palm (IUCN 2017). TXNDD  
33 (2016) data received does not include a record of the species within 10 miles of the three  
34 reasonable alternatives. Additionally, the CCP (USFWS 1997) does not indicate the species  
35 as recorded within the LRGVNRs. However, based upon the geographical location of the

1 proposed project as well as the high occurrence of ornamental palms and secondary wooded  
2 areas, the possibility of the southern yellow bat occurring in the study area cannot be  
3 discounted. Based upon the likely presence of habitat, the proposed project may impact the  
4 southern yellow bat; however, Bat BMPs would be implemented to avoid potential impacts to  
5 the species, where possible. See **Attachment B** for a list of BMPs.

#### 6 **White-nosed Coati** (*Nasua narica*)

7 Federal Status: NA State Status: T

8 The white-nosed coati is highly adaptable tropical woodland and open forest animal (IUCN  
9 2017). It is rarely seen in open grassland or desert (IUCN 2017). In the U.S.A., it is generally  
10 found in oak woodlands or hardwood riparian canyons of Arizona and New Mexico. However,  
11 it is also occasionally seen in south and southwest Texas in riparian and evergreen  
12 woodlands. Coatis are omnivorous and consume a wide variety of plants and animals. Most  
13 animals observed have been individual transitory males, not females with offspring. TXNDD  
14 data indicates that a coati was recorded approximately 17 miles northwest of the study area  
15 in 1985 (TXNDD 2017). However, this appears to be a single wandering male and not a firm  
16 indication of the species consistent presence in the area. Additionally, the CCP (USFWS 1997)  
17 does not indicate the coati as being confirmed within either SANWR or LRGVNR. Suitable  
18 habitat for the coati does not exist within the three reasonable alternatives based upon the  
19 high level of habitat fragmentation, the male coati's transitory nature, and general lack of  
20 information indicating regular occurrence of the coati in Texas. Therefore, the proposed  
21 project is not anticipated to impact the species.

#### 22 **MOLLUSKS**

#### 23 **Mexican Fawnsfoot Mussel** (*Truncilla cognata*)

24 Federal Status: NA State Status: T

25 The Mexican fawnsfoot mussel is described as a small (to 1.75 inches) mollusk that is  
26 endemic to the central and lower reaches of the Rio Grande and a few nearby tributaries  
27 (NatureServe 2017). No living specimens have been located since 2002. Little is known of its  
28 habitat requirements because of difficulties in locating the species. Based on habitats  
29 associated with its relatives it probably prefers flowing streams and rivers with sand or gravel  
30 bottoms. Neither TXNDD (2016) data or the CCP (USFWS 1997) indicate the occurrence of  
31 the mussel within the three reasonable alternatives or nearby area. Free flowing stream  
32 habitat with a sand or gravel bottom does not occur within the study area. Therefore, the  
33 proposed project is not anticipated to impact the species.

**1 Salina Mucket (*Potamilus metnecktayi*)****2 Federal Status: NA State Status: T**

**3** The Salina mucket mussel is reported as restricted to the Rio Grande from the Big Bend region  
**4** to the Rio Salado drainage in Mexico near Falcon Dam (NatureServe 2017). According to  
**5** Howells (2013), it is currently known to persist only between Big Bend and the mouth of the  
**6** Pecos River. The Rio Grande and its tributaries have experienced dramatic environmental  
**7** alterations. No living specimens have been documented in the LRGV in over 20 years. No  
**8** populations are known to survive in any Texas tributaries (NatureServe 2017). Based on  
**9** habitats associated with it relatives, the Salina mucket likely inhabits small to moderate size  
**10** streams and rivers with sand and gravel bottoms. Neither TXNDD (2016) nor the CCP  
**11** (USFWS 1997) indicate the occurrence of the mussel within the three reasonable alternatives  
**12** or nearby area. Free flowing stream habitat with a sand or gravel bottom does not occur within  
**13** the study area. Therefore, the proposed project is not anticipated to impact the species.

**14 REPTILES****15 Black-striped Snake (*Coniophanes imperialis*)****16 Federal Status: NA State Status: T**

**17** The black-striped snake is a rear-fanged species that inhabits forests, savannas, agricultural  
**18** landscapes, and edges of wet or marshy areas. In Texas, this snake can be found in native  
**19** thorn-thicket habitat along arroyos and resacas as well as around buildings and in vacant lots  
**20** in localized suburban areas. This is a secretive snake that crawls in leaf-litter, burrows into  
**21** soil, or hides under logs or other vegetative debris or trash, and it is highly tolerant of at least  
**22** moderate habitat disturbance (IUCN 2017). Both TXNDD (2016) data and the CCP  
**23** (USFWS 1997) indicate at least historical occurrence in the study area. Based upon the  
**24** presence of potential habitat and documented occurrence of this generalist species, the  
**25** proposed project may impact the black-striped snake. The TxDOT-TPWD MOU does not include  
**26** any approved species specific BMPs for this species; however, Terrestrial Reptile BMPs would  
**27** be implemented to avoid potential impacts to the species, where possible. See **Attachment B**  
**28** for a list of BMPs.

**29 Northern Cat-eyed Snake (*Leptodeira septentrionalis*)****30 Federal Status: NA State Status: T**

**31** The northern cat-eyed snake is a rear-fanged snake that inhabits dense vegetation, especially  
**32** near aquatic features. The species is usually found in larger undisturbed patches of thorn-  
**33**shrub. Only small patches of potential habitat for this species occur in the three reasonable

1 alternatives. While the CCP (USFWS 1997) does not indicate the occurrence of the northern  
2 cat-eyed snake on LRGVNR, the TXNDD (2016) does indicate the historical occurrence of  
3 the species in the study area. Based upon the presence of potential habitat and documented  
4 occurrence of this species, the proposed project may impact the northern cat-eyed snake.  
5 Terrestrial Reptile BMPs would be implemented to avoid potential impacts to the species,  
6 where possible. See **Attachment B** for a list of BMPs.

#### 7 **Reticulate Collared Lizard** (*Crotaphytus reticulatus*)

8 Federal Status: NA State Status: T

9 The reticulate collared lizard is an alert species with an unusually large head. This lizard  
10 inhabits thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel,  
11 caliche, or sandy soils. It often occurs on scattered flat rocks below escarpments or isolated  
12 rock outcrops among scattered clumps of prickly-pear and mesquite, but it also commonly  
13 ranges into mesquite flats far from the nearest rocky habitat (IUCN 2017). While the TXNDD  
14 (2016) does not indicate the occurrence of the reticulate collared lizard in the study area, the  
15 CCP (USFWS 1997) does indicate the historical occurrence of the species on LRGVNR.  
16 Based upon the presence of thorn-scrub vegetation within areas mapped as the LU/LC brush  
17 type and occurrence of sandy soils within the study area, the potential for the species to occur  
18 cannot be discounted. Therefore, the proposed project may impact the reticulate collared  
19 lizard. Terrestrial Reptile BMPs would be implemented to avoid potential impacts to the  
20 species, where possible. See **Attachment B** for a list of BMPs.

#### 21 **Speckled Racer** (*Drymobius margaritiferus*)

22 Federal Status: NA State Status: T

23 The speckled racer is a tropical snake that inhabits dense thickets of vegetation with  
24 abundant leaf litter, especially near water. In Texas, this species occurs in remnant dense  
25 thickets near water, Sabal palm groves, and riparian woodlands. It is generally found in areas  
26 with much vegetative litter on the ground (Encyclopedia of Life [EOL] 2017). TXNDD (2016)  
27 does not indicate the occurrence of the speckled racer in or near the three reasonable  
28 alternatives, but the CCP (USFWS 1997) does indicate the historical occurrence of the species  
29 on LRGVNR. Based on the lack of Sabal palm thickets or dense riparian vegetation within  
30 the study area, no impacts to the speckled racer are expected as a result of the proposed  
31 project.

**1 Spot-tailed Earless Lizard (*Holbrookia lacerate*)****2** Federal Status: NA State Status: SGCN

**3** Habitats for this small lizard include moderately open prairie-brushland regions, particularly  
**4** fairly flat areas free of vegetation or other obstructions, including disturbed areas, also oak-  
**5** juniper woodlands and mesquite-prickly pear associations (IUCN 2017). Neither TXNDD  
**6** (2016) data nor the CCP (USFWS 1997) indicate the occurrence of the spot-tailed earless  
**7** lizard within or near the three reasonable alternatives. However, based upon the generic  
**8** habitat requirements and unspecialized niche occupied by this species, the potential for the  
**9** species to occur cannot be discounted. Therefore, the proposed project may impact the spot-  
**10** tailed earless lizard. Terrestrial Reptile BMPs would be implemented to avoid potential  
**11** impacts to the species, where possible. See **Attachment B** for a list of BMPs.

**12 Texas Horned Lizard (*Phrynosoma cornutum*)****13** Federal Status: NA State Status: T

**14** The Texas horned lizard is found in open, arid and semi-arid regions with sparse vegetation,  
**15** including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy  
**16** to rocky. It burrows into soil, enters rodent burrows, or hides under rock when inactive, and  
**17** breeds March-September (IUCN 2017). Occurrence of the Texas horned lizard on LRGVNWR  
**18** tracts is confirmed by the CCP (USFWS 1997). Additionally, TXNDD (2016) records indicate  
**19** the occurrence of the species approximately 10 miles west of the three reasonable  
**20** alternatives. Based upon the generic habitat requirements of this species, the potential for  
**21** the species to occur cannot be discounted. Therefore, the proposed project may impact the  
**22** Texas horned lizard. Contractors will be advised to avoid harvester ant mounds in the selection  
**23** of Project-specific Locations (PSLs) where feasible. Additionally, Terrestrial Reptile BMPs  
**24** would be implemented to avoid potential impacts to the species, where possible. See  
**25** **Attachment B** for a list of BMPs.

**26 Texas Indigo Snake (*Drymarchon corais*)****27** Federal Status: NA State Status: T

**28** The Texas indigo snake is a large constrictor that occurs primarily along riparian corridors in  
**29** thorn brush woodland and mesquite savanna of the coastal plain, but also in prairies, coastal  
**30** sandhills, and limestone desert. This is a primarily terrestrial snake that often uses burrows  
**31** (IUCN 2017). However, this species is highly mobile and tends to avoid humans and  
**32** developed areas. Occurrence of the Texas indigo snake on LRGVNWR tracts is confirmed by  
**33** the CCP (USFWS 1997). Additionally, TXNDD (2016) records indicate the occurrence of the

1 species in multiple locations near the three reasonable alternatives. Based upon the generic  
2 habitat requirements of this species, the potential for the species to occur cannot be  
3 discounted. Therefore, the proposed project may impact the Texas indigo snake. Terrestrial  
4 Reptile BMPs would be implemented to avoid potential impacts to the species, where  
5 possible. See **Attachment B** for a list of BMPs.

#### 6 **Texas Tortoise** (*Gopherus berlandieri*)

7 Federal Status: NA State Status: T

8 The Texas tortoise inhabits the semi-desert brush lands of South Texas. The species prefers  
9 habitat consisting of open brush with a grass understory and avoids open grass and bare  
10 ground. When inactive, it occupies shallow depressions at the base of a bush or cactus, or  
11 sometimes in underground burrows or under objects. While a majority of the study area has  
12 been developed for farming as well as for residential and commercial purposes, small areas  
13 of native brush persist in scattered locations. Occurrence of the tortoise on LRGVNR tracts  
14 is confirmed by the CCP (USFWS 1997). Additionally, TXNDD (2016) records indicate the  
15 occurrence of the species in multiple locations near the three reasonable alternatives. Based  
16 upon the generic habitat requirements of this species, the potential for the species to occur  
17 cannot be discounted. Therefore, the proposed project may impact the Texas tortoise.  
18 Contractors will be advised of potential occurrence in the project area, and to avoid harming  
19 the species if encountered. Utility trenches should be covered overnight or visually inspected  
20 before filling to avoid burial of the species. Additionally, Terrestrial Reptile BMPs would be  
21 implemented to avoid potential impacts to the species, where possible. See **Attachment B** for  
22 a list of BMPs.

#### 23 **PLANTS**

#### 24 **Amelia's Abronia** (*Abronia ameliae*)

25 Federal Status: NA State Status: SGCN

26 The Amelia's abronia occurs on deep, well-drained soils of the South Texas Sand Sheet in  
27 grassy and/or herbaceous dominated openings within coastal live oak woodlands or  
28 mesquite-coastal live oak woodlands. Various well-drained sandy soils associated with the  
29 Texas Sand Sheet occur within the study area. Historical occurrence of Amelia's abronia in  
30 the study area is confirmed by a 1944 TXNDD record (2016). However, the species is not  
31 listed as occurring on NWR property by the CCP (USFWS 1997). Based upon historic  
32 occurrence in the general area as well as the occurrence of the well-drained sandy soil types,  
33 the potential for the species to occur cannot be discounted. Therefore, the proposed project  
34 may impact the Amelia's abronia. The TxDOT-TPWD MOU does not include any approved BMPs

1 for plants. Presence/absence surveys will be conducted once a preferred alternative is  
2 identified, and if the species is found TxDOT will coordinate with TPWD.

3 **Arrowleaf Milkvine** (*Matelea sagittifolia*)

4 Federal Status: NA State Status: SGCN

5 This milkvine species is found in in grasslands and open woodlands on sandy and rocky soils.  
6 It is thought to be restricted to southwest Texas with most observations occurring well west of  
7 the study area. While the TXNDD (2016) does not indicate the occurrence of the arrowleaf  
8 milkvine in the study area, the CCP (USFWS 1997) does indicate the occurrence of the species  
9 on LRGVNR. Based upon the presence of thorn-scrub woodlands and the occurrence of  
10 sandy soils within the study area, the potential for the species to occur cannot be discounted.  
11 Therefore, the proposed project may impact the arrowleaf milkvine. The TxDOT-TPWD MOU  
12 does not include any approved BMPs for plants. Presence/absence surveys will be conducted  
13 once a preferred alternative is identified, and if the species is found TxDOT will coordinate  
14 with TPWD.

15 **Bailey's Ballmoss** (*Tillandsia baileyi*)

16 Federal Status: NA State Status: SGCN

17 This bromeliad species is epiphytic on various trees and tall shrubs, perhaps most common  
18 in mottes of live oak on vegetated dunes and flats in coastal portions of the South Texas Sand  
19 Sheet. It also occurs on evergreen sub-tropical woodlands along resacas in the Lower Rio  
20 Grande Valley. Both the TXNDD (2016) and the CCP (USFWS 1997) indicate the occurrence  
21 of Bailey's ballmoss near the three reasonable alternatives. Based upon the presence of  
22 thorn-scrub woodlands within the study area, the potential for the species to occur cannot be  
23 discounted. Therefore, the proposed project may impact Bailey's ballmoss. The TxDOT-TPWD  
24 MOU does not include any approved BMPs for plants. Presence/absence surveys will be  
25 conducted once a preferred alternative is identified, and if the species is found TxDOT will  
26 coordinate with TPWD.

27 **Chihuahua Balloon-vine** (*Cardiospermum dissectum*)

28 Federal Status: NA State Status: SGCN

29 The Chihuahua balloon-vine occurs in thorn shrublands or low woodlands on well to  
30 excessively well drained, calcareous, sandy to gravelly soils in drier uplands. While the TXNDD  
31 (2016) does not indicate the occurrence of the Chihuahua balloon-vine in the study area, the  
32 CCP (USFWS 1997) does indicate the occurrence of the species on LRGVNR property. Based  
33 upon the presence of thorn-scrub woodlands as well as sandy soils within the three

1 reasonable alternatives, the potential for the species to occur cannot be discounted.  
2 Therefore, the proposed project may impact the Chihuahua balloon-vine. The TxDOT-TPWD  
3 MOU does not include any approved BMPs for plants. Presence/absence surveys will be  
4 conducted once a preferred alternative is identified, and if the species is found TxDOT will  
5 coordinate with TPWD.

6 **Cory's Croton** (*Croton coryi*)

7 Federal Status: NA State Status: SGCN

8 The Cory's croton occurs in grasslands and woodland openings on barrier islands and coastal  
9 sands of South Texas, and inland on South Texas Sand Sheet. Neither the TXNDD (2016) nor  
10 the CCP (USFWS 1997) indicates the occurrence of the species within or near the three  
11 reasonable alternatives. However, based upon the presence of thorn-scrub woodlands and  
12 the occurrence of sandy soils within the study area, the potential for the species to occur  
13 cannot be discounted. Therefore, the proposed project may impact the Cory's croton. The  
14 TxDOT-TPWD MOU does not include any approved BMPs for plants. Presence/absence  
15 surveys will be conducted once a preferred alternative is identified, and if the species is found  
16 TxDOT will coordinate with TPWD.

17 **Falfurrias Milkvine** (*Matelea radiata*)

18 Federal Status: NA State Status: SGCN

19 The Falfurrias milkvine is a Texas endemic and knowledge of its range is uncertain. It is only  
20 known from two specimens: one from clay soil on dry gravel hills at altitude of 45 meters (148  
21 feet), and the other from Falfurrias, with no habitat descriptions. Neither the TXNDD (2016)  
22 nor the CCP (USFWS 1997) indicate the occurrence of the species within or near the three  
23 reasonable alternatives. Additionally, soils within the study area do not match those described  
24 as utilized by the species. However, based upon the general lack of knowledge in the scientific  
25 community concerning this species, the potential for the species to occur cannot be  
26 discounted. Therefore, the proposed project may impact the Falfurrias milkvine. The TxDOT-  
27 TPWD MOU does not include any approved BMPs for plants. Presence/absence surveys will  
28 be conducted once a preferred alternative is identified, and if the species is found TxDOT will  
29 coordinate with TPWD.

30 **Gregg's wild-buckwheat** (*Eriogonum greggii*)

31 Federal Status: NA State Status: SGCN

32 The Gregg's wild-buckwheat occurs sparingly in vegetated openings within thorn shrublands  
33 in shallow soils on xeric ridges along the Rio Grande. While the TXNDD (2016) does not

1 indicate the occurrence of species in the study area, the CCP (USFWS 1997) does indicate  
2 the occurrence of the species on LRGVNR property. Based upon current knowledge  
3 indicating this species in the United States is restricted to locations immediately along the Rio  
4 Grande, the proposed project is expected to have no impact on Gregg's wild-buckwheat.

5 **Jones' Nailwort** (*Paronychia jonesii*)

6 Federal Status: NA State Status: SGCN

7 The Jones' nailwort occurs in early successional open areas on deep well-drained sand.  
8 Historical occurrence of the species in the study area is confirmed by a 1944 TXNDD record  
9 (2016). However, the species is not listed as occurring on NWR property by the CCP  
10 (USFWS 1997). Based upon the presence of sandy soils within the three reasonable  
11 alternatives, the potential for the species to occur cannot be discounted. Therefore, the  
12 proposed project may impact the Jones' nailwort. The TxDOT-TPWD MOU does not include any  
13 approved BMPs for plants. Presence/absence surveys will be conducted once a preferred  
14 alternative is identified, and if the species is found TxDOT will coordinate with TPWD.

15 **Large Selenia** (*Selenia grandis*)

16 Federal Status: NA State Status: SGCN

17 The large selenia occurs in seasonally wet clayey soils in open areas. Occurrence of the  
18 species on LRGVNR tracts is confirmed by the CCP (USFWS 1997). Additionally, TXNDD  
19 (2016) records indicate the occurrence of the species approximately 7 miles southeast of the  
20 three reasonable alternatives. Based upon the occurrence of clayey soils within the study area  
21 and its generic habitat requirements, the potential for the species to occur cannot be  
22 discounted. Therefore, the proposed project may impact the large selenia. The TxDOT-TPWD  
23 MOU does not include any approved BMPs for plants. Presence/absence surveys will be  
24 conducted once a preferred alternative is identified, and if the species is found TxDOT will  
25 coordinate with TPWD.

26 **Mexican Mud-plantain** (*Heteranthera mexicana*)

27 Federal Status: NA State Status: SGCN

28 The Mexican mud-plantain occurs in wet clayey soils of resacas and ephemeral wetlands in  
29 South Texas and along margins of playas in the Texas Panhandle. Historical occurrence of  
30 species very near or within the three reasonable alternatives is confirmed by TXNDD (2016).  
31 However, the species is not listed as occurring on SANWR or LRGVNR property by the CCP  
32 (USFWS 1997). Based upon the historic occurrence in the general area as well as the  
33 occurrence of clayey soils, the potential for the species to occur cannot be discounted.

1 Therefore, the proposed project may impact the Mexican mud-plantain. The TxDOT-TPWD MOU  
2 does not include any approved BMPs for plants. Presence/absence surveys will be conducted  
3 once a preferred alternative is identified, and if the species is found TxDOT will coordinate  
4 with TPWD.

5 **Runyon's Cory Cactus** (*Coryphantha macromeris v. runyonii*)

6 Federal Status: NA State Status: SGCN

7 The Runyon's cory cactus occurs in gravelly to sandy or clayey, calcareous, sometimes  
8 gypsiferous or saline soils, often over the Catahoula and Frio formations. It is found on gentle  
9 hills and slopes to the flats between, at elevations ranging from 10 to 150 meters (30 to 500  
10 feet). Occurrence of the species on LRGVNR tracts is confirmed by the CCP (USFWS 1997).  
11 However, TXNDD (2016) records do not indicate the occurrence of the species within or near  
12 the three reasonable alternatives. Based upon the generic soil requirements within the study  
13 area and generic habitat requirements, the potential for the species to occur cannot be  
14 discounted. Therefore, the proposed project may impact the Runyon's cory cactus. The TxDOT-  
15 TPWD MOU does not include any approved BMPs for plants. Presence/absence surveys will  
16 be conducted once a preferred alternative is identified, and if the species is found TxDOT will  
17 coordinate with TPWD.

18 **Runyon's Water-willow** (*Justicia runyonii*)

19 Federal Status: NA State Status: SGCN

20 The Runyon's water-willow occurs in margins of and openings within subtropical woodlands  
21 or thorn shrublands on calcareous, alluvial, silty, or clayey soils derived from Holocene silt and  
22 sand floodplain deposits of the Rio Grande Delta. It can be common in narrow openings such  
23 as those provided by trails through dense ebony woodlands and is sometimes restricted to  
24 micro-depressions. Occurrence of the species on LRGVNR tracts is confirmed by the CCP  
25 (USFWS 1997). Additionally, TXNDD (2016) records indicate multiple occurrences of the  
26 species within 10 miles of the three reasonable alternatives. Based upon the soil and habitat  
27 requirements, the potential for the species to occur cannot be discounted. Therefore, the  
28 proposed project may impact the Runyon's water-willow. The TxDOT-TPWD MOU does not  
29 include any approved BMPs for plants. Presence/absence surveys will be conducted once a  
30 preferred alternative is identified, and if the species is found TxDOT will coordinate with TPWD.

**1 Sand Brazos Mint (*Brazoria arenaria*)****2 Federal Status: NA State Status: SGCN**

**3** The sand Brazos mint is found in sandy areas in South Texas. Neither the TXNDD (2016) nor  
**4** the CCP (USFWS 1997) indicates the occurrence of the species within or near study area.  
**5** However, soils within the three reasonable alternatives are similar to those described as  
**6** utilized by the species. Based upon the general lack of knowledge in the scientific community  
**7** concerning this species, the potential for the species to occur cannot be discounted.  
**8** Therefore, the proposed project may impact the sand Brazos mint. The TxDOT-TPWD MOU  
**9** does not include any approved BMPs for plants. Presence/absence surveys will be conducted  
**10** once a preferred alternative is identified, and if the species is found TxDOT will coordinate  
**11** with TPWD.

**12 Sand Sheet Leaf-flower (*Phyllanthus abnormis* var. *riograndensis*)****13 Federal Status: NA State Status: SGCN**

**14** The sand sheet leaf-flower occurs in the semi-desert scrub of deep South Texas. Occurrence  
**15** of the sand sheet leaf-flower on LRGVNWR tracts is confirmed by the CCP (USFWS 1997).  
**16** However, TXNDD (2016) records do not indicate the occurrence of the species within or near  
**17** the three reasonable alternatives. Based upon the occurrence of sand sheet soils within the  
**18** three reasonable alternatives and habitat types inhabited, the potential for the species to  
**19** occur cannot be discounted. Therefore, the proposed project may impact the sand sheet leaf-  
**20** flower. The TxDOT-TPWD MOU does not include any approved BMPs for plants.  
**21** Presence/absence surveys will be conducted once a preferred alternative is identified, and if  
**22** the species is found TxDOT will coordinate with TPWD.

**23 Shortcrown Milkvine (*Matelea brevicoronata*)****24 Federal Status: NA State Status: SGCN**

**25** The shortcrown milkvine occurs primarily in grasslands on tight sandy or silty substrates.  
**26** Neither the TXNDD (2016) nor the CCP (USFWS 1997) indicates the occurrence of the species  
**27** within or near the three reasonable alternatives. However, some soil units within the study  
**28** area are similar to those described as utilized by the species. Based upon the general lack of  
**29** knowledge in the scientific community concerning this species, the potential for the species  
**30** to occur cannot be discounted. Therefore, the proposed project may impact the shortcrown  
**31** milkvine. The TxDOT-TPWD MOU does not include any approved BMPs for plants.  
**32** Presence/absence surveys will be conducted once a preferred alternative is identified, and if  
**33** the species is found TxDOT will coordinate with TPWD.

**1 Siler's Huaco (*Manfreda sileri*)****2 Federal Status: NA State Status: SGCN**

**3** This perennial species is considered rare in a variety of grasslands and shrublands on dry  
**4** sites. Neither the TXNDD (2016) nor the CCP (USFWS 1997) indicates the occurrence of  
**5** Siler's huaco within or near the three reasonable alternatives. However, based upon the  
**6** general lack of knowledge in the scientific community concerning this species, the potential  
**7** for the species to occur cannot be discounted. Therefore, the proposed project may impact  
**8** the Siler's huaco. The TxDOT-TPWD MOU does not include any approved BMPs for plants.  
**9** Presence/absence surveys will be conducted once a preferred alternative is identified, and if  
**10** the species is found TxDOT will coordinate with TPWD.

**11 Small-leaved Yellow Velvet-leaf (*Thelypodopsis shinersii*)****12 Federal Status: NA State Status: SGCN**

**13** The small-leaved yellow velvet-leaf occurs in sandy loams or clays in shrublands or woodlands.  
**14** Neither the TXNDD (2016) nor the CCP (USFWS 1997) indicates the occurrence of the species  
**15** within or near the three reasonable alternatives. However, some soil units within the study  
**16** area are similar to those described as utilized by the species. Based upon the general lack of  
**17** knowledge in the scientific community concerning this species, the potential for the species  
**18** to occur cannot be discounted. Therefore, the proposed project may impact the small-leaved  
**19** yellow velvet-leaf. The TxDOT-TPWD MOU does not include any approved BMPs for plants.  
**20** Presence/absence surveys will be conducted once a preferred alternative is identified, and if  
**21** the species is found TxDOT will coordinate with TPWD.

**22 St. Joseph's Staff (*Manfreda longiflora*)****23 Federal Status: NA State Status: SGCN**

**24** The St. Joseph's staff occurs in thorn shrublands on clays and loams with various  
**25** concentrations of salt, caliche, sand, and gravel. Neither the TXNDD (2016) nor the CCP  
**26** (USFWS 1997) indicates the occurrence of the species within or near the three reasonable  
**27** alternatives. However, some soil units within the study area are similar to those described as  
**28** utilized by the species. Based upon the general lack of knowledge in the scientific community  
**29** concerning this species, the potential for the species to occur cannot be discounted.  
**30** Therefore, the proposed project may impact the St. Joseph's Staff. The TxDOT-TPWD MOU  
**31** does not include any approved BMPs for plants. Presence/absence surveys will be conducted  
**32** once a preferred alternative is identified, and if the species is found TxDOT will coordinate  
**33** with TPWD.

**1 Stinking Rushpea (*Pomaria austrotexana*)****2 Federal Status: NA State Status: SGCN**

**3** The stinking rushpea is found in open areas on deep well drained sands (TPWD 2017b).  
**4** Neither the TXNDD (2016) nor the CCP (USFWS 1997) indicates the occurrence of the species  
**5** within or near the study area. However, some soil units within the three reasonable  
**6** alternatives are similar to those described as utilized by the species. Based upon the general  
**7** lack of knowledge in the scientific community concerning this species, the potential for the  
**8** species to occur cannot be discounted. Therefore, the proposed project may impact the  
**9** stinking rushpea. The TxDOT-TPWD MOU does not include any approved BMPs for plants.  
**10** Presence/absence surveys will be conducted once a preferred alternative is identified, and if  
**11** the species is found TxDOT will coordinate with TPWD.

**12 Texas Peachbush (*Prunus texana*)****13 Federal Status: NA State Status: SGCN**

**14** The Texas peachbush occurs at 0-200 meters (0 to 656 feet) elevation at scattered sites in  
**15** various well drained sandy situations such as deep sand, plains and sand hills, grasslands,  
**16** and oak woods (TPWD 2017b). Neither the TXNDD (2016) nor the CCP (USFWS 1997)  
**17** indicates the occurrence of the species within or near the study area. However, some soil  
**18** units within the three reasonable alternatives are similar to those described as utilized by the  
**19** species. Based upon the general lack of knowledge in the scientific community concerning  
**20** this species, the potential for the species to occur cannot be discounted. Therefore, the  
**21** proposed project may impact the Texas peachbush. The TxDOT-TPWD MOU does not include  
**22** any approved BMPs for plants. Presence/absence surveys will be conducted once a preferred  
**23** alternative is identified, and if the species is found TxDOT will coordinate with TPWD.

**24 Texas Stonecrop (*Lenophyllum texanum*)****25 Federal Status: NA State Status: SGCN**

**26** The Texas stonecrop is found in shrublands on clay dunes (lomas) at the mouth of the Rio  
**27** Grande and on xeric calcareous rock outcrops at scattered inland sites (TPWD 2017b).  
**28** Neither the TXNDD (2016) nor the CCP (USFWS 1997) indicates the occurrence of the species  
**29** within or near the three reasonable alternatives. There are no lomas or xeric calcareous rock  
**30** outcrops within the three reasonable alternatives. Therefore, the proposed project is expected  
**31** to have no impact on the Texas stonecrop.

**1 Vasey's Adelia (*Adelia vaseyi*)****2 Federal Status: NA State Status: SGCN**

**3** The Vasey's adelia is found mostly in subtropical evergreen/deciduous woodlands on loamy  
**4** soils of Rio Grande Delta, but occasionally in shrublands on more xeric sandy to gravelly  
**5** upland sites (TPWD 2017b). Historical occurrence of the species within 10 miles of three  
**6** reasonable alternatives is confirmed by TXNDD (2016), and the species is listed as occurring  
**7** on SANWR or LRGVNR property by the CCP (USFWS 1997). Based upon the historic  
**8** occurrence in the general area as well as the occurrence of shrublands on xeric sandy soils  
**9** within the three reasonable alternatives, the potential for the species to occur cannot be  
**10** discounted. Therefore, the proposed project may impact the Vasey's adelia. The TxDOT-TPWD  
**11** MOU does not include any approved BMPs for plants. Presence/absence surveys will be  
**12** conducted once a preferred alternative is identified, and if the species is found TxDOT will  
**13** coordinate with TPWD.

**14 Wright's Trichocoronis (*Trichocoronis wrightii* var. *wrightii*)****15 Federal Status: NA State Status: SGCN**

**16** Most records from Texas are historical, perhaps indicating a decline as a result of alteration  
**17** of wetland habitats (TPWD 2017b). Neither the TXNDD (2016) nor the CCP (USFWS 1997)  
**18** indicates the occurrence of Wright's trichocoronis within or near the three reasonable  
**19** alternatives. However, some small wetland areas could be present within the three  
**20** reasonable alternatives. Based upon the general lack of knowledge in the scientific  
**21** community concerning this species, the potential for the species to occur cannot be  
**22** discounted. Therefore, the proposed project may impact the Wright's trichocoronis. The  
**23** TxDOT-TPWD MOU does not include any approved BMPs for plants. Presence/absence  
**24** surveys will be conducted once a preferred alternative is identified, and if the species is found  
**25** TxDOT will coordinate with TPWD.

**26 Yellow-flowered Alicoche (*Echinocereus papillosus*)****27 Federal Status: NA State Status: SGCN**

**28** The yellow-flowered alicoche is found under shrubs or in open areas on various substrates  
**29** (TPWD 2017b). Historical occurrence of the species within 10 miles of study area is confirmed  
**30** by TXNDD (2016). However, the species is not listed as occurring on SANWR or LRGVNR  
**31** property by the CCP (USFWS 1997). Based upon the historic occurrence in the general area  
**32** as well as the occurrence of shrublands in the three reasonable alternatives, the potential for  
**33** the species to occur cannot be discounted. Therefore, the proposed project may impact the

1 yellow-flowered alicоче. The TxDOT-TPWD MOU does not include any approved BMPs for  
2 plants. Presence/absence surveys will be conducted once a preferred alternative is identified,  
3 and if the species is found TxDOT will coordinate with TPWD.

#### 4 **Summary of Impacts to State Threatened, Endangered and Species of Greatest Conservation** 5 **Need**

6 Suitable habitat was identified for three state-listed endangered species (ocelot, Texas ayenia,  
7 and Walker's manioc), 18 state-listed threatened species, and 30 SGCN within the three  
8 reasonable alternatives (**Table 6**). The state-threatened species that could potentially be  
9 impacted by the proposed project include: black-spotted newt, Mexican treefrog, sheep frog,  
10 south Texas siren, white-lipped frog, gray hawk, northern beardless-tyrannulet, tropical parula,  
11 white-tailed hawk, zone-tailed hawk, Coues' rice rat, southern yellow bat, black-striped snake,  
12 northern cat-eyed snake, reticulate collared lizard, Texas horned lizard, Texas indigo snake,  
13 and Texas tortoise. The SGCN that could potentially be impacted by the proposed project  
14 include: Audubon's oriole, Brownsville common yellowthroat, Sennett's hooded oriole,  
15 western burrowing owl, Mexican long-tongued bat, cave myotis bat, plains spotted skunk,  
16 spot-tailed earless lizard, Amelia's abronia, arrowleaf milkvine, Bailey's ballmoss, Chihuahua  
17 balloon-vine, Cory's croton, Falfurrias milkvine, Jones' nailwort, large selenia, Mexican mud-  
18 plantain, Runyon's cory cactus, Runyon's water-willow, sand brazos mint, sand sheet leaf-  
19 flower, shortcrown milkvine, Siler's huaco, small-leaved yellow velvet-leaf, St. Joseph's staff,  
20 stinking rushpea, Texas peachbush, Vasey's adelia, Wright's trichocoronis, and yellow-  
21 flowered alicоче.

22 Species specific BMPs are available and would be implemented for black-spotted newt,  
23 Mexican treefrog, sheep frog, south Texas siren, white-lipped frog, Audubon's oriole,  
24 Brownsville common yellowthroat, northern beardless-tyrannulet, Sennett's hooded oriole,  
25 tropical parula, western burrowing owl, white-tailed hawk, zone-tailed hawk, cave myotis bat,  
26 Coues' rice rat, plains spotted skunk, southern yellow bat, reticulate collared lizard, spot-tailed  
27 earless lizard, Texas horned lizard, Texas indigo snake, northern cat-eyed snake, and Texas  
28 tortoise, where possible (**Appendix B**). TPWD also has general BMPs for amphibians, terrestrial  
29 reptiles, birds, mussels, fish, bats, and water quality that will be implemented (**Appendix B**).  
30 However, the TxDOT-TPWD MOU does not include any approved species specific BMPs for  
31 black-striped snake, Amelia's abronia, arrowleaf milkvine, Bailey's ballmoss, Chihuahua  
32 balloon-vine, Cory's croton, Falfurrias milkvine, Jones' nailwort, large selenia, Mexican mud-  
33 plantain, Runyon's cory cactus, Runyon's water-willow, sand brazos mint, sand sheet leaf-  
34 flower, shortcrown milkvine, Siler's huaco, small-leaved yellow velvet-leaf, St. Joseph's staff,  
35 stinking rushpea, Texas peachbush, Vasey's adelia, Wright's trichocoronis, and yellow-  
36 flowered alicоче. Once a preferred alternative has been identified, more detailed habitat  
37 assessments will be conducted which could result in updates to the impact assessments.

1 Presence/absence surveys for SGCN plants will be conducted once a preferred alternative is  
2 identified, and if any of the species are found TxDOT will coordinate with TPWD.

### 3 4.6 Conservation Areas

4 In order to protect the high species diversity and the abundance of federal or state protected  
5 species in the LRGV, multiple agencies have taken actions to protect wildlife resources from  
6 the impacts of development. There are three USFWS NWRs in the region: Laguna Atascosa  
7 NWR, located approximately 35 miles east of the study area; SANWR, located approximately  
8 7 miles south of the study area; and LRGVNWR, which is comprised of numerous tracts spread  
9 throughout the region. The LRGVNWR primarily consists of properties within the Rio Grande  
10 Wildlife Corridor that stretches along the river from Falcon Dam to the Rio Grande delta.  
11 However, the Lower Rio Grande Valley Refuge Acquisition Plan has identified other key areas  
12 removed from the Rio Grande itself to serve as important wildlife habitat and provide corridors  
13 for north-south wildlife migration. One of these units, an approximately 358-acre LRGVNWR  
14 tract known as the Goodfields Tract, is located in the central portion of the study area  
15 (**Exhibits 1, 2, 4.7, and 5.7**). The habitat is mixed brush and shrublands, and it is bisected by  
16 the Santa Cruz Canal. This NWR Tract and the surrounding area contain small sand hills, which  
17 are a local physiographic feature unique to this part of the study area and surrounding region.  
18 There are also two small properties approximately 0.5 mile east of the LRGVNWR Goodfields  
19 Tract that are under conservation easement to the Valley Land Fund (VLF), an organization  
20 that acquires properties and easements to conserve native habitat in the LRGV (**Exhibits 1, 2,**  
21 **4.7, and 5.7**).

22 Of the three reasonable alternatives, the proposed 2014 Modified 2 Alternative would be  
23 located nearest to the Goodfields LRGVNWR Tract. It would be located approximately 0.1 mile  
24 east of the Goodfields Tract, between it and the VLF conservation easements. However, no  
25 direct impacts to these properties or the LRGVNWR tract would occur under this alternative  
26 (**Exhibits 1, 2, 4.7, and 5.7**). Additionally, if this alternative were selected as the preferred  
27 alternative, the area between the LRGVNWR and VLF properties would be considered as a  
28 potential location for a wildlife crossing in the design of the roadway. Unlike the 2014 Modified  
29 2 Alternative, the 2014 PSM Alternative would not be located between the LRGVNWR tract  
30 and the properties under conservation easement to the VLF, but it would be located  
31 immediately east of the VLF properties (**Exhibits 1, 2, 4.7, and 5.7**). Of the three reasonable  
32 alternatives, the 1423 PSM Alternative would be located farthest away from the LRGVNWR  
33 tract and the properties under conservation easement to the VLF (**Exhibits 1, 2, 4.7, and 5.7**).  
34 The No Build Alternative would have no impact on any conservation areas.

#### 1 4.7 Marine Mammal Protection Act (MMPA)

2 The project is not located in an area that supports populations of marine mammals. Therefore,  
3 the project is expected to be in compliance with the MMPA.

#### 4 4.8 Magnuson Stevens Fisheries Conservation Management Act (MSFCA)

5 The project is not located within a county with tidally-influenced waters, and will not impact  
6 EFH. Therefore, the project is expected to be in compliance with the MSFCA.

#### 7 4.9 Migratory Bird Treaty Act (MBTA)

8 The MBTA states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or  
9 transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal  
10 permit issued in accordance within the Act's policies and regulations.

11 There is potential for nesting birds to be present in the study area during construction for all  
12 three reasonable alternatives. The proposed project would follow TxDOT's guidance: Avoiding  
13 Migratory Birds and Handling Potential Violations (March 2017). Bird BMPs would be  
14 implemented to avoid impacts to migratory birds and to protect migratory bird nests. See  
15 **Attachment B** for a list of BMPs.

16 The No Build Alternative would have no impact on migratory birds or migratory bird nests.

#### 17 4.10 Bald and Golden Eagle Protection Act (BGEPA)

18 The BGEPA (16 U.S.C. §§ 668-668d) prohibits the take of bald and golden eagles unless  
19 pursuant to regulations. The BGEPA defines the take of an eagle to include a broad range of  
20 actions, including to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest,  
21 or disturb.

22 The three reasonable alternatives do not contain suitable habitat for the bald or golden eagle.  
23 Therefore, none of the three reasonable alternatives would have the potential to impact bald  
24 or golden eagles. The No Build Alternative would also have no impact on bald or golden eagles.

### 25 5.0 **SUMMARY AND CONCLUSIONS**

26 The three reasonable alternatives are generally similar in vegetation and land use. The only  
27 truly distinguishing characteristic in relation to vegetation is the amount of brush habitat  
28 within each alternative. The 2014 Modified 2 Alternative would impact the most brush  
29 according to EMST mapped vegetation types and LU/LC data, and the 1423 PSM Alternative  
30 would impact the least brush. However, all three reasonable alternatives would impact some  
31 areas of brush habitat. Because vegetation and wildlife habitats are generally similar, all three

1 reasonable alternatives would have similar potential effects/impacts on federal and state-  
2 listed endangered or threatened species. The 2014 Modified 2 Alternative would be located  
3 nearest to lands managed as conservation areas. Wildlife crossings would be installed at  
4 appropriate locations within each of the reasonable alternatives. Areas that would be of  
5 particular interest for potential wildlife crossings include between the LRGVNR and VLF  
6 lands, just west of Brushline road, just south of FM 490, south of cactus flats, or in between  
7 cactus flats and Mile 22 ½ Road. These locations are all north of FM 1925/Monte Cristo  
8 Road.

9 If a preferred build alternative is identified, qualified biologists will conduct a field habitat  
10 assessment to identify, characterize, and photo-document the aquatic and terrestrial habitats  
11 present in and adjacent to the preferred alternative corridor and to characterize habitats with  
12 respect to dominant and common vegetation species and physical attributes. The accuracy of  
13 EMST-mapped vegetation will be examined, and discrepancies between EMST data and field-  
14 verified vegetation will be mapped. Qualified biologists will also perform any habitat  
15 evaluations and presence/absence surveys for endangered or threatened species  
16 determined to be necessary. Coordination with TPWD will be initiated in accordance with the  
17 TxDOT-TPWD MOU. Presence/absence surveys for the federally-listed Texas ayenia and  
18 Walker's manioc would determine if consultation with the USFWS is necessary.

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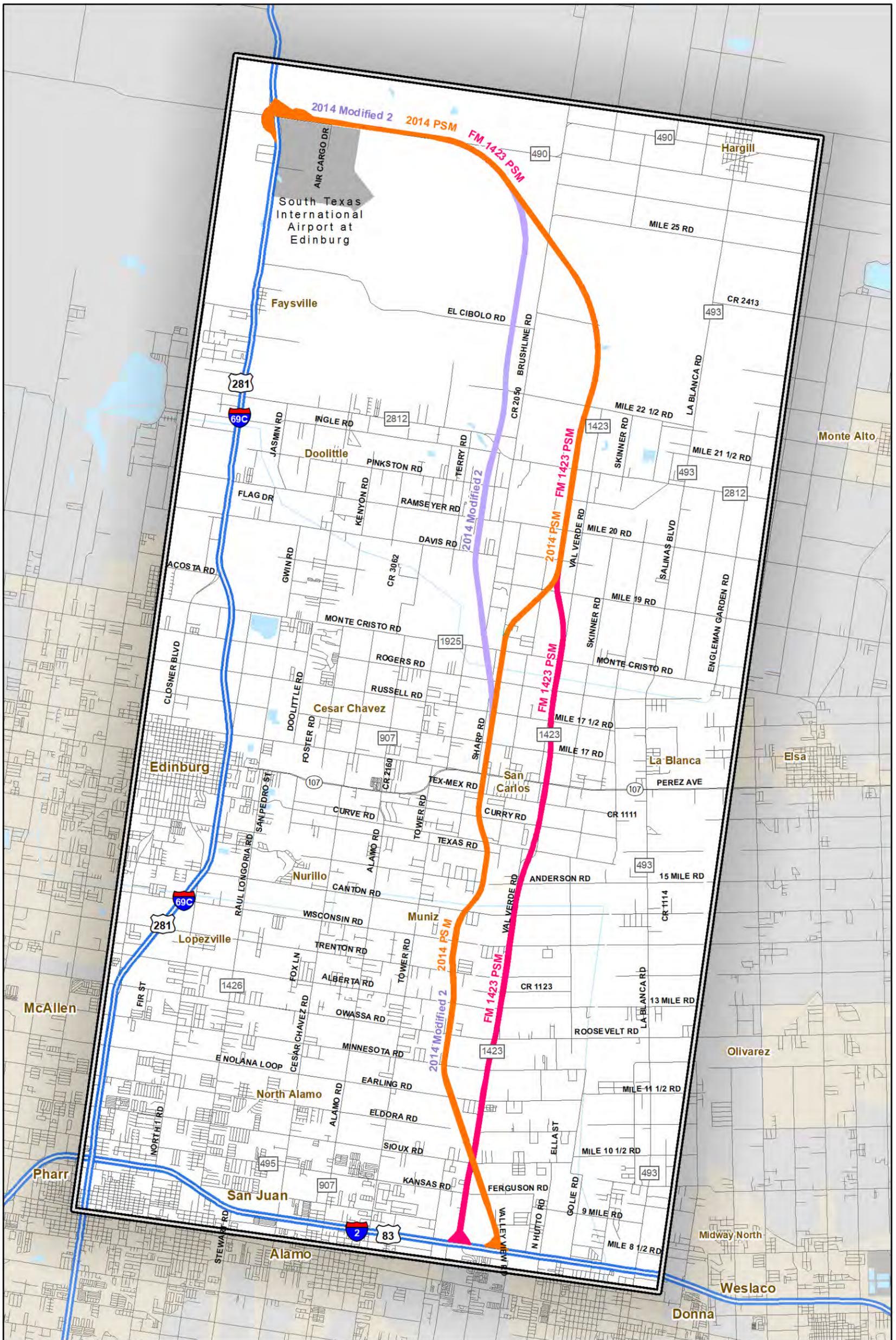
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## Attachment A

### Exhibits



Base Map: ESRI-USA Base Map

- 2014 Modified 2 Alternative
- 2014 PSM Alternative
- FM 1423 PSM Alternative
- Study Area

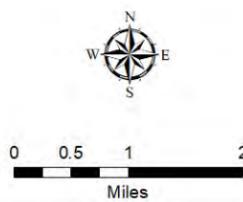
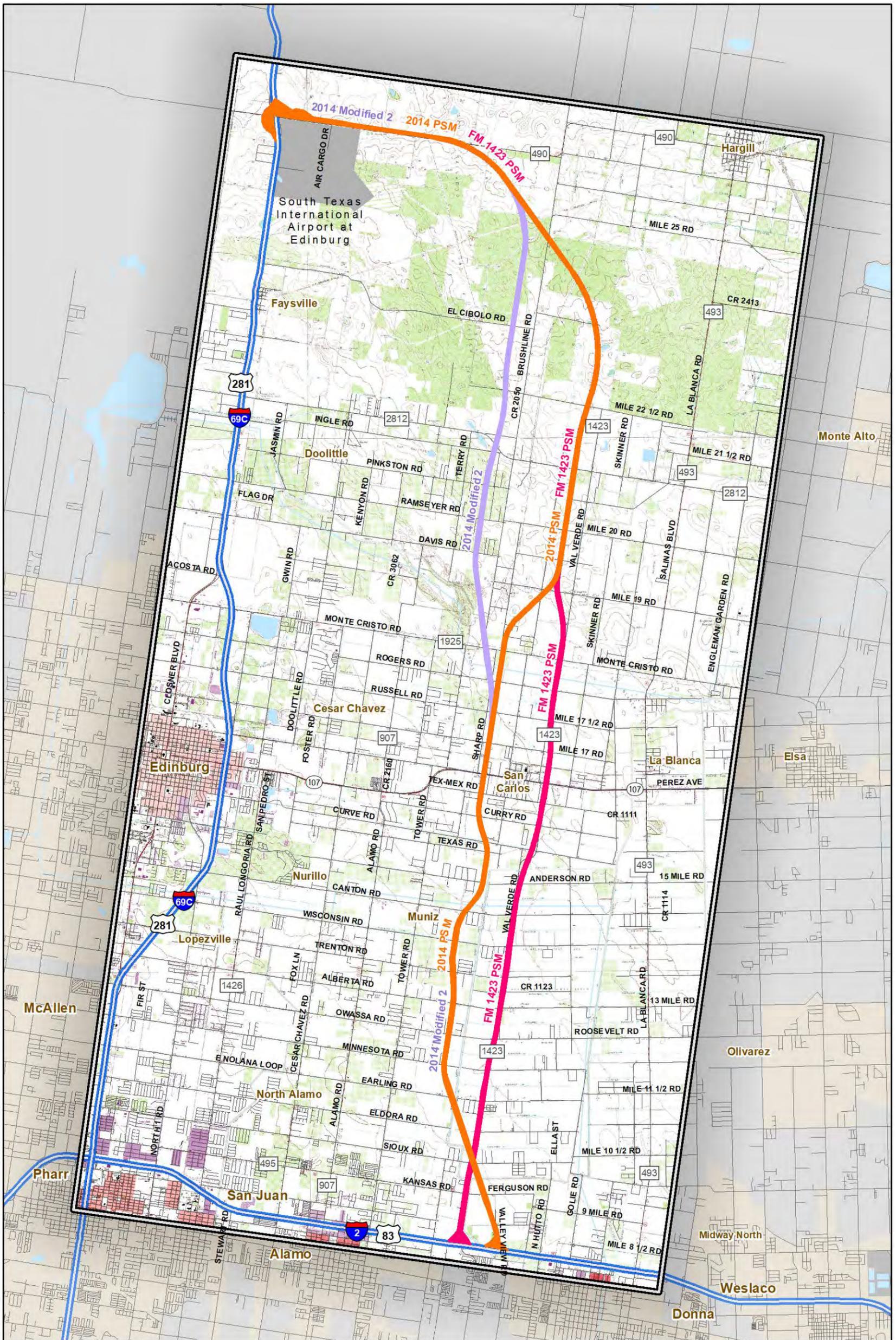


Exhibit 1  
Project Location on County Base  
SH 68 from  
I-2/US 83 to I-69C/US 281  
Hidalgo County, Texas  
CSJs: 3629-01-001, 002, and 003



Base Map: ESRI-USA Base Map

- 2014 Modified 2 Alternative
- 2014 PSM Alternative
- FM 1423 PSM Alternative
- Study Area

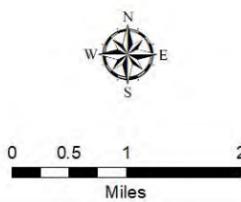
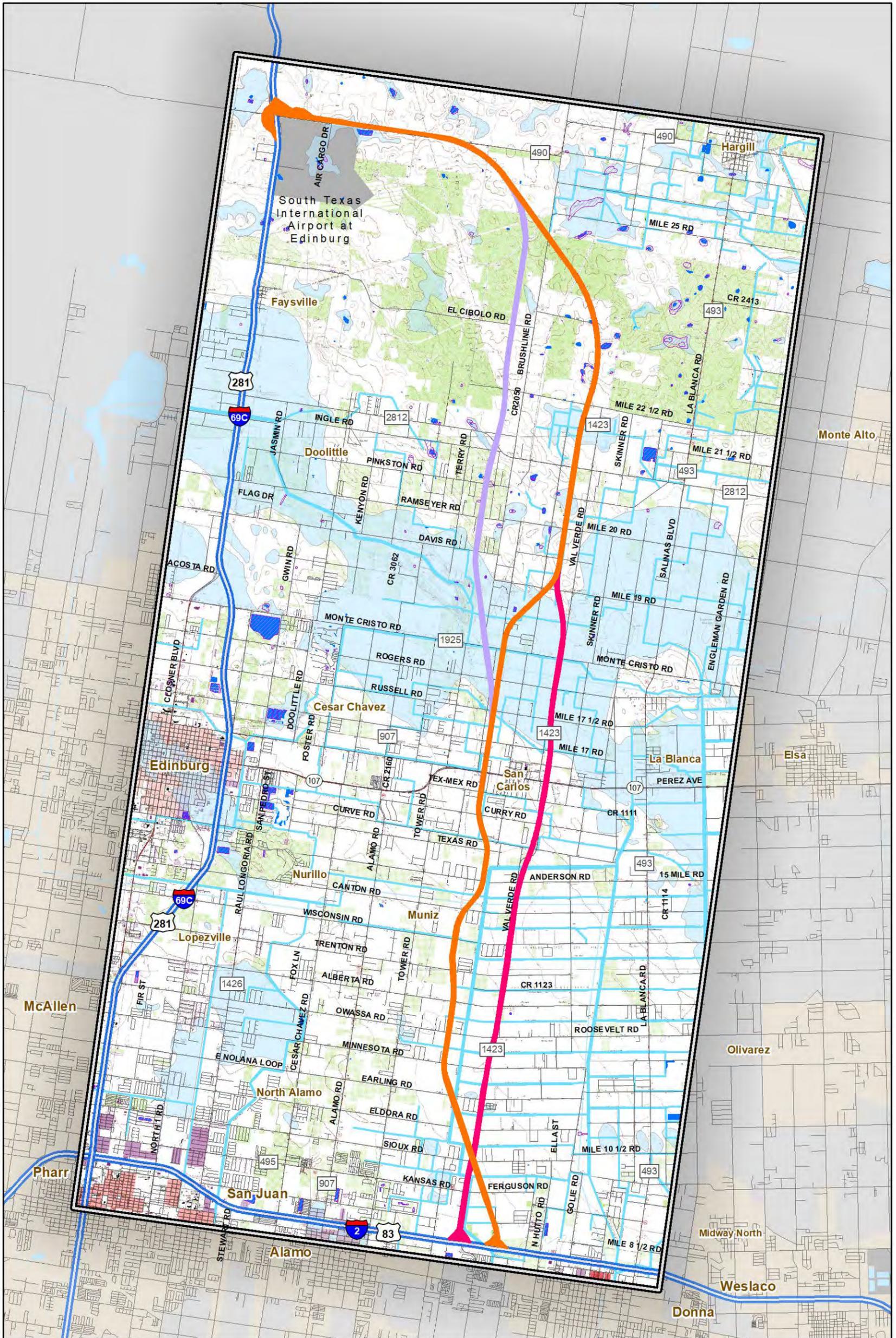


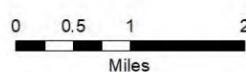
Exhibit 2  
 Project Location on  
 7.5' USGS Topographic  
 SH 68 from  
 I-2/US 83 to I-69C/US 281  
 Hidalgo County, Texas  
 CSJs: 3629-01-001, 002, and 003



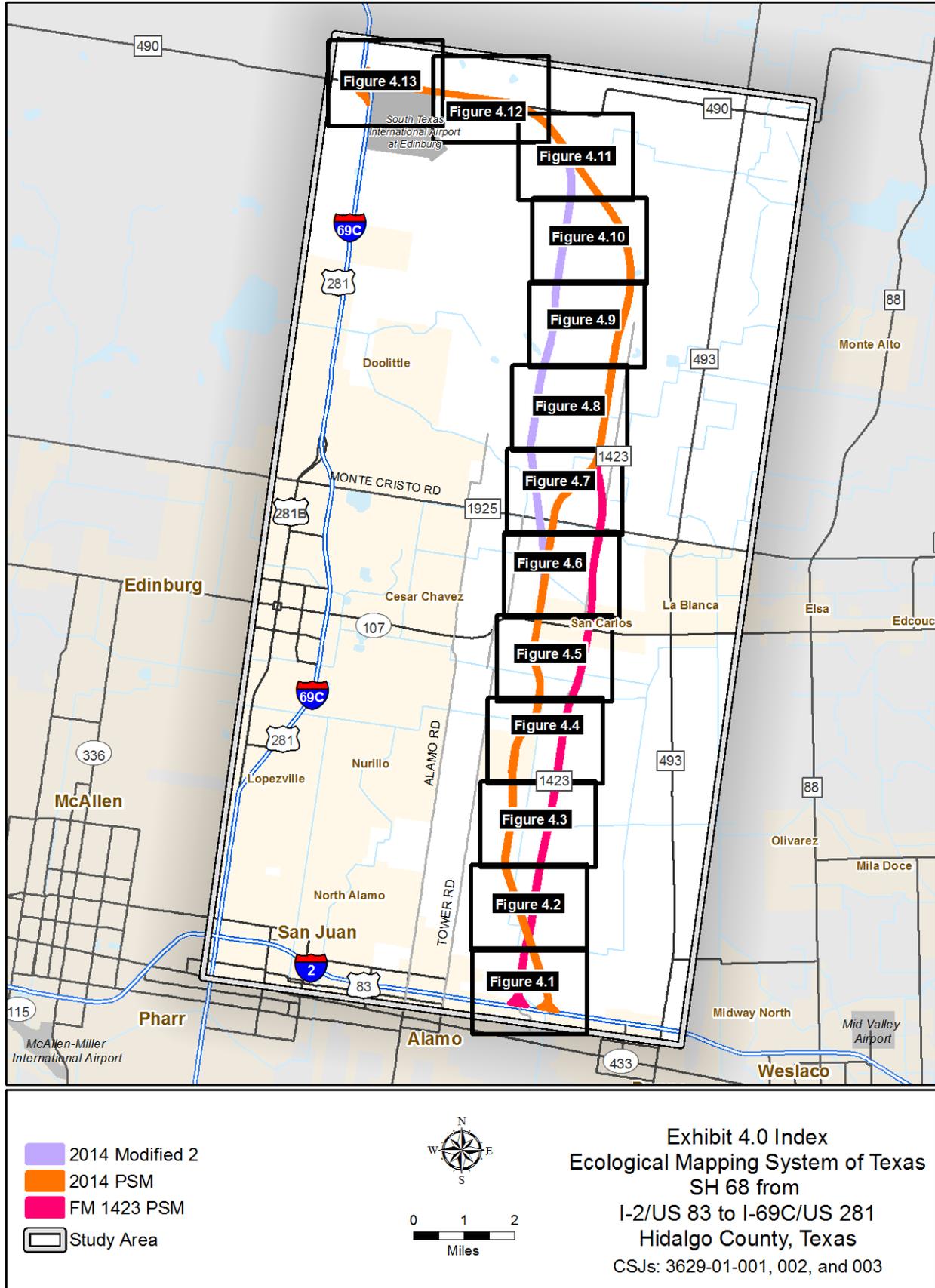
Base Map: USGS 7.5' Topographic, ESRI-USA Base Map

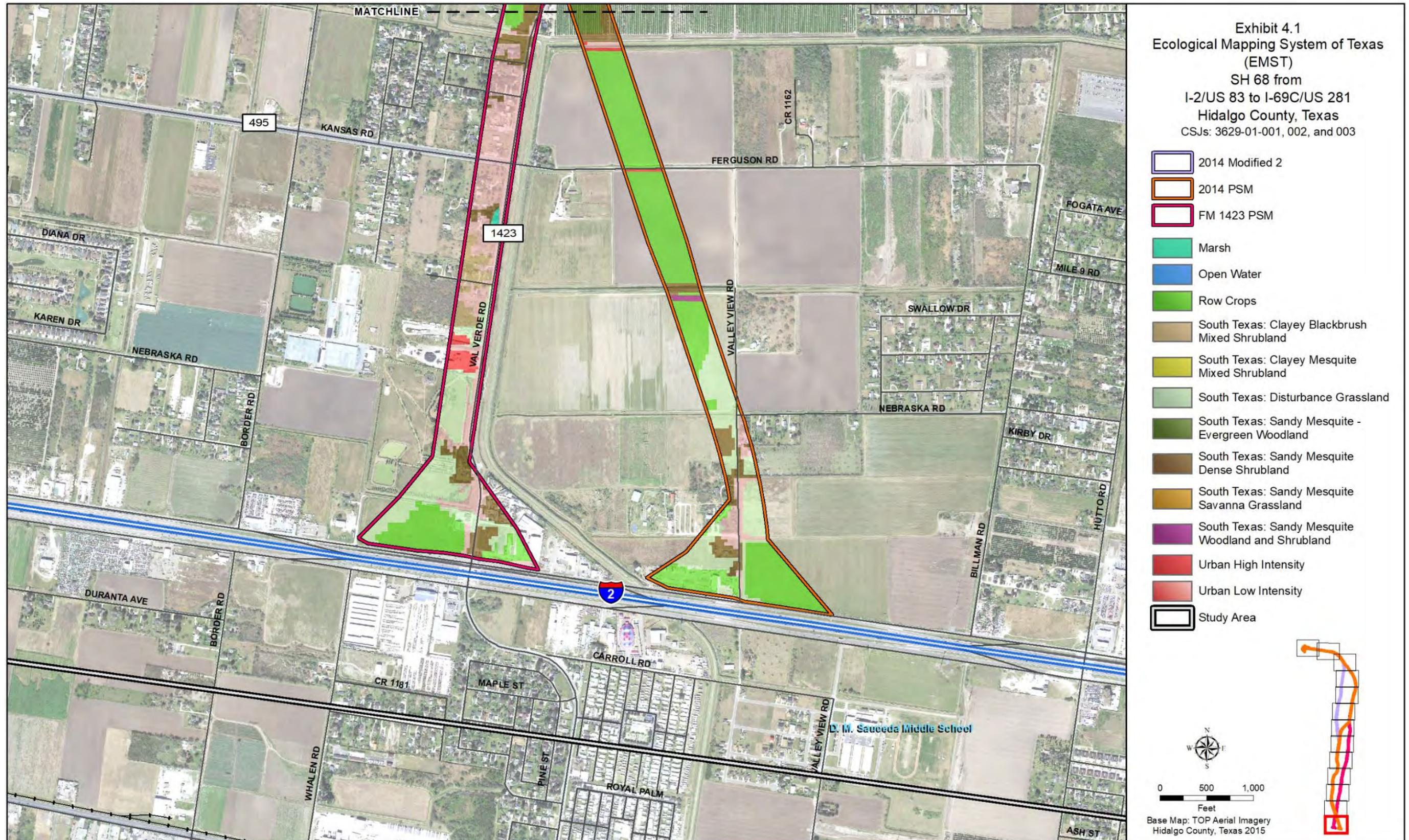
- 2014 Modified 2 Alternative
- 2014 PSM Alternative
- FM 1423 PSM Alternative
- National Wetland Inventory Feature
- Lake - Pond - Reservoir
- 100 year-Floodplain

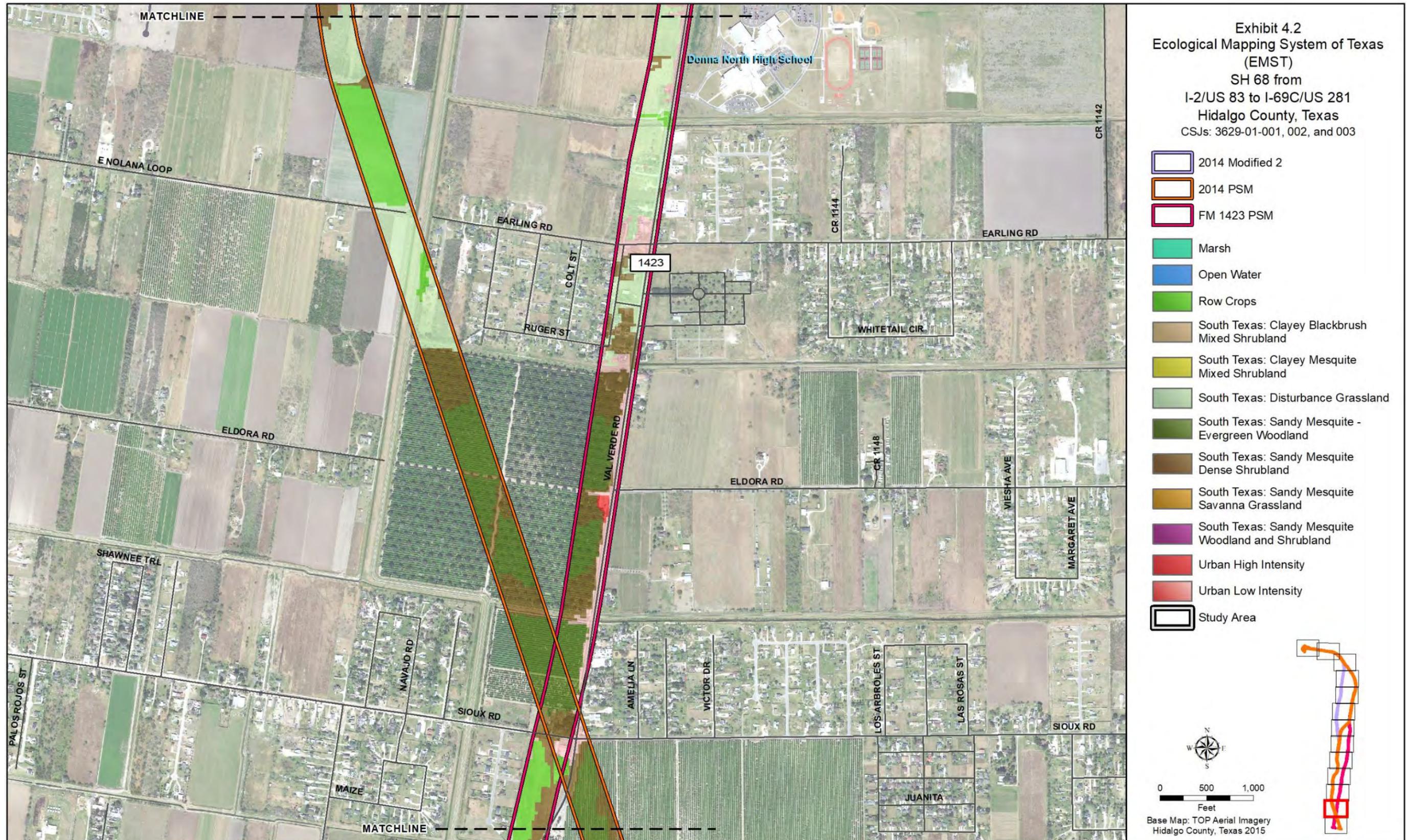
- Stream - River - Canal - Ditch
- Study Area

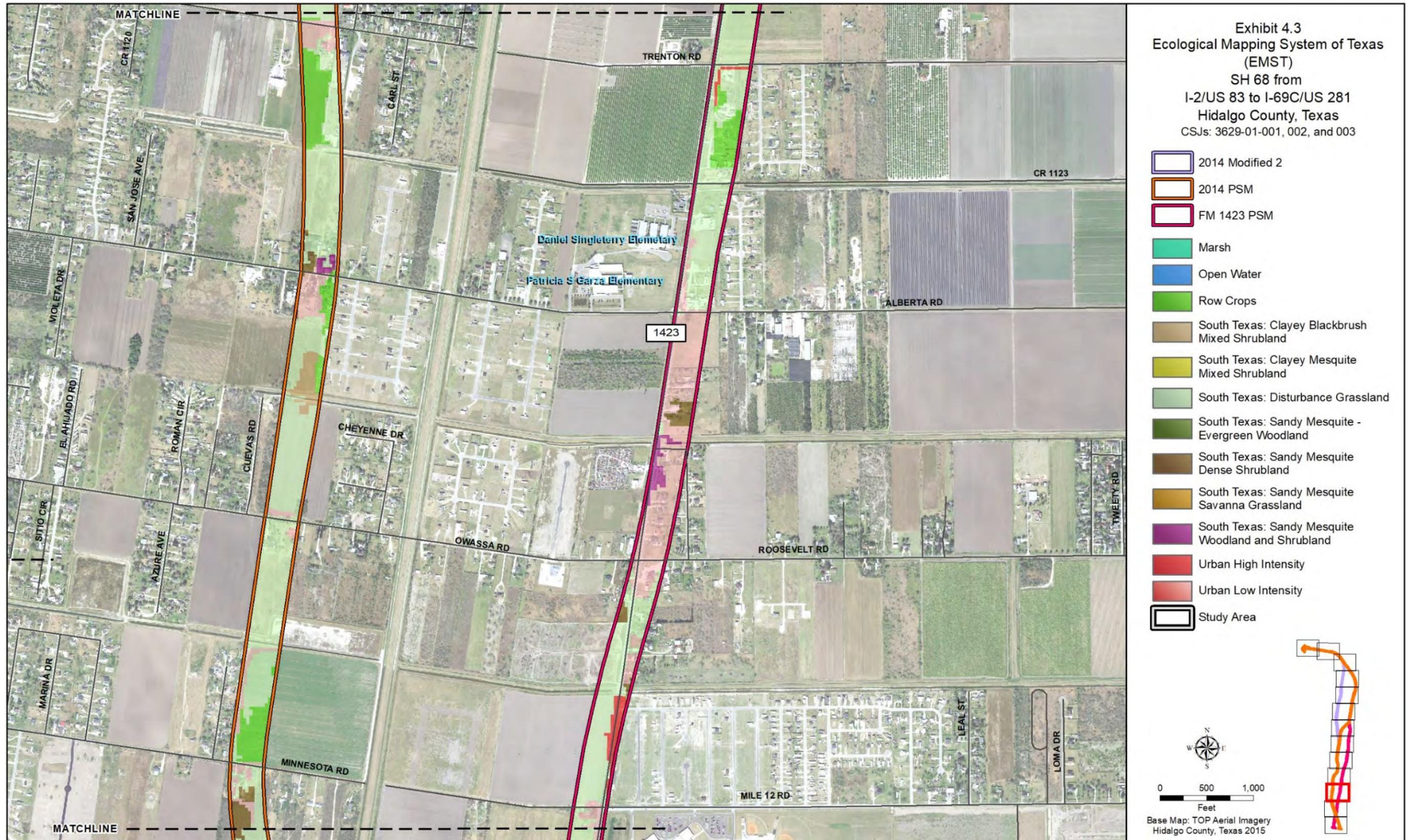


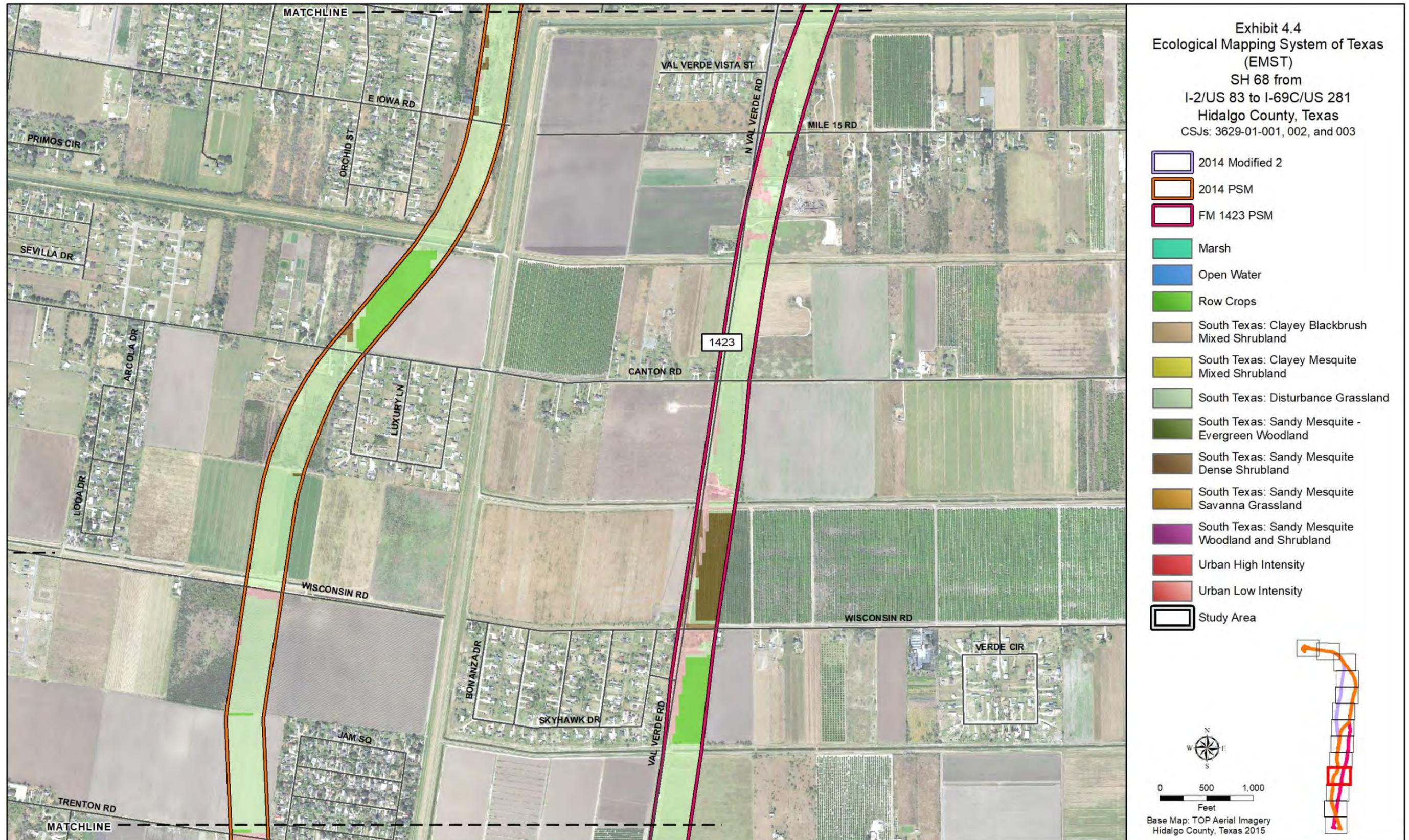
**Exhibit 3**  
**Water Resources**  
**SH 68 from**  
**I-2/US 83 to I-69C/US 281**  
**Hidalgo County, Texas**  
 CSJs: 3629-01-001, 002, and 003

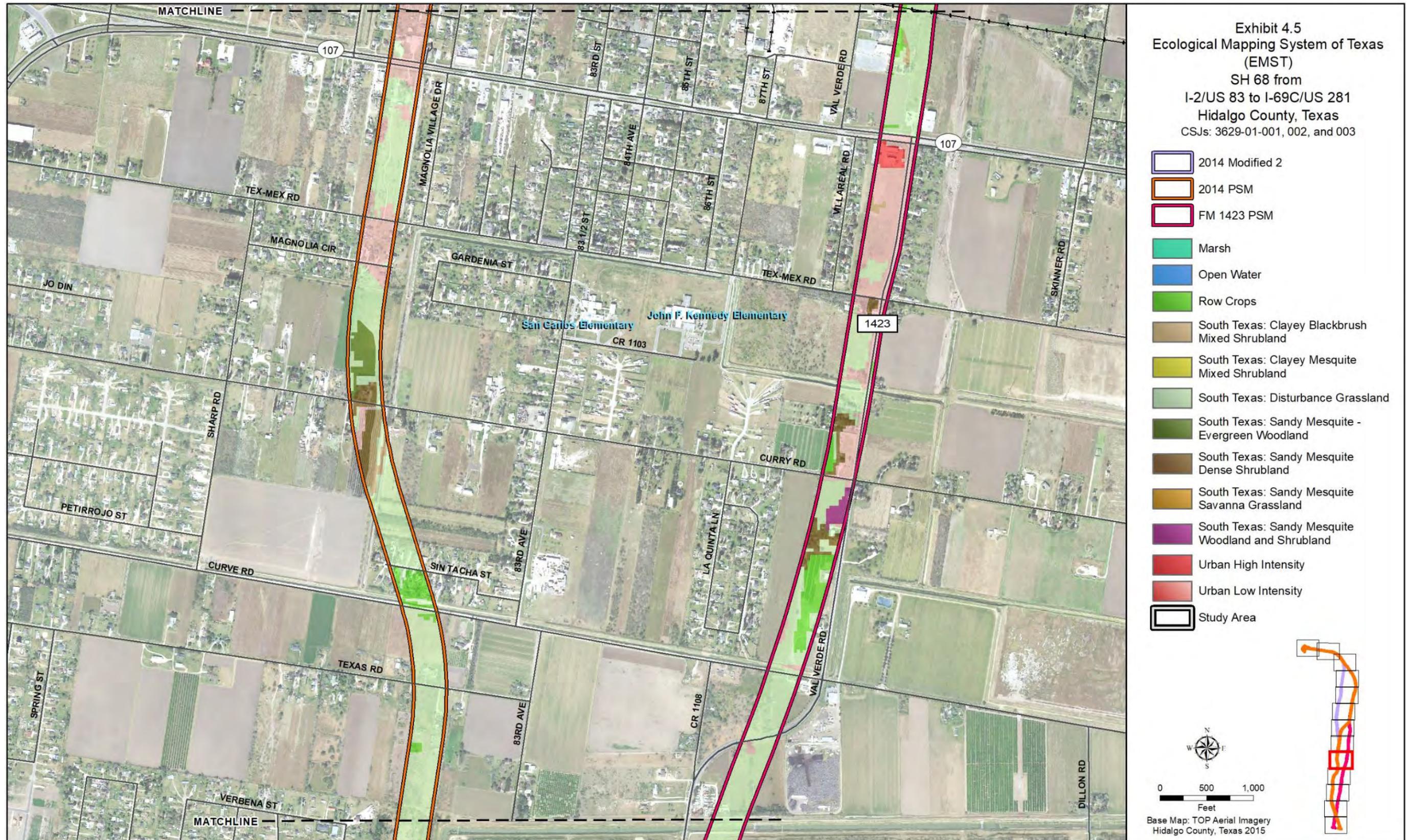




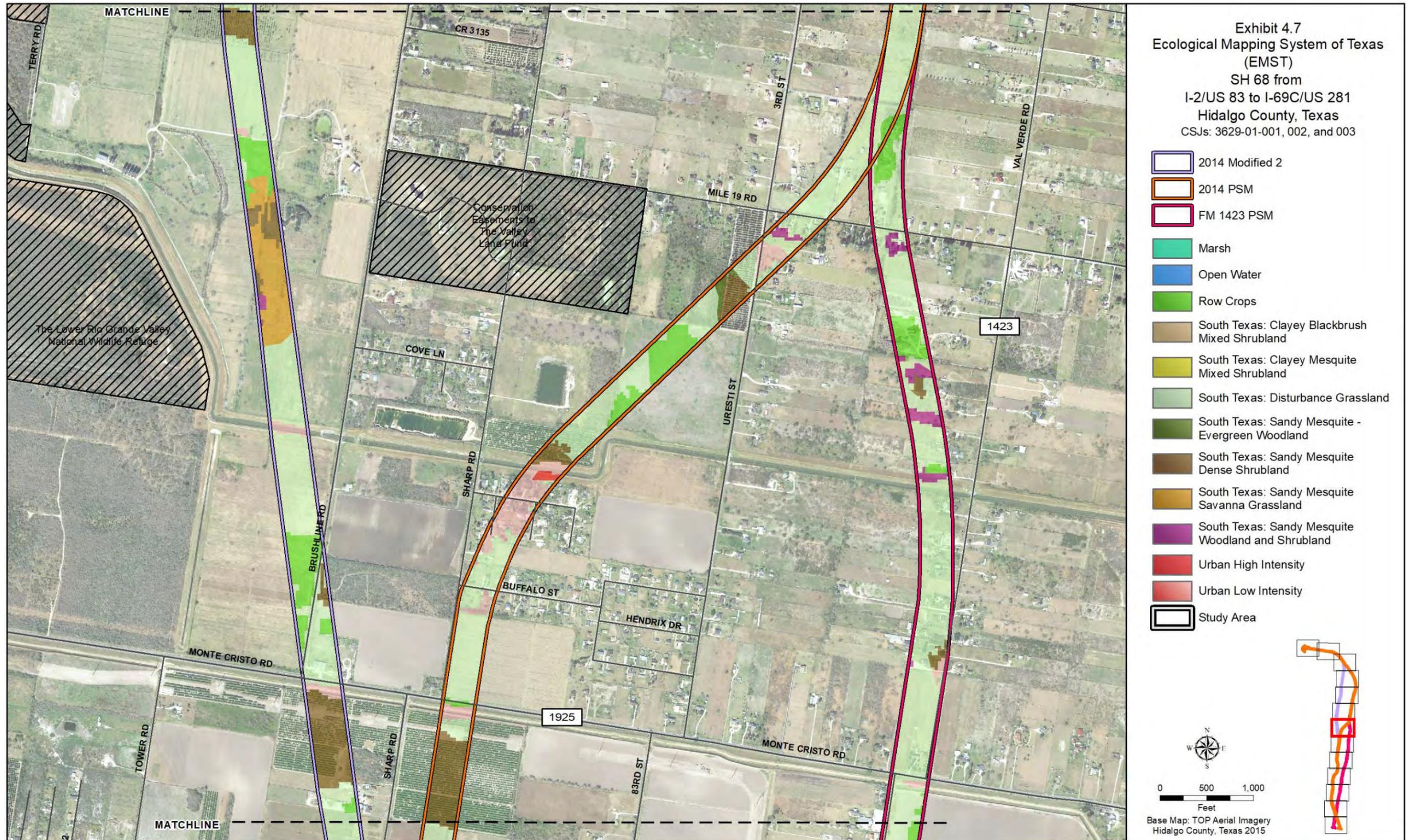


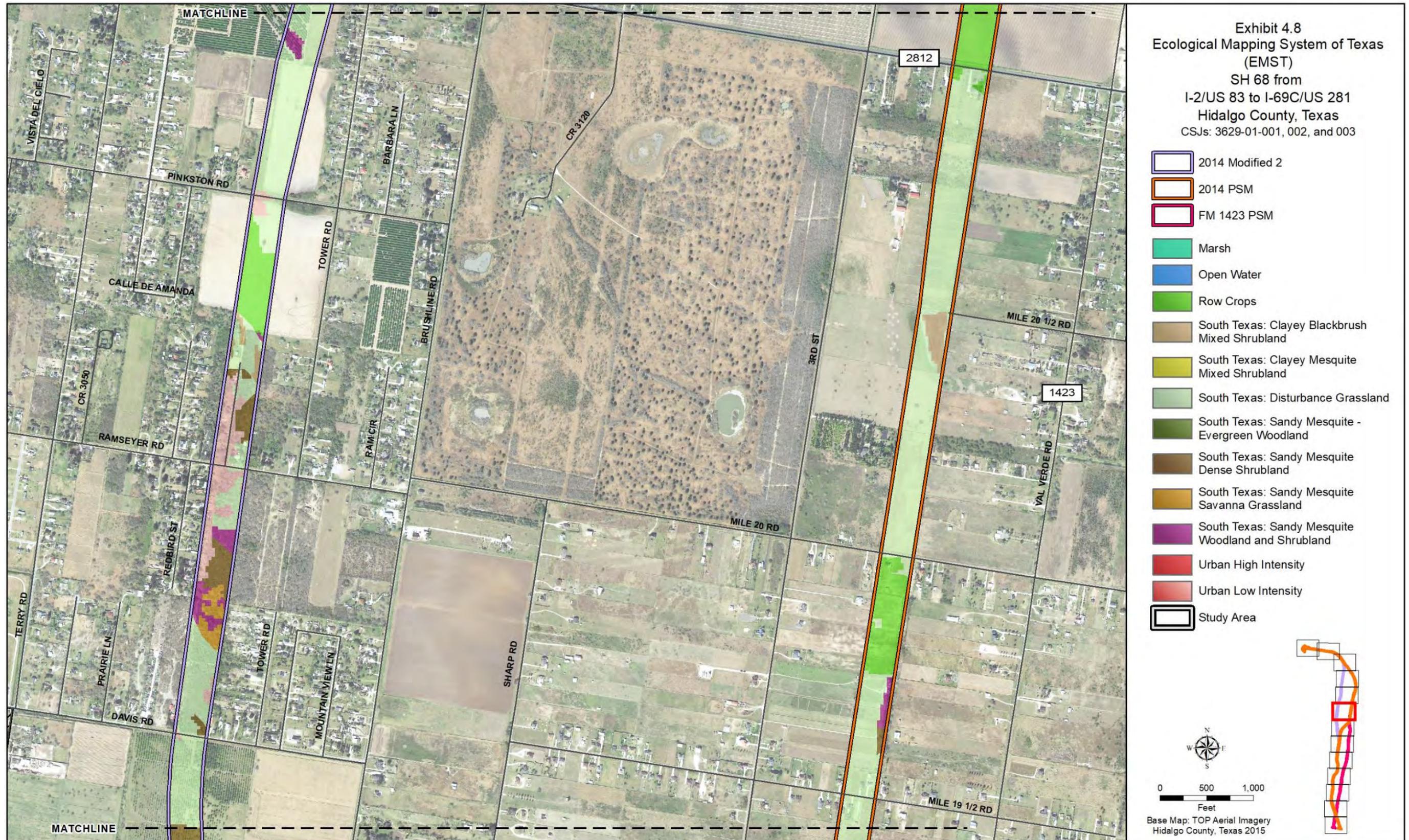


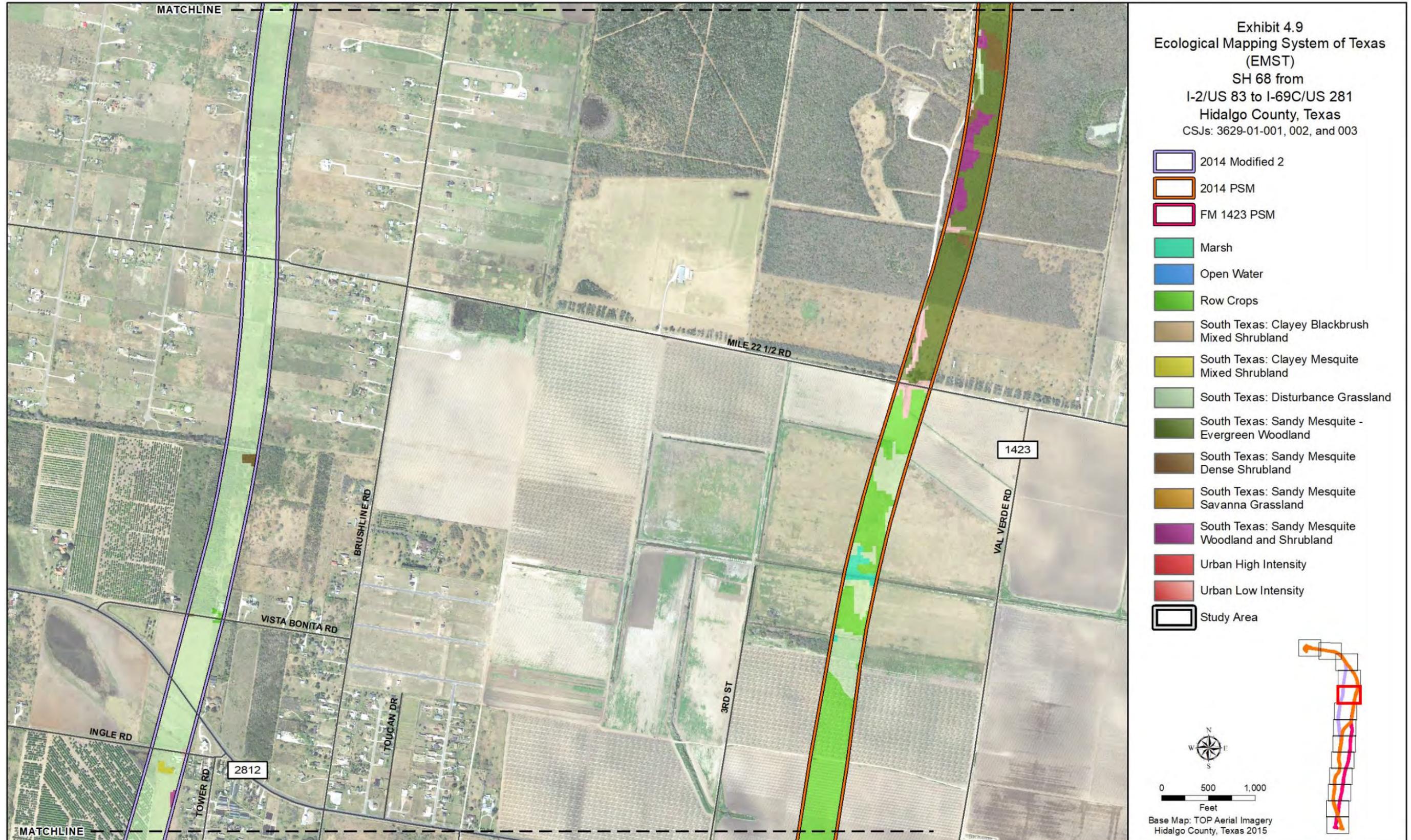










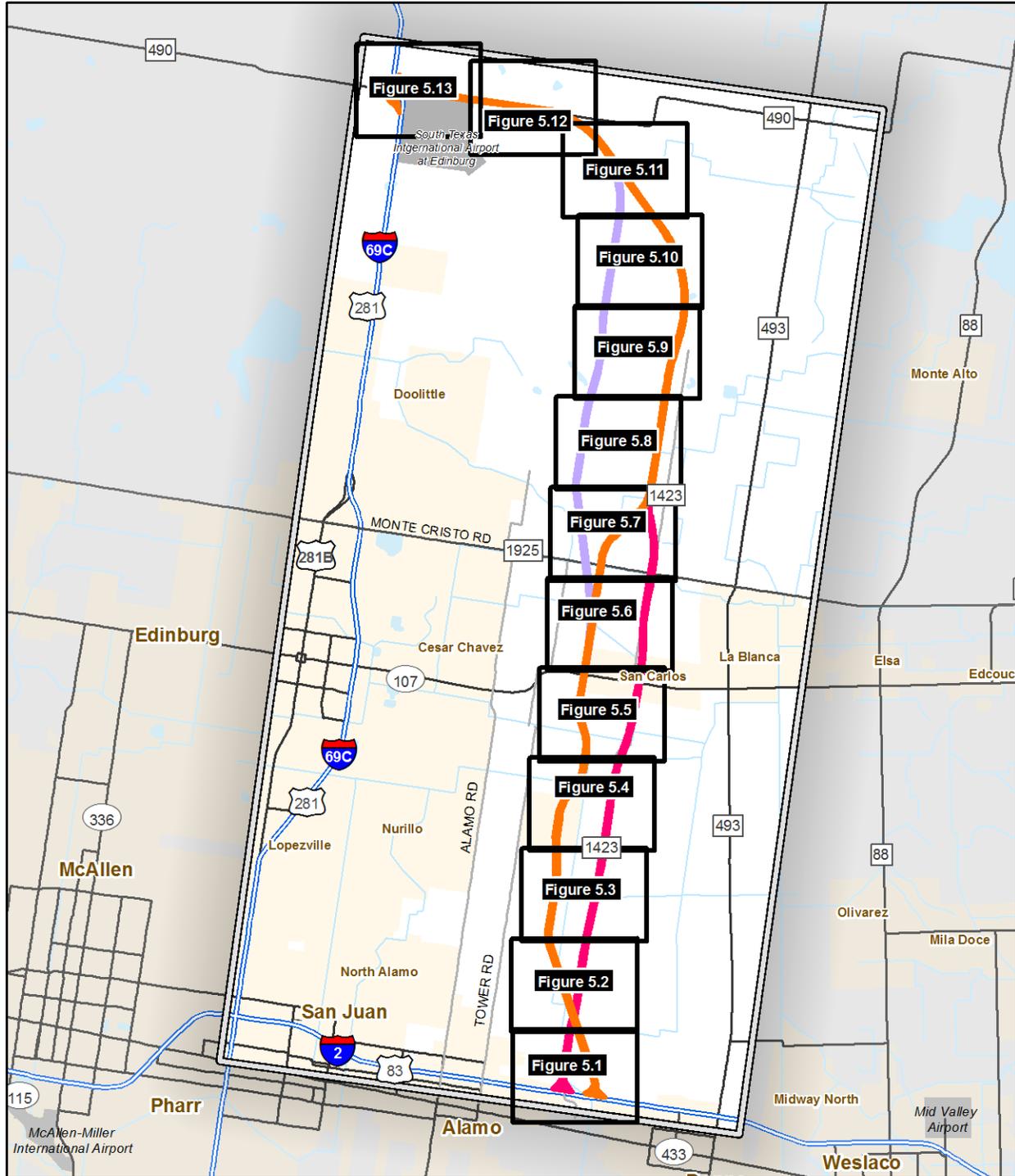






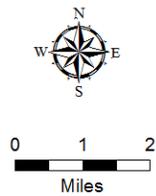


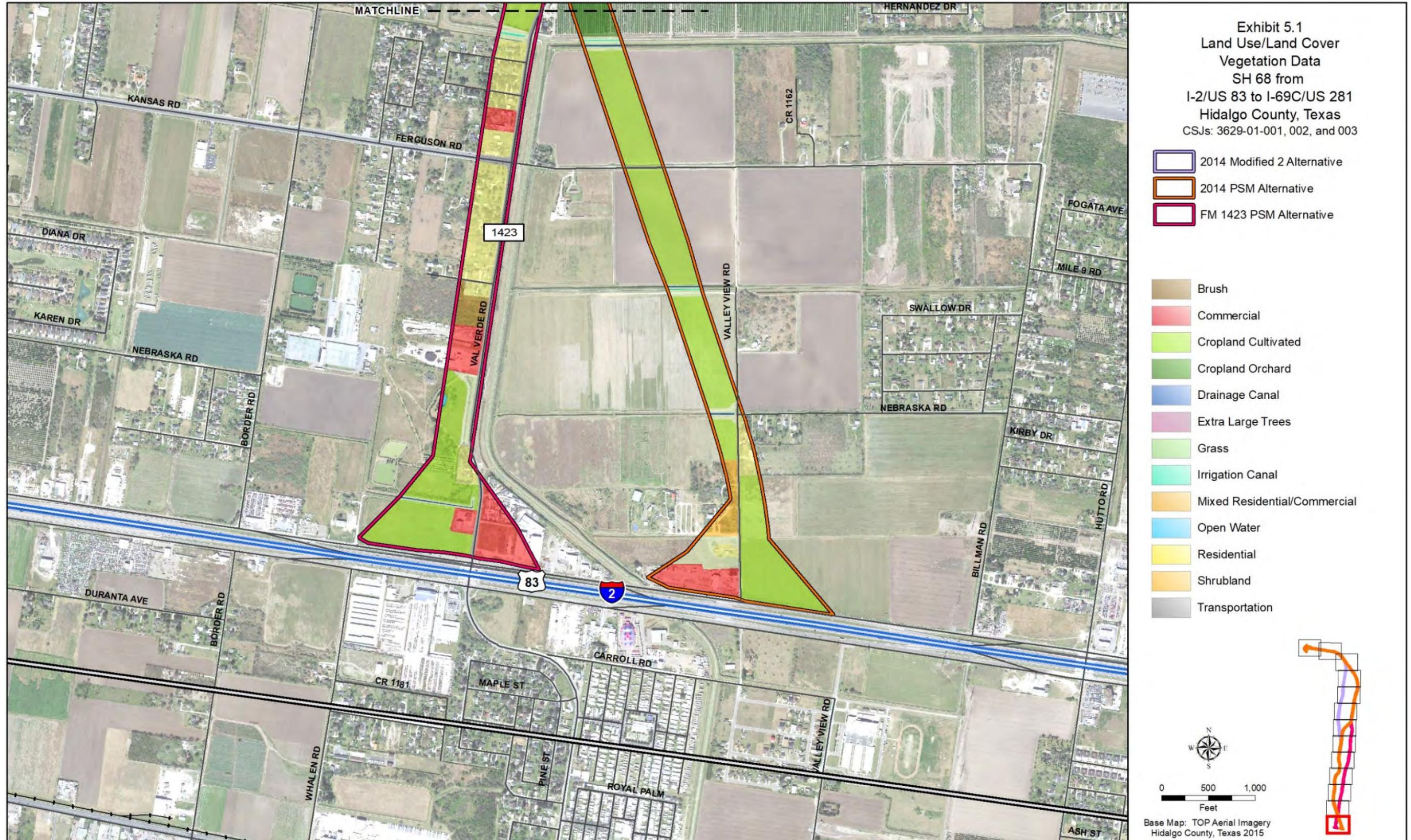


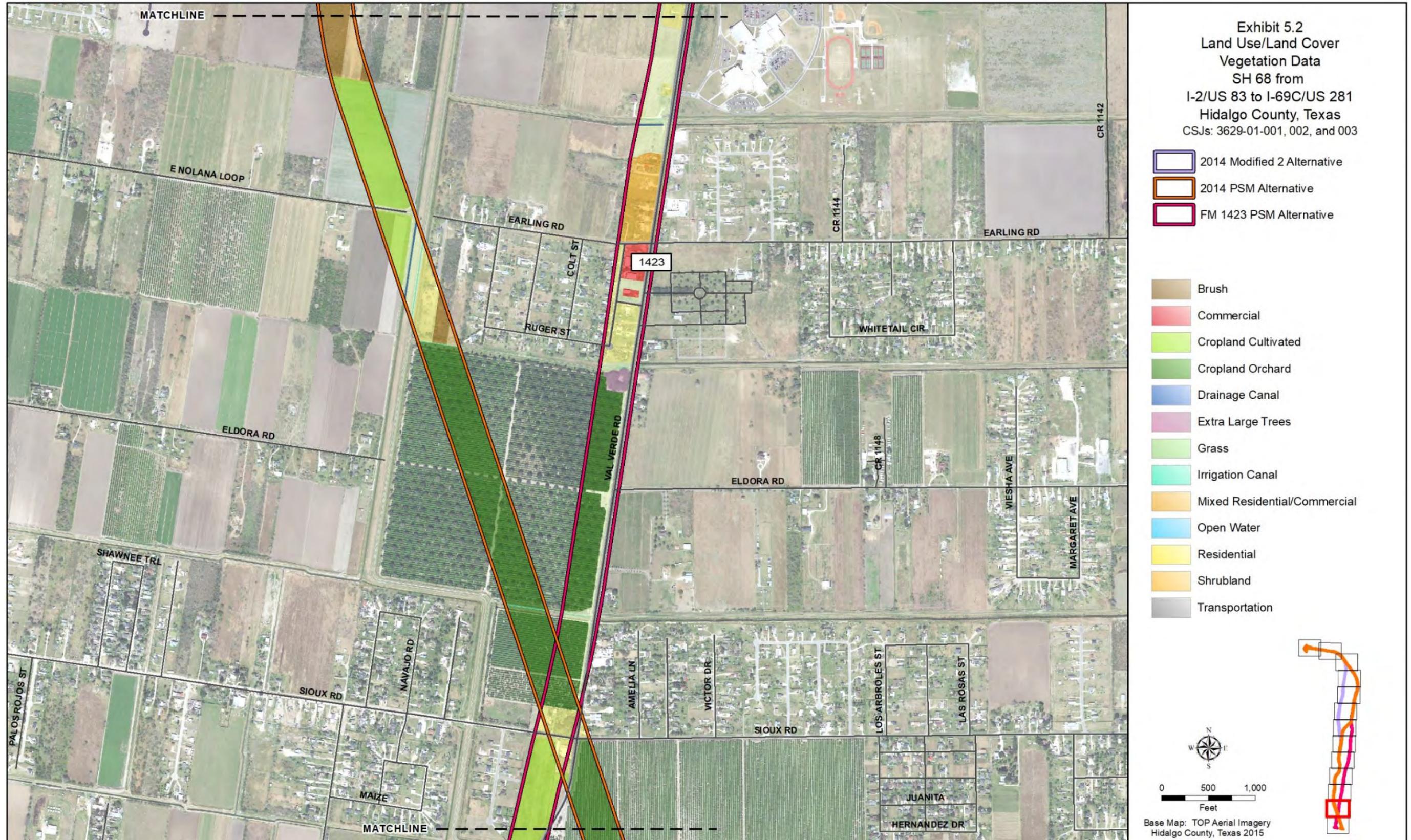


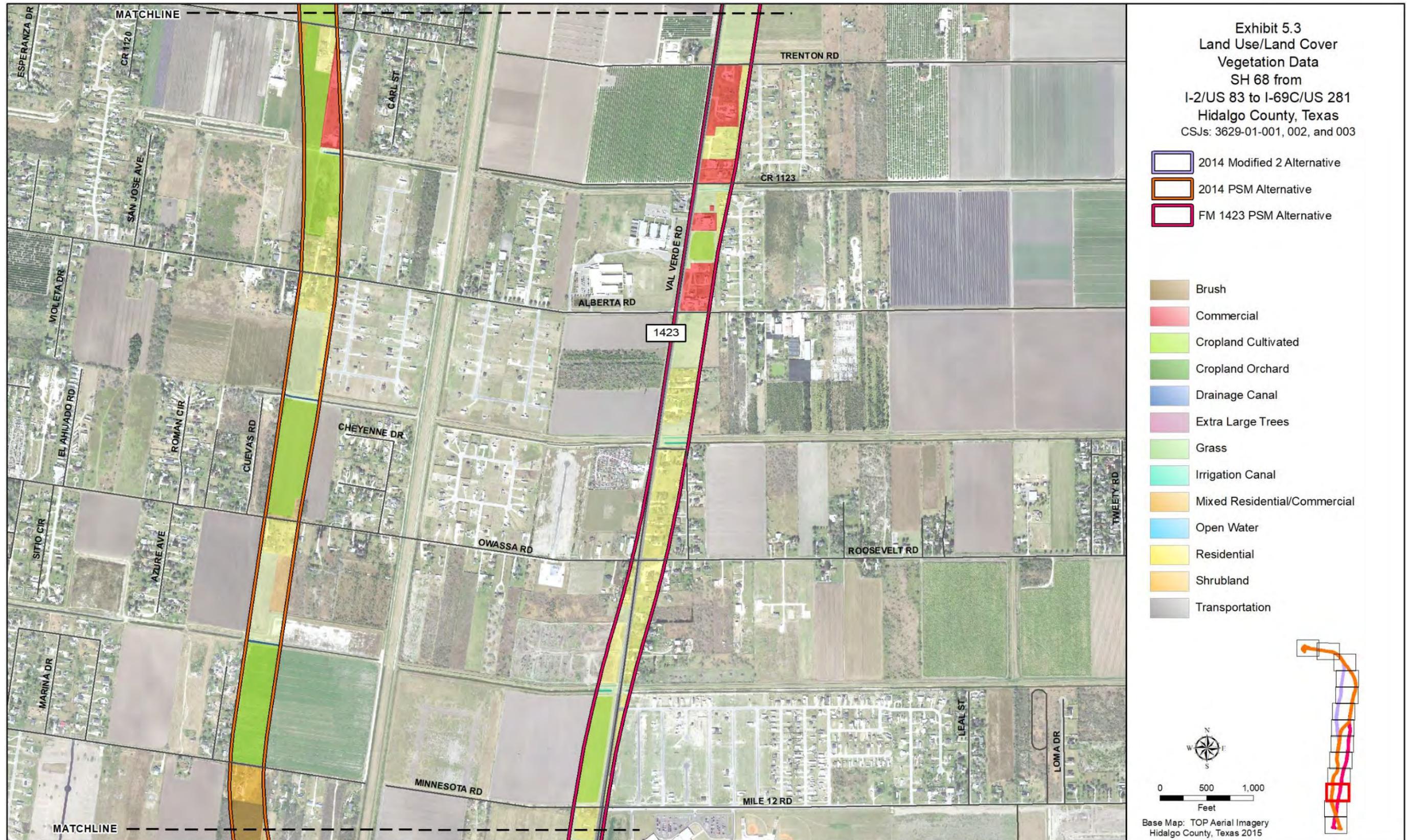
**Figure 5.0 Index**  
 Land Use/Land Cover  
 Vegetation Data Index  
 SH 68 from  
 I-2/US 83 to I-69C/US 281  
 Hidalgo County, Texas  
 CSJs: 3629-01-001, 002, and 003

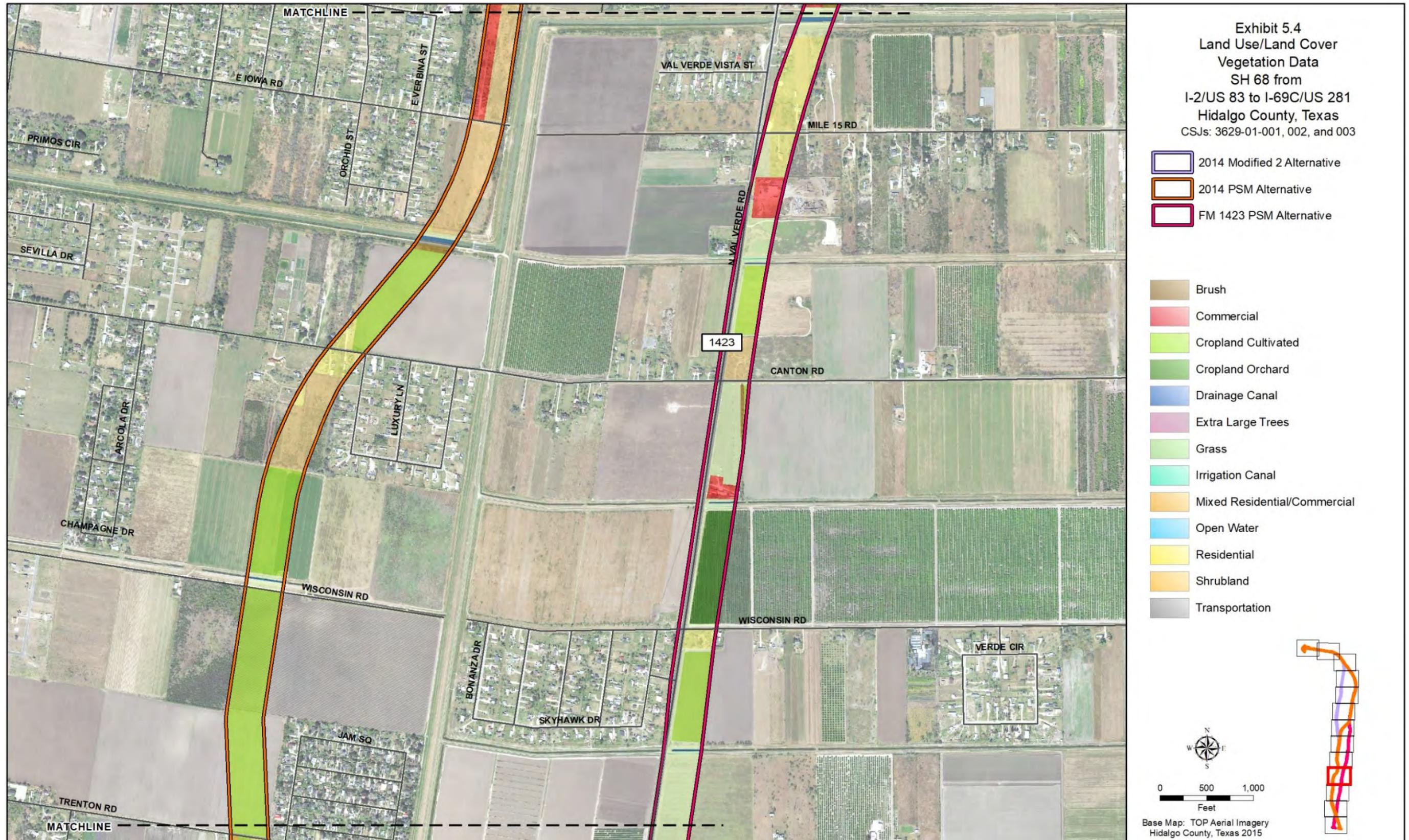
- 2014 Modified 2 Alternative
- 2014 PSM Alternative
- FM 1423 PSM Alternative
- Study Area

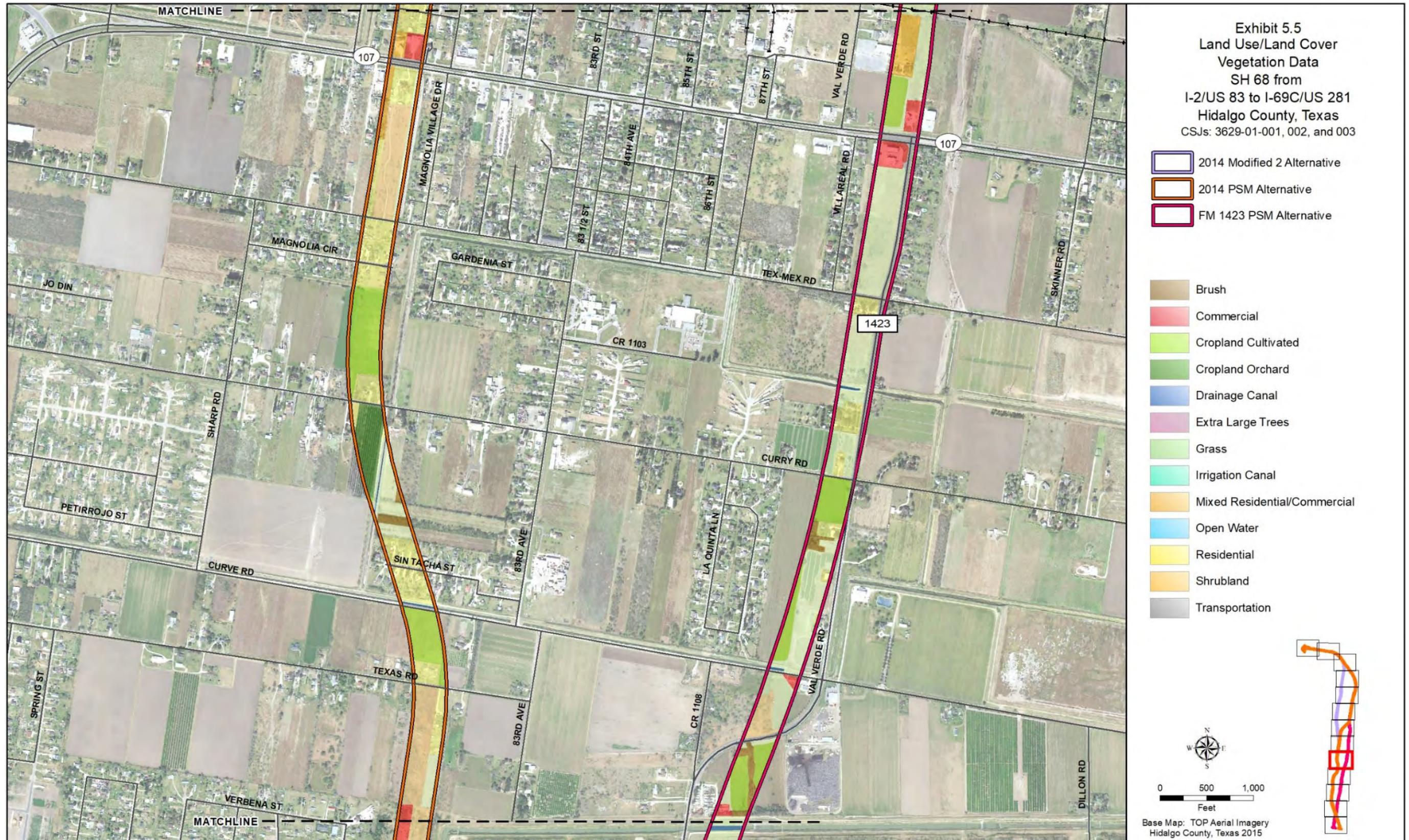




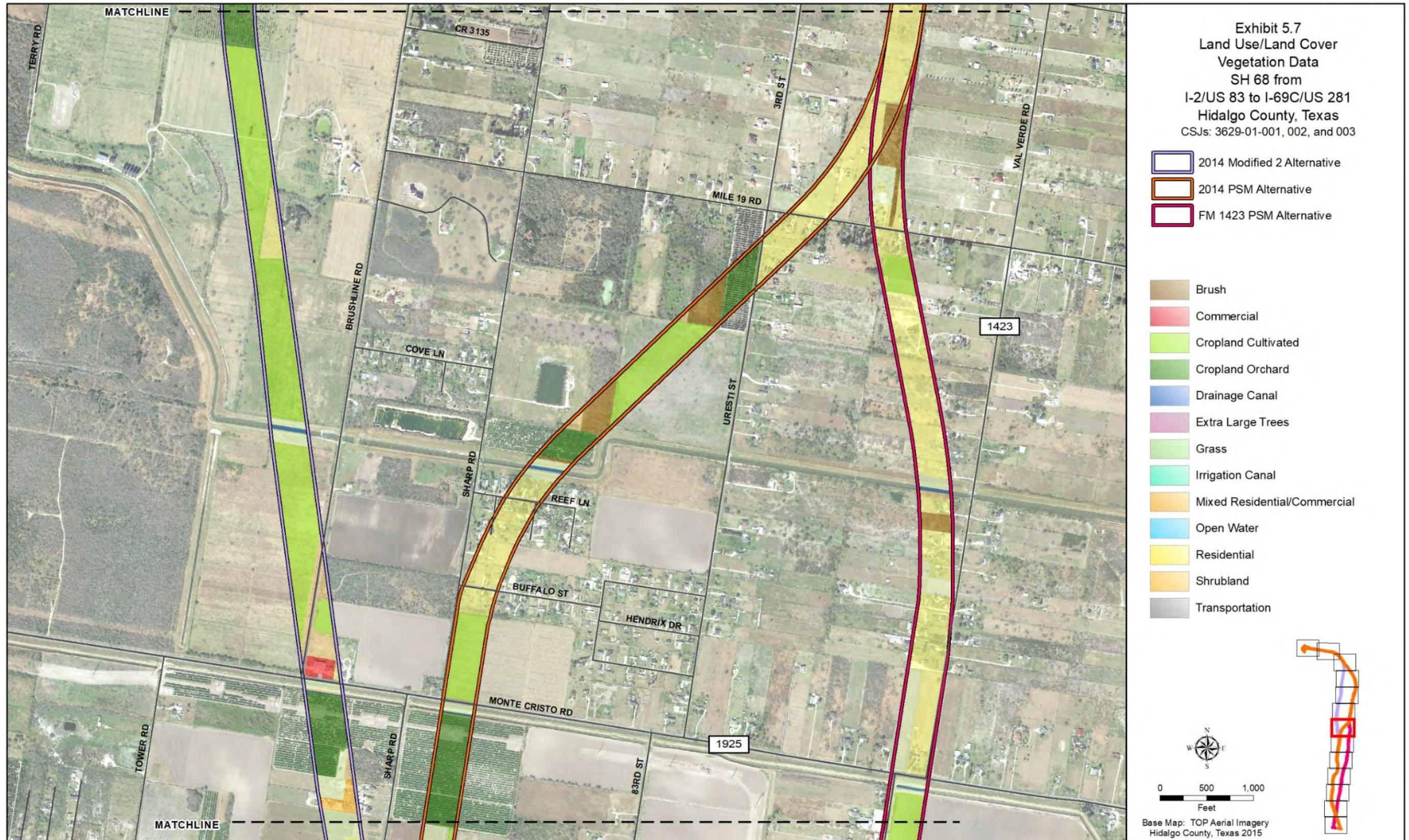


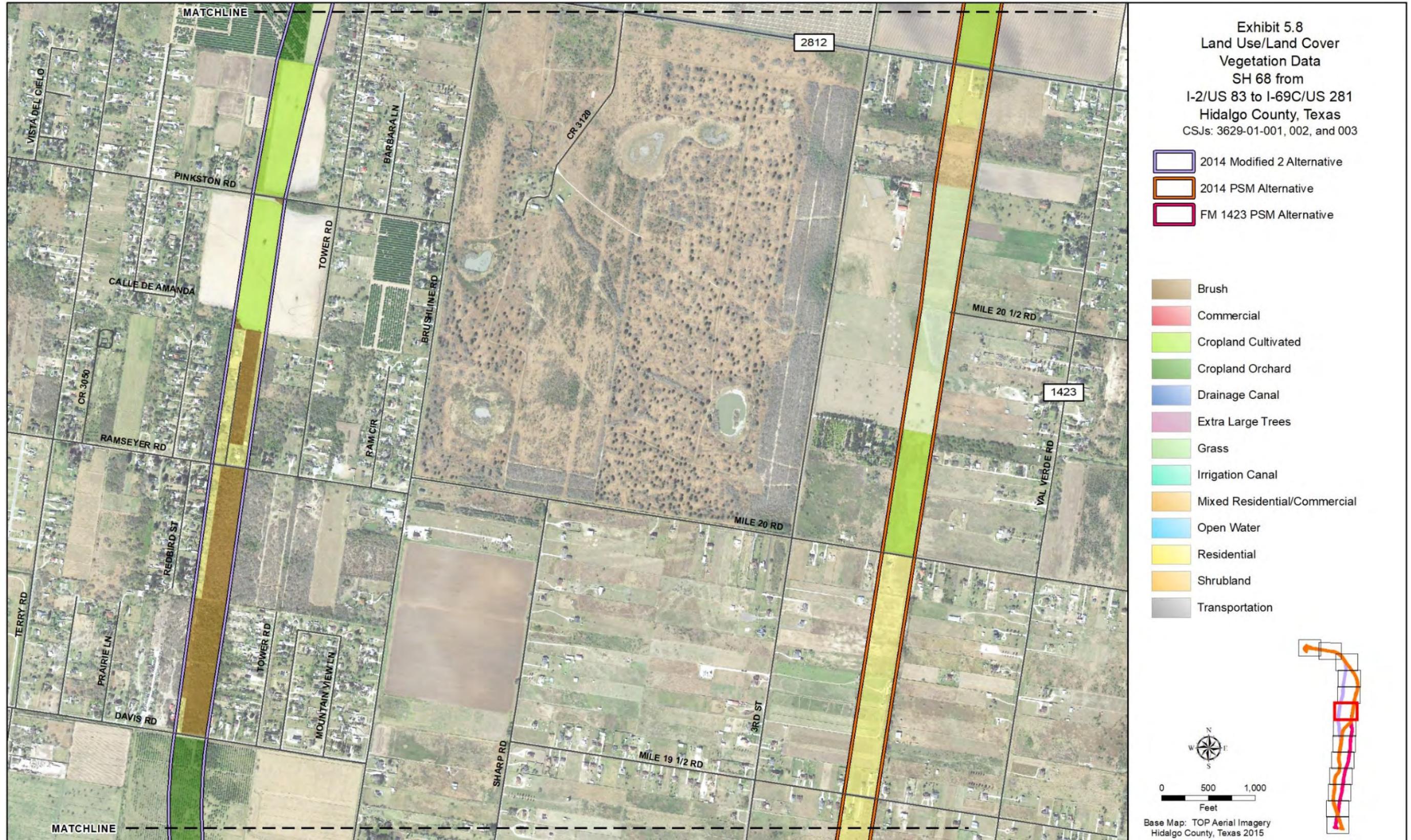










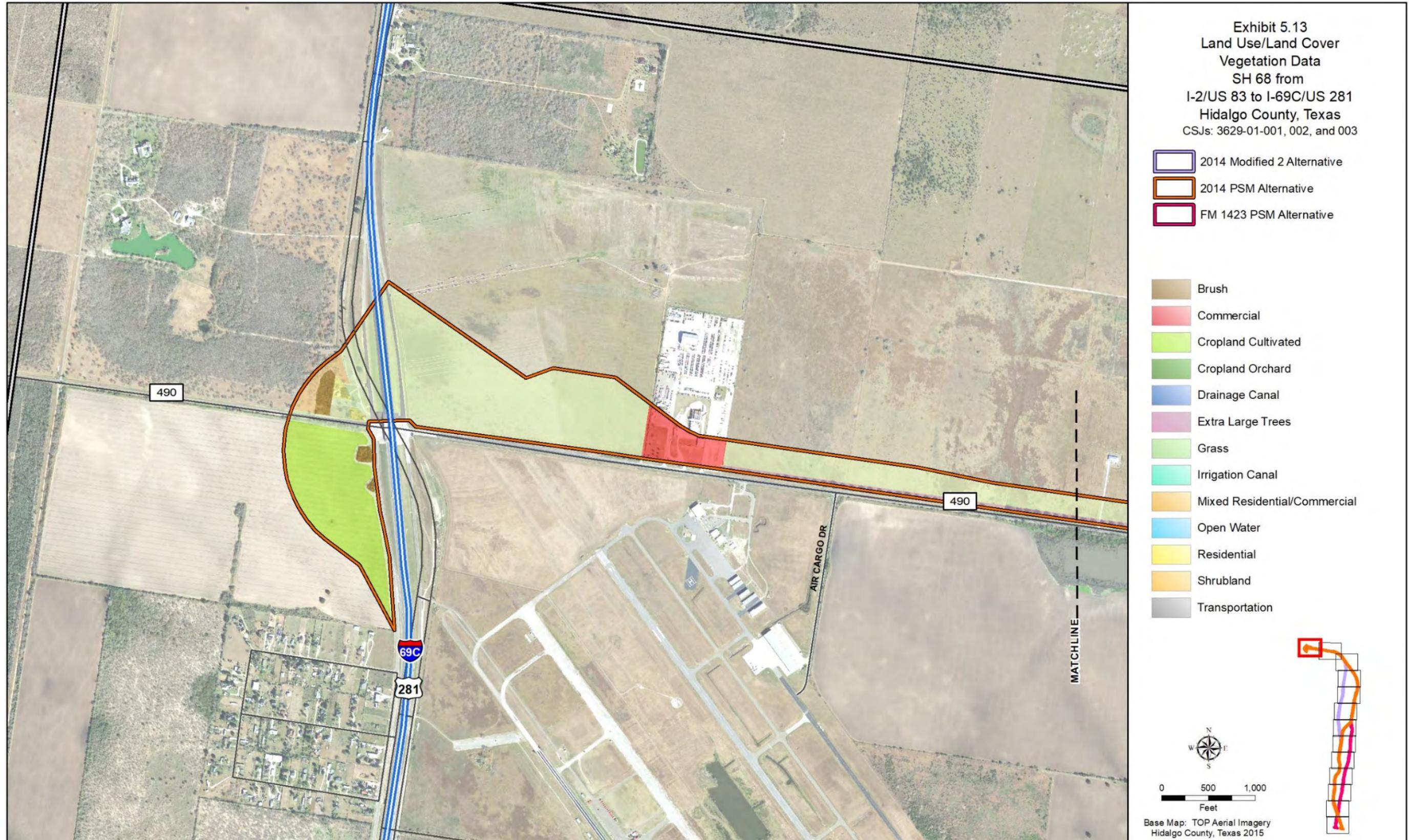






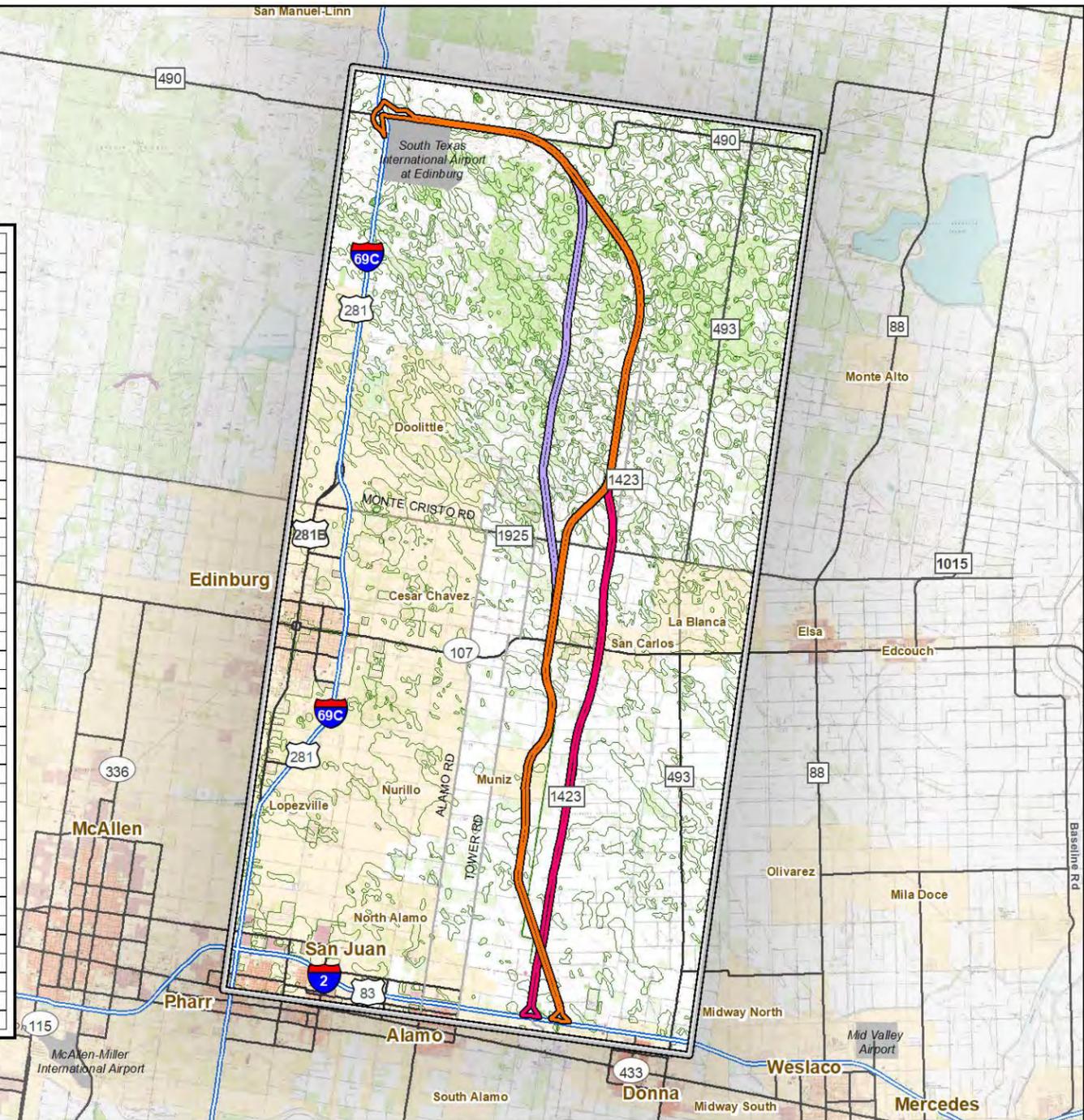






\*Bold text indicates soils intersected by three reasonable alternatives.

SOIL DESCRIPTION	ACRES	PRIME FARMLAND
Arents, loamy	15.00	Not prime farmland
<b>Brennan fine sandy loam, 0 to 1 percent slopes</b>	<b>3,700.67</b>	<b>Prime farmland if irrigated</b>
<b>Brennan fine sandy loam, 0 to 3 percent slopes</b>	<b>931.10</b>	<b>Prime farmland if irrigated</b>
<b>Comitas loamy fine sand, 0 to 3 percent slopes</b>	<b>1,415.95</b>	<b>Farmland of statewide importance, if irrigated</b>
<b>Delfina fine sandy loam, warm, 0 to 2 percent slopes</b>	<b>2,046.18</b>	<b>Prime farmland if irrigated</b>
Delfina fine sandy loam, warm, 1 to 3 percent slopes	112.28	Prime farmland if irrigated
Delfina loamy fine sand, warm, 0 to 2 percent slopes	838.40	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
<b>Hargill fine sandy loam, 0 to 1 percent slopes</b>	<b>4,643.41</b>	<b>Prime farmland if irrigated</b>
Hargill fine sandy loam, 1 to 3 percent slopes	2,133.26	Prime farmland if irrigated
Hargill fine sandy loam, 3 to 5 percent slopes	37.72	Prime farmland if irrigated
Harlingen-Urban land complex	28.87	Not prime farmland
<b>Hebbronville sandy loam, 0 to 1 percent slopes</b>	<b>1,601.34</b>	<b>Prime farmland if irrigated</b>
<b>Hebbronville sandy loam, 1 to 3 percent slopes</b>	<b>504.63</b>	<b>Prime farmland if irrigated</b>
Hebbronville sandy loam, 3 to 5 percent slopes	55.30	Prime farmland if irrigated
Hidalgo-Urban land complex, 0 to 1 percent slopes	4,794.33	Not prime farmland
<b>Hidalgo fine sandy loam, 0 to 1 percent slopes</b>	<b>11,119.33</b>	<b>Prime farmland if irrigated</b>
<b>Hidalgo fine sandy loam, 1 to 3 percent slopes</b>	<b>463.74</b>	<b>Prime farmland if irrigated</b>
<b>Hidalgo sandy clay loam, 0 to 1 percent slopes</b>	<b>47,739.40</b>	<b>All areas are prime farmland</b>
Hidalgo sandy clay loam, 1 to 3 percent slopes	21.33	Prime farmland if irrigated
<b>Hidalgo sandy clay loam, saline, 0 to 1 percent slopes</b>	<b>735.10</b>	<b>Not prime farmland</b>
Landfill	31.70	Not prime farmland
Mercedes clay, 0 to 1 percent slopes	7.97	Prime farmland if irrigated
Mercedes clay, saline, 0 to 1 percent slopes	1.45	Not prime farmland
Miscellaneous water	22.85	Not prime farmland
Pits, borrow	192.39	Not prime farmland
<b>Racombes sandy clay loam</b>	<b>2,505.62</b>	<b>All areas are prime farmland</b>
Racombes sandy clay loam, saline	228.14	Not prime farmland
Raymondville-Urban land complex, 0 to 1 percent slopes	565.45	Not prime farmland
<b>Raymondville clay loam, 0 to 1 percent slopes</b>	<b>9,946.43</b>	<b>Prime farmland if irrigated</b>
Raymondville clay loam, saline, 0 to 1 percent slopes	127.33	Not prime farmland
<b>Rio clay loam</b>	<b>655.86</b>	<b>Prime farmland if drained</b>
Rio clay loam, saline	42.97	Not prime farmland
Rio fine sandy loam	40.18	Prime farmland if drained
Rio fine sandy loam, saline	262.89	Not prime farmland
Rio Grande silt loam	4.85	Not prime farmland
<b>Tiocano clay, 0 to 1 percent slopes, occasionally ponded</b>	<b>170.21</b>	<b>Not prime farmland</b>
Urban land	315.48	Not prime farmland
Ustorthents, loamy	34.42	Not prime farmland
<b>Water</b>	<b>230.28</b>	<b>Not prime farmland</b>
<b>Willacy fine sandy loam, 0 to 1 percent slopes</b>	<b>12,454.68</b>	<b>All areas are prime farmland</b>
<b>Willacy fine sandy loam, 1 to 3 percent slopes</b>	<b>3,848.13</b>	<b>All areas are prime farmland</b>



Base Map: 7.5' USGS Topographic Hidalgo County, Texas

- 2014 Modified 2 Alternative
- 2014 PSM Alternative
- FM 1423 PSM Alternative
- NCRS Soils Survey
- Study Area

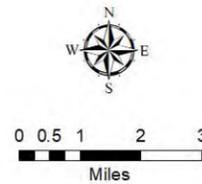


Exhibit 6  
NCRS Soils within Study Area  
SH 68 from  
I-2/US 83 to I-69C/US 281  
Hidalgo County, Texas  
CSJs: 3629-01-001, 002, and 003

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8

## Attachment B

### Biological Resources Supporting Documentation

Representative Photographs

Best Management Practices (BMPs)

USFWS IPaC List for Hidalgo County

TPWD Species List for Hidalgo County

NRCS-CPA-106 form



1  
2

**Photo 1** Brush LU/LC Type within the LRGVNR north of Monte Vista Road



3  
4

**Photo 2** Commercial LU/LC Type



1  
2

**Photo 3** Cropland Cultivated LU/LC Type, west of North Brushline Road



3  
4

**Photo 4** Cropland Orchard LU/LC Type west of FM 1423 near Eldora Road



1  
2

**Photo 5 Drainage Canal LU/LC Type (Santa Cruz Canal)**



3  
4

**Photo 6 Extra Large Trees LU/LC Type along north side of FM 490**



1  
2

**Photo 7 Grass LU/LC Type**



3  
4

**Photo 8 Irrigation Canal LU/LC Type**



1  
2

**Photo 9** Mixed Residential/Commercial LU/LC Type



3  
4

**Photo 10** Open Water LU/LC Type



1  
2

**Photo 11** Residential LU/LC Type



3  
4

**Photo 12** Shrubland LU/LC Type



1  
2  
3  
4

**Photo 13** Transportation LU/LC Type

**Best Management Practices (BMPs)**Amphibian BMPs

Unless absence of the species can be demonstrated, assume presence in suitable habitat and implement the following BMPs. Absence can only be demonstrated using TPWD-approved survey efforts (contact TPWD for minimum survey protocols for species and project site conditions).

1. For projects within one mile of a known occupied location or observation of the species recorded from 1980 until the current year and suitable habitat is present, coordinate with TPWD.
2. For new location roadway projects, coordinate with TPWD.
3. For projects within ROW when work is in water or will permanently impact a water feature and potential habitat exists for the target species complete the following:
  - a) Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
  - b) Minimize impacts to wetland, temporary and permanent open water features, including depressions, and riverine habitats.
  - c) Maintain hydro logic regime and connections between wetlands and other aquatic features.
  - d) Use barrier fencing to direct animal movements away from construction activities and areas of potential wildlife-vehicle collisions in construction areas directly adjacent, or that may directly impact, potential habitat for the target species.
  - e) Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible because of site conditions, using erosion control blankets or mats that contain no netting, or only contain loosely woven natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
  - f) PSLs proposed within state-owned ROW should be located in uplands away from aquatic features.
  - g) When work is directly adjacent to the water, minimize impacts to shoreline basking sites (e.g., downed trees, sand bars, exposed bedrock) and overwinter sites (e.g., brush and debris piles, crayfish burrows) where feasible.
  - h) Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter, which may be refugia for terrestrial amphibians, where feasible.
  - i) If gutters and curbs are part of the roadway design, where feasible install gutters that do not include the side box inlet and include sloped (i.e. mountable) curbs to

1 allow small animals to leave roadway. If this modification to the entire curb system  
2 is not possible, install sections of sloped curb on either side of the storm water  
3 drain for several feet to allow small animals to leave the roadway. Priority areas for  
4 these design recommendations are those with nearby wetlands or other aquatic  
5 features.

6 4. For projects that require acquisition of additional ROW and work within that new ROW  
7 is in water or will permanently impact a water feature, implement a -i above plus j -l  
8 below, where applicable:

9 j) For sections of roadway adjacent to wetlands or other aquatic features, install  
10 wildlife barriers that prevent climbing. Barriers should terminate at culvert  
11 openings in order to funnel animals under the road. The barriers should be of the  
12 same length as the adjacent feature or 80 feet long in each direction, or whichever  
13 is the lesser of the two.

14 k) For culvert extensions and culvert replacement/installation, incorporate measures  
15 to funnel animals toward culverts such as concrete wingwalls and barrier walls with  
16 overhangs.

17 l) When riprap or other bank stabilization devices are necessary, their placement  
18 should not impede the movement of terrestrial or aquatic wildlife through the water  
19 feature. Where feasible, biotechnical streambank stabilization methods using live  
20 native vegetation or a combination of vegetative and structural materials should  
21 be used.

22 In addition to the general amphibian BMPs, contractors will be advised to minimize  
23 disturbance to burrows or downed woody debris for the sheep frog, and contractors will be  
24 advised to minimize impacts to warm, shallow waters with vegetative cover such as ponds  
25 and ditches for the south Texas siren.

## 26 Bat BMPs

27 To determine the appropriate best management practice to avoid or minimize impacts to bats,  
28 review the habitat description for the species of interest on the TPWD Rare, Threatened, and  
29 Endangered Species of Texas by County List or other trusted resources. All bat surveys and  
30 other activities that include direct contact with bats shall comply with TPWD-recommended  
31 white-nose syndrome protocols located on the TPWD Wildlife Habitat Assessment Program  
32 website under "Project Design and Construction".

33 The following survey and exclusion protocols should be followed prior to commencement of  
34 construction activities. For the purposes of this document, structures are defined as bridges,  
35 culverts (concrete or metal), wells, and buildings.

- 1       • For activities that have the potential to impact structures, cliffs or caves, or trees; a  
2       qualified biologist will perform a habitat assessment and occupancy survey of the  
3       feature(s) with roost potential as early in the planning process as possible or within  
4       one year before project letting.
- 5       • For roosts where occupancy is strongly suspected but unconfirmed during the initial  
6       survey, revisit feature(s) at most four weeks prior to scheduled disturbance to confirm  
7       absence of bats.
- 8       • If bats are present or recent signs of occupation (i.e., piles of guano, distinct musky  
9       odor, or staining and rub marks at potential entry points) are observed, take  
10      appropriate measures to ensure that bats are not harmed, such as implementing non-  
11      lethal exclusion activities or timing or phasing of construction.
- 12      • Exclusion devices can be installed by a qualified individual between September 1 and  
13      March 31. Exclusion devices should be used for a minimum of seven days when  
14      minimum nighttime temperatures are above 50°F AND minimum daytime  
15      temperatures are above 70°F. Prior to exclusion, ensure that alternate roosting  
16      habitat is available in the immediate area. If no suitable roosting habitat is available,  
17      installation of alternate roosts is recommended to replace the loss of an occupied  
18      roost. If alternate roost sites are not provided, bats may seek shelter in other  
19      inappropriate sites, such as buildings, in the surrounding area. See Section 2:  
20      Standard Recommendations for recommended acceptable methods for excluding bats  
21      from structures.
- 22      • If feature(s) used by bats are removed as a result of construction, replacement  
23      structures should incorporate bat-friendly design or artificial roosts should be  
24      constructed to replace these features, as practicable.
- 25      • Conversion of property containing cave or cliff features to transportation purposes  
26      should be avoided where feasible.
- 27      • Avoid unnecessary removal of dead fronds on native and ornamental palm trees in  
28      south Texas (Cameron, Hidalgo, Willacy, Kenedy, Brooks, Kleberg, Nueces, and San  
29      Patricio counties) from April 1 through October 31. If removal of dead fronds is  
30      necessary at other times of the year, limit frond removal to extended warm periods  
31      (nighttime temperatures 55°F for at least two consecutive nights), so bats can move  
32      away from the disturbance and find new roosts.
- 33      • Large hollow trees, snags (dead standing trees), and trees with shaggy bark should be  
34      surveyed for colonies and, if found, should not be disturbed until the bats are no longer  
35      occupying these features. Post-occupancy surveys should be conducted by a qualified  
36      biologist prior to tree removal from the landscape.

1 • Retain mature, large diameter hardwood forest species and native/ornamental palm  
2 trees where feasible.

3 • In all instances, avoid harm or death to bats. Bats should only be handled as a last  
4 resort and after communication with TPWD.

5 In addition to general Bat BMPs, contractors will be advised to avoid unnecessary impacts to  
6 cacti and agave species for the Mexican long-tongued bat.

#### 7 Bird BMPs

8 In addition to complying with the MBTA perform the following BMPs:

9 • Prior to construction, perform daytime surveys for nests including under bridges and  
10 in culverts to determine if they are active before removal. Nests that are active should  
11 not be disturbed.

12 • Do not disturb, destroy, or remove active nests, including ground nesting birds, during  
13 the nesting season;

14 • Avoid the removal of unoccupied, inactive nests, as practicable;

15 • Prevent the establishment of active nests during the nesting season on TxDOT owned  
16 and operated facilities and structures proposed for replacement or repair;

17 • Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without  
18 a permit.

#### 19 Terrestrial Reptile BMPs

20 • Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or  
21 revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding  
22 are not feasible because of site conditions, utilize erosion control blankets or mats that  
23 contain no netting or contain loosely woven, natural fiber netting is preferred. Plastic  
24 netting should be avoided to the extent practicable.

25 • For open trenches and excavated pits, install escape ramps at an angle of less than  
26 45 degrees in areas left uncovered. Visually inspect excavation areas for trapped  
27 wildlife prior to backfilling.

28 • Inform contractors that if reptiles are found on project site allow species to safely leave  
29 the project area.

30 • Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter  
31 where feasible.

32 • Contractors will be advised of potential occurrence in the project area, and to avoid  
33 harming the species if encountered.

34 In addition to general Terrestrial Reptile BMPs, contractors would be advised to avoid  
35 harvester ant mounds in the selection of PSLs where feasible for the Texas horned lizard. For

1 the Texas tortoise, contractors will be advised of potential occurrence in the project area, and  
2 to avoid harming the species if encountered, and utility trenches should be covered overnight  
3 or visually inspected before filling to avoid burial of the species.

4 If Texas Tortoises are present in a project area they should be removed from the area. After  
5 removal of the tortoises, the area that will be disturbed during active construction and project  
6 specific locations should be fenced off to exclude tortoises and other reptiles. The exclusion  
7 fence should be constructed and maintained as follows:

- 8 a. The exclusion fence should be constructed with metal flashing or drift fence material.
- 9 b. Rolled erosion control mesh material should not be used.
- 10 c. The exclusion fence should be buried at least 6 inches deep and be at least 24 inches  
11 high.
- 12 d. The exclusion fence should be maintained for the life of the project and only removed  
13 after the construction is completed and the disturbed site has been revegetated.

#### 14 Water Quality BMPs

15 In addition to BMPs required for a TCEQ Storm Water Pollution Prevention Plan and/or 401  
16 water quality permit:

- 17 • Minimize the use of equipment in streams and riparian areas during construction.  
18 When possible, equipment access should be from banks, bridge decks, or barges.
- 19 • When temporary stream crossings are unavoidable, remove stream crossings once  
20 they are no longer needed and stabilize banks and soils around the crossing.

#### 21 Wildlife Crossings

- 22 • Design roadways on new location to incorporate wildlife crossings, particularly in  
23 areas that bisect wildlife travel corridors or seasonal routes.
- 24 • Consider using cable median barrier instead of concrete traffic barrier when  
25 feasible to increase permeability for animals encountering barriers.

**Invasive Species BMPs**

- For all work in waters listed in the distribution of Zebra mussels on <http://texasinvasives.org/> as well as those waters specified in 31 TAC §57.972 and any TPWD emergency orders regarding prevention of the spread of Zebra mussels all machinery, equipment, or vehicles coming in contact with such waters should follow clean/drain/dry protocols to prevent the potential spread of invasive Zebra mussels.
- Care should be taken to avoid the spread of aquatic invasive plants (such as Giant Salvinia, Hydrilla, Hyacinth, Watermilfoil, Water Lettuce, and Alligatorweed) from infested water bodies into areas not currently infested. All machinery/equipment/vehicles coming in contact with waters containing aquatic invasive plant species should follow clean/drain/dry protocols to prevent the potential spread of invasive plants.
- Colonization by invasive plants should be actively prevented on disturbed sites in terrestrial habitats. Vegetation management should include removing invasive species as soon as practical while allowing the existing native plants to revegetate the disturbed areas. If using hay bales for sediment control, use locally grown weed-free hay to prevent the spread of invasive species. Leave the hay bales in place and allow them to break down, as this acts as mulch assisting in revegetation.



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Texas Coastal Ecological Services Field Office  
17629 El Camino Real #211  
Houston, TX 77058

Phone: (281) 286-8282 Fax: (281) 488-5882

<http://www.fws.gov/southwest/es/TexasCoastal/>  
[http://www.fws.gov/southwest/es/ES\\_Lists\\_Main2.html](http://www.fws.gov/southwest/es/ES_Lists_Main2.html)

In Reply Refer To:

July 14, 2017

Consultation Code: 02ETTX00-2017-SLI-0385

Event Code: 02ETTX00-2017-E-03043

Project Name: SH 68

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: <http://www.fws.gov/southwest/es/TexasCoastal/Map.html>. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website <http://ecos.fws.gov/ipac/> at regular intervals during project planning and implementation for updates to species list and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

### **Section 7**

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

**Is not likely to adversely affect** - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

**Is likely to adversely affect** - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

**No effect** - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record

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of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at:

[http://www.fws.gov/endangered/esa-library/pdf/esa\\_section7\\_handbook.pdf](http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf)

### **Section 10**

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at:

[http://www.fws.gov/endangered/esa-library/pdf/HCP\\_Handbook.pdf](http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf)

### **Service Response**

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

### **Proposed Species and/or Proposed Critical Habitat**

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek concurrence from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

### **Candidate Species**

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem health in the local area and avert potential future listing.

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Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: <http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html>.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at <http://www.fws.gov/endangered/what-we-do/cca.html>.

### **Migratory Birds**

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at <http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html>.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidelines, we recommend you review information provided at <http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf>.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at <http://www.aplic.org/>.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for

Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at:

<http://www.fws.gov/habitatconservation/communicationtowers.html>, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at:

<http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html>.

### **Wetlands and Wildlife Habitat**

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to food control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory yways or

corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

### **Beneficial Landscaping**

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

### **State Listed Species**

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at:

[http://www.tpwd.state.tx.us/huntwild/wild/wildlife\\_diversity/texas\\_rare\\_species/listed\\_species/](http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/).

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Texas Coastal Ecological Services Field Office**

17629 El Camino Real #211

Houston, TX 77058

(281) 286-8282

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## Project Summary

Consultation Code: 02ETTX00-2017-SLI-0385

Event Code: 02ETTX00-2017-E-03043

Project Name: SH 68

Project Type: TRANSPORTATION

Project Description: Study Area for proposed new location roadway SH 68.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/26.36738726914084N98.07716286003813W>



Counties: Hidalgo, TX

## Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

## Mammals

NAME	STATUS
<p>Gulf Coast Jaguarundi (<i>Herpailurus (=Felis) yagouaroundi cacomitli</i>)</p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/3945">https://ecos.fws.gov/ecp/species/3945</a></p>	Endangered
<p>Ocelot (<i>Leopardus (=Felis) pardalis</i>)</p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4474">https://ecos.fws.gov/ecp/species/4474</a></p>	Endangered

## Birds

NAME	STATUS
<p>Least Tern (<i>Sterna antillarum</i>)</p> <p>Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Related Projects Within Migratory Route</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>	Endangered
<p>Piping Plover (<i>Charadrius melodus</i>)</p> <p>Population: except Great Lakes watershed There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind related projects within migratory route.</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot (<i>Calidris canutus rufa</i>)</p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Related Projects Within Migratory Route</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened
<p>Red-crowned Parrot (<i>Amazona viridigenalis</i>)</p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9022">https://ecos.fws.gov/ecp/species/9022</a></p>	Candidate
<p>Northern Aplomado Falcon (<i>Falco femoralis septentrionalis</i>)</p> <p>Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1923">https://ecos.fws.gov/ecp/species/1923</a></p>	Endangered

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## Flowering Plants

NAME	STATUS
<p>Star Cactus (<i>Astrophytum asterias</i>) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7913">https://ecos.fws.gov/ecp/species/7913</a></p>	Endangered
<p>Texas Ayenia (<i>Ayenia limitaris</i>) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4942">https://ecos.fws.gov/ecp/species/4942</a></p>	Endangered
<p>Walker's Manioc (<i>Manihot walkerae</i>) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1892">https://ecos.fws.gov/ecp/species/1892</a></p>	Endangered

## Critical habitats

There are no critical habitats within your project area.

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## HIDALGO COUNTY

### AMPHIBIANS

		Federal Status	State Status
<b>Black-spotted newt</b>	<i>Notophthalmus meridionalis</i>		T
can be found in wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods; Gulf Coastal Plain south of the San Antonio River			
<b>Mexican treefrog</b>	<i>Smilisca baudinii</i>		T
subtropical region of extreme southern Texas; breeds May-October coinciding with rainfall, eggs laid in temporary rain pools			
<b>Sheep frog</b>	<i>Hypopachus variolosus</i>		T
predominantly grassland and savanna; moist sites in arid areas			
<b>South Texas siren (large form)</b>	<i>Siren sp 1</i>		T
wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods, but does require some moisture to remain; southern Texas south of Balcones Escarpment; breeds February-June			
<b>White-lipped frog</b>	<i>Leptodactylus fragilis</i>		T
grasslands, cultivated fields, roadside ditches, and a wide variety of other habitats; often hides under rocks or in burrows under clumps of grass; species requirements incompatible with widespread habitat alteration and pesticide use in south Texas			

### BIRDS

		Federal Status	State Status
<b>American Peregrine Falcon</b>	<i>Falco peregrinus anatum</i>	DL	T
year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.			
<b>Arctic Peregrine Falcon</b>	<i>Falco peregrinus tundrius</i>	DL	
migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.			
<b>Audubon's Oriole</b>	<i>Icterus graduacauda audubonii</i>		
scrub, mesquite; nests in dense trees, or thickets, usually along water courses			
<b>Brownsville Common Yellowthroat</b>	<i>Geothlypis trichas insperata</i>		
tall grasses and bushes near ponds, marshes, and swamps; breeding April to July			

## HIDALGO COUNTY

### BIRDS

		Federal Status	State Status
<b>Cactus Ferruginous Pygmy-Owl</b>	<i>Glaucidium brasilianum cactorum</i>		T
riparian trees, brush, palm, and mesquite thickets; during day also roosts in small caves and recesses on slopes of low hills; breeding April to June			
<b>Common Black-Hawk</b>	<i>Buteogallus anthracinus</i>		T
cottonwood-lined rivers and streams; willow tree groves on the lower Rio Grande floodplain; formerly bred in south Texas			
<b>Gray Hawk</b>	<i>Asturina nitida</i>		T
locally and irregularly along U.S.-Mexico border; mature riparian woodlands and nearby semiarid mesquite and scrub grasslands; breeding range formerly extended north to southernmost Rio Grande floodplain of Texas			
<b>Hook-billed Kite</b>	<i>Chondrohierax uncinatus</i>		
dense tropical and subtropical forests, but does occur in open woodlands; uncommon to rare in most of range; accidental in south Texas			
<b>Interior Least Tern</b>	<i>Sterna antillarum athalassos</i>	LE	E
subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony			
<b>Mountain Plover</b>	<i>Charadrius montanus</i>		
breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous			
<b>Northern Aplomado Falcon</b>	<i>Falco femoralis septentrionalis</i>	LE	E
open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species			
<b>Northern Beardless-Tyrannulet</b>	<i>Camptostoma imberbe</i>		T
mesquite woodlands; near Rio Grande frequents cottonwood, willow, elm, and great leadtree; breeding April to July			
<b>Peregrine Falcon</b>	<i>Falco peregrinus</i>	DL	T
both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies ( <i>F. p. anatum</i> ) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, <i>F.p. tundrius</i> is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.			
<b>Reddish Egret</b>	<i>Egretta rufescens</i>		T
resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear			

## HIDALGO COUNTY

### BIRDS

		Federal Status	State Status
<b>Rose-throated Becard</b>	<i>Pachyramphus aglaiae</i>		T
riparian trees, woodlands, open forest, scrub, and mangroves; breeding April to July			
<b>Sennett's Hooded Oriole</b>	<i>Icterus cucullatus sennetti</i>		
often builds nests in and of Spanish moss ( <i>Tillandsia unioides</i> ); feeds on invertebrates, fruit, and nectar; breeding March to August			
<b>Sprague's Pipit</b>	<i>Anthus spragueii</i>		
only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.			
<b>Texas Botteri's Sparrow</b>	<i>Aimophila botterii texana</i>		T
grassland and short-grass plains with scattered bushes or shrubs, sagebrush, mesquite, or yucca; nests on ground of low clump of grasses			
<b>Tropical Parula</b>	<i>Parula pitiayumi</i>		T
dense or open woods, undergrowth, brush, and trees along edges of rivers and resacas; breeding April to July			
<b>Western Burrowing Owl</b>	<i>Athene cunicularia hypugaea</i>		
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			
<b>Western Snowy Plover</b>	<i>Charadrius alexandrinus nivosus</i>		
uncommon breeder in the Panhandle; potential migrant; winter along coast			
<b>White-faced Ibis</b>	<i>Plegadis chihi</i>		T
prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats			
<b>White-tailed Hawk</b>	<i>Buteo albicaudatus</i>		T
near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May			
<b>Wood Stork</b>	<i>Mycteria americana</i>		T
forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960			
<b>Zone-tailed Hawk</b>	<i>Buteo albonotatus</i>		T
arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions			

## HIDALGO COUNTY

### FISHES

Federal Status

State Status

#### American eel

*Anguilla rostrata*

coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters, metamorphose, then females move into freshwater; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes; can travel overland in wet areas; males in brackish estuaries; diet varies widely, geographically, and seasonally

#### Rio Grande shiner

*Notropis jemezianus*

Rio Grande and upper Pecos River basins; large, open, weedless rivers or large creeks with bottom of rubble, gravel and sand, often overlain with silt

#### Rio Grande silvery minnow

*Hybognathus amarus*

LE

E

extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves

#### River goby

*Awaous banana*

T

Southern coastal waters; clear water with slow to moderate current, sandy or hard bottom, and little or no vegetation; also enters brackish and ocean waters

### INSECTS

Federal Status

State Status

#### A mayfly

*Campsurus decoloratus*

TX and MX; possibly clay substrates; mayflies distinguished by aquatic larval stage; adult stage generally found in shoreline vegetation

#### A Royal moth

*Sphingicampa blanchardi*

woodland - hardwood; Tamaulipan thornscrub with caterpillar's host plant, Texas Ebony (*Pithecellobium flexicaule*) an important element

#### A tiger beetle

*Tetracha affinis angustata*

most tiger beetles diurnal, open sandy areas, beaches, open paths or lanes, or on mudflats; larvae in hard-packed ground in vertical burrows

#### Arroyo darner

*Aeshna dugesi*

creek, high - moderate gradient; eggs laid in aquatic plants, larvae cling to bottom of pools of streams, adults forage widely in pools in streams, from desert up to pine-oak zone; invertivore, diurnal; larvae overwinter, flight season late June to early September

#### Los Olmos tiger beetle

*Cicindela nevadica olmosa*

most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches

## HIDALGO COUNTY

### INSECTS

Federal Status

State Status

**Manfreda giant-skipper**

*Stallingsia maculosus*

most skippers are small and stout-bodied; name derives from fast, erratic flight; at rest most skippers hold front and hind wings at different angles; skipper larvae are smooth, with the head and neck constricted; skipper larvae usually feed inside a leaf shelter and pupate in a cocoon made of leaves fastened together with silk

**Neojuvenile tiger beetle**

*Cicindela obsoleta neojuvenilis*

bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas; peak adult activity in Jul

**Subtropical blue-black tiger beetle**

*Cicindela nigrocoerulea subtropica*

most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches

**Tamaulipan agapema**

*Agapema galbina*

Tamaulipan thornscrub with adequate densities of the caterpillar foodplant *Condalia hookeri hookeri* (= *obovata*); adults occur Sep - Oct; eggs hatch within two weeks and larvae mature 'rapidly'

### MAMMALS

Federal Status

State Status

**Cave myotis bat**

*Myotis velifer*

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

**Coues' rice rat**

*Oryzomys couesi*

T

cattail-bulrush marsh with shallower zone of aquatic grasses near the shoreline; shade trees around the shoreline are important features; prefers salt and freshwater, as well as grassy areas near water; breeds April-August

**Jaguar**

*Panthera onca*

LE

E

extirpated; dense chaparral; no reliable TX sightings since 1952

**Jaguarundi**

*Herpailurus yaguarondi*

LE

E

thick brushlands, near water favored; 60 to 75 day gestation, young born sometimes twice per year in March and August, elsewhere the beginning of the rainy season and end of the dry season

**Mexican long-tongued bat**

*Choeronycteris mexicana*

deep canyons where uses caves and mine tunnels as day roosts; also found in buildings and often associated with big-eared bats (*Plecotus* spp.); single TX record from Santa Ana NWR

**Ocelot**

*Leopardus pardalis*

LE

E

dense chaparral thickets; mesquite-thorn scrub and live oak mottes; avoids open areas; breeds and raises young June-November



## HIDALGO COUNTY

### REPTILES

		Federal Status	State Status
<b>Speckled racer</b>	<i>Drymobius margaritiferus</i>		T
extreme south Texas; dense thickets near water, Texas palm groves, riparian woodlands; often in areas with much vegetation litter on ground; breeds April-August			
<b>Spot-tailed earless lizard</b>	<i>Holbrookia lacerata</i>		
central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground			
<b>Texas horned lizard</b>	<i>Phrynosoma cornutum</i>		T
open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September			
<b>Texas indigo snake</b>	<i>Drymarchon melanurus erebennus</i>		T
Texas south of the Guadalupe River and Balcones Escarpment; thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows, for shelter			
<b>Texas tortoise</b>	<i>Gopherus berlandieri</i>		T
open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November			

### PLANTS

		Federal Status	State Status
<b>Amelia's abronia</b>	<i>Abronia ameliae</i>		
Endemic to South Texas; Occurs on deep, well-drained sandy soils of the South Texas Sand Sheet in grassy and/or herbaceous dominated openings within coastal live oak woodlands or mesquite-coastal live oak woodlands. Perennial; Flowering Mar-June			
<b>Arrowleaf milkvine</b>	<i>Matelea sagittifolia</i>		
GLOBAL RANK: G3 ; Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July & Dec?			
<b>Bailey's ballmoss</b>	<i>Tillandsia baileyi</i>		
epiphytic on various trees and tall shrubs, perhaps most common in mottes of Live oak on vegetated dunes and flats in coastal portions of the South Texas Sand Sheet, but also on evergreen sub-tropical woodlands along resacas in the Lower Rio Grande Valley; flowering (February-)April-May, but conspicuous throughout the year			
<b>Chihuahua balloon-vine</b>	<i>Cardiospermum dissectum</i>		
Thorn shrublands or low woodlands on well to excessively well drained, calcareous, sandy to gravelly soils in drier uplands of the Lower Rio Grande Valley, in areas underlain by the Goliad formation, Catahoula and Frio formations undivided, Jackson Group, and other Eocene formations; during drought conditions the normally inconspicuous slender twining vine turns a more conspicuous deep reddish-purple; flowering (April-) July-September, probably throughout the growing season in response to rainfall.			

## HIDALGO COUNTY

### PLANTS

Federal Status

State Status

**Cory's croton**

*Croton coryi*

GLOBAL RANK: G3; Grasslands and woodland openings on barrier islands and coastal sands of South Texas, inland on South Texas Sand Sheet; Annual; Flowering July-Oct; Fruiting July-Nov

**Falfurrias milkvine**

*Matelea radiata*

Texas endemic; uncertain, only two known specimens; one from clay soil on dry gravel hills at altitude of approximately 45 m (150 ft); other from Falfurrias, no habitat description; probably flowering May-June

**Gregg's wild-buckwheat**

*Eriogonum greggii*

sparingly vegetated openings in thorn shrublands in shallow soils on xeric ridges along the Rio Grande; also on excessively drained, sandy soil over caliche and calcareous sandstone of the Goliad Formation and over sandstone or fossiliferous layers of the Jackson Group; flowering February-July, probably opportunistically during the growing season

**Jones' nailwort**

*Paronychia jonesii*

GLOBAL RANK: G3; Occurs in early successional open areas on deep well-drained sand; Biennial Annual; Flowering March-Nov; Fruiting April-Nov

**Large selenia**

*Selenia grandis*

GLOBAL RANK: G4; Occurs in seasonally wet clayey soils in open areas; Annual; Flowering Jan-April; Fruiting Feb-April

**Mexican mud-plantain**

*Heteranthera mexicana*

wet clayey soils of resacas and ephemeral wetlands in South Texas and along margins of playas in the Panhandle; flowering June-December, only after sufficient rainfall

**Runyon's cory cactus**

*Coryphantha macromeris var runyonii*

gravelly to sandy or clayey, calcareous, sometimes gypsiferous or saline soils, often over the Catahoula and Frio formations, on gentle hills and slopes to the flats between, at elevations ranging from 10 to 150 m (30 to 500 ft); ?late spring or early summer, November, fruit has been collected in August

**Runyon's water-willow**

*Justicia runyonii*

margins of and openings within subtropical woodlands or thorn shrublands on calcareous, alluvial, silty or clayey soils derived from Holocene silt and sand floodplain deposits of the Rio Grande Delta; can be common in narrow openings such as those provided by trails through dense ebony woodlands and is sometimes restricted to microdepressions; flowering (July-) September-November

**Sand Brazos mint**

*Brazoria arenaria*

GLOBAL RANK: G3; Sandy areas in South Texas; Annual; Flowering/Fruiting March-April

**Sand sheet leaf-flower**

*Phyllanthus abnormis var.  
riograndensis*

GLOBAL RANK: G5T3; Semi-desert scrub of deep South Texas; Annual; Flowering Feb-July; Fruiting Oct-March

**Shortcrown milkvine**

*Matelea brevicoronata*

GLOBAL RANK: G3; Primarily in grasslands on tight sandy or silty substrates; Perennial; Flowering March-Sept; Fruiting May-Sept

## HIDALGO COUNTY

### PLANTS

Federal Status      State Status

**Siler's huaco**

*Manfreda sileri*

GLOBAL RANK: G3; Rare in a variety of grasslands and shrublands on dry sites; Perennial; Flowering April-July; Fruiting June-July

**Small-leaved yellow velvet-leaf**

*Wissadula parvifolia*

Occurs on sandy loams or clays in shrublands or woodlands on gently undulating terrain of the Holocene sand sheet over the Goliad Formation.

**St. Joseph's staff**

*Manfreda longiflora*

thorn shrublands on clays and loams with various concentrations of salt, caliche, sand, and gravel; rosettes are often obscured by low shrubs; flowering September-October

**Star cactus**

*Astrophytum asterias*

LE

E

gravelly clays or loams, possibly of the Catarina Series (deep, droughty, saline clays), over the Catahoula and Frio formations, on gentle slopes and flats in sparsely vegetated openings between shrub thickets within mesquite grasslands or mesquite-blackbrush thorn shrublands; plants sink into or below ground during dry periods; flowering from mid March-May, may also flower in warmer months after sufficient rainfall, flowers most reliably in early April; fruiting mid April-June

**Stinking rushpea**

*Pomaria austrotexana*

GLOBAL RANK: G3; In open areas on deep well drained sands; Perennial; Flowering Feb-Oct; Fruiting April-Oct

**Texas ayenia**

*Ayenia limitaris*

LE

E

Subtropical thorn woodland or tall shrubland on loamy soils of the Rio Grande Delta; known site soils include well-drained, calcareous, sandy clay loam (Hidalgo Series) and neutral to moderately alkaline, fine sandy loam (Willacy Series); also under or among taller shrubs in thorn woodland/thorn shrubland; flowering throughout the year with sufficient rainfall

**Texas peachbush**

*Prunus texana*

GLOBAL RANK: G3; Occurs at scattered sites in various well drained sandy situations; deep sand, plains and sand hills, grasslands, oak woods, 0-200 m elevation; Perennial; Flowering Feb-Mar; Fruiting Apr-Jun

**Texas stonecrop**

*Lenophyllum texanum*

GLOBAL RANK: G3; Found in shrublands on clay dunes (lomas) at the mouth of the Rio Grande and on xeric calcareous rock outcrops at scattered inland sites; Perennial; Flowering/Fruiting Nov-Feb

**Vasey's adelia**

*Adelia vaseyi*

Mostly subtropical evergreen/deciduous woodlands on loamy soils of Rio Grande Delta, but occasionally in shrublands on more xeric sandy to gravelly upland sites; Perennial; Flowering January-June

**Walker's manioc**

*Manihot walkerae*

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periphery of native brush in sandy loam; also on caliche cuevas?; flowering April-September (following rains?)

## HIDALGO COUNTY

### PLANTS

Federal Status

State Status

**Wright's trichocoronis**

*Trichocoronis wrightii* var. *wrightii*

GLOBAL RANK: G4T3; Most records from Texas are historical, perhaps indicating a decline as a result of alteration of wetland habitats; Annual; Flowering Feb-Oct; Fruiting Feb-Sept

**Yellow-flowered alicocha**

*Echinocereus papillosus*

GLOBAL RANK: G3; Under shrubs or in open areas on various substrates; Perennial; Flowering Jan-April

**FARMLAND CONVERSION IMPACT RATING  
FOR CORRIDOR TYPE PROJECTS**

<b>PART I (To be completed by Federal Agency)</b>	3. Date of Land Evaluation Request	4. Sheet 1 of _____
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1. Name of Project	5. Federal Agency Involved
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2. Type of Project	6. County and State
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<b>PART II (To be completed by NRCS)</b>	1. Date Request Received by NRCS	2. Person Completing Form
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3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input type="checkbox"/> NO <input type="checkbox"/>	4. Acres Irrigated   Average Farm Size
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5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: _____ %	7. Amount of Farmland As Defined in FPPA Acres: _____ %
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8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS
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<b>PART III (To be completed by Federal Agency)</b>	<b>Alternative Corridor For Segment</b>			
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	2014 Modified 2	2014 PSM	1423 PSM	No Build
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A. Total Acres To Be Converted Directly				
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B. Total Acres To Be Converted Indirectly, Or To Receive Services				
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C. Total Acres In Corridor				
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<b>PART IV (To be completed by NRCS) Land Evaluation Information</b>				
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A. Total Acres Prime And Unique Farmland				
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B. Total Acres Statewide And Local Important Farmland				
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C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
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D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
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<b>PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)</b>				
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<b>PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))</b>	Maximum Points			
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1. Area in Nonurban Use	15			
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2. Perimeter in Nonurban Use	10			
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3. Percent Of Corridor Being Farmed	20			
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4. Protection Provided By State And Local Government	20			
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5. Size of Present Farm Unit Compared To Average	10			
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6. Creation Of Nonfarmable Farmland	25			
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7. Availability Of Farm Support Services	5			
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8. On-Farm Investments	20			
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9. Effects Of Conversion On Farm Support Services	25			
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10. Compatibility With Existing Agricultural Use	10			
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TOTAL CORRIDOR ASSESSMENT POINTS	160			
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<b>PART VII (To be completed by Federal Agency)</b>				
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Relative Value Of Farmland (From Part V)	100			
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Total Corridor Assessment (From Part VI above or a local site assessment)	160			
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<b>TOTAL POINTS (Total of above 2 lines)</b>	<b>260</b>			
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1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?  YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:
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Signature of Person Completing this Part:	DATE
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**NOTE: Complete a form for each segment with more than one Alternate Corridor**

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## CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent - 15 points  
90 to 20 percent - 14 to 1 point(s)  
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

More than 90 percent - 10 points  
90 to 20 percent - 9 to 1 point(s)  
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

More than 90 percent - 20 points  
90 to 20 percent - 19 to 1 point(s)  
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected - 20 points  
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with \$1,000 or more in sales.)

As large or larger - 10 points  
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project - 25 points  
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)  
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available - 5 points  
Some required services are available - 4 to 1 point(s)  
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment - 20 points  
Moderate amount of on-farm investment - 19 to 1 point(s)  
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted - 25 points  
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)  
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points  
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)  
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

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This report was written on behalf of the Texas Department of Transportation by



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