

## CHAPTER 3

### AFFECTED ENVIRONMENT

**Chapter 3** describes the affected environment within the study area for the Loop 375 Border Highway West Extension Project. The study area limits for **Chapter 3** begins along Interstate Highway 10 (I-10) at State Highway (SH) 20 (Mesa Street). It then continues past the Sunland Park Drive interchange to the I-10/United States Highway (US) 85 (Paisano Drive) interchange. At this point, it widens to include the area between I-10 and US 85 (Paisano Drive)/Loop 375 until reaching the I-10/US 54 interchange. The study area then transitions along existing Loop 375 to Fonseca Drive. The study area is approximately 16 miles long and approximately 1 mile wide (**Exhibit 3-1**).

The affected environment study area presented in **Chapter 3** was used during early stages of the alternative development process and covers a larger area than the refined study area used for analysis of impacts from the reasonable alternatives in **Chapter 4**. Refer to **Chapter 2** for a discussion of the development of proposed project alternatives.

#### 3.1 LAND USE

**Section 3.1** describes land use from two geographic perspectives. The first is a regional review of existing land use, which encompasses all of El Paso County. Second, land use is also discussed for the study area (**Exhibit 3-2**). Section 3.1 discusses the past development patterns within the region, existing and proposed land uses, and local government plans and policies for the region and the study area.

##### 3.1.1 Existing and Proposed Land Uses

###### 3.1.1.1 Regional Overview

Residential development is by far the most prevalent land use in the City. It is typified by low-density, single-family detached houses. Much of this type of development is located in homogeneous neighborhoods, which are a product of large-scale, suburban tract development. Single-family detached housing units make up a majority of the City's housing. Additional types of housing such as single-family attached, two-family, and multi-family housing units are widely dispersed throughout the City. Office and commercial development are the second largest urban development within the City limits. Industrial development occupies less urban land in El Paso; however, the industrial areas to the southeast and west of the City have been the fastest growing (City of El Paso 2012).

Currently, much of the development in El Paso County is residential and commercial in nature. Fort Bliss is still a driving force of the economy as well as the Maquiladora factories, the University of Texas at El Paso (UTEP), and the Texas Tech University Health Science Center.

###### 3.1.1.2 Existing Land Uses within Study Area

The existing land uses within the study area were identified through interpretation of aerial photography, supplemented by the use of public mapping sources, such as state and county highway maps, United States Geological Survey (USGS) topographic maps and county, and municipal planning documents. Currently, there is no farm or rangeland located within the study area boundaries. The American Canal and Franklin Canal traverse the study area. Also, the Rio Grande River, a major feature in the region, borders the study area.

See **Table 3-1** and **Exhibit 3-2** for general land use types within the study area and **Appendix E** for photographs of the study area.

**Table 3-1: General Land Use within Study Area**

Land Use	Acreage Within the Study Area	Percent (%) of Study Area	Notes
Commercial	595.1	11.6	Commercial properties are scattered throughout the study area and concentrated in the downtown area. This category includes businesses, restaurants, retail centers, entertainment-oriented businesses, convenience stores, and other similar structures or uses.
Residential	446.7	8.7	The residential category includes single- and multi-family dwellings including both permanent and non-fixed structures. Residential properties are concentrated around the major arterial roadway facilities.
Industrial	1,412.5	27.6	The industrial category includes large refineries, warehouses, distribution centers, and oil and gas production facilities. Industrial areas are generally concentrated along the southern portions of the study area; these areas include the ASARCO facility and CEMEX properties.
Mixed-Use	34.8	0.7	The mixed-used category includes commercial, residential, and open space uses. Land use in this category is concentrated in the downtown region of the study area, as well as surrounding the medical center and universities.
Undeveloped Lands	909.6	17.8	Undeveloped lands are defined as areas that are privately owned and are currently undeveloped and not used for agricultural purposes, including grazing.
Government	34.2	0.7	The government category includes land owned by local and federal entities. This includes municipal buildings and Department of Homeland Security (DHS) and United States Customs Border Protection (USCBP) facilities. These facilities are concentrated in the downtown areas, as well as along the United States (U.S.)-Mexico border.
Schools	85.8	1.7	The land use category for schools includes all publicly-owned schools and land owned by the local Independent School District (ISD).
Parks	57.1	1.1	Several public parks and recreation areas are within the study area. There are 39 existing park facilities within the study area. Public lands, parks, and recreation areas within the study area are identified on <b>Exhibit 3-3</b> .
Transportation	1,453.4	28.4	The transportation category includes roadways and right-of-way (ROW) owned by TxDOT, the City of El Paso, and El Paso County.
Vacant	2.5	0.04	The vacant category is defined by the City of El Paso as land that has been previously developed and cleared, or previously developed and no longer in use.
Canal	86.9	1.7	This category includes portions of the American and Franklin Canals.
<b>TOTAL</b>	<b>5,118.6</b>	<b>100.0</b>	

Source: City of El Paso, 2010

**3.1.1.3 Special Right-of-Way Acquisitions: Chapter 26 of the Texas Administrative Code (TAC)**

The study area includes several properties that are considered to be public lands, for which Chapter 26 of the TAC may apply. Chapter 26 of the TAC addresses the use of special right-of-way (ROW) areas, such as parkland. However, it does not constitute a mandatory prohibition against the use of these areas if findings are made that justify the approval of a program or project. It should be noted that this determination can only be made after notice and a public hearing have been held.

*Texas Administrative Code (TAC) Title 13, Part 2, Chapter 26 states:*

*A department, agency, political subdivision, county or municipality of this state may not approve any program or project that requires the use or taking of any public land designated and used prior to the arrangement of the program or project as a park, recreation area, scientific area, wildlife refuge or historical site, unless the department, agency, political subdivision, county or municipality, acting through its duly authorized governing body or office determines that:*

- 1. There is no feasible and prudent alternative to the use or taking of such land; and*
- 2. The program or project includes all reasonable planning to minimize harm to the land, as a park, recreation area, scientific area, wildlife refuge or historic site, resulting from the use or taking (Texas Parks and Wildlife Department (TPWD) 1983).*

**Table 3-2** identifies the 29 parks located within the study area (**Exhibit 3-3**). The Franklin Mountains State Park is approximately 1.57 miles outside the study area at its closest point. In addition to the parks noted in **Table 3-2**, a portion of the City of El Paso Zoo is located within the study area at 4001 East Paisano Drive in El Paso. The El Paso Zoo is a 35-acre home to approximately 240 species of animals. A portion of Chihuahueta Park is located within the footprint of the proposed project.

**Table 3-2: Parks Within Study Area**

Name	Location	Park Type/Owner
Ascarate Park	6900 Delta Dr.	County / El Paso County
Boys Club Park	811 S. Florence St.	Pocket / City of El Paso
Buena Vista Park	420 Nopal Ave.	Neighborhood / City of El Paso
Calendar Park	401 E. San Antonio Ave.	Pocket-Urban / City of El Paso
Chamizal National Memorial Park	800 S. San Marcial St.	National Park / National Parks Service (NPS)
Chihuahueta Park	400 Charles Rd.	Pocket / City of El Paso
Cleveland Square /Golden Age Park	510 N. Santa Fe St.	Pocket-Urban / City of El Paso
De Vargas Park	643 De Vargas Dr.	Neighborhood / City of El Paso
Doniphan Park	1800 W. Paisano Dr.	Pocket / City of El Paso
Dunn Park	1501 N. El Paso St.	Pocket / City of El Paso
El Barrio Park (Findley Park)	3001 Findley Ave.	Pocket / City of El Paso
Estrella-Rivera Park	3200 Rivera Ave.	Pocket / City of El Paso
Fire Fighters Memorial	316 West Overland Ave. at Leon St.	Pocket-Urban / City of El Paso
Grace Chope Park/Missouri Park	535 W. Missouri Ave.	Pocket / City of El Paso
Lincoln Park	4001 Durazno Ave.	Community / City of El Paso
Lions Plazita	910 S. Santa Fe St.	Pocket-Urban / City of El Paso
Main Library	112 W. Missouri Ave.	Pocket / City of El Paso
Marcos B. Armijo Park	710 E. Seventh Ave.	Neighborhood / City of El Paso
Mary Webb Park	3401 E. Missouri Ave.	Neighborhood / City of El Paso
Modesto Gomez Park	4600 Edna Ave.	Community / City of El Paso
Mundy Park	500 Porfirio Diaz St.	Pocket / City of El Paso
Paseo De Los Heroes Park	601 E. 8th St.	Linear / City of El Paso
Pera-Luna Park (Percy Gurrola Park)	3300 Pera Ave.	Pocket / City of El Paso
Pioneer Park	Mills Ave. / El Paso St.	Pocket-Urban / City of El Paso
Rio Grande River Trail #2	Ascarate to Rio Bosque	Trail / El Paso County
San Jacinto Park	111 Mills St.	Pocket-Urban / City of El Paso
Sunset Heights Park	631 Stewart Ct.	Pocket / City of El Paso
Tula Irrobali Park/Alamo Park	601 S. Park St.	Neighborhood / City of El Paso
Union Plaza Park	117 Anthony St.	Pocket-Urban / City of El Paso

Source: City of El Paso, 2012

Educational institutions within the study area that may contain recreational areas with public access were also considered. The 12 El Paso Independent School District (ISD) school campuses located within the study area are identified in **Table 3-3**.

**Table 3-3: Schools with Public Access Recreational Areas within Study Area**

Name	Address	Type
Alamo Elementary	500 S. Hills St.	Elementary
Aoy Elementary	901 S. Campbell St.	Elementary
Beall Elementary	320 S. Piedras St.	Elementary
Bowie High	801 S. San Marcial St.	High
Douglass Elementary	101 S. Eucalyptus St.	Elementary
Guillen Middle	900 S. Cotton St.	Middle
Hart Elementary	1110 S. Park St.	Elementary
Roosevelt Elementary	616 E. Father Rahm Ave.	Elementary
Telles Academy	320 S. Campbell	Alternative
Vilas Elementary	220 Lawton Dr.	Elementary
Zavala Elementary	51 N. Hammett St.	Elementary

Source: El Paso ISD, 2012

In addition to the public schools noted above, the City has a unique community culture which values small, Spanish-fluent and often minority-owned schools as community resources. These

facilities, though privately owned, may also act as community gathering and public recreational areas in some neighborhoods. **Table 3-4** includes a list of privately-owned schools with public access to recreational areas in the study area.

**Table 3-4: Privately-Owned Schools within Study Area**

Name	Address	Type
Academic Opportunities Academy	817 E. Missouri Ave.	Elementary/ High School
Father Yermo Early Learning Center	616 S. Virginia St.	Pre-K and Kindergarten
La Fe Preparatory School	616 E Father Rahm	Elementary/High School
Lydia Patterson Institute	517 S. Florence	High School

Source: Google, 2012

There are no other public parks, recreational lands, or historic resources located within the study area and there are no areas of unique scenic beauty or other lands of national, state, or local importance.

**3.1.1.4 Utilities within Study Area**

Utility service providers within the study area include: El Paso County Water Improvement District 1 (EPCWID1) and El Paso Water Utilities, Texas Gas Services, El Paso Electric Company, AT&T, and Sprint. A visual survey and secondary source data review was performed in January 2012 to identify the major utilities within the study area. Utilities within the study area include the following: communication towers, sewer lines/plants, water lines/plants, water wells, overhead electric lines, underground electric lines, above ground telephone lines, and natural gas pipelines. Pipelines and oil and gas wells are discussed in **Section 3.11.5** of this document.

**3.1.2 Proposed Land Uses Within the Study Area**

**City of El Paso**

Over the past decade, the City of El Paso and the surrounding region have transformed from a primarily agricultural area to an area that is increasingly commercialized, industrialized, and residential. There has been a strong focus by the El Paso City Council to drive development and redevelopment in the central part of the City to promote denser, mixed-use development and a more pedestrian and transit-oriented urban form than currently exists. The City also encourages this type of development in other areas of the City, such as Oregon Street from downtown to the UTEP campus. A future land use map within *Plan El Paso* shows potential growth and open space areas within the El Paso region. Property development within the study area is currently active with a strong focus on neighborhood-centered urban development and the revitalization of the downtown area with a focus on historic/cultural preservation. Many areas within downtown have been recently redeveloped to include affordable public housing. They have approved zoning changes that would allow for higher density and mixed-used developments in these areas (MPO 2011). The southwestern portion of the study area is generally industrial land use, and it is anticipated that any future development in this area would be similar.

**Fort Bliss**

Additionally, as a result of the 2005 Base Realignment and Closure (BRAC) process, Fort Bliss is currently in the process of expanding, including the permanent transfers of personnel from other bases. Fort Bliss is currently executing the BRAC decision that would triple the base size. By 2012, it is anticipated that 90,000 additional soldiers and family members would call Fort Bliss home (El Paso MPO 2010). Although located outside the study area, the expansion of

Fort Bliss is likely to impact land use and traffic volumes within the entire region, including the proposed project study area.

### **3.1.3 Local and Regional Development Plans**

Zoning and land use planning in the study area are regulated by the City of El Paso, and El Paso County. The City has adopted land use and transportation policies for the purpose of structuring future growth within its municipal limits and extraterritorial jurisdiction area. The land use and transportation plans adopted by the City of El Paso include: *The Plan for El Paso: City of El Paso Comprehensive (Plan El Paso)* in 2012; *The Plan for El Paso: Connecting El Paso* in 2010; the SmartCode in July 2008; and The Chihuahueta Neighborhood Plan in March 2004. A general theme among these policies is an attempt to revitalize certain areas (such as the downtown area) through increased economic development and transportation improvements.

The purpose of the SmartCode is to provide a form-based, unified land development ordinance that is an alternative to conventional zoning and subdivision codes. The SmartCode places an emphasis on scale, form, and context rather than land use and is intended to replicate the benefits of early twentieth century neighborhoods by promoting more walkable, sustainable development that strives to merge the amenities in the public realm with the activity of the private realm (City of El Paso 2008).

*The Plan for El Paso: Connecting El Paso* developed a vision for an updated transportation system for the City of El Paso including the regulatory groundwork for transit-oriented development. In the next five years, the City would complete a bus rapid transit plan and street improvements at three transit centers, including the Oregon corridor within the study area, and compact, mixed-use, transit-oriented development is expected to follow in time. The plan also proposes redevelopment at the former American Smelting and Refining Company ASARCO site, which includes over 450 acres of potentially developable land near the center of the City.

*The Plan for El Paso: City of El Paso Comprehensive (Plan El Paso)* provides the basis for El Paso's regulations and policies that guide its physical and economic development and establishes priorities for public action and direction for complimentary private development decisions (City of El Paso 2012).

The goal of the Chihuahueta Neighborhood Plan is to preserve, protect, and improve the quality of residential life for the current and future residents of the neighborhood located within the proposed study area (City of El Paso 2004).

### **3.1.4 Other Plans and Policies**

#### **Camino Real Regional Mobility Authority (CRRMA) 2009-2014 Strategic Plan**

On February 14, 2006, the El Paso City Council adopted a resolution approving the creation of the CRRMA and authorizing the submittal of a petition to the Texas Transportation Commission (TTC) requesting the creation of the CRRMA for the El Paso County area, which was approved by the TTC June 29, 2006.

The *Camino Real Regional Mobility Authority 2009-2014 Strategic Plan* establishes the basic framework toward the CRRMA's mission of developing regional solutions for improving the transportation infrastructure and economic development in El Paso County. The CRRMA works with the numerous cities in El Paso County, as well as its sister city of Ciudad Juárez, Mexico, to accelerate the construction of projects. The CRRMA works closely with TxDOT on several

on-going projects in El Paso County. The initial proposed project that was submitted with the CRRMA application to the TTC was the Loop 375 Border Highway West Extension Project.

Portions of the proposed project are included in the CRRMA Comprehensive Mobility Plan as Phase III of the Loop 375 Southern Corridor Project. Phase III consists of four distinct projects:

1. Loop 375 Border Highway West Extension Project;
2. I-10 Collector/Distributor Lanes;
3. I-10 Express Toll Lanes; and
4. Loop 375 (Americas) Express Toll Lanes.

### **Mission 2035 Metropolitan Transportation Plan (MTP)**

The El Paso Metropolitan Planning Organization (MPO) coordinates transportation planning for the region. The MPO's Metropolitan Transportation Plan (MTP) incorporates policies, goals and objectives, and projected transportation demand as well as regional forecast of land use, housing, and employment patterns/trends. The *Mission 2035* MTP was adopted by the MPO in August 2010 and was approved for conformity by the Environmental Protection Agency (EPA) in January 2011. Additionally, the *Mission 2035* MTP was updated on September 7, 2012 to correct inconsistencies between this MTP and the project specific documents of I-10 at Loop 375 (Americas Interchange) project. The *Mission 2035* MTP covers the years 2010 through 2035. The *Mission 2035* is a \$6.9 billion, 26-year multi-modal plan with roadway improvements, transit improvements, and safety improvements, as well as environmental and economic vitality improvements.

A portion of the proposed project is an important element of the *Mission 2035* MTP. The *Mission 2035* covers Park Street to US 85/Yandell Drive. Amendments to the MTP would be required to reflect the current limits of the proposed project (Racetrack Drive to US 54). The *Horizon 2040* MTP, which is currently under development, will cover the entire project limits.

As part of the *Mission 2035* MTP, TxDOT and the El Paso MPO began the process of updating the MPO's socioeconomic data for use in the MPO's MTP. The process included establishing baseline population and employment figures and developing short- and long-range forecasts.

### **City Council Resolutions**

The City Council for the City of El Paso adopted two resolutions in regard to the proposed project.

The first resolution, dated May 5, 2011, requests that:

*TxDOT work closely with the neighborhoods of Segundo Barrio and Chihuahuita through the public involvement process as required by the [National Environmental Policy Act] NEPA process to develop alternatives in or around these neighborhoods that prevent them from being disconnected from the rest of the City; to ensure that they have access to Loop 375 and the network of neighborhood and downtown streets; and to assist in the improvement of these neighborhoods by working with all stakeholders, including neighborhood residents, local, state and federal governments, businesses and railroads that adjoin the neighborhoods. TxDOT has agreed to undertake a study to determine the feasibility of relocating the [Burlington Northern Santa Fe Railway Company] BNSF El Paso Rail yard to support development of alternatives that avoid or*

*minimize impacts to the Segundo Barrio and Chihuahuita neighborhoods (City of El Paso 2011a).*

In the second resolution, dated December 19, 2011, the City requested that any proposed plans be developed with attention to polices and goals set by the City Council including:

1. *A roadway network that provides access to the downtown area and downtown streets;*
2. *Redevelopment of the ASARCO site and land uses supporting economic development;*
3. *Aesthetic and context sensitive solutions to prevent neighborhoods, such as Chihuahuita, from being disconnected from the rest of the City;*
4. *Development of transportation infrastructure that is conducive to pedestrians and cyclists;*
5. *Appropriate landscaping and sidewalks;*
6. *Preference for the Border A design;*
7. *Alignment that allows for realignment of Paisano Drive to develop the Union Depot area; and*
8. *Minimize elevation and cause the least disruption to community assets such as Cement Lake and Smelter Cemetery (City of El Paso 2011b).*

## **3.2 SOCIAL AND ECONOMIC CONDITIONS**

Section 3.2 discusses the social and economic conditions within the study area, focusing on population, demographic, employment, and income characteristics within the study area. These items are first discussed in general to characterize the study area and then in further detail to characterize specific local communities. Socioeconomic information was collected from the United States Census Bureau (USCB) *2010 Census* for census blocks (CBs) and census block groups (BGs) that comprise the study area. If *2010 Census* data was not available, *2006-2010 American Community Survey (ACS)* data was used. It should be noted that ACS data are estimates, not actual counts. The availability of census data for median household income and Limited English Proficiency (LEP) is limited to the BG level; therefore, only race/ethnicity data are presented at both the CB and BG level.

The study area includes, 1,152 CBs; of which 443 contain resident populations, 52 BGs, and 24 Census Tracts (CTs). BGs either partially or wholly contained within the study area are included in this analysis and are shown on **Exhibit 3-5**.

### **3.2.1 Social Conditions**

#### **3.2.1.1 Population and Demographic Characteristics Regional Population Growth**

In 2006, El Paso County became the sixth largest county in Texas in terms of population (El Paso MPO 2010). Population in this region has increased over the past decade. **Table 3-5** shows the percent change in population of both El Paso County and the City of El Paso from 2000 to 2010.

**Table 3-5: Population Trends**

Year	El Paso County	City of El Paso
2000	684,780	567,246
2010	800,647	649,121
<b>% Change (2000-2010)</b>	<b>17.8</b>	<b>15.2</b>

Source: USCB; 2010 Census

**Population Within the Study Area**

**Table 3-6** shows the population within the study area in comparison to El Paso County and the City of El Paso.

**Table 3-6: Population within the Study Area**

El Paso County	City of El Paso	Study Area
800,647	649,121	86,284

Source: USCB; 2010 Census

**Race/Ethnicity**

**Table 3-7** shows the demographic distribution within the study area at the BG level. The presence of racial and ethnic minorities in the study area is shown at the BG level, with many percentages in individual racial and ethnic minority categories above 50%. Racial or ethnic minority groups account for the majority of all of the 52 BGs in the study area. The distribution of race and the ethnicity among the BGs in the study area is varied. Overall, minority populations account for 91.6% of the study area. This includes persons in all non-racial categories including Black or African American, American Indian, Asian or Pacific Islander, some other race, or two or more races. A majority (88.6%) of the population is Hispanic/Latino origin (may be of any race). The BGs exhibit total minority populations that range from 69.6% to 99.5%. Percentages of minority populations in CBs containing resident populations within the study area are provided in **Appendix G**.

**Table 3-7: Percent Race and Ethnicity**

Census Geographies	Total Pop.*	% White, non-Hispanic	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Pop.
				Alaskan Native						
El Paso County	800,647	13.1	2.6	0.3	0.1	0.1	0.1	0.7	82.2	86.2
City of El Paso	649,121	14.2	2.8	0.3	1.1	0.1	0.1	0.7	80.7	85.0
<b>Study Area</b>										
CT 11.04 BG 1	2,185	23.2	2.2	0.5	1.8	0.1	0.1	1.1	70.9	76.8
CT 11.04 BG 2	3,059	30.4	1.5	0.2	5.1	0	0.1	0.9	61.8	69.6
CT 11.14 BG 4	922	17.8	3.4	0	2.1	0	0	0.8	76.0	82.2
CT 11.15 BG 1	575	22.3	3.1	0.2	2.3	0	0.2	0.9	71.1	77.7
CT 11.15 BG 3	2,220	3.6	1.1	0.1	0.7	0	0.1	0.3	94.1	96.4
CT 12.01 BG 2	2,632	7	0.6	0.3	0	0.1	0	0.1	91.8	93.0
CT 12.02 BG 1	2,154	23.5	2.4	0	3.2	0	0.1	0.5	70.2	76.5
CT 12.03 BG 1	968	3.5	0.3	0.1	0.4	0	0	0.2	95.5	96.5
CT 14.00 BG 1	640	9.1	2.7	1.6	0.2	0	1.1	0.3	85.2	90.9
CT 14.00 BG 2	1,592	10.4	3.6	0	5	0.1	0.2	1.1	79.7	89.6
CT 15.02 BG 3	1,321	26.6	10.7	0.2	2.5	0.4	0.2	1	58.4	73.4
CT 16.00 BG 1	643	9.5	0.8	0.6	1.1	0	0.3	0.8	86.9	90.5
CT 16.00 BG 2	680	8.7	0.4	0.1	0.4	0	0	0.1	90.1	91.3
CT 16.00 BG 3	1,120	9.2	2	0.1	6.7	0	0	0.5	81.5	90.8
CT 16.00 BG 4	1,505	10.6	1.7	0.3	2.3	0	0	0.4	84.8	89.4
CT 16.00 BG 5	567	13.1	0.7	0	1.1	0	0.2	0	85.0	86.9
CT 17.00 BG 1	301	13.3	2.3	0.3	0.3	0	0.3	0.7	82.7	86.7
CT 17.00 BG 2	397	6.5	0.8	0.3	0	0	0	0.3	92.2	93.5
CT 18.00 BG 1	653	1.5	0.3	0	0	0	0	0	98.2	98.5
CT 18.00 BG 2	716	2.2	0.7	0.1	0	0	0	0.1	96.8	97.8
CT 19.00 BG 1	804	1.2	0.1	0	0	0	0	0	98.6	98.8
CT 19.00 BG 2	1,005	0.6	0	0	0	0	0.2	0	99.2	99.4
CT 19.00 BG 3	1,188	1.7	0.1	0.1	0	0	0.3	0.1	97.7	98.3
CT 20.00 BG 1	656	2.3	0.2	0	0.2	0	0.2	0	97.3	97.7
CT 20.00 BG 2	865	1.4	0.7	0.1	0	0	0	0	97.8	98.6
CT 20.00 BG 3	650	2.2	0	0	0	0	0	0	97.8	97.8
CT 21.00 BG 1	1,106	12.3	3.4	1	0.3	0	0.3	0.5	82.2	87.7
CT 21.00 BG 2	930	3.4	0.8	0.1	0.2	0	0.1	0	95.4	96.6
CT 21.00 BG 3	1,014	0.8	0.1	0.1	0	0	0	0	99.0	99.2
CT 22.01 BG 1	2,057	15.1	1.2	0.1	0.8	0	0	0.7	82.0	84.9
CT 22.01 BG 2	1,315	5.4	0.8	0.1	0	0.1	0	0.5	93.2	94.6

**Table 3-7: Percent Race and Ethnicity**

Census Geographies	Total Pop.*	% White, non-Hispanic	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Pop.
				Alaskan Native						
CT 22.02 BG 4	686	5.1	0.6	0.3	0.3	0	0.1	0.6	93.0	94.9
CT 22.02 BG 5	1,097	6.2	1	0.3	0.1	0	0	0.2	92.3	93.8
CT 23.00 BG 6	877	3.9	0.7	0.1	0	0.2	0.1	0.1	94.9	96.1
CT 26.00 BG 1	800	2.2	2.1	0.1	0.1	0	0	0.2	95.1	97.8
CT 26.00 BG 2	593	2.5	0.7	0	0	0	0	0	96.8	97.5
CT 26.00 BG 3	633	0.9	2.1	0.3	0	0	0	0.2	96.5	99.1
CT 26.00 BG 4	739	3.7	1.8	0	0.1	0	0	0	94.5	96.3
CT 26.00 BG 5	572	5.1	1.2	0.3	0	0.2	0	0.3	92.8	94.9
CT 28.00 BG 1	1,734	1	0.3	0.1	0	0	0	0.1	98.4	99.0
CT 28.00 BG 2	882	1.1	0.7	0.1	0	0	0.3	0	97.7	98.9
CT 28.00 BG 3	983	1.1	0.5	0.3	0	0	0	0.3	97.8	98.9
CT 28.00 BG 4	735	0.5	0	0	0	0	0	0.1	99.3	99.5
CT 28.00 BG 5	1,398	1.5	1.1	0.1	0	0	0	0	97.3	98.5
CT 29.00 BG 1	711	0.6	0.3	0.1	0	0	0	0	99.0	99.4
CT 29.00 BG 2	841	0.8	0	0	0.1	0	0	0	99.0	99.2
CT 30.00 BG 1	913	1.5	0.2	0	0	0	0	0	98.2	98.5
CT 30.00 BG 2	830	2.4	0.4	0.5	0	0	0	0.4	96.4	97.6
CT 31.00 BG 2	1,035	1.6	0	0	0	0	0	0	98.4	98.4
CT 31.00 BG 3	972	1.9	0	0.2	0	0	0.1	0	97.8	98.1
CT 36.01 BG 1	1,762	2.7	0.2	0.1	0.1	0	0.1	0.2	96.8	97.3
CT 36.02 BG 1	2,004	4.8	0.6	0	0.2	0	0	0.3	94.0	95.2
<b>Total Study Area</b>	<b>57,237</b>	<b>8.4</b>	<b>1.3</b>	<b>0.2</b>	<b>1.0</b>	<b>0.03</b>	<b>0.1</b>	<b>0.3</b>	<b>88.6</b>	<b>91.6</b>

Source: USCB; 2010 Census

\*Population for whom race and ethnicity data are compiled.

### Languages Spoken

To determine the dominant languages spoken by the study area population, 2006-2010 ACS data was consulted for study area BGs. **Table 3-8** details the languages spoken by the total adult population for each BG (the lowest level at which this data is available).

English and Spanish are the two dominant languages spoken in the home within the study area BGs.

**Table 3-8: Languages Spoken at Home by the Adult Population**

Census Geographies	Population 5 years and over	% English only	% Spanish	% Other Indo-European	% Asian and Pacific Islander	% Other
El Paso County	706,977	25.2	72.8	1.0	0.8	0.3
City of El Paso	577,393	27.0	70.7	1.0	0.9	0.3
<b>Study Area</b>						
CT 11.04 BG 1	1,771	28.7	69.6	1.7	0.0	0.0
CT 11.04 BG 2	2,448	42.9	42.7	1.9	6.8	5.6
CT 11.14 BG 4	883	15.9	80.6	1.7	1.8	0.0
CT 11.15 BG 1	874	17.3	75.2	0.0	0.0	7.6
CT 11.15 BG 3	1,621	12.9	87.1	0.0	0.0	0.0
CT 12.01 BG 2	2,541	15.8	83.8	0.4	0.0	0.0
CT 12.02 BG 1	1,987	31.6	63.7	0.5	2.2	2.1
CT 12.03 BG 1	810	19.9	80.1	0.0	0.0	0.0
CT 14.00 BG 1	574	16.0	81.7	2.3	0.0	0.0
CT 14.00 BG 2	1,527	14.2	75.0	5.8	0.4	4.6
CT 15.02 BG 3	1,071	35.9	52.7	7.0	4.4	0.0
CT 16.00 BG 1	282	39.4	60.6	0.0	0.0	0.0
CT 16.00 BG 2	461	12.4	87.6	0.0	0.0	0.0
CT 16.00 BG 3	1,107	11.1	72.2	6.3	10.4	0.0
CT 16.00 BG 4	1,637	22.0	76.7	0.0	1.3	0.0
CT 16.00 BG 5	765	48.9	49.4	1.7	0.0	0.0
CT 17.00 BG 1	1,427	17.4	81.9	0.0	0.0	0.6
CT 17.00 BG 2	211	2.4	97.6	0.0	0.0	0.0
CT 18.00 BG 1	385	24.9	75.1	0.0	0.0	0.0
CT 18.00 BG 2	641	8.4	91.6	0.0	0.0	0.0
CT 19.00 BG 1	870	7.6	92.4	0.0	0.0	0.0
CT 19.00 BG 2	710	9.7	90.3	0.0	0.0	0.0
CT 19.00 BG 3	706	0.0	100.0	0.0	0.0	0.0
CT 20.00 BG 1	518	5.2	94.8	0.0	0.0	0.0
CT 20.00 BG 2	734	2.7	97.3	0.0	0.0	0.0
CT 20.00 BG 3	631	0.0	100.0	0.0	0.0	0.0
CT 21.00 BG 1	616	10.2	89.8	0.0	0.0	0.0
CT 21.00 BG 2	703	6.3	92.0	1.7	0.0	0.0
CT 21.00 BG 3	1,353	1.0	99.0	0.0	0.0	0.0
CT 22.01 BG 1	1,980	19.2	77.0	2.9	1.0	0.0
CT 22.01 BG 2	1,190	13.6	86.4	0.0	0.0	0.0
CT 22.02 BG 4	564	1.8	98.2	0.0	0.0	0.0
CT 22.02 BG 5	1,324	2.6	96.5	0.0	0.0	0.8
CT 23.00 BG 6	806	1.9	94.0	1.2	2.9	0.0
CT 26.00 BG 1	738	13.0	86.6	0.4	0.0	0.0
CT 26.00 BG 2	275	4.7	95.3	0.0	0.0	0.0
CT 26.00 BG 3	794	0.9	99.1	0.0	0.0	0.0
CT 26.00 BG 4	594	4.0	93.9	0.0	2.0	0.0
CT 26.00 BG 5	289	18.3	81.7	0.0	0.0	0.0
CT 28.00 BG 1	1,417	7.8	92.2	0.0	0.0	0.0

**Table 3-8: Languages Spoken at Home by the Adult Population**

Census Geographies	Population 5 years and over	% English only	% Spanish	% Other Indo-European	% Asian and Pacific Islander	% Other
CT 28.00 BG 2	522	5.2	94.8	0.0	0.0	0.0
CT 28.00 BG 3	877	0.0	100.0	0.0	0.0	0.0
CT 28.00 BG 4	683	2.9	97.1	0.0	0.0	0.0
CT 28.00 BG 5	1,164	7.6	92.4	0.0	0.0	0.0
CT 29.00 BG 1	639	28.6	71.4	0.0	0.0	0.0
CT 29.00 BG 2	629	4.5	95.5	0.0	0.0	0.0
CT 30.00 BG 1	962	0.9	99.1	0.0	0.0	0.0
CT 30.00 BG 2	639	11.6	88.4	0.0	0.0	0.0
CT 31.00 BG 2	984	5.5	94.5	0.0	0.0	0.0
CT 31.00 BG 3	972	1.7	98.3	0.0	0.0	0.0
CT 36.01 BG 1	1,538	9.8	90.2	0.0	0.0	0.0
CT 36.02 CT 1	1,977	7.5	92.5	0.0	0.0	0.0
<b>Total Study Area</b>	<b>51,421</b>	<b>14.4</b>	<b>83.2</b>	<b>0.9</b>	<b>0.9</b>	<b>0.7</b>

Source: USCB; 2006-2010 ACS

**Median Household Income and Poverty Status**

Income data from 2006-2010 ACS provides data on the economic conditions of communities in the study area. **Table 3-9** exhibits the income data for the BGs within the study area. The most current available federal poverty measure is the 2012 United States Department of Health and Human Services (DHHS) poverty guideline, which establishes the poverty level for a family of four at \$23,050. Median household income for 40 of the 52 census BGs in the study area are below the 2012 poverty threshold.

**Table 3-9: Median Household Income**

Census Geographies	Population	Median Household Income (\$)*	Below DHHS Poverty Level
CT 11.04 BG 1	904	22,500	Yes
CT 11.04 BG 2	1,109	46,914	No
CT 11.14 BG 4	360	14,202	Yes
CT 11.15 BG 1	331	25,729	No
CT 11.15 BG 3	572	18,667	Yes
CT 12.01 BG 2	919	18,609	Yes
CT 12.02 BG 1	836	47,598	No
CT 12.03 BG 1	255	36,250	No
CT 14.00 BG 1	158	19,537	Yes
CT 14.00 BG 2	827	20,159	Yes
CT 15.02 BG 3	471	22,596	Yes
CT 16.00 BG 1	249	9,116	Yes
CT 16.00 BG 2	202	14,917	Yes
CT 16.00 BG 3	505	12,806	Yes
CT 16.00 BG 4	780	19,511	Yes
CT 16.00 BG 5	264	45,000	No
CT 17.00 BG 1	148	12,500	Yes
CT 17.00 BG 2	145	12,039	Yes
CT 18.00 BG 1	167	12,674	Yes
CT 18.00 BG 2	270	15,531	Yes
CT 19.00 BG 1	397	8,413	Yes
CT 19.00 BG 2	271	14,016	Yes
CT 19.00 BG 3	334	10,451	Yes
CT 20.00 BG 1	199	11,707	Yes

**Table 3-9: Median Household Income**

Census Geographies	Population	Median Household Income (\$)*	Below DHHS Poverty Level
CT 20.00 BG 2	214	11,591	Yes
CT 20.00 BG 3	194	16,935	Yes
CT 21.00 BG 1	300	15,357	Yes
CT 21.00 BG 2	426	9,553	Yes
CT 21.00 BG 3	367	11,297	Yes
CT 22.01 BG 1	770	30,795	No
CT 22.01 BG 2	442	14,911	Yes
CT 22.02 BG 4	220	17,021	Yes
CT 22.02 BG 5	484	15,875	Yes
CT 23.00 BG 6	338	21,500	Yes
CT 26.00 BG 1	230	25,208	No
CT 26.00 BG 2	112	17,115	Yes
CT 26.00 BG 3	302	12,248	Yes
CT 26.00 BG 4	220	23,667	No
CT 26.00 BG 5	132	28,214	No
CT 28.00 BG 1	519	10,096	Yes
CT 28.00 BG 2	245	13,281	Yes
CT 28.00 BG 3	303	13,909	Yes
CT 28.00 BG 4	215	18,558	Yes
CT 28.00 BG 5	450	15,109	Yes
CT 29.00 BG 1	211	18,984	Yes
CT 29.00 BG 2	254	16,525	Yes
CT 30.00 BG 1	337	23,424	No
CT 30.00 BG 2	182	22,885	Yes
CT 31.00 BG 2	348	15,469	Yes
CT 31.00 BG 3	311	29,821	No
CT 36.01 BG 1	572	28,276	No
CT 36.02 BG 1	728	17,364	Yes
<b>Total</b>	<b>20,099</b>	<b>n/a</b>	<b>n/a</b>

Source: USCB; 2006-2010 ACS

\*Income data is provided in 2010 inflation adjusted dollars.

### 3.2.1.2 Environmental Justice (EJ) Profile Minority and Low-Income Populations

Executive Order (EO) 12898 *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations* requires each federal agency to “make achieving EJ part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations”. The Federal Highway Administration (FHWA) has identified three fundamental principles of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations, and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

Disproportionately high and adverse human health or environmental effects are defined by FHWA as adverse effects that:

- are predominately borne by a minority population and/or a low-income population; or
- will be suffered by the minority population and/or low-income population and are appreciably more severe or greater in magnitude than the adverse effects that will be suffered by the nonminority population and/or non-low-income populations.

**Minority** means a person who is:

- Black (having origins from any of the black racial groups of Africa);
- Hispanic/Latino (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- Asian-American (having origins from any place of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); or
- American Indian and Alaskan Native (having origins from any of the original people of North America and now maintains cultural identification through tribal affiliation or community recognition)

**Minority Population** means any readily identifiable group of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed program, policy, or activity. Minority populations were identified based on the federal *Council on Environmental Quality's* (CEQ's) guidance document *Environmental Justice: Guidance Under the National Environmental Policy Act* (CEQ 1997). Based on this guidance:

"Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50% or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis..."

**Low-Income** means a household income at or below the DHHS guidelines (i.e. \$23,050 in 2012).

**Low-Income Population** means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy or activity.

Unlike the CEQ guidance (1997) on minority population, no EJ order or guidance document contains a quantitative definition of how many low-income individuals constitute low-income populations. In the absence of guidance for the analysis, one of the measures used to identify low-income populations was the median household income for the inclusive CT and/or BGs. As described above, the FHWA defines low-income as "a person whose household income level is at or below the Department of Health and Human Services poverty guidelines." In 2012 (most recent available), DHHS poverty guidelines for a family of four persons is \$23,050.

The primary source of demographic data was the *2010 Census* and the *2006-2010 ACS* because it is the most comprehensive, complete and detailed data source currently available. All of the study area BGs show minority populations above 50% (refer to **Table 3-7**).

Additionally, 40 of these BGs have a household median income below that of the DHHS 2012 poverty guidelines (refer to **Table 3-9**). It should be noted that some persons fall into more than one of these categories. Percentages of minority populations in CBs containing resident populations within the study area are provided in **Appendix G**. All of the 443 CBs containing resident populations in the study area reflect racial or ethnic minority percentages greater than 50.0%.

**3.2.1.3 Limited English Proficiency Considerations**

EO 13166 “Improving Access to Services for Persons with Limited English Proficiency” requires agencies to examine the services they provide, identify any need for services to those with Limited English Proficiency (LEP), and develop and implement a system to provide those services so that LEP persons can have meaningful access to them.

An analysis was conducted to identify residents in the study area that may have LEP. The analysis was conducted at the BG level, the smallest level geographic area for which LEP data are provided by the USCB. The results are presented in **Table 3-10**.

LEP persons were identified within the BGs throughout the study area. According to 2006-2010 ACS data, of the residents who speak English “less than well,” “not well,” or “not at all” located in the study area, the predominant language spoken is Spanish. Field reconnaissance identified building signage, newspapers and advertisements printed in Spanish within the study area.

**Table 3-10: LEP Population**

Census Geographies	Total Population 5 years and Older	Total Number Who Speak English “Less than Well,” “Not Well,” or “Not at All”	% LEP
El Paso County	706,977	122,312	17.3
City of El Paso	577,393	92,055	15.94
<b>Study Area</b>			
CT 11.04 BG 1	1,771	121	6.8
CT 11.04 BG 2	2,448	238	9.7
CT 11.14 BG 4	883	160	18.1
CT 11.15 BG 1	874	121	13.8
CT 11.15 BG 3	1,621	488	30.1
CT 12.01 BG 2	2,541	701	27.6
CT 12.02 BG 1	1,987	209	10.5
CT 12.03 BG 1	810	166	20.5
CT 14.00 BG 1	574	75	13.1
CT 14.00 BG 2	1,527	325	21.3
CT 15.02 BG 3	1,071	137	12.8
CT 16.00 BG 1	282	81	28.7
CT 16.00 BG 2	461	78	16.9
CT 16.00 BG 3	1,107	206	18.6
CT 16.00 BG 4	1,637	310	18.9
CT 16.00 BG 5	765	63	8.2
CT 17.00 BG 1	1,427	497	34.8
CT 17.00 BG 2	211	115	54.5
CT 18.00 BG 1	385	149	38.7
CT 18.00 BG 2	641	305	47.6
CT 19.00 BG 1	870	367	42.2
CT 19.00 BG 2	710	356	50.1

**Table 3-10: LEP Population**

Census Geographies	Total Population 5 years and Older	Total Number Who Speak English "Less than Well," "Not Well," or "Not at All"	% LEP
CT 19.00 BG 3	706	415	58.8
CT 20.00 BG 1	518	204	39.4
CT 20.00 BG 2	734	445	60.6
CT 20.00 BG 3	631	324	51.3
CT 21.00 BG 1	616	213	34.6
CT 21.00 BG 2	703	439	62.4
CT 21.00 BG 3	1,353	365	27.0
CT 22.01 BG 1	1,980	456	23.0
CT 22.01 BG 2	1,190	245	20.6
CT 22.02 BG 4	564	263	46.6
CT 22.02 BG 5	1,324	577	43.6
CT 23.00 BG 6	806	311	38.6
CT 26.00 BG 1	738	179	24.3
CT 26.00 BG 2	275	105	38.2
CT 26.00 BG 3	794	311	39.2
CT 26.00 BG 4	594	140	23.6
CT 26.00 BG 5	289	103	35.6
CT 28.00 BG 1	1,417	534	37.7
CT 28.00 BG 2	522	234	44.8
CT 28.00 BG 3	877	417	47.5
CT 28.00 BG 4	683	267	39.1
CT 28.00 BG 5	1,164	367	31.5
CT 29.00 BG 1	639	231	36.2
CT 29.00 BG 2	629	213	33.9
CT 30.00 BG 1	962	436	45.3
CT 30.00 BG 2	639	163	25.5
CT 31.00 BG 2	984	328	33.3
CT 31.00 BG 3	972	191	19.7
CT 36.01 BG 1	1,538	246	16.0
CT 36.02 BG 1	1,977	786	39.8
<b>Study Area Total</b>	<b>51,421</b>	<b>14,776</b>	<b>28.7</b>

Source: USCB; 2006-2010 ACS

### 3.2.2 Major Employers within the City of El Paso

A review of major employers reveals to what sector the largest firms in the El Paso region are attributed as well as the identification of major employment centers. **Table 3-11** lists the 10 largest private employers (excluding retail), their specializations, and associated counts of employees in El Paso County in 2011 according to the Texas A&M Real Estate Research Center using data generated by the TWC.

**Table 3-11: Top Ten Private Employers in El Paso County\***

Employer	Category	Employees
T&T Staff Management LP	Employment Services	5,587
Tenet Healthcare Ltd.	Health Care	3,053
EchoStar Technical	Support Center	1,830
GC Services Inbound	Customer Service Center	1,814
Automatic Data Processing Inc.	Business Solutions	1,100
Del Sol Medical Center	Health Care	1,100
Helen of Troy Corporation Inbound	Customer Service Center	950
Visiting Nurse Association of El Paso	Health Care	900
AO Smith Corp.	Electric Equipment	860
Las Palmas Medical	Center Health Care	850

Source: Texas A&M Real Estate Research Center using data generated by the TWC. Market Report 2011; El Paso

\*Excludes retail

Although not all employment associated with each employer is located at the physical location or address of the employer (such as for employment services or technical support), the address for one of El Paso County’s major private employers (T&T Staff Management LP, 511 Executive Center Boulevard) is located within the study area.

Some of El Paso County’s major public employers include Fort Bliss, the El Paso ISD, University Medical Center, the UTEP, the City of El Paso, the Ysleta ISD, Texas Tech University Health Science Center, and the Socorro ISD, among others. The largest employer in El Paso County is by far Fort Bliss with 37,248 employees. Fort Bliss is not located within the study area. Many of El Paso County’s major public employers have facilities or are headquartered in the study area including El Paso ISD, UTEP, and the City of El Paso.

### 3.2.3 Community Profiles

#### 3.2.3.1 Community Descriptions

Transportation investments have major influences on society and have the potential to impose economic and social consequences on communities in varying degrees. The following community profiles document the social and economic context of communities located within the study area and profile each of the community’s conditions and goals based on *2010 Census and 2006-2010 ACS* BG and CT demographic and economic data (where available). Refer to **Exhibit 3-6** for community locations. It should be noted that, in some cases, the CT or BG for the community is slightly larger than the actual community.

#### Downtown El Paso

The City of El Paso consists of several sub communities; downtown El Paso is one of these communities. For the purpose of this discussion, the downtown area stretches from I-10, north of the historic downtown area, to the Burlington Northern Santa Fe Railway Company (BNSF) rail yard and the international border to the south. The western boundary is defined by the Union Plaza area, and US 54 forms the eastern boundary. The downtown area is expanded from the study area in the El Paso Downtown 2015 Plan which focuses only on one portion of the study area for redevelopment and revitalization purposes. Located within the downtown area, there are several smaller recognized communities, such as Barrio Segundo. Although not discussed specifically, they are included in this analysis of the downtown area.

Two rail yards are located in the downtown area. However, a majority of the development in the downtown region is mixed-use, including residential and commercial. The downtown area is generally located within 20 BGs. According to the *2010 Census*, the population of the

downtown region is approximately 17,496 persons. The median household income in the downtown area ranges from \$15,091 to \$18,984. Income levels in the downtown area are generally lower than the City of El Paso which has an average median income of \$37,428. The downtown community has an average poverty rate of approximately 61.0%, which is much higher than that of the City as a whole (24.1%).

Demographically, the downtown area, like the City of El Paso as a whole, has a high percentage of minorities (97.3%). The largest minority group in the downtown area is Hispanic/Latino (96.3%) which is higher than that of the City of El Paso (82.2%). Approximately 10.9% of the population in the downtown area is of retirement age, which is only slightly higher than that of the City of El Paso as a whole (8.0%). When comparing percentages for residents under the age of 19, the downtown area shows a slightly higher percentage than the City of El Paso as a whole, 33.9% and 32.4%, respectively. The City of El Paso as a whole has a slightly lower average of persons between the age of 20 and 69 (52.0%) than does the downtown area (55.2%). In the *2006-2010 ACS*, the downtown area contained 6,536 housing units, of which 14.8% were owner occupied and 78.5% were renter occupied, indicating a very high rate of rental options within the community. *2010 Census* data also indicate that approximately 457 housing units in the downtown area are vacant.

### **Chihuahuita**

Located just south of downtown is the small community of Chihuahuita. It is one of the first residential enclaves to be settled in the El Paso del Norte region and is considered one of the oldest communities in El Paso, Texas. Chihuahuita was designated a historic district within the City of El Paso in 1991. The community has developed the Chihuahuita Neighborhood Plan in order to preserve, protect, and improve upon the uniqueness of their community while continuing to support existing and future economic opportunities in the area. Chihuahuita is generally located between the United States (U.S.)-Mexico border and the BNSF rail yard, with Santa Fe Street as its easternmost boundary. Chihuahuita is located within CT 18.00, BG 2 and contains a total population of approximately 716, according to *2010 Census*. Land Use in this area is mixed-use; mostly residential and commercial. Median household income is approximately \$15,531. This is slightly lower than that of the City of El Paso as a whole and the downtown area. Chihuahuita has an approximately 65.3% poverty rate, which is also much higher than that of the City of El Paso as a whole and the downtown area.

Demographically, Chihuahuita, like the City of El Paso, has a high percentage of minorities (97.8%). The largest minority group in the Chihuahuita community is Hispanic/Latino (96.8%), which is higher than that of the City of El Paso (82.2%). Approximately 15.0% of the population in the Chihuahuita community is of retirement age, which is higher than that of the City of El Paso (8.0%). When comparing its percentage of residents under the age of 19, the Chihuahuita community shows a slightly lower percentage than the City of El Paso as a whole, at 27.2% and 32.4% respectively. The City of El Paso as a whole has a slightly lower average of persons between the age of 20 and 69 (52.0%) than does the Chihuahuita community (57.8%). According to the *2006-2010 ACS*, the Chihuahuita community contained 253 housing units, of which 12.3% were owner occupied and 86.9% were renter occupied, indicating a very high rate of rental options within the community. *2010 Census* data also indicate that approximately 17% of housing units in the Chihuahuita community are vacant.

### **Buena Vista and La Calavera Canyon**

The communities of Buena Vista and La Calavera Canyon are both small communities that were created for the workers of ASARCO. Boundaries for the community of Buena Vista are generally where I-10 and West Paisano Drive meet to the northwest, Doniphan Drive to the

southwest, I-10 to the northeast and Courchesne Road to the southeast. La Calavera Canyon is located along San Marcos Drive just northeast of Paisano Drive and east of Executive Center. Boundaries for the community of La Calavera Canyon are generally San Marcos Drive itself, which is at the valley of the canyon. Both of these communities are located within CT 14.00, BG 1 and contain a total population of approximately 640, according to *2010 Census*. Land use in these areas is almost exclusively residential, with a few restaurants and a few other small commercial establishments. Median household income is approximately \$19,537. This is lower than that of the City of El Paso, and the downtown area previously discussed. These communities have an approximately 30.3% poverty rate, which is also much higher than that of the City of El Paso and the downtown area.

Demographically, Buena Vista and La Calavera Canyon, like the City of El Paso, have a high percentage of minorities (90.9%). The largest minority group in both communities is Hispanic/Latino (85.2%) which is higher than that of the City of El Paso (82.2%). Approximately 7.1% of the population in the Buena Vista area is of retirement age, this is lower than that of the City of El Paso (8.0%). When comparing its percentage of residents under the age of 19, these communities show a lower percentage than the City of El Paso as a whole, at 22.3% and 32.4%, respectively. The City of El Paso as a whole has a slightly lower average of persons between the age of 20 and 69 (52.0%) than does the Buena Vista or La Calavera Canyon (70.5%). According to the *2010 Census*, these communities contained 208 housing units, of which 53.9% were owner occupied and 41.6% were renter occupied, indicating a slightly lower rate of rental options within the community. *2010 Census* data also indicate that approximately 30 housing units within these communities are vacant.

#### **Old Fort Bliss/Hart's Mill**

The community of Old Fort Bliss/Hart's Mill is a small community located along West Paisano Drive and is located within the Old Fort Bliss/Hart's Mill Historic district. Boundaries for the community of Old Fort Bliss/Hart's Mill are generally the Union Pacific Railroad (UPRR) tracks to the northeast, the Franklin Canal to the southwest, where West Paisano Drive meets Yandell Drive to the southeast and approximately 825 feet (ft) north of Ruhlen Court to the northwest. Old Fort Bliss/Hart's Mill is located within CT 14.00, BG 1, and CT 18.00 BG 2. The total population for this area is approximately 1,356 according to the *2010 Census*. Land use in this area includes some industrial, commercial and residential. Old Fort Bliss/Hart's Mill also includes the Rescue Mission of El Paso, a community shelter that offers food, clothing, counseling, education and vocational training, and job placement to those in need. Median household income is approximately \$17,534. This is lower than that of the City of El Paso as a whole, and the downtown area previously discussed. Old Fort Bliss/Hart's Mill has an approximately 42.5% poverty rate, which is higher than that of the City of El Paso, but lower than the downtown area.

Demographically, Old Fort Bliss/Hart's Mill, like the City of El Paso, has a high percentage of minorities (94.5%). The largest minority group in the community is Hispanic/Latino (91.3%) which is higher than that of the City of El Paso (82.2%). Approximately 26.9% of the population in the Old Fort Bliss/Hart's Mill area is of retirement age, this is higher than that of the City of El Paso (8.0%). When comparing its percentage of residents under the age of 19, the Old Fort Bliss/Hart's Mill community shows a lower percentage (24.2%) than the City of El Paso (32.4%). The City of El Paso has a slightly lower average of persons between the age of 20 and 69 (52.0%) than does the Old Fort Bliss/Hart's Mill community (65.7%). According to the *2010 Census*, the Old Fort Bliss/Hart's Mill community contained 461 housing units, of which 27.5% were owner occupied and 62.3% were renter occupied, indicating a slightly lower rate of rental

options within the community. 2010 Census data also indicate that approximately 47 housing units in the Old Fort Bliss/Hart's Mill community are vacant.

**3.2.3.2 Community Cohesion**

Using FHWA definitions as guidelines, community cohesion is defined as patterns of behavior that individuals or groups of individuals hold in common. Residential subdivisions may develop a sense of community cohesion through social interaction or participation in neighborhood organizations. For instance, if a local church or school provides a location where residents of the neighborhood or community can assemble and associate with one another or a neighborhood association or neighborhood watch program is in place to serve the community and satisfy the residents' economic and social needs, then some sense of cohesion likely exists. Cohesion may also be based on common characteristics of interest shared by the members of the community, such a religion, ethnicity, or income level (FHWA 1996).

Schools, places of worship and community facilities are located within the study area. These facilities include those listed in **Table 3-12** and identified on **Exhibit 3-3**.

**Table 3-12: Places of Worship, Community Facilities, Schools and Day Care Facilities**

<b>Places of Worship</b>	
1st Apostolic Church	4100 Pera Ave.
Abundant Living Faith Center	2019 E. Missouri Ave.
Bethel Church of God In Christ	4332 E. Missouri Ave.
Catholic Daughters of America	801 Magoffin Ave.
Congregacion Amor De Dios	1620 Myrtle Ave.
Congregacion Paraiso Spanish	1211 Texas Ave.
El Paso Life Recovery Center	3103 Frutas Ave.
Emmanuel United Methodist Church	1201 Magoffin Ave.
Guardian Angel Church	3021 Frutas Ave.
Holy Family Church	900 W. Missouri Ave.
Iglesia Apostolica De La Fe	2100 Myrtle Ave.
Iglesia Bautista Del Centro	816 S. Florence St.
Iglesia del Nazareno Church	3430 Pera Ave.
Iglesia Luterana Cristo Rey	1010 E. Yandell Dr.
Immaculate Conception Church	118 N. Campbell St.
Jesus and Mary Roman Catholic Chapel	1401 W. Yandell Dr.
La Iglesia Del Senor	694 W. Paisano Dr.
Metropolitan Community Church of El Paso	216 S. Ochoa St.
Ministerio En Victoria	1414 E. Paisano Dr.
Monastery of Perpetual Adoration-Downtown	145 N. Cotton St.
Rivera St. Iglesia De Cristo	3331 Rivera Avenue
Sacred Heart Church	602 S. Oregon St.
Santa Teresita Catholic Church	3401 Zapal Ave.
Santa Teresita Catholic Church	3401 Zapal Ave.
Second Baptist Church	401 S. Virginia St.
Shiloh Baptist Church	3201 Frutas Ave.
Spanish Assemblies of God Iglesia Cristiana Pentecostes: Templo Calvario	605 S. Kansas St.
St. Clement's Church	810 N. Campbell St.
St. Francis Xavier Church	519 S. Latta St.
St. Ignatius Catholic Church	408 S. Park St.
Trinity-First United Methodist	801 N. Mesa St.
Universal Church of Kingdom of God	321 N. Stanton St.
Visitors Chapel African Methodist Episcopal Church	518 N. Estrella St.
<b>Community Facilities</b>	
Armijo Branch Library	620 E. 7th Ave.
Rescue Mission of El Paso	1949 W. Paisano Dr.
Main Library (Downtown)	501 N. Oregon St.

**Table 3-12: Places of Worship, Community Facilities, Schools and Day Care Facilities**

Leona Ford Washington Community Center	3400 Missouri St.
Armijo Community Center	700 E. 7th Ave.
Chihuahuita Community Center	417 Charles Rd.
Houchen Community Center Annex	605 S. Hills St.
<b>Schools</b>	
Bowie High	801 S. San Marcial St.
Douglass Elementary	101 S. Eucalyptus St.
Zavala Elementary	51 N. Hammett St.
Alamo Elementary	500 S. Hill St.
Aoy Elementary	901 S. Campbell St.
Guillen Middle	900 S. Cotton St.
Hart Elementary	1110 S. Park St.
Roosevelt Elementary	616 E. Father Rahm Ave.
San Jacinto Adult Learning Ctr	1216 Olive Ave.
Telles Academy	320 S Campbell St.
Vilas Elementary	220 Lawton Dr.
Beall Elementary	320 S. Piedras St.
Lydia Patterson Institute	517 S. Florence St.
La Fe Preparatory School	616 E. Father Rahm St.
Father Yermo Early Learning Center	616 S. Virginia St.
<b>Day Care Facilities</b>	
Adelante Child Development, Inc.	315 Schuster Ave.
Children's Kingdom Learning Center	2111 Wyoming St.
Childs Developmental World	821 E. 7th St.
Jack & Jill Day Care	1104 Wyoming St.
Latch Key Centers at Aoy Elementary School	901 S. Campbell St.
Latch Key Center at Hart School	1110 S. Park St.
Project Vida Early Childhood Center	3616 Pera Ave.
Project Vida Latch Key After School	3718 Alameda St.
Rayito de Sol	2120 Texas Ave.
Southside Head Start	609 Tays St.
St. Clements Church Preschool	810 N. Campbell St.
Trinity-First Weekday Ministries	801 N. Mesa St.
Westside Head Start	901 W. Main St.
YWCA Carlisle Child Development Center	2114 Magoffin Ave.

Source: City of El Paso and Texas Department of Family and Protective Services 2012

### 3.2.3.3 Community Linkages and Interaction

Although each of the individual communities within the study area form their own unique cohesive units, a number of social, economic, educational, institutional, and cultural linkages exist among these communities. In most cases, these linkages are based on the location of community facilities and the areas they serve in relation to other surrounding communities.

#### Education

The study area is served by one school district, El Paso ISD. A total of 12 public schools, as well as three private schools are located within the study area. Activities associated with the El Paso ISD schools such as athletics, school clubs, fine arts, and other school-sponsored organizations and activities involve students from all over the El Paso region and often require students to travel to various locations within and outside the study area from many University Interscholastic League activities.

In addition, educational institutions including, UTEP, the University of Texas Tech University Medical School, and El Paso Community College are located just outside the study area. Many students commute from various locations within and outside the study area to attend these

institutions. In order to access these campuses, travelers may often pass through the study area.

### **Commerce and Employment**

Linkages between the study area and surrounding areas are apparent with regard to shopping opportunities for study area residents. Although there are several small local grocery options within the study area communities, in order for residents of the study area to shop at the larger discount grocery stores, such as Wal-Mart Super Center or Albertsons, they must travel outside the study area to the surrounding communities. Additionally, the study area does not contain a large general merchandise store within its boundaries. For this type of shopping, residents from the study area would need to travel outside the study area.

### **Healthcare and Public Facilities**

The closest full service hospital to the study area is Providence Memorial Hospital, located on North Oregon Street just outside the study area. In addition, Las Palmas Medical Center is located adjacent to the study area. Smaller public and private clinics serve the basic healthcare needs of the study area residents. The El Paso County Health Department clinics are the only publicly-funded facilities devoted to healthcare in the study area which nearby communities can use for services. Services provided by the El Paso County Health Department include, but are not limited to, indigent healthcare services, as well as immunizations and services to children with special health care needs.

Other public facilities in the study area include but are not limited to: El Paso Main Library; El Paso County Tax Assessor Office; El Paso County Rural Transportation Office; El Paso County Courthouse; and City of El Paso Police Department. These facilities serve both the study area and the surrounding areas and contribute to interaction between downtown and other portions of the El Paso region. However, it should be noted that many of these public service offices have multiple locations (i.e. public libraries, public healthcare clinics, courthouses, etc.) outside the study area, so residents living outside the study area are not strictly bound to traveling to the study area to benefit from these resources.

## **3.3 EXISTING NOISE ENVIRONMENT**

TxDOT's 2011 *Guidelines for Analysis and Abatement of Roadway Traffic Noise* was used for the analysis of traffic noise for the Loop 375 Border Highway West Extension Project. This guidance describes TxDOT's implementation of requirements of FHWA Noise Standard at 23 Code of Federal Regulations (CFR) Part 772. This guidance was developed by TxDOT and reviewed and concurred with by FHWA.

**Section 3.3** provides a brief overview of the noise concept, describes the existing land uses that are most sensitive to noise (noise sensitive areas), and presents the existing noise levels within the study area. **Section 3.3** also identifies the major sources contributing to existing noise and the methodology for determining existing noise levels within the study area.

Sound is defined as mechanical energy produced by the movement of compressed air waves radiating spherically from a source that can be sensed by the human ear. Although sounds are perceived differently from one person to another, they can be precisely measured. The strength of sound is commonly measured on a relative scale of sound pressure levels expressed in decibels or "dB." Noise is commonly defined as "unwanted" sound. Loudness is a term used to describe the manner in which people perceive the intensity of sound, and is considered to be subjective as it varies from person to person. In general, sound becomes unwanted when it

either interferes with normal activities such as sleeping or conversation or when it disrupts or diminishes a person's quality of life.

Sound is composed of a wide range of frequencies. Because humans are not capable of hearing all frequencies, an adjustment is made to high and low frequencies to approximate the average human response to sounds. These average levels are known as "A-weighted noise levels," and are expressed as "dB(A)." As listed in **Table 3-13**, the range of typical outdoor A-weighted noise levels in decibels dB(A) range from approximately 30 dB(A), which corresponds to wilderness noise levels, to approximately 110 dB(A) for an air horn. Indoor noise levels range from 20 dB(A) at a recording studio and 110 dB(A) for a rock/blues band. The threshold of hearing is reported to be 10 db(A).

**Table 3-13: Common Sound/Noise Levels**

Outdoor	dB(A)	Indoor
Air horn	110	Rock/blues band
Jet flyover at 1,000 feet (ft)		Baby crying
Leaf blower	100	Subway
Gas weed eater		Fire alarms
Riding lawn mower	90	Blender
Gas edger		Crowded restaurant
Police whistle	80	Disposal at 3 ft
Air conditioner compressor		Shouting at 3 ft
	70	
		Normal conversation at 3-5 ft
Normal conversation at 3 ft	60	Clothes dryer at 3 ft
Babbling brook		Large business office
Quiet urban (daytime)	50	Refrigerator
Quiet urban (nighttime)	40	Quiet office, Library
Wilderness	30	
	20	Recording studio
	10	Threshold of hearing

Source: TxDOT's Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011)

Existing sources of noise in the study area include area roadways and railroads as well as residential, commercial and industrial developments. Presently the predominant noise sources in the study area are vehicular traffic along the existing roadways (I-10, US 85 (Paisano Drive), US 62, and Loop 375) and railroads.

Sound from highway traffic is generated primarily from vehicle tires, engines, and exhaust. Because traffic sound levels are never constant due to the changing number, type, and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "L<sub>eq</sub>."

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise;
- Determination of existing noise levels;
- Prediction of future traffic noise levels;
- Identification of possible traffic noise impacts;
- Consideration and evaluation of measures to reduce traffic noise impacts.

TxDOT has established the following noise abatement criteria (NAC) for various land use activity areas (**Table 3-14**) that are used as one of two means to determine when a traffic noise impact would occur.

**Table 3-14: TxDOT Noise Abatement Criteria**

Activity Category	FHWA dB(A) L <sub>eq</sub>	TxDOT dB(A) L <sub>eq</sub>	Description of Land Use Activity Areas
<b>A</b>	57 (exterior)	56 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
<b>B</b>	67 (exterior)	66 (exterior)	Residential.
<b>C</b>	67 (exterior)	66 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
<b>D</b>	52 (interior)	51 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
<b>E</b>	72 (exterior)	71 (exterior)	Hotels, motels, offices, restaurants/bars and other developed lands, properties, or activities not included in A–D or F.
<b>F</b>	-----	-----	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
<b>G</b>	-----	-----	Undeveloped lands that are not permitted.

Source: TxDOT's Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011)

A traffic noise impact occurs when either the absolute or relative criterion is met:

*Absolute criterion:* the predicted traffic noise level at a receiver approaches, equals, or exceeds the noise abatement criteria. "Approach" is defined as 1 dB(A) below the FHWA noise abatement criteria. For example: a traffic noise impact would occur at a Category B residence if the traffic noise level is predicted to be 66 dB(A) or above.

*Relative criterion:* the predicted traffic noise level substantially exceeds the existing traffic noise level at a receiver even though the predicted traffic noise level does not approach, equal, or exceed the noise abatement criteria. "Substantially exceeds" is defined as more than 10 dB(A). For example: a traffic noise impact would occur at a Category B residence if the existing level is 54 dBA and the predicted level is 65 dBA (11 dB(A) increase).

When a traffic noise impact occurs, traffic noise abatement measures must be considered and evaluated for feasibility and reasonableness. A traffic noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

Land use activity categories located within the study area include: residences (NAC B); schools, places of worship, libraries, recreation centers, medical centers, public parks/recreation areas and historic sites, a cemetery, or institutional structures (i.e., Santa Fe International Inspection Facility, UTEP) (NAC C); and hotels, motels, offices, and restaurants (NAC E). Activities represented by NAC F within the study area include POEs, industrial facilities, warehouses, utilities (i.e., Northwest Wastewater Treatment Plant, irrigation canals/ditches/drains, etc.), rail yards, and retail facilities. This activity category includes developed lands that are not sensitive to highway traffic noise. Some undeveloped/vacant lands (NAC G) can also be found within the study area.

Residential land uses are common within or along the study area and consist of single-family and multi-family residences. Between I-10 and US 85, there is a single-family residential neighborhood called La Calavera. Several other single-family subdivisions are located toward the southeast central section of the study area, near Schuster Avenue and include the Alexander, Mundy Heights, and Sunset Heights additions. Other single-family residences are located within the Mills, Magoffin Homestead, Cotton, Bassett, Garden, Franklin Heights, and Campbell subdivisions between Montana Avenue and Loop 375. Several public housing units are located within this part of the study area.

Based on the above described existing land uses, the study area can be categorized mostly under NAC B and C. Existing noise field levels at receivers representing the land uses within the study area were measured in 2011. Short-term noise measurements of 15-minute durations were conducted using a Quest Technologies 2900 Integrating and Logging Sound Level Meter. The existing noise levels representing land uses within the study area ranged between 52 dB(A) and 65 dB(A). The locations of the measurement sites (R1 through R16) are shown on **Exhibit 3-7**.

### **3.4 CLIMATE AND AIR QUALITY**

In order to protect human health and the environment, the Clean Air Act (CAA) of 1970 mandated the establishment of the National Ambient Air Quality Standards (NAAQS) and regulations to reduce air pollutants. The air pollutants identified by the EPA as criteria pollutants of concern nationwide include: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate matter (10 and 2.5 microns). The EPA develops regulations to reduce these air pollutants from specific sources, including both industry and motor vehicles. EPA regulates air quality nationally while the Texas Commission on Environmental Quality (TCEQ) Office of Air Quality enforces air quality regulations in Texas. In addition, the EPA also develops regulations to reduce air pollutants from specific sources, including both industry and motor vehicles.

When the pollutant level within an area exceeds the NAAQS, the EPA designates the area as non-attainment for the pollutant. For non-attainment areas, the 1990 CAA Amendments (CAAA) require that the MPOs and the state transportation departments demonstrate that transportation plans, program, and projects funded under Title 23 U.S. Code (U.S.C.) conform to state implementation plans. In accordance with the EPA transportation conformity rule (40 CFR 93), all regionally significant transportation projects in an EPA designated non-attainment area must be included in and consistent with the current transportation plan and Transportation Improvement Plan (TIP), which has been found to conform to an approved State Implementation Plan (SIP) (i.e., meet transportation conformity rules). A SIP is a collection of requirements that delineates how a state would reduce emissions to attain the NAAQS. The SIP must be approved by the EPA.

The El Paso region continues to face serious air quality challenges due to the large numbers of trucks that circulate between El Paso and Ciudad Juárez, Mexico, and industrial activity. The El Paso/Ciudad Juárez region is served by three major commercial truck POEs. The El Paso/Ciudad Juárez border crossing is one of the busiest in the world, with an estimated daily average of 250,000 people going through the checkpoints and the adjacent bridges spanning the Rio Grande. Following the implementation of the North American Free Trade Agreement, trade between the U.S. and Mexico has increased substantially. Northbound truck movement (imports into the U.S.) through El Paso/Ciudad Juárez gateways increased from less than 600,000 per year in 1994 to more than 700,000 per year in 2004 (City of El Paso 2009).

Section 3.4 describes the climate and atmospheric conditions in the study area and their relationship to air quality in the region. It also discusses the EPA standards for air quality, the NAAQS, and the region's compliance with those standards, mobile source air toxics (MSATs), and greenhouse gases (GHGs). Section 3.4 identifies the quality of the air in the proposed study area based on EPA and the TCEQ Office of Air Quality regional ambient conditions.

### **3.4.1 Climate and Atmospheric Conditions in the El Paso Region**

The City of El Paso occupies approximately 240 square miles of El Paso County. El Paso receives an average of 80% of the total possible sunshine annually. The most sunshine hours in El Paso occur in May and June with 90% of possible sunshine hours. Sunshine hours refer to the amount of sunshine there is during the hours of daylight. Typically there is a higher percent throughout the day. A low percentage will indicate a cloudy day. Hours of sunshine are the means calculated from 1961 to 1990.

El Paso has a warm climate with hot summers, usually with little or no humidity and mild, dry winters. Due to its dry climate, El Paso often experiences wind and dust storms during the spring, usually starting in March and lasting to early May. Rainfall averages 9.4 inches (in.) per year and is predominantly caused by monsoons, many of which occur during the summer from July through September. During this period, southerly and southeasterly winds carry moisture from the Pacific, the Gulf of California, and the Gulf of Mexico into the region. An orographic lift occurs when an air mass is forced from a low elevation to a higher elevation as it moves over rising terrain. As the air mass gains altitude it quickly cools, which can raise the relative humidity to 100 percent and create clouds and, under the right conditions, precipitation. When this moisture moves into the El Paso area and combines with strong daytime heating, it causes thunderstorms, some severe enough to produce flash flooding and hail, across the region. Although the average annual rainfall is 9.4 in., many areas of El Paso are subject to occasional flooding during intense summer monsoons.

Summer temperatures in El Paso usually rise above 100 degrees Fahrenheit (°F) for brief periods and have reached a peak of 112°F. The average maximum temperature in July is 94°F. The average growing season lasts 248 days. Winters in the study area are mild, with occasional light snows, although such extremes as 14 in. of snow and 8°F below zero are on record. El Paso's coldest month is January when the average temperature overnight is 32.9°F. The driest month in El Paso is April, with 0.23 in. of precipitation. The wettest month is August, with 1.75 in. of precipitation.

### **3.4.2 Relevant Pollutants**

In Texas, nitrogen oxides, ground-level ozone, carbon monoxide, lead, particulate matter, and sulfur dioxide comprise the air pollutants of concern. Ground-level ozone is formed when nitrogen oxides and volatile organic compounds react on hot, sunny days. Volatile organic

compounds include organic chemicals that vaporize easily, such as gasoline. Cars and power plants are common sources of nitrogen oxides. In addition to nitrogen oxides, volatile organic compounds, ground-level ozone, carbon monoxide, sulfur dioxide, and lead, the air contains tiny bits of dust, ash and other materials that form a visible dust cloud. This visible dust cloud is referred to be particulate matter. Another transportation related air pollutant, carbon monoxide, generally results from the operation of internal combustion engines. Carbon monoxide concentrations are generally more pronounced in the immediate vicinity of roadways, such as within the proposed project ROW. Emissions of carbon monoxide from motor vehicles are affected by both temperature and speed and may be roughly twice as high in winter months as in summer months.

Emissions from on-road mobile sources are estimated using a computer model called MOBILE, which was developed by the EPA. In MOBILE, vehicles are classified into eight vehicle classes, for which emissions factors are generated. The emission factor is then used in conjunction with the vehicle miles traveled (VMT) estimates to determine the contribution of emissions from mobile sources in a city, county or state. In Texas, emissions from mobile sources are estimated on a county-wide basis. With a few exceptions nationwide, on-road mobile sources constitute the largest single source category of air pollution.

Beginning March 2, 2013, the EPA will require that the latest motor vehicle emissions model be utilized for SIPs and transportation conformity determinations. The new model, called Motor Vehicle Emission Simulator (MOVES), is not an upgrade of the previous MOBILE model but new software designed to estimate emissions, volatile organic compounds, nitrogen oxides, particulate matter, carbon monoxide, and other precursors from cars, trucks, buses, and motorcycles at a more detailed level.

As required by the CAAA, the EPA reevaluates the NAAQS every 5 years. Local municipalities, as well as the TCEQ, may adopt more stringent air quality standards than the EPA. The TCEQ and El Paso County observe the EPA NAAQS. Refer to **Table 3-15** for a list of the most current NAAQS.

**Table 3-15: NAAQS**

Pollutant	Primary Standards*		Secondary Standards**	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm (10 mg/m <sup>3</sup> )	8-hour: Not to be exceeded more than once per year.	None	
	35 ppm (40 mg/m <sup>3</sup> )	1-hour: Not to be exceeded more than once per year.		
Lead	0.15 µg/m <sup>3</sup> (Final rule signed on October 15, 2008.)	Rolling 3-month average	Same as Primary	
	1.5 µg/m <sup>3</sup>	Quarterly average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 µg/m <sup>3</sup> )	Annual (arithmetic mean)	Same as Primary	
	0.100 ppm	1-hour: To attain this standard, the 3-year average of the 98 <sup>th</sup> percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).	None	
Particulate Matter-10 Microns	150 µg/m <sup>3</sup>	24-hour: Not to be exceeded more than once per year on average over 3 years.	Same as Primary	
Particulate Matter-2.5 Microns	15.0 µg/m <sup>3</sup>	Annual (arithmetic mean): To attain this standard, the 3-year average of the weighted annual mean PM-2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m <sup>3</sup> .	Same as Primary	
	35 µg/m <sup>3</sup>	24-hour: To attain this standard, the 3-year average of the 98 <sup>th</sup> percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m <sup>3</sup> (effective December 17, 2006).	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour: To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008).	Same as Primary	
	0.08 ppm (1997 standard)	8-hour: (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm. (b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard. (c) EPA is in the process of reconsidering these standards (set in March 2008).	Same as Primary	
	0.12 ppm	1-hour: (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding"). (b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.	Same as Primary	
Sulfur Dioxide	0.075 ppm	1-hour: 99 <sup>th</sup> percentile of 1-hour daily maximum concentrations, averaged over 3 years (Final rule signed June 2, 2010).	0.5 ppm	3-hour: Not to be exceeded more than once per year.

Source: EPA <http://www.epa.gov/air/criteria.html> (Rev. October 2011)

\*Primary NAAQS: the levels of air quality that the EPA judges necessary, with an adequate margin of safety, to protect the public health.

\*\*Secondary NAAQS: the levels of air quality that the EPA judges necessary to protect the public welfare from any known or anticipated adverse effects.

ppm: parts per million, µg/m<sup>3</sup>: Micrograms per cubic meter, mg/m<sup>3</sup>: Milligrams per cubic meter

The NAAQS pollutants, as reported by the EPA in 2012, include ozone, lead, carbon monoxide, sulfur dioxide, nitrogen dioxide, and particulate matter. These pollutants are discussed below.

#### **3.4.2.1 Ozone**

Ozone is not emitted directly into the air but is formed through chemical reactions between precursor emissions of volatile organic compounds and nitrogen oxides in the presence of sunlight. Both volatile organic compounds and nitrogen oxides are emitted by transportation and industrial sources. Volatile organic compounds are emitted from sources as diverse as automobiles, chemical manufacturing, dry cleaners, paint shops, and other sources using solvents.

#### **3.4.2.2 Lead**

Historically, the main sources of lead emissions were lead gasoline additives, in addition to non-ferrous smelters, such as ASARCO, and battery plants. Emissions from on-road vehicles decreased 99% between 1970 and 1995 due primarily to the use of unleaded gasoline. Additional reduction of lead emissions are anticipated as a result of the EPA's Multimedia Lead Strategy issued in February 1991.

#### **3.4.2.3 Carbon Monoxide**

The largest source of carbon monoxide emissions comes from motor vehicle exhaust. In some cities, as much as 95% of all carbon monoxide emissions emanate from automobile exhaust.

#### **3.4.2.4 Sulfur Dioxide**

Sources of sulfur dioxide result largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from non-ferrous smelters.

#### **3.4.2.5 Nitrogen Dioxide**

The two major emission sources of nitrogen dioxide are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

#### **3.4.2.6 Particulate Matter (10 and 2.5 Microns)**

Particulate matter (i.e., dust, dirt, soot, smoke and liquid droplets) are directly emitted into the air by sources such as factories, power plants, cars, construction activities, fires, and natural windblown dust.

The TCEQ monitors for various air pollutants in the state using an established air monitoring network. This network of monitors measures air quality and determines the levels of the various pollutants in the air. In general, criteria pollutant concentrations, with the exception of particulate matter-10 microns ( $PM_{10}$ ) and -2.5 microns ( $PM_{2.5}$ ), have decreased over the three-year period between 2008 and 2010.

#### **3.4.2.7 Regional Compliance**

Part of El Paso County is in moderate non-attainment for  $PM_{10}$  and in maintenance for the 8-hour carbon monoxide standard; therefore, the transportation conformity rule applies. For non-attainment areas, the 1990 CAAA required the MPOs and the state transportation departments to demonstrate that transportation plans, programs, and projects funded under Title 23 U.S.C. conform to state or federal implementation plans.

Federal conformity regulations describe two types of tests: an emissions budget test and an interim emissions test. To run an emissions budget test, a region must have budgets in place that have been found adequate for transportation conformity purposes, or are contained in an

approved air quality implementation plan. Predicted emissions for the MTP and TIP must be less than or equal to these budgets. The second test, an interim emissions test is used when approved budgets are not in place and the region is in non-attainment.

A portion of the proposed project is included in the *Mission 2035* MTP. The entire project will be included in the *Draft Horizon 2040* MTP, developed by the El Paso MPO. In the *Mission 2035*, the project limits are listed as Park Street to US 85/Yandell Street. In the *Draft Horizon 2040* MTP, the project limits are from Racetrack Drive to Park Street. The current limits listed in the MTP will require further revisions to add the full limits of the Loop 375 Border Highway West Extension Project.

In 2008, the proposed project was approved as a toll project under the local Comprehensive Mobility Plan (CMP) and programmed to be developed by the local toll authority, the CRRMA, established in March 2007. The project is under the direction of TxDOT and would be coordinated with the CRRMA, the City of El Paso and other participating agencies. Refer to **Appendix F** for the CMP and MTP pages containing the project.

### **3.4.3 Mobile Source Air Toxics**

Controlling air toxic emissions became a national priority with the passage of the CAAA of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://www.epa.gov/ncea/iris/index.html>). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

### **3.4.4 Greenhouse Gas Emissions (GHGs)**

Gases that trap heat in the atmosphere are often called GHGs. Some GHGs such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHGs such as fluorinated gases are created and emitted solely through human activities. The principal GHGs that enter the atmosphere because of human activities are carbon dioxide, methane, nitrous oxide, and fluorinated gases. These gases are believed to contribute to climate change. The EPA defines “climate change” as any substantial change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Federal agencies are, on a national scale, addressing emissions of GHGs by reductions mandated in federal laws and EOs, most recently EO 13423 (January 24, 2007), *Strengthening Federal Environmental, Energy, and Transportation Management*. Several states have promulgated laws as a means to reduce statewide levels of GHGs as well. In particular, Senate Bill 184 (September 1, 2009), which requires the State Comptroller to develop strategies to reduce GHGs, and the *Texas Emission Reductions Plan*, established in 2001, provides incentives to reduce emissions and improve and maintain air quality in Texas (Texas Comptroller 2010).

An emissions inventory that identifies and quantifies a country's primary anthropogenic sources and sinks of GHGs is essential for addressing climate change. The term “anthropogenic,” in this

context, refers to GHG's emissions and removals that are a direct result of human activities or are the result of natural processes that have been affected by human activities. With some exceptions to the overall trend, according to the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008 (April 2010)*, total U.S. emissions have risen by approximately 14% from 1990 to 2008 (EPA 2010). The principal GHGs that enter the atmosphere because of human activities are:

- Carbon dioxide: Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement).
- Methane: Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous oxide: Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- Fluorinated gases: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes.

The City of El Paso recognized the urgent need to address the local causes and effects of global climate change. The of El Paso City Council unanimously passed a resolution in March of 2008 authorizing the Mayor to sign the U.S. Mayor's Climate Protection Agreement. The resolution urges the federal and state governments to enact policies and programs to meet or beat the target of reducing global warming pollution levels to 7% below 1990 levels by 2012, including efforts to: reduce the U.S. dependence on fossil fuels and accelerate the development of clean, economical energy resources, and fuel-efficient technologies such as conservation, methane recovery for energy generation, waste to energy, wind and solar energy, fuel cells, efficient motor vehicles, and biofuels.

### **3.5 GEOLOGY AND SOILS**

#### **3.5.1 Physiographic Setting**

The study area is located within the Basin and Range physiographic province of Texas (**Exhibit 3-8**). Mountain ranges in this region generally trend nearly north-south and rise abruptly from barren rocky plains. Plateaus in which the rocks are nearly horizontal and less deformed commonly flank the mountains. Cores of strongly folded and faulted sedimentary and volcanic rocks or granite rocks compose the interiors of mountain ranges. Gray oak-pinyon pine-alligator juniper parks drape the highest elevations. Creosote bush and lechuguilla shrubs sparsely populate plateaus and intermediate elevations. Tobosa-black grama grassland occupies the low basins (Bureau of Economic Geology 1996).

#### **3.5.2 Geology**

##### **3.5.2.1 Characteristics of Geology Units in the Study Area**

Geologic units in the study area include Alluvium (Qal); Older alluvial deposits (Qao); Quaternary-Tertiary bolson deposits (Qtb); Cretaceous rocks, undivided; Eocene intrusive (Ei); Paleozoic rocks, undivided (Pal); and El Paso formation and Bliss sandstone, undivided (Oce). Refer to **Exhibit 3-9**. The Alluvium unit (Qal) is of Holocene age. It consists of alluvium and low terrace deposits along streams of sand, silt, clay, and gravel of variable thickness. The primary rock type of the unit is sand, the secondary is silt, and the tertiary are clay or mud and gravel.

The Older alluvial deposits (Qao) unit is of Pleistocene age and consists of alluvium, colluvium, and caliche on surfaces dissected by modern drainages in the Trans-Pecos, Presidio, Van Horn, and El Paso areas. It contains pebbles, cobbles, boulders up to 4 ft in size, and sand. It is unconsolidated to partly consolidated by caliche cement; composed of chert, quartzite, limestone, and volcanic rocks of vesicular, aphanitic, and porphyritic textures. The primary rock type is gravel, the secondary is sand, and the tertiary is silt.

The Quaternary-Tertiary bolson deposits (Qtb) unit is of Pliocene to Pleistocene age and consists of clay, silt, sandstone, and conglomerate; mostly clay, silt, and gypsiferous fine-grained sandstone in the central part of the Presidio bolson, coarsens toward margins where lenses of pebble to boulder conglomerate are common, mostly pale to red to light brown, with a thickness up to 2,000 ft. The primary rock type is clay or mud, the secondary is silt, and the tertiary is sandstone and conglomerate.

Regarding the Cretaceous rocks, the undivided unit is of Late Cretaceous age and consists of limestone, shale, sandstone, and marl. The primary rock type is limestone, the secondary is shale, and the tertiary are sandstone and mudstone.

Eocene intrusive (Ei) rocks of Eocene age, consisting of stocks, laccoliths, sills, and dikes. Major rock types include basalt, hawaiite, mugearite, trachyte, quartz trachyte, rhyolite, phonolite, latite, trachyandesite, and their coarser-grained equivalents, e.g. monzonite, syenite. Primary rock type is basalt, secondary is trachyte, and tertiary are felsic volcanic rock; rhyolite; phonolite, latite, and trachyandesite.

The Paleozoic rocks, undivided (Pal), are of the Paleozoic age and consist of limestone (primary rock type), shale (secondary rock type), and mixed clastic/carbonate (tertiary rock type).

El Paso Formation and Bliss sandstone, undivided (Oce), is of Late Cambrian to Early Ordovician age. Bliss is the older unit and is of Upper Cambrian-Lower Ordovician age that overlies Precambrian rocks. Primary rock type is limestone, secondary is dolostone (dolomite), and tertiary is sandstone and conglomerate (Bureau of Economic Geology 1996).

### **3.5.2.2 Relationship of Geology and Groundwater**

The major aquifer in the study area is the Hueco-Mesilla Bolsons Aquifer, which underlies portions of New Mexico, Texas (El Paso and Hudspeth counties), and Chihuahua, Mexico (**Exhibit 3-3**). The Hueco-Mesilla Bolsons Aquifer has an area of 1,370 square miles and an availability of 183,000 acre foot/year (2010 to 2060). It is composed of Tertiary and Quaternary basin-fill deposits of silt, sand, gravel, and clay in two basins, or bolsons: the Hueco Bolson, with a maximum thickness of 9,000 ft, and the Mesilla Bolson, with a maximum thickness of 2,000 ft. Groundwater occurs in unconsolidated fluvial, alluvial, and lacustrine sediments. While the Hueco and Mesilla bolsons share similar geology, very little water travels between them (Bureau of Economic Geology 1996).

### **3.5.3 Mineral and Energy Resources**

Antimony ore imported from Mexico and neighboring states, was processed in El Paso at the ASARCO plant until 1986. Industrial sands including abrasive, blast, chemical, engine, filtration, foundry, glass, hydraulic-fracturing, molding, and pottery sands, are produced from formations in El Paso County and several other counties in Texas. Natural gas is produced in the El Paso area. Pipelines and oil and gas wells are further discussed in **Section 3.11: Hazardous Materials**.

### **3.5.4 Soils**

#### **3.5.4.1 General Soil Attributes**

Most of El Paso County is underlain by sediments known locally as bolson deposits. These sediments, eroded from nearby mountains, filled the basins that formed during the uplift and faulting of the mountains that occurred during the Tertiary Period and continued until the Quaternary Period. The basin in El Paso County, called the Hueco Bolson, was enclosed at first, but later drained when the Rio Grande made its present course. Over time, rain and runoff has leached the carbonates in the soils and formed layers of caliche that occur at various depths below the surface. The soil series that exhibit these caliche layers are the Berino, Delnorte, Hueco, Simona, Turney, and Winks series.

Those areas of El Paso County within the historic floodplain of the Rio Grande consist of deep, nearly level soils with loamy, very fine sands near the surface and silty clays beneath. These alluvial deposits are the result of repeated flood events. The construction of dams and levees along the Rio Grande in recent years has altered the soil deposition process in these areas.

#### **3.5.4.2 Soil Associations in the Study Area**

Soil Associations in the study area include the Bluepoint (Rolling), Delnorte-Canutio (Undulating and Hilly types), Igneous rock land-Limestone rock land, and Made Land (Gila Soil) associations. See **Exhibit 3-11** for a map of the soil associations of the study area.

The Bluepoint association consists mainly of deep, gently sloping to strongly sloping soils with loamy sand underlying material above the Rio Grande floodplain and below the Hueco Bolson. The association occupies about 101,300 acres, or 15% of the county. Bluepoint soils account for 98% of the association, and minor soils 2%. The Pajarito soils and Badlands occupy small areas. Pajarito soils occur in low-lying places just above the Rio Grande floodplain. Badlands occur as outcrops or areas of exposed clay. About 12% of the association is in the housing and industrial area of El Paso. Most of the remaining acreage is idle, but some is used as rangeland. Soils in this association are not considered Prime or Other Important Farmland soils.

The Delnorte-Canutio association consists of nearly level to steep soils that are shallow or very shallow over caliche or that are deep and gravelly throughout, occurring mainly on and near the foot slopes of the Franklin Mountains. They also lie in or near arroyos and alluvial fans below the Franklin Mountains. The association has a total area of about 63,700 acres, or 9% of the county. About 55% of the acreage is Delnorte soils, 18% is Canutio soils and 27% is minor soils, including the Bluepoint, Agustin, and Pajarito soils, which occur at lower elevations. About 50% of the association is within the City of El Paso and Fort Bliss. Roughly 1,000 acres consisting of Pajarito soils are used as irrigated cropland. The Delnorte soils outside the city and military area are idle or used for recreation. Soils in this association are not considered Prime or Other Important Farmland soils.

The Igneous rock land-Limestone rock land association consists of very steep areas of igneous and limestone rocks and stony soils, which form the Franklin Mountains. The elevation is about 4,000 ft at the base and 7,100 ft at the top of North Mount Franklin, the highest point. About 29,000 acres, or 4% of the county, is in this association. Roughly 52% of the total acreage is Igneous rock land and the adjacent Brewster soils, and 46% is Limestone rock land and the adjacent Lozier soils. Small areas of Delnorte and Canutio soils make up the remaining 2%. Igneous rock land consists mostly of granite, monzanite and rhyolite rocks with nearly vertical slopes. The Brewster soils typically have a dark reddish-gray, non-calcareous stony loam

surface layer underlain by granite. Limestone rock land is made up of very steep to almost vertical layers of limestone, together with some layers of sandstone. The Lozier soils have a surface layer of pinkish-gray, calcareous stony loam that is about 5 in. thick over limestone. None of this association is suitable for cultivation; it is used for recreational purposes and, on the east slopes of North Mount Franklin, as a U.S. Army rifle and artillery range. Soils in this association are not considered Prime or Other Important Farmland soils.

The Made Land, Gila soil material association lies on the floodplain of the Rio Grande. It consists of soil materials, chiefly from Gila soils, that are silty clay loam, fine sandy loam, and sand in texture. The deposits were recently laid down by the river, and since that time have been moved about during levee construction, relocation, and straightening of the river channel, and development of industrial, commercial, and residential areas. The association consists of Gila and similar soils (90%) as well as other minor components (10%). It occurs at elevations of 1,500 to 5,000 ft, in areas of 4 to 12 in. mean annual precipitation. It is derived from Holocene-age coarse-loamy alluvium, is well-drained, has a moderately high to high capacity to transmit water, generally has a depth of more than 80 in to the water table, and rarely floods or ponds. Its Natural Resource Conservation Service (NRCS)-designated ecological site is loamy bottomland with desert shrub vegetation. The typical profile of this association is: fine sandy loam (0–10 in.); loam and silt loam (10–22 in.); gravelly sandy loam (22–27 in.); and silt loam (27–63 in.). It contains unnamed, hydric minor components that make up 5% of its mapped unit area, and which occur in depressions. Soils in this association are not considered Prime or Other Important Farmland soils (United States Department of Agriculture, Soil Conservation Service 1971). Refer to **Exhibit 3-11**.

#### **3.5.4.3 Prime and Other Important Farmland Soils**

Congress enacted the Farmland Protection Policy Act (FPPA) as a subtitle of the 1981 Farm Bill with the purpose of minimizing the extent to which federal programs contribute to the unnecessary conversion of farmlands to non-agricultural uses (7 USC 4201, et seq.). The FPPA applies to federal programs, including construction projects such as highways, sponsored or financed in whole or part by the federal government. The NRCS of the U.S. Department of Agriculture (USDA) administers the FPPA. Although the proposed project is a state funded project, the FPPA was used as general guidance in identifying prime and other important farmlands within the study area.

The term “farmland” includes: (1) prime farmland, (2) unique farmland, and (3) farmland of statewide or local importance as defined in Chapter 7 of the USC. Prime farmland soils are defined by the USDA as those that are best suited to producing food, feed, forage, and oilseed crops. Unique farmlands are further defined as those whose value is derived from their particular advantages for growing specialty crops. Statewide and locally important farmlands are defined by the appropriate state or local agency as important for the production of food, feed, fiber, forage, or oilseed crops.

The FPPA recognizes the following areas are not subject to the Act:

- lands that are already in or committed to urban development or water storage, including those with a density of 30 structures per 40 ac;
- lands with a tint overprint on USGS topographical maps;
- lands identified as urbanized area (UA) on USCB maps; and
- land that receives a combined score of 160 points or less on form AD-1006 (or NRCS-CPA-106) for corridor type projects.

As noted above, one of the mapped soil units in the study area, Made Land (gila soil material), contains minor hydric soil components and is listed in the NRCS National List of Hydric Soils. However, none of the soils within the study area would be considered Prime or Other Important Farmland soils. Additionally the 2010 USCB map of the study area labels it as Urban Land (UA) and is therefore not subject to the FPPA and no coordination with the NRCS is required.

### **3.6 WATER QUALITY**

#### **3.6.1 Watersheds**

The study area is located within the Rio Grande Basin in El Paso, Texas. The Rio Grande basin drains an area of approximately 336,000 square miles (870,000 square kilometers (km<sup>2</sup>)), although only about half of this area contributes to the river's flow. Average annual rainfall in the basin ranges from 0 to 10 in. Water bodies (and their associated floodplains) that occur in the study area include the Rio Grande, Franklin Canal, Portland Cement Lake, numerous arroyos, a few other man-made ponds/reservoirs, and Ascarate Lake to the east of the study area (**Exhibit 3-11**).

#### **3.6.2 Surface Water**

El Paso County relies on both surface water and groundwater for municipal water supply. Currently, El Paso County Water Improvement District (EPCWID) supplies about 90% of all municipal water in El Paso County. Surface water is supplied from the Rio Grande. The Rio Grande flows that are diverted in the El Paso area are primarily derived from snowmelt runoff in southern Colorado and northern New Mexico. Spring runoff is stored in Elephant Butte Reservoir in southern New Mexico before releases are made for irrigation and municipal use in southern New Mexico and the El Paso area (EPCWID).

Water from the Rio Grande is only available during the spring, summer, and early fall months, and is further limited in years of drought. Rio Grande diversions for municipal water supply (and associated increases in local groundwater pumping in drought years) are estimated to be needed through 2020 in order to meet increased demands. These diversions would be increased again in 2030 and 2040. The Region E Planning Group recommended the conjunctive use of water from the Rio Grande with groundwater from the Hueco-Mesilla Bolsons Aquifer as a water management strategy (TWDB 2007).

The proposed project is located within the boundaries of a Phase I (large) Municipal Separate Storm Sewer System (MS4) and would comply with applicable MS4 requirements.

##### **3.6.2.1 Surface Drainage Characteristics**

Portions of the study area are located in the floodplain of the Rio Grande. The USGS 7.5-minute topographic map of the Smeltertown, El Paso, Ysleta NW Quadrangles indicate the study area varies in elevation between approximately 3800 ft above mean sea level to approximately 3695 ft above mean sea level (**Exhibit 3-12**). Generally, all surface water drains to the Rio Grande.

##### **3.6.2.2 Surface Water Quality**

Under section 303(d) of the federal Clean Water Act (CWA), states, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes. The law requires that these jurisdictions establish priority rankings for waters on the lists

and develop Total Maximum Daily Loads (TMDLs) for them. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards.

In Texas, the TMDL Program of the TCEQ is authorized by and created to fulfill the requirements of Section 303(d) of the CWA and its implementing regulations. The TCEQ issues a list of water bodies in or bordering Texas for which effluent limitations are not stringent enough to implement water quality standards, and for which the associated pollutants are suitable for measurement by TMDL. Issuance of permits to discharge into 303(d)-listed water bodies is described in the TCEQ regulatory guidance document Procedures to Implement the Texas Surface Water Quality Standards (January 2003, RG-194).

The Texas Integrated Report for CWA Sections 305(b) and 303(d), formerly called the Texas Water Quality Inventory and 303(d) List, evaluates the quality of surface waters in Texas. It summarizes the status of the state's surface waters, including concerns for public health, fitness for use by aquatic species and other wildlife, and specific pollutants and their possible sources. According to the 2010 report, Segment 2307 of the Rio Grande, which occurs downstream of the study area, does not meet applicable water quality standards or is threatened for one or more designated uses by bacteria, chloride, and total dissolved solids. Segment 2308 of the Rio Grande, which includes the portion of the Rio Grande in the study area, is listed as being at a level of concern for water quality based on screening levels of nitrate, total phosphorus, ammonia, and chlorophyll-a; however, it is not included in the 2010 303(d) list. Segment 2314 of the Rio Grande, which occurs upstream of the study area, does not meet applicable water quality standards or is threatened for one or more designated uses by bacteria levels.

### **3.6.2.3 Floodplains**

The study area is located within the Rio Grande Basin in El Paso, Texas. The Rio Grande basin drains an area of approximately 336,000 square miles (870,000 km<sup>2</sup>), although only about half of this area contributes to the river's flow. Average annual rainfall in the basin ranges from 0 to 10 in. Water bodies (and their associated floodplains) that occur in the study area include the Rio Grande, Franklin Canal, Portland Cement Lake, several arroyos, a few other man-made ponds/reservoirs, and Ascarate Lake to the east of the study area.

Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA) delineate the base floodplain elevations and floodways for the major rivers and streams. The FEMA FIRMs (map IDs 4802140026D, 4802140027D, 4802140032C, 4802140034B, 4802140038B, 4802140039B, and 4802140040B) were consulted to determine floodplains potentially affected by the proposed project. The regulatory floodway indicates the corridor of effective flow area within the floodplain where, if the base flood encroaches equally on both banks in terms of flow conveyance, the base flood elevation is increased no more than one foot.

Floodplains in the study area are depicted in **Exhibit 3-11**. The FEMA administers the National Flood Insurance Program (NFIP). El Paso County is a participating member of the NFIP. If the proposed project involves work within the FEMA designated 100-year floodplain, the hydraulic design for the proposed project would need to be in accordance with current FHWA and TxDOT design policies, and the facility (road) would need to permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the facility, stream, or other property. The proposed project would be required to not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances, and coordination with the local Floodplain Administrator would be required.

The proposed project would be located within the floodplain of the Rio Grande; therefore, coordination with the International Boundary and Water Commission (IBWC) would be required. Further discussion of the regulatory authority for the IBWC can be found in **Section 3.9.1.7**.

### **3.6.3 Groundwater**

Groundwater supplies in the study area are pumped from the Hueco-Mesilla Bolsons Aquifer, which underlies portions of New Mexico, Texas (El Paso and Hudspeth counties), and Chihuahua, Mexico (**Exhibit 3-10**). The aquifer has an area of 1,370 square miles and an availability of 183,000 acre-ft/year. There are no groundwater conservation districts associated with the aquifer. Recognized as a major aquifer in Texas, the Hueco-Mesilla Bolsons Aquifer is composed of Tertiary and Quaternary basin-fill deposits of silt, sand, gravel, and clay in two basins, or bolsons: the Hueco Bolson, with a maximum thickness of 9,000 ft, and the Mesilla Bolson, with a maximum thickness of 2,000 ft. Groundwater occurs in unconsolidated fluvial, alluvial, and lacustrine sediments (TWDB 2007).

While the Hueco and Mesilla bolsons share similar geology, very little water travels between them. The upper portion of the Hueco Bolson contains fresh to slightly saline water, ranging from less than 1,000 to 3,000 milligrams per liter of total dissolved solids. The Mesilla Bolson also contains fresh to saline water, ranging from less than 1,000 to 10,000 or more milligrams per liter. Its salinity typically increases to the south and in the shallower parts of the aquifer. In both aquifers, declining water level has contributed to higher salinity.

Nearly 90% of the water pumped from the Mesilla and the Hueco Bolsons in Texas is used for public supply. The Hueco Bolson is the principal groundwater source for the El Paso area and Ciudad Juárez in Mexico, with 87% of water pumped from the aquifer being used for municipal supply, primarily in El Paso. Historical large-scale groundwater withdrawals, especially from municipal well fields in the downtown areas of El Paso and Ciudad Juárez have caused water-level declines of several hundred feet. These declines have significantly altered the direction or flow, rate of flow, and chemical quality of groundwater in the aquifers, and declining water levels have resulted in a minor amount of land-surface subsidence.

Saltwater encroachment has been recorded since 1935 in the Hueco Bolson aquifer where salt water overlies and underlies fresh water sands (Smith 1956). The El Paso area's freshwater supply is now supplemented by the Kay Bailey Hutchinson Desalination Plant in El Paso, a joint project of EPCWID and Fort Bliss, which produces 27.5 million gallons of freshwater daily using brackish groundwater from the Hueco Bolson as its source water (TWDB 2007; EPWU 2011).

#### **3.6.3.1 Public Drinking Water Systems**

The Water Utility Database of the TCEQ was searched for information pertaining to public water systems (PWS) located in the study area. There are three active water improvement districts (WID) in El Paso County: El Paso County Tornillo WID, El Paso County WID 1 (EPCWID1), and El Paso County Water Control and Improvement District (WCID) 4. There are 17 active water utilities in El Paso County. These utilities include municipalities, private corporations, and utility district ownership. There are 53 public water systems in El Paso County, all of which are included in the EPA Safe Drinking Water Information System. These water systems are classified as either Community Water systems (31 total) that serve the same people year-round (e.g., in homes or businesses), Non-Transient Non-Community Water systems (10 total) that serve the same people, but not year-round (e.g., schools that have their own water system), or Transient Non-Community Water systems (12 total), including systems that do not consistently serve the same people.

The Wellhead Protection Program was implemented from the 1986 Amendments to the Safe Drinking Water Act. The federal Safe Drinking Water Act emphasized groundwater and wellhead programs to protect source waters. The Wellhead Protection Program sets in place public health protection measures to ensure safe drinking water for citizens served by public drinking water supplies. These supplies are defined primarily as water systems serving at least 15 connections or at least 25 persons at least 60 days per year. Approximately 6,730 public water systems serve over 19 million Texas citizens (TCEQ 1999). There are three public water systems within the study area that are listed as participants in the Texas Source Water Protection Program, a voluntary program that helps PWS protect their drinking water sources (TCEQ Source Water Protection website accessed online December 6, 2010 at: [http://www.tceq.state.tx.us/permitting/water\\_supply/pdw/SWAP/index\\_swp.html](http://www.tceq.state.tx.us/permitting/water_supply/pdw/SWAP/index_swp.html)). These include the El Paso County Tornillo WID, El Paso County WCID 4, Fabens, and the El Paso Water Utilities Public Service Board.

### **3.6.3.2 Water Well Review**

Data from the Texas Water Development Board's (TWDB) Groundwater Database were reviewed to assess potential impacts to groundwater. There are approximately 50 mapped water wells in the study area, all of which produce from the Hueco-Mesilla Bolsons Aquifer. Wells in the study area are shown on **Exhibit 3-10**.

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

### **3.7.1 Regional Setting**

The study area is consistent with and lies within the Trans-Pecos ecological region (Gould 1960) (**Exhibit 3-13**). The Trans-Pecos consists of a 19 million acre area west of the Pecos River. The Trans-Pecos is an area of diverse habitats, from desert valleys and plateaus to mountain slopes and peaks, and contains the main representation of the Chihuahuan Desert within the U.S. Creosote-tarbrush desert-scrub grassland is the dominant vegetation type of the Trans-Pecos, but at higher elevations it is dominated by a montane forest of pinyon pine, ponderosa pine, and oak (Correll and Johnson 1996).

### **3.7.2 Waters of the U.S.**

The EPA and the U.S. Army Corps of Engineers (USACE) are charged with the protection of "waters of the U.S." under the Federal Water Pollution Control Act of 1972, amended in 1977 to the CWA. The term "waters of the U.S.," as defined in 33 CFR 328.3, denotes: All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters including wetlands; and all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce.

To characterize surface drainage systems (streams), the designations perennial, intermittent, and ephemeral are used:

- Perennial streams flow year-round during a typical year. The water table is located above the stream bed for most of the year and groundwater is a primary source for stream flow. A perennial stream is typically capable of supporting aquatic life.
- Intermittent streams flow during certain parts of the year, typically seasonally, when groundwater provides water for stream flow. Rainfall is a supplemental source of flow, and

during dry periods intermittent streams may not have flowing water. Biological constituents are adapted to wet and dry fluctuations.

- Ephemeral streams only flow for short durations after precipitation events. Ephemeral stream beds are located above the water table year round, and runoff from rainfall is the primary source of flow. Aquatic life is extremely scarce or typically absent. Many ephemeral streams are not USACE regulated waters; in order to be considered jurisdictional, ephemeral streams must have a surface connection to jurisdictional waters and exhibit an ordinary high water mark (OHWM).

All tidal waters, interstate waters, and intrastate waters whose use, degradation, or destruction could affect interstate commerce are considered jurisdictional and subject to USACE regulation. In practical application, this includes all perennial and intermittent streams and all ephemeral streams exhibiting an OHWM. Also included are natural lakes and ponds with surface connections to navigable water or other ties to interstate commerce, all impounded lakes or ponds created from jurisdictional waters described above, and their adjacent wetlands.

Two watersheds are found within the study area: the El Paso-Las Cruces watershed and the Rio Grande-Ft. Quitman watershed. These watersheds are shown on **Exhibit 3-11**. Within these two watersheds, a total of 14 potential waters of the U.S., (including unnamed ponds, arroyos, streams, ditches and canals) were identified.

### **3.7.3 Wetlands**

EO 11990, Protection of Wetlands, established a national policy “to avoid to the extent possible, the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.” The FHWA Technical Advisory T 6640.8A (FHWA 1987) provides guidelines for addressing wetland impacts in environmental documents, including the identification of the extent of wetlands impacted, their type, quality, and function. Alternatives for avoidance and practicable measures to minimize harm to wetlands should be addressed. The relative importance of the wetland resource, its function within the area, and any uniqueness that may contribute to the wetland’s importance should be presented.

The CWA recognizes the “functions and values” of wetlands as the principle reasons for regulating wetlands and avoiding unnecessary impacts. The “function” of wetlands relates to their physical, chemical, and biological attributes. Examples of wetland functions include flood flow alteration, wildlife habitat, and groundwater recharge. The term “values” may be used to describe those functions that are generally regarded as beneficial to society. Recreation and uniqueness are examples of values. Functions and values are typically associated and weighed by a combination of a wetland’s inherent capabilities combined with the opportunity to perform those capabilities.

Jurisdictional wetlands (i.e., wetlands that are subject to permitting under Section 404 of the CWA, as discussed below) are transitional areas between terrestrial and aquatic systems that are inundated or saturated by surface or groundwater at a duration and frequency sufficient to support a prevalence of hydrophytic vegetation and anaerobic soil conditions under normal circumstances. Jurisdictional wetlands are determined by the *1987 Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* according to three criteria: 1) the presence of hydrophytic vegetation; 2) hydric soil characteristics; and 3) wetland hydrology.

In general, wetland resources can be classified using the U.S. Fish and Wildlife Service (USFWS) Cowardin system. The Cowardin system differentiates wetland types on the basis of ecological systems, subsystems, and classes. Systems are broad groupings of wetland habitats which share similar hydrology, geomorphology, chemistry, and biological characteristics. Only one of the three parameters required by the USACE is necessary to establish a wetland using the Cowardin designation as applied on National Wetland Inventory (NWI) maps; therefore, many NWI wetlands may not be jurisdictional wetlands regulated by the USACE. Wetland types identified within the study area include palustrine, riverine, and lacustrine. **Exhibit 3-11** identifies NWI wetlands within the study area.

**Palustrine:** includes all non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent lichens, or mosses, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5%. Palustrine systems are bounded by uplands or any of the other Cowardin systems. Examples of palustrine systems would be marshes, swamps and bogs.

There are approximately 48.54 acres of palustrine wetlands within the study area (**Table 3-36**). This acreage includes approximately 4.09 acres of freshwater emergent wetlands, 23.29 acres of forested/shrub wetlands, and 21.16 acres of freshwater ponds.

It is likely that the 4.09 acres of freshwater emergent wetlands and 23.29 acres of forested/shrub wetlands would be jurisdictional provided they are adjacent to navigable waters, within the floodplain of the Rio Grande, and/or are connected by a surface tributary to a navigable water. The jurisdictional status of these areas would be determined during the USACE verification process.

**Riverine:** includes wetlands and deepwater habitats contained within a channel, except those wetlands: 1) dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens; and 2) which have habitats with ocean-derived salinities in excess of 500 ppm. Riverine systems are bounded on the landward side by upland, by the channel bank, or by wetlands dominated by trees, shrubs, persistent emergents, or emergent mosses or lichens.

Approximately 163.24 acres of riverine wetlands lie within the study area (**Table 3-36**). These wetlands include areas along the Rio Grande. These riverine wetlands are almost exclusively lower perennial systems and would likely be jurisdictional waters.

**Lacustrine:** those wetlands and deepwater habitats exceeding 20 acres in size with less than 30% areal vegetation cover situated in a topographic depression or dammed river channel.

There are approximately 16.48 acres of lacustrine wetlands within the study area (**Table 3-36**). This includes open water areas greater than 6.5 ft deep (limnetic) and areas less than 6.5 ft deep to the shoreward edge of the system. Dammed river channels and naturalized depressional areas with surface connections to navigable waters are likely to be jurisdictional. Man-made depressions excavated from upland and/or isolated features may not be jurisdictional areas. This determination would be made during the USACE verification process.

The potential wetland features discussed here are based on the USFWS system, as developed by Cowardin, et al., in 1979, and mapped on NWI maps. It should be pointed out that the NWI classification system is not the same as the system developed by the USACE for determination of jurisdictional wetlands under Section 404 of the CWA. However, the NWI maps provide a

good first estimate of the number, type, and extent of features that may qualify as potentially jurisdictional wetlands.

Aerial photographs and NWI maps were analyzed and used to identify and confirm the location and extent of potential wetland resources within the study area. Limited field verification of the occurrence of potential wetlands was then conducted, where access was available, to further assess the resource.

The potential wetland features identified within the proposed study area, using the protocol described above, are shown on **Exhibit 3-11**. Potential wetlands and other waters of the U.S. occur in various sizes within the proposed study area. Most obvious features are associated with the Rio Grande. **Table 3-16** identifies the potential wetlands and other jurisdictional waters within the study area.

**Table 3-16: Potentially Jurisdictional Wetlands and Other Jurisdictional Waters**

Potential Wetland or Other Jurisdictional Water	Area Within Study Area (acres)
Freshwater Emergent Wetland	4.09
Freshwater Forested/Shrub Wetland	23.29
Freshwater Pond	21.16
Lake	16.48
Riverine	163.24
<b>Total</b>	<b>228.26</b>

Source: Texas Natural Resource Information System 2012, USFWS NWI

### 3.8 WILD AND SCENIC RIVERS

The federal Wild and Scenic Rivers Act was enacted into law on October 2, 1968. Section 1(b) of the Act expresses Congressional policy, stating that certain selected rivers of the nation that, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. On November 10, 1978, the segment of the Rio Grande River on the U.S. side of the river from river miles 842.3 above Mariscal Canyon downstream to river mile 651.1 at the Terrell-Val Verde County line, was designated a Wild and Scenic River. This 191-mile stretch of the U.S. side of the Rio Grande along the Mexican border begins in Big Bend National Park. The proposed project would not involve work within the designated segment of the Rio Grande that would harm the river’s free-flowing condition, water quality or outstanding resource values.

### 3.9 ECOLOGICAL RESOURCES

Section 3.9 provides a description of the ecological resources within the study area. The following information is derived from recorded information sources such as private and governmental literature and color, infrared, or black and white aerial photography, as well as from general reconnaissance-level field surveys and subsequent ecological analyses. Reference maps utilized in the investigation and analyses include U.S. Geological Survey 7.5 minute topographic quadrangles, USFWS NWI maps (USFWS 2009), NRCS Soil Surveys (USDA 1977), the Geologic Atlas of Texas (Brewton, et al. 1976), the Vegetation Types of Texas (McMahan, et al. 1984) and project maps. Reconnaissance-level field investigations

were conducted to collect more detailed baseline information and to ground-truth ecological conditions represented in the base references described above.

### **3.9.1 Regulatory Authority**

#### **3.9.1.1 TxDOT-Texas Parks and Wildlife Department (TPWD) Memorandum of Understanding (MOU)**

Provision (4)(A)(i) of the 1998 MOU between TxDOT and TPWD requires that the vegetation and habitat for the proposed project be characterized, as defined by Sections 1, 2 and 3 of the 2001 TxDOT-TPWD Memorandum of Agreement (MOA), and the proposed impact to vegetation described.

Section 1 of the TxDOT-TPWD MOU requires the description of unusual vegetation and special habitat features. Unusual vegetation features include unmaintained, fence line and riparian vegetation; trees that are unusually larger than other trees in the area; and unusual stands or islands of vegetation. Special habitat features include bottomland hardwoods, caves, cliffs and bluffs, native prairies, ponds, seeps or springs, snags, water bodies (creeks, streams, rivers, lakes, etc.), and existing bridges with known or easily observed bird or bat colonies.

In accordance with Provision (4)(A)(ii), the TxDOT-TPWD MOU identifies non-regulatory habitats that TxDOT would consider mitigating should the proposed project impact the habitats. The habitats include:

- Any habitat for federal candidate species if mitigation would prevent the listing of the species;
- S3 vegetation series that provide habitat for state-listed species;
- S1 and S2 vegetation series;
- Native prairies and riparian sites; and
- Any other habitat feature considered to be locally important.

S1 communities are critically imperiled in the state, extremely rare and very vulnerable to extirpation. S2 communities are imperiled in the state, very rare and vulnerable to extirpation. S3 communities are rare or uncommon in the state.

#### **3.9.1.2 Migratory Bird Treaty Act**

Multiple parks and recreation areas in El Paso provide important migratory bird fallout areas for birds migrating along the Central Flyway (TPWD 2005). The Rio Grande, irrigation canals and local parks, including Keystone Heritage Park, Arroyo Park, and Feather Lake Wilderness Park provide resting and feeding habitat for neotropical and nearctic birds during migration. Feather Lake Wilderness Park, Rio Bosque Wetlands Park, and Crossroads Pond provide wetland resources that are heavily used by migrating waterfowl in the fall and winter months (El Paso/Trans-Pecos Audubon 2010). Feather Lake Wildlife Sanctuary and the Rio Bosque Wetlands Park, located more than 8 miles from the study area, document between 219 and 229 resident and migratory bird species observed on the preserves (El Paso/Trans-Pecos Audubon Society 2010).

The Migratory Bird Treaty Act of 1918 states it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, or egg in part or in whole, without a federal permit issued in accordance with the Act's policies and regulations.

### **3.9.1.3 Endangered Species Act of 1973**

The Endangered Species Act (ESA), as amended (16 USC 1531-1544), ensures that any actions authorized, funded, or carried out by federal agencies do not jeopardize the continued existence of any listed endangered or threatened species or adversely modify or destroy critical habitat of such species. An “endangered” species is defined as one that is in danger of extinction throughout all or a significant portion of its range. A “threatened” species is defined as one that is likely to become endangered in the foreseeable future.

The purpose of the ESA is to conserve threatened and endangered species and the ecosystems that they depend on as well as to establish a process for adding qualified species (and habitat critical to their continued existence) to the official list through a formal rulemaking procedure that includes public input and involvement. The ESA applies to any project that may impact threatened or endangered species and/or their associated critical habitat. Any time an action may affect a listed species or its critical habitat, the agency, organization, or individual taking the action shall consult with the USFWS. Failure to comply with the ESA can result in civil and criminal penalties.

The Secretary of the Interior, through the Endangered Species Program of the USFWS, determines whether to add a species to the federal list of endangered or threatened wildlife and plants depending on threats to habitat, commercial overutilization, disease, the inadequacy of existing regulatory protections, or other natural or manmade factors that could affect the continued existence of a species. This decision is based on the best science available at the time. Once a species is listed, the ESA prohibits the following actions unless permitted:

- Import, export, interstate transport, or sale of protected animals and plants without a permit;
- Killing, harming, harassing, possessing, or removing protected animals from the wild without a permit or without consulting with USFWS; and
- Removing listed plants from federal lands without a permit.

Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the Endangered Species Act details the consultation process by which the lead federal agency coordinates with the USFWS. This consultation process is further implemented by regulation (50 CFR 402).

Section 10 of the ESA allows the USFWS to issue permits for the “incidental taking” of protected species. Approval must be obtained prior to conducting any activity that may “take” a threatened or endangered species. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. A Section 10 incidental take permit allows the holder to take a listed species when the action involved is incidental to, and not the purpose of, an otherwise lawful activity.

### **3.9.1.4 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) is the federal regulation that governs the management of U.S. marine fisheries. In 1996, Congress amended the Magnuson-Stevens Act and mandated the identification of essential fish habitat (EFH) for managed species, as well as measures to conserve and enhance the habitat necessary for fish to carry out their life cycles. EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 U.S.C. 1802(10)).

### **3.9.1.5 Section 404 of the Clean Water Act**

The USACE has regulatory authority over Section 404 of the CWA, which requires that all construction activities within waters of the U.S. be permitted by the USACE. Prior to granting a permit, the USACE weighs the need to protect aquatic resources against the benefits of the proposed development. USACE policy requires applicants to avoid impacts to wetlands and other waters to the extent practicable, then minimize the remaining impacts and finally take measures to compensate for unavoidable impacts (USACE 2003).

Federal mandates have been issued requiring project review and mitigation (when necessary) for projects that impact wetlands and other waters of the U.S. under Section 404 of the CWA. The U.S. Secretary of the Army, through the Chief of Engineers, issues permits for the discharge of dredged or fill materials into waters of the U.S., including wetlands. The USACE also issues permits under Section 10 of the Rivers and Harbors Act of 1899 (also 33 USC 403), for filling, dredging, and construction in certain regulated waters. Section 9 of the Rivers and Harbors Act (also 33 USC 114/115) requires coordination and a permit with the U.S. Coast Guard before constructing or modifying a bridge structure crossing over a navigable waterway.

The project does not involve work in or over a navigable water of the U.S., therefore Section 9 of the Rivers and Harbors Act and the General Bridge Act does not apply.

### **3.9.1.6 TPWD**

The TPWD has regulatory jurisdiction over the TPWD Code. Chapter 14 of the Texas Parks and Wildlife Code describes the powers and duties of the TPWD with regards to wetlands. Specifically, Section 14.002 states that the TPWD, in conjunction with the Texas General Land Office, shall develop and adopt a wetlands conservation plan for state-owned wetlands. The Texas Wetlands Conservation Plan was finalized in the spring of 1997 (TPWD 1997).

### **3.9.1.7 IBWC**

The IBWC has regulatory authority over provisions in the U.S.-Mexico "Treaty of Guadalupe Hidalgo of Peace, Friendship, Limits and Settlement Between the U.S. and Mexico" signed February 2, 1848 (TS 207, 9 Stat. 922-43), which established a temporary joint boundary commission to survey, mark, and map the new boundary between the two countries, and Articles 2, 20, 24, 25 of the Treaty between the U.S. and Mexico for the utilization of waters of the Colorado and Tijuana Rivers and the Rio Grande signed February 3, 1944 (TS 944;59 Stat 1219). The Water Treaty of February 3, 1944 expanded the jurisdiction and responsibilities of the IBWC. The Commission's jurisdiction extends along the U.S.-Mexico boundary and inland into both countries where the two countries have constructed international projects. The Commission is charged with application of the boundary and water treaties and settling differences that may arise in their application. The treaties authorize the following activities:

1. Demarcation of the land boundary
2. Preservation of the Rio Grande and Colorado River as the international boundary
3. Protection of lands along the rivers from floods by levee and floodway projects
4. Distribution between the two countries of the waters of the Rio Grande and the Colorado River
5. Regulation and conservation of the waters of the Rio Grande for their use by the two countries by joint construction, operation, and maintenance of international storage dams, reservoirs, and hydroelectric generating plant
6. Delivery of Colorado River waters allocated to Mexico
7. Solution of border sanitation and other border water quality problems (IBWC 2010).

Three POEs are located within the study area and are within the jurisdiction of the IBWC. These treaties require that activities in the IBWC ROW at the border or on IBWC maintained floodways be coordinated with and permitted by the IBWC.

### **3.9.2 Vegetation**

#### **3.9.2.1 Beneficial Landscape Practices**

The Executive Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds (issued April 26, 1994), directs that all Federal and federally-funded activities/projects that include landscape consideration shall, where cost-effective and to the extent practicable: 1) use regionally native plants for landscaping, 2) design, use or promote construction practices that minimize adverse effects on the natural habitat, 3) seek to prevent pollution by, among other things, reducing fertilizer and pesticide use and using integrated pest management techniques, 4) implement water and energy efficient practices, and 5) create outdoor demonstration projects. Furthermore, recommendations established in the Guidance for *Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds* should be considered in project design and reflected in NEPA documents for Federal and federally-funded activities and projects that include landscaping or effects on the landscape.

Landscaping for the proposed project would be in compliance with the Executive Memorandum on Environmentally Beneficial Landscaping and the associated guidelines for environmentally and economically beneficial landscape practices. In particular, landscaping would be limited to seeding and replanting the ROW with native species of grasses, shrubs, and/or trees where applicable and feasible.

#### **3.9.2.2 Invasive Species**

EO 13112 on Invasive Species (issued February 3, 1999) requires that each federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law: 1) identify such actions; 2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner, monitor invasive species populations accurately and reliably, provide for restoration of native species and habitat conditions in ecosystems that have been invaded, conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species, and promote public education on invasive species and the means to address them; and 3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere.

Federal agencies shall pursue the duties set forth in EO 13112 in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders.

Project landscaping would be limited to seeding and replanting the ROW with native species of grasses, shrubs, and/or trees where applicable and feasible in order to comply with the Executive Memorandum on Environmentally Beneficial Landscaping and EO 13112 on Invasive Species. No invasive or noxious species would be used to revegetate the ROW, and soil disturbance would be minimized to ensure that invasive species do not establish in the ROW.

### 3.9.2.3 TPWD Ecoregions of Texas

Texas has 10 distinct vegetation areas, or ecoregions. The study area lies within the Trans-Pecos ecoregion which occupies approximately 19 million acres in the extreme western part of the state eastward to the Pecos River (**Exhibit 3-13**). The Trans-Pecos is an area of diverse habitats, from desert valleys and plateaus to mountain slopes and peaks, and contains the main representation of the Chihuahuan Desert within the U.S. The Trans-Pecos region is located within the Basin and Range physiographic province, and is the only part of Texas where both mountain and desert habitats are found. Elevations in the Trans-Pecos range from 2,500 ft to more than 8,500 ft. Average annual precipitation within the ecoregion is less than 12 in. but ranges from less than 8 in. for the most arid localities to approximately 16 in. for the mountainous areas. Soils are complex, ranging from very alkaline limestone derived soils to highly residic volcanically derived soils. The unique combination of habitats in the region results in high vegetation diversity, including approximately 268 grass species and 447 species of woody plants (TPWD 2010c). Many vegetation types exist in the Trans-Pecos, but creosote-tarbush desert-scrub grassland is the dominant vegetation type (Correll and Johnson 1996). Other important vegetation types include grama grassland, yucca-juniper savannah, and pinyon pine-oak forest.

Historically, the Trans-Pecos was dominated by grasslands that were occasionally interspersed with shrubs and desert succulents. However, the vegetation and wildlife of the Trans-Pecos has changed rapidly in composition, abundance, and distribution over the past 120 years due to over-grazing by livestock, suppression of fire, and frequent drought (TPWD 2003). Grassland area has decreased and has been replaced by woody plants and bare ground in some areas. In grasslands at low elevations, woody plant invaders include creosotebush (*Larrea tridentata*), tarbush (*Flourensia cernua*), whitethorn acacia (*Acacia constricta*), honey mesquite (*Prosopis glandulosa*), and several species of cacti (TPWD 2003). Invading plants of the grasslands in the higher elevations include catclaw mimosa (*Mimosa aculeaticarpa*), sacahuiste (*Nolina microcarpa*), cane cholla (*Cylindropuntia imbricata*), perennial broomweed (*Gutierrezia sarothrae*), and prickly pear (*Opuntia sp.*) (TPWD 2003).

The vegetation communities described above represent a regional description of vegetation within the study area as mapped by TPWD. These vegetation community descriptions differ slightly from those listed in **Chapter 4** (Environmental Consequences). The vegetation communities described in **Chapter 4, Section 4.7.3** detail vegetation communities within the proposed ROW of the reasonable alternatives and are based on aerial photo interpretation and field reconnaissance.

### 3.9.2.4 TPWD Vegetation Types of Texas

The study area includes three mapped vegetation communities, as defined in TPWD's *The Vegetation Types of Texas, Including Cropland* (McMahan et al. 1984): Mesquite-Sandsage Shrub, Crops, and Urban. Refer to **Exhibit 3-14** for the mapped vegetation communities within the study area.

#### Mesquite-Sandsage Shrub

Mesquite-Sandsage shrub vegetation has the following commonly associated plants: fourwing saltbush (*Atriplex canescens*), palmella (*Yucca elata*), mormon tea (*Ephedra viridis*), sotol (*Dasyilirion leiophyllum*), sand dropseed (*Sporobolus cryptandrus*), mesa dropseed (*Sporobolus flexuosus*), spike dropseed (*Sporobolus contractus*), blue grama (*Bouteloua gracilis*), black grama (*Bouteloua eriopoda*), chino grama (*Bouteloua ramosa*), broom snakeweed (*Gutierrezia sarothrae*), and devil's claw (*Proboscidea parviflora*). Distribution for this vegetation type is

generally on sandy soils of the western Trans-Pecos, mainly in El Paso and Hudspeth counties. Approximately, 28.09 acres of Mesquite-Sandsage Shrub are mapped within the study area.

### **Crops**

Commonly associated plants for Crops include cultivated cover crops or row crops providing food and/or fiber for humans or domestic animals. The community may also include grasslands associated with crop rotations. In El Paso County, cultivated crops are found mostly in the floodplain of the Rio Grande. A majority of the study area is mapped as crops. Approximately, 4,073.3 acres are mapped as Crops within the study area.

### **Urban**

Urban is classified as developed areas, and would include the City of El Paso and surrounding development. Approximately 947.4 acres of Urban areas are mapped within the study area.

#### **3.9.2.5 Vegetation Within Study Area**

A habitat field reconnaissance survey was performed in January 2012 to verify the mapped vegetation types. The field survey identified three vegetation communities – each of which can be generally categorized under the mapped vegetation types of Texas. These communities include Mesquite-Sandsage Shrub, riparian and urban. The vegetation communities of “Crops” were not observed within the study area. These vegetation communities are discussed below and detailed further in **Chapter 4**. These descriptions are general and refer to regional conditions. Also, these vegetation community descriptions differ slightly from those listed in **Chapter 4**

#### **Mesquite-Sandsage Shrub**

Dominant species found in this type include honey mesquite, whitethorn acacia, creosotebush, tarbush, cane cholla, catclaw mimosa, blue grama, palmella, stool, prickly pear, sand dropseed, spike dropseed, feather dalea (*Dalea formosa*), bush muhly (*Muhlenbergia porteri*), and deer grass (*Muhlenbergia rigens*). Cover of this vegetation type was approximately 35% within the study area, with a large percentage of the study area being bare ground. This vegetation type most closely fits the description of Mesquite-Sandsage Shrub Vegetation type.

#### **Riparian**

Riparian habitats include vegetation found along the banks and on the floodplains of rivers, creeks, streams, irrigation canals, and arroyos. Riparian vegetation improves water quality and quantity, and provides important nutrients to the streams and rivers. Riparian vegetation also holds water by slowing the rate at which water moves from the land into streams and slows water to evaporation. Riparian corridors also provide crucial habitat for endangered species and migratory birds. Riparian vegetation within the study area was observed exclusively along portions of the Rio Grande. The most common vegetation observed in these areas was giant cane (*Arundo donax*), huisache (*Acacia smallii*), honey mesquite, prickly pear, *aster spp.*, Bermudagrass (*Cynodon dactylon*), sand dropseed, bushy muhly, Baccharis (*Baccharis salicifolia*), false broomweed (*Ericameria austrotexana*), and mormon tea (*Ephedra antisyphilitica*).

#### **Urban**

One observed vegetation community would generally be classified under the Urban vegetation type. This includes landscaped areas. This vegetation includes, but is not limited to, Afghan pine (*Pinus eldarica*), various species of cacti, Bermuda grass, Texas Ranger sage (*Leucophyllum frutescens*), Emory oak (*Quercus emoryi*), chastetree (*Vitex sp.*), live oak (*Quercus virginiana*), and desert willow (*Salix sp.*)

### **3.9.2.6 Rare Vegetation Communities**

Of the special habitat features listed in the MOU between TxDOT and TPWD, riparian sites have been identified in the study area. In accordance with Provision (4)(A)(ii) of the TxDOT-TPWD MOU, and at the TxDOT El Paso District's discretion, habitats given consideration for non-regulatory mitigation during project planning include the following:

1. habitat for federal candidate species (impacted by the proposed project) if mitigation would assist in the preservation of the listing of the species;
2. rare vegetation series (S1, S2 or S3) that also locally provide habitat for a state-listed species;
3. all vegetation communities listed as S1 or S2, regardless of whether or not the series in question provide habitat for state-listed species;
4. bottomland hardwoods, native prairies, and riparian sites; and
5. any other habitat feature considered locally important that the TxDOT District chooses to consider.

Habitats given consideration for non-regulatory mitigation would be avoided if possible. A review of the TPWD Texas Natural Diversity Database (TxNDD) in January 2012 identified the closest occurrence of a rare vegetation species would be for the Lechuguilla-sotol Series, along the east side of the Franklin Mountains, and the Scrub Oak-mountain Mahogany Series found on the northwest flank of the South Franklin Mountains. Occurrences of both of these rare vegetation series are documented approximately 3.4 miles from the study area and are located within the Franklin Mountains State Park. In addition to these two rare vegetation series, the Sideoats Grama-black Grama Series has been documented on the calcareous sedimentary lower slopes of both sides of the upper Fusselman canyon, within the Franklin Mountains State Park, approximately 5.24 miles from the study area. There are no rare vegetation series, located within the study area. Riparian sites are present along the Rio Grande within the study area. Attempts would be made to avoid these riparian sites during the design phase. No known habitat for federal candidate species, S1 or S2 vegetation communities, occur within the study area.

### **3.9.3 Wildlife**

Section 3.9.3 provides an overview of the wildlife resources within the study area. The wildlife species having a potential to occur within the study area are described based upon vegetation types established for Texas by the TPWD that occur within the proposed project limits defined in **Exhibit 3-1**.

#### **3.9.3.1 Wildlife Within Study Area**

Development has substantially impacted most of the study area, and urban areas and industrial activities dominate the landscape in the majority of the study area. Human encroachment into natural habitats causes the removal or decline of native vegetation, as a result the wildlife species composition and diversity also shows a decline from what probably once existed throughout the Trans-Pecos region of West Texas (TPWD 1998).

Common freshwater fish species in El Paso County that may be expected to occur within the irrigation canal and river habitats within the study area include gizzard shad (*Dorosoma cepedianum*), red shiner (*Cyprinella lutrensis*), common carp (*Cyprinus carpio*), river carpsucker (*Carpionodes carpio*), channel catfish (*Ictalurus punctatus*), western mosquitofish (*Gambusia affinis*), green sunfish (*Lepomis cyanellus*), longear sunfish (*Lepomis megalotis*), and bullhead minnow (*Pimephales vigilax*) (TPWD 1998).

The ranges of 69 reptile and amphibian species extend into El Paso County, including 10 toad/frog, 34 snake, four turtle, one salamander, and 21 lizard species (Bockstanz and Cannatella 2000). Reptile species that potentially occur within the study area include southwestern fence lizard (*Sceloporus cowlesi*), western diamondback rattlesnake (*Crotalus atrox*), coachwhip (*Masticophis flagellum*), and gopher snake (*Pituophis catenifer*).

The study area is located in the Central Flyway, a major bird migratory route. Many species of migrating and wintering shorebirds as well as neo-tropical songbirds utilize the Rio Grande and the irrigation canals in the El Paso area for feeding and resting during migration. The irrigation canals attract songbirds during the spring and fall migrations, migratory waterfowl such as ducks and geese in the late fall and winter, and various species of herons and waterfowl can be seen on the river and canals throughout the year. The El Paso area is also home to migrating and wintering raptors. Feather Lake Wildlife Sanctuary and the Rio Bosque wetland project site, located near the study area, document between 219 and 229 resident and migratory bird species observed on the preserves (El Paso / Trans-Pecos Audubon Society 2010). Avian species identified within the study area included barn swallow (*Hirundo rustica*), great-tailed grackle (*Quiscalus mexicanus*), house sparrow (*Passer domesticus*), Inca dove (*Columbina inca*), killdeer (*Charadrius vociferus*), northern mockingbird (*Mimus polyglottos*), mourning Dove (*Zenaida macroura*), common pigeon (*Columba livia*), western kingbird (*Tyrannus verticalis*), great egret (*Ardea alba*), and white-winged dove (*Zenaida asiatica*).

Of the 141 mammal species occurring in Texas, the ranges of 65 mammal species include El Paso County (Davis and Schmidley 1994). Mammal species that potentially occur within the study area include the desert cottontail (*Sylvilagus audubonii*), black-tailed prairie dog (*Cynomys ludovicianus*), rock squirrel (*Spermophilus variegatus*), black-tailed jackrabbit (*Lepus californicus*), striped skunk (*Mephitis mephitis*), and coyote (*Canis latrans*), as well as various mouse and bat species. No mammal species were observed during field surveys of the study area.

Wildlife is very diverse and abundant in the Trans-Pecos ecoregion. The study area is located in a biological transition zone of desert scrub, riparian areas, and montane foothills. This transition zone provides many different habitat types and lends itself to increased species diversity. Additionally, the Central Flyway funnels through the study area, and many bird species use the area as wintering or stopover habitat during migration. Wildlife expected to be typically distributed throughout the study area include various mammals, reptiles, birds, and amphibians adapted to continually fragmented and urbanizing habitats.

The following discussions are not intended to provide a definitive list of species potentially occurring within the study area but are intended to provide a general overview. It is important to note that not all species occurring or potentially occurring within El Paso County would be expected to occur or potentially occur within the study area. The distribution of species is based in part on the location of suitable habitats and such habitats may not be uniformly distributed or available throughout the county.

### **3.9.3.2 Sanctuaries and Preserves**

El Paso County includes several parks and preserves near the study area, including Franklin Mountains State Park in the northwestern part of the County and the Hueco Tanks State Historic Park in the eastern portion of the County. Other natural areas in the El Paso area include the Rio Bosque Park, Feather Lake Wildlife Sanctuary, the Wilderness Park Museum, Arroyo Park, and Memorial Park.

Franklin Mountains State Park is 1.57 miles from the study area. It was created by an Act of the Texas State Legislature in 1979, the TPWD acquired the property in 1981, and it was opened to the public in 1987. The park is the largest urban park in the nation, covering 24,247 acres within the city limits of El Paso. The vegetation within the park is typical of the northern Chihuahuan Desert, with lechuguilla (*Agave lechuguilla*), sotol, ocotillo (*Fouquieria splendens*), yuccas, and cacti. Franklin Mountains State Park is home to a diverse variety of wildlife, including deer, mountain lions, raptors, bats, and several rare and threatened species (TPWD 2010a).

Feather Lake Wildlife Sanctuary is approximately 8 miles from the study area. It is managed by the El Paso/Trans-Pecos Audubon Society as an environmental education area. It occupies 43.5 acres, including a 40-acre wetland as well as desert scrub-grasslands and riparian woodlands. Feather Lake Wildlife Sanctuary provides habitat for muskrats, turtles, and various reptiles. Over 219 species of migratory and resident birds have been observed at the sanctuary, and it provides heavily used wintering habitat for ducks, other waterbirds, and wading birds (El Paso/Trans-Pecos Audubon Society 2010).

The Rio Bosque Wetland Park is approximately 9.1 miles from the study area. The park encompasses approximately 350 acres, located approximately 10 miles southeast of downtown El Paso. The land is owned by the City of El Paso while the UTEP and Ducks Unlimited are managing the created wetland habitat for waterfowl and other wildlife under a 30-year agreement with the City of El Paso (UTEP 2010). The park provides important habitat for approximately 18 species of reptiles, 21 species of mammals, and four species of amphibians. Over 229 species of migratory and resident birds have been recorded at Rio Bosque, including various songbirds, waterbirds, and raptors (UTEP 2010).

### **3.9.4 Essential Fish Habitat**

The Magnuson-Stevens Fishery Conservation and Management Act, as amended October 11, 1996, directs that all federal agencies whose actions would impact Essential Fish Habitat (EFH) must consult with the National Oceanic and Atmospheric Association-National Marine Fisheries Services (NOAA-NMFS) regarding potential adverse impacts. Although the Rio Grande and several of its tributaries occur in the study area, these water bodies are not tidally influenced in the study area. Therefore, the proposed project is not subject to the Magnuson-Stevens Fishery Conservation and Management Act and would not impact EFH as defined by 16 USC 1802.

### **3.9.5 Threatened and Endangered Species**

The purpose of Section 3.9.5 is to provide a brief summary of the listing and monitoring procedures employed by the federal and state governments, to provide a list of threatened and endangered species, potentially occurring in the study area, and to provide brief ecological descriptions of these sensitive resources.

#### **3.9.5.1 List of Endangered and Threatened Species**

The list of rare species potentially occurring in the proposed study area was obtained from lists and supplementary information from the USFWS (USFWS 2012) and the Wildlife Diversity Program in the Wildlife Division of the TPWD (TPWD 2012a). **Table 3-17** presents the current status of those sensitive species, and footnotes below the table explain the rationale for the various classifications.

**Table 3-17: Rare, Threatened and Endangered Species for El Paso County, Texas**

Scientific Name	Common Name	USFWS Status*	TPWD Status**	Habitat Present
<b>PLANTS</b>				
<i>Colubrina stricta</i>	Comal snakewood		--	Yes
<i>Peniocereus greggii var greggii</i>	Desert night blooming cereus		--	Yes
<i>Perityle huecoensis</i>	Hueco rock-daisy		--	No
<i>Brickellia baccharidea</i>	Resin-leaf brickellbush		--	Yes
<i>Opuntia arenaria</i>	Sand prickly-pear		--	Yes
<i>Nolina arenicola</i>	Sand sacahuista		--	No
<i>Escobaria sneedii var sneedii</i>	Sneed's pincushion cactus	E	E	No
<i>Allolepis texana</i>	Texas false saltgrass		--	Yes
<i>Chamaesyce geyeri var. wheeleriana</i>	Wheeler's spurge		--	No
<b>AMPHIBIANS</b>				
<i>Rana pipiens</i>	Northern leopard frog		--	Yes
<b>BIRDS</b>				
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	DL	T	No
<i>Falco peregrinus tundrius</i>	Arctic Peregrine Falcon	DL	--	No
<i>Ammodramus bairdii</i>	Baird's Sparrow		--	No
<i>Buteo regalis</i>	Ferruginous Hawk		--	No
<i>Sterna antillarum athalassos</i>	Interior Least Tern		E	No
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	T	T	No
<i>Cyrtonyx montezumae</i>	Montezuma Quail		--	No
<i>Falco femoralis septentrionalis</i>	Northern Aplomado Falcon	E	E	No
<i>Falco peregrinus</i>	Peregrine Falcon	DL	T	No
<i>Falco mexicanus</i>	Prairie Falcon		--	No
<i>Charadrius alexandrinus</i>	Snowy Plover		--	No
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	E	E	No
<i>Anthus spragueii</i>	Sprague's Pipit		--	No
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl		--	Yes
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover		--	No
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C	--	No
<b>INSECTS</b>				
<i>Sphingicampa raspa</i>	Royal moth		--	No
<i>Cicindela hornii</i>	Horn's tiger beetle		--	No
<i>Cicindela politula barbarannae</i>	Barbara Ann's tiger beetle		--	No
<i>Fixsenia polingi</i>	Poling's hairstreak		--	No
<b>FISH</b>				
<i>Notropis simus simus</i>	Bluntnose shiner		T	Yes
<i>Hybognathus amarus</i>	Rio Grande silvery minnow		E	No
<b>MAMMALS</b>				
<i>Nyctinomops macrotis</i>	Big free-tailed bat		--	No
<i>Ursus americanus</i>	Black bear		T	No
<i>Mustela nigripes</i>	Black-footed ferret		--	No
<i>Cynomys ludovicianus</i>	Black-tailed prairie dog		--	No
<i>Myotis velifer</i>	Cave myotis bat		--	Yes
<i>Geomys arenarius</i>	Desert pocket gopher		--	Yes
<i>Myotis thysanodes</i>	Fringed bat		--	Yes
<i>Canis lupus</i>	Gray wolf		E	No
<i>Myotis volans</i>	Long-legged bat		--	No
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's big-eared bat		--	Yes
<i>Ondatra zibethicus ripensis</i>	Pecos River muskrat		--	Yes
<i>Lasiurus blossevillii</i>	Western red bat		--	No
<i>Myotis ciliolabrum</i>	Western small-footed bat		--	No
<i>Myotis yumanensis</i>	Yuma myotis bat		--	Yes
<b>REPTILES</b>				
<i>Trachemys gageae</i>	Big Bend slider		--	No
<i>Trimorphodon vilkinsonii</i>	Chihuahuan desert lyre snake		T	No

**Table 3-17: Rare, Threatened and Endangered Species for El Paso County, Texas**

Scientific Name	Common Name	USFWS Status*	TPWD Status**	Habitat Present
<i>Phrynosoma hernandesi</i>	Mountain short-horned lizard		T	No
<i>Thamnophis sirtalis dorsalis</i>	New Mexico garter snake		--	Yes
<i>Phrynosoma cornutum</i>	Texas horned lizard		T	Yes
<b>MOLLUSKS</b>				
<i>Sonorella metcalfi</i>	Franklin Mountain talus snail		--	No
<i>Ashmunella pasonis</i>	Franklin Mountain wood snail		--	No

Source: USFWS last updated 11/1/2011; TPWD last updated 2/23/2012

\*USFWS Listing Status – E – Endangered; T – Threatened; DL – Delisted Taxon, Recovered, Being Monitored First Five Years; C – Candidate for Listing; “blank” - not listed by the USFWS for El Paso County

\*\*TPWD listing status – E – Endangered; T – Threatened; “--” – Species of Concern/Rare, but with no regulatory listing status

### 3.9.5.2 Potential Occurrences and Ecological Requirements

Table 3-37 presents federal- and state-listed threatened and endangered species that have been identified as potentially occurring in the study area. Species lists for El Paso County were obtained from the TPWD in February 2012. Reconnaissance level surveys were conducted in January 2012 to determine habitat availability within the study area for listed species.

Additionally, a check of the TPWD’s TxNDD was obtained January 2012. The TxNDD showed occurrences for three state-listed rare species (Pecos river muskrat, sand prickly-pear, and Texas false saltgrass) within the study area. These occurrences are discussed briefly below and in further detail within Chapter 4. The Texas Cooperative Wildlife Collection at Texas A&M University and the curated collection in the Division of Herpetology at UTEP were also consulted for occurrence records of reptiles and amphibians listed in Table 3-17 in the study area. There have been no other recorded sightings of any federal- or state-listed species within close proximity of the study area.

### 3.9.5.3 Occurrences and Ecological Requirements of Protected or Otherwise Sensitive Species Plants

Comal snakewood is a state-listed rare species. Comal snakewood is a small shrub that ranges from 3 to 13 ft in height. The habitat for this species consists of patches of thorny shrubs in colluvial deposits and sandy soils at the base of igneous rock outcrops. There are nine recorded occurrences of this species, three of which are historic, that are widely scattered over a relatively broad range from Texas to northern Mexico. Fewer than 1,000 individuals probably exist range-wide. In El Paso County, the single Texas occurrence is among igneous boulders in Chihuahuan Desert scrub. Suitable habitat for Comal Snakewood occurs within the study area; however, there are no known occurrences of this species within the study area. Although habitat for the Comal snakewood has been observed within the study area, the species was not observed during field reconnaissance.

Desert night blooming cereus is a state-listed rare species. It is a succulent perennial cactus, usually about 3 ft tall, with fragrant, white, nocturnal flowers. The habitat for this species consists of gravelly flats and washes in desert shrublands or shrub-invaded grasslands with gentle, gravelly slopes. This cactus is reported from western Texas, southern New Mexico, extreme southeastern Arizona, and northern Mexico. Although the cactus is quite widespread, it is of rare and limited occurrence throughout its range. Suitable habitat for desert night blooming cereus occurs within the study area; however, there are no known occurrences of this species within the study area. Although habitat for the desert night blooming cereus has been observed within the study area, the species was not observed during field reconnaissance.

Hueco rock-daisy is a state-listed rare species. It is a shrublet with small, toothed, oval leaves that produces clusters of small yellow, daisy-like flower heads. The habitat for this species consists of north-facing, vertical limestone cliffs within relatively narrow, deep, somewhat mesic canyons. This species is known to occur within two canyons in the Hueco Mountains on the Fort Bliss Military Reservation in El Paso County. Suitable habitat for Hueco rock-daisy does not occur within the study area, and there are no known occurrences within the study area.

Resin-leaf brickellbush is a state-listed rare species. It is a shrub approximately 3 ft tall with slender, ascending branches and with clusters of fall-blooming flower heads that lack rays. Habitat for this species consists of the bajada slopes and arroyos in mixed desert shrublands on gravelly soils derived from limestone and igneous rocks. There are about twenty occurrences known in extreme western Texas, southern Arizona, New Mexico, and northern Sonora, Mexico. Suitable habitat for resin-leaf brickellbush occurs within the study area however, there are no known occurrences within the study area. Although habitat for the Resin-leaf brickellbush has been observed within the study area, the species was not observed during field reconnaissance.

Sand prickly-pear is a state-listed rare species. This species is a creeping succulent that forms patches of jointed stems, up to 5 ft in diameter. Habitat for the sand prickly-pear consists of sandy soils in semi-desert grasslands, usually in floodplains, sandhills, and sand dunes from elevations of 3,700-4,400 ft. There are seven populations known in two counties of New Mexico, eight in Texas (although only three are recently documented occurrences), and three in Chihuahua, Mexico. Suitable habitat for sand prickly-pear occurs within the study area and the TxNDD reports occurrences for this species within the study area. The El Paso Cactus and Rock club stated that suitable habitat for sand prickly-pear occurs in the study area (Konings 2012). Although habitat for the sand prickly-pear has been observed within the study area, the species was not observed during field reconnaissance.

Sand sacahuista is a state-listed rare species. It is a woody perennial herb with a flowering stem, growing within a large clump of long narrow leaves. Habitat for sand sacahuista consists of mesquite and sandsage shrublands on reddish, windblown Quaternary sand in dune areas and also pine-oak-juniper woodlands on steep Permian limestone slopes in the Guadalupe Mountains in western Texas. At present, only two occurrences have been positively identified; one occurrence is within a national park, and the other is near and on a highway ROW. Suitable habitat for sand sacahuista does not occur within the study area, and there are no known occurrences within the study area.

Sneed's pincushion cactus is a federally-listed endangered species. Habitat for the cactus is restricted to xeric limestone outcrops on rocky slopes in desert mountains and it often grows in cracks on vertical cliffs or ledges in Chihuahuan desert scrub at elevations of 3,900 to 7,700 ft. Flowering occurs in March through June, with fruiting in May through September. Occurrences have been documented within the Franklin Mountains State Park. The El Paso Cactus and Rock club stated that suitable habitat for Sneed's pincushion does not occur within the study area (Konings, 2012). There are no known occurrences of Sneed's pincushion cactus within the study area, and the species was not observed during field surveys.

Texas false saltgrass is a state-listed rare species. Texas false saltgrass is a perennial, stoloniferous grass. Its habitat consists of deep, sandy, or silty soils, usually in alluvial areas within the Chihuahuan Desert. The seasonally wet sites that the species occupies are often intensively used in desert areas, and the species has virtually disappeared from most of its former range. Suitable habitat for Texas false saltgrass occurs within the study area, and the TxNDD reports occurrences for this species within the study area. Although habitat for the

Texas false saltgrass has been observed within the study area, the species was not observed during field reconnaissance.

Wheeler's spurge is a state-listed rare species. Wheeler's spurge is an annual herbaceous plant. Its habitat consists of sparsely vegetated, loose, eoline quartz sand on reddish sand dunes or coppice mounds in the eastern portion of El Paso County (Correll and Johnson 1996). Occurrences have been documented by TxNDD within Hudspeth County and near El Paso on Highway 180. Suitable habitat for Wheeler's spurge does not occur within the study area, and there are no known occurrences within the study area.

### **Amphibians**

The northern leopard frog is a state-listed rare species. It is a slim, long-legged, green, or brownish frog with oval or round dark dorsal spots. Habitat for the northern leopard frogs consists of areas within the vicinity of springs, slow streams, marshes, bogs, ponds, canals, floodplains, reservoirs, and lakes; usually the northern leopard frog is found in or near permanent water with rooted aquatic vegetation. Records at the curated collection in the Division of Herpetology at UTEP indicate the northern leopard frog was collected 4 miles north of the proposed project in 1969. However, no recent records exist for northern leopard frogs in El Paso County. Suitable habitat for the northern leopard frog occurs within the study area; however, there are no known occurrences within the study area, and the species was not observed during field reconnaissance.

### **Birds**

Two subspecies of the peregrine falcon occur in Texas. The American Peregrine Falcon is a known resident in the Chisos and Guadalupe Mountains. The Arctic Peregrine Falcon winters along the entire Gulf coast and occurs statewide during migration (USFWS, 2006). Either of these taxa have potential for occurring in the study area, particularly during spring and fall migrations (Oberholser, 1974; Texas Ornithological Society (TOS) 1995). However, there are no essential components of peregrine falcon habitat within the study area.

- The American Peregrine Falcon is a state-listed threatened species, but is a federally de-listed species. It is a medium-sized falcon that is a year-round resident and local breeder in West Texas. It occupies a wide range of habitats during migration, including urban areas and winters along the coast and barrier islands. Suitable habitat for the American Peregrine Falcon does not occur within the study area, and there are no known occurrences within the study area.
- The Arctic Peregrine Falcon is a federally de-listed species. The Arctic Peregrine Falcon is a medium-sized falcon that is a winter migrant though the Trans-Pecos area from its northern breeding grounds. It occupies a wide range of habitats during migration, including urban areas and winters along the coast and barrier islands. Suitable habitat for the Arctic Peregrine Falcon does not occur within the study area, and there are no known occurrences within the study area.

Baird's Sparrow is a state-listed rare species. It is a small, short-tailed grassland bird that is a winter migrant though the Trans-Pecos area. Nonbreeding habitat includes open grasslands and overgrown fields including dense stands of grass, usually in extensive expanses of grasslands. They can also be found on south-facing slopes of mixed-oak grassland. Breeding habitat in the species' range has been lost or degraded as a result of conversion to agriculture and drainage of wetlands. Suitable habitat for Baird's Sparrow does not occur within the study area, and there are no known occurrences within the study area.

The Ferruginous Hawk is a state-listed rare species. This species winters in the Trans-Pecos region. Its habitat consists of open country, primarily prairies, plains, and badlands, sagebrush, saltbush-greasewood shrubland, the periphery of pinyon-juniper and other woodland, and desert habitat. Suitable habitat for the Ferruginous Hawk does not occur within the study area, and there are no known occurrences within the study area.

The Interior Least Tern is a federal- and state-listed endangered species whose historic distribution includes breeding sites on the sandbars of the Canadian River, Red River, and Rio Grande systems in Texas. Ideal nesting area can be salt flats, sandbars, and barren shores along wide, shallow rivers. Dams, reservoirs and other changes to river systems have eliminated most of the tern's historic habitat. Now the bird occurs only in patches along their historic distribution and usually winters on the Texas Gulf Coast. Suitable habitat for the Interior Least Tern does not occur within the study area, and there are no known occurrences within the study area.

The Mexican Spotted Owl is a federal- and state-listed threatened species. It is a large, dark-eyed, round-headed, brown owl with a spotted breast and a barred belly. The highest densities of this species occur in mixed-conifer forests that have experienced minimal human disturbance. In the southwestern U.S., Mexican Spotted Owls are most common where unlogged closed canopy forests occur in steep canyons. Suitable habitat for the Mexican Spotted Owl does not occur within the study area, and there are no known occurrences within the study area.

The Montezuma Quail is a state-listed rare species. This species is usually found in pairs or small groups and prefers Pine-oak and oak scrub in highlands, especially in open woodland with grass understory. It nests on the ground in a scrape lined with grasses, and often nests under the cover of a bush or grass tufts. This quail ranges from central and southeastern Arizona, southern New Mexico, western and central Texas through central Mexico. Suitable habitat for the Montezuma Quail does not occur within the study area, and there are no known occurrences within the study area.

The Northern Aplomado Falcon is both a federal- and state-listed endangered species. It inhabits open rangeland, savanna, and semiarid grasslands with scattered trees and shrubs. It can also be found in woodlands along desert streams, and in desert grasslands with scattered mesquite and yucca. The falcon nests in old stick nests of other bird species. The falcon has historic habitat in southern Texas, New Mexico, and Arizona, but is currently found mainly in central Mexico. Suitable habitat for the northern Aplomado Falcon does not occur within the study area, and there are no known occurrences within the study area.

The Prairie Falcon is a state-listed rare species. It is a medium-sized falcon that prefers primarily open habitats, especially in mountainous areas, steppe, plains or prairies. It typically nests in a pot hole or well-sheltered ledge on a rocky cliff or steep earth embankments. During the winter, the falcons use dryland wheat fields, irrigated winter wheat, and other irrigated croplands. Suitable habitat for the Prairie Falcon does not occur within the study area, and there are no known occurrences within the study area.

The Snowy Plover is a state-listed rare species. The Snowy Plover is a potential winter migrant through the Trans-Pecos area to the Texas Gulf Coast beaches and bayside mud or salt flats. They nest in shallow depressions on beaches, dry mud or salt flats, sandy shores of rivers, lakes and ponds where vegetation is sparse or absent. Suitable habitat for the Snowy Plover does not occur within the study area, and there are no known occurrences within the study area.

The Southwestern Willow Flycatcher is a federal- and state-listed endangered species. It is a small bird that can be found in thickets, scrubby, and brushy areas, open second growth, swamps, and open woodland along desert streams. The decline of this species is due primarily to destruction and degradation of cottonwood-willow and structurally similar riparian habitats. The Southwestern Willow Flycatcher is primarily found in the middle Rio Grande Valley. The riparian vegetation present within the study area does not consist of woodland riparian vegetation. Therefore, suitable habitat for the Southwestern Willow Flycatcher does not occur within the study area, and there are no known occurrences within the study area.

Sprague's Pipit is a state-listed rare species. The Sprague's Pipit is only in Texas during migration and winter from approximately mid-September to early April. Sprague's Pipit is considered a diurnal migrant and has strong ties to native upland prairie. It can also be locally common in coastal grasslands, however is uncommon to rare in western Texas. This species is a ground feeder that eats mainly arthropods, but occasionally seeds during migration and at wintering grounds. It nests where coarse and fine dried grasses can be found, often in native upland prairie areas when available. Suitable habitat for the Sprague's Pipit does not occur within the study area, and there are no known occurrences within the study area.

The Western Burrowing Owl is a state-listed rare species. It can be found in open grasslands, especially prairie, plains, and savannah, and sometimes in open areas such as vacant lots near human habitation. It nests and roosts in abandoned burrows dug by mammals, especially prairie dogs. The primary threats to the owl are habitat loss and fragmentation, primarily due to intensive agricultural and urban land conversion and habitat degradation due to control and extermination of colonial burrowing mammals. Habitat for the Western Burrowing Owl has been observed within the study area. The species was observed adjacent to the eastern portion of the study area during field reconnaissance, outside the proposed study area and project impact area. Suitable habitat for the Western Burrowing Owl occurs within the study area; however, there are no observed, documented, or known occurrences within the study area.

The Western Snowy Plover is a state-listed rare species. The Western Snowy Plover is a potential winter migrant through the Trans-Pecos area to the Texas Gulf Coast beaches and bayside mud or salt flats. They nest in shallow depressions on beaches, dry mud, or salt flats, sandy shores of rivers, lakes, and ponds where vegetation is sparse or absent. Suitable habitat for the Western Snowy Plover does not occur within the study area, and there are no known occurrences within the study area.

The Western Yellow-billed Cuckoo is a state-listed rare species and is a candidate for federal regulation. Breeding habitat for the cuckoo is generally deciduous riparian woodland, especially including dense stands of cottonwood and willow. Nonbreeding habitats include various types of forest, woodland, and scrub. Riparian woodland vegetation is not present within the study area. Suitable habitat for the Western Yellow-billed Cuckoo does not occur within the study area, and there are no known occurrences within the study area.

### **Insects**

The royal moth is a state-listed rare species. It prefers madrean woodlands with oaks, junipers, legumes, and other woody trees and shrubs. Good density of legume caterpillar foodplants must be present; *Acacia angustissima* is the documented natural foodplant. The species is only known from three separated areas: the Big Bend area of Texas, southeastern Arizona, and Oaxaca, Mexico. Suitable habitat for the royal moth does not occur within the study area, and there are no known occurrences within the study area.

Horn's tiger beetle is a state-listed rare species. This species can be found in dry areas on hillsides or mesas where soil is rocky or loamy and covered with grasses. Adults are active mostly for several days after heavy rains, and the life cycle of the tiger beetle takes approximately two years. Horn's tiger beetle ranges from western Texas and parts of New Mexico and Arizona into adjacent Mexico. Suitable habitat for Horn's tiger beetle does not occur within the study area, and there are no known occurrences within the study area.

Barbara Ann's tiger beetle is a state-listed rare species. This species is found in the Hueco Mountains of western Texas. The preferred habitat for this species is limestone outcrops either in arid treeless environments or in openings within less arid pine-juniper-oak dominated communities where larvae burrow in the soil. Suitable habitat for Barbara Ann's tiger beetle does not occur within the study area, and there are no known occurrences within the study area.

Poling's hairstreak is a state-listed rare species. Poling's hairstreak is a brown butterfly that can be found in oak woodlands that are restricted to the Davis and Chisos Mountains in Texas and the Organ Mountains in New Mexico. Larvae feed on *Quercus grisea*, and probably *Quercus emoryi*, while adults utilize nectar from a variety of flowers including milkweed and catslaw acacia. Suitable habitat for Poling's hairstreak does not occur within the study area, and there are no known occurrences within the study area.

### **Fish**

The bluntnose shiner is a state-listed threatened species. The bluntnose shiner is a freshwater fish that reaches a maximum length of about 4 in. Its preferred habitat is typically the main river channel, often below obstructions, over substrate of sand, gravel and silt. The bluntnose shiner historically occurred in the Rio Grande and Pecos River drainages in Texas, New Mexico, and Mexico, but has experienced a precipitous decline in distribution and abundance over the past few decades due to damming and irrigation practices. This species is now believed to be extirpated from the Rio Grande River, and much reduced in the Pecos River. Suitable habitat for the bluntnose shiner occurs within the study area; however, there are no known occurrences within the study area. Although habitat for bluntnose shiner has been observed within the study area, the species was not observed during field reconnaissance.

The Rio Grande silvery minnow is a federal- and state-listed endangered species. This riverine minnow occurs in waters with slow to moderate flow in perennial sections of the Rio Grande and associated irrigation canals. Most often it prefers silt substrates (much less often sand) and typically occurs in pools, backwaters, or eddies formed by debris piles; this species rarely uses areas with high water velocities. The historical range of the Rio Grande silvery minnow included the Rio Grande and Pecos River systems in Texas, New Mexico, and Mexico, but it has been completely extirpated from the Pecos River and from the Rio Grande downstream of Elephant Butte. Threats to the minnow include habitat degradation and flow modifications, interactions with non-native fishes and lack of adequate refuges during periods of low or no flow. Suitable habitat for the Rio Grande silvery minnow does not occur within the study area, and there are no known occurrences within the study area.

### **Mammals**

The big free-tailed bat is a state-listed rare species. This bat prefers rocky areas in rugged country, and also shrub desert and woodland habitats, and foraging habitat includes lowlands of river floodplain-arroyo association. This species has a widespread distribution from western North America to South America, including the Trans-Pecos region. Suitable habitat for the big free-tailed bat does not occur within the study area, and there are no known occurrences within the study area.

The black bear is a state-listed rare species and is not federally-listed but is considered threatened in Texas due to similarity in appearance to Louisiana black bear. Black bears exist throughout most of North America north of central Mexico. Black bears inhabit forests and nearby openings, including forested wetlands. When inactive, they occupy dens under fallen trees, ground-level, or above-ground tree cavities or hollow logs, underground cave-like sites, or the ground surface in dense cover. Suitable habitat for the black bear does not occur within the study area, and there are no known occurrences within the study area.

The black-footed ferret is a federally-listed endangered species. It is a slim-bodied member of the weasel family and can be found in grasslands, steppe, and shrub steppe habitat. Resting and birthing sites are in underground burrows, generally made by prairie dogs. Since prairie dogs are its main food source, it has been estimated that about 100-150 acres of prairie dog colony are needed to support one ferret. The range of the black footed ferret formerly encompassed a large area of the Great Plains, mountain basins, and semi-arid grasslands of North America, but the species was nearly extinct by the 1980's as a result of prairie dog and predator control programs. Suitable habitat for the black-footed ferret does not occur within the study area, and there are no known occurrences within the study area.

The black-tailed prairie dog is a state-listed rare species. The black-tailed prairie dog is a medium-sized, short-tailed, burrowing, colonial ground squirrel with a large range in the plains region of central North America. Habitat consists of dry, flat, or gently sloping, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. The species also occurs in open vacant lots at town edges in some areas. Suitable habitat for the black-tailed prairie dog does not occur within the study area, and there are no known occurrences within the study area.

The cave myotis bat is a state-listed rare species, but is not currently under any federal regulations. It is a small bat with a widespread range throughout the southwestern and south-central U.S. to northern Central America. Preferred habitat for this species includes deserts and grasslands; it also frequents watercourses, and it roosts in caves, mines, and occasionally in buildings. Suitable habitat for the cave myotis bat does exist within the study area; however, there are no known occurrences within the study area. Although habitat for the cave myotis bat has been observed within the study area, the species was not observed during field reconnaissance.

The desert pocket gopher is a state-listed rare species. The desert pocket gopher is a solitary, dull pale-brown, pocket gopher that occurs in loose soils of disturbed areas or sandy areas near open water; it is often common along edges of rivers, ponds, or irrigation canals. This species is restricted to a narrow area of south-central New Mexico, a small section of the northwestern Trans-Pecos in Texas (several localities in El Paso and Hudspeth counties), and bordering areas in Chihuahua, Mexico. Suitable habitat for the desert pocket gopher occurs within the study area; however, there are no known occurrences within the study area. Although habitat for the desert pocket gopher has been observed within the study area, the species was not observed during field reconnaissance.

The fringed bat is a state-listed rare species. This small bat can be found in desert, grassland, and woodland habitats at middle elevations of 4,000-7,000 ft. It roosts in caves, mines, rock crevices, buildings, and other protected sites. Nursery colonies occur in caves, mines, and sometimes buildings. The fringed bat has a widespread range across western North America, including the Trans-Pecos area. Suitable habitat for the fringed bat occurs within the study

area; however, there are no known occurrences within the study area. Although habitat for the fringed bat has been observed within the study area, the species was not observed during field reconnaissance.

The gray wolf is a federal- and state-listed endangered species. The gray wolf is the largest of the wild dogs, and formerly ranged throughout North America and south through much of Mexico, but today it has been extirpated from most of the contiguous U.S. except for reintroduced populations in Yellowstone and central Idaho, and recent re-colonization of Minnesota, Wisconsin, and Michigan. They are territorial and form packs that consist of one or more family groups with dominance hierarchy. Wolves display no particular habitat preference, but survive in wilderness that is not subject to human population pressures. Suitable habitat for the gray wolf does not occur within the study area, and there are no known occurrences within the study area.

The long-legged bat is a state-listed rare species. This bat can be found primarily in montane coniferous forests and also in riparian woodland and desert habitats. The bat uses caves and mines to hibernate, and roosts in abandoned buildings, rock crevices, and under bark. The long-legged bat has widespread distribution in western North America, from Alaska to central Mexico. Riparian habitat including cottonwoods, oaks, or other similarly functioning vegetation is not present in the study area. Suitable habitat for the long-legged bat does not occur within the study area, and there are no known occurrences within the study area.

The pale Townsend's big-eared bat is a state-listed rare species. This bat can be found throughout western North America, from British Columbia to central Mexico. This species can typically be found in desert scrub to pinyon-juniper woodland, consistently in areas with canyons or cliffs. It is known to roost and hibernate in caves or mines and sometimes in buildings. Suitable habitat for the pale Townsend's big-eared bat occurs within the study area; however, there are no known occurrences within the study area. Although habitat for the pale Townsend's big-eared bat has been observed within the study area, the species was not observed during field reconnaissance.

The Pecos River muskrat is a state-listed rare species. The muskrat prefers fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. It dens in bank burrow or conical house of vegetation in shallow vegetated water, but sometimes in uplands. Suitable habitat for the Pecos River muskrat occurs within the study area, and the TxNDD reports occurrences for this species within the study area. Although habitat for the Pecos River muskrat has been observed within the study area, the species was not observed during field reconnaissance.

The western red bat is a state-listed rare species. They prefer riparian habitats dominated by cottonwoods, oaks, sycamores, and walnut, and are rarely found in desert habitats. The bat has a broad range from British Columbia to South America, but may be declining in the U.S. Woodland riparian habitat, including cottonwoods, oaks, or other similarly functioning vegetation is not present in the study area. Suitable habitat for the western red bat does not occur within the study area, and there are no known occurrences within the study area.

The western small-footed bat is a state-listed rare species. This bat ranges throughout the western U.S. and generally inhabits wooded areas in mountainous terrain, desert, badland, and semiarid habitats. The western small-footed bat hibernates in caves and mines and often forms maternity colonies in abandoned houses, barns, or similar structures. Suitable habitat for the

western small-footed bat does not occur within the study area, and there are no known occurrences within the study area.

The Yuma myotis bat is a state-listed rare species. The Yuma myotis bat is more closely associated with water than most other North American bats, and is found in a wide variety of upland and lowland habitats, including riparian, desert scrub, moist woodlands, and forests. Nursery colonies usually are in buildings, caves, mines, and under bridges. This bat can be found throughout western North America, from British Columbia south through the western U.S. to central Mexico. Suitable habitat for the Yuma myotis bat occurs within the study area; however, there are no known occurrences within the study area. Although habitat for the Yuma myotis bat has been observed within the study area, the species was not observed during field reconnaissance.

### **Reptiles**

The Big Bend slider is a state-listed rare species. The Big Bend slider occupies a small range within the Rio Grande drainage of Texas, New Mexico, and Mexico. This freshwater turtle can be found in rivers with permanent water, ponds, impoundments, and stock tanks along the Rio Grande. It basks on the shore, on logs, vegetation mats, or at the water surface, and nests on level sandy ground among vegetation. Suitable habitat for the Big Bend slider does not occur within the study area, and there are no known occurrences within the study area.

The Chihuahuan desert lyre snake is a state-listed threatened species. This snake occurs most commonly in dry, rocky terrain of mountains, canyons, hills, rock outcrops, fissured bluffs, and arroyos. It is also found in desert habitat or riparian areas, and rarely on desert flats dominated by creosotebush or in shallow canyons with mesquite. A key component to Chihuahuan desert lyre snake habitat is the presence of rocky terrain. The range of the Chihuahuan desert lyre snake includes southwestern New Mexico, western Texas, and northeastern Mexico. Although riparian habitat is present within the study area, there is a lack of rocky terrain. Therefore suitable habitat for the Chihuahuan desert lyre snake does not occur within the study area, and there are no known occurrences within the study area.

The mountain short-horned lizard is a state-listed threatened species. Habitat for this lizard ranges from semiarid plains to high mountains, but usually this species is found in open shrubby, or open wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy. When not active on the surface, the lizards burrow into the soil or occupy rodent burrows. The range of the mountain short-horned lizard extends from southern Canada, through the western U.S. to northern Mexico. Suitable habitat for the mountain short-horned lizard does not occur within the study area, and there are no known occurrences within the study area.

The New Mexico garter snake is a state-listed rare species. This snake occurs in the Rio Grande Valley, and can be found in the main river channel and associated marshes, man-made impoundments, and agricultural canals. No specimen locality data was found at either the Texas Cooperative Wildlife Collection at Texas A&M University or the curated collection in the Division of Herpetology at UTEP. Suitable habitat for the New Mexico garter snake does occur within the study area; however there are no known occurrences within the study area.

The Texas horned lizard is a state-listed threatened species. This lizard occupies open arid and semiarid regions with sparse vegetation (deserts, prairies, playa edges, bajadas, dunes, foothills), cactus, scattered brush, or scrubby trees. When inactive, individuals burrow into the soil, enter rodent burrows or hide under rocks. The range of the Texas horned lizard extends

from extreme southwestern Missouri and central Kansas to southeastern Colorado, and south and west throughout most of Oklahoma and Texas, eastern and southern New Mexico, and southeastern Arizona to northeastern Mexico. This species is threatened by fire ants, insecticides, loss of habitat, and over collecting. Suitable habitat for the Texas horned lizard occurs within the study area; however, there are no known occurrences within the study area. Although habitat for the Texas horned lizard has been observed within the study area, the species was not observed during field reconnaissance. Additionally, no harvester ants (*Pogonomyrex* sp.), the chief food source for the Texas horned lizard, were observed within the study area.

### **Mollusks**

The Franklin Mountain talus snail is a state-listed rare species. This species is a montane land snail of moderate size that inhabits igneous talus, most commonly of rhyolitic origin, in arid mountain ranges. The Franklin Mountain talus snail has been documented from southwest Texas and south-central New Mexico, and appears restricted to northern El Paso County, Texas and southern Doña Ana County, New Mexico. Suitable habitat for the Franklin Mountain talus snail does not occur within the study area, and there are no known occurrences within the study area.

The Franklin Mountain wood snail is a state-listed rare species. This species is a montane land snail of moderate size that inhabits Talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges. This species has been documented from two isolated mountain ranges in southwest Texas and south-central New Mexico: the Franklin Mountains and the San Andres Mountains. Quarrying and possibly urban development are threats to this species, but the greatest threat to the species may be climate change. Suitable habitat for the Franklin Mountain wood snail does not occur within the study area, and there are no known occurrences within the study area.

## **3.10 CULTURAL RESOURCES**

### **3.10.1 Regulatory Compliance**

#### **3.10.1.1 Antiquities Code of Texas and Section 106**

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings and/or archeological sites), cemeteries, and objects. Both federal and state laws require consideration of cultural resources during project planning. At the state level, the proposed project falls under the purview of the Antiquities Code of Texas (ACT), because it may involve “lands owned or controlled by Texas or any city, county, or local municipality thereof.” The ACT allows for resources to be considered as potential State Archeological Landmarks (SALs), and requires that each be examined in terms of possible “significance.” Significance standards for the code are clearly outlined under Chapter 26 of the Texas Historic Commission’s (THC) Rules of Practice under Procedure for the ACT and closely follow those of the Secretary of Interior’s Standards and Guidelines.

If any federal permits are required for a state funded project, then the project corridor may require consideration under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The NHPA requires federal agencies to “take into account” the “effect” that an undertaking would have on cultural resources. In accordance with the Advisory Council on Historic Preservation (ACHP) regulations pertaining to the protection of historic resources (36 CFR 800.4), federal agencies are required to identify and evaluate historic-age resources for National Register of Historic Places (NRHP) eligibility and assess the effects that the undertaking would have on sites, buildings, structures, objects, or districts that are listed in or

determined eligible for inclusion in the NRHP. If the lead agency and the State Historic Preservation Officer (SHPO) agree that a resource potentially affected by a proposed project is NRHP eligible, then they are required to apply the *Criteria of Adverse Effect* found in 36 CFR Section 800.5 to such a resource. Under this regulation, an “adverse effect is found when an undertaking may alter directly or indirectly, any of the characteristics of the resource that make it eligible for the NRHP.” An adverse effect may be found when such characteristics are altered “in a manner that would diminish the integrity of a resource’s location, design, setting, materials, workmanship, feeling, or association.” If an adverse effect is determined, then the regulations require the federal agency and the SHPO to seek ways to avoid the resource, minimize the impacts, and mitigate for effects.

### **3.10.2 Prehistoric and Historic Archeology**

Archeological resources are sites and locales that are known to contain or have potential to contain interpretable material traces of past human activity in the form of artifacts, ruins, structure remnants, or other human-made feature remains either on the surface or buried under the ground. Archeological resources include materials and artifacts ranging in age from more than 10,000 years old to less than 100 years in age.

A review of the THC Archeological Sites Atlas (Atlas) and the Texas Historic Sites Atlas was conducted to identify previous archeological investigations; archeological sites listed on the NRHP, SALs, historic cemeteries, and previously recorded archeological sites located within the study area. The search found that 20 archeological compliance projects have taken place within the study area. There are 25 archeological sites that have locations within or very close to the study area. Of those 25 sites, three are also listed as SALs and five are listed on the NRHP. There are an additional three sites within the study area listed as SALs that do not have trinomials. Three cemeteries are within the study area. These resources are all discussed in detail below.

Additionally, there are seven historic districts and approximately an additional 25 individual structures, most of which are in downtown El Paso, that are listed on the NRHP, as well as numerous historical markers within the study area. While many of these NRHP-listed structures and districts and historical markers are not considered archeological sites, they commemorate places or events that could have archeological manifestations that have not yet been documented, and therefore, are useful to note for purposes of developing a predictive model for finding unrecorded archeological resources.

#### **3.10.2.1 Previous Archeological Resources Investigations**

Apart from early studies conducted by Cosgrove (1947) in the Hueco Mountains, and Lehmer (1948) whose work provided the foundation for El Paso’s prehistoric archeological sequence, relatively little archeological work was done in the region prior to the 1970s. During the 1960s some limited surveys were conducted in the Hueco Bolson and Tularosa basin by the El Paso Archeological Society, but it was not until the 1970s and 1980s that systematic archeological fieldwork was undertaken, in response to the newly enacted NHPA.

A review of the Atlas reveals that since the 1970s, 20 projects, most of which are surveys, fall entirely within or overlap the study area. These projects are summarized in **Table 3-18**.

**Table 3-18: Previous Projects within Study Area**

Client/Sponsor	Project Description	Site ID No.	Reference
U.S. Corps of Engineers, Albuquerque (USACE-ALBQ)	Testing and Data Recovery of three Keystone Dam sites, assessment of eight sites	41EP491, 41EP495, 41EP496	O'Laughlin, et al. (1980), University of Texas at El Paso
USACE-ALBQ	Testing of two prehistoric sites	41EP492, 41EP496	Carmichael, D. (1984), New Mexico State University
USACE-ALBQ	Data recovery of two sites near Keystone Dam	41EP492, 41EP496	Carmichael, et al. (1985)
USACE-ALBQ	Excavation of one Keystone Dam site	41EP325	Fields, R. et al (1983)
USACE-ALBQ	An Archeological Survey of a Soil Fill Area Below Keystone Dam, 85 acres	41EP491-496, 41EP325	Gerald, R. (1982)
El Paso Natural Gas	Archeological Survey for El Paso Natural Gas Pipeline	41EP3605	Duran, M. S. (1992)
State National Bank	Survey of 84.7 acres for State Nations Bank, El Paso County	41EP3602	Gonzalez-Peterson, et al. (1994)
Texas General Land Office (GLO)	Archeological Reconnaissance and Geomorphological Overview of GLO Parcel in East El Paso	None	Miller and Graves (2007)
GLO	Survey of 196 acres El Paso Tract	None	Skinner and Todd (2004), A R Consultants, Inc.
USACE-ALBQ	Survey	None	Willis and Peterson (2004), J.A. Peterson and Associates, Inc.
EPA	Survey	None	Condon, Peter C. (2005), TRC Inc.
TxDOT	Monitoring US 85 (Paisano Drive) from west of Santa Fe St. to east of Florence St.	None	Perez & Ponce (2005), TRC, Inc.
Federal Communications Commission	Survey of 27.26 acres for the Texas Portion of Line 1 of the AT&T NexGen/Core Project	None	Proper, M. (2005), WCRM, Inc.
TxDOT	Survey of 595 acres for a Proposed Expansion of I-10 in El Paso	41EP487, 41EP495, 41EP496	Ringstaff, et al. (2005), Blanton and Assoc., Inc.
General Services Administration	Arch. Monitoring of Water and Sewer Lines at the El Paso del Norte POE Station	41EP5767	Gibbs and Yost (2006), Geo-Marine, Inc.
El Paso Water Utilities	Survey of 3.89 acres for Paisano Valley Water Transmission Main Improvement Project	41EP5792	Perez and Flowers (2006), TRC, Inc.
Federal Housing Administration	Survey of 18.76 acres for seven proposed storm water detention basins for the SH 20 (Alameda Ave.) Rehabilitation Project, Boone St. to Loop 375	None	Perez, et al. (2006), TRC, Inc.
El Paso Water Utilities	Arch Monitoring of the EPWU-PSB utility easement across UTEP property in Mundy Heights addition	None	Perez, et al. (2007), TRC, Inc.
International Boundary & Water Commission	Archeological Investigations of the IBWC Rio Grande Canalization Project, El Paso County, Texas and Doña Ana County, New Mexico	None	Stinchcomb, et al. (2009), Wm. Self Assoc., Inc.
U.S. Corps of Engineers, Fort Worth (USACE-FTW)	Revisit of sites in June, 1999, only minimal data available	Unknown	Unknown

Source: THC Archeological Sites Atlas and the Texas Historic Sites Atlas; 2012

### 3.10.2.2 Previously Recorded Sites

Of the 25 sites, 41EP293, 41EP493, and 41EP494 are also listed as SALs, while sites 41EP37, 41EP293, 41EP557, 41EP561, and 41EP565 are associated with sites listed on the NRHP. There are an additional three sites listed as SALs that do not have trinomials within the study area. These include: the El Paso Centennial Museum, Old Bowie High School/Guillen Head Start Building, and the Old B'nai Zion Synagogue. All three relate to El Paso of the early twentieth century.

Sites recorded during compliance surveys judged eligible for the NRHP were often the subject of testing or data recovery activities, including detailed mapping, controlled artifact collection, and controlled excavation of features, if they were to be impacted. Other sites identified during cultural resources compliance surveys that were not judged eligible, may have been destroyed by construction without any further studies. As a result, a number of the sites identified in **Table 3-19** no longer exist.

Sites represent the Prehistoric Late Archaic period (1200 B.C) through the more recent Historic period. Sites recorded within the City of El Paso relate primarily to nineteenth and twentieth centuries, while sites located on the outskirts of the city center, for instance those near Keystone Dam, are more likely to pertain to the prehistoric period.

**Table 3-19: Archeological Sites within the Study Area**

Designation	Date Documented	Type and Description	Relation to Study Area (meters)	Register Status
41EP37	1971	Original Fort Bliss location. Also Hart's Mill and THC markers	Within study area	RTHL*; Listed in NRHP
41EP293 Magoffin Homestead Site	1975	Single dwelling from 1860s now a museum	Within study area	Listed in NRHP; RTHL; SAL
41EP325 Keystone Dam Site	1985	Prehistoric: Late Archaic and Mesilla Phase camp	100 meters (m) (330 ft) west-southwest of study area	Possibly NRHP Eligible, not listed
41EP487	Unknown (1980s?)	Prehistoric lithic scatter	50 m north of study area	Recommended ineligible
41EP491 Keystone Dam Site 1	1985	Archaic or Formative period activity/possible habitation area	150 m (500 ft) west-southwest of study area	Formerly NRHP Eligible; Mitigated
41EP492 Keystone Dam Site 3	1985	Prehistoric: Single Hearth, Late Mesilla to El Paso Phase, A.D. 1100-1400	Within study area	Formerly NRHP Eligible; Mitigated
41EP493 Keystone Dam Site 5	1985	Prehistoric: Formative period; Two Mesilla phase hearths w/high density artifact scatter	192 m (634 ft) west of study area	SAL
41EP494 Keystone Dam Site 4	1985	Prehistoric: Archaic period structure and multiple late Archaic and Mesilla phase hearths	300 m (1000 ft) west of study area	SAL
41EP495	1985	Five fire-cracked rock features and lithic scatter	Within study area	Destroyed by Construction
41EP496	1985	Single, large hearth feature	Within study area	Destroyed by Construction
41EP497	1985	Unknown	Within study area	Unknown
41EP552	Unknown	Unknown; in downtown El Paso	Within study area	Unknown

**Table 3-19: Archeological Sites within the Study Area**

Designation	Date Documented	Type and Description	Relation to Study Area (meters)	Register Status
41EP554/553 Jacque's Bar	1983	1850-1900 foundations and trash, some earlier than 1850; backhoe and hand excavation	Within study area; destroyed by construction	Not listed; not eligible
41EP556	Unknown	Unknown; in downtown El Paso	Within study area	Unknown
41EP557 Henry C. Trost House	Unknown	Early 20 <sup>th</sup> century Historic Residence	43 m (142 ft) northwest of study area	Listed in NRHP
41EP558	Unknown	Unknown; location data only; shares location with EP High School	405 m (1337 ft) northeast of study area	Unknown
41EP561 El Paso Union Depot	1999	Early 20 <sup>th</sup> century. Railroad depot building	Within study area	Listed in NRHP
41EP565 Chamizal National Memorial Park	Unknown	Commemorates U.S.-Mexican cooperation in land conflict settlement	Within study area	Listed in NRHP
41EP2460 Hotel Cortez Parking Lot	1984	Foundation remains and trash deposits from old China Town	Within study area	Not listed
41EP2461	1984	Prehistoric lithic procurement: non-diagnostic lithic scatter	50 m (169 ft) east of study area	Not eligible; destroyed by construction
41EP2462	1984	Prehistoric Short-term camp: non-diagnostic lithic scatter with one hearth feature	200 m (656 ft) east of study area	Not eligible; destroyed by construction
41EP3602	1994	Prehistoric isolated, undatable hearth & possible rock alignment	150 m (500 ft) northeast of study area	Not eligible
41EP3605	1992	Late Mesilla phase ceramics and features; historic period structures and artifacts	95 m (314 ft) southwest of study area	Potentially eligible but destroyed and paved over
41EP5767	2006	Early 20 <sup>th</sup> century foundations and trash ca. 1910	Within study area	Recommended ineligible
41EP5792	2006	Bridge support structure remnants from Early 20 <sup>th</sup> century.	Within study area	Recommended ineligible
Old B'nai Zion Synagogue	1984	First Jewish Synagogue in El Paso 1912-1917	Within study area	NRHP; RTHL; SAL
Old Bowie High School/Guillen Head Start Bldg.	1980s	Ca. 1922 school building	Within study area	SAL
El Paso Centennial Museum	1984	Texas State Archeological Landmark	95 m (314 ft) northeast of study area	SAL

Source: THC Archeological Sites Atlas and the Texas Historic Sites Atlas; 2012  
 \*Recorded Texas Historic Landmark (RTHL)

In addition to the sites already recorded as SALs or with trinomials, there are three cemeteries within the study area whose interments would be considered archeological if impacted by the proposed project. These are the Concordia, Evergreen, and Smelter cemeteries.

The Concordia Cemetery is located within the study area directly adjacent to I-10 in downtown El Paso. This cemetery contains graves that date from 1865 to the present. Interments include graves of Chinese, Jewish, Catholic, French, and Spanish residents, as well as members of the Masonic order.

The Evergreen Cemetery is located within the study area about 1,000 ft from I-10, also in downtown El Paso. It contains historic period graves dating from the 1890s and is still active. The Smelter cemetery is located about 1000 ft from I-10, near Smelertown. It contains graves that date from about 1860-1970s. It is suspected that many of the graves are unmarked.

The Concordia and Evergreen Cemeteries are registered Texas Historic Cemeteries and have historical markers commemorating not only the cemeteries themselves, but also individual burials. The Smelter Cemetery is not currently registered as a Texas Historic Cemetery, however, it is likely to be considered significant for its association with one of El Paso's earliest industries and the company town of Smelertown.

### **Potential for Unrecorded Archeological Resources**

The El Paso area boasts a rich archeological and cultural heritage representing the Paleo-Indian through historic periods. Though no sites relating to the Paleo-Indian period have been documented within the study area, theoretically, such archeological remains could exist. Sites of later time periods are more common, and have been identified wherever archeological surveys have been performed within the study area.

A majority of the soils in the study area are gravelly and very gravelly sandy loams of alluvial, colluvial, and aeolian origin. Depending on their depositional context, they could contain archeological deposits, though most sites would typically be found on the surface. The consequence of the surficial nature of most archeological deposits in the El Paso area is that the contextual integrity of any archeological discovery may be poor as a result of later construction activities. On the other hand, flooding of the Rio Grande, along with colluvial sediment flow from adjacent mountains and hills can result in rapid deposition of sediments, burying, and thus preserving older archeological deposits. Consequently, prehistoric materials from Paleo-Indian through Formative periods may be buried in some locations within the study area in contexts that retain varying degrees of integrity.

Archeological deposits representing the Mesilla through historic periods would most likely be found on the surface or shallowly buried, also in contexts of varying integrity. In well-developed portions of the study area, the likelihood of finding intact archeological remains is lower due to surface landscape modifications associated with construction, which generally destroys surface sites. However, some built environment features such as buildings have potential to preserve archeological sites underneath their foundations. This is particularly true within the downtown El Paso area, where buildings and parking lots constructed during the middle to second half of the twentieth century could have been built over the foundations and remains from earlier occupations. Removal of those built environment features often reveals partially intact remains from earlier time periods. Should buildings and parking lots in downtown El Paso be removed in support of the Loop 375 El Paso Border Highway West Extension Project, there would be high potential for archeological remains under those features.

The potential for unrecorded archeological resources is generally high within the study area.

### **3.10.3 Non-Archeological Historic Resources**

A Non-Archeological Historic Resource Survey Report (HRSR) has been prepared to identify non-archeological NRHP-listed and SAL resources within the Survey Study Area (SSA) per the requirements of ACT. Copies of this report are on file with TxDOT El Paso District at 13301 Gateway Blvd. West El Paso, TX 79928 and TxDOT Environmental Affairs Division (ENV) at 18 East Riverside, Austin, Texas 78704.

The TxDOT ENV Historical Studies Branch approved the Research Design with a proposed APE of 300 ft from either side of the existing or proposed ROW on February 24, 2012. The project planning and development process identified four reasonable alternatives for the proposed project and a No-Build alternative. The majority of the proposed reasonable alternatives would be grade separated. By the week of June 18, 2012, TxDOT as lead agency decided to utilize state-funding only. TxDOT requested that the scope of the HRSR be adjusted to meet the requirements of a state-funded project under the ACT (Texas Natural Resource Code, Title 9, Chapter 191) and the Texas Administrative Code (TAC) (Title 13, Part 2, Chapter 26). TAC, Title 13, Part 2, Chapter 26, Rule Section 26.14 (c)(3)(C), defines the APE as follows:

*The area of potential effects for all non-federal undertakings will be confined to the limits of the proposed project ROW (including permanent and temporary easements), utility relocations, and project-specific locations specifically designated by TxDOT.*

Not all of the permanent and temporary easements are known at this time, so the APE for this HRSR included the entirety of all parcels wholly and partially within the existing or proposed ROW, whichever were greater. This APE is believed to be adequate for the currently envisioned state-funded project. The SSA for the proposed project extends 1,300 ft beyond the adjusted APE for the proposed alternatives.

#### **3.10.3.1 Non-Archeological Historic-Age Resources**

Under the ACT and TAC, effects to NRHP-listed and SAL properties are the only effects considered. Therefore, historic-age properties that are neither NRHP-listed nor SAL-designated need not be evaluated. The HRSR identified, documented, and evaluated only non-archeological NRHP-listed and SAL resources (with unrestricted addresses) located on parcels wholly or partially within the APE. The HRSR also listed and mapped all properties with previous historical designations (national, state, and local designations) located within the SSA.

#### **3.10.3.2 Pre-Field Research Methods**

Prior to field visits, consultant staff examined the THC Historic Sites Atlas online to identify any resources within the APE that had been previously listed in the NRHP, documented as part of the Texas Historic Sites Inventory or other local survey, or designated as a RTHLs or SALs. Consultants reviewed USGS maps, aerial photographs, and schematics of the study area. While in El Paso, consultant staff contacted and met with representatives of the El Paso County Historical Society, the Special Collections Library at the UTEP, the Border History Department at the Main Branch of the El Paso Public Library, the El Paso County Courthouse, and the Archives at the Fort Bliss Military Base. At these repositories, primary resources were examined including historic photographs, archival records, city directories, newspaper archives, and library vertical files. In addition, a number of in-person meetings and telephone interviews were arranged with individuals within the El Paso community with knowledge concerning various El Paso historic resources. These contacts are disclosed in the bibliography of HRSR. Research was also conducted in Austin at the Briscoe Center for American History at the University of Texas at Austin, at the Texas Secretary of State's office, and at the Texas Natural Resources Information System (TNRIS). Consultant staff also examined entries in secondary sources such as The Handbook of Texas Online, the El Paso County Appraisal District website as well as many other online websites, books, and periodical articles in various publications.

**Table 3-20** lists the previously designated historic properties within the SSA.

**Table 3-20: Districts and Properties with Current Historical Designations**

Historic Districts		
Name	Type of Designation	APE or only SSA
Sunset Heights	NRHP, Local	SSA
Old Fort Bliss/Hart's Mill	NRHP	APE
El Paso County Water Improvement District No. 1 (EPCWID1)	NRHP	APE
Old San Francisco	NRHP, Local	SSA
Chamizal National Memorial	NRHP	SSA
South El Paso Street District	Historic American Building Survey (HABS) District	SSA
Chihuahuita	Local District	Modern park is within the APE; Historic Resources are in SSA but not APE
Magoffin	Local District	SSA
Downtown	Local District	SSA
Individual Properties with Historical Designations		
Name	Type of Designation	APE or only SSA
(Simeon) Hart Residence	Contributing to Old Fort Bliss/Hart's Mill Historic District (HD); RTHL	Historic District in APE
Old Fort Bliss Officers' Quarters (1836 West Paisano Drive)	Contributing to Old Fort Bliss/Hart's Mill HD; RTHL	Historic District in APE
Franklin Canal	NRHP*	APE
Silver Dollar Cafe	NRHP	SSA
El Paso Union Passenger Station	NRHP, SAL, RTHL	Parcel in APE
Toltec Club	NRHP; Local Landmark; Contributing to Local Magoffin HD	SSA
House at 912 Magoffin Avenue	NRHP; Contributing to Local Magoffin HD	SSA
Magoffin Homestead	NRHP; SAL; State Historic Site; Local Landmark; Contributing to Local Magoffin HD	SSA
Hotel Paso Del Norte	NRHP	SSA
1800s Mexican Consulate	NRHP – Demolished**	SSA
Palace Theatre	NRHP; Local Landmark; Contributing to Local Downtown HD	SSA
Old Bowie High School	SAL – Demolished in 1989	SSA
El Paso Laundry	Local Landmark; Contributing to Local Chihuahuita HD	SSA
432 West Missouri Avenue	Local Landmark; Contributing to NRHP-listed and Local Old San Francisco HD***	SSA
St. Charles Hotel	Local Landmark; Contributing to Local Downtown HD	SSA
Labor Temple	Local Landmark; Contributing to Local Downtown HD	SSA
Baptist Temple	Local Landmark; Contributing to Local Magoffin HD	SSA
*The Franklin Canal from the headgate at Hart's Mill to the Leon Street Wasteway (Downtown) was reconstructed in 1997 to form the American Canal Extension.		
**Demolition confirmed on 08/04/12 by Leslie Bergloff, employee at Magoffin State Historic Site.		
*** Per NRHP Registration form, all properties within the Old San Francisco Historic District are Contributing.		

Sources: Texas Historic Sites Atlas; HNTB 2012; Upper Rio Grande Flood Control Project at: [http://www.ibwc.state.gov/Organization/Operations/Field\\_Offices/URGFPC.html](http://www.ibwc.state.gov/Organization/Operations/Field_Offices/URGFPC.html), accessed August 10, 2012; City of El Paso Historic Preservation Website.

Maps showing the locations of Properties with Historical Designations are located within **Exhibit 3-15a – 3-15d**. Discussion of project impacts to these resources can be found in **Chapter 4**.

### **3.11 HAZARDOUS MATERIALS**

**Section 3.11** identifies potential sources of hazardous materials contamination located within the study area. An existing release, past release, or material threat of a release of hazardous or petroleum substances, collectively referred to herein as hazardous materials, into the ground, groundwater or surface water could pose health and safety risks to construction workers and vicinity residents during project construction. In addition, such conditions, if left unabated, could become exacerbated by the project construction operations, potentially resulting in further impacts to human and ecological receptors. As such, hazardous materials contamination is considered for avoidance, minimization, or mitigation.

#### **3.11.1 Regulatory Database Research**

The hazardous materials sources identified in **Section 3.11.1** reflect the results of regulatory database queries provided by Banks Environmental Data, Inc. (2010). The regulatory databases are maintained in electronic storage formats by federal and state agencies and contain geo-coded (geographic information system capable) information pertaining to a variety of hazardous materials releases or potential releases. The databases include EPA, TCEQ, and Railroad Commission of Texas listings of sites where hazardous materials are suspected to have been stored, used, and/or released to the environment. The federal and state databases that were reviewed are described below. Copies of the 2010 commercial database query reports are included in the El Paso District files and the sites are identified on **Exhibit 3-4**.

**Table 3-21** lists the federal and state agency databases that were searched within the minimum search distances from the study area, as set by American Society for Testing and Materials (ASTM) E 1527-05. The ASTM standard search distances and abbreviations referenced in **Section 3.11** for each database are included in the table. For the purposes of identifying potential hazardous materials, all records within the ASTM search distance of the boundary of the study area were documented.

**Table 3-21: Federal and State Agency Databases**

Database	Description	Minimum Search Radius (mi)	Sites Per Database within Study Area
<b>Federal</b>			
National Priority List (NPL)	The NPL is a list of the most hazardous waste sites that have been identified by Superfund Program.	1.00	0
Delisted National Priority List (DNPL)	Database of delisted NPL sites.	0.50	0
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	Database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement.	0.50	7
Comprehensive Environmental Response, Compensation and Liability Information System No Further Remedial Action Planned (CER NFRAP)	Database of Archive designated Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites that, to the best of the EPA's knowledge, assessment has been completed and has determined no further steps would be taken to list this site on the NPL.	0.50	6
Resource Conservation and Recovery Act (RCRA) Information System – Corrective Action (RCRA COR ACT)	Database of hazardous waste information contained in the Resource Conservation and Recovery Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers.	1.00	1
RCRA Information System – Treatment, Storage, & Disposal (RCRA TSD)	The database contains information relating to permitted hazardous waste TSD facilities.	0.50	16
RCRA Information System – Generators (RCRA GEN)	The database contains information relating to facilities that are registered by the EPA to generate and/or transport hazardous wastes.	0.25	34
Federal Engineering and Institutional Controls (Federal IC/EC)	The database collects, tracks and updates information, as well as reports on the major activities and accomplishments of the EPA Brownfield grant programs.	0.50	0
Emergency Response Notification System (ERNS)	The ERNS contains data on reported releases of oil and hazardous substances, as identified by the National Response Center.	0.25	27
Federal Brownfields (FED BROWNS)	The database contains information on "brownfield sites," which means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.	0.25	6
<b>State/Tribal</b>			
State/Tribal Sites (ST NPL)	TCEQ sites, which may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release of hazardous substances into the environment.	1.00	1
State/Tribal CERCLIS (ST CER)	State or Tribal equivalent CERCLIS	0.50	0
State/Tribal Solid Waste Disposal or Landfill (SWLF)	TCEQ listing of all permitted solid waste landfills, transfer stations, and incinerators.	0.50	2
State/Tribal Leaking Underground Storage Tanks (LPST)	TCEQ listing of leaking underground petroleum storage tanks.	0.50	139
State/Tribal Underground/Aboveground Storage Tanks (PST)	TCEQ listing of all underground/aboveground petroleum storage tanks.	0.25	250
State/Tribal Engineering Controls (ST EC)	TCEQ listing of sites in the Voluntary Cleanup Program and the Innocent Owner/Operator Program that have engineering controls placed on them.	0.50	0

**Table 3-21: Federal and State Agency Databases**

Database	Description	Minimum Search Radius (mi)	Sites Per Database within Study Area
State/Tribal Institutional Controls (ST IC)	TCEQ listing of sites in the Voluntary Cleanup Program and the Innocent Owner/Operator Program that have institutional controls placed on them.	0.25	0
State/Tribal Voluntary Cleanup Program (VCP)	TCEQ listing of all sites in the Voluntary Cleanup Program and the Innocent Owner/Operator Program.	0.50	7
State/Tribal Brownfields	TCEQ/EPA listing of former industrial properties that lie dormant or underutilized due to liability associated with contamination.	0.50	1
<b>Other</b>			
RCRA	This database lists all sites that fall under the RCRA and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator, or subject to corrective action activity.	0.25	102
Dry Cleaners (DRYC)	List of registered dry cleaners.	0.25	4
Industrial Hazardous Waste (IHW)	TCEQ listing of Industrial Hazardous Waste Notice of Registration data.	0.25	153

Source: Banks 2010

As a result of the Banks regulatory database search, 756 records were identified in federal and state databases. An individual site may be listed under more than one database record. Refer to **Appendix H** for excerpts from the Banks regulatory database report (2010). Of these 756 records, 744 geocoded and 12 non-geocoded (unmappable) records were identified. Records are listed as non-geocoded when their exact location could not be plotted, but they are identified as being located within the general area of the alignments based on the submitted property information.

The 756 hazardous materials records identified in the Banks regulatory database search include: seven CERCLIS records, six CER NFRAP sites, one RCRA COR ACT, 16 RCRA TSD, 34 RCRA GEN, six Federal IC/EC Brownfields, 27 ERNS, one ST NPL, two SWLF, 139 LPST, 250 PST, seven VCP, one State/Tribal Brownfields, 102 RCRA, four drycleaners, and 153 IHW records were documented. The seven CERCLIS sites are industrial, energy, and chemical manufacture facilities. The six CER NFRAP sites are commercial and industrial facilities. The RCRA COR site is the ASARCO property. The RCRA TSD records include both generators and non-generator transport facilities. The 34 RCRA GEN sites are small quantity generators. The six Federal Brownfields sites have no detailed documentation associated with the records. The ERNS records are related to rail activities, dumping, and accidental releases. The ST NPL site, El Paso Plating Works, is documented as no further action, clean up complete. Of the two SWLF properties documented, one is the City of El Paso transfer facility and one is a non-geocoded site described as the Camino Real Landfill in Sunland Park, New Mexico. The 139 LPST sites are generally located within industrial facilities, gas stations, machine shops and automobile, and rail maintenance yards, as are the 250 documented PSTs. The status remarks of the LPSTs range from active, discovery, monitoring, and assessment, to closed cases. Of the seven VCP records, one site has a status of rejected, one has a status of complete, and the remaining five—including a record at the ASARCO property—has no documented status. The clean-up at the one State Brownfields, Casa Magoffin Compeneros, is listed as complete. Of the 102 documented RCRA sites, none are generators; however, 30 of the sites had at least one violation. The four records of drycleaners were all listed as active, with no further documentation. One of the 153 IHW records is listed as abandoned: 18 are active or open, eight

are merged, one has a closure request, two are closed, and the remaining documented IHW sites are listed as inactive.

### **3.11.2 Visual Site Inspection**

In January 2012, qualified investigators performed a windshield survey of the study area. Within the study area, hazardous materials sites are spread throughout the corridor, with the notable features of the ASARCO site and a large rail yard located within the center of the study area. Development in the City of El Paso is industrial, light commercial, educational, medical, and residential in use. Properties identified within the Banks regulatory database search include industrial chemical as well as oil and gas industries, commercial and automotive maintenance facilities, quarries, gas stations, rail yards, waste and recycling facilities, and water treatment facilities, which was consistent with the field findings. The mixed-use of residential, commercial, and industrial properties within the study area could contain lead and asbestos materials due to the age of the properties, as well as petroleum and solvent products, dependent on the industrial or commercial use. The ASARCO and CEMEX sites are dominant features in the region, as are the BNSF rail yard and adjacent warehouse facilities located downtown. These properties have records of hazardous materials documented onsite and are immediately adjacent to several of the reasonable alternatives.

### **3.11.3 ASARCO**

The ASARCO Texas Custodial Trust manages remediation and demolition activities at the 200-acre ASARCO facility located between I-10 and the Rio Grande. The Trust is managed by a California-based company, Project Navigator, with the oversight of both the TCEQ and the EPA (TCEQ 2012). According to analytical results established by an investigation led by the Trustee's consultant, arsenic, cadmium, and lead are present in soil and groundwater, and a portion of ASARCO within the study area has been used for slag disposal. The following is a brief history of the ASARCO facility as documented on the Trustee's website ([www.recastingthesmelter.com](http://www.recastingthesmelter.com)):

*The site began operations as a lead smelter in 1887. [...] ASARCO started producing copper in 1910, operated a Godfrey roaster for cadmium oxide productions in the 1930s, and constructed a slag fuming plant for zinc recovery in 1948. ASARCO added an antimony plant in 1970. The zinc plant was closed in 1982, the lead plant closed in 1985, the antimony plant shut down in 1986, and the cadmium plant was shut down in 1992. Most recently, in February 2009, the state air permit for the copper smelter was voided by the TCEQ at ASARCO's request. The main potential chemicals of concern (PCOCs) are: Lead, Arsenic, Cadmium, Chromium, Copper, Iron, Selenium, and Zinc. The media of concern is both soil and groundwater.*

*In 1994 and 1995, after a series of compliance inspections, it was determined that unauthorized discharges of solid waste, wastewater and storm water had occurred at the facility. The Texas Natural Resource Conservation Commission (TNRCC; the immediate predecessor of the TCEQ) issued an Agreed Order. The Order instructed ASARCO to conduct a site characterization, define the horizontal and vertical extent of soil and groundwater contamination, and define the extent of contamination across property boundaries.*

*In October 1998, ASARCO completed the initial site investigation and submitted the ASARCO El Paso Copper Smelter Remedial Investigation Report, El Paso, Texas.*

*In April 1999, the U.S. Environmental Protection Agency (EPA) and the State of Texas filed a civil enforcement action in federal district court that alleged ASARCO violated the Resource Conservation and Recovery Act (RCRA) by failing to properly manage hazardous waste and engaging in unlawful recycling practices. This action resulted in an April 1999 Consent Decree (H-99-1136) being entered in federal district court. In addition to addressing other ASARCO sites, the Consent Decree directed ASARCO to complete the corrective action work at the El Paso site under the 1996 State of Texas Agreed Order. The Consent Decree was subsequently modified in 2004.*

*On May 20, 2005, the TCEQ issued a Corrective Action Directive to ASARCO to conduct remedial action for the El Paso site. In 2005, ASARCO and related entities declared Chapter 11 bankruptcy.*

*On Nov. 13, 2009 the United States District Court for the Southern District of Texas in Corpus Christi issued an order confirming the plan of reorganization. On December 9, 2009, ASARCO placed \$52,080,000 in an environmental custodial trust to address remedial activities.*

### 3.11.3.1 Phase I ESA Analysis Results

A limited Phase I Environmental Site Assessment (ESA) was performed in October 2010 for a portion of the study area (LCA 2010). The report relied on the existing ASARCO studies. According to analytical results established through the ASARCO Trustee’s investigations, arsenic, cadmium, and lead are present in soil and groundwater on the subject property. The limited Phase I ESA report recommended that a Phase II ESA be performed on the property.

**Table 3-22** is a summary of the confirmed Recognized Environmental Conditions (RECs) for the proposed project site based on database listings documents additional records found for the ASARCO property, as noted in the Phase I ESA report.

**Table 3-22: ASARCO Federal and State Agency Database Listings**

Database	Listing Details
Federal Insecticide, Fungicide, and Rodenticide Act/Toxic Substance Control Act Tracking System (FTTS INSP)	Federally conducted follow-up polychlorinated biphenyl (PCB) investigation. Violation occurred.
Tracking System Inspection & Enforcement Case Listing (HIST FITTS)	Federally conducted PCB investigation. Violation occurred.
LPST	Impacted groundwater; Final Concurrence Issued; Case closed.
PST	All 4 Underground Storage Tanks reported for this facility have been removed from ground. Four (4) Above ground Storage Tanks are classified as in use. All eight violations on records have been resolved.
Facility Index System (FINDS)	Proposed project site is listed in FINDS database.
Federal Toxics Tracking System (FTTS), HIST FTTS	Improper disposal of PCBs, Failure to Maintain Records, Failure to Inspect, Failure to label.

Source: LCA 2010

### 3.11.3.2 Phase II ESA Analysis Results

A limited Phase II ESA was performed for a portion of the ASARCO site within the study area located immediately adjacent to I-10 in June and July, 2011 (LCA 2011). The groundwater samples analyzed in the Phase II ESA report determined that the groundwater contained dissolved antimony, arsenic, and selenium at concentrations above the Texas Risk Reduction Program (TRRP) Tier 1 Commercial/Industrial (C/I) protective concentration levels (PCL) for groundwater ingestion ( $^{GW}GW_{ing}$ ) and vanadium at concentrations equal to the TRRP Tier 1 C/I  $^{GW}GW_{ing}$  PCL. The TRRP Tier 1 PCL thresholds are the default cleanup standards in the Texas Risk Reduction Program (TCEQ 2012).

Soil samples analyzed indicated that several metals are present on the ASARCO property within the study area in concentrations that exceed the respective TRRP Tier 1 for the soil to groundwater ingestion pathway ( $^{GW}Soil_{ing}$ ) PCLs for C/I property; this threshold is also more commonly referred to as the “groundwater protection standard” (LCA 2011). The soil samples analyzed also documented groundwater protection standard exceedances for the following metals: antimony, arsenic, barium, cadmium, copper, lead, selenium, silver, thallium, and zinc (LCA 2011). The complete Limited Phase II ESA Report is available on file at the TxDOT El Paso District office.

#### ASARCO Current Remediation Conditions

In addition to the records documented in the limited Phase I ESA study by others noted above, the study team documented the additional records found in the Banks (2010) database search for the ASARCO site: CERCLIS, RCRA COR, RCRA TSD, RCRA GEN, three ERNS, and PST.

The Final Remediation Plan (Texas Custodial Trust 2011) documents heavy metals, in particular lead, arsenic, and cadmium, on the ASARCO site and immediately adjacent properties. The Remediation Plan calls for further testing of new sites of potential contamination noted by former employees, and recommends actions for the next phase of soil and groundwater remediation (Texas Custodial Trust 2011).

The current zoning for the ASARCO site is industrial. The ASARCO site’s development options, even after the planned remediation, would be limited. Development and uses that would result in extended exposure to humans, and in particular exposure to children and ill persons is prohibited; these include facilities such as: residences, schools, daycares, and medical facilities. The current ASARCO remediation plan calls for contaminants to be sealed contained in cells under “caps” to prevent direct contact with slag (Texas Custodial Trust 2011). These containment cells are areas below the surface where smelter waste materials are placed within a sealed liner and covered with thick plastic, topped with a layer of clean earth, and finally “capped” with a layer of asphalt (Texas Custodial Trust 2011):

*The remedial work at ASARCO for both soils and groundwater consisted of removal of impacted soils and source materials, which, if left in place, would provide a mechanism to continually impact groundwater beneath the site. ASARCO excavated, removed, and placed a significant quantity of these materials (approximately 180,000 cubic yards [cy]) into lined repositories between 2005 and 2009. Soils at the site, which were contaminated from historic smelting operations at levels below a concern for impact to groundwater, were designated Category II soils. These soils were determined not to be a potential source of contaminants to groundwater, if managed properly. As such, these materials were proposed to be left in place and capped to prevent direct contact, wind mobilization, and infiltration and subsequent contaminant migration.*

*Portions of the site have been capped with an asphalt cover system completed between 2005 and 2009.*

Any proposed use of the site must be configured around three existing containment cells and a fourth cell is planned to be completed in 2012 (Texas Custodial Trust 2012). The containment cells must remain sealed, eliminating the possibility of future development that may penetrate the cells, such as, buildings, trees, or even light poles (Dover et al. 2010).

In addition to ASARCO's former site of smelter operations, a 242-acre parcel of land owned by ASARCO is located east of I-10, along the western boundary of UTEP. This site is currently undeveloped, zoned as industrial, and has no known history of smelter operations. The geography of this parcel includes steep slopes and numerous arroyos crossing the site. The water from the arroyos is channeled through a culvert under I-10, through an exposed slag pile on the ASARCO former smelter site, and flows ultimately into the Rio Grande. The Final Remediation Plan (Texas Custodial Trust 2011) addressed the groundwater and surface water runoff in the remediation plan, which includes barriers and sumps to handle potential migration of contaminants.

#### **3.11.4 Additional Reports Reviewed**

A chain of title search was conducted for TxDOT for the CEMEX property within the study area (TxDOT 2010d). The resulting documentation noted the location of a Class 3 industrial solid waste landfill located on the CEMEX property, approximately 424 acres in size. Class 3 solid waste is defined as: waste not meeting the conditions of Class 1 or 2, including chemically inert and insoluble substances, samples without detectable levels of PCBs or hydrocarbons, and waste which poses no threat to human health and/or the environment; and inert, insoluble solid waste materials such as rock, brick, glass, dirt, and some rubbers and plastics (Texas Environmental Almanac 2012).

#### **3.11.5 Oil/Gas Wells and Pipelines**

The Railroad Commission (RRC) of Texas database contains information relating to regulated oil and gas exploration and production sites, including active, plugged, and abandoned wells. Oil and gas well casings and drill shafts are installed both on land and constitute potential sources of petroleum contamination even after they are plugged and abandoned and have been identified with hydrocarbon and brine releases to soil, groundwater, and surface water. The Banks Environmental Data, Inc. search of the Texas RRC Oil and Gas database was conducted July 19, 2010. Excerpts from the report are included in **Appendix H**.

The RRC maps show natural gas transmission lines and pipelines for non-HVL liquid products (liquid products that are not highly volatile) in the study area as well as numerous liquid propane gas tank locations. There are five permitted well locations (proposed locations of wells for which the RRC has granted a drilling permit) mapped in the area; however, only one well location is active (**Exhibit 3-4**). One RRC-permitted location and one dry hole (a plugged well that never produced oil or gas) are located approximately 3 miles north of the proposed western project terminus. One permitted location and a canceled location (well location for which the permit has expired or been canceled) is located within the study area, along SH 20. The final permitted location is within the study area approximately 0.5 mile northwest of the intersection of Executive Center Boulevard and US 85 (Paisano Drive) in Smelertown. Most of the gas wells were located outside the search radius for the study area.

Pipelines were researched based on recorded data provided by the RRC of Texas. There are 23 natural gas pipelines and two diesel pipelines within the study area. **Table 3-43** provides a listing of major pipelines, pipeline companies, and line size within the study area. Reference **Exhibit 3-4** for locations of pipelines within the study area.

**Table 3-23: Pipelines within the Study Area**

Pipeline Name	Owner/Operator	Diameter (inches)	Commodity Description
El Paso System Branch Line	El Paso Natural Gas Company	6.63	Natural Gas
		8.63	Natural Gas
		8.63	Natural Gas
		6.63	Natural Gas
		8.63	Natural Gas
		8.63	Natural Gas
		6.63	Natural Gas
		6.63	Natural Gas
		8.63	Natural Gas
		10.75	Natural Gas
		2.38	Natural Gas
		10.75	Natural Gas
		12.75	Natural Gas
		1.32	Natural Gas
		12.75	Natural Gas
		4.5	Natural Gas
		16	Natural Gas
		4.5	Diesel
		16	Natural Gas
		10.75	Natural Gas
8.63	Natural Gas		
10.75	Natural Gas		
Del Norte # 2	Oneok Westx Transmission, L.L.C.	6.63	Natural Gas
Chevron to UPRR	SFPP, L.P.	4.5	Diesel
Del Norte # 3	Oneok Westx Transmission, L.L.C.	6.63	Natural Gas

Source: RRC 2012

### 3.12 VISUAL AND AESTHETIC QUALITY

FHWA’s Technical Advisory T6640.8A recommends that whenever a potential for visual impacts exists from a proposed transportation project, the environmental study should identify the potential visual impacts to the adjacent land uses as well as measures to avoid, minimize, or mitigate these potential visual impacts. The process used to assess the visual and aesthetic impacts for the proposed Loop 357 Border Highway West project generally follows the guidelines outlined in the *FHWA’s Visual Impact Assessment for Highway Projects* (FHWA 1988).

### **3.12.1 Project Setting**

The visual environment resource area establishes the general visual environment of the proposed project. The following description of the visual environment addresses both landform and land cover.

The visual environment resource area (**Exhibit 4-10**) is located in El Paso County, at the far western tip of Texas, where New Mexico and the Mexican state of Chihuahua meet. The topography of steep mountains rising up from desert valley floors is typical of the Basin and Range Region in the western U.S. The study area's visual resource environment is framed by north/south trending rugged mountains that slope down to the Rio Grande river valley.

Traveling east to west through the visual resource area, the first four miles are located in the south-central part of El Paso. Land cover is common to a U.S. city's center with 500,000 residents and supported by manufacturing industries. Dominant visual features include industrial facilities, warehouses, roadways, railroad corridors, irrigation canals, billboard advertisements, residential structures, schools, and downtown buildings. The next two miles are located on the west side of El Paso, which is dominated by rocky, steep mountains, desert slopes, and the shallow channel of the silt-laden Rio Grande, which runs through the center of the visual resource environment in this area. To the east of the river on the U.S. side of the international border, the desert landscape is periodically interrupted by man-made features such as the UTEP campus, commercial areas, smelter and quarry operations, and neighborhoods. To the west of the river in this area, the land cover is primarily the neighborhoods of Ciudad Juárez, Mexico or New Mexico. Visual features include dirt roads, paved roadways, buildings, and residential structures. Through this portion of the visual resource area, a tall border security fence of dense metal mesh is a continuous feature with U.S. Border Patrol vehicles parked at set intervals along the fence. The final two miles continue to be dominated by the mountains, desert slopes and Rio Grande valley with occasional commercial and neighborhood features.

### **3.12.2 Aesthetics**

The study area is located within the City of El Paso, Texas, which is adjacent to Ciudad Juárez, Mexico. The population of the two cities combined is over two million and, from an aerial view, the boundary between them is virtually indistinguishable. Culturally, the two cities are tied together through generations of families living on both sides of the international border. El Paso and Ciudad Juarez are linked economically by international manufacturing industries with operations in both cities. Not only are the cities culturally and economically tied, but they are also linked aesthetically. The visual connection between the two cities is very important to community cohesion, and citizens have emphasized the importance of maintaining visual connection during project planning meetings. Public concerns raised during the early stages of project development were related to the possibility of an elevated facility. Elevated structures along the border are perceived as splitting the sense of cohesion and emphasizing the boundary between the countries. Similar concerns had been raised during the U.S. government's construction of the border fence. The project team initiated the project's context sensitive solutions process and worked with the community during a series of meetings to create an acceptable result that represents the cultural and aesthetic characteristics that are important to the area.

### **3.12.3 Landscape Units**

A landscape unit is a portion of the regional landscape of the resource area and can be thought of as an outdoor room that exhibits a distinct visual character. A landscape unit would often correspond to a place or district that is commonly known among local viewers. These landscape units provide the framework for analyzing the effects of the proposed project.

The landscape units for the proposed project are shown in **Exhibit 4-10** and include:

- Industrial Landscape Unit
- UTEP Landscape Unit
- Sunset Heights Landscape Unit
- Near Downtown Landscape Unit

A summary of the characteristics of each landscape unit is provided below.

#### **3.12.3.1 Industrial Landscape Unit**

The Industrial Landscape Unit encompasses the area in the vicinity of the former ASARCO smelting plant and several other industrial facilities. This landscape unit has the most topographical variation, including higher and sloping elevations near I-10, and flat and lower elevations near the Rio Grande bordering the western side. The dominant visual features are several remaining ASARCO smokestacks, including the tallest at 823 ft. US 85 (Paisano Drive), I-10, and two railroads cross the majority of the landscape unit.

#### **3.12.3.2 UTEP Landscape Unit**

The UTEP Landscape Unit encompasses the area in the vicinity of the UTEP. The landscape unit is higher in elevation along the northern border and drops and flattens near the main campus buildings. Several old grain mill buildings are located near the southwest corner of the landscape unit. US 85 (Paisano Drive), I-10, and two railroads cross the southwest corner of the landscape unit. These facilities have several raised overpasses and elevated sections.

#### **3.12.3.3 Sunset Heights Landscape Unit**

The Sunset Heights Landscape Unit encompasses the area from the Sunset Heights neighborhood to the Rio Grande. The Sunset Heights neighborhood is built on a slight rise above the valley floor and contains homes built between 1900 and 1920 (City of El Paso, 2012).

#### **3.12.3.4 Near Downtown Landscape Unit**

The Near Downtown Landscape Unit encompasses the area to the south of downtown El Paso. This area is highly developed, and includes the neighborhoods of Chihuahuita and Segundo Barrio. The entire area is generally flat, located on the valley floor.

### **3.12.4 Project Viewshed**

A viewshed is a subset of a landscape unit and is comprised of all the surface areas visible from an observer's viewpoint. It also includes the locations of viewers likely to be affected by visual changes brought about by project features and its limits are the visual limits of the views located from the proposed project. Potential viewsheds extend out into the surrounding area. The viewsheds for the proposed project include locations within the four landscape units where viewers are likely to be affected by visual changes brought about by the project features. For the purposes of the analysis, the projects viewsheds have been defined by the boundaries of the four landscape units.

### 3.12.5 Existing Visual Resources and Quality

The quality of the existing visual resources was evaluated by identifying the vividness, intactness, and unity present in the viewshed. This approach is particularly useful in transportation planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating specific adverse impacts that may occur as a result of a project. The three criteria for evaluating visual quality are as follows:

Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns.

Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.

Unity is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components in the landscape.

**Table 3-24** shows the results of the existing visual quality analysis results for the four landscape units within the visual environment study area followed by summaries of the results.

**Table 3-24: Existing Visual Quality Analysis**

Landscape Unit	Existing Visual Quality		
	Low	Moderate	High
Industrial	•		
UTEP		•	
Sunset Heights		•	
Near Downtown		•	

Source: HNTB 2012

#### 3.12.5.1 Industrial Landscape Unit

The visual quality of this landscape unit is “low” due to the presence of scattered abandoned industrial facilities and disturbed barren hillsides. The view of the closed ASARCO smelting plant exhibits a “moderately high” degree of vividness because of the remaining smokestacks. The presence of encroaching visual elements such as I-10, US 85 (Paisano Drive), and slag piles from the industrial areas exhibits a “low” degree of intactness and unity.

#### 3.12.5.2 UTEP Landscape Unit

The visual quality of this landscape unit is “moderate.” The presence of the UTEP Campus and views of the Franklin Mountains to the north contribute to an “average” degree of vividness. The presence of encroaching visual elements, such as numerous roadway billboards along I-10, and a large overpass on I-10 exhibit a “moderately low” degree of intactness. The unity of the landscape unit is “moderately high” because of the cohesive design of the University’s buildings.

#### 3.12.5.3 Sunset Heights Landscape Unit

The visual quality of this landscape unit is “moderate.” The presence of the Sunset Heights neighborhood and views of the Franklin Mountains to the north, along with the presence of encroaching visual elements such as I-10 and multiple railroad facilities exhibits an “average” degree of vividness, intactness, and unity.

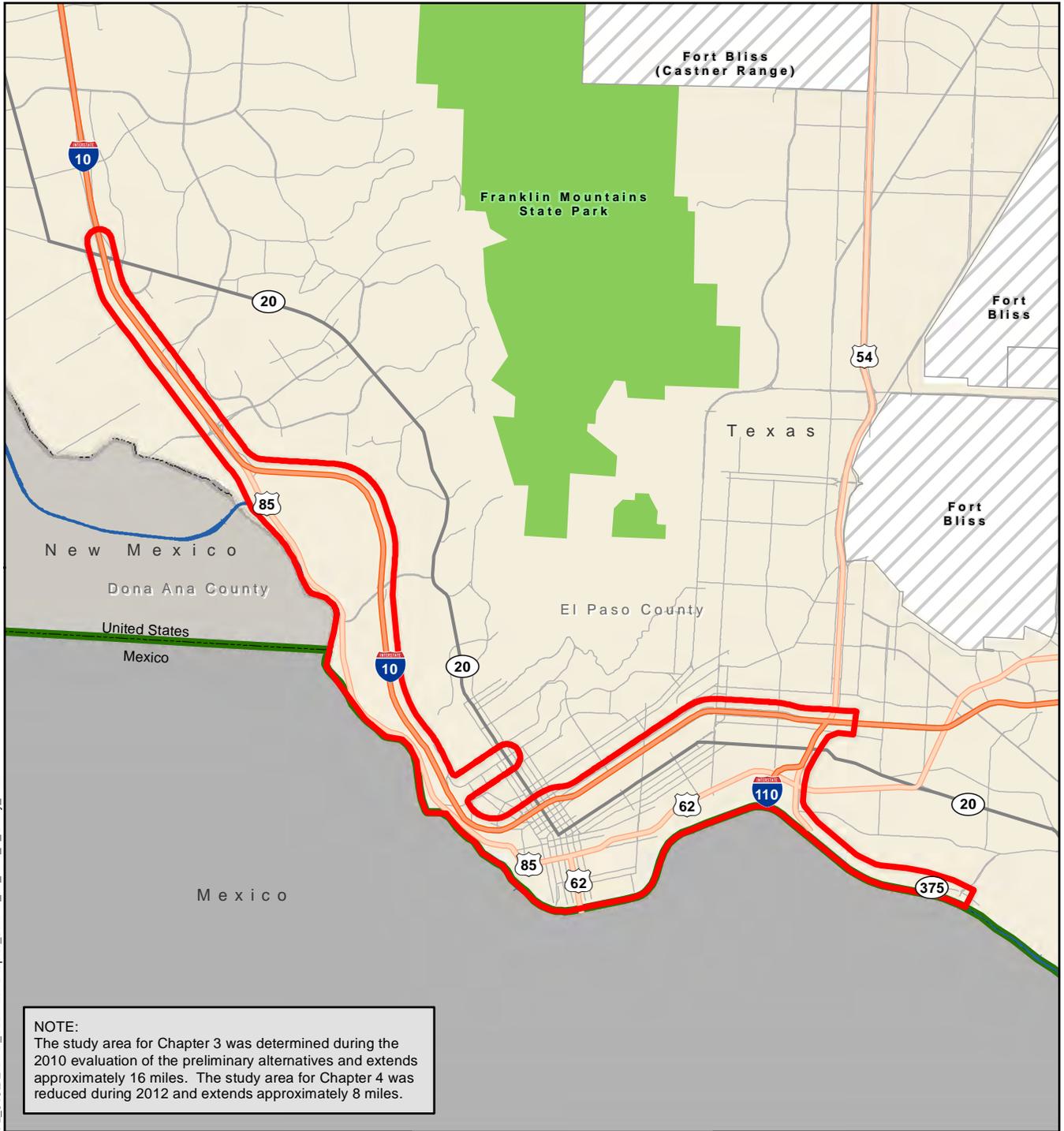
#### **3.12.5.4 Near Downtown Landscape Unit**

The visual quality of this landscape unit is “moderate.” The flat natural topography with views of the skyline of downtown, and the Franklin Mountains to the north, contributes to “moderately high” vividness. The presence of encroaching visual elements such as I-10, multiple railroad facilities, and two international border crossing bridges contributes to a “moderately low” degree of intactness. There is an “average” degree of unity, as the entire landscape unit is highly developed, containing a mix of residential, commercial, industrial, and downtown views.

### **Chapter 3 Exhibits**

- Exhibit 3-1: Study Area
- Exhibit 3-2: General Land Use
- Exhibit 3-3: Community Facilities including Public Lands
- Exhibit 3-4: Pipelines, Hazardous Material and Oil & Gas wells Within Study Area
- Exhibit 3-5: Census Tracts, Block Groups and Blocks Within Study Area
- Exhibit 3-6: Communities within Study Area
- Exhibit 3-7: Noise Receivers within Study Area
- Exhibit 3-8: Physiographic Provinces of Texas
- Exhibit 3-9: Geologic Formations
- Exhibit 3-10: Study Area Aquifers and Water Wells
- Exhibit 3-11: Soils and Water Resources Within Study Area
- Exhibit 3-12: USGS Topo Map
- Exhibit 3-13: Gould Ecoregions of Texas
- Exhibit 3-14: Vegetation Types of Texas
- Exhibit 3-15a: Segment 1 Historic Resource Location Map
- Exhibit 3-15b: Segment 2 Historic Resource Location Map
- Exhibit 3-15c: Segment 3 Historic Resource Location Map
- Exhibit 3-15d: Segment 4 Historic Resource Location Map

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**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

Study Area	Interstate
Franklin Mountains State Park	US Highway
Fort Bliss	State Highway
City Limit	International Boundary
Texas	
New Mexico	
Mexico	

1:96,000  
 1" = 8,000'

0 4,000 8,000  
 Feet

0 1 2  
 Miles

This project does not cross international boundaries.

**Sources**  
 Study Area: HNTB, 2010  
 Municipal Boundaries: City of El Paso data, 2010

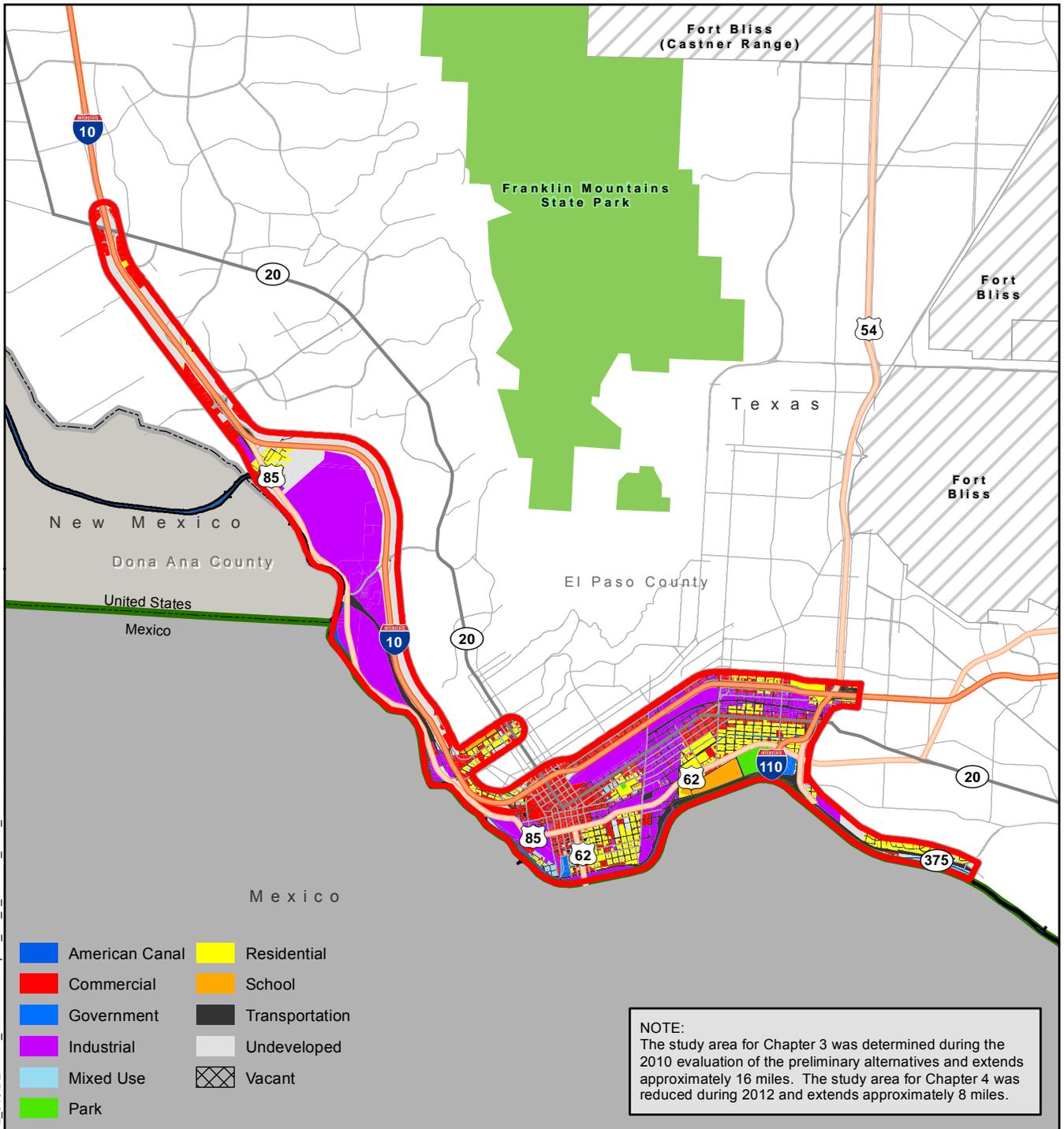
**Loop 375 Border Highway West Extension Project**  
 From Racetrack Drive to US 54

**Exhibit 3-1 Study Area**

El Paso County, Texas  
 CSJ: 2552-04-027

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- |                |                |
|----------------|----------------|
| American Canal | Residential    |
| Commercial     | School         |
| Government     | Transportation |
| Industrial     | Undeveloped    |
| Mixed Use      | Vacant         |
| Park           |                |

**NOTE:**  
The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

- |                               |                        |
|-------------------------------|------------------------|
| Study Area                    | Interstate             |
| Franklin Mountains State Park | US Highway             |
| Fort Bliss                    | State Highway          |
| Texas                         | International Boundary |
| New Mexico                    |                        |
| Mexico                        |                        |



**Sources**  
Study Area: HNTB, 2010  
Municipal Boundaries: City of El Paso data, 2010  
Land Use: HNTB - (2009 aerial interpretation)



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

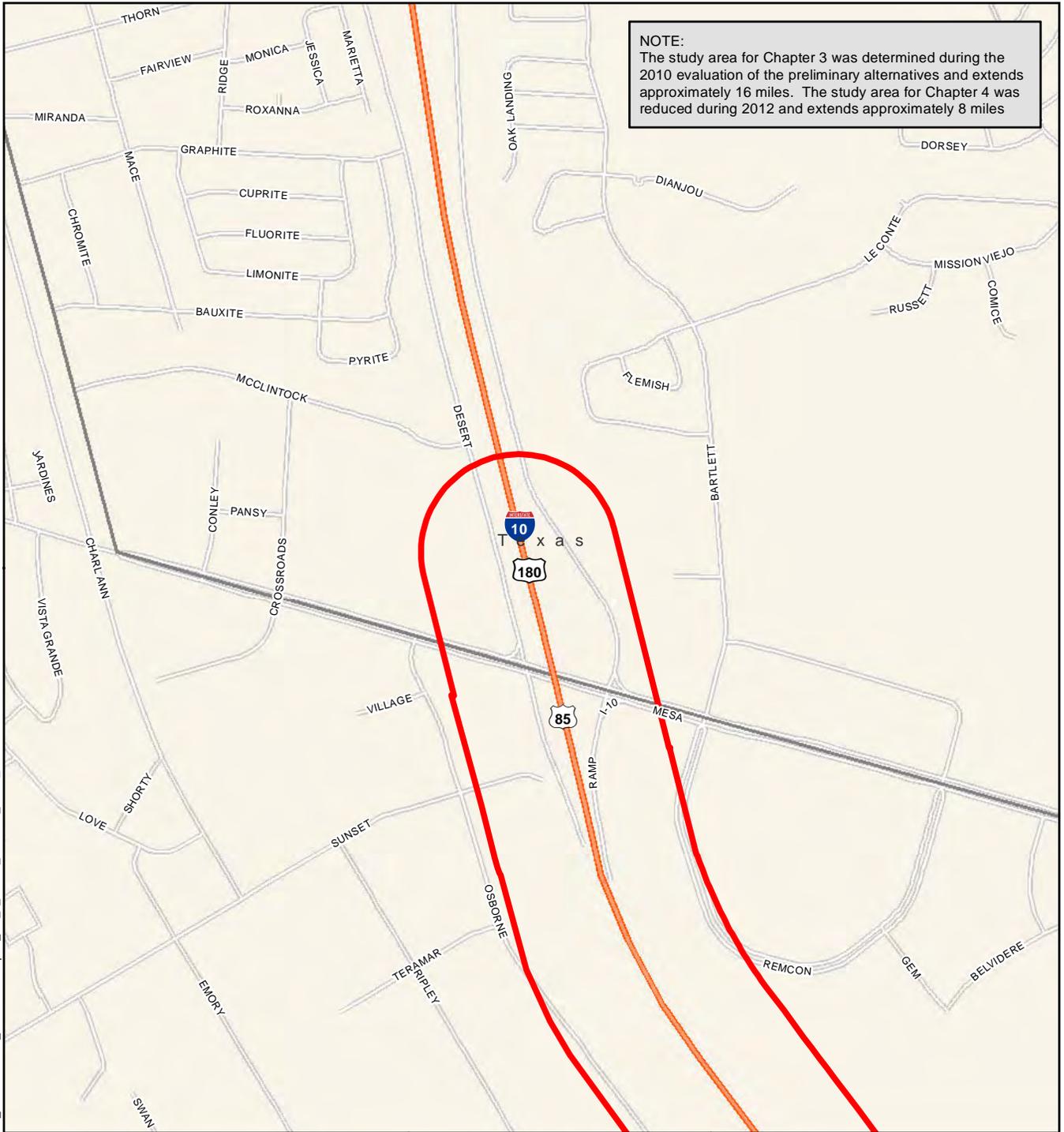
### Exhibit 3-2 General Land Use

El Paso County, Texas  
CSJ: 2552-04-027



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	School		Rio Grande
	Church		City Limit
	Community Center		Mexico
	Day Care Center		International Boundary
	Study Area		Interstate
	Park		US Highway
			State Highway
			State Loop
			Local Street

**Sources**

- Study Area: HNTB, 2010
- School: City of El Paso data, 2010
- Church: City of El Paso data, 2010
- Community Center: City of El Paso data, 2010
- Day Care Center: City of El Paso data, 2010
- National Register: NPS, 2010

## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

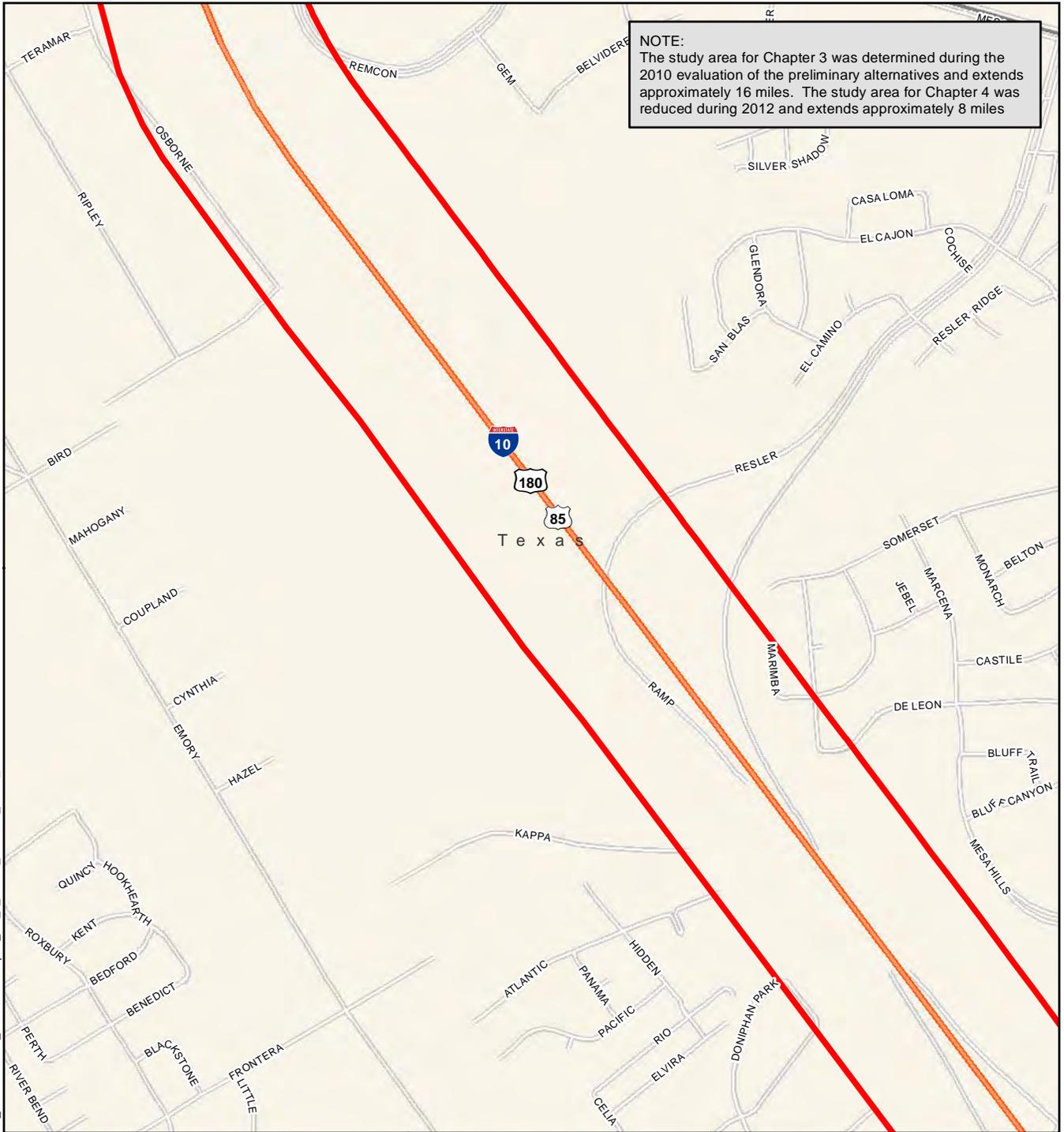
### Exhibit 3-3 Community Facilities Including Public Lands

Page 1 of 10

El Paso County, Texas  
CSJ: 2552-04-027

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|--|------------------|--|------------------------|
|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
|  | Community Center |  | Mexico                 |
|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
|  | Park             |  | US Highway             |
|  |                  |  | State Highway          |
|  |                  |  | State Loop             |
|  |                  |  | Local Street           |



**Sources**  
**Study Area:** HNTB, 2010  
**School:** City of El Paso data, 2010  
**Church:** City of El Paso data, 2010  
**Community Center:** City of El Paso data, 2010  
**Day Care Center:** City of El Paso data, 2010  
**National Register:** NPS, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

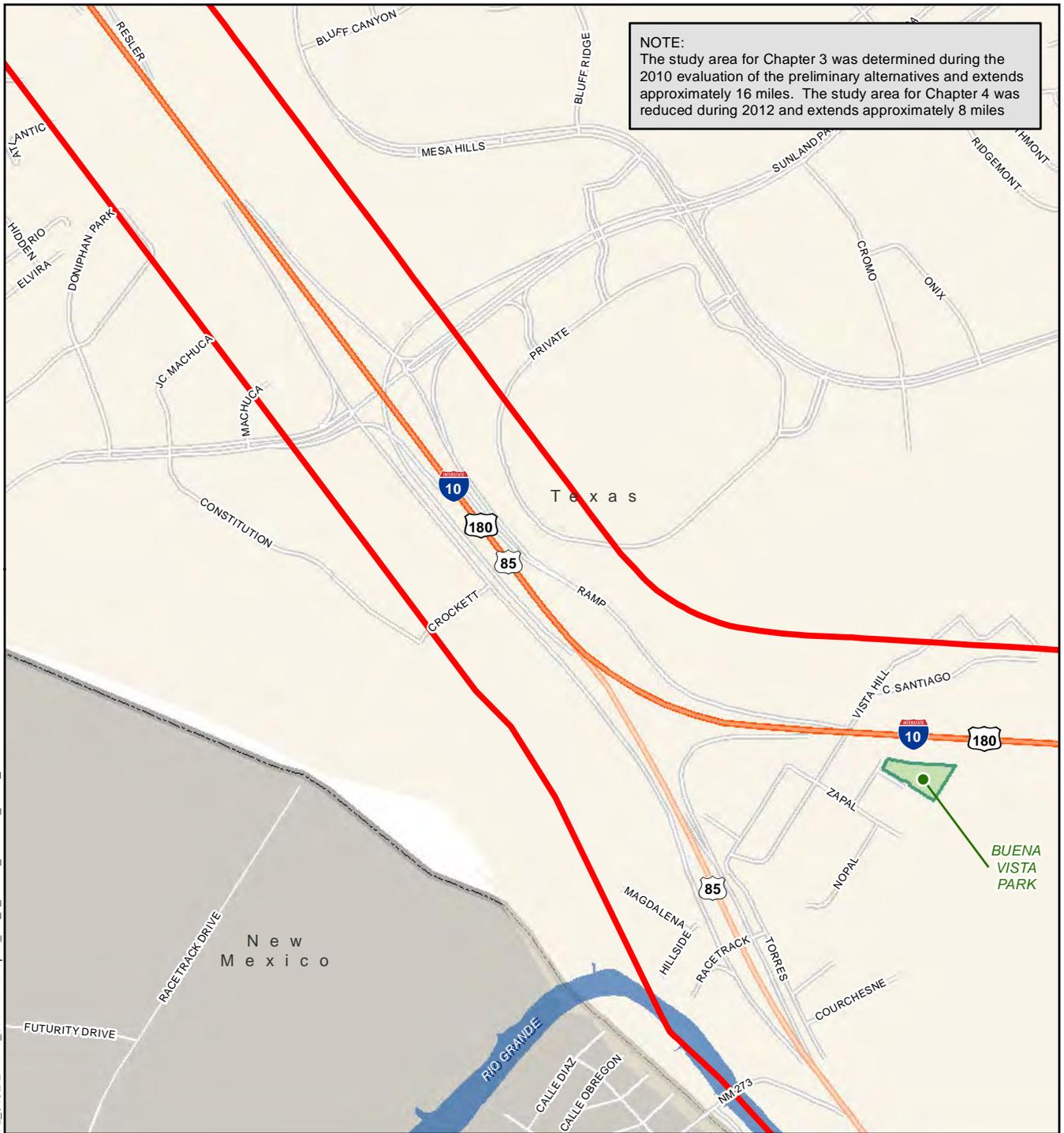
### Exhibit 3-3 Community Facilities Including Public Lands

Page 2 of 10

El Paso County, Texas  
CSJ: 2552-04-027

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	School		Rio Grande
	Church		City Limit
	Community Center		Mexico
	Day Care Center		International Boundary
	Study Area		Interstate
	Park		US Highway
			State Highway
			State Loop
			Local Street

This project does not cross international boundaries.

**Sources**  
**Study Area:** HNTB, 2010  
**School:** City of El Paso data, 2010  
**Church:** City of El Paso data, 2010  
**Community Center:** City of El Paso data, 2010  
**Day Care Center:** City of El Paso data, 2010  
**National Register:** NPS, 2010

**Loop 375 Border Highway  
West Extension Project**

From Racetrack Drive to US 54

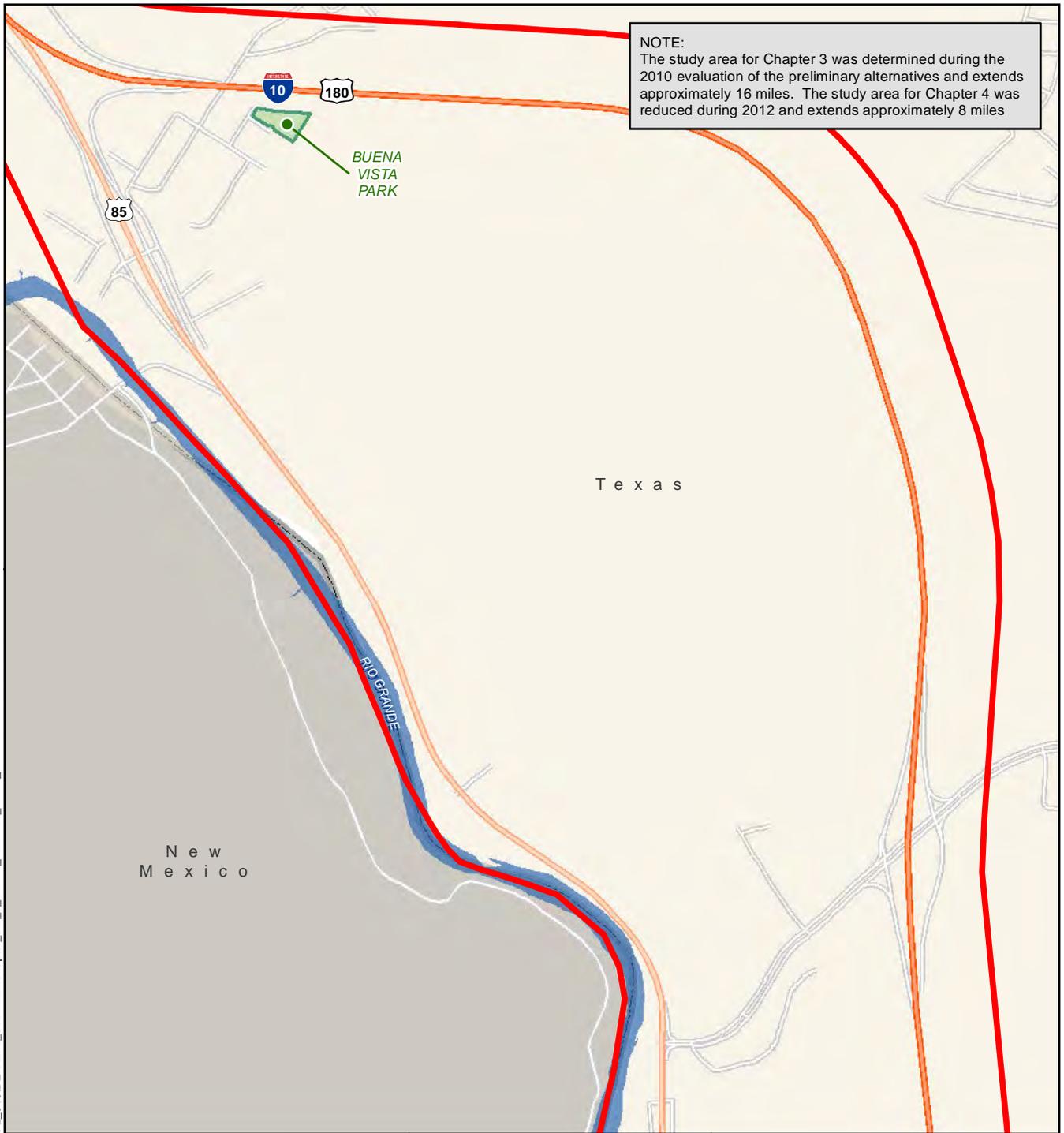
**Exhibit 3-3  
Community Facilities  
Including Public Lands**

Page 3 of 10

El Paso County, Texas  
CSJ: 2552-04-027

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	School		Rio Grande
	Church		City Limit
	Community Center		Mexico
	Day Care Center		International Boundary
	Study Area		Interstate
	Park		US Highway
			State Highway
			State Loop
			Local Street

**Sources**

- Study Area: HNTB, 2010
- School: City of El Paso data, 2010
- Church: City of El Paso data, 2010
- Community Center: City of El Paso data, 2010
- Day Care Center: City of El Paso data, 2010
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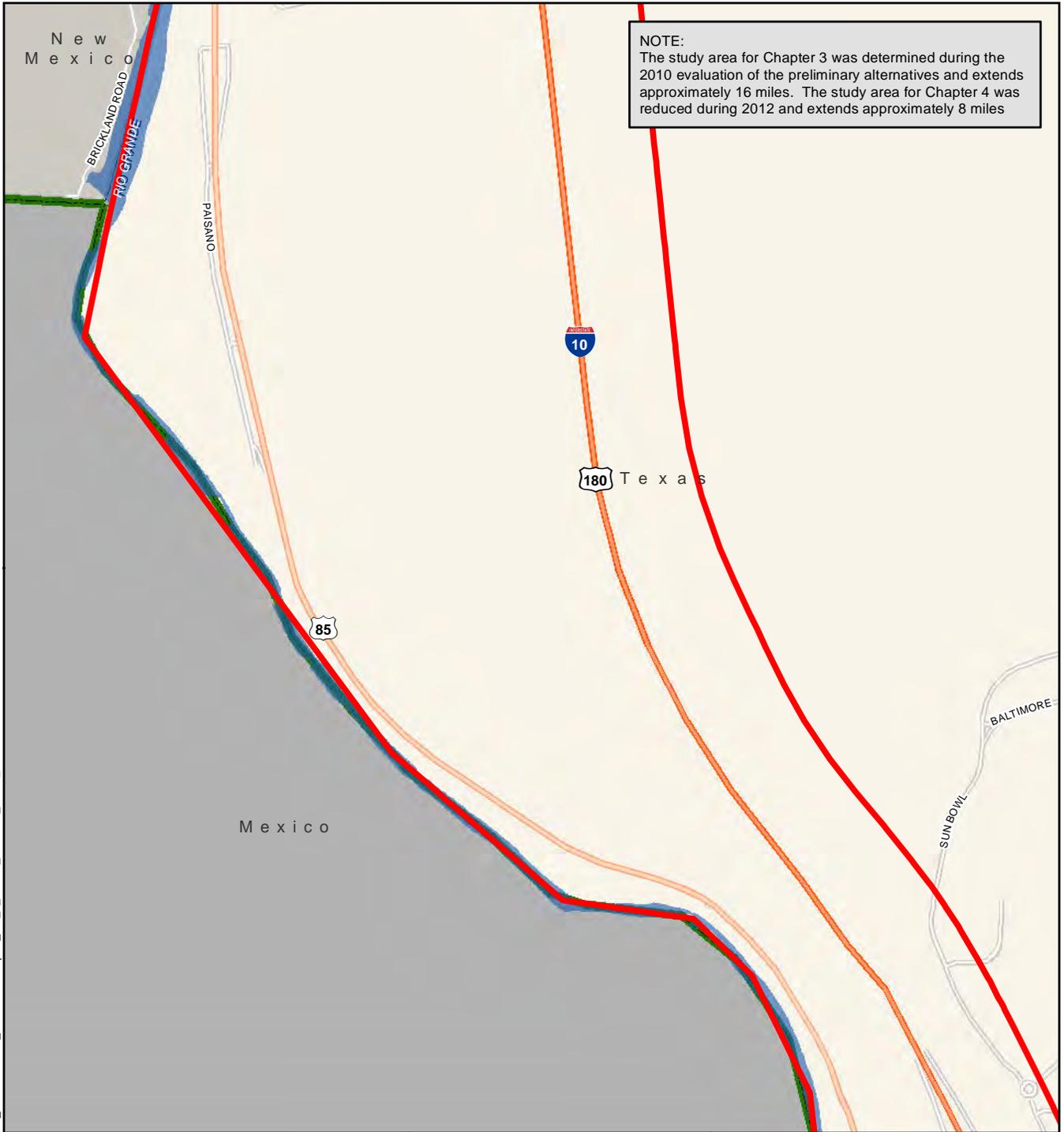
**Loop 375 Border Highway West Extension Project**  
From Racetrack Drive to US 54

**Exhibit 3-3**  
**Community Facilities Including Public Lands**  
Page 4 of 10

El Paso County, Texas  
CSJ: 2552-04-027

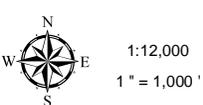
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|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
|  | Community Center |  | Mexico                 |
|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
|  | Park             |  | US Highway             |
|  |                  |  | State Highway          |
|  |                  |  | State Loop             |
|  |                  |  | Local Street           |



**Sources**  
**Study Area:** HNTB, 2010  
**School:** City of El Paso data, 2010  
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**Community Center:** City of El Paso data, 2010  
**Day Care Center:** City of El Paso data, 2010  
**National Register:** NPS, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

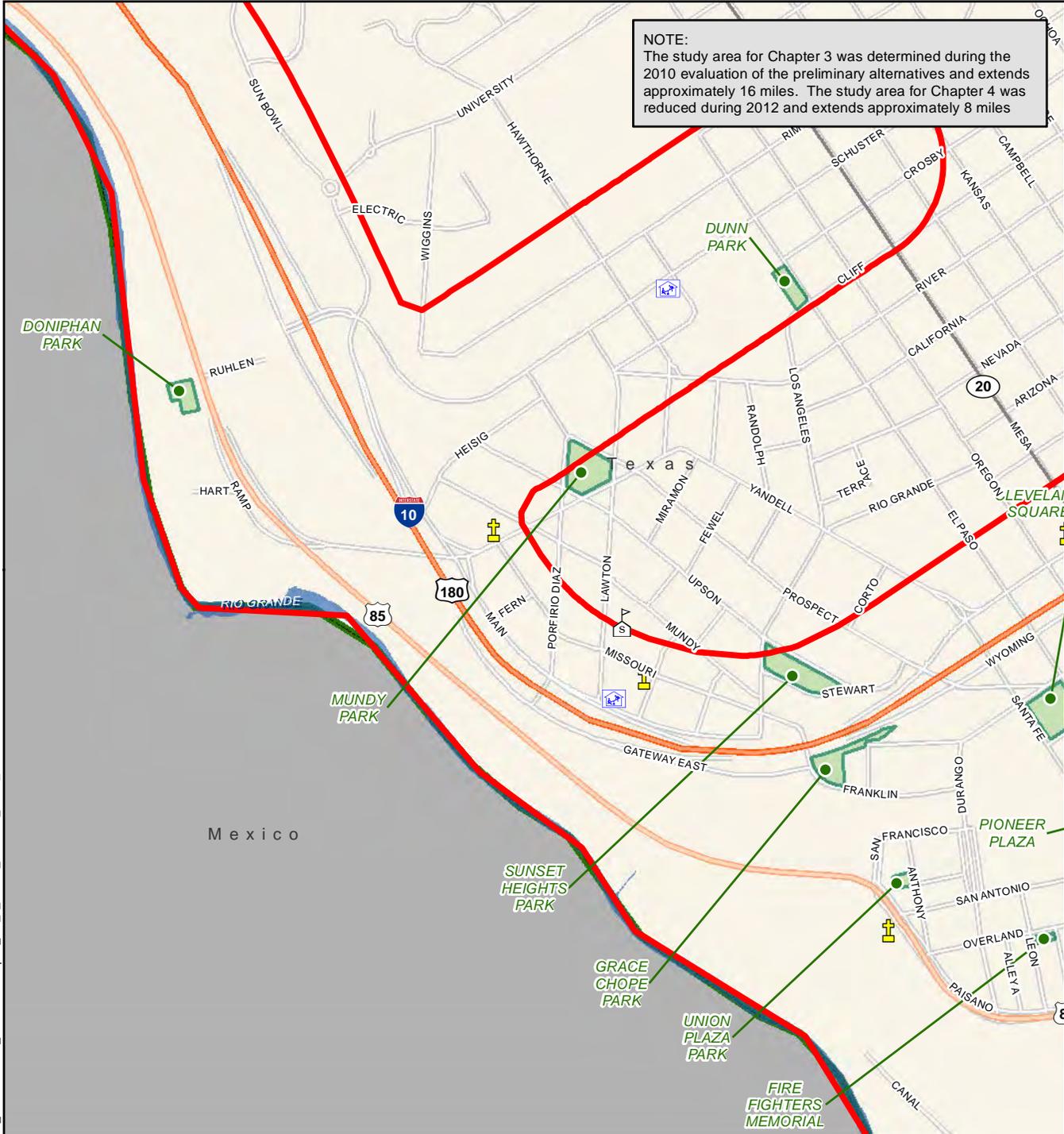
### Exhibit 3-3 Community Facilities Including Public Lands

Page 5 of 10

El Paso County, Texas  
 CSJ: 2552-04-027

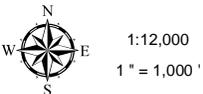
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|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
|  | Community Center |  | Mexico                 |
|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
|  | Park             |  | US Highway             |
|  |                  |  | State Highway          |
|  |                  |  | State Loop             |
|  |                  |  | Local Street           |



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## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

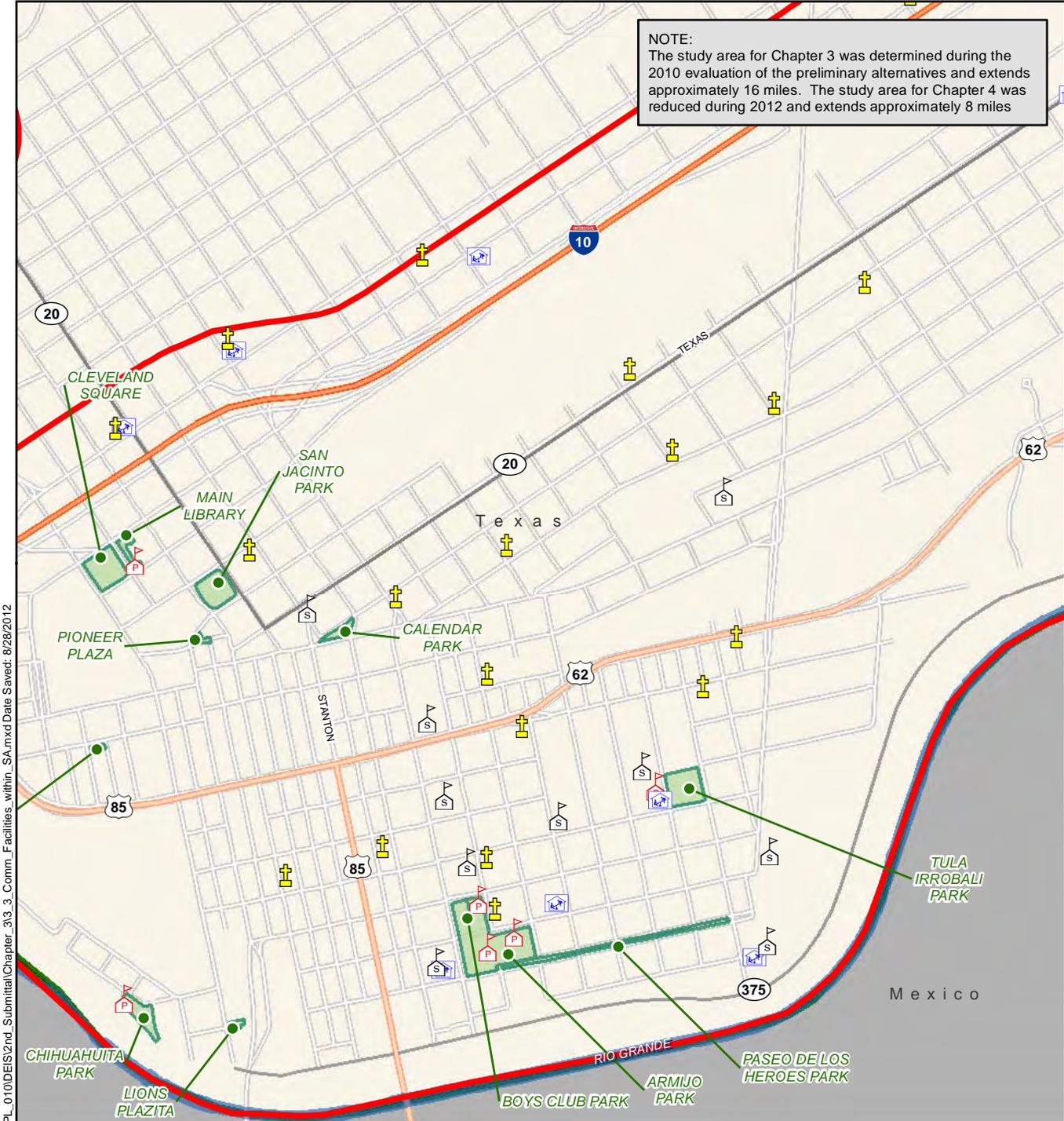
### Exhibit 3-3 Community Facilities Including Public Lands

Page 6 of 10

El Paso County, Texas  
 CSJ: 2552-04-027

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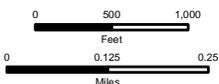
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|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
|  | Community Center |  | Mexico                 |
|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
|  | Park             |  | US Highway             |
|  |                  |  | State Highway          |
|  |                  |  | State Loop             |
|  |                  |  | Local Street           |

1:15,000  
 1" = 1,250'



**Sources**  
 Study Area: HNTB, 2010  
 School: City of El Paso data, 2010  
 Church: City of El Paso data, 2010  
 Community Center: City of El Paso data, 2010  
 Day Care Center: City of El Paso data, 2010  
 National Register: NPS, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-3 Community Facilities Including Public Lands

Page 7 of 10

El Paso County, Texas  
 CSJ: 2552-04-027

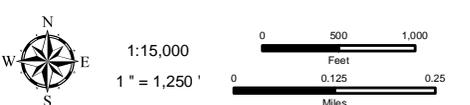
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|--|------------------|--|------------------------|
|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
|  | Community Center |  | Mexico                 |
|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
|  | Park             |  | US Highway             |
|  |                  |  | State Highway          |
|  |                  |  | State Loop             |
|  |                  |  | Local Street           |



**Sources**  
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 Community Center: City of El Paso data, 2010  
 Day Care Center: City of El Paso data, 2010  
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## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

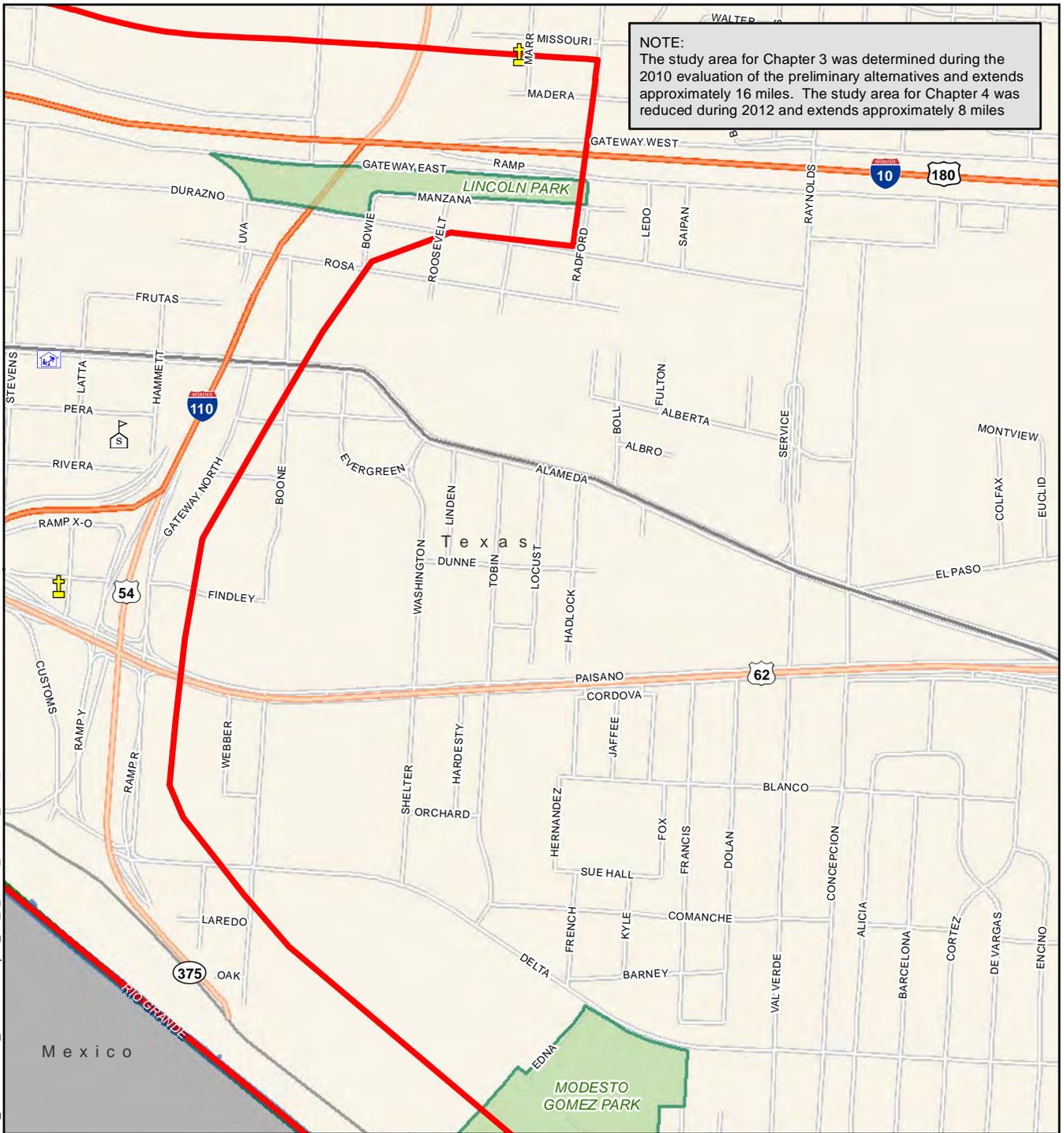
### Exhibit 3-3 Community Facilities Including Public Lands

Page 8 of 10

El Paso County, Texas  
 CSJ: 2552-04-027

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|--|------------------|--|------------------------|
|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
|  | Community Center |  | Mexico                 |
|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
|  | Park             |  | US Highway             |
|  |                  |  | State Highway          |
|  |                  |  | State Loop             |
|  |                  |  | Local Street           |



**Sources**  
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## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

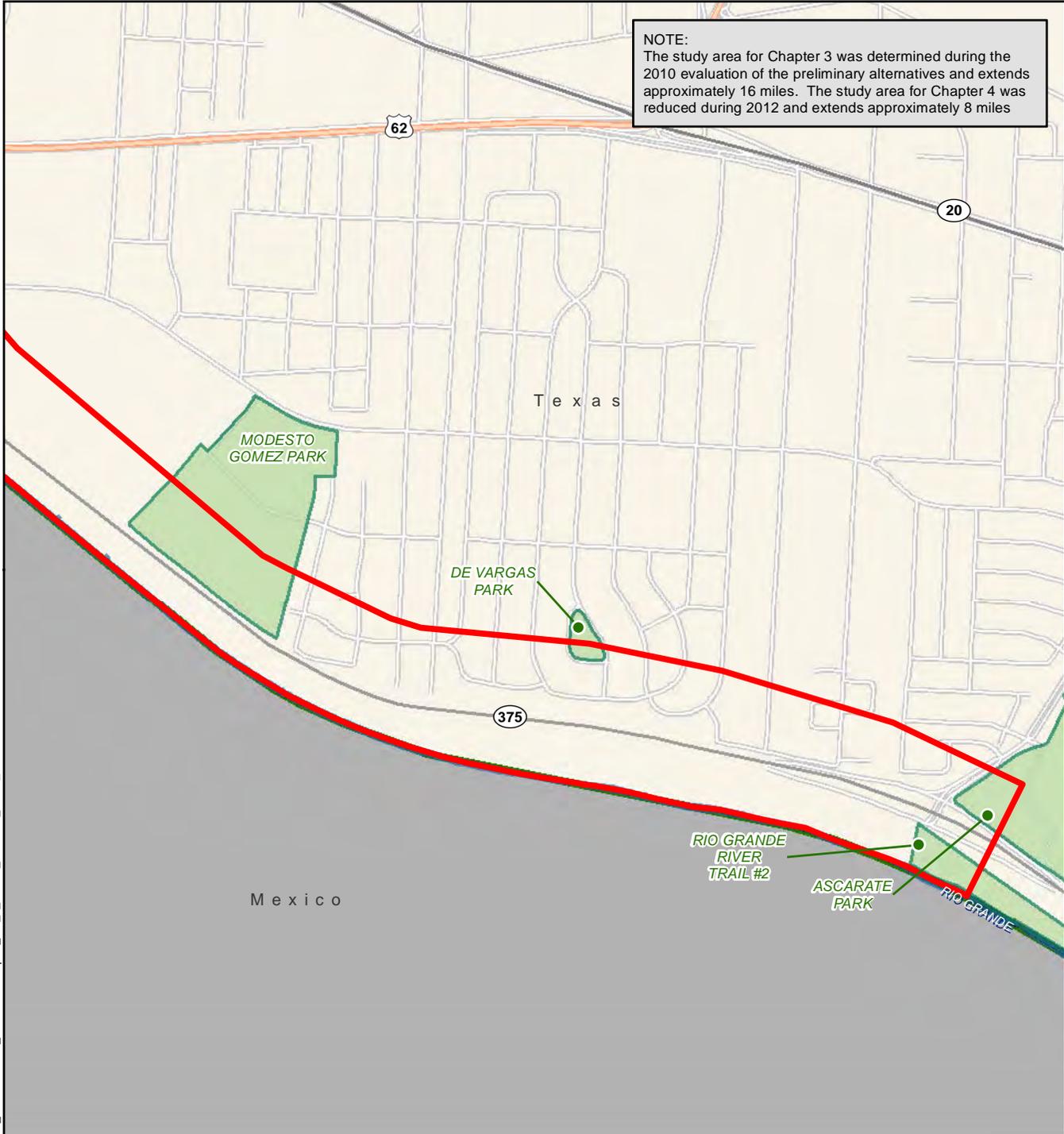
### Exhibit 3-3 Community Facilities Including Public Lands

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El Paso County, Texas  
 CSJ: 2552-04-027

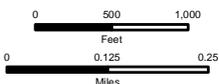
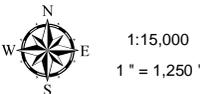
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|  | School           |  | Rio Grande             |
|  | Church           |  | City Limit             |
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|  | Day Care Center  |  | International Boundary |
|  | Study Area       |  | Interstate             |
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## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

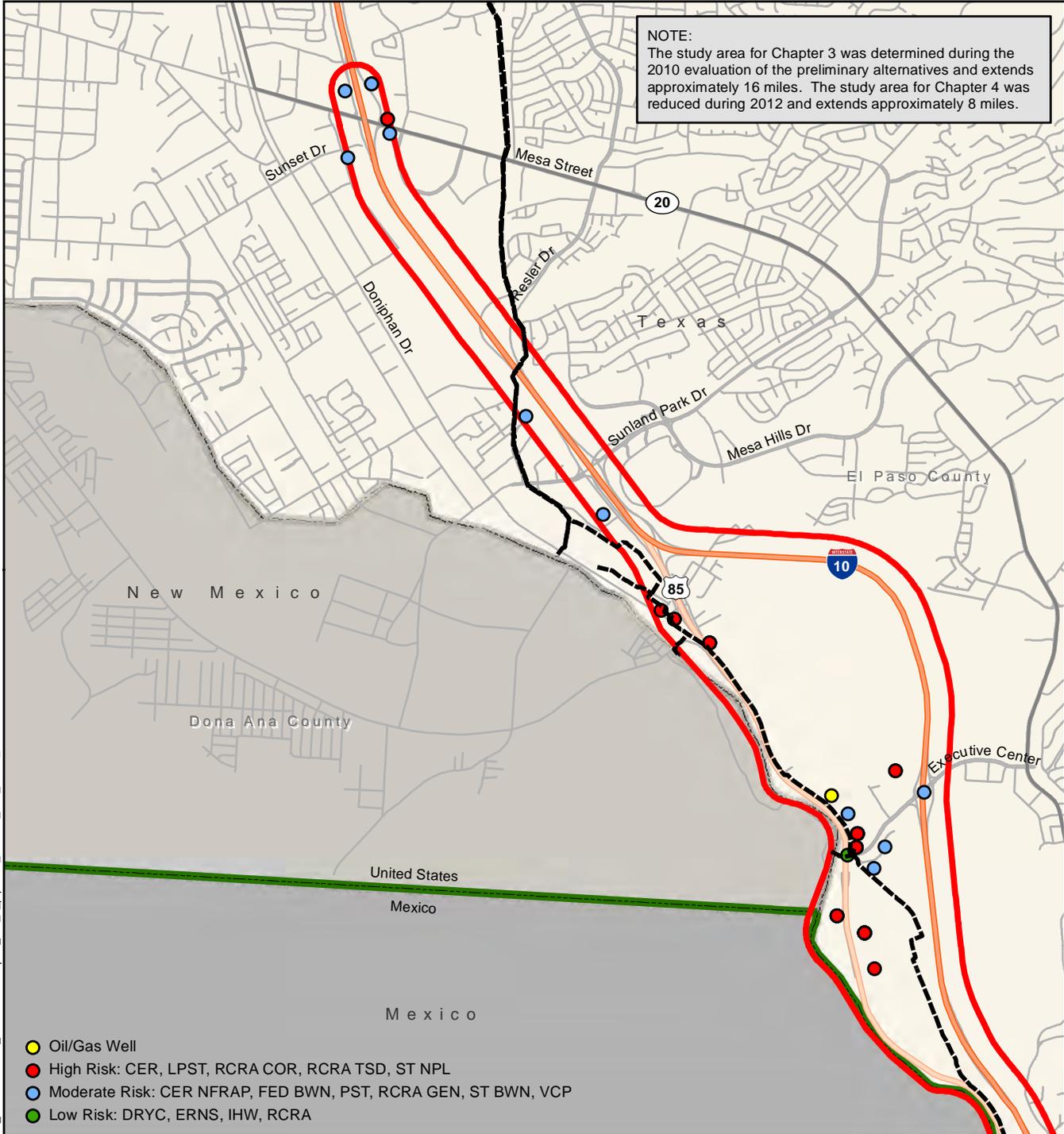
### Exhibit 3-3 Community Facilities Including Public Lands

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El Paso County, Texas  
 CSJ: 2552-04-027

DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.



- Oil/Gas Well
- High Risk: CER, LPST, RCRA COR, RCRA TSD, ST NPL
- Moderate Risk: CER NFRAP, FED BWN, PST, RCRA GEN, ST BWN, VCP
- Low Risk: DRYC, ERNS, IHW, RCRA

Path: \\Ausw001\jobs\42085 Border Hwy West\Tech\prod\GIS\MX\DX\H\T\PL\_010\DEIS\2nd\_Submittal\Chapter\_3\3\_4\_pipeline\_hazmat\_OG\_within\_SA.mxd Date Saved: 8/28/2012

- Interstate
- US Highway
- State Highway
- Local Street
- Oil/Gas Pipeline
- International Boundary
- ▭ Study Area
- ▭ City Limit
- ▭ Mexico
- ▭ Texas
- ▭ New Mexico



**Sources**  
 Study Area: HNTB, 2010  
 HazMat Location: Banks Environmental Data, 2010  
 Municipal Boundaries: City of El Paso data, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-4 Pipelines, Hazardous Materials and Oil and Gas Wells Within Study Area

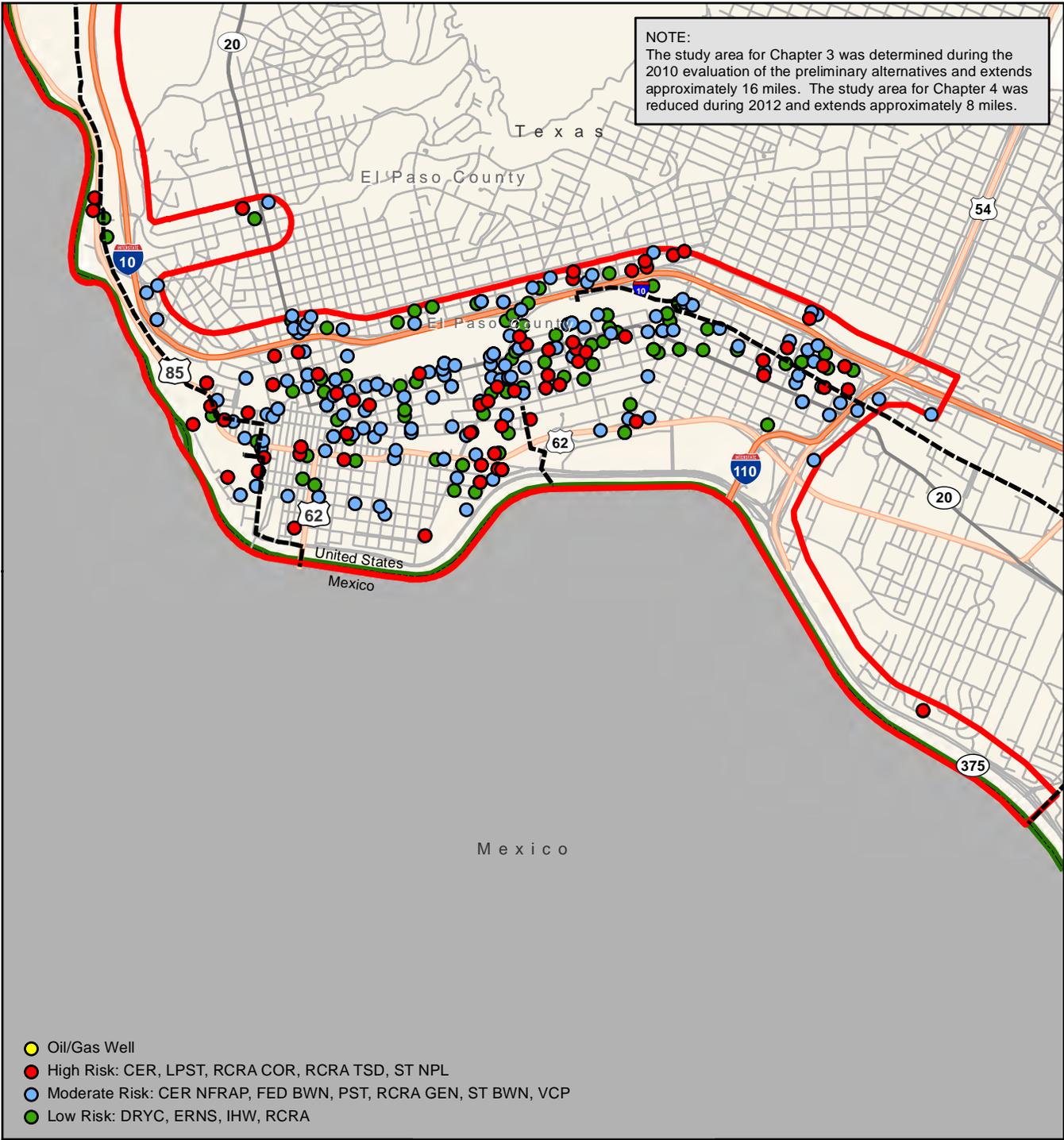
Page 1 of 2

El Paso County, Texas  
 CSJ: 2552-04-027

DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

Path: \\Aus000\jobs\42085 Border Hwy West\Techprod\GIS\MX\DEX\HT\PL\_010\DEIS\2nd\_Submittal\Chapter\_3\3\_4\_pipeline\_hazmat\_OG\_within\_SA.mxd Date Saved: 8/28/2012

**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.



- Oil/Gas Well
- High Risk: CER, LPST, RCRA COR, RCRA TSD, ST NPL
- Moderate Risk: CER NFRAP, FED BWN, PST, RCRA GEN, ST BWN, VCP
- Low Risk: DRYC, ERNS, IHW, RCRA

- Interstate
- US Highway
- State Highway
- Local Street
- Oil/Gas Pipeline
- International Boundary
- ▭ Study Area
- ▭ City Limit
- ▭ Mexico
- ▭ Texas
- ▭ New Mexico



**Sources**  
 Study Area: HNTB, 2010  
 HazMat Location: Banks Environmental Data, 2010  
 Municipal Boundaries: City of El Paso data, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 84

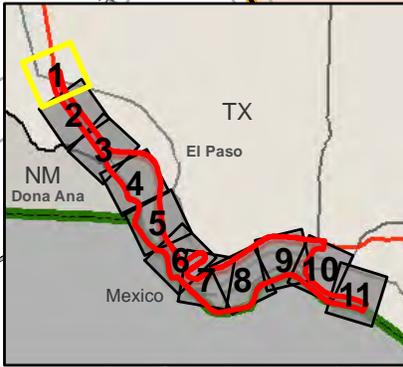
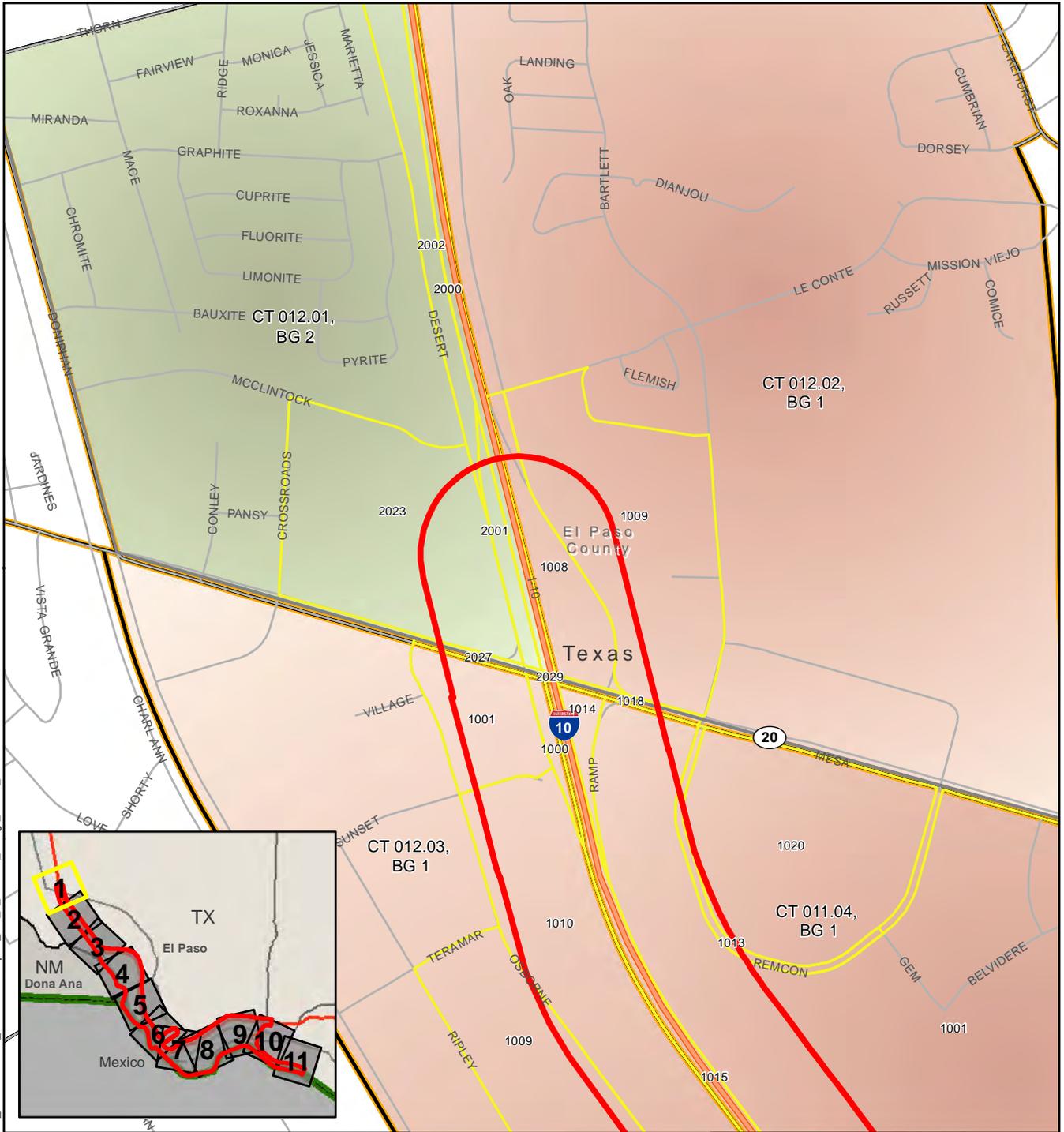
### Exhibit 3-4 Pipelines, Hazardous Materials and Oil and Gas Wells Within Study Area

Page 2 of 2

El Paso County, Texas  
 CSJ: 2552-04-027

DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

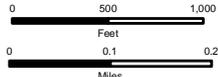
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- |   |                        |   |               |
|---|------------------------|---|---------------|
|  | Study Area             |  | Block         |
|  | Interstate             |  | Block Group 1 |
|  | US Highway             |  | Block Group 2 |
|  | State Highway          |  | Block Group 3 |
|  | Local Street           |  | Block Group 4 |
|  | International Boundary |  | Block Group 5 |
|  | Texas                  |  | Block Group 6 |
|  | New Mexico             |  | Block Group 7 |
|  | County                 |  | Block Group 8 |
|  | Mexico                 |  | Block Group 9 |
|   |                        |  | Census Tract  |



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

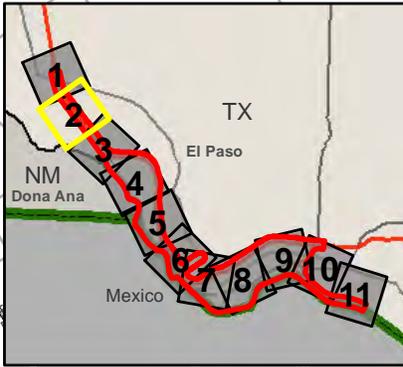
From Racetrack Drive to US 54

### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 1 of 11

El Paso County, Texas  
CSJ: 2552-04-027

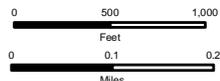
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- |  |   |
|--|---|
|  Study Area             |  Block         |
|  Interstate             |  Block Group 1 |
|  US Highway             |  Block Group 2 |
|  State Highway          |  Block Group 3 |
|  Local Street           |  Block Group 4 |
|  International Boundary |  Block Group 5 |
|  Texas                  |  Block Group 6 |
|  New Mexico             |  Block Group 7 |
|  County                 |  Block Group 8 |
|  Mexico                 |  Block Group 9 |
|  |  Census Tract  |



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

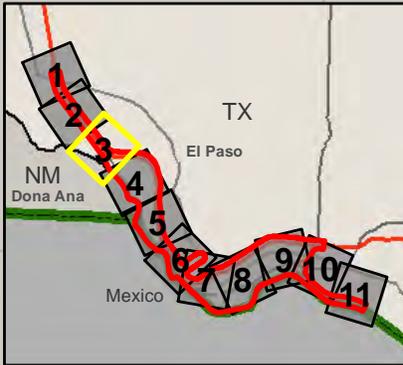
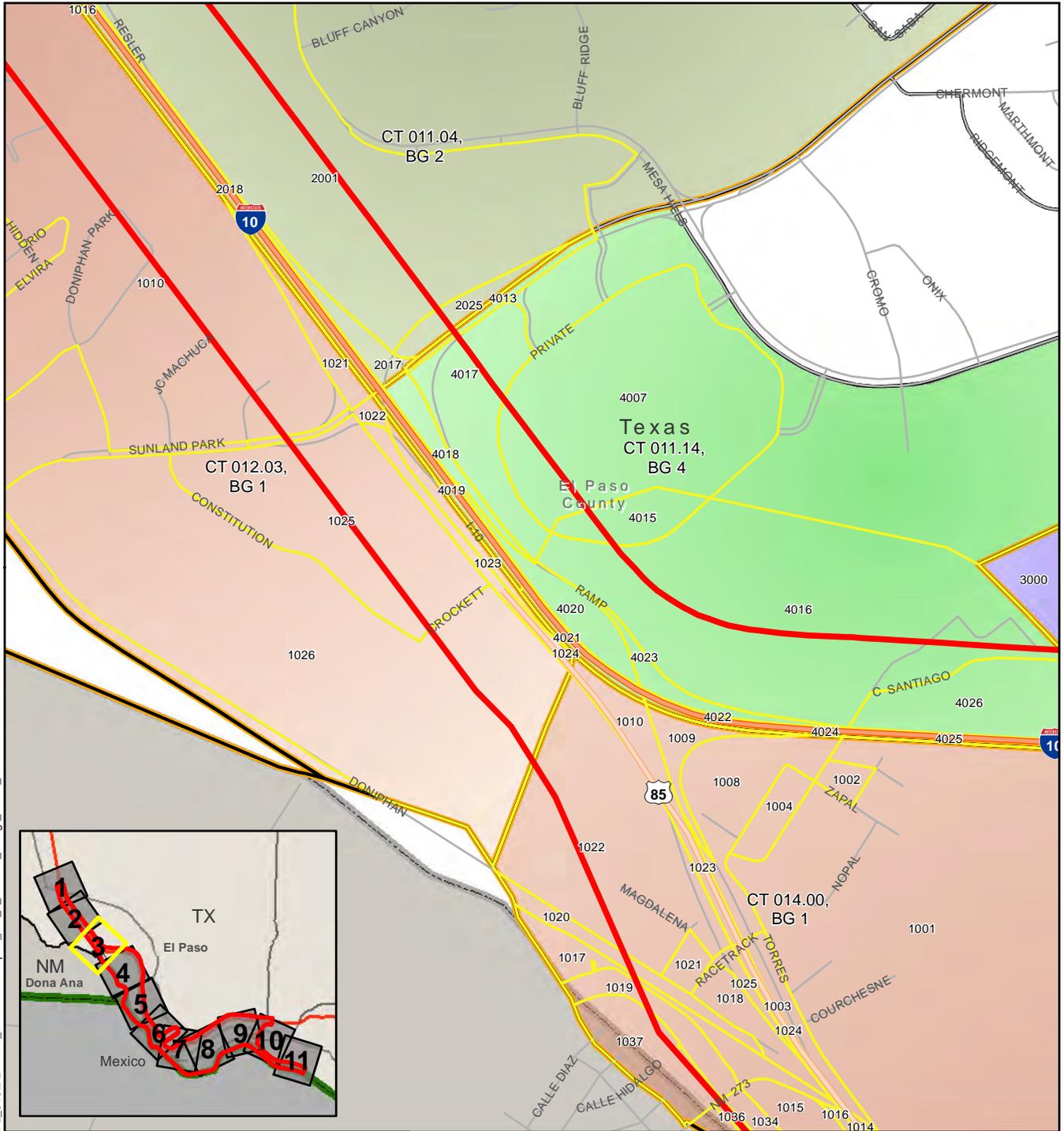
From Racetrack Drive to US 54

### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 2 of 11

El Paso County, Texas  
CSJ: 2552-04-027

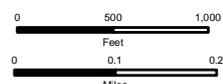
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- |   |                        |   |               |
|---|------------------------|---|---------------|
|  | Study Area             |  | Block         |
|  | Interstate             |  | Block Group 1 |
|  | US Highway             |  | Block Group 2 |
|  | State Highway          |  | Block Group 3 |
|  | Local Street           |  | Block Group 4 |
|  | International Boundary |  | Block Group 5 |
|  | Texas                  |  | Block Group 6 |
|  | New Mexico             |  | Block Group 7 |
|  | County                 |  | Block Group 8 |
|  | Mexico                 |  | Block Group 9 |
|   |                        |  | Census Tract  |



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

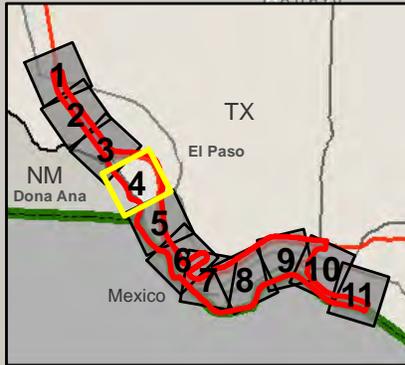
From Racetrack Drive to US 54

### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 3 of 11

El Paso County, Texas  
CSJ: 2552-04-027

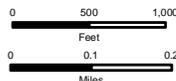
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- |  |                        |  |               |
|--|------------------------|--|---------------|
|  | Study Area             |  | Block         |
|  | Interstate             |  | Block Group 1 |
|  | US Highway             |  | Block Group 2 |
|  | State Highway          |  | Block Group 3 |
|  | Local Street           |  | Block Group 4 |
|  | International Boundary |  | Block Group 5 |
|  | Texas                  |  | Block Group 6 |
|  | New Mexico             |  | Block Group 7 |
|  | County                 |  | Block Group 8 |
|  | Mexico                 |  | Block Group 9 |
|  |                        |  | Census Tract  |



1:15,000  
1" = 1,250'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



**Loop 375 Border Highway West Extension Project**

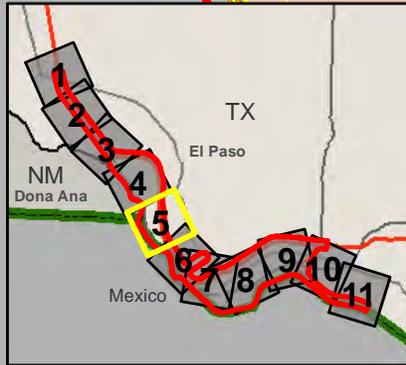
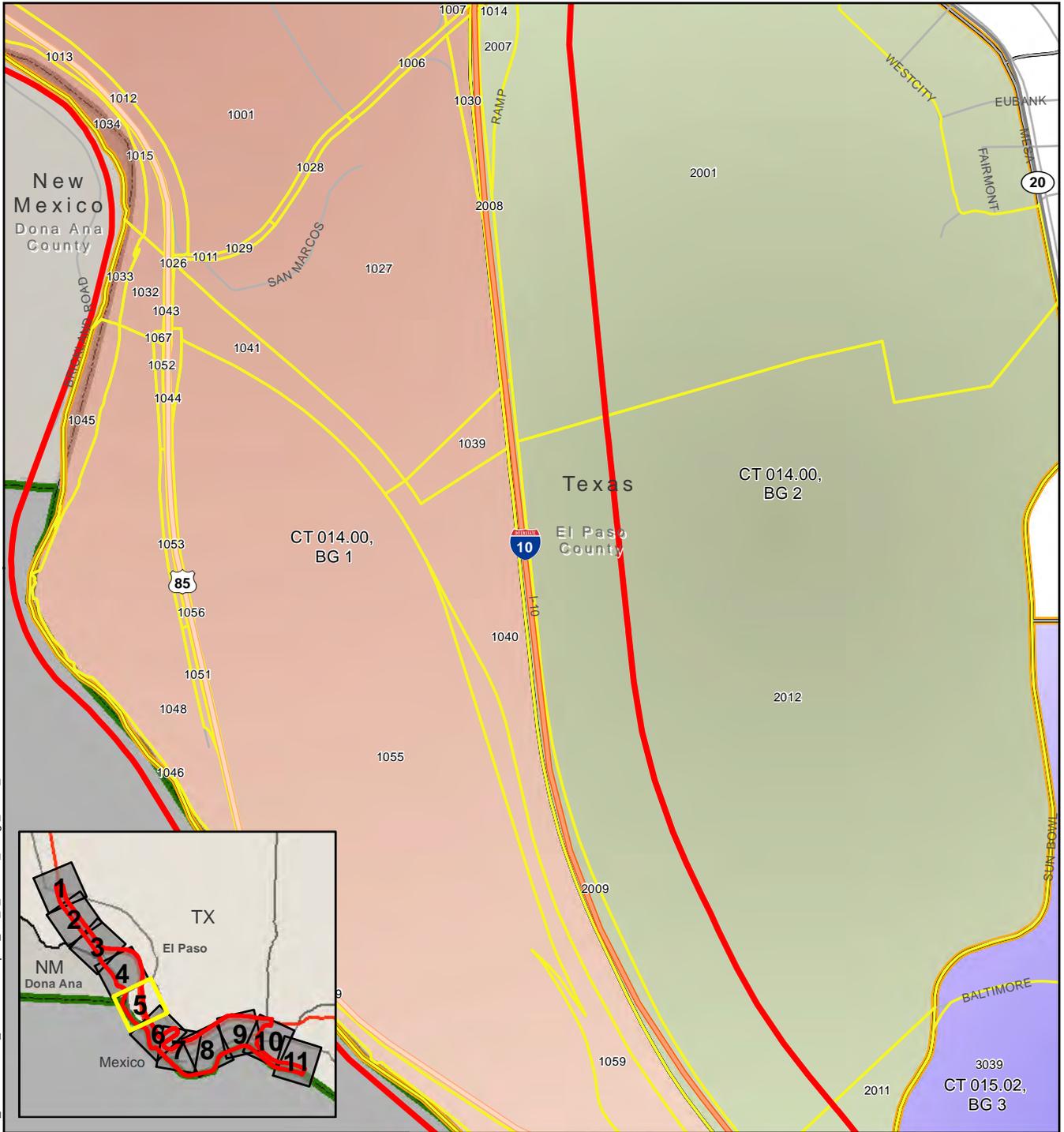
From Racetrack Drive to US 54

**Exhibit 3-5  
Census Tracts, Block Groups,  
and Blocks Within Study Area**

Page 4 of 11

El Paso County, Texas  
CSJ: 2552-04-027

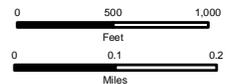
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- |                        |               |
|------------------------|---------------|
| Study Area             | Block         |
| Interstate             | Block Group 1 |
| US Highway             | Block Group 2 |
| State Highway          | Block Group 3 |
| Local Street           | Block Group 4 |
| International Boundary | Block Group 5 |
| Texas                  | Block Group 6 |
| New Mexico             | Block Group 7 |
| County                 | Block Group 8 |
| Mexico                 | Block Group 9 |
|                        | Census Tract  |



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

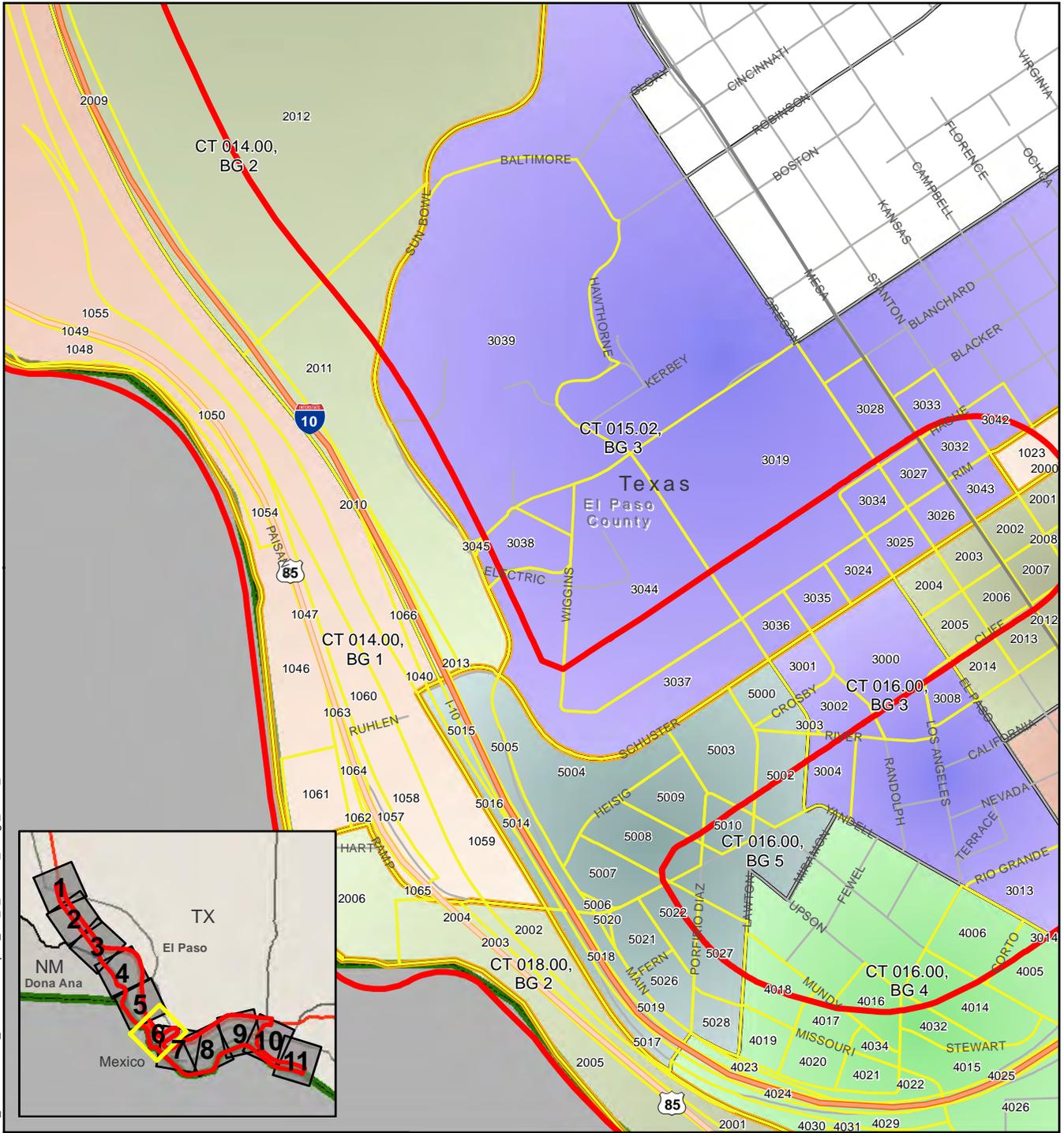
### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 5 of 11

El Paso County, Texas  
CSJ: 2552-04-027

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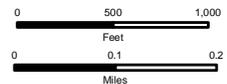
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- ▭ Study Area
- ▭ Interstate
- ▭ US Highway
- ▭ State Highway
- ▭ Local Street
- ▭ International Boundary
- ▭ Texas
- ▭ New Mexico
- ▭ County
- ▭ Mexico
- ▭ Block
- ▭ Block Group 1
- ▭ Block Group 2
- ▭ Block Group 3
- ▭ Block Group 4
- ▭ Block Group 5
- ▭ Block Group 6
- ▭ Block Group 7
- ▭ Block Group 8
- ▭ Block Group 9
- ▭ Census Tract



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

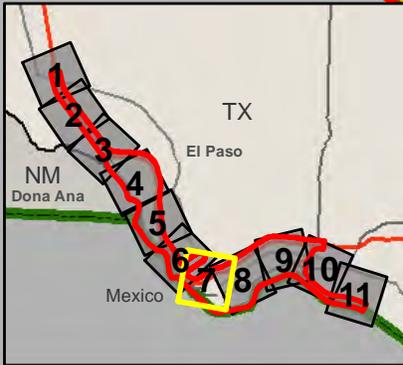
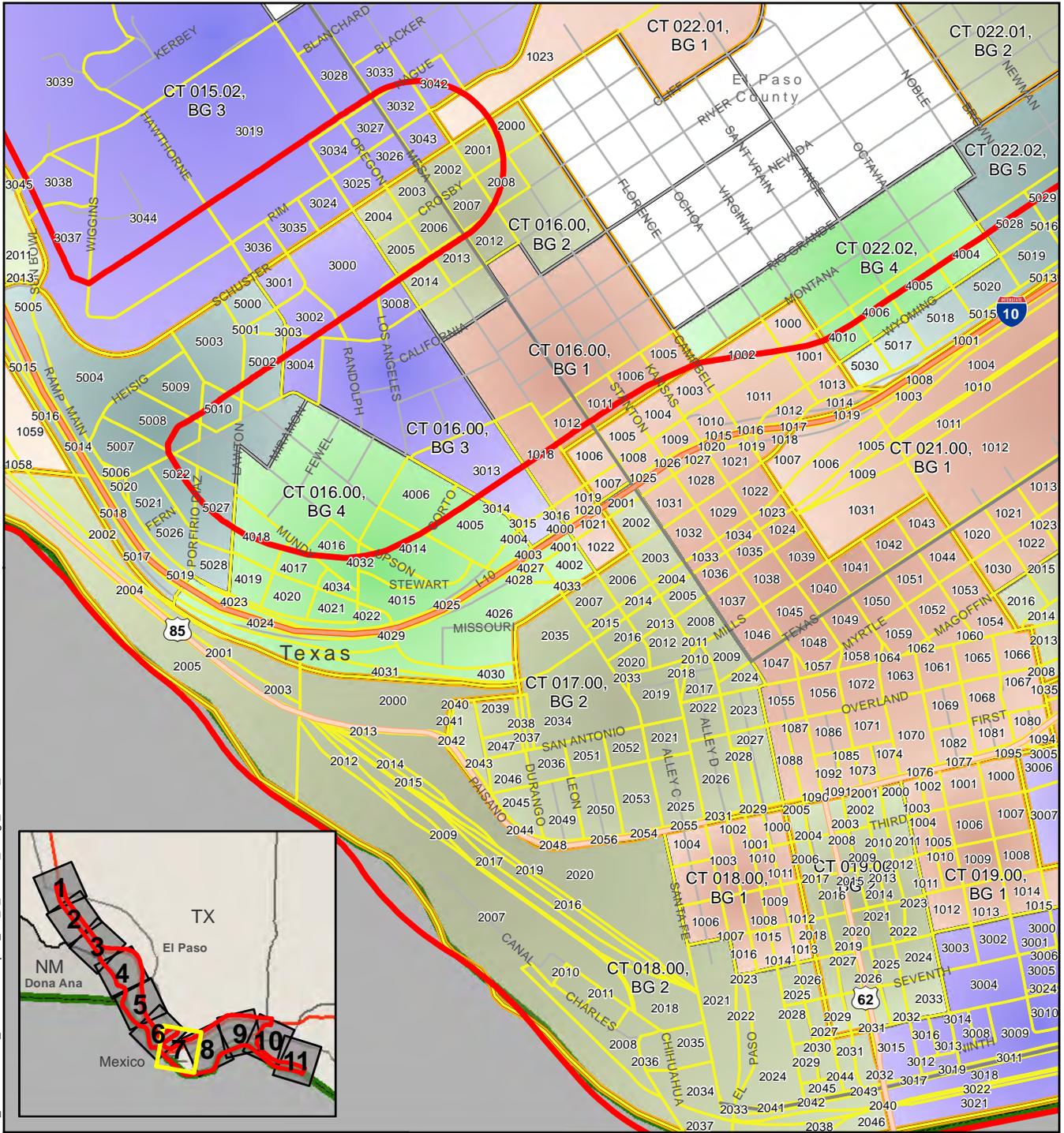
### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 6 of 11

El Paso County, Texas  
CSJ: 2552-04-027

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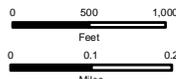
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- |                        |               |
|------------------------|---------------|
| Study Area             | Block         |
| Interstate             | Block Group 1 |
| US Highway             | Block Group 2 |
| State Highway          | Block Group 3 |
| Local Street           | Block Group 4 |
| International Boundary | Block Group 5 |
| Texas                  | Block Group 6 |
| New Mexico             | Block Group 7 |
| County                 | Block Group 8 |
| Mexico                 | Block Group 9 |
|                        | Census Tract  |



1:15,000  
1" = 1,250'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



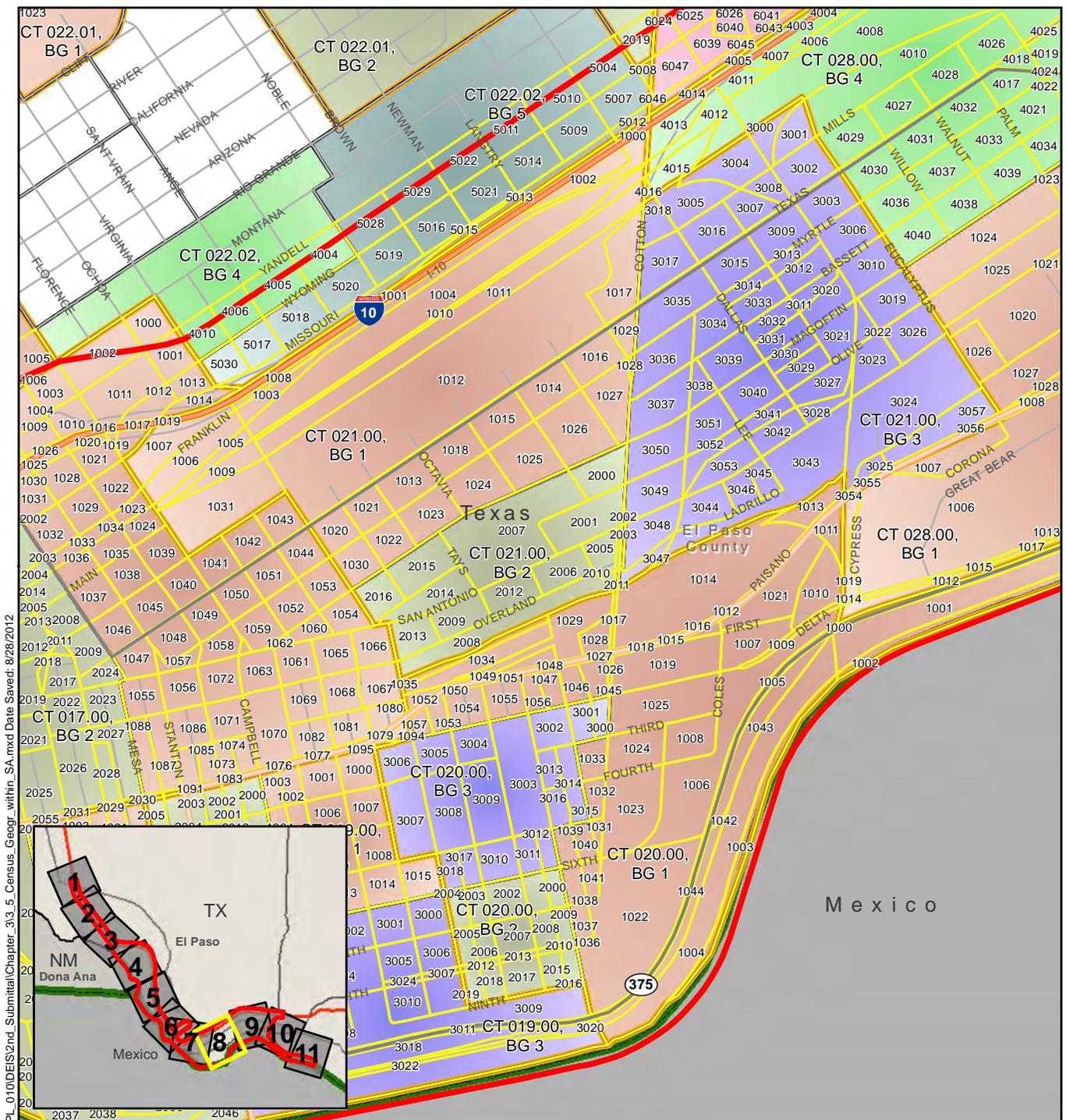
## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

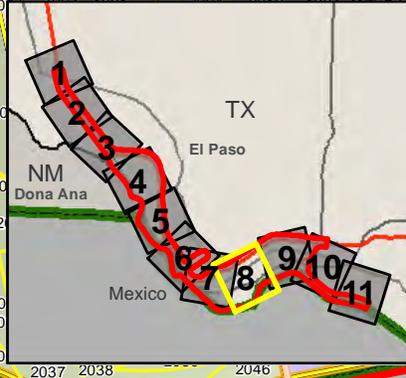
### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 7 of 11

El Paso County, Texas  
CSJ: 2552-04-027



Path: \\Aus000\jobs\42085 Border Hwy West\Tech\prod\GIS\MX\EX\HT\PL\_010\DEIS\2nd\_Submittal\Chapter\_3\3.5\_Census\_Geogr\_within\_SA.mxd Date Saved: 8/28/2012



Study Area	Block
Interstate	Block Group 1
US Highway	Block Group 2
State Highway	Block Group 3
Local Street	Block Group 4
International Boundary	Block Group 5
Texas	Block Group 6
New Mexico	Block Group 7
County	Block Group 8
Mexico	Block Group 9
	Census Tract

1:15,000  
1" = 1,250'

0 500 1,000  
Feet

0 0.1 0.2  
Miles

Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010

## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

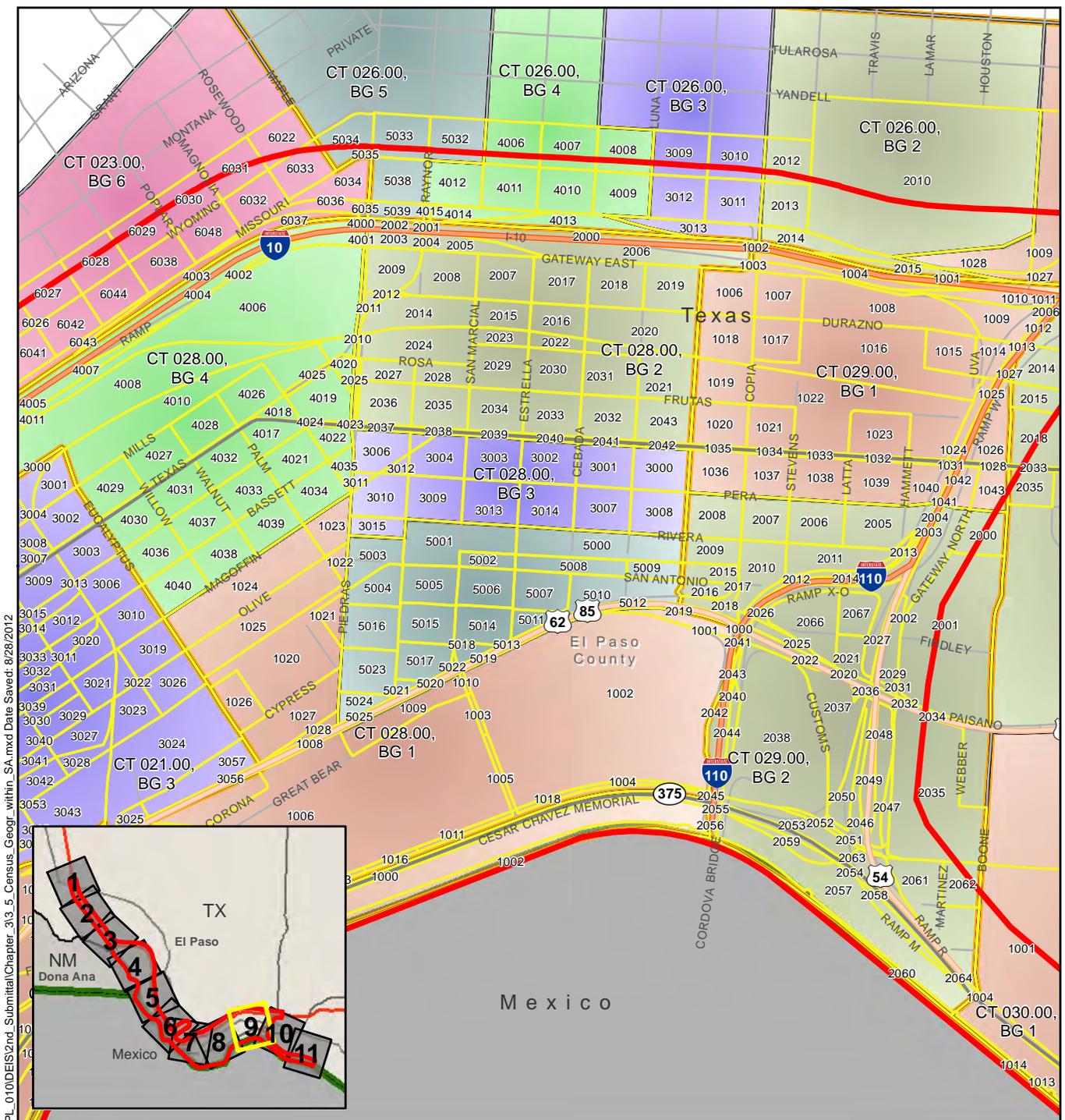
### Exhibit 3-5

#### Census Tracts, Block Groups, and Blocks Within Study Area

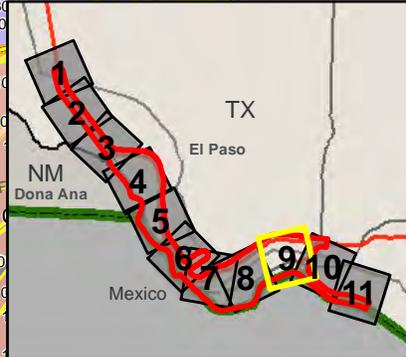
Page 8 of 11

El Paso County, Texas  
CSJ: 2552-04-027

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Path: \\Aus000\jobs\42085 Border Hwy West\Tech\prod\GIS\MX\DEX\HT\PL\_010\DEIS\2nd\_Submittal\Chapter\_3\3.5\_Census\_Geogr\_within\_SA.mxd Date Saved: 8/28/2012



- |                        |               |
|------------------------|---------------|
| Study Area             | Block         |
| Interstate             | Block Group 1 |
| US Highway             | Block Group 2 |
| State Highway          | Block Group 3 |
| Local Street           | Block Group 4 |
| International Boundary | Block Group 5 |
| Texas                  | Block Group 6 |
| New Mexico             | Block Group 7 |
| County                 | Block Group 8 |
| Mexico                 | Block Group 9 |
|                        | Census Tract  |



Sources

Study Area: HNTB, 2010  
 Census Data: U.S. Census Bureau Tiger Files, 2010

This project does not cross international boundaries.

## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-5

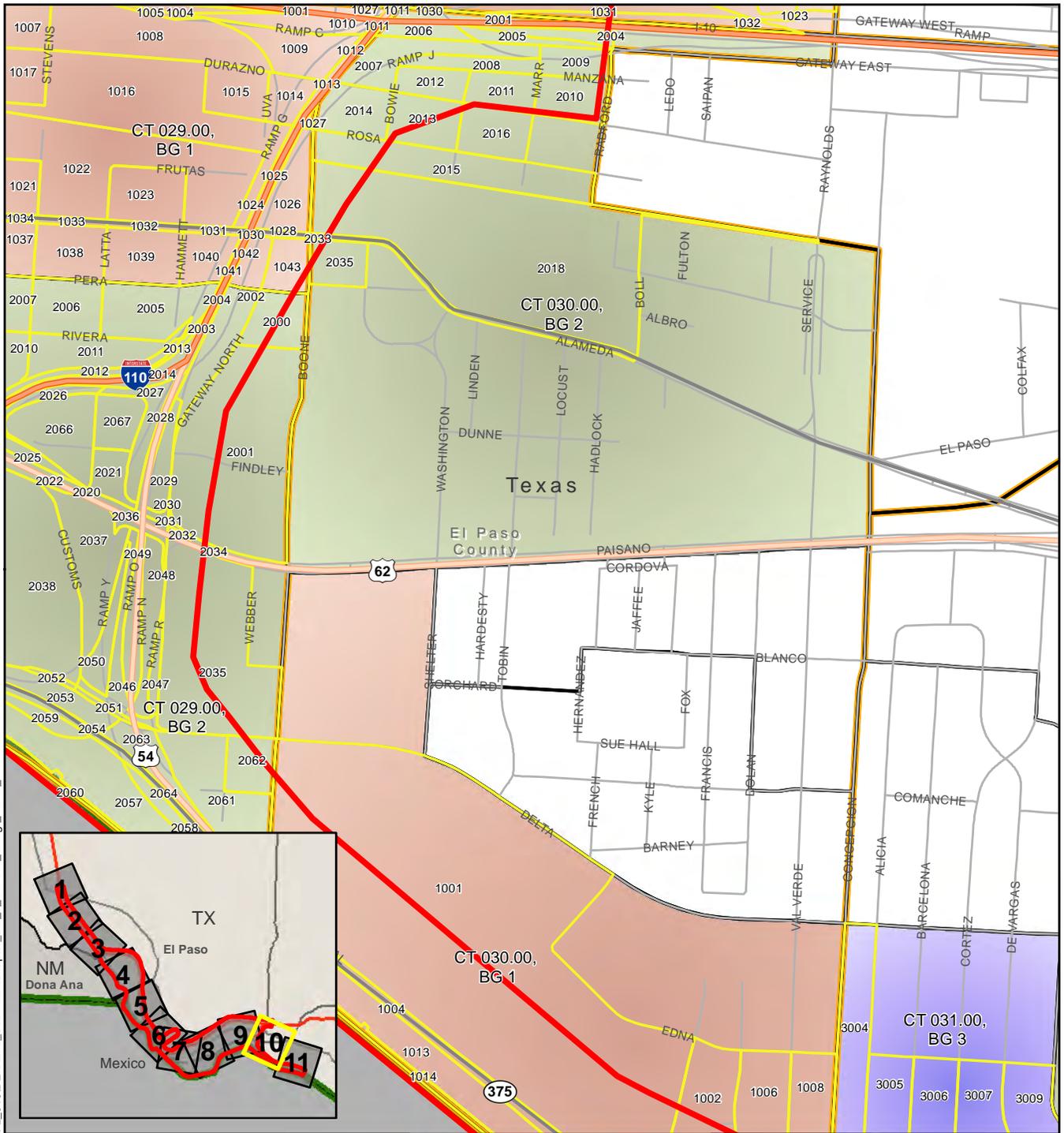
#### Census Tracts, Block Groups, and Blocks Within Study Area

Page 9 of 11

El Paso County, Texas  
 CSJ: 2552-04-027

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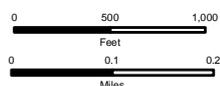
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- |                        |               |
|------------------------|---------------|
| Study Area             | Block         |
| Interstate             | Block Group 1 |
| US Highway             | Block Group 2 |
| State Highway          | Block Group 3 |
| Local Street           | Block Group 4 |
| International Boundary | Block Group 5 |
| Texas                  | Block Group 6 |
| New Mexico             | Block Group 7 |
| County                 | Block Group 8 |
| Mexico                 | Block Group 9 |
|                        | Census Tract  |



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

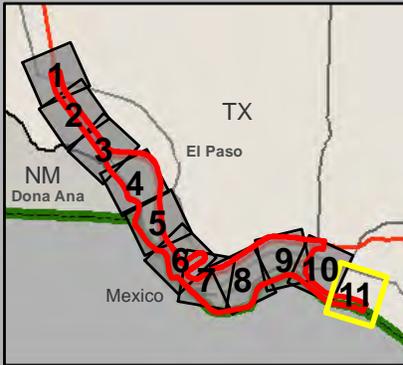
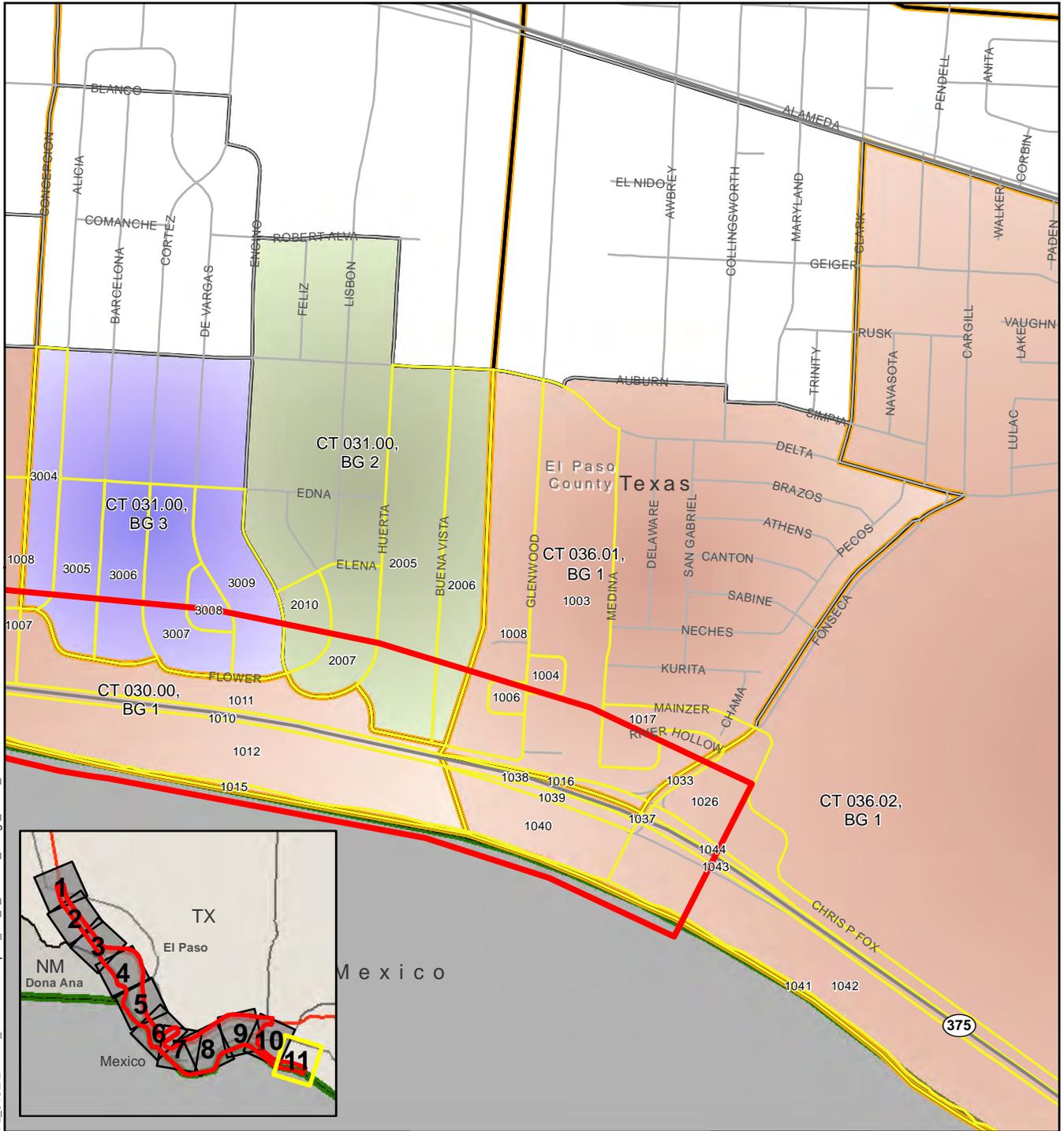
From Racetrack Drive to US 54

### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 10 of 11

El Paso County, Texas  
CSJ: 2552-04-027

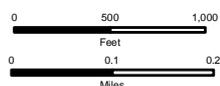
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- |                        |               |
|------------------------|---------------|
| Study Area             | Block         |
| Interstate             | Block Group 1 |
| US Highway             | Block Group 2 |
| State Highway          | Block Group 3 |
| Local Street           | Block Group 4 |
| International Boundary | Block Group 5 |
| Texas                  | Block Group 6 |
| New Mexico             | Block Group 7 |
| County                 | Block Group 8 |
| Mexico                 | Block Group 9 |
|                        | Census Tract  |



1:12,000  
1" = 1,000'



Sources

Study Area: HNTB, 2010  
Census Data: U.S. Census Bureau Tiger Files, 2010



## Loop 375 Border Highway West Extension Project

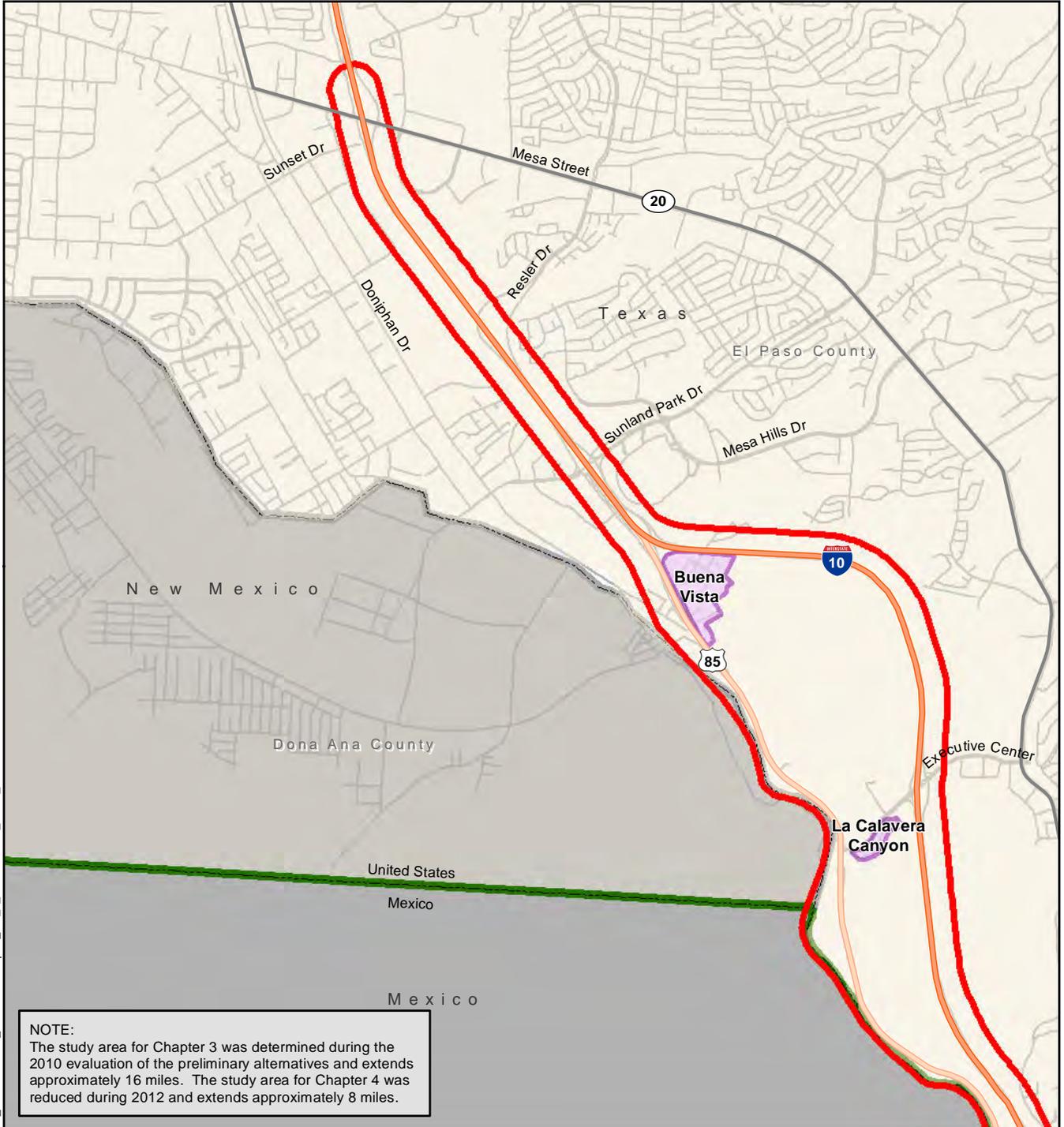
From Racetrack Drive to US 54

### Exhibit 3-5 Census Tracts, Block Groups, and Blocks Within Study Area

Page 11 of 11

El Paso County, Texas  
CSJ: 2552-04-027

Path: \\Aus000\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EX\HT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3.6\_Communities\_within\_SA.mxd Date Saved: 7/25/2012



**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

	Study Area		Interstate
	Communities		US Highway
	Texas		State Highway
	New Mexico		Local Street
	Mexico		International Boundary
	City Limit		County

1:48,000  
 1" = 4,000'

0 2,000 4,000  
 Feet  
 0 0.5 1  
 Miles

**Sources**  
 Study Area: HNTB, 2010  
 Communities: HNTB, 2012

This project does not cross international boundaries.

## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

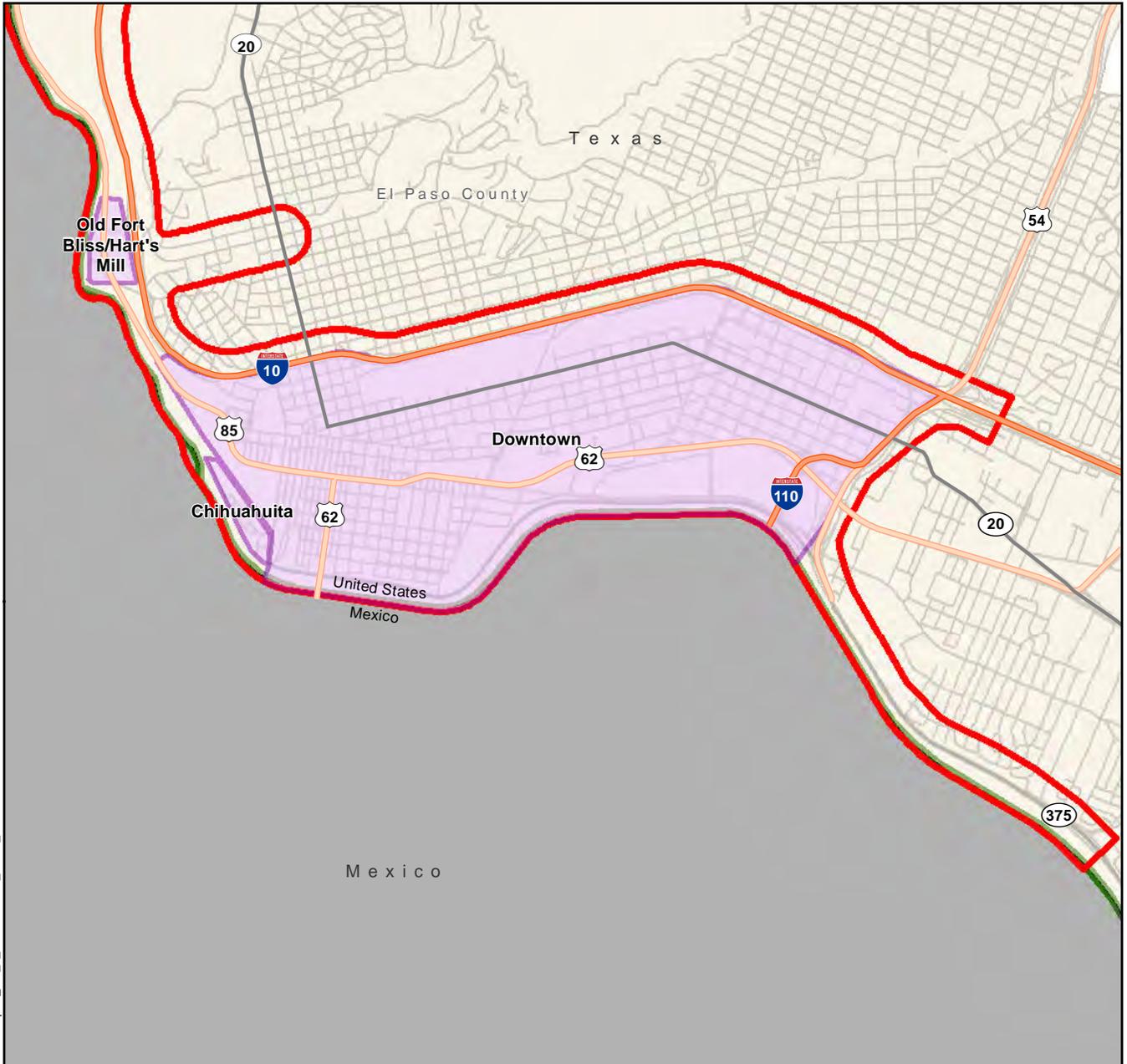
### Exhibit 3-6

Communities Within Study Area  
 Page 1 of 2

El Paso County, Texas  
 CSJ: 2552-04-027

DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

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**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

	Study Area		Interstate
	Communities		US Highway
	Texas		State Highway
	New Mexico		Local Street
	Mexico		International Boundary
	City Limit		County

**Sources**

Study Area: HNTB, 2010  
 Communities: HNTB, 2012

## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-6

Communities Within Study Area  
 Page 2 of 2

El Paso County, Texas  
 CSJ: 2552-04-027

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Path: \\Aus000\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EX\HT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3\_7\_noise\_receivers\_within\_SA.mxd Date Saved: 8/28/2012



**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

- Noise Receiver
- Study Area
- Texas
- New Mexico
- Mexico
- City Limit
- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary



Sources  
 Study Area: HNTB, 2010  
 Noise Receivers: HNTB, 2012



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

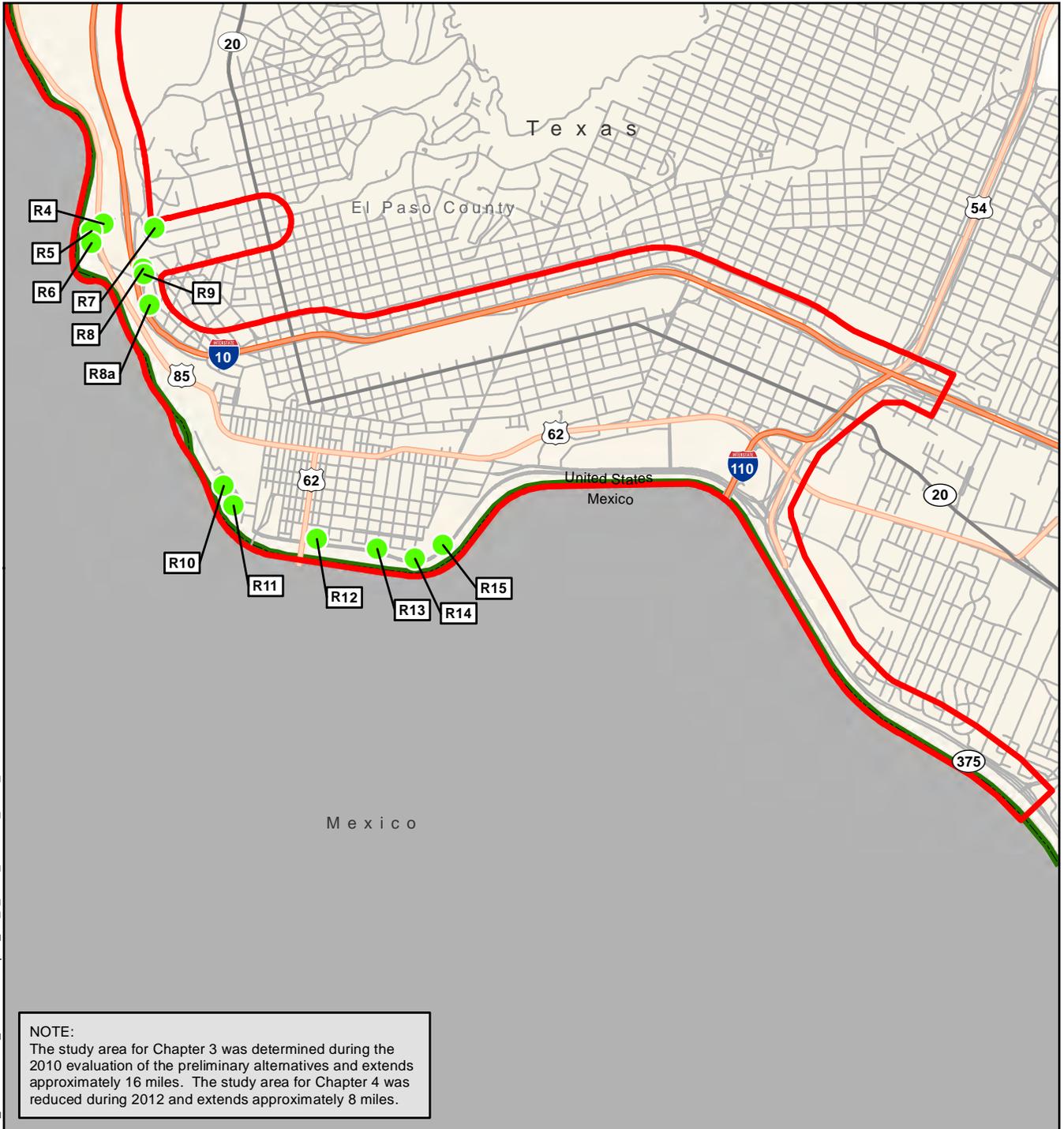
### Exhibit 3-7 Noise Receivers Within Study Area

Page 1 of 2

El Paso County, Texas  
 CSJ: 2552-04-027

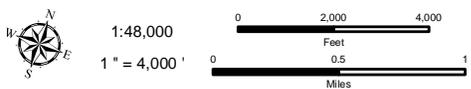
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Path: \\Aus000\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EX\HT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3\_7\_noise\_receivers\_within\_SA.mxd Date Saved: 8/28/2012



**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

- Noise Receiver
- Study Area
- Texas
- New Mexico
- Mexico
- City Limit
- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary



**Sources**  
 Study Area: HNTB, 2010  
 Noise Receivers: HNTB, 2012



## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-7 Noise Receivers Within Study Area

Page 2 of 2

El Paso County, Texas  
 CSJ: 2552-04-027

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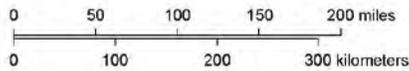


# PHYSIOGRAPHIC MAP OF TEXAS

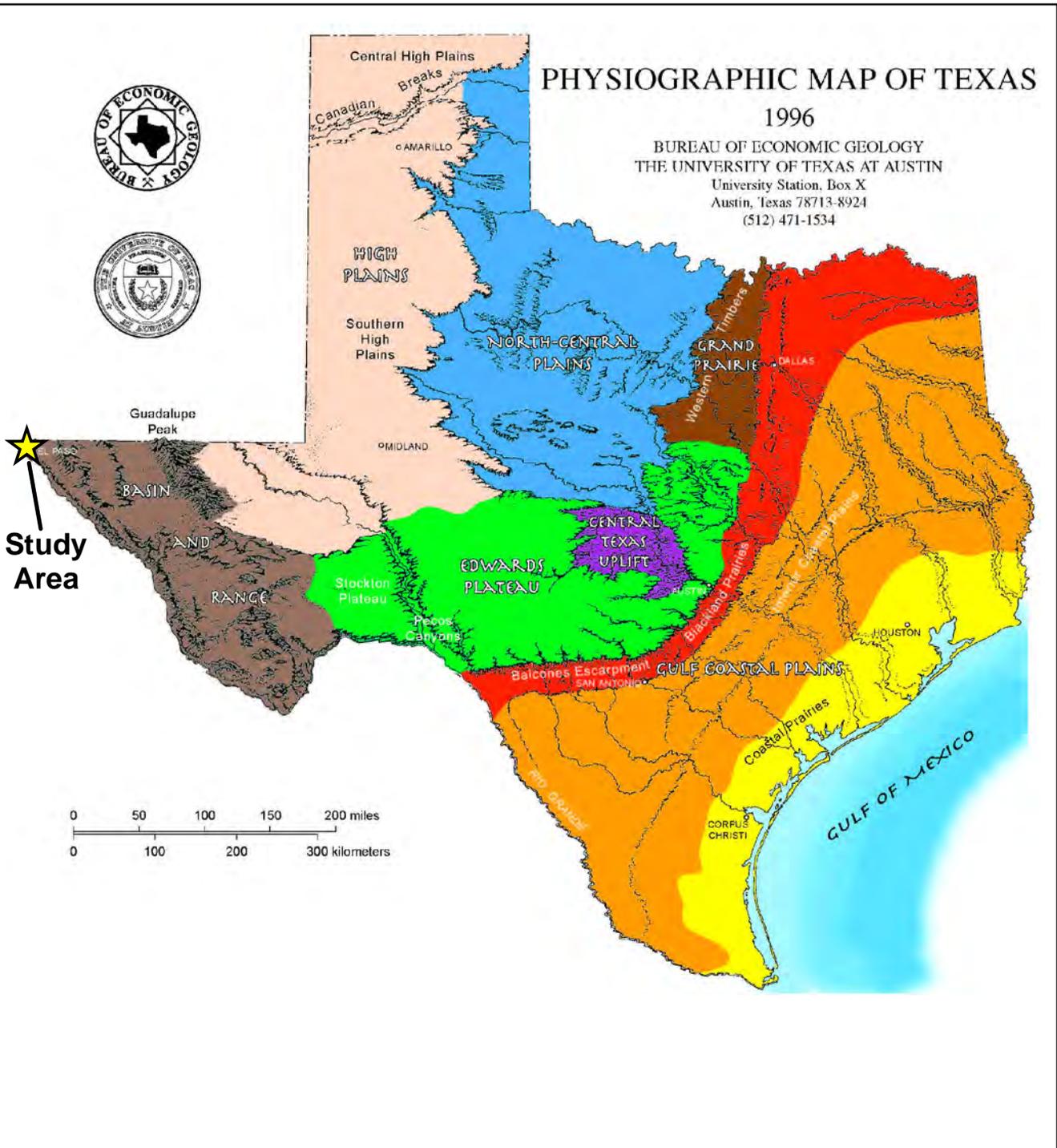
1996

BUREAU OF ECONOMIC GEOLOGY  
THE UNIVERSITY OF TEXAS AT AUSTIN  
University Station, Box X  
Austin, Texas 78713-8924  
(512) 471-1534

  
Study Area



Path: \\AUSW00\Jobs\42085 Border Hwy West\Techprod\GIS\MXD\EXHBT\PL\_010\DEIS\1st\_Submittal\Chapter\_3\2012\_02\_02\3\_8\_Physiographic\_Provinces\_of\_Texas\_REV1a.mxd Date Saved: 7/25/2012



Map not to scale




Sources

Image: Bureau of Economic Geology, UT at Austin, 1996




**Loop 375 Border Highway West Extension Project**

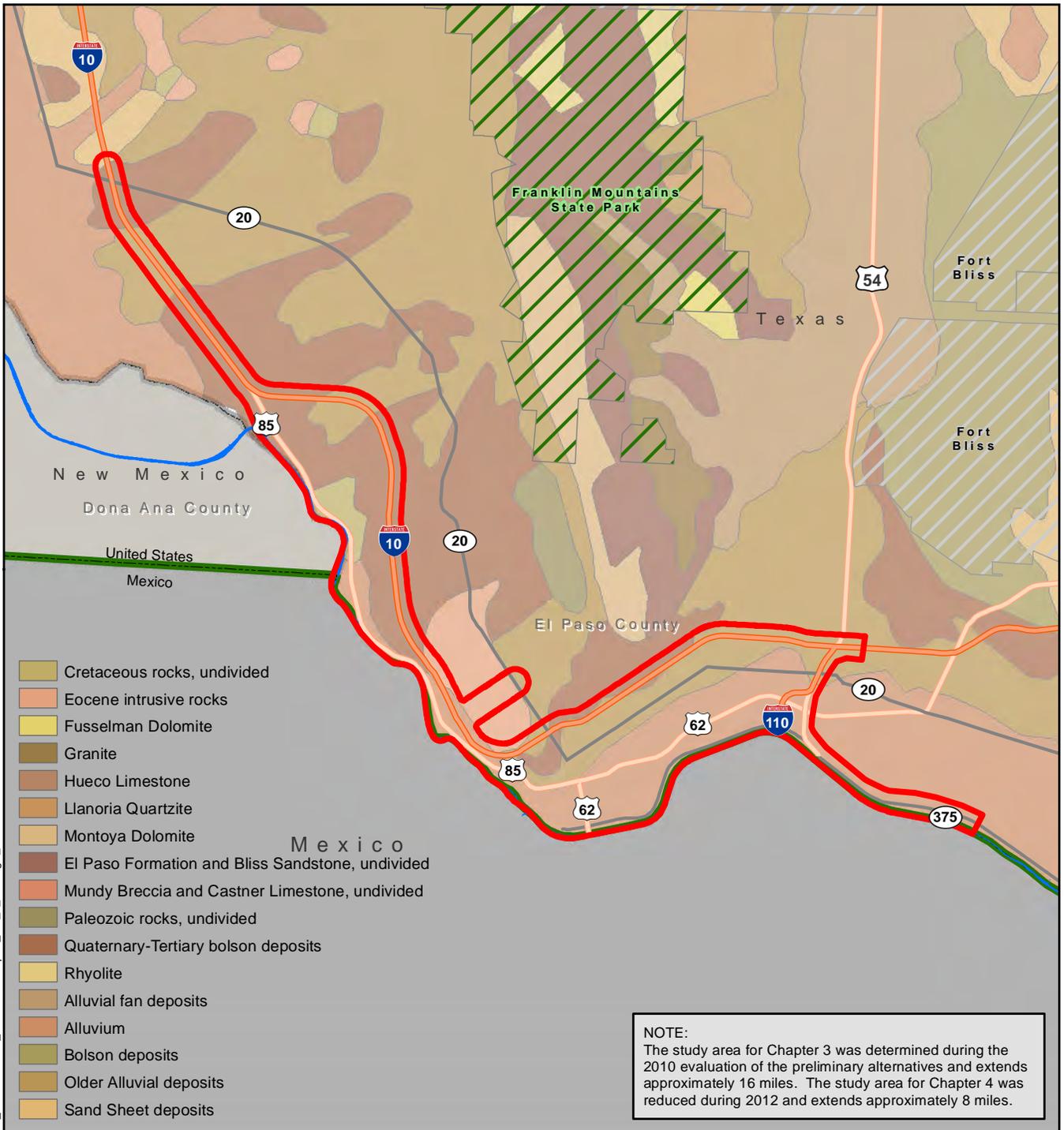
From Racetrack Drive to US 54

**Exhibit 3-8**  
Physiographic Provinces of Texas

El Paso County, Texas  
CSJ: 2552-04-027

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Path: \\Aus000\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EX-HBT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3\_9\_Geologic\_Formations.mxd Date Saved: 8/28/2012



- Cretaceous rocks, undivided
- Eocene intrusive rocks
- Fusselman Dolomite
- Granite
- Hueco Limestone
- Llanoria Quartzite
- Montoya Dolomite
- El Paso Formation and Bliss Sandstone, undivided
- Mundy Breccia and Castner Limestone, undivided
- Paleozoic rocks, undivided
- Quaternary-Tertiary bolson deposits
- Rhyolite
- Alluvial fan deposits
- Alluvium
- Bolson deposits
- Older Alluvial deposits
- Sand Sheet deposits

**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

- Study Area
- Interstate
- US Highway
- State Highway
- International Boundary
- Franklin Mountains State Park
- Fort Bliss
- Texas
- New Mexico
- Mexico



**Sources**  
 Study Area: HNTB, 2010  
 Geologic Formations: USGS, 2005  
 Municipal Boundaries: City of El Paso, 2010



## Loop 375 Border Highway West Extension Project

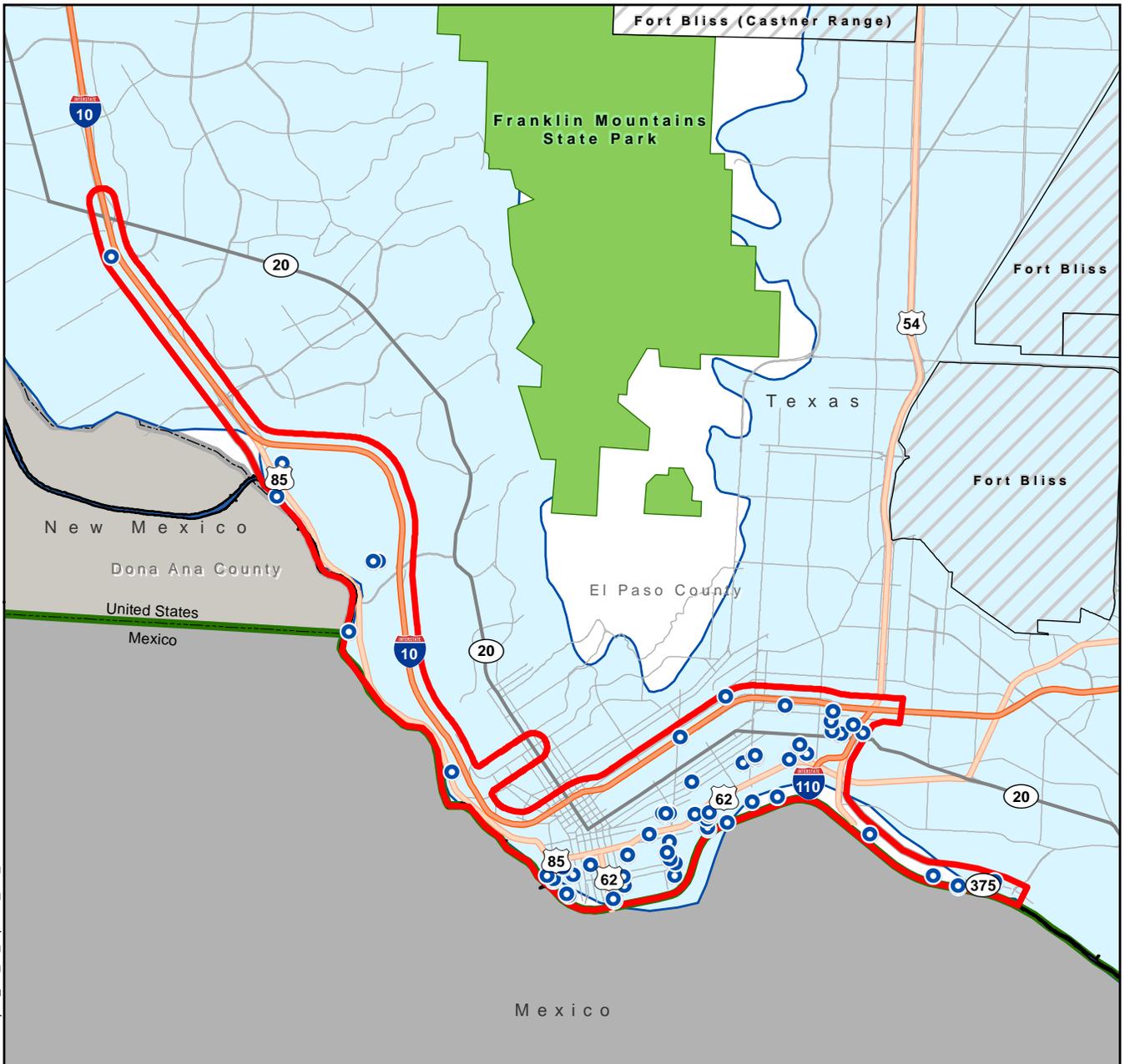
From Racetrack Drive to US 54

### Exhibit 3-9 Geologic Formations

El Paso County, Texas  
 CSJs: 2552-04-027

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Path: \\Ausw001\jobs\42085 Border Hwy West\Techprod\GIS\MX\DEX\HT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3\_10\_Aquifers\_and\_Wells.mxd Date Saved: 8/28/2012



**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles

- |                               |                        |
|-------------------------------|------------------------|
| Study Area                    | Water Well             |
| Texas                         | International Boundary |
| New Mexico                    | Interstate             |
| Mexico                        | US Highway             |
| Fort Bliss                    | State Highway          |
| Franklin Mountains State Park |                        |
| Hueco Bolson Aquifer          |                        |



**Sources**  
 Study Area: HNTB, 2010  
 Aquifer: Texas Water Development Board, 2006  
 Water Well: Banks Environmental Data, 2010  
 Municipal Boundaries: City of El Paso data, 2010



## Loop 375 Border Highway West Extension Project

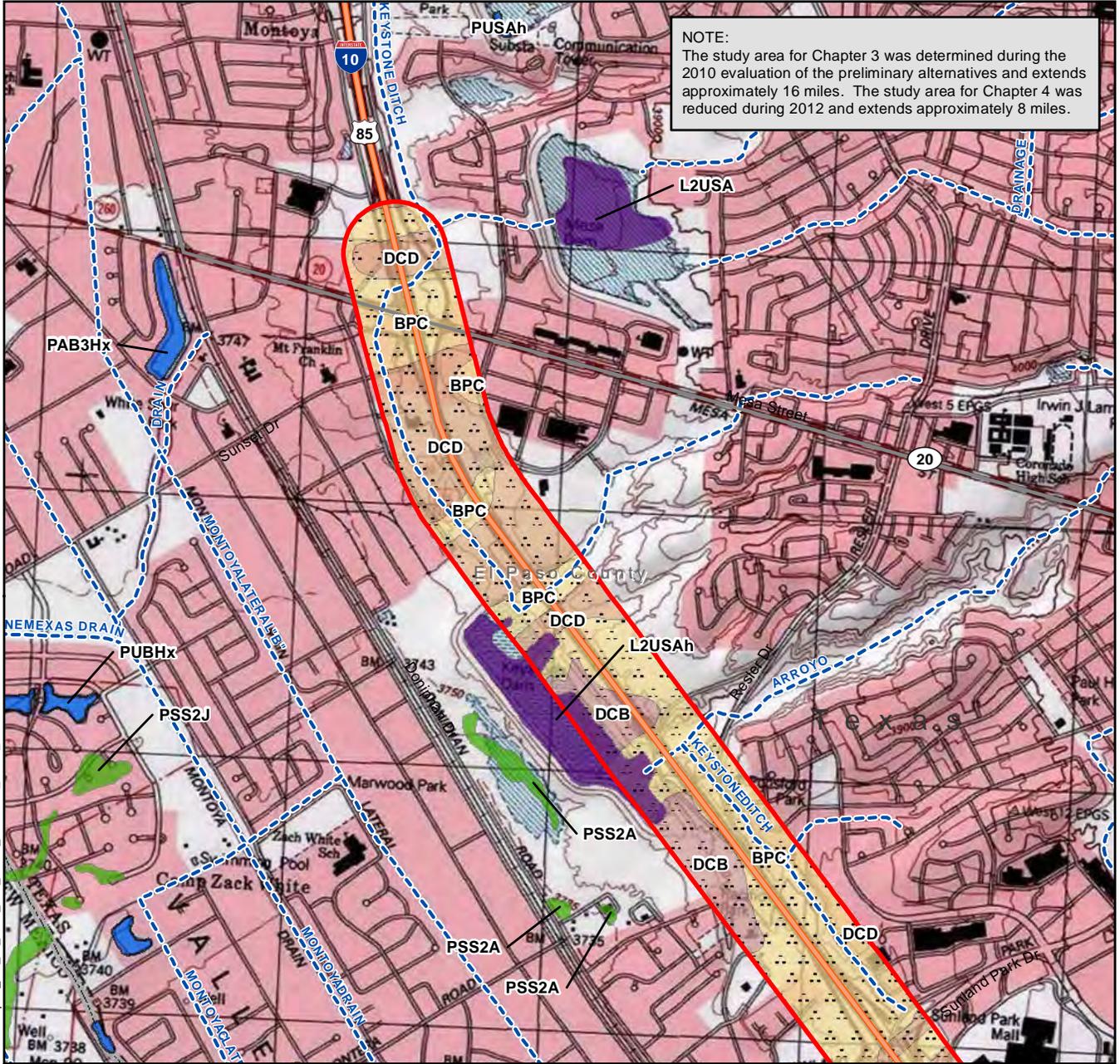
From Racetrack Drive to US 54

### Exhibit 3-10 Study Area Aquifers and Water Wells

El Paso County, Texas  
 CSJ: 2552-04-027

Path: \\usw001\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EX\HT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3\_11\_Soils\_and\_Water\_Resources\_within\_SA.mxd Date Saved: 7/25/2012

**NOTE:**  
The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.



NWI Wetlands		Soil Units	
	Estuarine and Marine Deepwater		IG, Igneous rock land
	Estuarine and Marine Wetland		Mg, Made land, gila soil material
	Freshwater Emergent Wetland		BPC, Bluepoint association, rolling
	Freshwater Forested/Shrub Wetland		DCD, Delnorte-Canutio association hilly
	Freshwater Pond		DCB, Delnorte-Canutio association, undulating
	Lake		W, Water
	Riverine		Other

Study Area

**Watershed**

- El Paso-Las Cruces. New Mexico, Texas.
- Rio Grande-Fort Quitman. Texas.

- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary
- Waterway

Scale: 1:24,000  
1" = 2,000'

0 1,000 2,000 Feet  
0 0.2 0.4 Miles

Sources

Study Area: HNTB, 2010  
Soil Survey: USDA, NRCS, 2007  
Wetland Data: USFWS NWI paper maps  
Smeltertown Quadrangle aerial photography, 1984  
El Paso Quadrangle aerial photography, 1984  
Ysleta NW Quadrangle aerial photography, 1984

This project does not cross international boundaries.

**Loop 375 Border Highway West Extension Project**

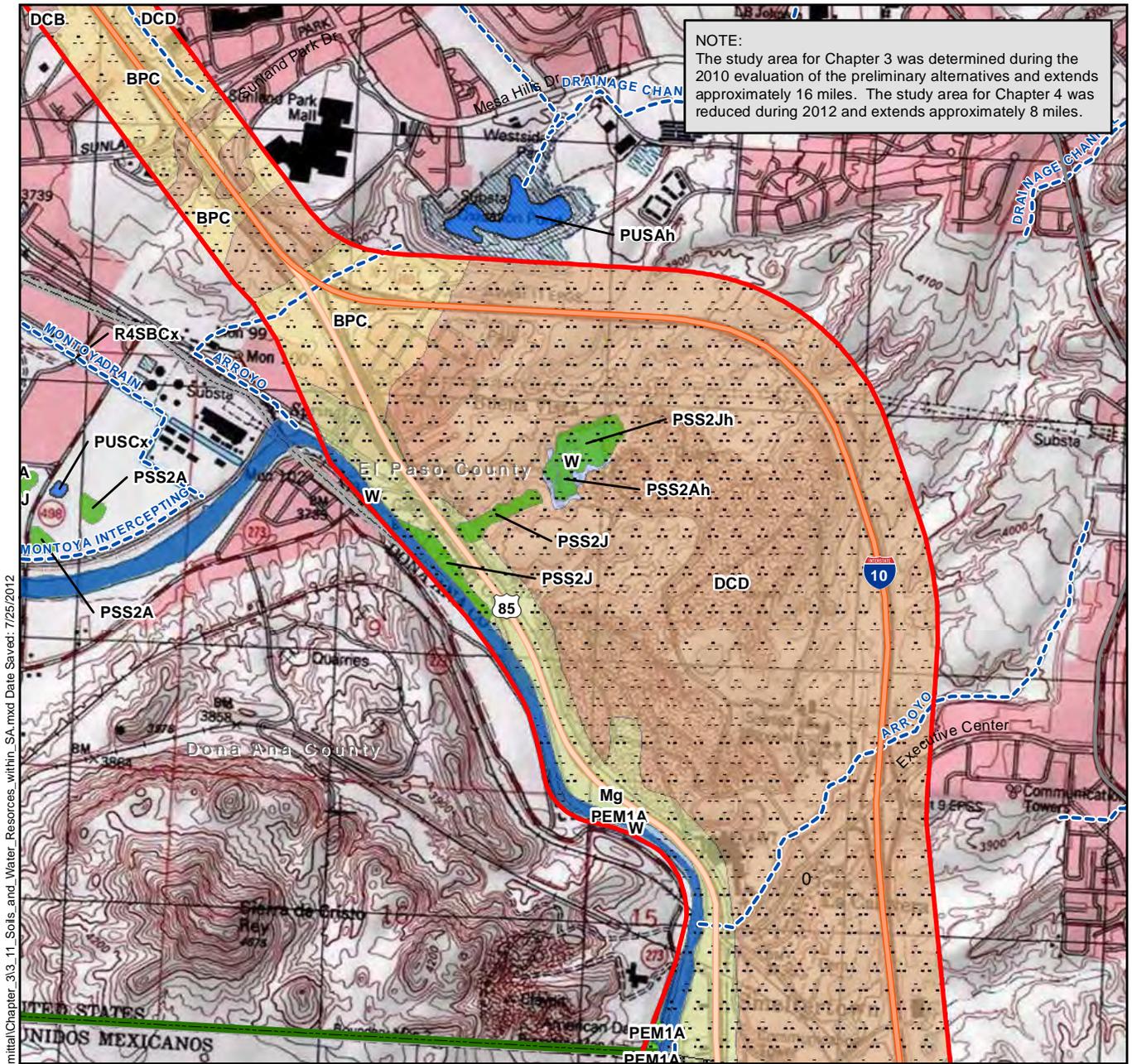
From Racetrack Drive to US 54

**Exhibit 3-11**  
**Soils and Water Resources Within Study Area**

Page 1 of 5

El Paso County, Texas  
CSJ: 2552-04-027

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Path: \\usw000\jobs\42085 Border Hwy West\Techprod\GIS\MX\DCB\EX\HT\PL\_010\DEIS\2nd\_Submittal\Chapter\_3\3\_11\_Soils\_and\_Water\_Resources\_within\_SA.mxd Date Saved: 7/25/2012

NWI Wetlands		Soil Units	
	Estuarine and Marine Deepwater		IG, Igneous rock land
	Estuarine and Marine Wetland		Mg, Made land, gila soil material
	Freshwater Emergent Wetland		Other
	Freshwater Forested/Shrub Wetland		DCB, Delnorte-Canutio association, undulating
	Freshwater Pond		W, Water
	Lake		
	Riverine		

Study Area

**Watershed**

- El Paso-Las Cruces. New Mexico, Texas.
- Rio Grande-Fort Quitman. Texas.

- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary
- Waterway

Scale: 1:24,000  
1" = 2,000'

0 1,000 2,000 Feet  
0 0.2 0.4 Miles

**Sources**

Study Area: HNTB, 2010  
Soil Survey: USDA, NRCS, 2007  
Wetland Data: USFWS NWI paper maps  
Smeltertown Quadrangle aerial photography, 1984  
El Paso Quadrangle aerial photography, 1984  
Ysleta NW Quadrangle aerial photography, 1984

## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-11

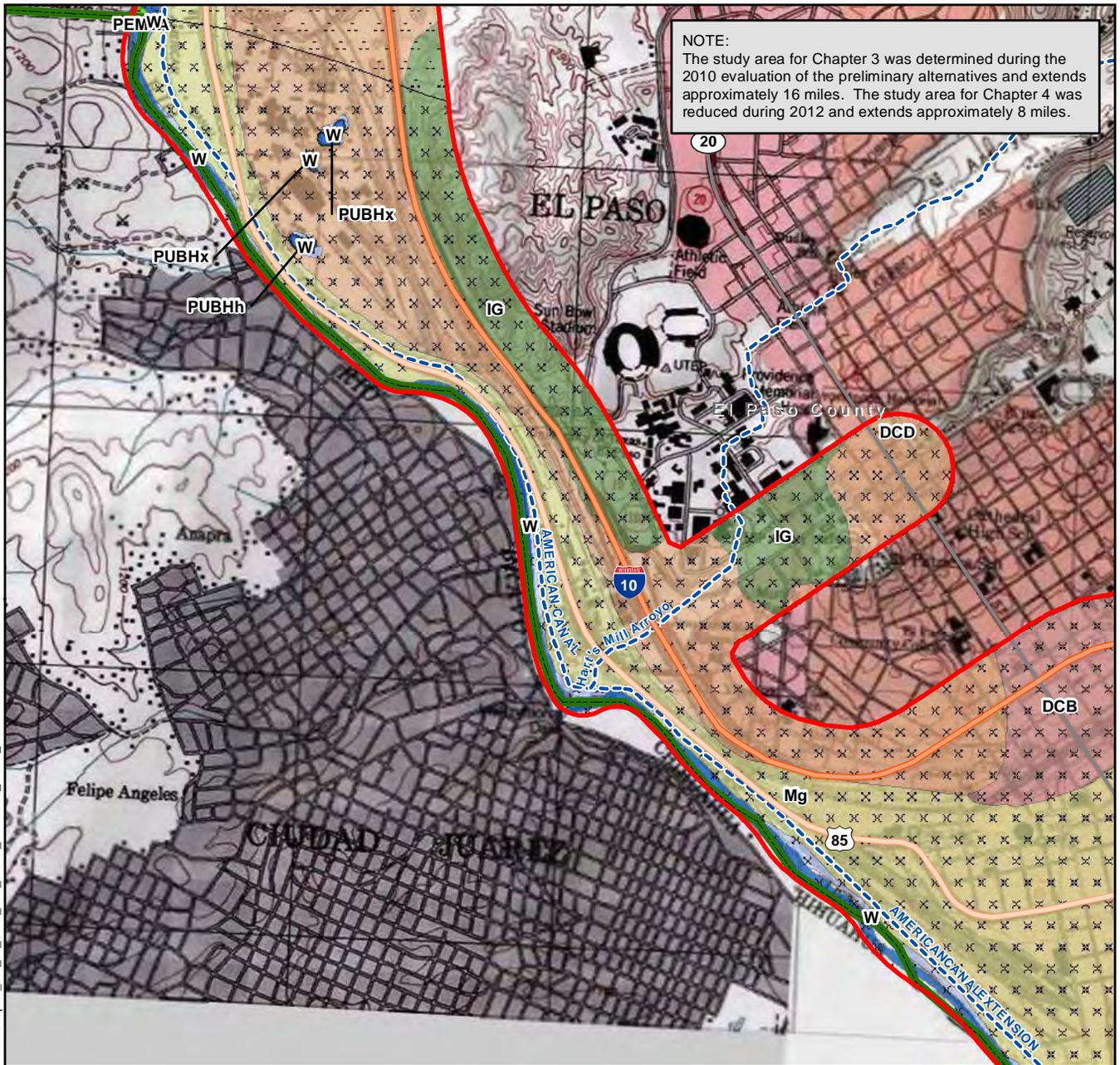
#### Soils and Water Resources Within Study Area

Page 2 of 5

El Paso County, Texas  
CSJ: 2552-04-027

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Path: \\ausv001\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EX\HT\PL\_010DEIS\2nd\_Submittal\Chapter\_3\3\_11\_Soils\_and\_Water\_Resources\_within\_SA.mxd Date Saved: 7/25/2012



**NOTE:**  
The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

**NWI Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

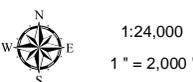
**Soil Units**

- IG, Igneous rock land
- Mg, Made land, gila soil material
- BPC, Bluepoint association, rolling
- DCD, Delnorte-Canutio association hilly
- DCB, Delnorte-Canutio association, undulating
- W, Water

Study Area

**Watershed**

- El Paso-Las Cruces. New Mexico, Texas.
- Rio Grande-Fort Quitman. Texas.
- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary
- Waterway



**Sources**  
Study Area: HNTB, 2010  
Soil Survey: USDA, NRCS, 2007  
Wetland Data: USFWS NWI paper maps  
Smeltertown Quadrangle aerial photography, 1984  
El Paso Quadrangle aerial photography, 1984  
Ysleta NW Quadrangle aerial photography, 1984



**Loop 375 Border Highway West Extension Project**

From Racetrack Drive to US 54

**Exhibit 3-11  
Soils and Water Resources  
Within Study Area**

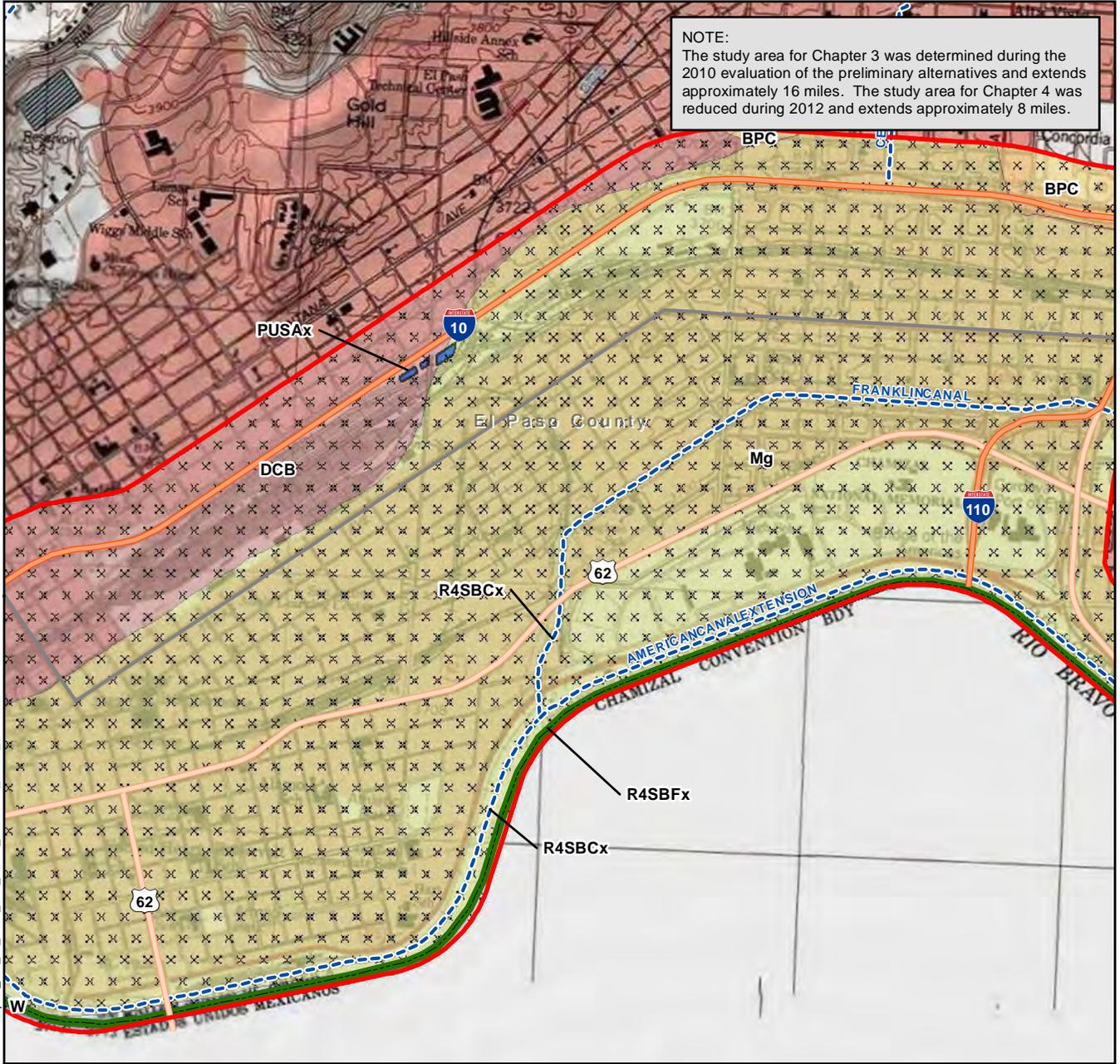
Page 3 of 5

El Paso County, Texas  
CSJ: 2552-04-027

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**NOTE:**  
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NWI Wetlands		Soil Units	
	Estuarine and Marine Deepwater		IG, Igneous rock land
	Estuarine and Marine Wetland		Mg, Made land, gila soil material
	Freshwater Emergent Wetland		BPC, Bluepoint association, rolling
	Freshwater Forested/Shrub Wetland		DCB, Delnorte-Canutio association hilly
	Freshwater Pond		DCB, Delnorte-Canutio association, undulating
	Lake		W, Water
	Other		
	Riverine		

Study Area

**Watershed**

- El Paso-Las Cruces. New Mexico, Texas.
- Rio Grande-Fort Quitman. Texas.

- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary
- Waterway

Scale: 1:24,000  
1" = 2,000'

Scale: 0 to 2,000 Feet  
0 to 0.4 Miles

New Mexico  
Dona Ana Otero

United States  
Mexico

El Paso Texas  
Hudspeth

Mexico

This project does not cross international boundaries.

**Sources**

Study Area: HNTB, 2010  
Soil Survey: USDA, NRCS, 2007  
Wetland Data: USFWS NWI paper maps  
Smeltertown Quadrangle aerial photography, 1984  
El Paso Quadrangle aerial photography, 1984  
Ysleta NW Quadrangle aerial photography, 1984

**Loop 375 Border Highway West Extension Project**

From Racetrack Drive to US 54

**Exhibit 3-11**  
**Soils and Water Resources Within Study Area**

Page 4 of 5

El Paso County, Texas  
CSJ: 2552-04-027

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**NOTE:**  
The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

NWI Wetlands		Soil Units	
	Estuarine and Marine Deepwater		IG, Igneous rock land
	Estuarine and Marine Wetland		Mg, Made land, gila soil material
	Freshwater Emergent Wetland		BPC, Bluepoint association, rolling
	Freshwater Forested/Shrub Wetland		W, Water
	Freshwater Pond		DCD, Delnorte-Canutio association hilly
	Lake		DCB, Delnorte-Canutio association, undulating
	Other		
	Riverine		

Study Area

**Watershed**

- El Paso-Las Cruces. New Mexico, Texas.
- Rio Grande-Fort Quitman. Texas.

- Interstate
- US Highway
- State Highway
- Local Street
- International Boundary
- Waterway

Scale: 1:24,000  
1" = 2,000'

0 1,000 2,000 Feet  
0 0.2 0.4 Miles

New Mexico  
Dona Ana Otero

United States  
Mexico

El Paso Texas  
Hudspeth

Mexico

This project does not cross international boundaries.

**Sources**

Study Area: HNTB, 2010  
Soil Survey: USDA, NRCS, 2007  
Wetland Data: USFWS NWI paper maps  
Smeltertown Quadrangle aerial photography, 1984  
El Paso Quadrangle aerial photography, 1984  
Ysleta NW Quadrangle aerial photography, 1984

**Loop 375 Border Highway West Extension Project**

From Racetrack Drive to US 54

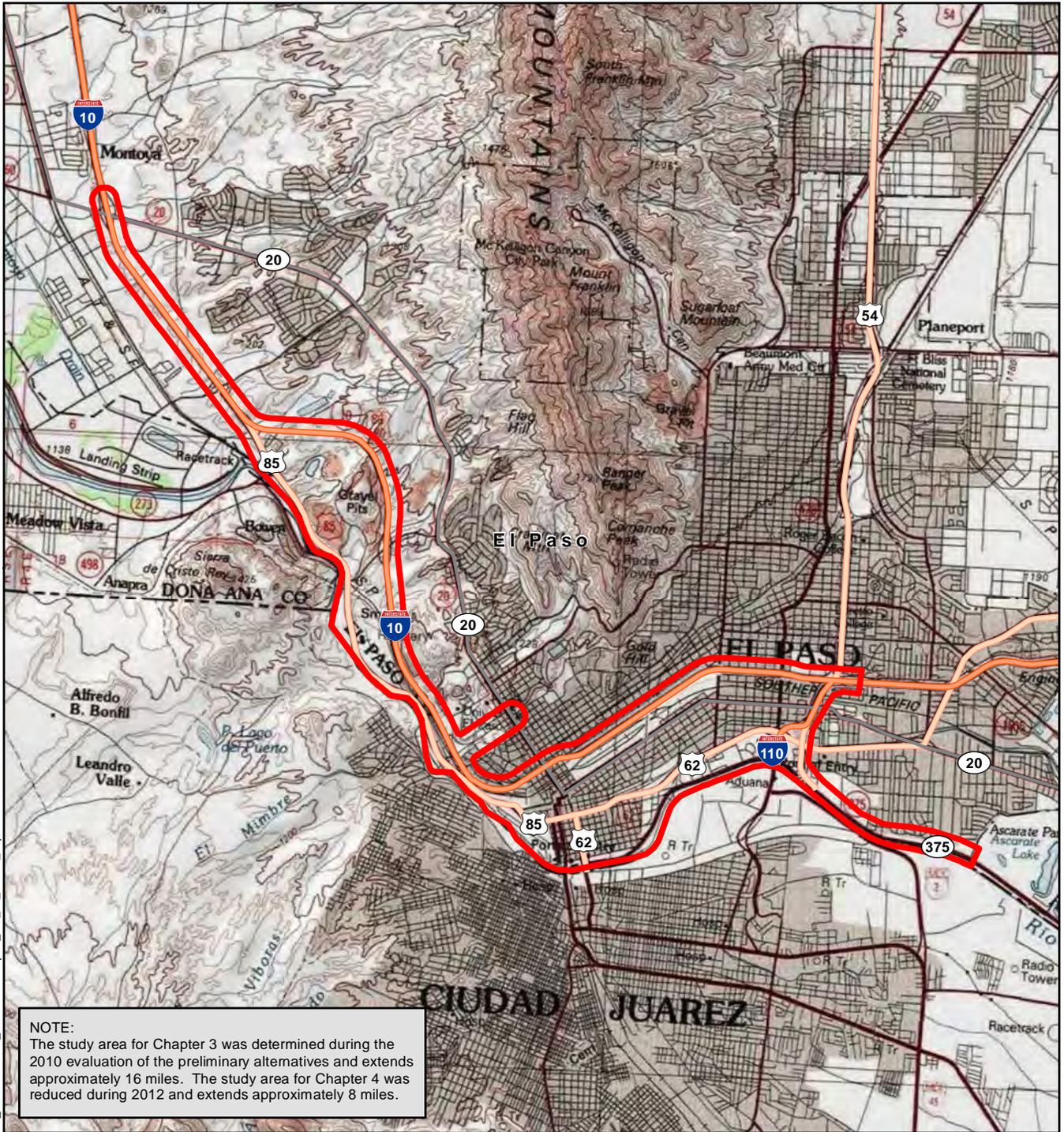
**Exhibit 3-11**  
**Soils and Water Resources Within Study Area**

Page 5 of 5

El Paso County, Texas  
CSJ: 2552-04-027

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**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

**Legend**

- Study Area
- USGS 24k Quad Sheet Boundary
- Interstate
- US Highway
- State Highway

**Scale**

1:96,000  
 1" = 8,000'

0 4,000 8,000 Feet  
 0 1 2 Miles

**North Arrow**

**Sources**

Study Area: HNTB, 2010  
 El Paso Quadrangle: USGS 100k Series, 1985

This project does not cross international boundaries.

**Texas Department of Transportation**

**Loop 375 Border Highway West Extension Project**

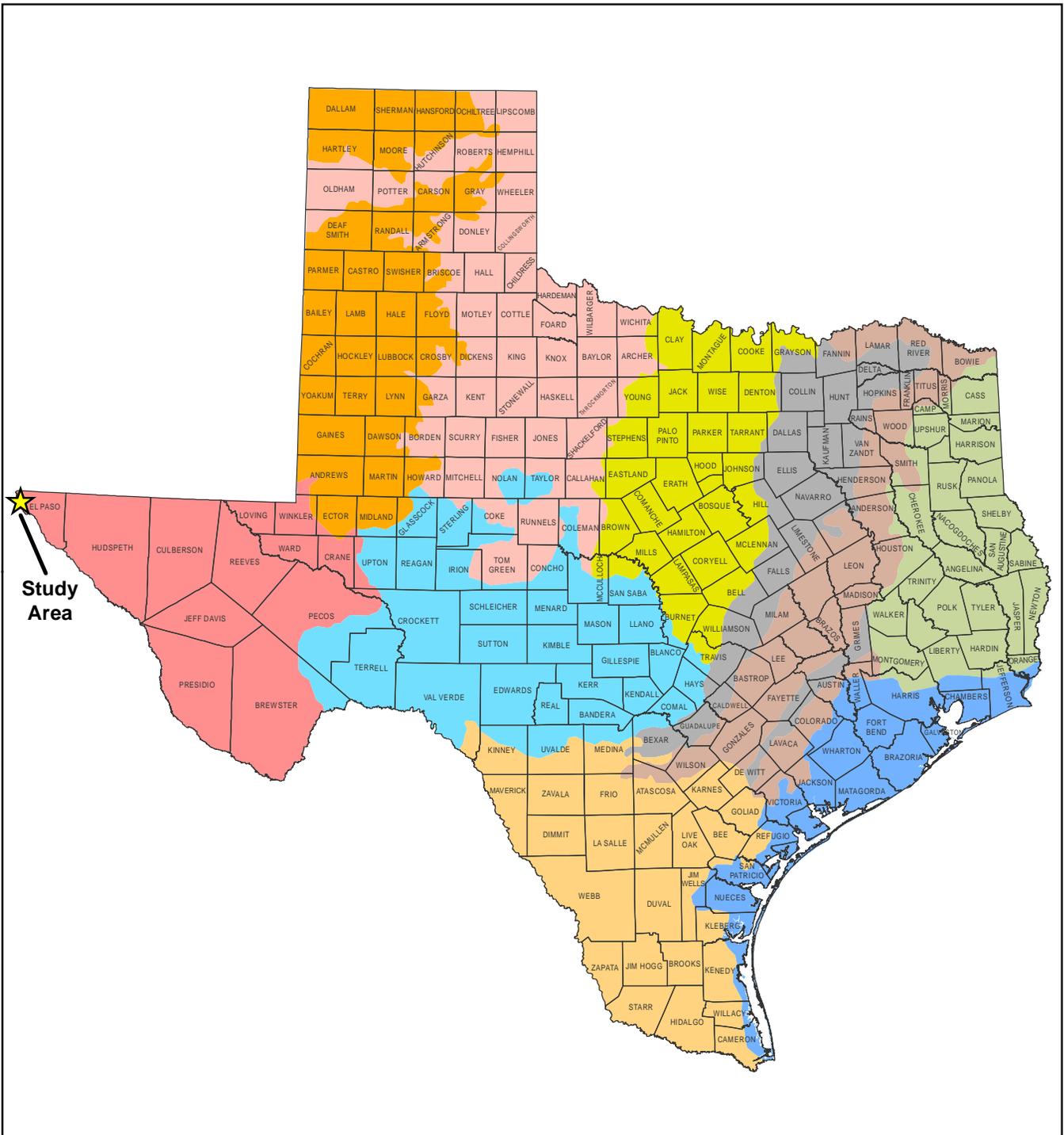
From Racetrack Drive to US 54

**Exhibit 3-12**  
**USGS Topo Map**

El Paso County, Texas  
 CSJ: 2552-04-027

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Path: \\Ausw00\jobs\42085 Border Hwy West\Tech\proj\GIS\MX\DEX\HBT\PL\_01\0\DE\I\st\_Submittal\Chapter\_3\2012\_02\_02\3\_13\_Gould\_Ecoregions.mxd Date Saved: 7/25/2012



- |  |                   |  |                    |
|--|-------------------|--|--------------------|
|  | Blackland Prairie |  | Piney Woods        |
|  | Cross Timbers     |  | Post Oak Savannah  |
|  | Edwards Plateau   |  | Rolling Plains     |
|  | Gulf Prairies     |  | South Texas Plains |
|  | High Plains       |  | Trans-Pecos        |



1:7,159,145  
1" = 596,595'



**Sources**  
Gould Ecoregions: TPWD - Gould, F.W., Hoffman, G.O., and Rechenhain, C.A. 1960. Vegetational areas of Texas, Texas A & M University. Texas Agricultural Experiment Station, Leaflet No. 492 (here modified by the Texas Parks and Wildlife).



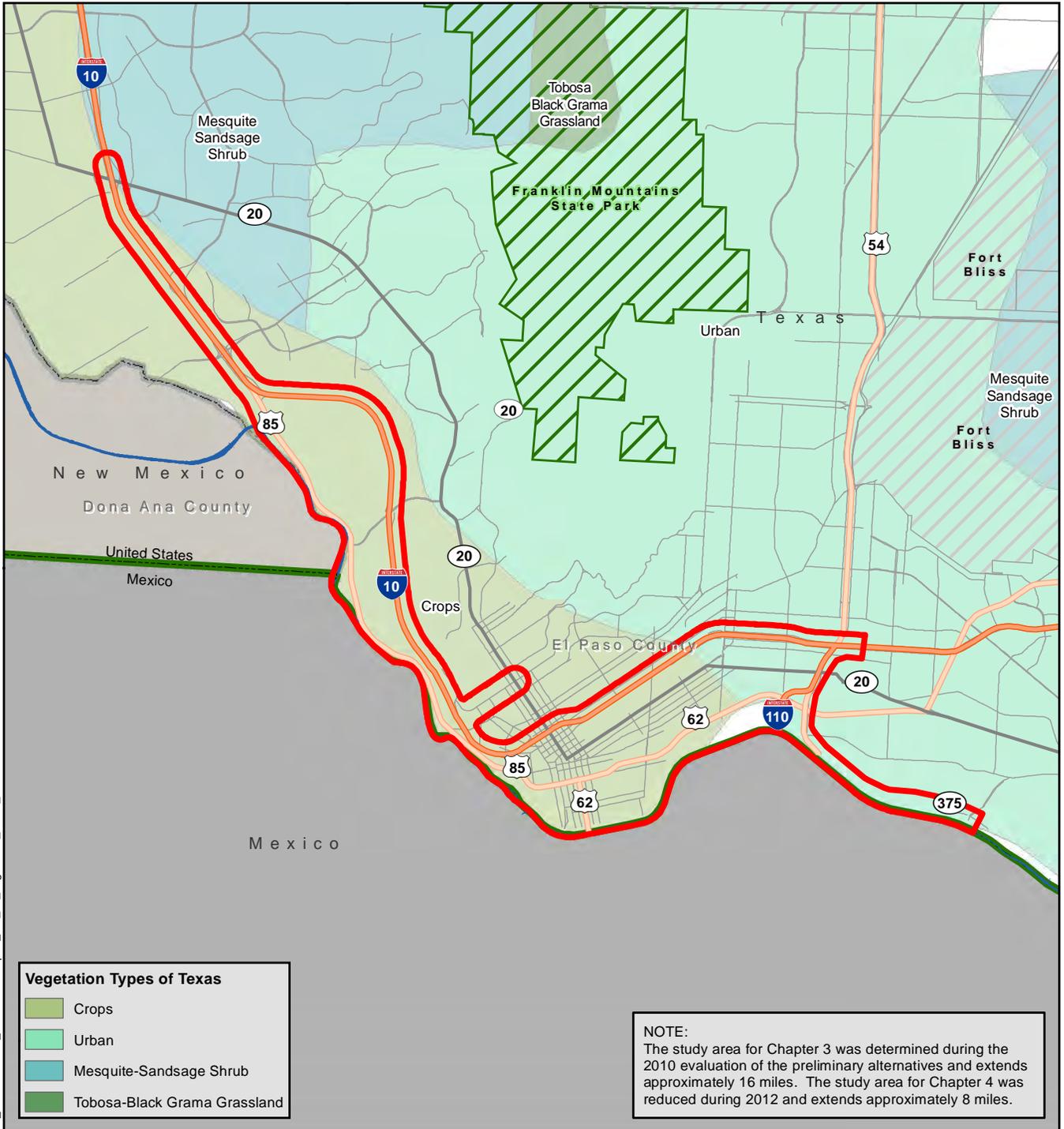
## Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

### Exhibit 3-13 Gould Ecoregions of Texas

El Paso County, Texas  
CSJ: 2552-04-027

Path: \\Aus000\jobs\42085 Border Hwy West\Techprod\GIS\MX\DEX\HT\PL\_010\DEIS\2nd\_Submittal\Chapter\_3\3\_14\_vegetation\_within\_SA.mxd Date Saved: 8/29/2012



**Vegetation Types of Texas**

- Crops
- Urban
- Mesquite-Sandsage Shrub
- Tobosa-Black Grama Grassland

**NOTE:**  
 The study area for Chapter 3 was determined during the 2010 evaluation of the preliminary alternatives and extends approximately 16 miles. The study area for Chapter 4 was reduced during 2012 and extends approximately 8 miles.

<span style="border: 2px solid red; padding: 2px;"> </span> Study Area	<span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> Interstate
<span style="border: 2px dashed green; padding: 2px;"> </span> Franklin Mountains State Park	<span style="border-bottom: 2px solid orange; width: 20px; display: inline-block;"></span> US Highway
<span style="border: 1px dashed gray; padding: 2px;"> </span> Fort Bliss	<span style="border-bottom: 2px solid gray; width: 20px; display: inline-block;"></span> State Highway
<span style="border: 1px solid gray; padding: 2px;"> </span> Texas	<span style="border-bottom: 2px solid gray; width: 20px; display: inline-block;"></span> Local Street
<span style="border: 1px solid gray; padding: 2px;"> </span> New Mexico	<span style="border-bottom: 2px solid green; width: 20px; display: inline-block;"></span> International Boundary
<span style="background-color: gray; width: 20px; height: 10px; display: inline-block;"></span> Mexico	



**Loop 375 Border Highway West Extension Project**

From Racetrack Drive to US 54

**Exhibit 3-14  
 Vegetation Types of Texas**

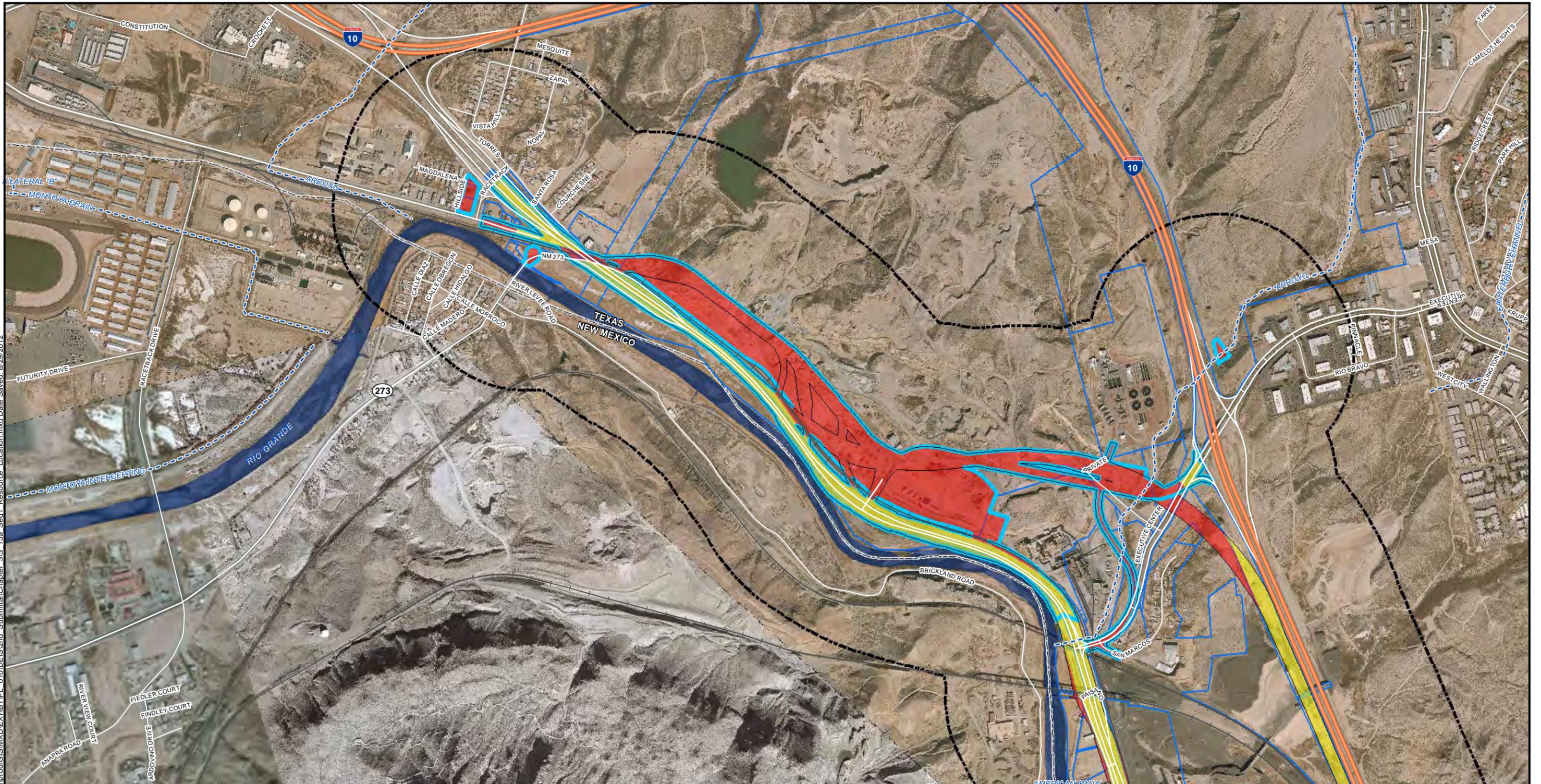
El Paso County, Texas  
 CSJ: 2552-04-027



**Sources**  
 Study Area: HNTB, 2010  
 Vegetation: TPWD, 1976

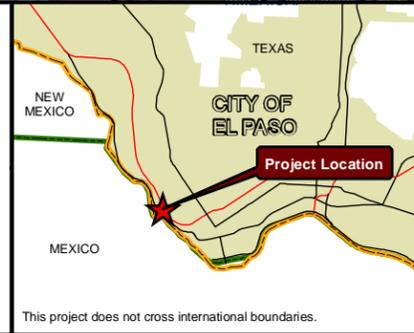
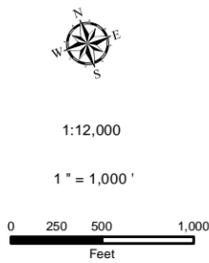
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Data Sources:  
 Waterway: City of El Paso, 2012  
 Railroads: City of El Paso, 2005  
 SSA, APE: HNTB, 2012  
 Right-of-Way: Half and Associates, 2012  
 Parcels: City of El Paso, 2012  
 Right-of-Way, BHW Project: Half and Assoc., 2012  
 Aerials: TxDOT, 2009

- |                        |                   |                       |
|------------------------|-------------------|-----------------------|
| Waterway               | Local Road        | Parcels within APE    |
| International Boundary | State Boundary    | BHW Project Boundary  |
| Railroad               | Survey Study Area | Existing Right-of-Way |
| Interstate             | APE Segment 1     | Proposed Right-of-Way |

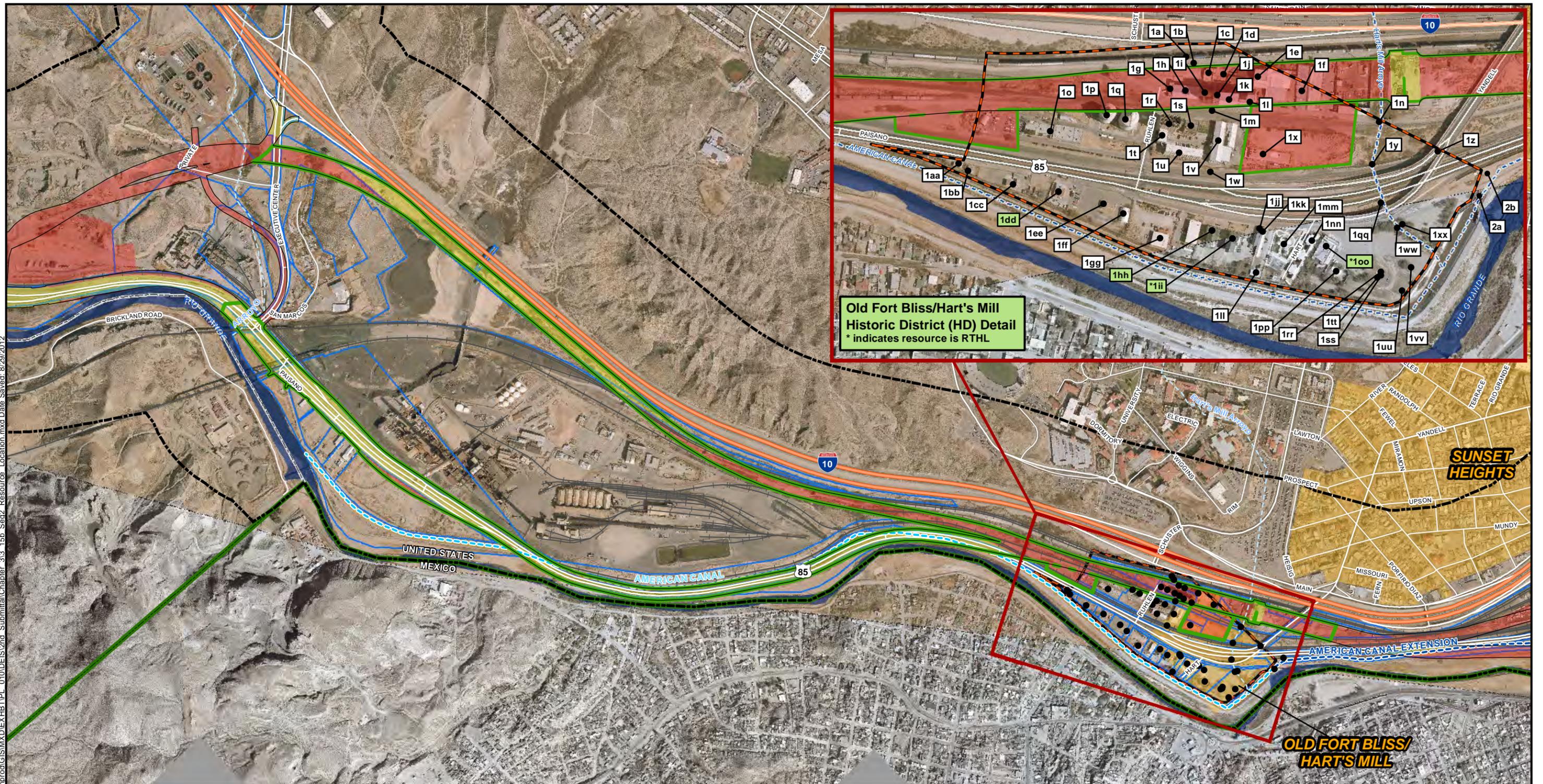


**Loop 375 Border Highway  
 West Extension Project**  
 Segment 1 - From Racetrack Drive to Executive Center Blvd.  
**Exhibit 3-15a**  
 Segment 1 Historic Resource Location Map  
 No NRHP-Listed or SAL Resources in Segment 1

El Paso County, Texas  
 CSJ: 2552-04-027

DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

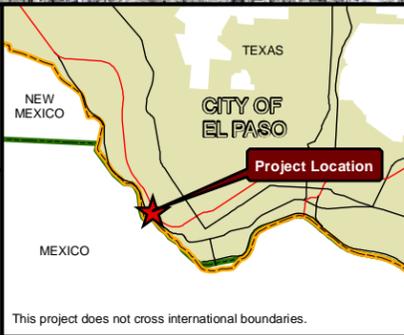
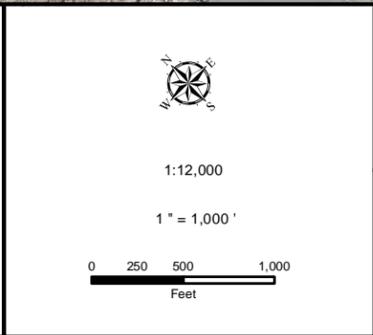
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**Old Fort Bliss/Hart's Mill  
Historic District (HD) Detail**  
\* indicates resource is RTHL

**Data Sources:**  
 Contributing Resources: HNTB, 2012  
 SAL: Texas Historical Commission's  
 Texas Historic Sites Atlas and field investigation, 2012  
 Waterway: City of El Paso, 2012  
 Railroads: City of El Paso, 2005  
 SSA, APE: HNTB, 2012  
 Right-of-Way: Half and Associates, 2012  
 Parcels: City of El Paso, 2012  
 Right-of-Way, BHW Project: Half and Assoc., 2012  
 Aerials: TxDOT, 2009

- |   |                          |   |
|---|--------------------------|---|
| ● Segment 2 Resource                      | — International Boundary | ▭ Recommended Revised Boundary for the NRHP-listed Old Fort Bliss/Hart's Mill Historic District |
| ▭ Non-Contributing Resource               | — Railroad               | ▭ Parcels within APE  |
| ▭ NRHP-Listed/ NRHP-Contributing Resource | — Interstate             | ▭ BHW Project Boundary  |
| — Other Waterway                          | — Local Road             | ▭ Existing Right-of-Way   |
| — American Canal                          | — State Boundary         | ▭ Proposed Right-of-Way   |
| — American Canal Extension                | ▭ APE Segment 2          | ▭ NRHP-Listed Historic District   |
| — Franklin Canal                          | ▭ Survey Study Area      |   |



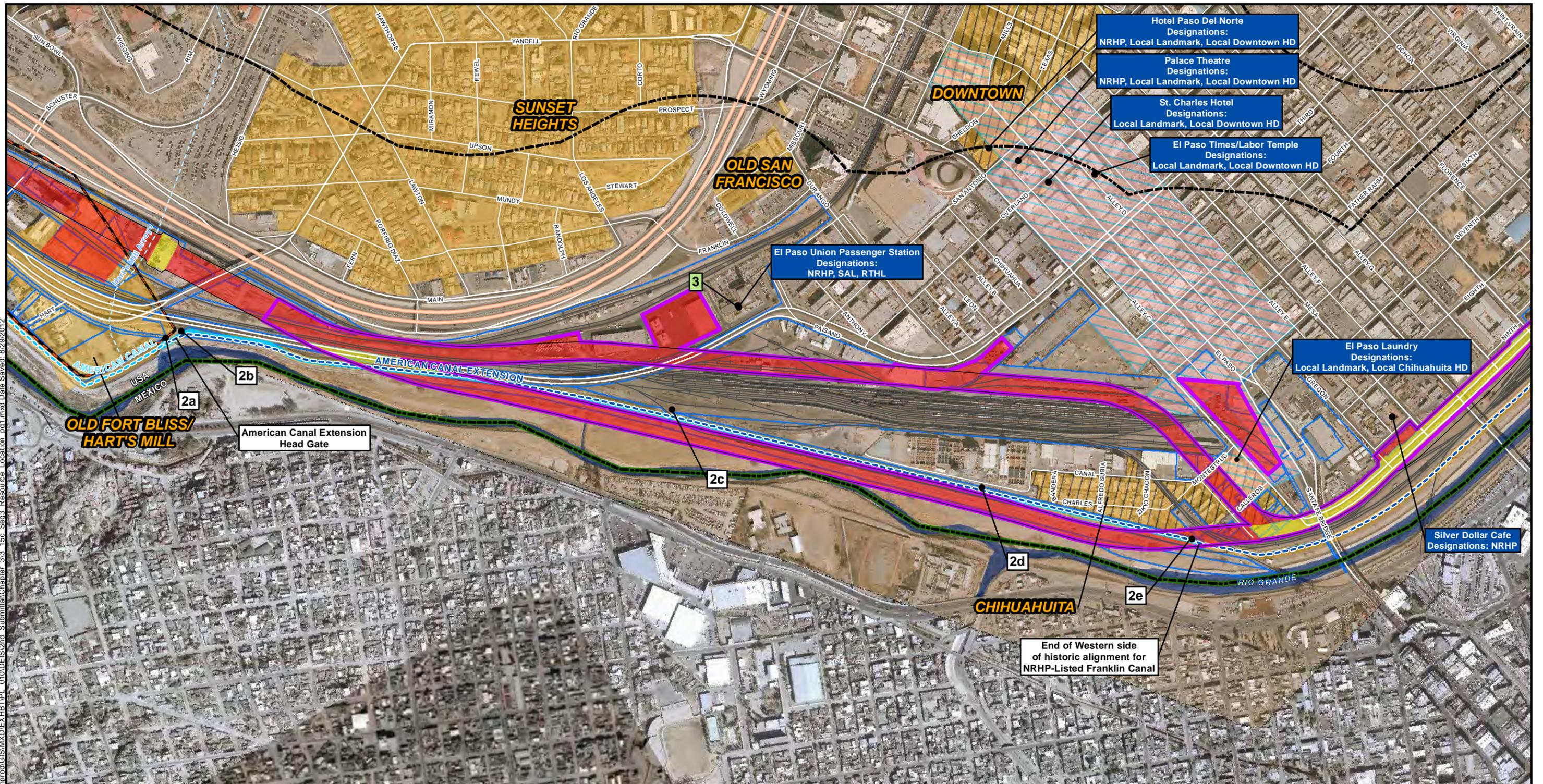
**Texas Department of Transportation**

**Loop 375 Border Highway West Extension Project**  
 Segment 2 - From Executive Center Drive to Fern Way  
**Exhibit 3-15b**  
 Segment 2 Historic Resource Location Map

El Paso County, Texas  
 CSJ: 2552-04-027

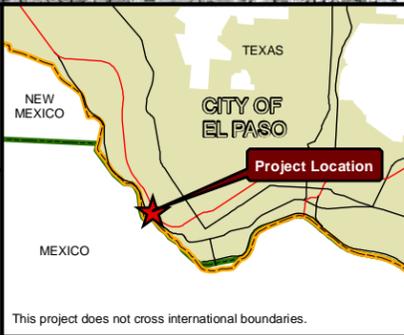
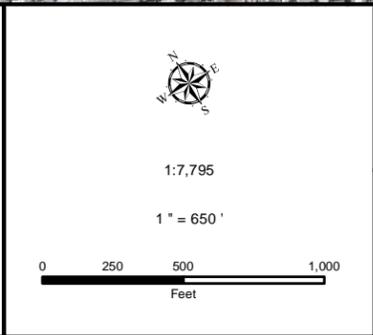
DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

Path: \\uasw00\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EXHIBIT\PL\_010\DEIS\2nd Submittal\Chapter 3-15c Seg3 Resource Location.mxd Date Saved: 8/29/2012



**Data Sources:**  
 Contributing Resources: HNTB, 2012  
 SAL & NRHP sites: Texas Historical Commission's Texas Historic Sites Atlas and field investigation, 2012  
 Waterway: City of El Paso, 2012  
 Railroads: City of El Paso, 2005  
 SSA, APE: HNTB, 2012  
 Right-of-Way: Half and Associates, 2012  
 Parcels: City of El Paso, 2012  
 Right-of-Way, BHW Project: Half and Assoc., 2012  
 Aerials: TxDOT, 2009

- |  |   |   |
|--|---|---|
| <ul style="list-style-type: none"> <li>● Segment 3 Resource</li> <li>HD Non-Contributing Resource</li> <li>## NRHP-Listed/ NRHP-Contributing Resource</li> <li>— Interstate</li> <li>— Other Waterway</li> <li>— American Canal</li> <li>— American Canal Extension</li> <li>— Franklin Canal</li> </ul> | <ul style="list-style-type: none"> <li>International Boundary</li> <li>Railroad</li> <li>Local Road</li> <li>State Boundary</li> <li>APE Segment 3</li> <li>Historic American Building Survey Historic District</li> <li>Recommended Revised Boundary for the NRHP-listed Old Fort Bliss/Hart's Mill Historic District</li> </ul> | <ul style="list-style-type: none"> <li>Canal Features</li> <li>Parcels within APE</li> <li>BHW Project Boundary</li> <li>Existing Right-of-Way</li> <li>Proposed Right-of-Way</li> <li>Local Historic District</li> <li>NRHP-Listed Historic District</li> <li>Survey Study Area</li> </ul> |
|--|---|---|





## Loop 375 Border Highway West Extension Project

Segment 3 - From Fern Way to 1/2-mile East of Coles Street

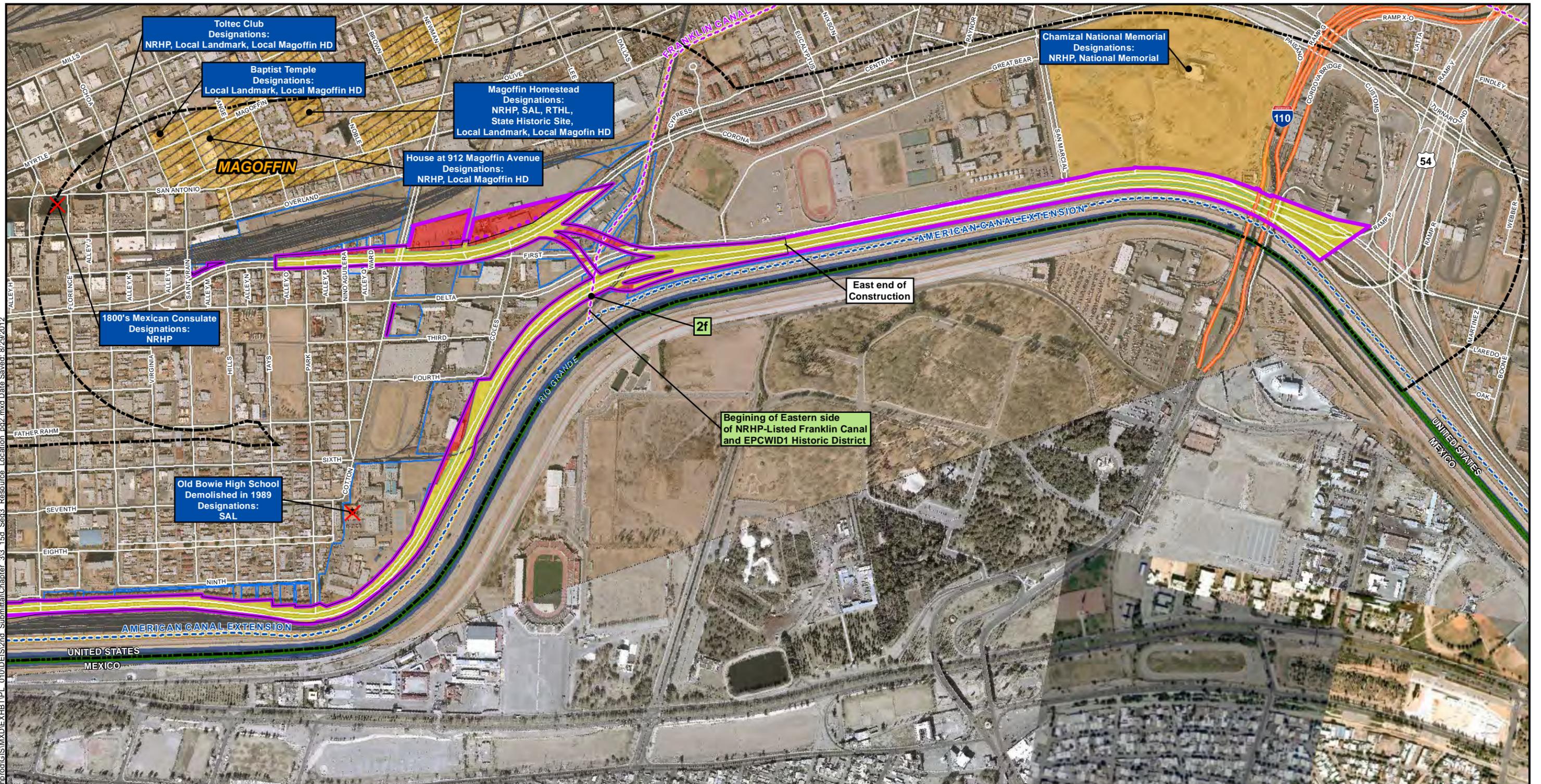
### Exhibit 3-15c

#### Segment 3 Historic Resource Location Map

Page 1 of 2  
El Paso County, Texas  
CSJ: 2552-04-027

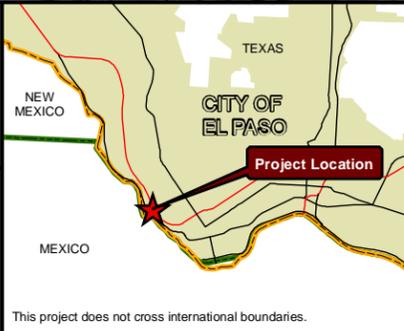
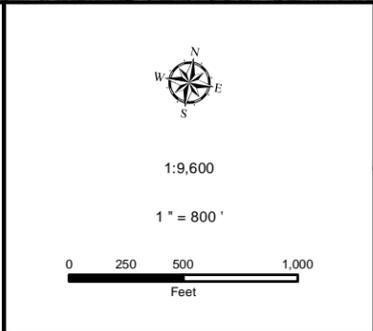
DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

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**Data Sources:**  
 Contributing Resources: HNTB, 2012  
 SAL & NRHP sites: Texas Historical Commission's Texas Historic Sites Atlas and field investigation, 2012  
 Waterway: City of El Paso, 2012  
 Railroads: City of El Paso, 2005  
 SSA, APE: HNTB, 2012  
 Right-of-Way: Half and Associates, 2012  
 Parcels: City of El Paso, 2012  
 Right-of-Way, BHW Project: Half and Assoc., 2012  
 Aerials: TxDOT, 2009

● Segment 3 Resource	— Railroad	□ Parcels within APE
■ NRHP-Listed/ NRHP-Contributing Resource	— International Boundary	□ BHW Project Boundary
✗ Nonexistant Building	— Interstate	■ Existing Right-of-Way
--- Other Waterway	— Local Road	■ Proposed Right-of-Way
--- American Canal	— State Boundary	■ NRHP-Listed Historic District
--- American Canal Extension	□ APE Segment 3	■ Local Historic District
--- Franklin Canal	□ Survey Study Area	






## Loop 375 Border Highway West Extension Project

Segment 3 - From Fern Way to 1/2-mile East of Coles Street

### Exhibit 3-15d

### Segment 3 Historic Resource Location Map

Page 2 of 2  
 El Paso County, Texas  
 CSJ: 2552-04-027

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